

## Symbols

|                 |                                                         |
|-----------------|---------------------------------------------------------|
| $C_J$           | Junction Capacitance                                    |
| $I_F$           | DC Forward Current                                      |
| $I_{(AV)}$      | Average Forward Rectifier Current                       |
| $I_{FSM}$       | Peak Forward Surge Current                              |
| $I_R$           | Reverse Current                                         |
| $I_{RSM}$       | Maximum Non-Repetitive Peak Current                     |
| $I_O$           | Mean Forward Current                                    |
| $I_T$           | On-State Test Current                                   |
| $I_{PPM}$       | Maximum peak impulse Current                            |
| $I^2t$          | Rating for Fusing                                       |
| $P_D$           | Steady State Power Dissipation                          |
| $P_{PK}$        | Peak Power Dissipation                                  |
| $R_{\Theta JA}$ | Thermal Resistance (Junction to Ambient)                |
| $R_{\Theta JC}$ | Thermal Resistance (Junction to Case)                   |
| $R_{\Theta JL}$ | Thermal Resistance (Junction to Lead)                   |
| $T_a$           | Ambient Temperature                                     |
| $T_c$           | Case Temperature                                        |
| $T_J$           | Junction Temperature                                    |
| $T_L$           | Lead Temperature                                        |
| $T_{tp}$        | Tie-Point Temperature                                   |
| $T_{rr}$        | Reverse Recovery Time                                   |
| $V_{(BR)}$      | Reverse Breakdown Voltage                               |
| $V_F$           | Forward Voltage                                         |
| $V_R$           | Reverse Voltage                                         |
| $V_{RM}$        | Maximum Recurrent Peak Reverse Voltage                  |
| $V_{RMS}$       | RMS Input Voltage                                       |
| $V_{RSM}$       | Maximum Reverse Voltage (Clamping Voltage) at $I_{RSM}$ |
| $V_{RRM}$       | Repetitive Peak Reverse Voltage                         |
| $V_{RWM}$       | Working Peak Reverse Voltage (Stand-off Voltage)        |
| $V_Z$           | Zener Voltage                                           |
| $Z_{ZK}$        | Zener Impedance at $I_{ZK}$                             |
| $Z_{ZT}$        | Zener Impedance at $I_{ZT}$                             |



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# Silicon Rectifier Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.   |     | Max. Average Forward Rectified Current |      | Max. Repetitive Peak Reverse Voltage | Max. Repetitive Peak Forward Current | Max. Peak Forward Surge Current | Max. Forward Voltage Drop at Ta = 25°C |      | Max. Reverse Current at Ta = 25°C |
|------------|-----|----------------------------------------|------|--------------------------------------|--------------------------------------|---------------------------------|----------------------------------------|------|-----------------------------------|
|            |     | IF(AV)                                 | @ Ta | VRRM                                 | IFRM                                 | IFSM                            | VF                                     | @ IF | IR                                |
| Axial Lead | SMD | (A)                                    | (°C) | (V)                                  | (A)                                  | (A)                             | (V)                                    | (A)  | (μA)                              |

## 1A1 Series, 1 A, Case Type: R-1



|     |  |     |    |      |   |    |     |     |     |
|-----|--|-----|----|------|---|----|-----|-----|-----|
| 1A1 |  | 1.0 | 50 | 50   | - | 30 | 1.1 | 1.0 | 5.0 |
| 1A2 |  | 1.0 | 50 | 100  | - | 30 | 1.1 | 1.0 | 5.0 |
| 1A3 |  | 1.0 | 50 | 200  | - | 30 | 1.1 | 1.0 | 5.0 |
| 1A4 |  | 1.0 | 50 | 400  | - | 30 | 1.1 | 1.0 | 5.0 |
| 1A5 |  | 1.0 | 50 | 600  | - | 30 | 1.1 | 1.0 | 5.0 |
| 1A6 |  | 1.0 | 50 | 800  | - | 30 | 1.1 | 1.0 | 5.0 |
| 1A7 |  | 1.0 | 50 | 1000 | - | 30 | 1.1 | 1.0 | 5.0 |

## 1N4001/SN1A Series, 1 A, Case Type: DO-41/SMA



|        |      |     |    |      |    |    |     |     |     |
|--------|------|-----|----|------|----|----|-----|-----|-----|
| 1N4001 | SN1A | 1.0 | 75 | 50   | 10 | 30 | 1.0 | 1.0 | 5.0 |
| 1N4002 | SN1B | 1.0 | 75 | 100  | 10 | 30 | 1.0 | 1.0 | 5.0 |
| 1N4003 | SN1D | 1.0 | 75 | 200  | 10 | 30 | 1.0 | 1.0 | 5.0 |
| 1N4004 | SN1G | 1.0 | 75 | 400  | 10 | 30 | 1.0 | 1.0 | 5.0 |
| 1N4005 | SN1J | 1.0 | 75 | 600  | 10 | 30 | 1.0 | 1.0 | 5.0 |
| 1N4006 | SN1K | 1.0 | 75 | 800  | 10 | 30 | 1.0 | 1.0 | 5.0 |
| 1N4007 | SN1M | 1.0 | 75 | 1000 | 10 | 30 | 1.0 | 1.0 | 5.0 |
| BY133  | SN13 | 1.0 | 75 | 1300 | 10 | 30 | 1.0 | 1.0 | 5.0 |

## BYW27/SNWA Series, 1 A, Case Type: DO-41/SMA



|            |      |     |    |      |    |    |     |     |     |
|------------|------|-----|----|------|----|----|-----|-----|-----|
| BYW27-50   | SNWA | 1.0 | 70 | 50   | 10 | 50 | 1.0 | 1.0 | 0.2 |
| BYW27-100  | SNWB | 1.0 | 70 | 100  | 10 | 50 | 1.0 | 1.0 | 0.2 |
| BYW27-200  | SNWD | 1.0 | 70 | 200  | 10 | 50 | 1.0 | 1.0 | 0.2 |
| BYW27-400  | SNWG | 1.0 | 70 | 400  | 10 | 50 | 1.0 | 1.0 | 0.2 |
| BYW27-600  | SNWJ | 1.0 | 70 | 600  | 10 | 50 | 1.0 | 1.0 | 0.2 |
| BYW27-800  | SNWK | 1.0 | 70 | 800  | 10 | 50 | 1.0 | 1.0 | 0.2 |
| BYW27-1000 | SNWM | 1.0 | 70 | 1000 | 10 | 50 | 1.0 | 1.0 | 0.2 |

## 11E1 Series, 1 A, Case Type: DO-41



|      |  |     |    |     |   |    |     |     |    |
|------|--|-----|----|-----|---|----|-----|-----|----|
| 11E1 |  | 1.0 | 40 | 100 | - | 45 | 1.0 | 1.0 | 50 |
| 11E2 |  | 1.0 | 40 | 200 | - | 45 | 1.0 | 1.0 | 50 |
| 11E4 |  | 1.0 | 40 | 400 | - | 45 | 1.0 | 1.0 | 10 |
| 11E6 |  | 1.0 | 40 | 600 | - | 45 | 1.0 | 1.0 | 10 |

## 11ES1 Series, 1 A, Case Type: DO-41



|       |  |     |    |     |   |    |     |     |    |
|-------|--|-----|----|-----|---|----|-----|-----|----|
| 11ES1 |  | 1.0 | 40 | 100 | - | 45 | 1.0 | 1.0 | 50 |
| 11ES2 |  | 1.0 | 40 | 200 | - | 45 | 1.0 | 1.0 | 50 |



# Silicon Rectifier Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.   |     | Max. Average Forward Rectified Current |      | Max. Repetitive Peak Reverse Voltage | Max. Repetitive Peak Forward Current | Max. Peak Forward Surge Current | Max. Forward Voltage Drop at Ta = 25°C |      | Max. Reverse Current at Ta = 25°C |
|------------|-----|----------------------------------------|------|--------------------------------------|--------------------------------------|---------------------------------|----------------------------------------|------|-----------------------------------|
|            |     | IF(AV)                                 | @ Ta | VRRM                                 | IFRM                                 | IFSM                            | VF                                     | @ IF | IR                                |
| Axial Lead | SMD | (A)                                    | (°C) | (V)                                  | (A)                                  | (A)                             | (V)                                    | (A)  | (μA)                              |

## 1SR35-100 Series, 1 A, Case Type: DO-41



|           |  |     |    |     |   |    |     |     |    |
|-----------|--|-----|----|-----|---|----|-----|-----|----|
| 1SR35-100 |  | 1.0 | 50 | 100 | - | 30 | 1.1 | 1.0 | 10 |
| 1SR35-200 |  | 1.0 | 50 | 200 | - | 30 | 1.1 | 1.0 | 10 |
| 1SR35-400 |  | 1.0 | 50 | 400 | - | 30 | 1.1 | 1.0 | 10 |

## 1SR139-100 Series, 1 A, Case Type: DO-41



|            |  |     |    |     |   |    |     |     |    |
|------------|--|-----|----|-----|---|----|-----|-----|----|
| 1SR139-100 |  | 1.0 | 25 | 100 | - | 40 | 1.1 | 1.0 | 10 |
| 1SR139-200 |  | 1.0 | 25 | 200 | - | 40 | 1.1 | 1.0 | 10 |
| 1SR139-400 |  | 1.0 | 25 | 400 | - | 40 | 1.1 | 1.0 | 10 |
| 1SR139-600 |  | 1.0 | 25 | 600 | - | 40 | 1.1 | 1.0 | 10 |

## 1SR154-400 Series, 1 A, Case Type: SMA



|  |            |     |    |     |   |    |     |     |    |
|--|------------|-----|----|-----|---|----|-----|-----|----|
|  | 1SR154-400 | 1.0 | 25 | 400 | - | 30 | 1.1 | 1.0 | 10 |
|  | 1SR154-600 | 1.0 | 25 | 600 | - | 30 | 1.1 | 1.0 | 10 |

## EM01 Series, 1 A, Case Type: DO-41



|       |  |     |    |     |   |    |      |     |    |
|-------|--|-----|----|-----|---|----|------|-----|----|
| EM01  |  | 1.0 | 25 | 400 | - | 45 | 0.97 | 1.0 | 10 |
| EM01A |  | 1.0 | 25 | 600 | - | 45 | 0.97 | 1.0 | 10 |
| EM01Z |  | 1.0 | 25 | 200 | - | 45 | 0.97 | 1.0 | 10 |

## EM1 Series, 1 A, Case Type: DO-41



|      |  |     |    |      |   |    |      |     |    |
|------|--|-----|----|------|---|----|------|-----|----|
| EM1  |  | 1.0 | 25 | 400  | - | 45 | 0.97 | 1.0 | 10 |
| EM1A |  | 1.0 | 25 | 600  | - | 45 | 0.97 | 1.0 | 10 |
| EM1B |  | 1.0 | 25 | 800  | - | 35 | 0.97 | 1.0 | 20 |
| EM1C |  | 1.0 | 25 | 1000 | - | 35 | 0.97 | 1.0 | 20 |

## ERA15-01 Series, 1 A, Case Type: DO-41



|          |  |     |    |      |   |    |     |     |    |
|----------|--|-----|----|------|---|----|-----|-----|----|
| ERA15-01 |  | 1.0 | 40 | 100  | - | 40 | 1.1 | 2.0 | 10 |
| ERA15-02 |  | 1.0 | 40 | 200  | - | 40 | 1.1 | 2.0 | 10 |
| ERA15-04 |  | 1.0 | 40 | 400  | - | 40 | 1.1 | 2.0 | 10 |
| ERA15-06 |  | 1.0 | 40 | 600  | - | 40 | 1.1 | 2.0 | 10 |
| ERA15-08 |  | 1.0 | 25 | 800  | - | 40 | 1.1 | 2.0 | 10 |
| ERA15-10 |  | 1.0 | 25 | 1000 | - | 40 | 1.1 | 2.0 | 10 |



# Silicon Rectifier Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.   |     | Max. Average Forward Rectified Current |      | Max. Repetitive Peak Reverse Voltage | Max. Repetitive Peak Forward Current | Max. Peak Forward Surge Current | Max. Forward Voltage Drop at Ta = 25°C |      | Max. Reverse Current at Ta = 25°C |
|------------|-----|----------------------------------------|------|--------------------------------------|--------------------------------------|---------------------------------|----------------------------------------|------|-----------------------------------|
|            |     | IF(AV)                                 | @ Ta | VRRM                                 | IFRM                                 | IFSM                            | VF                                     | @ IF | IR                                |
| Axial Lead | SMD | (A)                                    | (°C) | (V)                                  | (A)                                  | (A)                             | (V)                                    | (A)  | (μA)                              |

## ERB12-01 Series, 1 A, Case Type: DO-41



|          |  |     |    |      |   |    |     |     |    |
|----------|--|-----|----|------|---|----|-----|-----|----|
| ERB12-01 |  | 1.0 | 60 | 100  | - | 60 | 1.1 | 2.0 | 10 |
| ERB12-02 |  | 1.0 | 60 | 200  | - | 60 | 1.1 | 2.0 | 10 |
| ERB12-04 |  | 1.0 | 60 | 400  | - | 60 | 1.1 | 2.0 | 10 |
| ERB12-06 |  | 1.0 | 60 | 600  | - | 60 | 1.1 | 2.0 | 10 |
| ERB12-10 |  | 1.0 | 25 | 1000 | - | 50 | 1.1 | 2.0 | 10 |

## MRA4003 Series, 1 A, Case Type: SMA



|  |         |     |                       |      |   |    |      |     |    |
|--|---------|-----|-----------------------|------|---|----|------|-----|----|
|  | MRA4003 | 1.0 | 150 (T <sub>L</sub> ) | 300  | - | 30 | 1.18 | 2.0 | 10 |
|  | MRA4004 | 1.0 | 150 (T <sub>L</sub> ) | 400  | - | 30 | 1.18 | 2.0 | 10 |
|  | MRA4005 | 1.0 | 150 (T <sub>L</sub> ) | 600  | - | 30 | 1.18 | 2.0 | 10 |
|  | MRA4006 | 1.0 | 150 (T <sub>L</sub> ) | 800  | - | 30 | 1.18 | 2.0 | 10 |
|  | MRA4007 | 1.0 | 150 (T <sub>L</sub> ) | 1000 | - | 30 | 1.18 | 2.0 | 10 |

## S1A Series, 1 A, Case Type: SMA



|  |     |     |                       |      |   |    |     |     |     |
|--|-----|-----|-----------------------|------|---|----|-----|-----|-----|
|  | S1A | 1.0 | 110 (T <sub>L</sub> ) | 50   | - | 40 | 1.1 | 1.0 | 1.0 |
|  | S1B | 1.0 | 110 (T <sub>L</sub> ) | 100  | - | 40 | 1.1 | 1.0 | 1.0 |
|  | S1D | 1.0 | 110 (T <sub>L</sub> ) | 200  | - | 40 | 1.1 | 1.0 | 1.0 |
|  | S1G | 1.0 | 110 (T <sub>L</sub> ) | 400  | - | 40 | 1.1 | 1.0 | 1.0 |
|  | S1J | 1.0 | 110 (T <sub>L</sub> ) | 600  | - | 40 | 1.1 | 1.0 | 1.0 |
|  | S1K | 1.0 | 100 (T <sub>L</sub> ) | 800  | - | 30 | 1.1 | 1.0 | 5.0 |
|  | S1M | 1.0 | 100 (T <sub>L</sub> ) | 1000 | - | 30 | 1.1 | 1.0 | 5.0 |

## S5277 Series, 1.0 A, Case Type: DO-41



|        |  |     |    |      |   |    |     |     |    |
|--------|--|-----|----|------|---|----|-----|-----|----|
| S5277B |  | 1.0 | 25 | 100  | - | 55 | 1.2 | 1.0 | 10 |
| S5277G |  | 1.0 | 25 | 400  | - | 55 | 1.2 | 1.0 | 10 |
| S5277J |  | 1.0 | 25 | 600  | - | 33 | 1.2 | 1.0 | 10 |
| S5277N |  | 1.0 | 25 | 1000 | - | 33 | 1.2 | 1.0 | 10 |

## S5566B Series, 1 A, Case Type: DO-41



|        |  |     |    |      |   |    |     |     |    |
|--------|--|-----|----|------|---|----|-----|-----|----|
| S5566B |  | 1.0 | 25 | 100  | - | 45 | 1.2 | 1.0 | 10 |
| S5566G |  | 1.0 | 25 | 400  | - | 45 | 1.2 | 1.0 | 10 |
| S5566J |  | 1.0 | 25 | 600  | - | 30 | 1.2 | 1.0 | 10 |
| S5566N |  | 1.0 | 25 | 1000 | - | 30 | 1.2 | 1.0 | 10 |

## S5688B Series, 1 A, Case Type: R-1



|        |  |     |    |      |   |    |     |     |    |
|--------|--|-----|----|------|---|----|-----|-----|----|
| S5688B |  | 1.0 | 30 | 100  | - | 45 | 1.2 | 1.0 | 10 |
| S5688G |  | 1.0 | 30 | 400  | - | 45 | 1.2 | 1.0 | 10 |
| S5688J |  | 1.0 | 30 | 600  | - | 30 | 1.2 | 1.0 | 10 |
| S5688N |  | 1.0 | 30 | 1000 | - | 30 | 1.2 | 1.0 | 10 |



# Silicon Rectifier Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.   |     | Max. Average Forward Rectified Current |      | Max. Repetitive Peak Reverse Voltage | Max. Repetitive Peak Forward Current | Max. Peak Forward Surge Current | Max. Forward Voltage Drop at Ta = 25°C |      | Max. Reverse Current at Ta = 25°C |
|------------|-----|----------------------------------------|------|--------------------------------------|--------------------------------------|---------------------------------|----------------------------------------|------|-----------------------------------|
|            |     | IF(AV)                                 | @ Ta | VRRM                                 | IFRM                                 | IFSM                            | VF                                     | @ IF | IR                                |
| Axial Lead | SMD | (A)                                    | (°C) | (V)                                  | (A)                                  | (A)                             | (V)                                    | (A)  | (μA)                              |

## 1S1885 Series, 1 A, Case Type: D2



|        |  |     |    |     |   |    |     |     |    |
|--------|--|-----|----|-----|---|----|-----|-----|----|
| 1S1885 |  | 1.0 | 65 | 100 | - | 60 | 1.2 | 1.5 | 10 |
| 1S1886 |  | 1.0 | 65 | 200 | - | 60 | 1.2 | 1.5 | 10 |
| 1S1887 |  | 1.0 | 65 | 400 | - | 60 | 1.2 | 1.5 | 10 |
| 1S1888 |  | 1.0 | 65 | 600 | - | 60 | 1.2 | 1.5 | 10 |

## EM2 Series, 1.2 A, Case Type: DO-41



|      |  |     |    |     |   |    |      |     |    |
|------|--|-----|----|-----|---|----|------|-----|----|
| EM2  |  | 1.2 | 25 | 400 | - | 80 | 0.92 | 1.2 | 10 |
| EM2A |  | 1.2 | 25 | 600 | - | 80 | 0.92 | 1.2 | 10 |
| EM2B |  | 1.2 | 25 | 800 | - | 80 | 0.92 | 1.2 | 10 |

## ERC04-02 Series, 1.2 A, Case Type: D2A



|          |  |     |    |      |   |     |     |     |    |
|----------|--|-----|----|------|---|-----|-----|-----|----|
| ERC04-02 |  | 1.2 | 60 | 200  | - | 100 | 1.1 | 4.0 | 10 |
| ERC04-04 |  | 1.2 | 60 | 400  | - | 100 | 1.1 | 4.0 | 10 |
| ERC04-06 |  | 1.2 | 60 | 600  | - | 100 | 1.1 | 4.0 | 10 |
| ERC04-10 |  | 1.2 | 60 | 1000 | - | 100 | 1.1 | 4.0 | 10 |

## ERC05-06 Series, 1.2 A, Case Type: D2



|          |  |     |    |      |   |     |      |     |    |
|----------|--|-----|----|------|---|-----|------|-----|----|
| ERC05-06 |  | 1.2 | 60 | 600  | - | 100 | 1.00 | 4.0 | 10 |
| ERC05-08 |  | 1.2 | 60 | 800  | - | 100 | 1.00 | 4.0 | 10 |
| ERC05-10 |  | 1.2 | 60 | 1000 | - | 100 | 1.00 | 4.0 | 10 |

## ERC25-04 Series, 1.2 A, Case Type: D2



|          |  |     |    |     |   |    |      |     |    |
|----------|--|-----|----|-----|---|----|------|-----|----|
| ERC25-04 |  | 1.2 | 40 | 400 | - | 50 | 1.10 | 1.2 | 10 |
| ERC25-06 |  | 1.2 | 40 | 600 | - | 50 | 1.10 | 1.2 | 10 |

## RM11A Series, 1.2 A, Case Type: D2



|       |  |     |    |      |    |     |      |     |    |
|-------|--|-----|----|------|----|-----|------|-----|----|
| RM11A |  | 1.2 | 70 | 600  | 15 | 100 | 0.92 | 1.5 | 10 |
| RM11B |  | 1.2 | 70 | 800  | 15 | 100 | 0.92 | 1.5 | 10 |
| RM11C |  | 1.2 | 70 | 1000 | 15 | 100 | 0.92 | 1.5 | 10 |

## RM2 Series, 1.2 A, Case Type: D2A



|      |  |     |    |      |    |     |      |     |    |
|------|--|-----|----|------|----|-----|------|-----|----|
| RM2Z |  | 1.2 | 70 | 200  | 15 | 100 | 0.91 | 1.5 | 10 |
| RM2  |  | 1.2 | 70 | 400  | 15 | 100 | 0.91 | 1.5 | 10 |
| RM2A |  | 1.2 | 70 | 600  | 15 | 100 | 0.91 | 1.5 | 10 |
| RM2B |  | 1.2 | 70 | 800  | 15 | 100 | 0.91 | 1.5 | 10 |
| RM2C |  | 1.2 | 70 | 1000 | 15 | 100 | 0.91 | 1.5 | 10 |



# Silicon Rectifier Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.   |     | Max. Average Forward Rectified Current |      | Max. Repetitive Peak Reverse Voltage | Max. Repetitive Peak Forward Current | Max. Peak Forward Surge Current | Max. Forward Voltage Drop at Ta = 25°C |      | Max. Reverse Current at Ta = 25°C |
|------------|-----|----------------------------------------|------|--------------------------------------|--------------------------------------|---------------------------------|----------------------------------------|------|-----------------------------------|
|            |     | IF(AV)                                 | @ Ta | VRRM                                 | IFRM                                 | IFSM                            | VF                                     | @ IF | IR                                |
| Axial Lead | SMD | (A)                                    | (°C) | (V)                                  | (A)                                  | (A)                             | (V)                                    | (A)  | (μA)                              |

## RM10 Series, 1.2 - 1.5 A, Case Type: D2



|       |  |     |    |     |    |     |      |     |    |
|-------|--|-----|----|-----|----|-----|------|-----|----|
| RM10  |  | 1.2 | 70 | 400 | 15 | 150 | 0.91 | 1.5 | 10 |
| RM10A |  | 1.2 | 70 | 600 | 15 | 150 | 0.91 | 1.5 | 10 |
| RM10B |  | 1.2 | 70 | 800 | 15 | 150 | 0.91 | 1.5 | 10 |
| RM10Z |  | 1.5 | 70 | 200 | 15 | 120 | 0.91 | 1.5 | 10 |

## 1N5391/SNOA Series, 1.5 A, Case Type: DO-41/SMA



|        |      |     |    |      |    |    |     |     |     |
|--------|------|-----|----|------|----|----|-----|-----|-----|
| 1N5391 | SNOA | 1.5 | 70 | 50   | 10 | 50 | 1.1 | 1.5 | 5.0 |
| 1N5392 | SNOB | 1.5 | 70 | 100  | 10 | 50 | 1.1 | 1.5 | 5.0 |
| 1N5393 | SNOD | 1.5 | 70 | 200  | 10 | 50 | 1.1 | 1.5 | 5.0 |
| 1N5394 | SNOE | 1.5 | 70 | 300  | 10 | 50 | 1.1 | 1.5 | 5.0 |
| 1N5395 | SNOG | 1.5 | 70 | 400  | 10 | 50 | 1.1 | 1.5 | 5.0 |
| 1N5396 | SNOH | 1.5 | 70 | 500  | 10 | 50 | 1.1 | 1.5 | 5.0 |
| 1N5397 | SNOJ | 1.5 | 70 | 600  | 10 | 50 | 1.1 | 1.5 | 5.0 |
| 1N5398 | SNOK | 1.5 | 70 | 800  | 10 | 50 | 1.1 | 1.5 | 5.0 |
| 1N5399 | SNOM | 1.5 | 70 | 1000 | 10 | 50 | 1.1 | 1.5 | 5.0 |

## GP15A Series, 1.5 A, Case Type: D2



|       |  |     |    |      |   |    |      |     |     |
|-------|--|-----|----|------|---|----|------|-----|-----|
| GP15A |  | 1.5 | 55 | 50   | - | 50 | 1.10 | 1.5 | 5.0 |
| GP15B |  | 1.5 | 55 | 100  | - | 50 | 1.10 | 1.5 | 5.0 |
| GP15D |  | 1.5 | 55 | 200  | - | 50 | 1.10 | 1.5 | 5.0 |
| GP15G |  | 1.5 | 55 | 400  | - | 50 | 1.10 | 1.5 | 5.0 |
| GP15J |  | 1.5 | 55 | 600  | - | 50 | 1.10 | 1.5 | 5.0 |
| GP15K |  | 1.5 | 55 | 800  | - | 50 | 1.10 | 1.5 | 5.0 |
| GP15M |  | 1.5 | 55 | 1000 | - | 50 | 1.10 | 1.5 | 5.0 |

## S2A Series, 1.5 A, Case Type: SMB



|  |     |     |         |      |   |    |      |     |     |
|--|-----|-----|---------|------|---|----|------|-----|-----|
|  | S2A | 1.5 | 75 (TL) | 50   | - | 50 | 1.15 | 1.5 | 1.0 |
|  | S2B | 1.5 | 75 (TL) | 100  | - | 50 | 1.15 | 1.5 | 1.0 |
|  | S2D | 1.5 | 75 (TL) | 200  | - | 50 | 1.15 | 1.5 | 1.0 |
|  | S2G | 1.5 | 75 (TL) | 400  | - | 50 | 1.15 | 1.5 | 1.0 |
|  | S2J | 1.5 | 75 (TL) | 600  | - | 50 | 1.15 | 1.5 | 1.0 |
|  | S2K | 1.5 | 75 (TL) | 800  | - | 50 | 1.15 | 1.5 | 1.0 |
|  | S2M | 1.5 | 75 (TL) | 1000 | - | 50 | 1.15 | 1.5 | 1.0 |

## ERD07-13 Series, 1.5 A, Case Type: DO-201AD



|          |  |     |         |      |   |    |     |     |    |
|----------|--|-----|---------|------|---|----|-----|-----|----|
| ERD07-13 |  | 1.5 | 125(TL) | 1300 | - | 50 | 1.2 | 4.0 | 10 |
| ERD07-15 |  | 1.5 | 125(TL) | 1500 | - | 50 | 1.2 | 4.0 | 10 |



# Silicon Rectifier Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.   |     | Max. Average Forward Rectified Current |      | Max. Repetitive Peak Reverse Voltage | Max. Repetitive Peak Forward Current | Max. Peak Forward Surge Current | Max. Forward Voltage Drop at Ta = 25°C |      | Max. Reverse Current at Ta = 25°C |
|------------|-----|----------------------------------------|------|--------------------------------------|--------------------------------------|---------------------------------|----------------------------------------|------|-----------------------------------|
|            |     | IF(AV)                                 | @ Ta | VRRM                                 | IFRM                                 | IFSM                            | VF                                     | @ IF | IR                                |
| Axial Lead | SMD | (A)                                    | (°C) | (V)                                  | (A)                                  | (A)                             | (V)                                    | (A)  | (μA)                              |

## RM4 Series, 1.7 A, Case Type: DO-201AD



|      |  |     |    |     |   |     |      |     |    |
|------|--|-----|----|-----|---|-----|------|-----|----|
| RM4Y |  | 1.7 | 40 | 100 | - | 150 | 0.95 | 3.0 | 10 |
| RM4Z |  | 1.7 | 40 | 200 | - | 150 | 0.95 | 3.0 | 10 |
| RM4  |  | 1.7 | 40 | 400 | - | 150 | 0.95 | 3.0 | 10 |

## DL201 Series, 2 A, Case Type: D2



|       |  |     |    |      |   |    |     |     |     |
|-------|--|-----|----|------|---|----|-----|-----|-----|
| DL201 |  | 2.0 | 50 | 50   | - | 75 | 1.0 | 2.0 | 5.0 |
| DL202 |  | 2.0 | 50 | 100  | - | 75 | 1.0 | 2.0 | 5.0 |
| DL203 |  | 2.0 | 50 | 200  | - | 75 | 1.0 | 2.0 | 5.0 |
| DL204 |  | 2.0 | 50 | 400  | - | 75 | 1.0 | 2.0 | 5.0 |
| DL205 |  | 2.0 | 50 | 600  | - | 75 | 1.0 | 2.0 | 5.0 |
| DL206 |  | 2.0 | 50 | 800  | - | 75 | 1.0 | 2.0 | 5.0 |
| DL207 |  | 2.0 | 50 | 1000 | - | 75 | 1.0 | 2.0 | 5.0 |

## DR200/SN2A Series, 2 A, Case Type: D2/SMB



|       |      |     |    |      |    |    |     |     |     |
|-------|------|-----|----|------|----|----|-----|-----|-----|
| DR200 | SN2A | 2.0 | 50 | 50   | 15 | 75 | 1.0 | 2.0 | 5.0 |
| DR201 | SN2B | 2.0 | 50 | 100  | 15 | 75 | 1.0 | 2.0 | 5.0 |
| DR202 | SN2D | 2.0 | 50 | 200  | 15 | 75 | 1.0 | 2.0 | 5.0 |
| DR204 | SN2G | 2.0 | 50 | 400  | 15 | 75 | 1.0 | 2.0 | 5.0 |
| DR206 | SN2J | 2.0 | 50 | 600  | 15 | 75 | 1.0 | 2.0 | 5.0 |
| DR208 | SN2K | 2.0 | 50 | 800  | 15 | 75 | 1.0 | 2.0 | 5.0 |
| DR210 | SN2M | 2.0 | 50 | 1000 | 15 | 75 | 1.0 | 2.0 | 5.0 |

## RL251 Series, 2.5 A, Case Type: D2A



|       |  |     |    |      |   |     |     |     |   |
|-------|--|-----|----|------|---|-----|-----|-----|---|
| RL251 |  | 2.5 | 75 | 50   | - | 150 | 1.1 | 2.5 | 5 |
| RL252 |  | 2.5 | 75 | 100  | - | 150 | 1.1 | 2.5 | 5 |
| RL253 |  | 2.5 | 75 | 200  | - | 150 | 1.1 | 2.5 | 5 |
| RL254 |  | 2.5 | 75 | 400  | - | 150 | 1.1 | 2.5 | 5 |
| RL255 |  | 2.5 | 75 | 600  | - | 150 | 1.1 | 2.5 | 5 |
| RL256 |  | 2.5 | 75 | 800  | - | 150 | 1.1 | 2.5 | 5 |
| RL257 |  | 2.5 | 75 | 1000 | - | 150 | 1.1 | 2.5 | 5 |

## RM3 Series, 2.5 A, Case Type: DO-201AD



|      |  |     |    |     |   |     |      |     |    |
|------|--|-----|----|-----|---|-----|------|-----|----|
| RM3  |  | 2.5 | 50 | 400 | - | 150 | 0.95 | 2.5 | 10 |
| RM3A |  | 2.5 | 50 | 600 | - | 150 | 0.95 | 2.5 | 10 |
| RM3B |  | 2.5 | 50 | 800 | - | 150 | 0.95 | 2.5 | 10 |



# Silicon Rectifier Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.   |     | Max. Average Forward Rectified Current |      | Max. Repetitive Peak Reverse Voltage | Max. Repetitive Peak Forward Current | Max. Peak Forward Surge Current | Max. Forward Voltage Drop at Ta = 25°C |      | Max. Reverse Current at Ta = 25°C |
|------------|-----|----------------------------------------|------|--------------------------------------|--------------------------------------|---------------------------------|----------------------------------------|------|-----------------------------------|
|            |     | IF(AV)                                 | @ Ta | VRRM                                 | IFRM                                 | IFSM                            | VF                                     | @ IF | IR                                |
| Axial Lead | SMD | (A)                                    | (°C) | (V)                                  | (A)                                  | (A)                             | (V)                                    | (A)  | (μA)                              |

## BY251/SN21 Series, 3 A, Case Type: DO-201AD/SMC



|       |      |     |    |      |    |     |     |     |    |
|-------|------|-----|----|------|----|-----|-----|-----|----|
| BY251 | SN21 | 3.0 | 50 | 200  | 20 | 100 | 1.1 | 3.0 | 20 |
| BY252 | SN22 | 3.0 | 50 | 400  | 20 | 100 | 1.1 | 3.0 | 20 |
| BY253 | SN23 | 3.0 | 50 | 600  | 20 | 100 | 1.1 | 3.0 | 20 |
| BY254 | SN24 | 3.0 | 50 | 800  | 20 | 100 | 1.1 | 3.0 | 20 |
| BY255 | SN25 | 3.0 | 50 | 1300 | 20 | 100 | 1.1 | 3.0 | 20 |

## 1N5400 /SN3A Series, 3 A, Case Type: DO-201AD/SMC



|        |      |     |    |      |    |     |     |     |     |
|--------|------|-----|----|------|----|-----|-----|-----|-----|
| 1N5400 | SN3A | 3.0 | 75 | 50   | 30 | 200 | 1.0 | 3.0 | 5.0 |
| 1N5401 | SN3B | 3.0 | 75 | 100  | 30 | 200 | 1.0 | 3.0 | 5.0 |
| 1N5402 | SN3D | 3.0 | 75 | 200  | 30 | 200 | 1.0 | 3.0 | 5.0 |
| 1N5404 | SN3G | 3.0 | 75 | 400  | 30 | 200 | 1.0 | 3.0 | 5.0 |
| 1N5406 | SN3J | 3.0 | 75 | 600  | 30 | 200 | 1.0 | 3.0 | 5.0 |
| 1N5407 | SN3K | 3.0 | 75 | 800  | 30 | 200 | 1.0 | 3.0 | 5.0 |
| 1N5408 | SN3M | 3.0 | 75 | 1000 | 30 | 200 | 1.0 | 3.0 | 5.0 |

## SN3AS Series, 3.0 A, Case Type: SMB



|  |       |     |    |      |   |     |     |     |     |
|--|-------|-----|----|------|---|-----|-----|-----|-----|
|  | SN3AS | 3.0 | 75 | 50   | - | 200 | 1.2 | 3.0 | 5.0 |
|  | SN3BS | 3.0 | 75 | 100  | - | 200 | 1.2 | 3.0 | 5.0 |
|  | SN3DS | 3.0 | 75 | 200  | - | 200 | 1.2 | 3.0 | 5.0 |
|  | SN3GS | 3.0 | 75 | 400  | - | 200 | 1.2 | 3.0 | 5.0 |
|  | SN3JS | 3.0 | 75 | 600  | - | 200 | 1.2 | 3.0 | 5.0 |
|  | SN3KS | 3.0 | 75 | 800  | - | 200 | 1.2 | 3.0 | 5.0 |
|  | SN3MS | 3.0 | 75 | 1000 | - | 200 | 1.2 | 3.0 | 5.0 |

## BY550/SN5A Series, 5 A, Case Type: DO-201AD/SMC



|            |      |     |    |      |    |     |     |     |    |
|------------|------|-----|----|------|----|-----|-----|-----|----|
| BY550-50   | SN5A | 5.0 | 60 | 50   | 40 | 300 | 1.1 | 5.0 | 20 |
| BY550-100  | SN5B | 5.0 | 60 | 100  | 40 | 300 | 1.1 | 5.0 | 20 |
| BY550-200  | SN5D | 5.0 | 60 | 200  | 40 | 300 | 1.1 | 5.0 | 20 |
| BY550-400  | SN5G | 5.0 | 60 | 400  | 40 | 300 | 1.1 | 5.0 | 20 |
| BY550-600  | SN5J | 5.0 | 60 | 600  | 40 | 300 | 1.1 | 5.0 | 20 |
| BY550-800  | SN5K | 5.0 | 60 | 800  | 40 | 300 | 1.1 | 5.0 | 20 |
| BY550-1000 | SN5M | 5.0 | 60 | 1000 | 40 | 300 | 1.1 | 5.0 | 20 |

## 6A05 Series, 6 A, Case Type: D6



|      |  |     |    |      |   |     |      |     |     |
|------|--|-----|----|------|---|-----|------|-----|-----|
| 6A05 |  | 6.0 | 60 | 50   | - | 400 | 0.95 | 6.0 | 5.0 |
| 6A1  |  | 6.0 | 60 | 100  | - | 400 | 0.95 | 6.0 | 5.0 |
| 6A2  |  | 6.0 | 60 | 200  | - | 400 | 0.95 | 6.0 | 5.0 |
| 6A4  |  | 6.0 | 60 | 400  | - | 400 | 0.95 | 6.0 | 5.0 |
| 6A6  |  | 6.0 | 60 | 600  | - | 400 | 0.95 | 6.0 | 5.0 |
| 6A8  |  | 6.0 | 60 | 800  | - | 400 | 0.95 | 6.0 | 5.0 |
| 6A10 |  | 6.0 | 60 | 1000 | - | 400 | 1.00 | 6.0 | 5.0 |



# Silicon Rectifier Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.   |     | Max. Average Forward Rectified Current |      | Max. Repetitive Peak Reverse Voltage | Max. Repetitive Peak Forward Current | Max. Peak Forward Surge Current | Max. Forward Voltage Drop at Ta = 25°C |      | Max. Reverse Current at Ta = 25°C |
|------------|-----|----------------------------------------|------|--------------------------------------|--------------------------------------|---------------------------------|----------------------------------------|------|-----------------------------------|
|            |     | IF(AV)                                 | @ Ta | VRRM                                 | IFRM                                 | IFSM                            | VF                                     | @ IF | IR                                |
| Axial Lead | SMD | (A)                                    | (°C) | (V)                                  | (A)                                  | (A)                             | (V)                                    | (A)  | (μA)                              |

## P600A Series, 6 A, Case Type: D6



|       |  |     |    |      |   |     |     |     |     |
|-------|--|-----|----|------|---|-----|-----|-----|-----|
| P600A |  | 6.0 | 60 | 50   | - | 400 | 0.9 | 6.0 | 5.0 |
| P600B |  | 6.0 | 60 | 100  | - | 400 | 0.9 | 6.0 | 5.0 |
| P600D |  | 6.0 | 60 | 200  | - | 400 | 0.9 | 6.0 | 5.0 |
| P600G |  | 6.0 | 60 | 400  | - | 400 | 0.9 | 6.0 | 5.0 |
| P600J |  | 6.0 | 60 | 600  | - | 400 | 0.9 | 6.0 | 5.0 |
| P600K |  | 6.0 | 60 | 800  | - | 400 | 0.9 | 6.0 | 5.0 |
| P600M |  | 6.0 | 60 | 1000 | - | 400 | 1.0 | 6.0 | 5.0 |

## P800A Series, 8 A, Case Type: D6



|       |  |     |    |     |   |     |     |     |     |
|-------|--|-----|----|-----|---|-----|-----|-----|-----|
| P800A |  | 8.0 | 50 | 50  | - | 400 | 1.0 | 8.0 | 5.0 |
| P800B |  | 8.0 | 50 | 100 | - | 400 | 1.0 | 8.0 | 5.0 |
| P800D |  | 8.0 | 50 | 200 | - | 400 | 1.0 | 8.0 | 5.0 |
| P800G |  | 8.0 | 50 | 400 | - | 400 | 1.0 | 8.0 | 5.0 |
| P800J |  | 8.0 | 50 | 600 | - | 400 | 1.0 | 8.0 | 5.0 |
| P800K |  | 8.0 | 50 | 800 | - | 400 | 1.0 | 8.0 | 5.0 |

## NS8AT Series, 8 A, Case Type: TO-220AC



|       |  |     |         |      |   |     |     |     |    |
|-------|--|-----|---------|------|---|-----|-----|-----|----|
| NS8AT |  | 8.0 | 100(Tc) | 50   | - | 175 | 1.1 | 8.0 | 10 |
| NS8BT |  | 8.0 | 100(Tc) | 100  | - | 175 | 1.1 | 8.0 | 10 |
| NS8DT |  | 8.0 | 100(Tc) | 200  | - | 175 | 1.1 | 8.0 | 10 |
| NS8GT |  | 8.0 | 100(Tc) | 400  | - | 175 | 1.1 | 8.0 | 10 |
| NS8JT |  | 8.0 | 100(Tc) | 600  | - | 175 | 1.1 | 8.0 | 10 |
| NS8KT |  | 8.0 | 100(Tc) | 800  | - | 175 | 1.1 | 8.0 | 10 |
| NS8MT |  | 8.0 | 100(Tc) | 1000 | - | 175 | 1.1 | 8.0 | 10 |

## 10A01 Series, 10 A, Case Type: D6



|       |  |    |    |      |   |     |     |    |    |
|-------|--|----|----|------|---|-----|-----|----|----|
| 10A01 |  | 10 | 50 | 50   | - | 600 | 1.3 | 10 | 10 |
| 10A02 |  | 10 | 50 | 100  | - | 600 | 1.3 | 10 | 10 |
| 10A03 |  | 10 | 50 | 200  | - | 600 | 1.3 | 10 | 10 |
| 10A04 |  | 10 | 50 | 400  | - | 600 | 1.3 | 10 | 10 |
| 10A05 |  | 10 | 50 | 600  | - | 600 | 1.3 | 10 | 10 |
| 10A06 |  | 10 | 50 | 800  | - | 600 | 1.3 | 10 | 10 |
| 10A07 |  | 10 | 50 | 1000 | - | 600 | 1.3 | 10 | 10 |



## Glass Passivated Rectifier Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.   |     | Max. Average Forward Rectified Current |      | Max. Repetitive Peak Reverse Voltage | Max. Repetitive Peak Forward Current | Max. Peak Forward Surge Current | Max. Forward Voltage Drop at Ta=25°C |      | Max. Reverse Current at Ta=25°C |
|------------|-----|----------------------------------------|------|--------------------------------------|--------------------------------------|---------------------------------|--------------------------------------|------|---------------------------------|
|            |     | IF(AV)                                 | @ Ta | VRRM                                 | IFRM                                 | IFSM                            | VF                                   | @ IF | IR                              |
| Axial Lead | SMD | (A)                                    | (°C) | (V)                                  | (A)                                  | (A)                             | (V)                                  | (A)  | (μA)                            |

### GL34A Series, 0.5 A, Case Type: Mini MELF (Plastic)



|       |  |     |                     |     |   |    |     |     |     |
|-------|--|-----|---------------------|-----|---|----|-----|-----|-----|
| GL34A |  | 0.5 | 75(T <sub>T</sub> ) | 50  | - | 10 | 1.2 | 0.5 | 5.0 |
| GL34B |  | 0.5 | 75(T <sub>T</sub> ) | 100 | - | 10 | 1.2 | 0.5 | 5.0 |
| GL34D |  | 0.5 | 75(T <sub>T</sub> ) | 200 | - | 10 | 1.2 | 0.5 | 5.0 |
| GL34G |  | 0.5 | 75(T <sub>T</sub> ) | 400 | - | 10 | 1.2 | 0.5 | 5.0 |
| GL34J |  | 0.5 | 75(T <sub>T</sub> ) | 600 | - | 10 | 1.3 | 0.5 | 5.0 |

### 1G1 Series, 1 A, Case Type: R-1



|     |  |     |    |      |   |    |     |     |     |
|-----|--|-----|----|------|---|----|-----|-----|-----|
| 1G1 |  | 1.0 | 50 | 50   | - | 30 | 1.1 | 1.0 | 5.0 |
| 1G2 |  | 1.0 | 50 | 100  | - | 30 | 1.1 | 1.0 | 5.0 |
| 1G3 |  | 1.0 | 50 | 200  | - | 30 | 1.1 | 1.0 | 5.0 |
| 1G4 |  | 1.0 | 50 | 400  | - | 30 | 1.1 | 1.0 | 5.0 |
| 1G5 |  | 1.0 | 50 | 600  | - | 30 | 1.1 | 1.0 | 5.0 |
| 1G6 |  | 1.0 | 50 | 800  | - | 30 | 1.1 | 1.0 | 5.0 |
| 1G7 |  | 1.0 | 50 | 1000 | - | 30 | 1.1 | 1.0 | 5.0 |

### AM01A, 1 A, Case Type: M1A



|       |  |     |    |     |   |    |      |     |    |
|-------|--|-----|----|-----|---|----|------|-----|----|
| AM01A |  | 1.0 | 25 | 600 | - | 35 | 0.98 | 1.0 | 10 |
|-------|--|-----|----|-----|---|----|------|-----|----|

### LMN1A Series, 1 A, Case Type: M1A



|       |  |     |    |      |   |    |     |     |     |
|-------|--|-----|----|------|---|----|-----|-----|-----|
| LMN1A |  | 1.0 | 50 | 50   | - | 30 | 1.0 | 1.0 | 5.0 |
| LMN1B |  | 1.0 | 50 | 100  | - | 30 | 1.0 | 1.0 | 5.0 |
| LMN1D |  | 1.0 | 50 | 200  | - | 30 | 1.0 | 1.0 | 5.0 |
| LMN1G |  | 1.0 | 50 | 400  | - | 30 | 1.0 | 1.0 | 5.0 |
| LMN1J |  | 1.0 | 50 | 600  | - | 30 | 1.0 | 1.0 | 5.0 |
| LMN1K |  | 1.0 | 50 | 800  | - | 30 | 1.0 | 1.0 | 5.0 |
| LMN1M |  | 1.0 | 50 | 1000 | - | 30 | 1.0 | 1.0 | 5.0 |

### 1N4001G/GN1A Series, 1 A, Case Type: DO-41/SMA



|         |      |     |    |      |    |    |     |     |     |
|---------|------|-----|----|------|----|----|-----|-----|-----|
| 1N4001G | GN1A | 1.0 | 75 | 50   | 10 | 30 | 1.0 | 1.0 | 5.0 |
| 1N4002G | GN1B | 1.0 | 75 | 100  | 10 | 30 | 1.0 | 1.0 | 5.0 |
| 1N4003G | GN1D | 1.0 | 75 | 200  | 10 | 30 | 1.0 | 1.0 | 5.0 |
| 1N4004G | GN1G | 1.0 | 75 | 400  | 10 | 30 | 1.0 | 1.0 | 5.0 |
| 1N4005G | GN1J | 1.0 | 75 | 600  | 10 | 30 | 1.0 | 1.0 | 5.0 |
| 1N4006G | GN1K | 1.0 | 75 | 800  | 10 | 30 | 1.0 | 1.0 | 5.0 |
| 1N4007G | GN1M | 1.0 | 75 | 1000 | 10 | 30 | 1.0 | 1.0 | 5.0 |
| BY133G  | GN13 | 1.0 | 75 | 1300 | 10 | 30 | 1.0 | 1.0 | 5.0 |



# Glass Passivated Rectifier Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.   |     | Max. Average Forward Rectified Current |      | Max. Repetitive Peak Reverse Voltage | Max. Repetitive Peak Forward Current | Max. Peak Forward Surge Current | Max. Forward Voltage Drop at Ta=25°C |      | Max. Reverse Current at Ta=25°C |
|------------|-----|----------------------------------------|------|--------------------------------------|--------------------------------------|---------------------------------|--------------------------------------|------|---------------------------------|
|            |     | IF(AV)                                 | @ Ta | VRRM                                 | IFRM                                 | IFSM                            | VF                                   | @ IF | IR                              |
| Axial Lead | SMD | (A)                                    | (°C) | (V)                                  | (A)                                  | (A)                             | (V)                                  | (A)  | (μA)                            |

## GF1A Series, 1 A, Case Type: SMA



|  |      |     |    |      |   |    |     |     |     |
|--|------|-----|----|------|---|----|-----|-----|-----|
|  | GF1A | 1.0 | 75 | 50   | - | 30 | 1.0 | 1.0 | 5.0 |
|  | GF1B | 1.0 | 75 | 100  | - | 30 | 1.0 | 1.0 | 5.0 |
|  | GF1D | 1.0 | 75 | 200  | - | 30 | 1.0 | 1.0 | 5.0 |
|  | GF1G | 1.0 | 75 | 400  | - | 30 | 1.0 | 1.0 | 5.0 |
|  | GF1J | 1.0 | 75 | 600  | - | 30 | 1.0 | 1.0 | 5.0 |
|  | GF1K | 1.0 | 75 | 800  | - | 30 | 1.0 | 1.0 | 5.0 |
|  | GF1M | 1.0 | 75 | 1000 | - | 30 | 1.0 | 1.0 | 5.0 |

## DL4001 Series, 1 A, Case Type: MELF (Plastic)



|  |        |     |    |      |   |    |     |     |     |
|--|--------|-----|----|------|---|----|-----|-----|-----|
|  | DL4001 | 1.0 | 75 | 50   | - | 30 | 1.1 | 1.0 | 5.0 |
|  | DL4002 | 1.0 | 75 | 100  | - | 30 | 1.1 | 1.0 | 5.0 |
|  | DL4003 | 1.0 | 75 | 200  | - | 30 | 1.1 | 1.0 | 5.0 |
|  | DL4004 | 1.0 | 75 | 400  | - | 30 | 1.1 | 1.0 | 5.0 |
|  | DL4005 | 1.0 | 75 | 600  | - | 30 | 1.1 | 1.0 | 5.0 |
|  | DL4006 | 1.0 | 75 | 800  | - | 30 | 1.1 | 1.0 | 5.0 |
|  | DL4007 | 1.0 | 75 | 1000 | - | 30 | 1.1 | 1.0 | 5.0 |

## GP10A Series, 1 A, Case Type: DO-41



|       |  |     |    |      |   |    |     |     |     |
|-------|--|-----|----|------|---|----|-----|-----|-----|
| GP10A |  | 1.0 | 75 | 50   | - | 30 | 1.1 | 1.0 | 5.0 |
| GP10B |  | 1.0 | 75 | 100  | - | 30 | 1.1 | 1.0 | 5.0 |
| GP10D |  | 1.0 | 75 | 200  | - | 30 | 1.1 | 1.0 | 5.0 |
| GP10G |  | 1.0 | 75 | 400  | - | 30 | 1.1 | 1.0 | 5.0 |
| GP10J |  | 1.0 | 75 | 600  | - | 30 | 1.1 | 1.0 | 5.0 |
| GP10K |  | 1.0 | 75 | 800  | - | 30 | 1.2 | 1.0 | 5.0 |
| GP10M |  | 1.0 | 75 | 1000 | - | 30 | 1.2 | 1.0 | 5.0 |
| GP10N |  | 1.0 | 75 | 1100 | - | 30 | 1.2 | 1.0 | 5.0 |
| GP10Q |  | 1.0 | 75 | 1200 | - | 30 | 1.2 | 1.0 | 5.0 |
| GP10T |  | 1.0 | 75 | 1300 | - | 30 | 1.3 | 1.0 | 5.0 |
| GP10V |  | 1.0 | 75 | 1400 | - | 30 | 1.3 | 1.0 | 5.0 |
| GP10W |  | 1.0 | 75 | 1500 | - | 30 | 1.3 | 1.0 | 5.0 |
| GP10Y |  | 1.0 | 75 | 1600 | - | 30 | 1.3 | 1.0 | 5.0 |

## GL41Y, 1 A, Case Type: MELF



|  |       |     |    |      |   |    |     |     |    |
|--|-------|-----|----|------|---|----|-----|-----|----|
|  | GL41Y | 1.0 | 75 | 1600 | - | 30 | 1.2 | 1.0 | 10 |
|--|-------|-----|----|------|---|----|-----|-----|----|



# Glass Passivated Rectifier Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.   |     | Max. Average Forward Rectified Current |      | Max. Repetitive Peak Reverse Voltage | Max. Repetitive Peak Forward Current | Max. Peak Forward Surge Current | Max. Forward Voltage Drop at Ta=25°C |      | Max. Reverse Current at Ta=25°C |
|------------|-----|----------------------------------------|------|--------------------------------------|--------------------------------------|---------------------------------|--------------------------------------|------|---------------------------------|
|            |     | IF(AV)                                 | @ Ta | VRRM                                 | IFRM                                 | IFSM                            | VF                                   | @ IF | IR                              |
| Axial Lead | SMD | (A)                                    | (°C) | (V)                                  | (A)                                  | (A)                             | (V)                                  | (A)  | (μA)                            |

## 1N5391G/GNOA Series, 1.5 A, Case Type: DO-41/SMA

|         |      |     |    |      |   |    |     |     |     |
|---------|------|-----|----|------|---|----|-----|-----|-----|
| 1N5391G | GNOA | 1.5 | 75 | 50   | - | 50 | 1.1 | 1.5 | 5.0 |
| 1N5392G | GNOB | 1.5 | 75 | 100  | - | 50 | 1.1 | 1.5 | 5.0 |
| 1N5393G | GNOB | 1.5 | 75 | 200  | - | 50 | 1.1 | 1.5 | 5.0 |
| 1N5394G | GNOE | 1.5 | 75 | 300  | - | 50 | 1.1 | 1.5 | 5.0 |
| 1N5395G | GNOG | 1.5 | 75 | 400  | - | 50 | 1.1 | 1.5 | 5.0 |
| 1N5396G | GNOH | 1.5 | 75 | 500  | - | 50 | 1.1 | 1.5 | 5.0 |
| 1N5397G | GNOJ | 1.5 | 75 | 600  | - | 50 | 1.1 | 1.5 | 5.0 |
| 1N5398G | GNOK | 1.5 | 75 | 800  | - | 50 | 1.1 | 1.5 | 5.0 |
| 1N5399G | GNOM | 1.5 | 75 | 1000 | - | 50 | 1.1 | 1.5 | 5.0 |

## DR200G/GN2A Series, 2 A, Case Type: D2/SMB

|        |      |     |    |      |    |    |     |     |     |
|--------|------|-----|----|------|----|----|-----|-----|-----|
| DR200G | GN2A | 2.0 | 50 | 50   | 15 | 75 | 1.0 | 2.0 | 5.0 |
| DR201G | GN2B | 2.0 | 50 | 100  | 15 | 75 | 1.0 | 2.0 | 5.0 |
| DR202G | GN2D | 2.0 | 50 | 200  | 15 | 75 | 1.0 | 2.0 | 5.0 |
| DR204G | GN2G | 2.0 | 50 | 400  | 15 | 75 | 1.0 | 2.0 | 5.0 |
| DR206G | GN2J | 2.0 | 50 | 600  | 15 | 75 | 1.0 | 2.0 | 5.0 |
| DR208G | GN2K | 2.0 | 50 | 800  | 15 | 75 | 1.0 | 2.0 | 5.0 |
| DR210G | GN2M | 2.0 | 50 | 1000 | 15 | 75 | 1.0 | 2.0 | 5.0 |

## GNTA Series, 2.5 A, Case Type: SMB

|  |      |     |    |      |   |     |     |     |     |
|--|------|-----|----|------|---|-----|-----|-----|-----|
|  | GNTA | 2.5 | 75 | 50   | - | 150 | 1.1 | 2.5 | 5.0 |
|  | GNTB | 2.5 | 75 | 100  | - | 150 | 1.1 | 2.5 | 5.0 |
|  | GNTD | 2.5 | 75 | 200  | - | 150 | 1.1 | 2.5 | 5.0 |
|  | GNTG | 2.5 | 75 | 400  | - | 150 | 1.1 | 2.5 | 5.0 |
|  | GNTJ | 2.5 | 75 | 600  | - | 150 | 1.1 | 2.5 | 5.0 |
|  | GNTK | 2.5 | 75 | 800  | - | 150 | 1.1 | 2.5 | 5.0 |
|  | GNTM | 2.5 | 75 | 1000 | - | 150 | 1.1 | 2.5 | 5.0 |

## 1N5400G/GN3A Series, 3 A, Case Type: DO-201AD/SMC

|         |      |     |    |      |    |     |     |     |     |
|---------|------|-----|----|------|----|-----|-----|-----|-----|
| 1N5400G | GN3A | 3.0 | 75 | 50   | 20 | 150 | 1.0 | 3.0 | 5.0 |
| 1N5401G | GN3B | 3.0 | 75 | 100  | 20 | 150 | 1.0 | 3.0 | 5.0 |
| 1N5402G | GN3D | 3.0 | 75 | 200  | 20 | 150 | 1.0 | 3.0 | 5.0 |
| 1N5404G | GN3G | 3.0 | 75 | 400  | 20 | 150 | 1.0 | 3.0 | 5.0 |
| 1N5406G | GN3J | 3.0 | 75 | 600  | 20 | 150 | 1.0 | 3.0 | 5.0 |
| 1N5407G | GN3K | 3.0 | 75 | 800  | 20 | 150 | 1.1 | 3.0 | 5.0 |
| 1N5408G | GN3M | 3.0 | 75 | 1000 | 20 | 150 | 1.1 | 3.0 | 5.0 |

## BY550-1000GS, 6 A, Case Type: DO-201AD

|              |  |     |    |      |   |     |     |     |    |
|--------------|--|-----|----|------|---|-----|-----|-----|----|
| BY550-1000GS |  | 5.0 | 60 | 1000 | - | 300 | 1.1 | 5.0 | 20 |
|--------------|--|-----|----|------|---|-----|-----|-----|----|

# High Speed Switching Diodes

| Type No. | Max. Average Forward Rectified Current |      | Max. Reverse Voltage | Max. Repetitive Peak Forward Current | Max. Repetitive Surge Current | Max. Forward Voltage Drop at Ta=25°C |                  | Max. Reverse Current at Ta=25°C | Max. Reverse Recovery Time <sup>(1)</sup> | Max. Power Dissipation |
|----------|----------------------------------------|------|----------------------|--------------------------------------|-------------------------------|--------------------------------------|------------------|---------------------------------|-------------------------------------------|------------------------|
|          | I <sub>F(AV)</sub>                     | @ Ta | V <sub>RM</sub>      | I <sub>FRM</sub>                     | I <sub>FSM</sub>              | V <sub>F</sub>                       | @ I <sub>F</sub> | I <sub>R</sub>                  | T <sub>rr</sub>                           | P <sub>D</sub>         |
|          | (mA)                                   | (°C) | (V)                  | (mA)                                 | (A)                           | (V)                                  | (mA)             | (μA)                            | (ns)                                      | (mW)                   |

## 1N4148 Series, Case Type: DO-35



|        |     |    |     |     |     |      |     |        |   |     |
|--------|-----|----|-----|-----|-----|------|-----|--------|---|-----|
| 1N4148 | 150 | 25 | 75  | 450 | 0.5 | 1.0  | 10  | 5.0    | 4 | 500 |
| 1N4149 | 150 | 25 | 100 | -   | 0.5 | 1.0  | 10  | 5.0 nA | 4 | 500 |
| 1N4150 | 200 | 25 | 50  | 600 | 0.5 | 1.0  | 200 | 0.1    | 4 | 500 |
| 1N4151 | 200 | 25 | 75  | 450 | 0.5 | 1.0  | 50  | 0.05   | 4 | 500 |
| 1N4152 | 150 | 25 | 30  | 450 | -   | 0.88 | 20  | 0.05   | 2 | 500 |
| 1N4153 | 150 | 25 | 50  | 450 | -   | 0.88 | 20  | 0.05   | 2 | 500 |
| 1N4154 | 150 | 25 | 25  | 450 | -   | 1.0  | 30  | 0.1    | 4 | 500 |

## 1N4447 Series, Case Type: DO-35



|        |     |    |    |     |   |     |     |      |   |     |
|--------|-----|----|----|-----|---|-----|-----|------|---|-----|
| 1N4447 | 150 | 25 | 75 | 450 | - | 1.0 | 20  | 5.0  | 4 | 500 |
| 1N4448 | 150 | 25 | 75 | 450 | - | 1.0 | 10  | 5.0  | 4 | 500 |
| 1N4449 | 150 | 25 | 75 | 450 | - | 1.0 | 30  | 5.0  | 4 | 500 |
| 1N4450 | 200 | 25 | 30 | 600 | - | 1.0 | 200 | 0.05 | 4 | 500 |
| 1N4454 | 150 | 25 | 75 | 450 | - | 1.0 | 10  | 5.0  | 4 | 500 |

## 1N4531 Series, Case Type: DO-34



|         |     |    |    |     |     |     |    |        |   |     |
|---------|-----|----|----|-----|-----|-----|----|--------|---|-----|
| 1N4531  | 200 | 75 | 75 | -   | 0.5 | 1.0 | 10 | 25 nA  | 4 | 500 |
| 1N4532  | 200 | 75 | 75 | -   | 0.5 | 1.0 | 10 | 100 nA | 2 | 500 |
| 1N4148S | 150 | 25 | 75 | 450 | 0.5 | 1.0 | 10 | 5.0    | 4 | 500 |

## 1N914 Series, Case Type: DO-35



|        |    |    |    |   |     |      |    |       |   |     |
|--------|----|----|----|---|-----|------|----|-------|---|-----|
| 1N914  | 75 | 25 | 75 | - | 0.5 | 1.0  | 10 | 25 nA | 4 | 250 |
| 1N914A | 75 | 25 | 75 | - | 0.5 | 1.0  | 20 | 25 nA | 4 | 250 |
| 1N914B | 75 | 25 | 75 | - | 0.5 | 0.72 | 5  | 25 nA | 4 | 250 |

## 1S1585 Series, Case Type: DO-35



|         |     |    |    |   |     |     |     |     |   |     |
|---------|-----|----|----|---|-----|-----|-----|-----|---|-----|
| 1S1585  | 150 | 25 | 80 | - | 0.7 | 1.0 | 100 | 0.5 | 2 | 300 |
| 1S1586  | 150 | 25 | 50 | - | 0.7 | 1.0 | 100 | 0.5 | 2 | 300 |
| 1S1587  | 130 | 25 | 50 | - | 0.6 | 1.2 | 100 | 0.5 | 2 | 300 |
| 1S1588  | 120 | 25 | 30 | - | 0.5 | 1.3 | 100 | 0.5 | 4 | 300 |
| 1S2076A | 150 | 25 | 70 | - | 1.0 | 0.8 | 10  | 0.1 | 4 | 250 |

## 1SS130 Series, Case Type: DO-34



|        |     |    |    |     |     |     |     |     |   |     |
|--------|-----|----|----|-----|-----|-----|-----|-----|---|-----|
| 1SS130 | 130 | 25 | 75 | 400 | -   | 1.0 | 10  | 0.5 | 4 | 300 |
| 1SS131 | 130 | 25 | 80 | 400 | 0.6 | 1.2 | 100 | 0.5 | 4 | 300 |
| 1SS132 | 120 | 25 | 50 | 350 | 0.5 | 1.2 | 100 | 0.5 | 4 | 300 |
| 1SS133 | 110 | 25 | 35 | 300 | 0.6 | 1.2 | 100 | 0.5 | 4 | 300 |

Note : (1) Reverse Recovery test conditions : I<sub>F</sub> = 1A, di/dt = 50 A/ms



# High Speed Switching Diodes

| Type No. | Max. Average Forward Rectified Current |      | Max. Reverse Voltage | Max. Repetitive Peak Forward Current | Max. Repetitive Surge Current | Max. Forward Voltage Drop at Ta=25°C |                  | Max. Reverse Current at Ta=25°C | Max. Reverse Recovery Time <sup>(1)</sup> | Max. Power Dissipation |
|----------|----------------------------------------|------|----------------------|--------------------------------------|-------------------------------|--------------------------------------|------------------|---------------------------------|-------------------------------------------|------------------------|
|          | I <sub>F(AV)</sub>                     | @ Ta | V <sub>RM</sub>      | I <sub>FRM</sub>                     | I <sub>FSM</sub>              | V <sub>F</sub>                       | @ I <sub>F</sub> | I <sub>R</sub>                  | T <sub>rr</sub>                           | P <sub>D</sub>         |
|          | (mA)                                   | (°C) | (V)                  | (mA)                                 | (A)                           | (V)                                  | (mA)             | (μA)                            | (ns)                                      | (mW)                   |

## 1SS176 Series, Case Type: DO-34



|         |     |     |    |     |     |     |     |     |     |     |
|---------|-----|-----|----|-----|-----|-----|-----|-----|-----|-----|
| 1SS176  | 100 | 25  | 30 | 300 | 1.0 | 1.2 | 100 | 0.5 | 4.0 | 300 |
| 1SS177  | 100 | 25  | 50 | 300 | 1.0 | 1.2 | 100 | 0.5 | 4.0 | 300 |
| 1SS178  | 100 | 25  | 80 | 300 | 1.0 | 1.2 | 100 | 0.5 | 4.0 | 300 |
| 1SS270A | 150 | 25  | 70 | -   | 1.0 | 0.8 | 10  | 1.0 | 3.5 | 250 |
| BAS15   | 100 | 150 | 50 | 225 | 0.5 | 1.1 | 100 | 0.2 | 4.0 | 350 |

## BAV10 Series, Case Type: DO-35



|       |     |    |     |     |     |     |     |     |    |     |
|-------|-----|----|-----|-----|-----|-----|-----|-----|----|-----|
| BAV10 | 300 | 25 | 60  | 600 | 1.0 | 1.0 | 200 | 0.1 | 6  | 350 |
| BAV19 | 200 | 25 | 100 | 625 | 1.0 | 1.0 | 100 | 0.1 | 50 | 500 |
| BAV20 | 200 | 25 | 150 | 625 | 1.0 | 1.0 | 100 | 0.1 | 50 | 500 |
| BAV21 | 200 | 25 | 200 | 625 | 1.0 | 1.0 | 100 | 0.1 | 50 | 500 |

## BAW62 Series, Case Type: DO-35



|       |     |    |    |     |     |     |     |     |   |     |
|-------|-----|----|----|-----|-----|-----|-----|-----|---|-----|
| BAW62 | 250 | 25 | 75 | 450 | 0.5 | 1.0 | 100 | 5.0 | 4 | 350 |
| BAW75 | 150 | 25 | 25 | -   | 2.0 | 1.0 | 30  | 0.1 | 4 | 500 |
| BAW76 | 150 | 25 | 50 | -   | 2.0 | 1.0 | 100 | 0.1 | 4 | 500 |

## BAV100 Series, Case Type: Mini MELF



|        |     |    |     |     |     |     |     |     |    |     |
|--------|-----|----|-----|-----|-----|-----|-----|-----|----|-----|
| BAV100 | 200 | 25 | 50  | 625 | 1.0 | 1.0 | 100 | 0.1 | 50 | 400 |
| BAV101 | 200 | 25 | 100 | 625 | 1.0 | 1.0 | 100 | 0.1 | 50 | 400 |
| BAV102 | 200 | 25 | 150 | 625 | 1.0 | 1.0 | 100 | 0.1 | 50 | 400 |
| BAV103 | 200 | 25 | 200 | 625 | 1.0 | 1.0 | 100 | 0.1 | 50 | 400 |
| BAV105 | 300 | 25 | 60  | 600 | 0.5 | 1.0 | 200 | 0.1 | 6  | 500 |

## BAX14 Series, Case Type: DO-35



|       |     |    |     |     |     |      |     |     |    |     |
|-------|-----|----|-----|-----|-----|------|-----|-----|----|-----|
| BAX14 | 400 | 25 | 40  | 2A  | 9.0 | 1.00 | 300 | 0.1 | 50 | 450 |
| BAX18 | 400 | 25 | 75  | 2A  | 9.0 | 1.00 | 300 | 5.0 | 50 | 450 |
| BAY80 | 200 | 25 | 150 | 650 | 1.0 | 1.07 | 150 | 0.1 | 50 | 400 |

## LL4148 Series, Case Type: Mini MELF



|        |     |    |    |     |     |      |     |      |   |     |
|--------|-----|----|----|-----|-----|------|-----|------|---|-----|
| LL4148 | 200 | 25 | 75 | 450 | 0.5 | 1.00 | 10  | 5.00 | 4 | 500 |
| LL4150 | 200 | 25 | 50 | 600 | 0.5 | 1.00 | 200 | 0.10 | 4 | 500 |
| LL4151 | 200 | 25 | 50 | 450 | 0.5 | 1.00 | 50  | 0.05 | 4 | 500 |
| LL4153 | 200 | 25 | 50 | 450 | 0.5 | 0.88 | 50  | 0.05 | 4 | 500 |
| LL4448 | 200 | 25 | 75 | 450 | 0.5 | 1.00 | 100 | 5.00 | 4 | 500 |



# High Speed Switching Diodes

The plastic material carries U/L recognition 94V-0.

| Type No. | Max. Average Forward Rectified Current |      | Max. Reverse Voltage | Max. Repetitive Peak Forward Current | Max. Repetitive Surge Current | Max. Forward Voltage Drop at Ta=25°C |                  | Max. Reverse Current at Ta=25°C | Max. Reverse Recovery Time <sup>(1)</sup> | Max. Power Dissipation |
|----------|----------------------------------------|------|----------------------|--------------------------------------|-------------------------------|--------------------------------------|------------------|---------------------------------|-------------------------------------------|------------------------|
|          | I <sub>F(AV)</sub>                     | @ Ta | V <sub>RM</sub>      | I <sub>FRM</sub>                     | I <sub>FSM</sub>              | V <sub>F</sub>                       | @ I <sub>F</sub> | I <sub>R</sub>                  | T <sub>rr</sub>                           | P <sub>D</sub>         |
|          | (mA)                                   | (°C) | (V)                  | (mA)                                 | (A)                           | (V)                                  | (mA)             | (μA)                            | (ns)                                      | (mW)                   |

## BAV19W - 21W, Case Type: SOD-123



|        |     |    |     |     |     |     |     |     |    |     |
|--------|-----|----|-----|-----|-----|-----|-----|-----|----|-----|
| BAV19W | 200 | 25 | 120 | 625 | 2.5 | 1.0 | 100 | 0.1 | 50 | 250 |
| BAV20W | 200 | 25 | 200 | 625 | 2.5 | 1.0 | 100 | 0.1 | 50 | 250 |
| BAV21W | 200 | 25 | 250 | 625 | 2.5 | 1.0 | 100 | 0.1 | 50 | 250 |

## 1N4448W, Case Type: SOD-123



|         |     |    |     |   |     |      |     |     |     |     |
|---------|-----|----|-----|---|-----|------|-----|-----|-----|-----|
| 1N4448W | 150 | 25 | 100 | - | 4.0 | 1.25 | 150 | 0.1 | 4.0 | 400 |
|---------|-----|----|-----|---|-----|------|-----|-----|-----|-----|

## 1N914W, Case Type: SOD-123



|        |     |    |     |   |     |      |    |     |     |     |
|--------|-----|----|-----|---|-----|------|----|-----|-----|-----|
| 1N914W | 200 | 25 | 100 | - | 1.0 | 1.00 | 10 | 5.0 | 4.0 | 400 |
|--------|-----|----|-----|---|-----|------|----|-----|-----|-----|

## 1N4148W/WS/WT, Case Type: SOD-123, SOD-323, SOD-523



|          |     |    |     |   |      |     |    |     |     |     |
|----------|-----|----|-----|---|------|-----|----|-----|-----|-----|
| 1N4148W  | 150 | 25 | 100 | - | 0.50 | 1.0 | 10 | 5.0 | 4.0 | 400 |
| 1N4148WS | 150 | 25 | 75  | - | 0.35 | 1.0 | 10 | 5.0 | 4.0 | 200 |
| 1N4148WT | 125 | 25 | 100 | - | 2.00 | 1.0 | 50 | 1.0 | 4.0 | 150 |

## 1SS355 Series, Case Type: SOD-323



|        |     |    |    |   |     |     |     |     |     |   |
|--------|-----|----|----|---|-----|-----|-----|-----|-----|---|
| 1SS355 | 100 | 25 | 90 | - | 0.5 | 1.2 | 100 | 0.1 | 4.0 | - |
|--------|-----|----|----|---|-----|-----|-----|-----|-----|---|

## BAS16WS, Case Type: SOD-323



|         |     |    |    |   |     |     |    |     |     |     |
|---------|-----|----|----|---|-----|-----|----|-----|-----|-----|
| BAS16WS | 250 | 25 | 75 | - | 0.5 | 1.0 | 50 | 1.0 | 6.0 | 200 |
|---------|-----|----|----|---|-----|-----|----|-----|-----|-----|

## BAV19WS Series, Case Type: SOD-323



|         |     |    |     |     |     |     |     |     |    |     |
|---------|-----|----|-----|-----|-----|-----|-----|-----|----|-----|
| BAV19WS | 200 | 25 | 100 | 625 | 1.0 | 1.0 | 100 | 0.1 | 50 | 200 |
| BAV20WS | 200 | 25 | 150 | 625 | 1.0 | 1.0 | 100 | 0.1 | 50 | 200 |
| BAV21WS | 200 | 25 | 200 | 625 | 1.0 | 1.0 | 100 | 0.1 | 50 | 200 |

## BAS216WS - 316WS, BAS321, Case Type: SOD-323



|          |     |    |     |   |     |      |     |     |     |     |
|----------|-----|----|-----|---|-----|------|-----|-----|-----|-----|
| BAS216WS | 250 | 25 | 85  | - | 4.0 | 1.25 | 150 | 1.0 | 4.0 | 400 |
| BAS316WS | 250 | 90 | 100 | - | 4.0 | 1.25 | 150 | 1.0 | 4.0 | 400 |
| BAS321   | 250 | 25 | 250 | - | 9.0 | 1.25 | 200 | 0.1 | 4.0 | 300 |

## 1SS352 Series, Case Type: SOD-323



|        |     |    |    |   |     |      |     |     |     |     |
|--------|-----|----|----|---|-----|------|-----|-----|-----|-----|
| 1SS352 | 100 | 25 | 85 | - | 1.0 | 0.98 | 100 | 0.5 | 4.0 | 200 |
|--------|-----|----|----|---|-----|------|-----|-----|-----|-----|



# High Speed Switching Diodes

The plastic material carries U/L recognition 94V-0.

| Type No. | Max. Average Forward Rectified Current |      | Max. Reverse Voltage | Max. Repetitive Peak Forward Current | Max. Repetitive Surge Current | Max. Forward Voltage Drop at Ta=25°C |                  | Max. Reverse Current at Ta=25°C | Max. Reverse Recovery Time <sup>(1)</sup> | Max. Power Dissipation |
|----------|----------------------------------------|------|----------------------|--------------------------------------|-------------------------------|--------------------------------------|------------------|---------------------------------|-------------------------------------------|------------------------|
|          | I <sub>F(AV)</sub>                     | @ Ta | V <sub>RM</sub>      | I <sub>FRM</sub>                     | I <sub>FSM</sub>              | V <sub>F</sub>                       | @ I <sub>F</sub> | I <sub>R</sub>                  | T <sub>rr</sub>                           | P <sub>D</sub>         |
|          | (mA)                                   | (°C) | (V)                  | (mA)                                 | (A)                           | (V)                                  | (mA)             | (μA)                            | (ns)                                      | (mW)                   |

## RB520S-30, Case Type: SOD-523



|           |     |    |    |   |     |     |     |     |     |   |
|-----------|-----|----|----|---|-----|-----|-----|-----|-----|---|
| RB520S-30 | 200 | 25 | 30 | - | 1.0 | 0.6 | 200 | 1.0 | 4.0 | - |
|-----------|-----|----|----|---|-----|-----|-----|-----|-----|---|

## BAS216WT, Case Type: SOD-523



|          |     |    |    |   |     |      |     |     |     |     |
|----------|-----|----|----|---|-----|------|-----|-----|-----|-----|
| BAS216WT | 250 | 25 | 85 | - | 4.0 | 1.25 | 150 | 1.0 | 4.0 | 400 |
|----------|-----|----|----|---|-----|------|-----|-----|-----|-----|

## 1N914WT, Case Type: SOD-523



|         |     |    |     |   |     |      |    |     |     |     |
|---------|-----|----|-----|---|-----|------|----|-----|-----|-----|
| 1N914WT | 200 | 25 | 100 | - | 0.5 | 1.00 | 10 | 5.0 | 4.0 | 150 |
|---------|-----|----|-----|---|-----|------|----|-----|-----|-----|

## BAS521, Case Type: SOD-523



|        |     |    |     |   |     |      |     |     |    |     |
|--------|-----|----|-----|---|-----|------|-----|-----|----|-----|
| BAS521 | 250 | 90 | 300 | - | 4.5 | 1.10 | 100 | 0.2 | 50 | 500 |
|--------|-----|----|-----|---|-----|------|-----|-----|----|-----|

## 1SS181- 7 Series, Case Type: SOT-23



|        |     |    |    |   |     |     |     |     |     |     |
|--------|-----|----|----|---|-----|-----|-----|-----|-----|-----|
| 1SS181 | 100 | 25 | 85 | - | 2.0 | 1.2 | 100 | 0.5 | 4.0 | 150 |
| 1SS184 | 100 | 25 | 85 | - | 2.0 | 1.2 | 100 | 0.5 | 4.0 | 150 |
| 1SS187 | 100 | 25 | 85 | - | 2.0 | 1.2 | 100 | 0.5 | 4.0 | 150 |

## 1SS226 , Case Type: SOT-23



|        |     |    |    |   |     |     |     |     |     |     |
|--------|-----|----|----|---|-----|-----|-----|-----|-----|-----|
| 1SS226 | 100 | 25 | 85 | - | 2.0 | 1.2 | 100 | 0.5 | 4.0 | 150 |
|--------|-----|----|----|---|-----|-----|-----|-----|-----|-----|

## BAS16, Case Type: SOT-23



|        |     |    |    |     |   |      |     |       |       |     |
|--------|-----|----|----|-----|---|------|-----|-------|-------|-----|
| BAS16  | 215 | 25 | 85 | 500 | 4 | 1.25 | 150 | 1.0   | 4.0   | 250 |
| BAS116 | 215 | 25 | 85 | 500 | 4 | 1.25 | 150 | 5(nA) | 3(μs) | 250 |

## BAS19 - 21, Case Type: SOT-23



|       |     |    |     |   |   |     |     |     |    |     |
|-------|-----|----|-----|---|---|-----|-----|-----|----|-----|
| BAS19 | 200 | 25 | 120 | - | 9 | 1.0 | 100 | 0.1 | 50 | 250 |
| BAS20 | 200 | 25 | 200 | - | 9 | 1.0 | 100 | 0.1 | 50 | 250 |
| BAS21 | 200 | 25 | 250 | - | 9 | 1.0 | 100 | 0.1 | 50 | 250 |



# High Speed Switching Diodes

The plastic material carries U/L recognition 94V-0.

| Type No. | Max. Average Forward Rectified Current |      | Max. Reverse Voltage | Max. Repetitive Peak Forward Current | Max. Repetitive Surge Current | Max. Forward Voltage Drop at Ta=25°C |                  | Max. Reverse Current at Ta=25°C | Max. Reverse Recovery Time <sup>(1)</sup> | Max. Power Dissipation |
|----------|----------------------------------------|------|----------------------|--------------------------------------|-------------------------------|--------------------------------------|------------------|---------------------------------|-------------------------------------------|------------------------|
|          | I <sub>F(AV)</sub>                     | @ Ta | V <sub>RM</sub>      | I <sub>FRM</sub>                     | I <sub>FSM</sub>              | V <sub>F</sub>                       | @ I <sub>F</sub> | I <sub>R</sub>                  | T <sub>rr</sub>                           | P <sub>D</sub>         |
|          | (mA)                                   | (°C) | (V)                  | (mA)                                 | (A)                           | (V)                                  | (mA)             | (μA)                            | (ns)                                      | (mW)                   |

## BAS70 Series, Case Type: SOT-23



|          |     |    |    |   |     |     |    |     |     |     |
|----------|-----|----|----|---|-----|-----|----|-----|-----|-----|
| BAS70-00 | 200 | 25 | 70 | - | 0.6 | 1.0 | 15 | 0.1 | 5.0 | 200 |
| BAS70-04 | 200 | 25 | 70 | - | 0.6 | 1.0 | 15 | 0.1 | 5.0 | 200 |
| BAS70-05 | 200 | 25 | 70 | - | 0.6 | 1.0 | 15 | 0.1 | 5.0 | 200 |
| BAS70-06 | 200 | 25 | 70 | - | 0.6 | 1.0 | 15 | 0.1 | 5.0 | 200 |

## BAV23 Series, Case Type: SOT-23



|         |     |    |     |     |     |     |     |     |    |     |
|---------|-----|----|-----|-----|-----|-----|-----|-----|----|-----|
| BAV23   | 400 | 25 | 250 | 625 | 9.0 | 1.0 | 100 | 0.1 | 50 | 350 |
| BAV23SE | 400 | 25 | 250 | 625 | 9.0 | 1.0 | 100 | 0.1 | 50 | 350 |
| BAV23CC | 400 | 25 | 250 | 625 | 9.0 | 1.0 | 100 | 0.1 | 50 | 350 |
| BAV23CA | 400 | 25 | 250 | 625 | 9.0 | 1.0 | 100 | 0.1 | 50 | 350 |

## BAV70 & BAV99, Case Type: SOT-23



|       |     |    |    |     |   |     |    |     |     |     |
|-------|-----|----|----|-----|---|-----|----|-----|-----|-----|
| BAV70 | 200 | 25 | 70 | -   | 2 | 1.0 | 50 | 5.0 | 6.0 | 350 |
| BAV99 | 125 | 25 | 85 | 450 | 1 | 1.0 | 50 | 1.0 | 4.0 | 250 |

## BAW56, Case Type: SOT-23



|       |     |    |    |     |   |      |     |     |     |     |
|-------|-----|----|----|-----|---|------|-----|-----|-----|-----|
| BAW56 | 125 | 25 | 85 | 450 | 4 | 1.25 | 150 | 1.0 | 4.0 | 250 |
|-------|-----|----|----|-----|---|------|-----|-----|-----|-----|

## BAT400D, Case Type: SOT-23



|         |     |    |    |   |     |      |     |    |     |     |
|---------|-----|----|----|---|-----|------|-----|----|-----|-----|
| BAT400D | 500 | 25 | 40 | - | 3.0 | 0.55 | 500 | 30 | 4.0 | 480 |
|---------|-----|----|----|---|-----|------|-----|----|-----|-----|

## MMBD914/MMBD7000, Case Type: SOT-23



|          |     |    |     |   |     |     |     |     |     |     |
|----------|-----|----|-----|---|-----|-----|-----|-----|-----|-----|
| MMBD914  | 200 | 25 | 100 | - | 0.5 | 1.0 | 10  | 5.0 | 4.0 | 225 |
| MMBD7000 | 200 | 25 | 100 | - | 2.0 | 1.1 | 100 | 3   | 4.0 | 350 |

## MMBD4148, Case Type: SOT-23



|            |     |    |     |     |     |     |    |     |     |     |
|------------|-----|----|-----|-----|-----|-----|----|-----|-----|-----|
| MMBD4148   | 200 | 25 | 100 | 700 | 1.0 | 1.0 | 10 | 5.0 | 4.0 | 350 |
| MMBD4148SE | 200 | 25 | 100 | 700 | 1.0 | 1.0 | 10 | 5.0 | 4.0 | 350 |
| MMBD4148CC | 200 | 25 | 100 | 700 | 1.0 | 1.0 | 10 | 5.0 | 4.0 | 350 |
| MMBD4148CA | 200 | 25 | 100 | 700 | 1.0 | 1.0 | 10 | 5.0 | 4.0 | 350 |



# High Voltage Rectifier Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.   |     | Max. Average Forward Rectified Current |      | Max. Repetitive Peak Reverse Voltage | Max. Repetitive Peak Forward Current | Max. Peak Forward Surge Current | Max. Forward Voltage Drop at Ta=25°C |      | Max. Reverse Current at Ta=25°C |
|------------|-----|----------------------------------------|------|--------------------------------------|--------------------------------------|---------------------------------|--------------------------------------|------|---------------------------------|
|            |     | IF(AV)                                 | @ Ta | VRRM                                 | IFRM                                 | IFSM                            | VF                                   | @ IF | IR                              |
| Axial Lead | SMD | (A)                                    | (°C) | (V)                                  | (A)                                  | (A)                             | (V)                                  | (A)  | (μA)                            |

## HVR125 Series, 0.2 - 0.5 A, Case Type: DO-41



|        |  |     |    |      |     |    |     |     |     |
|--------|--|-----|----|------|-----|----|-----|-----|-----|
| HVR125 |  | 0.5 | 50 | 2500 | 5.0 | 30 | 3.3 | 1.0 | 5.0 |
| HVR130 |  | 0.5 | 50 | 3000 | 5.0 | 30 | 3.3 | 1.0 | 5.0 |
| HVR140 |  | 0.3 | 50 | 4000 | 5.0 | 30 | 5.0 | 1.0 | 5.0 |
| HVR150 |  | 0.3 | 50 | 5000 | 5.0 | 30 | 5.0 | 1.0 | 5.0 |
| HVR160 |  | 0.2 | 50 | 6000 | 5.0 | 30 | 8.0 | 1.0 | 5.0 |
| HVR170 |  | 0.2 | 50 | 7000 | 5.0 | 30 | 8.0 | 1.0 | 5.0 |
| HVR180 |  | 0.2 | 50 | 8000 | 5.0 | 30 | 8.0 | 1.0 | 5.0 |

## GP02-20 Series, 0.25 A, Case Type: DO-41



|         |  |      |    |      |   |    |     |     |     |
|---------|--|------|----|------|---|----|-----|-----|-----|
| GP02-20 |  | 0.25 | 55 | 2000 | - | 15 | 3.0 | 1.0 | 5.0 |
| GP02-25 |  | 0.25 | 55 | 2500 | - | 15 | 3.0 | 1.0 | 5.0 |
| GP02-30 |  | 0.25 | 55 | 3000 | - | 15 | 3.0 | 1.0 | 5.0 |
| GP02-35 |  | 0.25 | 55 | 3500 | - | 15 | 3.0 | 1.0 | 5.0 |
| GP02-40 |  | 0.25 | 55 | 4000 | - | 15 | 3.0 | 1.0 | 5.0 |

## HVR230 Series, 0.5 - 1 A, Case Type: D2



|        |  |     |    |      |   |    |     |     |     |
|--------|--|-----|----|------|---|----|-----|-----|-----|
| HVR230 |  | 1.0 | 50 | 3000 | - | 50 | 3.0 | 1.0 | 5.0 |
| HVR250 |  | 0.5 | 50 | 5000 | - | 50 | 5.0 | 1.0 | 5.0 |

## HVR112/SN1N Series, 1 A, Case Type: DO-41/SMA



|        |      |     |    |      |     |    |     |     |     |
|--------|------|-----|----|------|-----|----|-----|-----|-----|
| HVR112 | SN1N | 1.0 | 75 | 1200 | 5.0 | 30 | 2.2 | 1.0 | 5.0 |
| HVR114 | SN1O | 1.0 | 75 | 1400 | 5.0 | 30 | 2.2 | 1.0 | 5.0 |
| HVR116 | SN1P | 1.0 | 75 | 1600 | 5.0 | 30 | 2.2 | 1.0 | 5.0 |
| HVR118 | SN1Q | 1.0 | 75 | 1800 | 5.0 | 30 | 2.2 | 1.0 | 5.0 |
| HVR120 | SN1R | 1.0 | 75 | 2000 | 5.0 | 30 | 2.2 | 1.0 | 5.0 |
|        | S1T  | 1.0 | 75 | 3000 | -   | 30 | 3.0 | 1.0 | 5.0 |

## SHV-01JN - SHV-06HN, 2 - 30 mA, Case Type: M1A & DO-41



|           |  |       |    |      |   |     |     |       |     |
|-----------|--|-------|----|------|---|-----|-----|-------|-----|
| SHV-01JN* |  | 0.030 | 25 | 500  | - | 3.0 | 1.0 | 0.010 | 10  |
| SHV-02JN  |  | 0.030 | 25 | 1000 | - | 3.0 | 2.0 | 0.010 | 10  |
| SHV-06JN  |  | 0.030 | 25 | 3000 | - | 3.0 | 6.0 | 0.010 | 10  |
| SHV-05J   |  | 0.030 | 25 | 2500 | - | 3.0 | 5.0 | 0.010 | 10  |
| SHV-04    |  | 0.002 | 25 | 4000 | - | 0.5 | 20  | 0.010 | 1.0 |
| SHV-06HN  |  | 0.002 | 25 | 6000 | - | 0.5 | 24  | 0.010 | 1.0 |

\* M1A Package

## HVR3509/HVR3509H, 0.35A, Case Type: DO-201AD



|          |  |       |    |      |   |    |     |      |     |
|----------|--|-------|----|------|---|----|-----|------|-----|
| HVR3509  |  | 0.35A | 25 | 9000 | - | 30 | 8.0 | 0.35 | 5.0 |
| HVR3509H |  | 0.35A | 25 | 9000 | - | 30 | 10  | 0.35 | 5.0 |



## High Voltage Rectifier Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.   |     | Max. Average Forward Rectified Current |      | Max. Repetitive Peak Reverse Voltage | Max. Repetitive Peak Forward Current | Max. Peak Forward Surge Current | Max. Forward Voltage Drop at Ta=25°C |                  | Max. Reverse Current at Ta=25°C |
|------------|-----|----------------------------------------|------|--------------------------------------|--------------------------------------|---------------------------------|--------------------------------------|------------------|---------------------------------|
|            |     | I <sub>F(AV)</sub>                     | @ Ta | V <sub>RRM</sub>                     | I <sub>FRM</sub>                     | I <sub>FSM</sub>                | V <sub>F</sub>                       | @ I <sub>F</sub> | I <sub>R</sub>                  |
| Axial Lead | SMD | (A)                                    | (°C) | (V)                                  | (A)                                  | (A)                             | (V)                                  | (A)              | (μA)                            |

### HVR4509 , 0.45A, Case Type: DO-201AD



|         |  |       |    |      |   |    |     |      |     |
|---------|--|-------|----|------|---|----|-----|------|-----|
| HVR4509 |  | 0.45A | 25 | 9000 | - | 30 | 8.0 | 0.45 | 5.0 |
|---------|--|-------|----|------|---|----|-----|------|-----|

### HVR312/SN3N Series, 3 A, Case Type: DO-201AD/SMC



|        |      |     |    |      |    |     |     |     |    |
|--------|------|-----|----|------|----|-----|-----|-----|----|
| HVR312 | SN3N | 3.0 | 50 | 1200 | 10 | 100 | 2.2 | 3.0 | 10 |
| HVR314 | SN3O | 3.0 | 50 | 1400 | 10 | 100 | 2.2 | 3.0 | 10 |
| HVR316 | SN3P | 3.0 | 50 | 1600 | 10 | 100 | 2.2 | 3.0 | 10 |
| HVR318 | SN3Q | 3.0 | 50 | 1800 | 10 | 100 | 2.2 | 3.0 | 10 |
| HVR320 | SN3R | 3.0 | 50 | 2000 | 10 | 100 | 2.2 | 3.0 | 10 |

### HVR512/SN5N Series, 5 A, Case Type: DO-201AD/SMC



|        |      |     |    |      |    |     |     |     |    |
|--------|------|-----|----|------|----|-----|-----|-----|----|
| HVR512 | SN5N | 5.0 | 50 | 1200 | 20 | 200 | 2.2 | 5.0 | 10 |
| HVR514 | SN5O | 5.0 | 50 | 1400 | 20 | 200 | 2.2 | 5.0 | 10 |
| HVR516 | SN5P | 5.0 | 50 | 1600 | 20 | 200 | 2.2 | 5.0 | 10 |
| HVR518 | SN5Q | 5.0 | 50 | 1800 | 20 | 200 | 2.2 | 5.0 | 10 |
| HVR520 | SN5R | 5.0 | 50 | 2000 | 20 | 200 | 2.2 | 5.0 | 10 |

Note: V<sub>RRM</sub> > 2000 V is available on special request

## High Voltage Fast Recovery Rectifier Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.   |     | Max. Average Forward Rectified Current |      | Max. Repetitive Peak Reverse Voltage | Max. Reverse Recovery Time | Max. Peak Forward Surge Current | Max. Forward Voltage Drop at Ta=25°C |                  | Max. Reverse Current at Ta=25°C |
|------------|-----|----------------------------------------|------|--------------------------------------|----------------------------|---------------------------------|--------------------------------------|------------------|---------------------------------|
|            |     | Current                                |      | Voltage                              | Time                       | Current                         | at Ta=25°C                           |                  | at Ta=25°C                      |
|            |     | I <sub>F(AV)</sub>                     | @ Ta | V <sub>RRM</sub>                     | T <sub>rr</sub>            | I <sub>FSM</sub>                | V <sub>F</sub>                       | @ I <sub>F</sub> | I <sub>R</sub>                  |
| Axial Lead | SMD | (A)                                    | (°C) | (V)                                  | (ns)                       | (A)                             | (V)                                  | (A)              | (μA)                            |

### SHV-02 -SHV-03S, 2 mA, Case Type: M1A



|         |  |       |    |      |                    |     |    |       |     |
|---------|--|-------|----|------|--------------------|-----|----|-------|-----|
| SHV-02  |  | 0.002 | 25 | 2000 | 180 <sup>(1)</sup> | 0.3 | 16 | 0.010 | 1.0 |
| SHV-03  |  | 0.002 | 25 | 3000 | 180 <sup>(1)</sup> | 0.5 | 16 | 0.010 | 1.0 |
| SHV-03S |  | 0.002 | 25 | 3000 | 180 <sup>(1)</sup> | 0.3 | 16 | 0.010 | 1.0 |

### SHV- 05EN - SHV- 08EN, 2 mA, Case Type: DO-41



|          |  |       |    |      |                    |     |    |       |     |
|----------|--|-------|----|------|--------------------|-----|----|-------|-----|
| SHV-05EN |  | 0.002 | 25 | 5000 | 150 <sup>(1)</sup> | 0.5 | 20 | 0.010 | 1.0 |
| SHV-06EN |  | 0.002 | 25 | 6000 | 150 <sup>(1)</sup> | 0.5 | 24 | 0.010 | 1.0 |
| SHV-08EN |  | 0.002 | 25 | 8000 | 50 <sup>(2)</sup>  | 0.5 | 30 | 0.010 | 1.0 |

Notes:

- (1) Reverse Recovery Test Conditions : I<sub>F</sub> = 10 mA, I<sub>RP</sub> = 10 mA.
- (2) Reverse Recovery Test Conditions : I<sub>F</sub> = 0.5A, I<sub>R</sub> = 1 A, I<sub>rr</sub> = 0.25 A



# High Voltage Fast Recovery Rectifier Diodes

The plastic material carries U/L recognition 94V-0.

| Type No. | Max. Average Forward Rectified Current |      | Max. Repetitive Peak Reverse Voltage | Max. Repetitive Peak Forward Current | Max. Peak Forward Surge Current | Max. Forward Voltage Drop at Ta=25°C |     | Max. Reverse Current at Ta=25°C | Max. Reverse Recovery Time <sup>(1)</sup> |
|----------|----------------------------------------|------|--------------------------------------|--------------------------------------|---------------------------------|--------------------------------------|-----|---------------------------------|-------------------------------------------|
|          | I <sub>F(AV)</sub> @ T <sub>a</sub>    |      | V <sub>RRM</sub>                     | I <sub>FRM</sub>                     | I <sub>FSM</sub>                | V <sub>F</sub> @ I <sub>F</sub>      |     | I <sub>R</sub>                  | T <sub>rr</sub>                           |
|          | (A)                                    | (°C) | (V)                                  | (A)                                  | (A)                             | (V)                                  | (A) | (μA)                            | (ns)                                      |

## BY8004 Series, Case Type: DO-41



|        |      |     |      |     |   |    |     |       |     |
|--------|------|-----|------|-----|---|----|-----|-------|-----|
| BY8004 | 0.02 | 90  | 5000 | 0.5 | - | 20 | 0.1 | 3.0 * | 100 |
| BY8006 | 0.01 | 100 | 8000 | 0.5 | - | 25 | 0.1 | 3.0 * | 100 |

\* T<sub>j</sub>=120°C

## HFR125 Series, 0.25 - 0.30 A, Case Type: DO-41



|        |      |    |      |   |    |     |      |     |     |
|--------|------|----|------|---|----|-----|------|-----|-----|
| HFR125 | 0.25 | 50 | 2500 | - | 30 | 5.0 | 0.25 | 1.0 | 250 |
| HFR130 | 0.25 | 50 | 3000 | - | 30 | 7.0 | 0.25 | 1.0 | 200 |
| HFR180 | 0.30 | 50 | 8000 | - | 40 | 9.0 | 0.3  | 5.0 | 200 |

## HUF150 , 0.5 A, Case Type: DO-41



|        |     |    |      |   |    |      |     |     |    |
|--------|-----|----|------|---|----|------|-----|-----|----|
| HUF150 | 0.5 | 50 | 5000 | - | 20 | 12.0 | 0.5 | 5.0 | 90 |
|--------|-----|----|------|---|----|------|-----|-----|----|

## GS1S , 0.2 A, Case Type: SMA



|      |     |    |      |   |    |     |     |     |    |
|------|-----|----|------|---|----|-----|-----|-----|----|
| GS1S | 0.2 | 25 | 2500 | - | 30 | 6.0 | 0.2 | 1.0 | 35 |
|------|-----|----|------|---|----|-----|-----|-----|----|

## RGP02 Series, 0.5 A, Case Type: DO-41



|           |     |    |      |     |    |     |     |     |     |
|-----------|-----|----|------|-----|----|-----|-----|-----|-----|
| RGP02-12E | 0.5 | 55 | 1200 | 5.0 | 20 | 1.8 | 0.1 | 5.0 | 300 |
| RGP02-14E | 0.5 | 55 | 1400 | 5.0 | 20 | 1.8 | 0.1 | 5.0 | 300 |
| RGP02-16E | 0.5 | 55 | 1600 | 5.0 | 20 | 1.8 | 0.1 | 5.0 | 300 |
| RGP02-18E | 0.5 | 55 | 1800 | 5.0 | 20 | 1.8 | 0.1 | 5.0 | 300 |
| RGP02-20E | 0.5 | 55 | 2000 | 5.0 | 20 | 1.8 | 0.1 | 5.0 | 300 |

## SR1P Series, 0.5 A, Case Type: SMA



|      |     |    |      |   |    |     |     |     |     |
|------|-----|----|------|---|----|-----|-----|-----|-----|
| SR1N | 0.5 | 75 | 1200 | - | 30 | 2.6 | 1.0 | 5.0 | 300 |
| SR1O | 0.5 | 75 | 1400 | - | 30 | 2.6 | 1.0 | 5.0 | 300 |
| SR1P | 0.5 | 75 | 1600 | - | 30 | 2.6 | 1.0 | 5.0 | 300 |
| SR1R | 0.5 | 75 | 2000 | - | 30 | 3.0 | 0.5 | 5.0 | 500 |

## GR15 Series, 1 A, Case Type: DO-215AC



|        |     |    |      |   |    |     |     |     |     |
|--------|-----|----|------|---|----|-----|-----|-----|-----|
| GR15-G | 0.5 | 55 | 1500 | - | 20 | 2.0 | 0.1 | 5.0 | 300 |
| GR20-G | 0.5 | 55 | 2000 | - | 20 | 2.4 | 0.1 | 5.0 | 500 |

## UHVR112, 1.0A Case Type: DO-41



|         |     |    |      |   |    |     |     |     |    |
|---------|-----|----|------|---|----|-----|-----|-----|----|
| UHVR112 | 1.0 | 75 | 1200 | - | 30 | 2.2 | 1.0 | 5.0 | 75 |
|---------|-----|----|------|---|----|-----|-----|-----|----|

## 3TH41 Series, 3 A, Case Type: DO-201AD



|       |     |    |      |   |    |     |     |    |                      |
|-------|-----|----|------|---|----|-----|-----|----|----------------------|
| 3TH41 | 3.0 | 25 | 1500 | - | 50 | 1.2 | 3.0 | 10 | 1.5μs <sup>(2)</sup> |
|-------|-----|----|------|---|----|-----|-----|----|----------------------|

## FHVR1120, 0.2A Case Type: D2



|          |     |    |       |   |    |    |     |     |     |
|----------|-----|----|-------|---|----|----|-----|-----|-----|
| FHVR1120 | 0.2 | 50 | 12000 | - | 20 | 13 | 0.2 | 5.0 | 150 |
|----------|-----|----|-------|---|----|----|-----|-----|-----|

Notes: (1) Reverse Recovery test conditions : I<sub>F</sub> = 0.5A, I<sub>R</sub> = 1 A, I<sub>rr</sub> = 0.25 A

(2) Reverse Recovery test conditions : I<sub>F</sub> = 100 mA, I<sub>R</sub> = 100 mA



## Cell Rectifier Diodes

| Type No. | Max. Average Forward Rectified Current |      | Max. Repetitive Peak Reverse Voltage | Max. Repetitive Peak Forward Current | Max. Peak Forward Surge Current | Max. Forward Voltage Drop at Ta=25°C |                  | Max. Reverse Current at Ta=25°C |
|----------|----------------------------------------|------|--------------------------------------|--------------------------------------|---------------------------------|--------------------------------------|------------------|---------------------------------|
|          | I <sub>F(AV)</sub>                     | @ Ta | V <sub>RRM</sub>                     | I <sub>FRM</sub>                     | I <sub>FSM</sub>                | V <sub>F</sub>                       | @ I <sub>F</sub> | I <sub>R</sub>                  |
|          | (A)                                    | (°C) | (V)                                  | (A)                                  | (A)                             | (V)                                  | (A)              | (μA)                            |

### CN3 Series, 3 A, Case Type: C3A



|      |     |    |      |    |     |     |     |     |
|------|-----|----|------|----|-----|-----|-----|-----|
| CN3A | 3.0 | 75 | 50   | 30 | 200 | 1.1 | 3.0 | 5.0 |
| CN3B | 3.0 | 75 | 100  | 30 | 200 | 1.1 | 3.0 | 5.0 |
| CN3D | 3.0 | 75 | 200  | 30 | 200 | 1.1 | 3.0 | 5.0 |
| CN3G | 3.0 | 75 | 400  | 30 | 200 | 1.1 | 3.0 | 5.0 |
| CN3J | 3.0 | 75 | 600  | 30 | 200 | 1.1 | 3.0 | 5.0 |
| CN3K | 3.0 | 75 | 800  | 30 | 200 | 1.1 | 3.0 | 5.0 |
| CN3M | 3.0 | 75 | 1000 | 30 | 200 | 1.1 | 3.0 | 5.0 |

### CN5 Series, 5 A, Case Type: C5A



|      |     |    |      |    |     |     |     |     |
|------|-----|----|------|----|-----|-----|-----|-----|
| CN5A | 5.0 | 75 | 50   | 60 | 250 | 1.1 | 5.0 | 5.0 |
| CN5B | 5.0 | 75 | 100  | 60 | 250 | 1.1 | 5.0 | 5.0 |
| CN5D | 5.0 | 75 | 200  | 60 | 250 | 1.1 | 5.0 | 5.0 |
| CN5G | 5.0 | 75 | 400  | 60 | 250 | 1.1 | 5.0 | 5.0 |
| CN5J | 5.0 | 75 | 600  | 60 | 250 | 1.1 | 5.0 | 5.0 |
| CN5K | 5.0 | 75 | 800  | 60 | 250 | 1.1 | 5.0 | 5.0 |
| CN5M | 5.0 | 75 | 1000 | 60 | 250 | 1.1 | 5.0 | 5.0 |

### CN8 Series, 8 A, Case Type: C8A



|      |     |    |      |    |     |     |     |     |
|------|-----|----|------|----|-----|-----|-----|-----|
| CN8A | 8.0 | 75 | 50   | 60 | 300 | 1.1 | 8.0 | 5.0 |
| CN8B | 8.0 | 75 | 100  | 60 | 300 | 1.1 | 8.0 | 5.0 |
| CN8D | 8.0 | 75 | 200  | 60 | 300 | 1.1 | 8.0 | 5.0 |
| CN8G | 8.0 | 75 | 400  | 60 | 300 | 1.1 | 8.0 | 5.0 |
| CN8J | 8.0 | 75 | 600  | 60 | 300 | 1.1 | 8.0 | 5.0 |
| CN8K | 8.0 | 75 | 800  | 60 | 300 | 1.1 | 8.0 | 5.0 |
| CN8M | 8.0 | 75 | 1000 | 60 | 300 | 1.1 | 8.0 | 5.0 |

### CN18 Series, 18 A, Case Type: C18A



|       |    |    |      |    |     |     |    |     |
|-------|----|----|------|----|-----|-----|----|-----|
| CN18A | 18 | 75 | 50   | 75 | 400 | 1.1 | 18 | 5.0 |
| CN18B | 18 | 75 | 100  | 75 | 400 | 1.1 | 18 | 5.0 |
| CN18D | 18 | 75 | 200  | 75 | 400 | 1.1 | 18 | 5.0 |
| CN18G | 18 | 75 | 400  | 75 | 400 | 1.1 | 18 | 5.0 |
| CN18J | 18 | 75 | 600  | 75 | 400 | 1.1 | 18 | 5.0 |
| CN18K | 18 | 75 | 800  | 75 | 400 | 1.1 | 18 | 5.0 |
| CN18M | 18 | 75 | 1000 | 75 | 400 | 1.1 | 18 | 5.0 |

### CN25 Series, 25 A, Case Type: C18A



|       |    |    |      |    |     |     |    |     |
|-------|----|----|------|----|-----|-----|----|-----|
| CN25A | 25 | 75 | 50   | 75 | 400 | 1.1 | 25 | 5.0 |
| CN25B | 25 | 75 | 100  | 75 | 400 | 1.1 | 25 | 5.0 |
| CN25D | 25 | 75 | 200  | 75 | 400 | 1.1 | 25 | 5.0 |
| CN25G | 25 | 75 | 400  | 75 | 400 | 1.1 | 25 | 5.0 |
| CN25J | 25 | 75 | 600  | 75 | 400 | 1.1 | 25 | 5.0 |
| CN25K | 25 | 75 | 800  | 75 | 400 | 1.1 | 25 | 5.0 |
| CN25M | 25 | 75 | 1000 | 75 | 400 | 1.1 | 25 | 5.0 |



# Automotive Rectifier Diodes

The plastic material carries U/L recognition 94V-0.

| Type No. | Max. Average Forward Rectified Current |      | Max. Repetitive Peak Reverse Voltage | Max. Repetitive Peak Forward Current | Max. Peak Forward Surge Current | Max. Forward Voltage Drop at Ta=25°C |                  | Max. Reverse Current at Ta=25°C |
|----------|----------------------------------------|------|--------------------------------------|--------------------------------------|---------------------------------|--------------------------------------|------------------|---------------------------------|
|          | I <sub>F(AV)</sub>                     | @ Ta | V <sub>RRM</sub>                     | I <sub>FRM</sub>                     | I <sub>FSM</sub>                | V <sub>F</sub>                       | @ I <sub>F</sub> | I <sub>R</sub>                  |
|          | (A)                                    | (°C) | (V)                                  | (A)                                  | (A)                             | (V)                                  | (A)              | (μA)                            |

## AR2500/MR2500 Series, 25 A, Case Type: BUTTON/MR



|                       |                       |    |     |      |    |     |     |    |     |
|-----------------------|-----------------------|----|-----|------|----|-----|-----|----|-----|
| AR2500 <sup>(1)</sup> | MR2500 <sup>(1)</sup> | 25 | 150 | 50   | 75 | 400 | 1.0 | 25 | 5.0 |
| AR2501 <sup>(1)</sup> | MR2501 <sup>(1)</sup> | 25 | 150 | 100  | 75 | 400 | 1.0 | 25 | 5.0 |
| AR2502 <sup>(1)</sup> | MR2502 <sup>(1)</sup> | 25 | 150 | 200  | 75 | 400 | 1.0 | 25 | 5.0 |
| AR2504 <sup>(1)</sup> | MR2504 <sup>(1)</sup> | 25 | 150 | 400  | 75 | 400 | 1.0 | 25 | 5.0 |
| AR2506 <sup>(1)</sup> | MR2506 <sup>(1)</sup> | 25 | 150 | 600  | 75 | 400 | 1.0 | 25 | 5.0 |
| AR2508 <sup>(1)</sup> | MR2508 <sup>(1)</sup> | 25 | 150 | 800  | 75 | 400 | 1.0 | 25 | 5.0 |
| AR2510 <sup>(1)</sup> | MR2510 <sup>(1)</sup> | 25 | 150 | 1000 | 75 | 400 | 1.0 | 25 | 5.0 |
| AR2512 <sup>(1)</sup> | MR2512 <sup>(1)</sup> | 25 | 150 | 1200 | 75 | 400 | 1.0 | 25 | 5.0 |

## AR3500/MR3500 Series, 35 A, Case Type: BUTTON/MR



|                       |                       |    |     |      |    |     |     |    |     |
|-----------------------|-----------------------|----|-----|------|----|-----|-----|----|-----|
| AR3500 <sup>(1)</sup> | MR3500 <sup>(1)</sup> | 35 | 150 | 50   | 75 | 400 | 1.1 | 35 | 5.0 |
| AR3501 <sup>(1)</sup> | MR3501 <sup>(1)</sup> | 35 | 150 | 100  | 75 | 400 | 1.1 | 35 | 5.0 |
| AR3502 <sup>(1)</sup> | MR3502 <sup>(1)</sup> | 35 | 150 | 200  | 75 | 400 | 1.1 | 35 | 5.0 |
| AR3504 <sup>(1)</sup> | MR3504 <sup>(1)</sup> | 35 | 150 | 400  | 75 | 400 | 1.1 | 35 | 5.0 |
| AR3506 <sup>(1)</sup> | MR3506 <sup>(1)</sup> | 35 | 150 | 600  | 75 | 400 | 1.1 | 35 | 5.0 |
| AR3508 <sup>(1)</sup> | MR3508 <sup>(1)</sup> | 35 | 150 | 800  | 75 | 400 | 1.1 | 35 | 5.0 |
| AR3510 <sup>(1)</sup> | MR3510 <sup>(1)</sup> | 35 | 150 | 1000 | 75 | 400 | 1.1 | 35 | 5.0 |
| AR3512 <sup>(1)</sup> | MR3512 <sup>(1)</sup> | 35 | 150 | 1200 | 75 | 400 | 1.1 | 35 | 5.0 |

## AR5000/MR5000 Series, 50 A, Case Type: BUTTON/MR



|                       |                       |    |     |      |    |     |     |    |     |
|-----------------------|-----------------------|----|-----|------|----|-----|-----|----|-----|
| AR5000 <sup>(1)</sup> | MR5000 <sup>(1)</sup> | 50 | 150 | 50   | 75 | 500 | 1.1 | 50 | 5.0 |
| AR5001 <sup>(1)</sup> | MR5001 <sup>(1)</sup> | 50 | 150 | 100  | 75 | 500 | 1.1 | 50 | 5.0 |
| AR5002 <sup>(1)</sup> | MR5002 <sup>(1)</sup> | 50 | 150 | 200  | 75 | 500 | 1.1 | 50 | 5.0 |
| AR5004 <sup>(1)</sup> | MR5004 <sup>(1)</sup> | 50 | 150 | 400  | 75 | 500 | 1.1 | 50 | 5.0 |
| AR5006 <sup>(1)</sup> | MR5006 <sup>(1)</sup> | 50 | 150 | 600  | 75 | 500 | 1.1 | 50 | 5.0 |
| AR5008 <sup>(1)</sup> | MR5008 <sup>(1)</sup> | 50 | 150 | 800  | 75 | 500 | 1.1 | 50 | 5.0 |
| AR5010 <sup>(1)</sup> | MR5010 <sup>(1)</sup> | 50 | 150 | 1000 | 75 | 500 | 1.1 | 50 | 5.0 |
| AR5012 <sup>(1)</sup> | MR5012 <sup>(1)</sup> | 50 | 150 | 1200 | 75 | 500 | 1.1 | 50 | 5.0 |

## MR750 Series, 22 A, Case Type: D6



|       |  |    |                      |      |   |     |     |     |    |
|-------|--|----|----------------------|------|---|-----|-----|-----|----|
| MR750 |  | 22 | 60 (T <sub>L</sub> ) | 50   | - | 400 | 0.9 | 6.0 | 25 |
| MR751 |  | 22 | 60 (T <sub>L</sub> ) | 100  | - | 400 | 0.9 | 6.0 | 25 |
| MR752 |  | 22 | 60 (T <sub>L</sub> ) | 200  | - | 400 | 0.9 | 6.0 | 25 |
| MR754 |  | 22 | 60 (T <sub>L</sub> ) | 400  | - | 400 | 0.9 | 6.0 | 25 |
| MR756 |  | 22 | 60 (T <sub>L</sub> ) | 600  | - | 400 | 0.9 | 6.0 | 25 |
| MR758 |  | 22 | 60 (T <sub>L</sub> ) | 800  | - | 400 | 0.9 | 6.0 | 25 |
| MR760 |  | 22 | 60 (T <sub>L</sub> ) | 1000 | - | 400 | 0.9 | 6.0 | 25 |

Note:

(1) Wire leads version available in case type D6 ; Add suffix "L" e.g. AR2500L



# Avalanche Rectifier Diodes

The plastic material carries U/L recognition 94V-0.

| Type No. | Max. Allowable<br>Avalanche Current<br>(Note 1) | Max. Repetitive<br>Peak Reverse<br>Voltage | Min. Avalanche<br>Breakdown<br>Voltage @ 1 mA | Max. Avalanche<br>Breakdown<br>Voltage @ 1 mA | Max. Peak<br>Forward Surge<br>Current | Max. Reverse<br>Current<br>at Ta=25°C |
|----------|-------------------------------------------------|--------------------------------------------|-----------------------------------------------|-----------------------------------------------|---------------------------------------|---------------------------------------|
|          | I <sub>ZSM</sub>                                | V <sub>RRM</sub>                           | V <sub>BR</sub> (Min)                         | V <sub>BR</sub> (Max)                         | I <sub>FSM</sub>                      | I <sub>R</sub>                        |
|          | (A)                                             | (V)                                        | (V)                                           | (V)                                           | (A)                                   | (μA)                                  |

## R2G Series, 1 A, Case Type: D2



|      |     |     |     |     |    |     |
|------|-----|-----|-----|-----|----|-----|
| R2G  | 1.0 | 115 | 120 | 145 | -  | 10  |
| R2M  | 1.0 | 130 | 135 | 180 | 75 | 5.0 |
| R2KN | 1.0 | 140 | 150 | 170 | -  | 10  |
| R2KS | 1.0 | 145 | 160 | 180 | -  | 10  |
| R2K  | 1.0 | 150 | 170 | 200 | -  | 10  |

## BYD13D Series, 1.4 A, Case Type: DO-41



|        |     |      |      |   |    |     |
|--------|-----|------|------|---|----|-----|
| BYD13D | 1.4 | 200  | 225  | - | 20 | 1.0 |
| BYD13G | 1.4 | 400  | 450  | - | 20 | 1.0 |
| BYD13J | 1.4 | 600  | 650  | - | 20 | 1.0 |
| BYD13K | 1.4 | 800  | 900  | - | 20 | 1.0 |
| BYD13M | 1.4 | 1000 | 1100 | - | 20 | 1.0 |

## BYD17D Series, 1.5 A, Case Type: MELF(Pastic)



|        |     |      |    |      |     |     |
|--------|-----|------|----|------|-----|-----|
| BYD17D | 1.5 | 225  | 20 | 1.05 | 1.0 | 1.0 |
| BYD17G | 1.5 | 450  | 20 | 1.05 | 1.0 | 1.0 |
| BYD17J | 1.5 | 650  | 20 | 1.05 | 1.0 | 1.0 |
| BYD17K | 1.5 | 900  | 20 | 1.05 | 1.0 | 1.0 |
| BYD17M | 1.5 | 1100 | 20 | 1.05 | 1.0 | 1.0 |

## BYW54 Series, 2.0 A, Case Type: D2



|       |     |      |      |   |    |     |
|-------|-----|------|------|---|----|-----|
| BYW54 | 2.0 | 600  | 650  | - | 50 | 1.0 |
| BYW55 | 2.0 | 800  | 900  | - | 50 | 1.0 |
| BYW56 | 2.0 | 1000 | 1100 | - | 50 | 1.0 |

## R2KY Series, 2.0 - 3.0 A, Case Type: D2



|      |     |     |     |      |   |     |
|------|-----|-----|-----|------|---|-----|
| R2KY | 2.0 | 120 | 130 | 155  | - | 10  |
| RM25 | 3.0 | 40  | 50  | 61.5 | - | 5.0 |

## BYX134PL Series, 0.05 A, Case Type: D2



|          |      |      |      |      |   |     |
|----------|------|------|------|------|---|-----|
| BYX134PL | 0.05 | 4000 | 5500 | 7500 | - | 1.0 |
|----------|------|------|------|------|---|-----|

\* For case type DO-41 ; Add suffix "G" e.g. BYX134GPL

Note : (1) 100 μs single square pulse



# Avalanche Fast Recovery Rectifier Diodes

The plastic material carries U/L recognition 94V-0.

| Type No. | Max. Average Forward Rectified Current |                   | Max. Repetitive Peak Reverse Voltage | Min. Avalanche Breakdown Voltage @ 100 $\mu$ A | Max. Peak Forward Surge Current | Max. Forward Voltage Drop at Ta=25°C |                  | Max. Reverse Current at Ta=25°C | Max. Reverse Recovery Time     |
|----------|----------------------------------------|-------------------|--------------------------------------|------------------------------------------------|---------------------------------|--------------------------------------|------------------|---------------------------------|--------------------------------|
|          | I <sub>F(AV)</sub>                     | @ T <sub>tp</sub> | V <sub>RRM</sub>                     | V <sub>BR(Min)</sub>                           | I <sub>FSM</sub>                | V <sub>F</sub>                       | @ I <sub>F</sub> | I <sub>R</sub>                  | T <sub>rr</sub> <sup>(1)</sup> |
|          | (A)                                    | (°C)              | (V)                                  | (V)                                            | (A)                             | (V)                                  | (A)              | (mA)                            | (ns)                           |

## BAX12 Series, 0.4 A, Case Type: DO-35



|        |     |    |    |     |    |      |     |     |    |
|--------|-----|----|----|-----|----|------|-----|-----|----|
| BAX12  | 0.4 | 25 | 90 | 120 | 15 | 1.25 | 0.4 | 0.1 | 50 |
| BAX12A | 0.4 | 25 | 90 | 120 | 15 | 1.25 | 0.4 | 0.1 | 50 |

## BYV26A Series, 1 A, Case Type: DO-41



|        |     |    |      |      |    |     |     |     |    |
|--------|-----|----|------|------|----|-----|-----|-----|----|
| BYV26A | 1.0 | 55 | 200  | 300  | 30 | 2.5 | 1.0 | 5.0 | 30 |
| BYV26B | 1.0 | 55 | 400  | 500  | 30 | 2.5 | 1.0 | 5.0 | 30 |
| BYV26C | 1.0 | 55 | 600  | 700  | 30 | 2.5 | 1.0 | 5.0 | 30 |
| BYV26D | 1.0 | 55 | 800  | 900  | 30 | 2.5 | 1.0 | 5.0 | 75 |
| BYV26E | 1.0 | 55 | 1000 | 1100 | 30 | 2.5 | 1.0 | 5.0 | 75 |

## BYD33D Series, 1.3 A, Case Type: DO-41



|        |     |    |      |      |    |     |     |     |     |
|--------|-----|----|------|------|----|-----|-----|-----|-----|
| BYD33D | 1.3 | 55 | 200  | 300  | 20 | 1.3 | 1.0 | 1.0 | 250 |
| BYD33G | 1.3 | 55 | 400  | 500  | 20 | 1.3 | 1.0 | 1.0 | 250 |
| BYD33J | 1.3 | 55 | 600  | 700  | 20 | 1.3 | 1.0 | 1.0 | 250 |
| BYD33K | 1.3 | 55 | 800  | 900  | 20 | 1.3 | 1.0 | 1.0 | 300 |
| BYD33M | 1.3 | 55 | 1000 | 1100 | 20 | 1.3 | 1.0 | 1.0 | 300 |

## BYV36 Series, 1.5 - 1.6 A, Case Type: DO-15



|        |     |    |      |      |    |      |     |     |     |
|--------|-----|----|------|------|----|------|-----|-----|-----|
| BYV36A | 1.6 | 60 | 200  | 300  | 30 | 1.35 | 1.0 | 5.0 | 100 |
| BYV36B | 1.6 | 60 | 400  | 500  | 30 | 1.35 | 1.0 | 5.0 | 100 |
| BYV36C | 1.6 | 60 | 600  | 700  | 30 | 1.35 | 1.0 | 5.0 | 100 |
| BYV36D | 1.5 | 60 | 800  | 900  | 30 | 1.45 | 1.0 | 5.0 | 150 |
| BYV36E | 1.5 | 60 | 1000 | 1100 | 30 | 1.45 | 1.0 | 5.0 | 150 |

## BYV95 Series, 1.5 A, Case Type: D2



|        |     |    |      |      |    |     |     |     |     |
|--------|-----|----|------|------|----|-----|-----|-----|-----|
| BYV95A | 1.5 | 55 | 200  | 300  | 35 | 1.6 | 3.0 | 5.0 | 250 |
| BYV95B | 1.5 | 55 | 400  | 500  | 35 | 1.6 | 3.0 | 5.0 | 250 |
| BYV95C | 1.5 | 55 | 600  | 700  | 35 | 1.6 | 3.0 | 5.0 | 250 |
| BYV96D | 1.5 | 55 | 800  | 900  | 35 | 1.6 | 3.0 | 5.0 | 300 |
| BYV96E | 1.5 | 55 | 1000 | 1100 | 35 | 1.6 | 3.0 | 5.0 | 300 |

## BYG10D - M Series, 1.5 A, Case Type: SMA



|        |     |    |      |   |    |      |     |     |           |
|--------|-----|----|------|---|----|------|-----|-----|-----------|
| BYG10D | 1.5 | 85 | 200  | - | 30 | 1.15 | 1.5 | 1.0 | 4 $\mu$ s |
| BYG10G | 1.5 | 85 | 400  | - | 30 | 1.15 | 1.5 | 1.0 | 4 $\mu$ s |
| BYG10J | 1.5 | 85 | 600  | - | 30 | 1.15 | 1.5 | 1.0 | 4 $\mu$ s |
| BYG10K | 1.5 | 85 | 800  | - | 30 | 1.15 | 1.5 | 1.0 | 4 $\mu$ s |
| BYG10M | 1.5 | 85 | 1000 | - | 30 | 1.15 | 1.5 | 1.0 | 4 $\mu$ s |

Note : (1) Reverse Recovery test conditions : I<sub>F</sub> = 0.5A, I<sub>R</sub> = 1 A, I<sub>rr</sub> = 0.25 A



# Avalanche Fast Recovery Rectifier Diodes

The plastic material carries U/L recognition 94V-0.

| Type No. | Max. Average Forward Rectified Current |                   | Max. Repetitive Peak Reverse Voltage | Min. Avalanche Breakdown Voltage @ 100 $\mu$ A | Max. Peak Forward Surge Current | Max. Forward Voltage Drop at Ta=25°C |                  | Max. Reverse Current at Ta=25°C | Max. Reverse Recovery Time     |
|----------|----------------------------------------|-------------------|--------------------------------------|------------------------------------------------|---------------------------------|--------------------------------------|------------------|---------------------------------|--------------------------------|
|          | I <sub>F(AV)</sub>                     | @ T <sub>tp</sub> | V <sub>RRM</sub>                     | V <sub>BR(Min)</sub>                           | I <sub>FSM</sub>                | V <sub>F</sub>                       | @ I <sub>F</sub> | I <sub>R</sub>                  | T <sub>rr</sub> <sup>(1)</sup> |
|          | (A)                                    | (°C)              | (V)                                  | (V)                                            | (A)                             | (V)                                  | (A)              | (mA)                            | (ns)                           |

## BYG20D - J Series, 1.5 A, Case Type: SMA



|        |     |    |     |   |    |     |     |     |    |
|--------|-----|----|-----|---|----|-----|-----|-----|----|
| BYG20D | 1.5 | 85 | 200 | - | 30 | 1.4 | 1.5 | 1.0 | 75 |
| BYG20G | 1.5 | 85 | 400 | - | 30 | 1.4 | 1.5 | 1.0 | 75 |
| BYG20J | 1.5 | 85 | 600 | - | 30 | 1.4 | 1.5 | 1.0 | 75 |

## BYG24D - J Series, 1.5 A, Case Type: SMA



|        |     |    |     |   |    |      |     |     |     |
|--------|-----|----|-----|---|----|------|-----|-----|-----|
| BYG24D | 1.5 | 95 | 200 | - | 30 | 1.25 | 1.5 | 1.0 | 140 |
| BYG24G | 1.5 | 95 | 400 | - | 30 | 1.25 | 1.5 | 1.0 | 140 |
| BYG24J | 1.5 | 95 | 600 | - | 30 | 1.25 | 1.5 | 1.0 | 140 |

## BYD37D - M Series, 1.5 A, Case Type: MELF(Pastic)



|        |     |          |      |      |    |     |     |     |     |
|--------|-----|----------|------|------|----|-----|-----|-----|-----|
| BYD37D | 1.5 | 105(Ttp) | 200  | 300  | 20 | 1.3 | 1.0 | 1.0 | 250 |
| BYD37G | 1.5 | 105(Ttp) | 400  | 500  | 20 | 1.3 | 1.0 | 1.0 | 250 |
| BYD37J | 1.5 | 105(Ttp) | 600  | 700  | 20 | 1.3 | 1.0 | 1.0 | 250 |
| BYD37K | 1.5 | 105(Ttp) | 800  | 900  | 20 | 1.3 | 1.0 | 1.0 | 300 |
| BYD37M | 1.5 | 105(Ttp) | 1000 | 1100 | 20 | 1.3 | 1.0 | 1.0 | 300 |

## BYD37DA - MA Series, 1.5 A, Case Type: SMA



|         |     |          |      |      |    |     |     |     |     |
|---------|-----|----------|------|------|----|-----|-----|-----|-----|
| BYD37DA | 1.5 | 105(Ttp) | 200  | 300  | 20 | 1.3 | 1.0 | 1.0 | 250 |
| BYD37GA | 1.5 | 105(Ttp) | 400  | 500  | 20 | 1.3 | 1.0 | 1.0 | 250 |
| BYD37JA | 1.5 | 105(Ttp) | 600  | 700  | 20 | 1.3 | 1.0 | 1.0 | 250 |
| BYD37KA | 1.5 | 105(Ttp) | 800  | 900  | 20 | 1.3 | 1.0 | 1.0 | 300 |
| BYD37MA | 1.5 | 105(Ttp) | 1000 | 1100 | 20 | 1.3 | 1.0 | 1.0 | 300 |

## BYD57D - V Series, 1.0-1.2 A, Case Type: MELF(Pastic)



|        |     |         |      |      |   |     |     |     |     |
|--------|-----|---------|------|------|---|-----|-----|-----|-----|
| BYD57D | 1.0 | 85(Ttp) | 200  | 300  | 5 | 3.6 | 1.0 | 5.0 | 30  |
| BYD57G | 1.0 | 85(Ttp) | 400  | 500  | 5 | 3.6 | 1.0 | 5.0 | 30  |
| BYD57J | 1.0 | 85(Ttp) | 600  | 700  | 5 | 3.6 | 1.0 | 5.0 | 30  |
| BYD57K | 1.0 | 85(Ttp) | 800  | 900  | 5 | 3.6 | 1.0 | 5.0 | 75  |
| BYD57M | 1.0 | 85(Ttp) | 1000 | 1100 | 5 | 3.6 | 1.0 | 5.0 | 75  |
| BYD57U | 1.2 | 85(Ttp) | 1200 | 1300 | 5 | 2.3 | 1.0 | 5.0 | 150 |
| BYD57V | 1.2 | 85(Ttp) | 1400 | 1500 | 5 | 2.3 | 1.0 | 5.0 | 150 |

Note : (1) Reverse Recovery test conditions : I<sub>F</sub> = 0.5A, I<sub>R</sub> = 1 A, I<sub>rr</sub> = 0.25 A



# Avalanche Fast Recovery Rectifier Diodes

The plastic material carries U/L recognition 94V-0.

| Type No. | Max. Average Forward Rectified Current |                   | Max. Repetitive Peak Reverse Voltage | Min. Avalanche Breakdown Voltage @ 100 $\mu$ A | Max. Peak Forward Surge Current | Max. Forward Voltage Drop at Ta=25°C |                  | Max. Reverse Current at Ta=25°C | Max. Reverse Recovery Time     |
|----------|----------------------------------------|-------------------|--------------------------------------|------------------------------------------------|---------------------------------|--------------------------------------|------------------|---------------------------------|--------------------------------|
|          | I <sub>F(AV)</sub>                     | @ T <sub>tp</sub> | V <sub>RRM</sub>                     | V <sub>BR(Min)</sub>                           | I <sub>FSM</sub>                | V <sub>F</sub>                       | @ I <sub>F</sub> | I <sub>R</sub>                  | T <sub>rr</sub> <sup>(1)</sup> |
|          | (A)                                    | (°C)              | (V)                                  | (V)                                            | (A)                             | (V)                                  | (A)              | (mA)                            | (ns)                           |

## BYD77A - G Series, 1.85 - 2 A, Case Type: MELF(Pastic)



|        |      |          |     |     |    |      |     |     |    |
|--------|------|----------|-----|-----|----|------|-----|-----|----|
| BYD77A | 2.0  | 105(Ttp) | 50  | 55  | 25 | 0.98 | 1.0 | 1.0 | 25 |
| BYD77B | 2.0  | 105(Ttp) | 100 | 110 | 25 | 0.98 | 1.0 | 1.0 | 25 |
| BYD77C | 2.0  | 105(Ttp) | 150 | 165 | 25 | 0.98 | 1.0 | 1.0 | 25 |
| BYD77D | 2.0  | 105(Ttp) | 200 | 220 | 25 | 0.98 | 1.0 | 1.0 | 25 |
| BYD77E | 1.85 | 105(Ttp) | 250 | 275 | 25 | 1.05 | 1.0 | 1.0 | 50 |
| BYD77F | 1.85 | 105(Ttp) | 300 | 330 | 25 | 1.05 | 1.0 | 1.0 | 50 |
| BYD77G | 1.85 | 105(Ttp) | 400 | 440 | 25 | 1.05 | 1.0 | 1.0 | 50 |

## BYD77AA - GA Series, 1.85 - 2 A, Case Type: SMA



|         |      |          |     |     |    |      |     |     |    |
|---------|------|----------|-----|-----|----|------|-----|-----|----|
| BYD77AA | 2.0  | 105(Ttp) | 50  | 55  | 25 | 0.98 | 1.0 | 1.0 | 25 |
| BYD77BA | 2.0  | 105(Ttp) | 100 | 110 | 25 | 0.98 | 1.0 | 1.0 | 25 |
| BYD77CA | 2.0  | 105(Ttp) | 150 | 165 | 25 | 0.98 | 1.0 | 1.0 | 25 |
| BYD77DA | 2.0  | 105(Ttp) | 200 | 220 | 25 | 0.98 | 1.0 | 1.0 | 25 |
| BYD77EA | 1.85 | 105(Ttp) | 250 | 275 | 25 | 1.05 | 1.0 | 1.0 | 50 |
| BYD77FA | 1.85 | 105(Ttp) | 300 | 330 | 25 | 1.05 | 1.0 | 1.0 | 50 |
| BYD77GA | 1.85 | 105(Ttp) | 400 | 440 | 25 | 1.05 | 1.0 | 1.0 | 50 |

## BYV27 Series, 2 A, Case Type: DO-41



|           |     |    |     |     |    |      |     |     |    |
|-----------|-----|----|-----|-----|----|------|-----|-----|----|
| BYV27-100 | 2.0 | 85 | 100 | 110 | 50 | 1.07 | 3.0 | 1.0 | 25 |
| BYV27-150 | 2.0 | 85 | 150 | 165 | 50 | 1.07 | 3.0 | 1.0 | 25 |
| BYV27-200 | 2.0 | 85 | 200 | 220 | 50 | 1.07 | 3.0 | 1.0 | 25 |

## BYW95 Series, 3.0 A, Case Type: DO-201AD



|        |     |    |      |      |    |     |     |     |     |
|--------|-----|----|------|------|----|-----|-----|-----|-----|
| BYW95A | 3.0 | 55 | 200  | 300  | 70 | 1.5 | 5.0 | 5.0 | 250 |
| BYW95B | 3.0 | 55 | 400  | 500  | 70 | 1.5 | 5.0 | 5.0 | 250 |
| BYW95C | 3.0 | 55 | 600  | 700  | 70 | 1.5 | 5.0 | 5.0 | 250 |
| BYW96D | 3.0 | 55 | 800  | 900  | 70 | 1.5 | 5.0 | 5.0 | 300 |
| BYW96E | 3.0 | 55 | 1000 | 1100 | 70 | 1.5 | 5.0 | 5.0 | 300 |

Note :

(1) Reverse Recovery test conditions : I<sub>F</sub> = 0.5A, I<sub>R</sub> = 1 A, I<sub>rr</sub> = 0.25 A



# Fast Recovery Rectifier Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.   |     | Max. Average Forward Rectified Current |      | Max. Repetitive Peak Reverse Voltage | Max. Repetitive Peak Forward Current | Max. Surge Forward Current | Max. Forward Voltage Drop at Ta=25°C |      | Max. Reverse Current at Ta=25°C | Max. Reverse Recovery Time |
|------------|-----|----------------------------------------|------|--------------------------------------|--------------------------------------|----------------------------|--------------------------------------|------|---------------------------------|----------------------------|
|            |     | IF(AV)                                 | @ Ta | VRRM                                 | IFRM                                 | IFSM                       | VF                                   | @ IF | IR                              | Trr                        |
| Axial Lead | SMD | (A)                                    | (°C) | (V)                                  | (A)                                  | (A)                        | (V)                                  | (A)  | (μA)                            | (ns)                       |

## 1F1 Series, 1 A, Case Type: R-1



|     |  |     |    |      |   |    |     |     |     |                    |
|-----|--|-----|----|------|---|----|-----|-----|-----|--------------------|
| 1F1 |  | 1.0 | 50 | 50   | - | 30 | 1.3 | 1.0 | 5.0 | 150 <sup>(1)</sup> |
| 1F2 |  | 1.0 | 50 | 100  | - | 30 | 1.3 | 1.0 | 5.0 | 150 <sup>(1)</sup> |
| 1F3 |  | 1.0 | 50 | 200  | - | 30 | 1.3 | 1.0 | 5.0 | 150 <sup>(1)</sup> |
| 1F4 |  | 1.0 | 50 | 400  | - | 30 | 1.3 | 1.0 | 5.0 | 150 <sup>(1)</sup> |
| 1F5 |  | 1.0 | 50 | 600  | - | 30 | 1.3 | 1.0 | 5.0 | 250 <sup>(1)</sup> |
| 1F6 |  | 1.0 | 50 | 800  | - | 30 | 1.3 | 1.0 | 5.0 | 500 <sup>(1)</sup> |
| 1F7 |  | 1.0 | 50 | 1000 | - | 30 | 1.3 | 1.0 | 5.0 | 500 <sup>(1)</sup> |

## ERA34-10/EP01C 0.1 - 0.2 A, Case Type: DO-41



|          |  |      |    |      |   |     |     |     |     |                    |
|----------|--|------|----|------|---|-----|-----|-----|-----|--------------------|
| ERA34-10 |  | 0.10 | 60 | 1000 | - | 2.0 | 3.0 | 0.1 | 50  | 150 <sup>(3)</sup> |
| EP01C    |  | 0.20 | 25 | 1000 | - | 5.0 | 4.0 | 0.2 | 5.0 | 200 <sup>(3)</sup> |
| AP01C    |  | 0.20 | 25 | 1000 | - | 5.0 | 4.0 | 0.2 | 100 | 200 <sup>(3)</sup> |

## EU1 Series, 0.2 - 0.25 A, Case Type: DO-41



|      |  |      |    |      |   |    |     |      |    |                    |
|------|--|------|----|------|---|----|-----|------|----|--------------------|
| EU1Z |  | 0.25 | 25 | 200  | - | 15 | 2.5 | 0.25 | 10 | 400 <sup>(2)</sup> |
| EU1  |  | 0.25 | 25 | 400  | - | 15 | 2.5 | 0.25 | 10 | 400 <sup>(2)</sup> |
| EU1A |  | 0.25 | 25 | 600  | - | 15 | 2.5 | 0.25 | 10 | 400 <sup>(2)</sup> |
| EU1C |  | 0.20 | 25 | 1000 | - | 15 | 2.5 | 0.20 | 10 | 400 <sup>(2)</sup> |

## RU1 Series, 0.2 - 0.25 A, Case Type: D2



|      |  |      |    |      |   |    |     |      |    |                    |
|------|--|------|----|------|---|----|-----|------|----|--------------------|
| RU1  |  | 0.25 | 50 | 400  | - | 15 | 2.5 | 0.25 | 10 | 400 <sup>(2)</sup> |
| RU1A |  | 0.25 | 50 | 600  | - | 15 | 2.5 | 0.25 | 10 | 400 <sup>(2)</sup> |
| RU1B |  | 0.25 | 50 | 800  | - | 15 | 2.5 | 0.25 | 10 | 400 <sup>(2)</sup> |
| RU1C |  | 0.20 | 50 | 1000 | - | 15 | 3.0 | 0.20 | 10 | 400 <sup>(2)</sup> |

## AU01 Series, 0.5 A, Case Type: DO-41



|       |  |     |    |     |   |    |     |     |    |                    |
|-------|--|-----|----|-----|---|----|-----|-----|----|--------------------|
| AU01  |  | 0.5 | 25 | 400 | - | 15 | 1.7 | 0.5 | 10 | 400 <sup>(2)</sup> |
| AU01A |  | 0.5 | 25 | 600 | - | 15 | 1.7 | 0.5 | 10 | 400 <sup>(2)</sup> |
| AU01Z |  | 0.5 | 25 | 200 | - | 15 | 1.7 | 0.5 | 10 | 400 <sup>(2)</sup> |

## ERA22-02 Series, 0.5 A, Case Type: DO-41



|          |  |     |    |      |   |    |     |     |    |                    |
|----------|--|-----|----|------|---|----|-----|-----|----|--------------------|
| ERA22-02 |  | 0.5 | 40 | 200  | - | 10 | 1.5 | 0.5 | 10 | 400 <sup>(3)</sup> |
| ERA22-04 |  | 0.5 | 40 | 400  | - | 10 | 1.5 | 0.5 | 10 | 400 <sup>(3)</sup> |
| ERA22-06 |  | 0.5 | 40 | 600  | - | 10 | 1.5 | 0.5 | 10 | 400 <sup>(3)</sup> |
| ERA22-08 |  | 0.5 | 40 | 800  | - | 10 | 1.5 | 0.5 | 10 | 400 <sup>(3)</sup> |
| ERA22-10 |  | 0.5 | 40 | 1000 | - | 10 | 1.5 | 0.5 | 10 | 400 <sup>(3)</sup> |

## ERB43-02 Series, 0.5 A, Case Type: DO-41



|          |  |     |    |     |   |    |     |     |    |                    |
|----------|--|-----|----|-----|---|----|-----|-----|----|--------------------|
| ERB43-02 |  | 0.5 | 40 | 200 | - | 10 | 1.2 | 0.5 | 10 | 400 <sup>(3)</sup> |
| ERB43-04 |  | 0.5 | 40 | 400 | - | 10 | 1.2 | 0.5 | 10 | 400 <sup>(3)</sup> |
| ERB43-06 |  | 0.5 | 40 | 600 | - | 10 | 1.2 | 0.5 | 10 | 400 <sup>(3)</sup> |
| ERB43-08 |  | 0.5 | 40 | 800 | - | 10 | 1.2 | 0.5 | 10 | 400 <sup>(3)</sup> |

Notes: (1) Reverse recovery test conditions :  $I_F = 0.5$  A,  $I_R = 1$  A, with  $I_{rr} = 0.25$  A

(2) Reverse recovery test conditions :  $I_F = 10$  mA,  $I_R = 10$  mA recover to 1 mA

(3) Reverse recovery test conditions :  $I_F = 100$  mA,  $I_R = 100$  mA



# Fast Recovery Rectifier Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.   |     | Max. Average Forward Rectified Current |      | Max. Repetitive Peak Reverse Voltage | Max. Repetitive Peak Forward Current | Max. Surge Forward Current | Max. Forward Voltage Drop at Ta=25°C |      | Max. Reverse Current at Ta=25°C | Max. Reverse Recovery Time |
|------------|-----|----------------------------------------|------|--------------------------------------|--------------------------------------|----------------------------|--------------------------------------|------|---------------------------------|----------------------------|
|            |     | IF(AV)                                 | @ Ta | VRRM                                 | IFRM                                 | IFSM                       | VF                                   | @ IF | IR                              | Trr                        |
| Axial Lead | SMD | (A)                                    | (°C) | (V)                                  | (A)                                  | (A)                        | (V)                                  | (A)  | (μA)                            | (ns)                       |

## TVR1 Series, 0.5 A, Case Type: DO-41



|       |  |     |    |     |   |    |     |     |    |                   |                    |
|-------|--|-----|----|-----|---|----|-----|-----|----|-------------------|--------------------|
| TVR1B |  | 0.5 | 60 | 100 | - | 10 | 1.2 | 0.5 | 10 | 75 <sup>(1)</sup> | 300 <sup>(3)</sup> |
| TVR1G |  | 0.5 | 60 | 400 | - | 10 | 1.2 | 0.5 | 10 | 75 <sup>(1)</sup> | 300 <sup>(3)</sup> |
| TVR1J |  | 0.5 | 60 | 600 | - | 10 | 1.2 | 0.5 | 10 | 75 <sup>(1)</sup> | 300 <sup>(3)</sup> |

## TVR2 Series, 0.5 A, Case Type: D2



|       |  |     |    |     |   |    |     |     |    |                   |  |
|-------|--|-----|----|-----|---|----|-----|-----|----|-------------------|--|
| TVR2B |  | 0.5 | 60 | 100 | - | 30 | 1.4 | 1.0 | 10 | 20 <sup>(4)</sup> |  |
| TVR2D |  | 0.5 | 60 | 200 | - | 30 | 1.4 | 1.0 | 10 | 20 <sup>(4)</sup> |  |
| TVR2G |  | 0.5 | 60 | 400 | - | 30 | 1.4 | 1.0 | 10 | 20 <sup>(4)</sup> |  |
| TVR2J |  | 0.5 | 60 | 600 | - | 30 | 1.4 | 1.0 | 10 | 20 <sup>(4)</sup> |  |

## S5295B Series, 0.5 A, Case Type: DO-41



|        |  |     |    |     |   |    |     |     |    |                      |  |
|--------|--|-----|----|-----|---|----|-----|-----|----|----------------------|--|
| S5295B |  | 0.5 | 25 | 100 | - | 30 | 1.5 | 1.0 | 10 | 1.5μs <sup>(4)</sup> |  |
| S5295G |  | 0.5 | 25 | 400 | - | 30 | 1.5 | 1.0 | 10 | 1.5μs <sup>(4)</sup> |  |
| S5295J |  | 0.5 | 25 | 600 | - | 30 | 1.5 | 1.0 | 10 | 1.5μs <sup>(4)</sup> |  |

## 05NU41 Series, 0.5 A, Case Type: DO-41



|        |  |     |    |      |   |    |     |     |     |                    |  |
|--------|--|-----|----|------|---|----|-----|-----|-----|--------------------|--|
| 05NU41 |  | 0.5 | 25 | 1000 | - | 10 | 3.0 | 0.5 | 100 | 100 <sup>(5)</sup> |  |
| 05NU42 |  | 0.5 | 25 | 1000 | - | 10 | 3.0 | 0.5 | 100 | 100 <sup>(5)</sup> |  |

## RH1 Series, 0.6 A, Case Type: D2



|      |  |     |    |      |   |    |     |     |     |                    |  |
|------|--|-----|----|------|---|----|-----|-----|-----|--------------------|--|
| RH1  |  | 0.6 | 50 | 400  | - | 35 | 1.3 | 0.6 | 5.0 | 4μs <sup>(2)</sup> |  |
| RH1A |  | 0.6 | 50 | 600  | - | 35 | 1.3 | 0.6 | 5.0 | 4μs <sup>(2)</sup> |  |
| RH1B |  | 0.6 | 50 | 800  | - | 35 | 1.3 | 0.6 | 5.0 | 4μs <sup>(2)</sup> |  |
| RH1C |  | 0.6 | 50 | 1000 | - | 35 | 1.3 | 0.6 | 5.0 | 4μs <sup>(2)</sup> |  |

## ES1 Series, 0.5 - 0.7 A, Case Type: DO-41



|       |  |     |    |      |   |    |     |     |    |                      |  |
|-------|--|-----|----|------|---|----|-----|-----|----|----------------------|--|
| ES1Z  |  | 0.7 | 25 | 200  | - | 30 | 2.5 | 0.8 | 10 | 1.5μs <sup>(2)</sup> |  |
| ES1   |  | 0.7 | 25 | 400  | - | 30 | 2.5 | 0.8 | 10 | 1.5μs <sup>(2)</sup> |  |
| ES1 A |  | 0.7 | 25 | 600  | - | 30 | 2.5 | 0.8 | 10 | 1.5μs <sup>(2)</sup> |  |
| ES1F  |  | 0.5 | 50 | 1500 | - | 20 | 2.0 | 0.5 | 10 | 1.5μs <sup>(2)</sup> |  |

## AU02 Series, 0.8 A, Case Type: DO-41



|       |  |     |    |     |   |    |     |     |    |                    |  |
|-------|--|-----|----|-----|---|----|-----|-----|----|--------------------|--|
| AU02  |  | 0.8 | 25 | 400 | - | 25 | 1.3 | 0.8 | 10 | 400 <sup>(3)</sup> |  |
| AU02A |  | 0.8 | 25 | 600 | - | 25 | 1.3 | 0.8 | 10 | 400 <sup>(3)</sup> |  |
| AU02Z |  | 0.8 | 25 | 200 | - | 25 | 1.3 | 0.8 | 10 | 400 <sup>(3)</sup> |  |

### Notes :

- (1) Reverse recovery test conditions :  $I_F = 0.5 \text{ A}$ ,  $I_R = 1 \text{ A}$ , with  $I_{rr} = 0.25 \text{ A}$
- (2) Reverse recovery test conditions :  $I_F = 10 \text{ mA}$ ,  $I_R = 10 \text{ mA}$  recover to  $1 \text{ mA}$
- (3) Reverse recovery test conditions :  $I_F = 100 \text{ mA}$ ,  $I_R = 100 \text{ mA}$
- (4) Reverse recovery test conditions :  $I_F = 20 \text{ mA}$ ,  $I_R = 1 \text{ mA}$
- (5) Reverse recovery test conditions :  $I_F = 1 \text{ A}$ ,  $di/dt = -30 \text{ A/ms}$ .



# Fast Recovery Rectifier Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.   |     | Max. Average Forward Rectified Current |      | Max. Repetitive Peak Reverse Voltage | Max. Repetitive Peak Forward Current | Max. Surge Forward Current | Max. Forward Voltage Drop at Ta=25°C | Max. Reverse Current at Ta=25°C | Max. Reverse Recovery Time |
|------------|-----|----------------------------------------|------|--------------------------------------|--------------------------------------|----------------------------|--------------------------------------|---------------------------------|----------------------------|
|            |     | IF(AV)                                 | @ Ta | VRRM                                 | IFRM                                 | IFSM                       | VF @ IF                              | IR                              | Trr                        |
| Axial Lead | SMD | (A)                                    | (°C) | (V)                                  | (A)                                  | (A)                        | (V) (A)                              | (μA)                            | (ns)                       |

## ERB38-04 Series, 0.8 A, Case Type: DO-41



|          |  |     |    |     |   |    |     |     |    |                   |
|----------|--|-----|----|-----|---|----|-----|-----|----|-------------------|
| ERB38-04 |  | 0.8 | 25 | 400 | - | 20 | 2.5 | 0.8 | 50 | 50 <sup>(4)</sup> |
| ERB38-05 |  | 0.8 | 25 | 500 | - | 20 | 2.5 | 0.8 | 50 | 50 <sup>(4)</sup> |
| ERB38-06 |  | 0.8 | 25 | 600 | - | 20 | 2.5 | 0.8 | 50 | 50 <sup>(4)</sup> |

## 1SR153-100 Series, 0.8 A, Case Type: DO-41



|            |  |     |    |     |   |    |     |     |    |                    |                    |
|------------|--|-----|----|-----|---|----|-----|-----|----|--------------------|--------------------|
| 1SR153-100 |  | 0.8 | 55 | 100 | - | 30 | 1.3 | 0.8 | 10 | 400 <sup>(3)</sup> | 250 <sup>(1)</sup> |
| 1SR153-200 |  | 0.8 | 55 | 200 | - | 30 | 1.3 | 0.8 | 10 | 400 <sup>(3)</sup> | 250 <sup>(1)</sup> |
| 1SR153-400 |  | 0.8 | 55 | 400 | - | 30 | 1.3 | 0.8 | 10 | 400 <sup>(3)</sup> | 250 <sup>(1)</sup> |

## 1SR124-100 Series, 1 A, Case Type: DO-41



|            |  |     |    |     |   |    |     |     |    |                    |                    |
|------------|--|-----|----|-----|---|----|-----|-----|----|--------------------|--------------------|
| 1SR124-100 |  | 1.0 | 55 | 100 | - | 30 | 1.3 | 1.0 | 10 | 400 <sup>(3)</sup> | 250 <sup>(1)</sup> |
| 1SR124-200 |  | 1.0 | 55 | 200 | - | 30 | 1.3 | 1.0 | 10 | 400 <sup>(3)</sup> | 250 <sup>(1)</sup> |
| 1SR124-400 |  | 1.0 | 55 | 400 | - | 30 | 1.3 | 1.0 | 10 | 400 <sup>(3)</sup> | 250 <sup>(1)</sup> |

## ERB44-02 Series, 1 A, Case Type: DO-41



|          |  |     |    |      |   |    |     |     |    |                    |
|----------|--|-----|----|------|---|----|-----|-----|----|--------------------|
| ERB44-02 |  | 1.0 | 40 | 200  | - | 30 | 1.1 | 1.0 | 10 | 400 <sup>(2)</sup> |
| ERB44-04 |  | 1.0 | 40 | 400  | - | 30 | 1.1 | 1.0 | 10 | 400 <sup>(2)</sup> |
| ERB44-06 |  | 1.0 | 40 | 600  | - | 30 | 1.1 | 1.0 | 10 | 400 <sup>(2)</sup> |
| ERB44-08 |  | 1.0 | 40 | 800  | - | 30 | 1.1 | 1.0 | 10 | 400 <sup>(2)</sup> |
| ERB44-10 |  | 1.0 | 40 | 1000 | - | 30 | 1.1 | 1.0 | 10 | 400 <sup>(2)</sup> |

## EU2 Series, 1 - 1.2 A, Case Type: DO-41



|       |  |     |    |     |   |    |     |     |    |                    |
|-------|--|-----|----|-----|---|----|-----|-----|----|--------------------|
| EU2YX |  | 1.2 | 25 | 70  | - | 25 | 0.9 | 1.2 | 10 | 200 <sup>(3)</sup> |
| EU2Z  |  | 1.0 | 25 | 200 | - | 15 | 1.4 | 1.0 | 10 | 400 <sup>(3)</sup> |
| EU2   |  | 1.0 | 25 | 400 | - | 15 | 1.4 | 1.0 | 10 | 400 <sup>(3)</sup> |
| EU2A  |  | 1.0 | 25 | 600 | - | 15 | 1.4 | 1.0 | 10 | 400 <sup>(3)</sup> |

## RGP10A Series, 1 A, Case Type: DO-41



|        |  |     |    |      |   |    |     |     |     |                    |
|--------|--|-----|----|------|---|----|-----|-----|-----|--------------------|
| RGF10A |  | 1.0 | 55 | 50   | - | 30 | 1.3 | 1.0 | 5.0 | 150 <sup>(1)</sup> |
| RGF10B |  | 1.0 | 55 | 100  | - | 30 | 1.3 | 1.0 | 5.0 | 150 <sup>(1)</sup> |
| RGF10D |  | 1.0 | 55 | 200  | - | 30 | 1.3 | 1.0 | 5.0 | 150 <sup>(1)</sup> |
| RGF10G |  | 1.0 | 55 | 400  | - | 30 | 1.3 | 1.0 | 5.0 | 150 <sup>(1)</sup> |
| RGF10J |  | 1.0 | 55 | 600  | - | 30 | 1.3 | 1.0 | 5.0 | 250 <sup>(1)</sup> |
| RGF10K |  | 1.0 | 55 | 800  | - | 30 | 1.3 | 1.0 | 5.0 | 500 <sup>(1)</sup> |
| RGF10M |  | 1.0 | 55 | 1000 | - | 30 | 1.3 | 1.0 | 5.0 | 500 <sup>(1)</sup> |

## 10ELS1 Series, 1 A, Case Type: D2



|        |  |     |    |     |   |    |      |     |    |                    |
|--------|--|-----|----|-----|---|----|------|-----|----|--------------------|
| 10ELS1 |  | 1.0 | 25 | 100 | - | 30 | 1.10 | 1.0 | 10 | 150 <sup>(1)</sup> |
| 10ELS2 |  | 1.0 | 25 | 200 | - | 30 | 1.10 | 1.0 | 10 | 150 <sup>(1)</sup> |
| 10ELS4 |  | 1.0 | 25 | 400 | - | 50 | 1.15 | 1.0 | 10 | 150 <sup>(1)</sup> |
| 10ELS6 |  | 1.0 | 25 | 600 | - | 50 | 1.15 | 1.0 | 10 | 150 <sup>(1)</sup> |

Notes: (1) Reverse recovery test conditions : I<sub>F</sub> = 0.5 A, I<sub>R</sub> = 1 A, with I<sub>rr</sub> = 0.25 A

(2) Reverse recovery test conditions : I<sub>F</sub> = 100 mA, I<sub>R</sub> = 100 mA

(3) Reverse recovery test conditions : I<sub>F</sub> = 10 mA, I<sub>R</sub> = 10 mA recover to 1 mA

(4) Reverse recovery test conditions : I<sub>F</sub> = 100 mA, I<sub>R</sub> = 200 mA



# Fast Recovery Rectifier Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.   |     | Max. Average Forward Rectified Current |      | Max. Repetitive Peak Reverse Voltage | Max. Repetitive Peak Forward Current | Max. Surge Forward Current | Max. Forward Voltage Drop at Ta=25°C |      | Max. Reverse Current at Ta=25°C | Max. Reverse Recovery Time |
|------------|-----|----------------------------------------|------|--------------------------------------|--------------------------------------|----------------------------|--------------------------------------|------|---------------------------------|----------------------------|
|            |     | IF(AV)                                 | @ Ta | VRRM                                 | IFRM                                 | IFSM                       | VF                                   | @ IF | IR                              | Trr                        |
| Axial Lead | SMD | (A)                                    | (°C) | (V)                                  | (A)                                  | (A)                        | (V)                                  | (A)  | (μA)                            | (ns)                       |

## BA157/SRA7 Series, 1 A, Case Type: DO-41/SMA

|       |      |     |    |      |     |    |     |     |     |                    |                    |
|-------|------|-----|----|------|-----|----|-----|-----|-----|--------------------|--------------------|
| BA157 | SRA7 | 1.0 | 45 | 400  | 5.0 | 35 | 1.3 | 1.0 | 5.0 | 300 <sup>(2)</sup> | 150 <sup>(1)</sup> |
| BA158 | SRA8 | 1.0 | 45 | 600  | 5.0 | 35 | 1.3 | 1.0 | 5.0 | 300 <sup>(2)</sup> | 150 <sup>(1)</sup> |
| BA159 | SRA9 | 1.0 | 45 | 1000 | 5.0 | 35 | 1.3 | 1.0 | 5.0 | 500 <sup>(2)</sup> | 250 <sup>(1)</sup> |

## FR101/SR1A Series, 1 A, Case Type: DO-41/SMA

|           |      |     |    |      |     |    |     |     |     |                    |
|-----------|------|-----|----|------|-----|----|-----|-----|-----|--------------------|
| FR101     | SR1A | 1.0 | 55 | 50   | 5.0 | 35 | 1.3 | 1.0 | 5.0 | 150 <sup>(1)</sup> |
| FR102     | SR1B | 1.0 | 55 | 100  | 5.0 | 35 | 1.3 | 1.0 | 5.0 | 150 <sup>(1)</sup> |
| FR103     | SR1D | 1.0 | 55 | 200  | 5.0 | 35 | 1.3 | 1.0 | 5.0 | 150 <sup>(1)</sup> |
| FR104     | SR1G | 1.0 | 55 | 400  | 5.0 | 35 | 1.3 | 1.0 | 5.0 | 150 <sup>(1)</sup> |
| FR105     | SR1J | 1.0 | 55 | 600  | 5.0 | 35 | 1.3 | 1.0 | 5.0 | 250 <sup>(1)</sup> |
| FR106     | SR1K | 1.0 | 55 | 800  | 5.0 | 35 | 1.3 | 1.0 | 5.0 | 500 <sup>(1)</sup> |
| FR107     | SR1M | 1.0 | 55 | 1000 | 5.0 | 35 | 1.3 | 1.0 | 5.0 | 500 <sup>(1)</sup> |
| FR107-STR | -    | 1.0 | 55 | 1000 | 5.0 | 35 | 1.3 | 1.0 | 5.0 | 250 <sup>(1)</sup> |

## RS1 Series, 1 A, Case Type: SMA

|  |      |     |    |      |   |    |      |     |     |                    |
|--|------|-----|----|------|---|----|------|-----|-----|--------------------|
|  | RS1A | 1.0 | 90 | 50   | - | 30 | 1.30 | 1.0 | 5.0 | 150 <sup>(1)</sup> |
|  | RS1B | 1.0 | 90 | 100  | - | 30 | 1.30 | 1.0 | 5.0 | 150 <sup>(1)</sup> |
|  | RS1D | 1.0 | 90 | 200  | - | 30 | 1.30 | 1.0 | 5.0 | 150 <sup>(1)</sup> |
|  | RS1G | 1.0 | 90 | 400  | - | 30 | 1.30 | 1.0 | 5.0 | 150 <sup>(1)</sup> |
|  | RS1J | 1.0 | 90 | 600  | - | 30 | 1.30 | 1.0 | 5.0 | 250 <sup>(1)</sup> |
|  | RS1K | 1.0 | 90 | 800  | - | 30 | 1.30 | 1.0 | 5.0 | 500 <sup>(1)</sup> |
|  | RS1M | 1.0 | 90 | 1000 | - | 30 | 1.30 | 1.0 | 5.0 | 500 <sup>(1)</sup> |

## 1N4933/SRN3 Series, 1 A, Case Type: DO-41/SMA

|        |      |     |    |     |     |    |     |     |     |                    |
|--------|------|-----|----|-----|-----|----|-----|-----|-----|--------------------|
| 1N4933 | SRN3 | 1.0 | 50 | 50  | 5.0 | 30 | 1.2 | 1.0 | 5.0 | 150 <sup>(1)</sup> |
| 1N4934 | SRN4 | 1.0 | 50 | 100 | 5.0 | 30 | 1.2 | 1.0 | 5.0 | 150 <sup>(1)</sup> |
| 1N4935 | SRN5 | 1.0 | 50 | 200 | 5.0 | 30 | 1.2 | 1.0 | 5.0 | 150 <sup>(1)</sup> |
| 1N4936 | SRN6 | 1.0 | 50 | 400 | 5.0 | 30 | 1.2 | 1.0 | 5.0 | 150 <sup>(1)</sup> |
| 1N4937 | SRN7 | 1.0 | 50 | 600 | 5.0 | 30 | 1.2 | 1.0 | 5.0 | 150 <sup>(1)</sup> |

## DL4933 Series, 1 A, Case Type: MELF (Plastic)

|  |        |     |    |     |   |    |     |     |     |                    |
|--|--------|-----|----|-----|---|----|-----|-----|-----|--------------------|
|  | DL4933 | 1.0 | 55 | 50  | - | 30 | 1.2 | 1.0 | 5.0 | 150 <sup>(1)</sup> |
|  | DL4934 | 1.0 | 55 | 100 | - | 30 | 1.2 | 1.0 | 5.0 | 150 <sup>(1)</sup> |
|  | DL4935 | 1.0 | 55 | 200 | - | 30 | 1.2 | 1.0 | 5.0 | 150 <sup>(1)</sup> |
|  | DL4936 | 1.0 | 55 | 400 | - | 30 | 1.2 | 1.0 | 5.0 | 150 <sup>(1)</sup> |
|  | DL4937 | 1.0 | 55 | 600 | - | 30 | 1.2 | 1.0 | 5.0 | 150 <sup>(1)</sup> |

## RGF1A Series, 1 A, Case Type: SMA

|  |       |     |                       |      |   |    |     |     |     |                    |
|--|-------|-----|-----------------------|------|---|----|-----|-----|-----|--------------------|
|  | RGF1A | 1.0 | 125 (T <sub>L</sub> ) | 50   | - | 30 | 1.3 | 1.0 | 5.0 | 150 <sup>(1)</sup> |
|  | RGF1B | 1.0 | 125 (T <sub>L</sub> ) | 100  | - | 30 | 1.3 | 1.0 | 5.0 | 150 <sup>(1)</sup> |
|  | RGF1D | 1.0 | 125 (T <sub>L</sub> ) | 200  | - | 30 | 1.3 | 1.0 | 5.0 | 150 <sup>(1)</sup> |
|  | RGF1G | 1.0 | 125 (T <sub>L</sub> ) | 400  | - | 30 | 1.3 | 1.0 | 5.0 | 150 <sup>(1)</sup> |
|  | RGF1J | 1.0 | 125 (T <sub>L</sub> ) | 600  | - | 30 | 1.3 | 1.0 | 5.0 | 250 <sup>(1)</sup> |
|  | RGF1K | 1.0 | 125 (T <sub>L</sub> ) | 800  | - | 30 | 1.3 | 1.0 | 5.0 | 500 <sup>(1)</sup> |
|  | RGF1M | 1.0 | 125 (T <sub>L</sub> ) | 1000 | - | 30 | 1.3 | 1.0 | 5.0 | 500 <sup>(1)</sup> |

### Notes :

- (1) Reverse recovery test conditions :  $I_F = 0.5 \text{ A}$ ,  $I_R = 1 \text{ A}$ , with  $I_{rr} = 0.25 \text{ A}$
- (2) Reverse recovery test conditions :  $I_F = 10 \text{ mA}$ ,  $I_R = 10 \text{ mA}$  recover to  $1 \text{ mA}$



# Fast Recovery Rectifier Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.   |     | Max. Average Forward Rectified Current |      | Max. Repetitive Peak Reverse Voltage | Max. Repetitive Peak Forward Current | Max. Surge Forward Current | Max. Forward Voltage Drop at Ta=25°C | Max. Reverse Current at Ta=25°C | Max. Reverse Recovery Time |
|------------|-----|----------------------------------------|------|--------------------------------------|--------------------------------------|----------------------------|--------------------------------------|---------------------------------|----------------------------|
|            |     | IF(AV)                                 | @ Ta | VRRM                                 | IFRM                                 | IFSM                       | VF @ IF                              | IR                              | Trr                        |
| Axial Lead | SMD | (A)                                    | (°C) | (V)                                  | (A)                                  | (A)                        | (V) (A)                              | (μA)                            | (ns)                       |

## RU2 Series, 1 - 1.5 A, Case Type: D2

|       |  |     |    |     |     |    |      |     |    |                    |
|-------|--|-----|----|-----|-----|----|------|-----|----|--------------------|
| RU2Z  |  | 1.0 | 50 | 200 | 5.0 | 20 | 1.50 | 1.0 | 10 | 400 <sup>(2)</sup> |
| RU2   |  | 1.0 | 50 | 600 | 5.0 | 20 | 1.50 | 1.0 | 10 | 400 <sup>(2)</sup> |
| RU2B  |  | 1.0 | 50 | 800 | 5.0 | 20 | 1.50 | 1.0 | 10 | 400 <sup>(2)</sup> |
| RU2M  |  | 1.1 | 50 | 400 | 5.0 | 20 | 1.20 | 1.1 | 10 | 400 <sup>(2)</sup> |
| RU2AM |  | 1.1 | 50 | 600 | 5.0 | 20 | 1.20 | 1.1 | 10 | 400 <sup>(2)</sup> |
| RU2YX |  | 1.5 | 50 | 100 | 5.0 | 30 | 0.95 | 1.5 | 10 | 200 <sup>(2)</sup> |
| RU20A |  | 1.5 | 25 | 600 | -   | 50 | 1.10 | 1.5 | 10 | 400 <sup>(3)</sup> |

## RGL1A Series, 1 A, Case Type: Mini MELF (Plastic)

|  |       |     |    |      |   |    |      |     |     |                    |
|--|-------|-----|----|------|---|----|------|-----|-----|--------------------|
|  | RGL1A | 1.0 | 75 | 50   | - | 25 | 1.30 | 1.0 | 5.0 | 150 <sup>(1)</sup> |
|  | RGL1B | 1.0 | 75 | 100  | - | 25 | 1.30 | 1.0 | 5.0 | 150 <sup>(1)</sup> |
|  | RGL1D | 1.0 | 75 | 200  | - | 25 | 1.30 | 1.0 | 5.0 | 150 <sup>(1)</sup> |
|  | RGL1G | 1.0 | 75 | 400  | - | 25 | 1.30 | 1.0 | 5.0 | 150 <sup>(1)</sup> |
|  | RGL1J | 1.0 | 75 | 600  | - | 25 | 1.30 | 1.0 | 5.0 | 250 <sup>(1)</sup> |
|  | RGL1K | 1.0 | 75 | 800  | - | 25 | 1.30 | 1.0 | 5.0 | 500 <sup>(1)</sup> |
|  | RGL1M | 1.0 | 75 | 1000 | - | 25 | 1.30 | 1.0 | 5.0 | 500 <sup>(1)</sup> |

## 15DF4 Series, 1.3 A, Case Type: D2

|       |  |     |    |     |   |    |     |     |    |                    |
|-------|--|-----|----|-----|---|----|-----|-----|----|--------------------|
| 15DF4 |  | 1.3 | 40 | 400 | - | 70 | 1.2 | 1.3 | 10 | 150 <sup>(1)</sup> |
| 15DF6 |  | 1.3 | 40 | 600 | - | 70 | 1.2 | 1.3 | 10 | 150 <sup>(1)</sup> |
| 15DF8 |  | 1.3 | 40 | 800 | - | 70 | 1.2 | 1.3 | 10 | 150 <sup>(1)</sup> |

## BYT52A Series, 1.4 A, Case Type: D2

|        |  |     |                     |      |   |    |     |     |    |                    |
|--------|--|-----|---------------------|------|---|----|-----|-----|----|--------------------|
| BYT52A |  | 1.4 | 25(T <sub>L</sub> ) | 50   | - | 50 | 1.3 | 1.0 | 10 | 200 <sup>(1)</sup> |
| BYT52B |  | 1.4 | 25(T <sub>L</sub> ) | 100  | - | 50 | 1.3 | 1.0 | 10 | 200 <sup>(1)</sup> |
| BYT52D |  | 1.4 | 25(T <sub>L</sub> ) | 200  | - | 50 | 1.3 | 1.0 | 10 | 200 <sup>(1)</sup> |
| BYT52G |  | 1.4 | 25(T <sub>L</sub> ) | 400  | - | 50 | 1.3 | 1.0 | 10 | 200 <sup>(1)</sup> |
| BYT52J |  | 1.4 | 25(T <sub>L</sub> ) | 600  | - | 50 | 1.3 | 1.0 | 10 | 200 <sup>(1)</sup> |
| BYT52K |  | 1.4 | 25(T <sub>L</sub> ) | 800  | - | 50 | 1.3 | 1.0 | 10 | 200 <sup>(1)</sup> |
| BYT52M |  | 1.4 | 25(T <sub>L</sub> ) | 1000 | - | 50 | 1.3 | 1.0 | 10 | 200 <sup>(1)</sup> |

## RGP15A Series, 1.5 A, Case Type: D2

|        |  |     |    |      |   |    |     |     |     |                    |
|--------|--|-----|----|------|---|----|-----|-----|-----|--------------------|
| RGP15A |  | 1.5 | 55 | 50   | - | 50 | 1.3 | 1.5 | 5.0 | 150 <sup>(1)</sup> |
| RGP15B |  | 1.5 | 55 | 100  | - | 50 | 1.3 | 1.5 | 5.0 | 150 <sup>(1)</sup> |
| RGP15D |  | 1.5 | 55 | 200  | - | 50 | 1.3 | 1.5 | 5.0 | 150 <sup>(1)</sup> |
| RGP15G |  | 1.5 | 55 | 400  | - | 50 | 1.3 | 1.5 | 5.0 | 150 <sup>(1)</sup> |
| RGP15J |  | 1.5 | 55 | 600  | - | 50 | 1.3 | 1.5 | 5.0 | 250 <sup>(1)</sup> |
| RGP15K |  | 1.5 | 55 | 800  | - | 50 | 1.3 | 1.5 | 5.0 | 500 <sup>(1)</sup> |
| RGP15M |  | 1.5 | 55 | 1000 | - | 50 | 1.3 | 1.5 | 5.0 | 500 <sup>(1)</sup> |

## FR151/SROA Series, 1.5 A, Case Type: DO-41/SMA

|           |      |     |    |      |     |    |     |     |     |                    |
|-----------|------|-----|----|------|-----|----|-----|-----|-----|--------------------|
| FR151     | SROA | 1.5 | 55 | 50   | 5.0 | 60 | 1.3 | 1.5 | 5.0 | 150 <sup>(1)</sup> |
| FR152     | SROB | 1.5 | 55 | 100  | 5.0 | 60 | 1.3 | 1.5 | 5.0 | 150 <sup>(1)</sup> |
| FR153     | SROD | 1.5 | 55 | 200  | 5.0 | 60 | 1.3 | 1.5 | 5.0 | 150 <sup>(1)</sup> |
| FR154     | SROG | 1.5 | 55 | 400  | 5.0 | 60 | 1.3 | 1.5 | 5.0 | 150 <sup>(1)</sup> |
| FR155     | SROJ | 1.5 | 55 | 600  | 5.0 | 60 | 1.3 | 1.5 | 5.0 | 250 <sup>(1)</sup> |
| FR156     | SROK | 1.5 | 55 | 800  | 5.0 | 60 | 1.3 | 1.5 | 5.0 | 500 <sup>(1)</sup> |
| FR157     | SROM | 1.5 | 55 | 1000 | 5.0 | 60 | 1.3 | 1.5 | 5.0 | 500 <sup>(1)</sup> |
| FR157-STR | -    | 1.5 | 55 | 1000 | 5.0 | 60 | 1.3 | 1.5 | 5.0 | 250 <sup>(1)</sup> |

Notes: (1) Reverse recovery test conditions : I<sub>F</sub> = 0.5 A, I<sub>R</sub> = 1 A, with I<sub>rr</sub> = 0.25 A

(2) Reverse recovery test conditions : I<sub>F</sub> = 10 mA, I<sub>R</sub> = 10 mA recover to 1 mA

(3) Reverse recovery test conditions : I<sub>F</sub> = 100 mA, I<sub>R</sub> = 100 mA

# Fast Recovery Rectifier Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.   | Max. Average Forward Rectified Current | Max. Repetitive Peak Reverse Voltage | Max. Repetitive Peak Forward Current | Max. Surge Forward Current | Max. Forward Voltage Drop at Ta=25°C | Max. Reverse Current at Ta=25°C | Max. Reverse Recovery Time |
|------------|----------------------------------------|--------------------------------------|--------------------------------------|----------------------------|--------------------------------------|---------------------------------|----------------------------|
|            | IF(AV) @ Ta                            | VRRM                                 | IFRM                                 | IFSM                       | VF @ IF                              | IR                              | Trr                        |
| Axial Lead | SMD                                    | (A) (°C)                             | (V)                                  | (A)                        | (A)                                  | (V) (A)                         | (μA) (ns)                  |

## 1R5J Series, 1.5 A, Case Type: D2



|         |  |     |    |     |   |    |     |     |     |                    |
|---------|--|-----|----|-----|---|----|-----|-----|-----|--------------------|
| 1R5JH45 |  | 1.5 | 25 | 600 | - | 50 | 1.2 | 1.5 | 100 | 200 <sup>(4)</sup> |
| 1R5JU41 |  | 1.5 | 25 | 600 | - | 40 | 2.0 | 2.0 | 100 | 100 <sup>(4)</sup> |

## ERD28-04 Series, 1.5 A, Case Type: D2A



|          |  |     |    |     |   |    |     |     |    |                    |
|----------|--|-----|----|-----|---|----|-----|-----|----|--------------------|
| ERD28-04 |  | 1.5 | 25 | 400 | - | 70 | 1.1 | 1.5 | 10 | 400 <sup>(3)</sup> |
| ERD28-06 |  | 1.5 | 25 | 600 | - | 70 | 1.1 | 1.5 | 10 | 400 <sup>(3)</sup> |
| ERD28-08 |  | 1.5 | 25 | 800 | - | 70 | 1.1 | 1.5 | 10 | 400 <sup>(3)</sup> |

## RU3 Series, 1.5 - 2.0 A, Case Type: D2A



|       |  |     |    |      |   |    |      |     |    |                    |
|-------|--|-----|----|------|---|----|------|-----|----|--------------------|
| RU3   |  | 1.5 | 50 | 400  | - | 30 | 1.5  | 1.5 | 10 | 400 <sup>(2)</sup> |
| RU3A  |  | 1.5 | 50 | 600  | - | 30 | 1.5  | 1.5 | 10 | 400 <sup>(2)</sup> |
| RU3B  |  | 1.5 | 50 | 800  | - | 30 | 1.5  | 1.5 | 10 | 400 <sup>(2)</sup> |
| RU3C  |  | 1.5 | 50 | 1000 | - | 30 | 2.0  | 1.5 | 10 | 400 <sup>(2)</sup> |
| RU3M  |  | 1.5 | 50 | 400  | - | 30 | 1.1  | 1.5 | 10 | 400 <sup>(2)</sup> |
| RU3AM |  | 1.5 | 50 | 600  | - | 30 | 1.1  | 1.5 | 10 | 400 <sup>(2)</sup> |
| RU3YX |  | 2.0 | 25 | 100  | - | 50 | 0.95 | 2.0 | 10 | 200 <sup>(2)</sup> |

## RU4 Series, 1.5 - 2.5 A, Case Type: DO-201AD



|       |  |     |    |      |   |     |     |     |    |                    |
|-------|--|-----|----|------|---|-----|-----|-----|----|--------------------|
| RU4   |  | 1.5 | 50 | 400  | - | 50  | 1.5 | 3.0 | 10 | 400 <sup>(2)</sup> |
| RU4A  |  | 1.5 | 50 | 600  | - | 50  | 1.5 | 3.0 | 10 | 400 <sup>(2)</sup> |
| RU4B  |  | 1.5 | 50 | 800  | - | 50  | 1.6 | 3.0 | 10 | 400 <sup>(2)</sup> |
| RU4C  |  | 1.5 | 50 | 1000 | - | 50  | 1.6 | 3.0 | 50 | 400 <sup>(2)</sup> |
| RU4Y  |  | 2.0 | 60 | 100  | - | 70  | 1.3 | 3.5 | 10 | 400 <sup>(2)</sup> |
| RU4Z  |  | 2.0 | 60 | 200  | - | 70  | 1.3 | 3.5 | 10 | 400 <sup>(2)</sup> |
| RU4M  |  | 2.0 | 50 | 400  | - | 50  | 1.3 | 3.5 | 10 | 400 <sup>(3)</sup> |
| RU4AM |  | 2.0 | 50 | 600  | - | 50  | 1.3 | 3.5 | 10 | 400 <sup>(3)</sup> |
| RU4YX |  | 2.2 | 50 | 100  | - | 100 | 1.3 | 3.5 | 10 | 200 <sup>(3)</sup> |
| RU4DS |  | 2.5 | 60 | 1300 | - | 50  | 1.8 | 3.0 | 50 | 400 <sup>(3)</sup> |

## BYW32 Series, 2 A, Case Type: D2



|       |  |     |    |     |   |    |     |     |     |                    |
|-------|--|-----|----|-----|---|----|-----|-----|-----|--------------------|
| BYW32 |  | 2.0 | 55 | 200 | - | 40 | 1.2 | 2.0 | 5.0 | 200 <sup>(1)</sup> |
| BYW33 |  | 2.0 | 55 | 300 | - | 40 | 1.2 | 2.0 | 5.0 | 200 <sup>(1)</sup> |
| BYW34 |  | 2.0 | 55 | 400 | - | 40 | 1.2 | 2.0 | 5.0 | 200 <sup>(1)</sup> |
| BYW35 |  | 2.0 | 55 | 500 | - | 40 | 1.2 | 2.0 | 5.0 | 200 <sup>(1)</sup> |
| BYW36 |  | 2.0 | 55 | 600 | - | 40 | 1.2 | 2.0 | 5.0 | 200 <sup>(1)</sup> |

### Notes :

- (1) Reverse recovery test conditions :  $I_F = 0.5 \text{ A}$ ,  $I_R = 1 \text{ A}$ , with  $I_{rr} = 0.25 \text{ A}$
- (2) Reverse recovery test conditions :  $I_F = 10 \text{ mA}$ ,  $I_R = 10 \text{ mA}$  recover to  $1 \text{ mA}$
- (3) Reverse recovery test conditions :  $I_F = 100 \text{ mA}$ ,  $I_R = 100 \text{ mA}$
- (4) Reverse recovery test conditions :  $I_F = 1 \text{ A}$ ,  $di/dt = -30 \text{ A/ms}$



# Fast Recovery Rectifier Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.   |     | Max. Average Forward Rectified Current |      | Max. Repetitive Peak Reverse Voltage | Max. Repetitive Peak Forward Current | Max. Surge Forward Current | Max. Forward Voltage Drop at Ta=25°C |                  | Max. Reverse Current at Ta=25°C | Max. Reverse Recovery Time |
|------------|-----|----------------------------------------|------|--------------------------------------|--------------------------------------|----------------------------|--------------------------------------|------------------|---------------------------------|----------------------------|
|            |     | I <sub>F(AV)</sub>                     | @ Ta | V <sub>RRM</sub>                     | I <sub>FRM</sub>                     | I <sub>FSM</sub>           | V <sub>F</sub>                       | @ I <sub>F</sub> | I <sub>R</sub>                  | T <sub>rr</sub>            |
| Axial Lead | SMD | (A)                                    | (°C) | (V)                                  | (A)                                  | (A)                        | (V)                                  | (A)              | (μA)                            | (ns)                       |

## BY296/SR26 Series, 2 A, Case Type: DO-201AD/SMB



|       |      |     |    |     |    |    |     |     |    |                    |                    |
|-------|------|-----|----|-----|----|----|-----|-----|----|--------------------|--------------------|
| BY296 | SR26 | 2.0 | 50 | 100 | 10 | 70 | 1.3 | 2.0 | 10 | 500 <sup>(2)</sup> | 250 <sup>(1)</sup> |
| BY297 | SR27 | 2.0 | 50 | 200 | 10 | 70 | 1.3 | 2.0 | 10 | 500 <sup>(2)</sup> | 250 <sup>(1)</sup> |
| BY298 | SR28 | 2.0 | 50 | 400 | 10 | 70 | 1.3 | 2.0 | 10 | 500 <sup>(2)</sup> | 250 <sup>(1)</sup> |
| BY299 | SR29 | 2.0 | 50 | 800 | 10 | 70 | 1.3 | 2.0 | 10 | 500 <sup>(2)</sup> | 250 <sup>(1)</sup> |

## FR201/SR2A Series, 2 A, Case Type: D2/SMB



|           |      |     |    |      |    |    |     |     |    |                    |
|-----------|------|-----|----|------|----|----|-----|-----|----|--------------------|
| FR201     | SR2A | 2.0 | 75 | 50   | 15 | 75 | 1.3 | 2.0 | 10 | 150 <sup>(1)</sup> |
| FR202     | SR2B | 2.0 | 75 | 100  | 15 | 75 | 1.3 | 2.0 | 10 | 150 <sup>(1)</sup> |
| FR203     | SR2D | 2.0 | 75 | 200  | 15 | 75 | 1.3 | 2.0 | 10 | 150 <sup>(1)</sup> |
| FR204     | SR2G | 2.0 | 75 | 400  | 15 | 75 | 1.3 | 2.0 | 10 | 150 <sup>(1)</sup> |
| FR205     | SR2J | 2.0 | 75 | 600  | 15 | 75 | 1.3 | 2.0 | 10 | 250 <sup>(1)</sup> |
| FR206     | SR2K | 2.0 | 75 | 800  | 15 | 75 | 1.3 | 2.0 | 10 | 500 <sup>(1)</sup> |
| FR207     | SR2M | 2.0 | 75 | 1000 | 15 | 75 | 1.3 | 2.0 | 10 | 500 <sup>(1)</sup> |
| FR207-STR | -    | 2.0 | 75 | 1000 | 15 | 75 | 1.3 | 2.0 | 10 | 250 <sup>(1)</sup> |

## RGP20A-J Series, 2 A, Case Type: D2A



|        |  |     |    |     |   |    |     |     |     |                    |
|--------|--|-----|----|-----|---|----|-----|-----|-----|--------------------|
| RGP20A |  | 2.0 | 55 | 50  | - | 80 | 1.3 | 2.0 | 5.0 | 150 <sup>(1)</sup> |
| RGP20B |  | 2.0 | 55 | 100 | - | 80 | 1.3 | 2.0 | 5.0 | 150 <sup>(1)</sup> |
| RGP20D |  | 2.0 | 55 | 200 | - | 80 | 1.3 | 2.0 | 5.0 | 150 <sup>(1)</sup> |
| RGP20G |  | 2.0 | 55 | 400 | - | 80 | 1.3 | 2.0 | 5.0 | 150 <sup>(1)</sup> |
| RGP20J |  | 2.0 | 55 | 600 | - | 80 | 1.3 | 2.0 | 5.0 | 250 <sup>(1)</sup> |

## FR251/SRTA Series, 2.5 A, Case Type: D2A/SMB



|           |      |     |    |      |    |     |     |     |    |                    |
|-----------|------|-----|----|------|----|-----|-----|-----|----|--------------------|
| FR251     | SRTA | 2.5 | 75 | 50   | 15 | 100 | 1.3 | 2.5 | 10 | 150 <sup>(1)</sup> |
| FR252     | SRTB | 2.5 | 75 | 100  | 15 | 100 | 1.3 | 2.5 | 10 | 150 <sup>(1)</sup> |
| FR253     | SRTD | 2.5 | 75 | 200  | 15 | 100 | 1.3 | 2.5 | 10 | 150 <sup>(1)</sup> |
| FR254     | SRTG | 2.5 | 75 | 400  | 15 | 100 | 1.3 | 2.5 | 10 | 150 <sup>(1)</sup> |
| FR255     | SRTJ | 2.5 | 75 | 600  | 15 | 100 | 1.3 | 2.5 | 10 | 250 <sup>(1)</sup> |
| FR256     | SRTK | 2.5 | 75 | 800  | 15 | 100 | 1.3 | 2.5 | 10 | 500 <sup>(1)</sup> |
| FR257     | SRTM | 2.5 | 75 | 1000 | 15 | 100 | 1.3 | 2.5 | 10 | 500 <sup>(1)</sup> |
| FR257-STR | -    | 2.5 | 75 | 1000 | 15 | 100 | 1.3 | 2.5 | 10 | 250 <sup>(1)</sup> |

## BY228/SR36 Series, 3 A, Case Type: DO-201AD/SMC



|       |      |     |    |     |    |     |      |     |    |                    |                    |
|-------|------|-----|----|-----|----|-----|------|-----|----|--------------------|--------------------|
| BY396 | SR36 | 3.0 | 50 | 100 | 15 | 100 | 1.25 | 3.0 | 10 | 500 <sup>(2)</sup> | 250 <sup>(1)</sup> |
| BY397 | SR37 | 3.0 | 50 | 200 | 15 | 100 | 1.25 | 3.0 | 10 | 500 <sup>(2)</sup> | 250 <sup>(1)</sup> |
| BY398 | SR38 | 3.0 | 50 | 400 | 15 | 100 | 1.25 | 3.0 | 10 | 500 <sup>(2)</sup> | 250 <sup>(1)</sup> |
| BY399 | SR39 | 3.0 | 50 | 800 | 15 | 100 | 1.25 | 3.0 | 10 | 500 <sup>(2)</sup> | 250 <sup>(1)</sup> |

### Notes :

- (1) Reverse recovery test conditions : I<sub>F</sub> = 0.5 A, I<sub>R</sub> = 1 A, with I<sub>rr</sub> = 0.25 A
- (2) Reverse recovery test conditions : I<sub>F</sub> = 10 mA, I<sub>R</sub> = 10 mA recover to 1 mA

# Fast Recovery Rectifier Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.   | Max. Average Forward Rectified Current | Max. Repetitive Peak Reverse Voltage | Max. Repetitive Peak Forward Current | Max. Surge Forward Current | Max. Forward Voltage Drop at Ta=25°C | Max. Reverse Current at Ta=25°C | Max. Reverse Recovery Time |
|------------|----------------------------------------|--------------------------------------|--------------------------------------|----------------------------|--------------------------------------|---------------------------------|----------------------------|
|            | IF(AV) @ Ta                            | VRRM                                 | IFRM                                 | IFSM                       | VF @ IF                              | IR                              | Trr                        |
| Axial Lead | SMD                                    | (A) (°C)                             | (V)                                  | (A)                        | (A)                                  | (V) (A)                         | (μA) (ns)                  |

## BYT56A Series, 3 A, Case Type: DO-201AD



|        |  |     |    |      |   |    |     |     |     |                    |
|--------|--|-----|----|------|---|----|-----|-----|-----|--------------------|
| BYT56A |  | 3.0 | 50 | 50   | - | 80 | 1.4 | 3.0 | 5.0 | 100 <sup>(1)</sup> |
| BYT56B |  | 3.0 | 50 | 100  | - | 80 | 1.4 | 3.0 | 5.0 | 100 <sup>(1)</sup> |
| BYT56D |  | 3.0 | 50 | 200  | - | 80 | 1.4 | 3.0 | 5.0 | 100 <sup>(1)</sup> |
| BYT56G |  | 3.0 | 50 | 400  | - | 80 | 1.4 | 3.0 | 5.0 | 100 <sup>(1)</sup> |
| BYT56J |  | 3.0 | 50 | 600  | - | 80 | 1.4 | 3.0 | 5.0 | 100 <sup>(1)</sup> |
| BYT56K |  | 3.0 | 50 | 800  | - | 80 | 1.4 | 3.0 | 5.0 | 100 <sup>(1)</sup> |
| BYT56M |  | 3.0 | 50 | 1000 | - | 80 | 1.4 | 3.0 | 5.0 | 100 <sup>(1)</sup> |

## FR301/SR3A Series, 3 A, Case Type: DO-201AD/SMC



|           |      |     |    |      |    |     |     |     |    |                    |
|-----------|------|-----|----|------|----|-----|-----|-----|----|--------------------|
| FR301     | SR3A | 3.0 | 55 | 50   | 20 | 200 | 1.3 | 3.0 | 10 | 150 <sup>(1)</sup> |
| FR302     | SR3B | 3.0 | 55 | 100  | 20 | 200 | 1.3 | 3.0 | 10 | 150 <sup>(1)</sup> |
| FR303     | SR3D | 3.0 | 55 | 200  | 20 | 200 | 1.3 | 3.0 | 10 | 150 <sup>(1)</sup> |
| FR304     | SR3G | 3.0 | 55 | 400  | 20 | 200 | 1.3 | 3.0 | 10 | 150 <sup>(1)</sup> |
| FR305     | SR3J | 3.0 | 55 | 600  | 20 | 200 | 1.3 | 3.0 | 10 | 250 <sup>(1)</sup> |
| FR306     | SR3K | 3.0 | 55 | 800  | 20 | 200 | 1.3 | 3.0 | 10 | 500 <sup>(1)</sup> |
| FR307     | SR3M | 3.0 | 55 | 1000 | 20 | 200 | 1.3 | 3.0 | 10 | 500 <sup>(1)</sup> |
| FR307-STR |      | 3.0 | 55 | 1000 | 20 | 200 | 1.3 | 3.0 | 10 | 250 <sup>(1)</sup> |

## RS3A Series, 3 A, Case Type: SMC



|  |      |     |    |     |   |     |     |     |    |                    |
|--|------|-----|----|-----|---|-----|-----|-----|----|--------------------|
|  | RS3A | 3.0 | 55 | 50  | - | 100 | 1.3 | 3.0 | 10 | 150 <sup>(1)</sup> |
|  | RS3B | 3.0 | 55 | 100 | - | 100 | 1.3 | 3.0 | 10 | 150 <sup>(1)</sup> |
|  | RS3D | 3.0 | 55 | 200 | - | 100 | 1.3 | 3.0 | 10 | 150 <sup>(1)</sup> |
|  | RS3G | 3.0 | 55 | 400 | - | 100 | 1.3 | 3.0 | 10 | 150 <sup>(1)</sup> |
|  | RS3J | 3.0 | 55 | 600 | - | 100 | 1.3 | 3.0 | 10 | 250 <sup>(1)</sup> |
|  | RS3K | 3.0 | 55 | 800 | - | 100 | 1.3 | 3.0 | 10 | 500 <sup>(1)</sup> |

## MR850/SRR0 Series, 3 A, Case Type: DO-201AD/SMC



|       |      |     |    |     |    |     |      |     |    |                    |                    |
|-------|------|-----|----|-----|----|-----|------|-----|----|--------------------|--------------------|
| MR850 | SRR0 | 3.0 | 90 | 50  | 15 | 100 | 1.25 | 3.0 | 10 | 200 <sup>(2)</sup> | 150 <sup>(1)</sup> |
| MR851 | SRR1 | 3.0 | 90 | 100 | 15 | 100 | 1.25 | 3.0 | 10 | 200 <sup>(2)</sup> | 150 <sup>(1)</sup> |
| MR852 | SRR2 | 3.0 | 90 | 200 | 15 | 100 | 1.25 | 3.0 | 10 | 200 <sup>(2)</sup> | 150 <sup>(1)</sup> |
| MR854 | SRR4 | 3.0 | 90 | 400 | 15 | 100 | 1.25 | 3.0 | 10 | 200 <sup>(2)</sup> | 150 <sup>(1)</sup> |
| MR856 | SRR6 | 3.0 | 90 | 600 | 15 | 100 | 1.25 | 3.0 | 10 | 200 <sup>(2)</sup> | 150 <sup>(1)</sup> |
| MR858 | -    | 3.0 | 90 | 800 | 15 | 100 | 1.25 | 3.0 | 10 | 200 <sup>(2)</sup> | 150 <sup>(1)</sup> |

## 3JH45 Series, 3 A, Case Type: DO-201AD



|       |   |     |    |     |   |    |      |     |     |                    |
|-------|---|-----|----|-----|---|----|------|-----|-----|--------------------|
| 3JH45 | - | 3.0 | 25 | 600 | - | 77 | 1.2  | 3.0 | 100 | 200 <sup>(4)</sup> |
| 30DF6 | - | 3.0 | 40 | 600 | - | 90 | 1.25 | 3.0 | 10  | 200 <sup>(3)</sup> |

### Notes :

- (1) Reverse recovery test conditions :  $I_F = 0.5 \text{ A}$ ,  $I_R = 1 \text{ A}$ , with  $I_{rr} = 0.25 \text{ A}$
- (2) Reverse recovery test conditions :  $I_F = 1 \text{ A}$ , to  $V_R = 30 \text{ V}$
- (3) Reverse Recovery test conditions :  $I_F = 1 \text{ A}$ , to  $V_R = 30 \text{ V}$
- (4) Reverse Recovery test conditions :  $I_F = 1 \text{ A}$ ,  $di/dt = -30 \text{ A/ms}$



# Fast Recovery Rectifier Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.   |     | Max. Average Forward Rectified Current |      | Max. Repetitive Peak Reverse Voltage | Max. Repetitive Peak Forward Current | Max. Surge Forward Current | Max. Forward Voltage Drop at Ta=25°C | Max. Reverse Current at Ta=25°C | Max. Reverse Recovery Time |
|------------|-----|----------------------------------------|------|--------------------------------------|--------------------------------------|----------------------------|--------------------------------------|---------------------------------|----------------------------|
|            |     | IF(AV)                                 | @ Ta | VRRM                                 | IFRM                                 | IFSM                       | VF @ IF                              | IR                              | Trr                        |
| Axial Lead | SMD | (A)                                    | (°C) | (V)                                  | (A)                                  | (A)                        | (V) (A)                              | (μA)                            | (ns)                       |

## RGP30 Series, 3 A, Case Type: DO-201AD



|        |  |     |    |      |   |     |      |     |     |                    |
|--------|--|-----|----|------|---|-----|------|-----|-----|--------------------|
| RGP30A |  | 3.0 | 55 | 50   | - | 125 | 1.30 | 3.0 | 5.0 | 150 <sup>(1)</sup> |
| RGP30B |  | 3.0 | 55 | 100  | - | 125 | 1.30 | 3.0 | 5.0 | 150 <sup>(1)</sup> |
| RGP30D |  | 3.0 | 55 | 200  | - | 125 | 1.30 | 3.0 | 5.0 | 150 <sup>(1)</sup> |
| RGP30G |  | 3.0 | 55 | 400  | - | 125 | 1.30 | 3.0 | 5.0 | 150 <sup>(1)</sup> |
| RGP30J |  | 3.0 | 55 | 600  | - | 125 | 1.30 | 3.0 | 5.0 | 150 <sup>(1)</sup> |
| RGP30K |  | 3.0 | 55 | 800  | - | 125 | 1.30 | 3.0 | 5.0 | 250 <sup>(1)</sup> |
| RGP30M |  | 3.0 | 55 | 1000 | - | 125 | 1.30 | 3.0 | 5.0 | 500 <sup>(1)</sup> |

## 1N5415 Series, 3 A, Case Type: D2A



|        |  |     |    |     |   |    |     |     |     |                    |
|--------|--|-----|----|-----|---|----|-----|-----|-----|--------------------|
| 1N5415 |  | 3.0 | 55 | 50  | - | 80 | 1.1 | 3.0 | 1.0 | 150 <sup>(1)</sup> |
| 1N5416 |  | 3.0 | 55 | 100 | - | 80 | 1.1 | 3.0 | 1.0 | 150 <sup>(1)</sup> |
| 1N5417 |  | 3.0 | 55 | 200 | - | 80 | 1.1 | 3.0 | 1.0 | 150 <sup>(1)</sup> |
| 1N5418 |  | 3.0 | 55 | 400 | - | 80 | 1.1 | 3.0 | 1.0 | 150 <sup>(1)</sup> |
| 1N5419 |  | 3.0 | 55 | 500 | - | 80 | 1.1 | 3.0 | 1.0 | 250 <sup>(1)</sup> |
| 1N5420 |  | 3.0 | 55 | 600 | - | 80 | 1.1 | 3.0 | 1.0 | 400 <sup>(1)</sup> |

## FR501 Series, 5 A, Case Type: DO-201AD



|       |   |     |    |      |   |     |     |     |    |                    |
|-------|---|-----|----|------|---|-----|-----|-----|----|--------------------|
| FR501 | - | 5.0 | 75 | 50   | - | 300 | 1.3 | 5.0 | 10 | 150 <sup>(1)</sup> |
| FR502 | - | 5.0 | 75 | 100  | - | 300 | 1.3 | 5.0 | 10 | 150 <sup>(1)</sup> |
| FR503 | - | 5.0 | 75 | 200  | - | 300 | 1.3 | 5.0 | 10 | 150 <sup>(1)</sup> |
| FR504 | - | 5.0 | 75 | 400  | - | 300 | 1.3 | 5.0 | 10 | 150 <sup>(1)</sup> |
| FR505 | - | 5.0 | 75 | 600  | - | 300 | 1.3 | 5.0 | 10 | 250 <sup>(1)</sup> |
| FR506 | - | 5.0 | 75 | 800  | - | 300 | 1.3 | 5.0 | 10 | 500 <sup>(1)</sup> |
| FR507 | - | 5.0 | 75 | 1000 | - | 300 | 1.3 | 5.0 | 10 | 500 <sup>(1)</sup> |

## FR601 Series, 6 A, Case Type: D6



|       |   |     |    |      |   |     |     |     |    |                    |
|-------|---|-----|----|------|---|-----|-----|-----|----|--------------------|
| FR601 | - | 6.0 | 55 | 50   | - | 200 | 1.3 | 6.0 | 10 | 150 <sup>(1)</sup> |
| FR602 | - | 6.0 | 55 | 100  | - | 200 | 1.3 | 6.0 | 10 | 150 <sup>(1)</sup> |
| FR603 | - | 6.0 | 55 | 200  | - | 200 | 1.3 | 6.0 | 10 | 150 <sup>(1)</sup> |
| FR604 | - | 6.0 | 55 | 400  | - | 200 | 1.3 | 6.0 | 10 | 150 <sup>(1)</sup> |
| FR605 | - | 6.0 | 55 | 600  | - | 200 | 1.3 | 6.0 | 10 | 250 <sup>(1)</sup> |
| FR606 | - | 6.0 | 55 | 800  | - | 200 | 1.3 | 6.0 | 10 | 500 <sup>(1)</sup> |
| FR607 | - | 6.0 | 55 | 1000 | - | 200 | 1.3 | 6.0 | 10 | 500 <sup>(1)</sup> |

## FR801 Series, 8 A, Case Type: D6



|       |   |     |          |     |   |     |     |     |    |                    |
|-------|---|-----|----------|-----|---|-----|-----|-----|----|--------------------|
| FR801 | - | 8.0 | 100 (Tc) | 50  | - | 150 | 1.3 | 8.0 | 10 | 150 <sup>(1)</sup> |
| FR802 | - | 8.0 | 100 (Tc) | 100 | - | 150 | 1.3 | 8.0 | 10 | 150 <sup>(1)</sup> |
| FR803 | - | 8.0 | 100 (Tc) | 200 | - | 150 | 1.3 | 8.0 | 10 | 150 <sup>(1)</sup> |
| FR804 | - | 8.0 | 100 (Tc) | 400 | - | 150 | 1.3 | 8.0 | 10 | 150 <sup>(1)</sup> |
| FR805 | - | 8.0 | 100 (Tc) | 600 | - | 150 | 1.3 | 8.0 | 10 | 250 <sup>(1)</sup> |

Note :

(1) Reverse Recovery test conditions :  $I_F = 0.5 \text{ A}$ ,  $I_R = 1 \text{ A}$ , with  $I_{rr} = 0.25 \text{ A}$

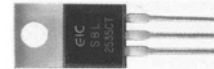


# Fast Recovery Rectifier Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.   |     | Max. Average Forward Rectified Current |      | Max. Repetitive Peak Reverse Voltage | Max. Repetitive Peak Forward Current | Max. Surge Forward Current | Max. Forward Voltage Drop at Ta=25°C |      | Max. Reverse Current at Ta=25°C | Max. Reverse Recovery Time |
|------------|-----|----------------------------------------|------|--------------------------------------|--------------------------------------|----------------------------|--------------------------------------|------|---------------------------------|----------------------------|
|            |     | IF(AV)                                 | @ Ta | VRRM                                 | IFRM                                 | IFSM                       | VF                                   | @ IF | IR                              | Trr                        |
| Axial Lead | SMD | (A)                                    | (°C) | (V)                                  | (A)                                  | (A)                        | (V)                                  | (A)  | (μA)                            | (ns)                       |

## ESAC25 Series, 10 A, Case Type: TO - 220AB



|            |   |    |          |     |   |    |     |     |    |                    |
|------------|---|----|----------|-----|---|----|-----|-----|----|--------------------|
| ESAC25-02C | - | 10 | 106 (Tc) | 200 | - | 70 | 1.3 | 2.5 | 10 | 400 <sup>(2)</sup> |
| ESAC25-02D | - | 10 | 106 (Tc) | 200 | - | 70 | 1.3 | 2.5 | 10 | 400 <sup>(2)</sup> |
| ESAC25-02N | - | 10 | 106 (Tc) | 200 | - | 70 | 1.3 | 2.5 | 10 | 400 <sup>(2)</sup> |
| ESAC25-04C | - | 10 | 106 (Tc) | 400 | - | 70 | 1.3 | 2.5 | 10 | 400 <sup>(2)</sup> |
| ESAC25-04D | - | 10 | 106 (Tc) | 400 | - | 70 | 1.3 | 2.5 | 10 | 400 <sup>(2)</sup> |
| ESAC25-04N | - | 10 | 106 (Tc) | 400 | - | 70 | 1.3 | 2.5 | 10 | 400 <sup>(2)</sup> |

## F1200A Series, 12 A, Case Type: D6



|        |  |    |    |     |    |     |      |     |    |                    |
|--------|--|----|----|-----|----|-----|------|-----|----|--------------------|
| F1200A |  | 12 | 50 | 50  | 80 | 390 | 0.85 | 5.0 | 25 | 200 <sup>(1)</sup> |
| F1200D |  | 12 | 50 | 200 | 80 | 390 | 0.85 | 5.0 | 25 | 200 <sup>(1)</sup> |

## FTB2000AA /FTB2000KG, 20 A, Case Type: D2PAK



|  |                             |    |          |     |    |     |      |      |    |                    |
|--|-----------------------------|----|----------|-----|----|-----|------|------|----|--------------------|
|  | FTB2000KA/AA <sup>(3)</sup> | 20 | 100 (Tc) | 50  | 80 | 390 | 0.96 | 20.0 | 25 | 200 <sup>(1)</sup> |
|  | FTB2000KB/AB <sup>(3)</sup> | 20 | 100 (Tc) | 100 | 80 | 390 | 0.96 | 20.0 | 25 | 200 <sup>(1)</sup> |
|  | FTB2000KD/AD <sup>(3)</sup> | 20 | 100 (Tc) | 200 | 80 | 390 | 0.96 | 20.0 | 25 | 200 <sup>(1)</sup> |
|  | FTB2000KG/AG <sup>(3)</sup> | 20 | 100 (Tc) | 400 | 80 | 390 | 0.96 | 20.0 | 25 | 200 <sup>(1)</sup> |

### Notes :

- (1) Reverse Recovery test conditions : I<sub>F</sub> = 0.5 A, I<sub>R</sub> = 1 A, with I<sub>rr</sub> = 0.25 A
- (2) Reverse Recovery test conditions : I<sub>F</sub> = 100 mA, I<sub>R</sub> = 100 mA
- (3) K (Standard) is p/n FTB2000KA, FTB2000KB, ..., KG, A (Reverse) is p/n FTB2000AA, FTB2000AB, ..., AG



# Fast Recovery Glass Passivated Rectifier Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.   |     | Max. Average Forward Rectified Current |      | Max. Repetitive Peak Reverse Voltage | Max. Repetitive Peak Forward Current | Max. Surge Forward Current | Max. Forward Voltage Drop at Ta=25°C |      | Max. Reverse Current at Ta=25°C | Max. Reverse Recovery Time |
|------------|-----|----------------------------------------|------|--------------------------------------|--------------------------------------|----------------------------|--------------------------------------|------|---------------------------------|----------------------------|
|            |     | IF(AV)                                 | @ Ta | VRRM                                 | IFRM                                 | IFSM                       | VF                                   | @ IF | IR                              | Trr <sup>(1)</sup>         |
| Axial Lead | SMD | (A)                                    | (°C) | (V)                                  | (A)                                  | (A)                        | (V)                                  | (A)  | (μA)                            | (ns)                       |

## LMR1A Series, 1 A, Case Type: M1A



|       |  |     |    |      |   |    |     |     |     |     |
|-------|--|-----|----|------|---|----|-----|-----|-----|-----|
| LMR1A |  | 1.0 | 50 | 50   | - | 30 | 1.0 | 1.0 | 5.0 | 150 |
| LMR1B |  | 1.0 | 50 | 100  | - | 30 | 1.0 | 1.0 | 5.0 | 150 |
| LMR1D |  | 1.0 | 50 | 200  | - | 30 | 1.0 | 1.0 | 5.0 | 150 |
| LMR1G |  | 1.0 | 50 | 400  | - | 30 | 1.0 | 1.0 | 5.0 | 150 |
| LMR1J |  | 1.0 | 50 | 600  | - | 30 | 1.0 | 1.0 | 5.0 | 250 |
| LMR1K |  | 1.0 | 50 | 800  | - | 30 | 1.0 | 1.0 | 5.0 | 500 |
| LMR1M |  | 1.0 | 50 | 1000 | - | 30 | 1.0 | 1.0 | 5.0 | 500 |

## FR101G/GR1A Series, 1 A, Case Type: DO-41/SMA



|            |      |     |    |      |     |    |     |     |     |     |
|------------|------|-----|----|------|-----|----|-----|-----|-----|-----|
| FR101G     | GR1A | 1.0 | 55 | 50   | 5.0 | 30 | 1.3 | 1.0 | 5.0 | 150 |
| FR102G     | GR1B | 1.0 | 55 | 100  | 5.0 | 30 | 1.3 | 1.0 | 5.0 | 150 |
| FR103G     | GR1D | 1.0 | 55 | 200  | 5.0 | 30 | 1.3 | 1.0 | 5.0 | 150 |
| FR104G     | GR1G | 1.0 | 55 | 400  | 5.0 | 30 | 1.3 | 1.0 | 5.0 | 150 |
| FR105G     | GR1J | 1.0 | 55 | 600  | 5.0 | 30 | 1.3 | 1.0 | 5.0 | 250 |
| FR106G     | GR1K | 1.0 | 55 | 800  | 5.0 | 30 | 1.3 | 1.0 | 5.0 | 500 |
| FR107G     | GR1M | 1.0 | 55 | 1000 | 5.0 | 30 | 1.3 | 1.0 | 5.0 | 500 |
| FR107G-STR | -    | 1.0 | 55 | 1000 | 5.0 | 30 | 1.3 | 1.0 | 5.0 | 250 |

## FR151G Series, 1.5 A, Case Type: DO-41



|            |  |     |    |      |   |    |     |     |     |     |
|------------|--|-----|----|------|---|----|-----|-----|-----|-----|
| FR151G     |  | 1.5 | 55 | 50   | - | 60 | 1.4 | 1.5 | 5.0 | 150 |
| FR152G     |  | 1.5 | 55 | 100  | - | 60 | 1.4 | 1.5 | 5.0 | 150 |
| FR153G     |  | 1.5 | 55 | 200  | - | 60 | 1.4 | 1.5 | 5.0 | 150 |
| FR154G     |  | 1.5 | 55 | 400  | - | 60 | 1.4 | 1.5 | 5.0 | 150 |
| FR155G     |  | 1.5 | 55 | 600  | - | 60 | 1.4 | 1.5 | 5.0 | 250 |
| FR156G     |  | 1.5 | 55 | 800  | - | 60 | 1.4 | 1.5 | 5.0 | 500 |
| FR157G     |  | 1.5 | 55 | 1000 | - | 60 | 1.4 | 1.5 | 5.0 | 500 |
| FR157G-STR |  | 1.5 | 55 | 1000 | - | 60 | 1.4 | 1.5 | 5.0 | 250 |

## 1N4933G/GRN3 Series, 1 A, Case Type: DO-41/SMA



|         |      |     |    |     |     |    |     |     |     |     |
|---------|------|-----|----|-----|-----|----|-----|-----|-----|-----|
| 1N4933G | GRN3 | 1.0 | 50 | 50  | 5.0 | 30 | 1.2 | 1.0 | 5.0 | 150 |
| 1N4934G | GRN4 | 1.0 | 50 | 100 | 5.0 | 30 | 1.2 | 1.0 | 5.0 | 150 |
| 1N4935G | GRN5 | 1.0 | 50 | 200 | 5.0 | 30 | 1.2 | 1.0 | 5.0 | 150 |
| 1N4936G | GRN6 | 1.0 | 50 | 400 | 5.0 | 30 | 1.2 | 1.0 | 5.0 | 150 |
| 1N4937G | GRN7 | 1.0 | 50 | 600 | 5.0 | 30 | 1.2 | 1.0 | 5.0 | 150 |

Note :

(1) Reverse Recovery test conditions :  $I_F = 0.5 \text{ A}$ ,  $I_R = 1 \text{ A}$ ,  $I_{rr} = 0.25 \text{ A}$



# Fast Recovery Glass Passivated Rectifier Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.   |     | Max. Average Forward Rectified Current |      | Max. Repetitive Peak Reverse Voltage | Max. Repetitive Peak Forward Current | Max. Surge Forward Current | Max. Forward Voltage Drop at Ta=25°C |      | Max. Reverse Current at Ta=25°C | Max. Reverse Recovery Time |
|------------|-----|----------------------------------------|------|--------------------------------------|--------------------------------------|----------------------------|--------------------------------------|------|---------------------------------|----------------------------|
|            |     | IF(AV)                                 | @ Ta | VRRM                                 | IFRM                                 | IFSM                       | VF                                   | @ IF | IR                              | Trr <sup>(1)</sup>         |
| Axial Lead | SMD | (A)                                    | (°C) | (V)                                  | (A)                                  | (A)                        | (V)                                  | (A)  | (μA)                            | (ns)                       |

## FR201G/GR2A Series, 2 A, Case Type: D2/SMB



|            |      |     |    |      |    |    |     |     |    |     |
|------------|------|-----|----|------|----|----|-----|-----|----|-----|
| FR201G     | GR2A | 2.0 | 75 | 50   | 10 | 75 | 1.3 | 2.0 | 10 | 150 |
| FR202G     | GR2B | 2.0 | 75 | 100  | 10 | 75 | 1.3 | 2.0 | 10 | 150 |
| FR203G     | GR2D | 2.0 | 75 | 200  | 10 | 75 | 1.3 | 2.0 | 10 | 150 |
| FR204G     | GR2G | 2.0 | 75 | 400  | 10 | 75 | 1.3 | 2.0 | 10 | 150 |
| FR205G     | GR2J | 2.0 | 75 | 600  | 10 | 75 | 1.3 | 2.0 | 10 | 250 |
| FR206G     | GR2K | 2.0 | 75 | 800  | 10 | 75 | 1.3 | 2.0 | 10 | 500 |
| FR207G     | GR2M | 2.0 | 75 | 1000 | 10 | 75 | 1.3 | 2.0 | 10 | 500 |
| FR207G-STR | -    | 2.0 | 75 | 1000 | 10 | 75 | 1.3 | 2.0 | 10 | 250 |

## FR251G Series, 2.5 A, Case Type: D2A



|            |  |     |    |      |   |    |     |     |    |     |
|------------|--|-----|----|------|---|----|-----|-----|----|-----|
| FR251G     |  | 2.5 | 75 | 50   | - | 80 | 1.3 | 2.5 | 10 | 150 |
| FR252G     |  | 2.5 | 75 | 100  | - | 80 | 1.3 | 2.5 | 10 | 150 |
| FR253G     |  | 2.5 | 75 | 200  | - | 80 | 1.3 | 2.5 | 10 | 150 |
| FR254G     |  | 2.5 | 75 | 400  | - | 80 | 1.3 | 2.5 | 10 | 150 |
| FR255G     |  | 2.5 | 75 | 600  | - | 80 | 1.3 | 2.5 | 10 | 250 |
| FR256G     |  | 2.5 | 75 | 800  | - | 80 | 1.3 | 2.5 | 10 | 500 |
| FR257G     |  | 2.5 | 75 | 1000 | - | 80 | 1.3 | 2.5 | 10 | 500 |
| FR257G-STR |  | 2.5 | 75 | 1000 | - | 80 | 1.3 | 2.5 | 10 | 250 |

## FR301G/GR3A Series, 3 A, Case Type: DO-201AD/SMC



|            |      |     |    |      |    |     |     |     |     |     |
|------------|------|-----|----|------|----|-----|-----|-----|-----|-----|
| FR301G     | GR3A | 3.0 | 55 | 50   | 15 | 100 | 1.3 | 3.0 | 5.0 | 150 |
| FR302G     | GR3B | 3.0 | 55 | 100  | 15 | 100 | 1.3 | 3.0 | 5.0 | 150 |
| FR303G     | GR3D | 3.0 | 55 | 200  | 15 | 100 | 1.3 | 3.0 | 5.0 | 150 |
| FR304G     | GR3G | 3.0 | 55 | 400  | 15 | 100 | 1.3 | 3.0 | 5.0 | 150 |
| FR305G     | GR3J | 3.0 | 55 | 600  | 15 | 100 | 1.3 | 3.0 | 5.0 | 250 |
| FR306G     | GR3K | 3.0 | 55 | 800  | 15 | 100 | 1.3 | 3.0 | 5.0 | 500 |
| FR307G     | GR3M | 3.0 | 55 | 1000 | 15 | 100 | 1.3 | 3.0 | 5.0 | 500 |
| FR307G-STR | -    | 3.0 | 55 | 1000 | 15 | 100 | 1.3 | 3.0 | 5.0 | 250 |

## SMC1200D/SMC2000D, 12-20 A, Case Type: SMC



|  |          |    |    |     |   |     |      |     |    |     |
|--|----------|----|----|-----|---|-----|------|-----|----|-----|
|  | SMC1200D | 12 | 50 | 200 | - | 390 | 0.85 | 5.0 | 25 | 200 |
|  | SMC2000D | 20 | 55 | 200 | - | 390 | 0.84 | 5.0 | 25 | 200 |

Note :

(1) Reverse Recovery test conditions :  $I_F = 0.5 \text{ A}$ ,  $I_R = 1 \text{ A}$ ,  $I_{rr} = 0.25 \text{ A}$



# High Efficient Rectifier Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.   |     | Max. Average Forward Rectified Current |      | Max. Repetitive Peak Reverse Voltage | Max. Repetitive Peak Forward Current | Max. Forward Surge Current | Max. Forward Voltage Drop at Ta=25°C |      | Max. Reverse Current at Ta=25°C | Max. Reverse Recovery Time |
|------------|-----|----------------------------------------|------|--------------------------------------|--------------------------------------|----------------------------|--------------------------------------|------|---------------------------------|----------------------------|
|            |     | IF(AV)                                 | @ Ta | VRRM                                 | IFRM                                 | IFSM                       | VF                                   | @ IF | IR                              | Tr <sup>(1)</sup>          |
| Axial Lead | SMD | (A)                                    | (°C) | (V)                                  | (A)                                  | (A)                        | (V)                                  | (A)  | (μA)                            | (ns)                       |

## 1H1G Series, 1 A, Case Type: M1A

|      |  |     |    |      |   |    |     |     |     |    |
|------|--|-----|----|------|---|----|-----|-----|-----|----|
| 1H1G |  | 1.0 | 25 | 50   | - | 25 | 1.2 | 1.0 | 5.0 | 50 |
| 1H2G |  | 1.0 | 25 | 100  | - | 25 | 1.2 | 1.0 | 5.0 | 50 |
| 1H3G |  | 1.0 | 25 | 200  | - | 25 | 1.2 | 1.0 | 5.0 | 50 |
| 1H4G |  | 1.0 | 25 | 300  | - | 25 | 1.2 | 1.0 | 5.0 | 50 |
| 1H5G |  | 1.0 | 25 | 400  | - | 25 | 1.2 | 1.0 | 5.0 | 50 |
| 1H6G |  | 1.0 | 25 | 600  | - | 25 | 1.8 | 1.0 | 5.0 | 75 |
| 1H7G |  | 1.0 | 25 | 800  | - | 25 | 1.8 | 1.0 | 5.0 | 75 |
| 1H8G |  | 1.0 | 25 | 1000 | - | 25 | 1.8 | 1.0 | 5.0 | 75 |

## RD2A, 1.2 A, Case Type: D2A

|      |  |     |    |     |   |    |      |     |    |    |
|------|--|-----|----|-----|---|----|------|-----|----|----|
| RD2A |  | 1.2 | 25 | 600 | - | 30 | 1.55 | 1.2 | 50 | 50 |
|------|--|-----|----|-----|---|----|------|-----|----|----|

## HER101/SE1A Series, 1 A, Case Type: DO-41/SMA

|        |      |     |    |      |     |    |     |     |     |    |
|--------|------|-----|----|------|-----|----|-----|-----|-----|----|
| HER101 | SE1A | 1.0 | 55 | 50   | 5.0 | 30 | 1.1 | 1.0 | 5.0 | 50 |
| HER102 | SE1B | 1.0 | 55 | 100  | 5.0 | 30 | 1.1 | 1.0 | 5.0 | 50 |
| HER103 | SE1D | 1.0 | 55 | 200  | 5.0 | 30 | 1.1 | 1.0 | 5.0 | 50 |
| HER104 | SE1E | 1.0 | 55 | 300  | 5.0 | 30 | 1.1 | 1.0 | 5.0 | 50 |
| HER105 | SE1G | 1.0 | 55 | 400  | 5.0 | 30 | 1.1 | 1.0 | 5.0 | 50 |
| HER106 | SE1J | 1.0 | 55 | 600  | 5.0 | 30 | 1.7 | 1.0 | 5.0 | 75 |
| HER107 | SE1K | 1.0 | 55 | 800  | 5.0 | 30 | 1.7 | 1.0 | 5.0 | 75 |
| HER108 | SE1M | 1.0 | 55 | 1000 | 5.0 | 30 | 2.2 | 1.0 | 5.0 | 75 |

## HER151/SEOA Series, 1.5 A, Case Type: DO-41/SMA

|        |      |     |    |      |     |    |     |     |     |    |
|--------|------|-----|----|------|-----|----|-----|-----|-----|----|
| HER151 | SEOA | 1.5 | 55 | 50   | 5.0 | 60 | 1.1 | 1.5 | 5.0 | 50 |
| HER152 | SEOB | 1.5 | 55 | 100  | 5.0 | 60 | 1.1 | 1.5 | 5.0 | 50 |
| HER153 | SEOD | 1.5 | 55 | 200  | 5.0 | 60 | 1.1 | 1.5 | 5.0 | 50 |
| HER154 | SEOE | 1.5 | 55 | 300  | 5.0 | 60 | 1.1 | 1.5 | 5.0 | 50 |
| HER155 | SEOG | 1.5 | 55 | 400  | 5.0 | 60 | 1.1 | 1.5 | 5.0 | 50 |
| HER156 | SEOJ | 1.5 | 55 | 600  | 5.0 | 60 | 1.7 | 1.5 | 5.0 | 75 |
| HER157 | SEOK | 1.5 | 55 | 800  | 5.0 | 60 | 1.7 | 1.5 | 5.0 | 75 |
| HER158 | SEOM | 1.5 | 55 | 1000 | 5.0 | 60 | 1.7 | 1.5 | 5.0 | 75 |

## HER201/SE2A Series, 2 A, Case Type: D2/SMB

|        |      |     |    |      |    |    |     |     |    |    |
|--------|------|-----|----|------|----|----|-----|-----|----|----|
| HER201 | SE2A | 2.0 | 55 | 50   | 10 | 75 | 1.1 | 2.0 | 10 | 50 |
| HER202 | SE2B | 2.0 | 55 | 100  | 10 | 75 | 1.1 | 2.0 | 10 | 50 |
| HER203 | SE2D | 2.0 | 55 | 200  | 10 | 75 | 1.1 | 2.0 | 10 | 50 |
| HER204 | SE2E | 2.0 | 55 | 300  | 10 | 75 | 1.1 | 2.0 | 10 | 50 |
| HER205 | SE2G | 2.0 | 55 | 400  | 10 | 75 | 1.1 | 2.0 | 10 | 50 |
| HER206 | SE2J | 2.0 | 55 | 600  | 10 | 75 | 1.7 | 2.0 | 10 | 75 |
| HER207 | SE2K | 2.0 | 55 | 800  | 10 | 75 | 1.7 | 2.0 | 10 | 75 |
| HER208 | SE2M | 2.0 | 55 | 1000 | 10 | 75 | 1.7 | 2.0 | 10 | 75 |

Note : (1) Reverse Recovery test conditions :  $I_F = 0.5 \text{ A}$ ,  $I_R = 1 \text{ A}$ ,  $I_{rr} = 0.25 \text{ A}$



# High Efficient Rectifier Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.   |     | Max. Average Forward Rectified Current |      | Max. Repetitive Peak Reverse Voltage | Max. Repetitive Peak Forward Current | Max. Forward Surge Current | Max. Forward Voltage Drop at Ta=25°C |      | Max. Reverse Current at Ta=25°C | Max. Reverse Recovery Time |
|------------|-----|----------------------------------------|------|--------------------------------------|--------------------------------------|----------------------------|--------------------------------------|------|---------------------------------|----------------------------|
|            |     | IF(AV)                                 | @ Ta | VRRM                                 | IFRM                                 | IFSM                       | VF                                   | @ IF | IR                              | Trr <sup>(1)</sup>         |
| Axial Lead | SMD | (A)                                    | (°C) | (V)                                  | (A)                                  | (A)                        | (V)                                  | (A)  | (μA)                            | (ns)                       |

## HER251/SETA Series, 2.5 A, Case Type: D2A/SMB



|        |       |     |    |      |    |     |     |     |    |    |
|--------|-------|-----|----|------|----|-----|-----|-----|----|----|
| HER251 | SETA  | 2.5 | 55 | 50   | 10 | 100 | 1.1 | 2.5 | 10 | 50 |
| HER252 | SETB  | 2.5 | 55 | 100  | 10 | 100 | 1.1 | 2.5 | 10 | 50 |
| HER253 | SETD  | 2.5 | 55 | 200  | 10 | 100 | 1.1 | 2.5 | 10 | 50 |
| HER254 | SET E | 2.5 | 55 | 300  | 10 | 100 | 1.1 | 2.5 | 10 | 50 |
| HER255 | SETG  | 2.5 | 55 | 400  | 10 | 100 | 1.1 | 2.5 | 10 | 50 |
| HER256 | SETJ  | 2.5 | 55 | 600  | 10 | 100 | 1.7 | 2.5 | 10 | 75 |
| HER257 | SETK  | 2.5 | 55 | 800  | 10 | 100 | 1.7 | 2.5 | 10 | 75 |
| HER258 | SETM  | 2.5 | 55 | 1000 | 10 | 100 | 1.7 | 2.5 | 10 | 75 |

## HER301/SE3A Series, 3 A, Case Type: DO-201AD/SMC



|        |      |     |    |      |    |     |     |     |    |    |
|--------|------|-----|----|------|----|-----|-----|-----|----|----|
| HER301 | SE3A | 3.0 | 55 | 50   | 15 | 150 | 1.1 | 3.0 | 10 | 50 |
| HER302 | SE3B | 3.0 | 55 | 100  | 15 | 150 | 1.1 | 3.0 | 10 | 50 |
| HER303 | SE3D | 3.0 | 55 | 200  | 15 | 150 | 1.1 | 3.0 | 10 | 50 |
| HER304 | SE3E | 3.0 | 55 | 300  | 15 | 150 | 1.1 | 3.0 | 10 | 50 |
| HER305 | SE3G | 3.0 | 55 | 400  | 15 | 150 | 1.1 | 3.0 | 10 | 50 |
| HER306 | SE3J | 3.0 | 55 | 600  | 15 | 150 | 1.7 | 3.0 | 10 | 75 |
| HER307 | SE3K | 3.0 | 55 | 800  | 15 | 150 | 1.7 | 3.0 | 10 | 75 |
| HER308 | SE3M | 3.0 | 55 | 1000 | 15 | 150 | 1.7 | 3.0 | 10 | 75 |

## HER501/SE5A Series, 5 A, Case Type: DO-201AD/SMC



|        |      |     |    |      |    |     |     |     |    |    |
|--------|------|-----|----|------|----|-----|-----|-----|----|----|
| HER501 | SE5A | 5.0 | 55 | 50   | 25 | 200 | 1.1 | 5.0 | 10 | 50 |
| HER502 | SE5B | 5.0 | 55 | 100  | 25 | 200 | 1.1 | 5.0 | 10 | 50 |
| HER503 | SE5D | 5.0 | 55 | 200  | 25 | 200 | 1.1 | 5.0 | 10 | 50 |
| HER504 | SE5E | 5.0 | 55 | 300  | 25 | 200 | 1.1 | 5.0 | 10 | 50 |
| HER505 | SE5G | 5.0 | 55 | 400  | 25 | 200 | 1.1 | 5.0 | 10 | 50 |
| HER506 | SE5J | 5.0 | 55 | 600  | 25 | 200 | 1.7 | 5.0 | 10 | 75 |
| HER507 | SE5K | 5.0 | 55 | 800  | 25 | 200 | 1.7 | 5.0 | 10 | 75 |
| HER508 | SE5M | 5.0 | 55 | 1000 | 25 | 200 | 1.7 | 5.0 | 10 | 75 |

## HER601 Series, 6 A, Case Type: D6



|        |  |     |    |      |    |     |     |     |    |    |
|--------|--|-----|----|------|----|-----|-----|-----|----|----|
| HER601 |  | 6.0 | 55 | 50   | 25 | 200 | 1.1 | 6.0 | 10 | 50 |
| HER602 |  | 6.0 | 55 | 100  | 25 | 200 | 1.1 | 6.0 | 10 | 50 |
| HER603 |  | 6.0 | 55 | 200  | 25 | 200 | 1.1 | 6.0 | 10 | 50 |
| HER604 |  | 6.0 | 55 | 300  | 25 | 200 | 1.1 | 6.0 | 10 | 50 |
| HER605 |  | 6.0 | 55 | 400  | 25 | 200 | 1.1 | 6.0 | 10 | 50 |
| HER606 |  | 6.0 | 55 | 600  | 25 | 200 | 1.7 | 6.0 | 10 | 75 |
| HER607 |  | 6.0 | 55 | 800  | 25 | 200 | 1.7 | 6.0 | 10 | 75 |
| HER608 |  | 6.0 | 55 | 1000 | 25 | 200 | 1.7 | 6.0 | 10 | 75 |

Note : (1) Reverse Recovery test conditions : I<sub>F</sub> = 0.5 A, I<sub>R</sub> = 1 A, I<sub>rr</sub> = 0.25 A



# Super Fast Rectifier Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.   |     | Max. Average Forward Rectified Current |      | Max. Repetitive Peak Reverse Voltage | Max. Repetitive Peak Forward Current | Max. Forward Surge Current | Max. Forward Voltage Drop at Ta=25°C |      | Max. Reverse Current at Ta=25°C | Max. Reverse Recovery Time |
|------------|-----|----------------------------------------|------|--------------------------------------|--------------------------------------|----------------------------|--------------------------------------|------|---------------------------------|----------------------------|
|            |     | IF(AV)                                 | @ Ta | VRRM                                 | IFRM                                 | IFSM                       | VF                                   | @ IF | IR                              | Trr                        |
| Axial Lead | SMD | (A)                                    | (°C) | (V)                                  | (A)                                  | (A)                        | (V)                                  | (A)  | (μA)                            | (ns)                       |

## AG01 Series, 0.5-1 A, Case Type: DO-41



|       |  |     |    |     |   |    |     |     |     |                    |
|-------|--|-----|----|-----|---|----|-----|-----|-----|--------------------|
| AG01Y |  | 1.0 | 25 | 70  | - | 25 | 1.2 | 1.0 | 100 | 100 <sup>(2)</sup> |
| AG01Z |  | 0.7 | 25 | 200 | - | 15 | 1.8 | 0.7 | 100 | 100 <sup>(2)</sup> |
| AG01  |  | 0.7 | 25 | 400 | - | 15 | 1.8 | 0.7 | 100 | 100 <sup>(2)</sup> |
| AG01A |  | 0.5 | 25 | 600 | - | 15 | 1.8 | 0.5 | 100 | 100 <sup>(2)</sup> |

## EG01 Series, 0.5 - 1 A, Case Type: DO-41



|       |  |     |    |      |   |    |     |     |     |                    |
|-------|--|-----|----|------|---|----|-----|-----|-----|--------------------|
| EG01Y |  | 1.0 | 50 | 70   | - | 30 | 1.2 | 1.0 | 100 | 100 <sup>(2)</sup> |
| EG01Z |  | 0.7 | 50 | 200  | - | 15 | 1.9 | 0.7 | 50  | 100 <sup>(2)</sup> |
| EG01  |  | 0.7 | 50 | 400  | - | 15 | 2.0 | 0.7 | 50  | 100 <sup>(2)</sup> |
| EG01A |  | 0.5 | 25 | 600  | - | 10 | 2.0 | 0.5 | 100 | 100 <sup>(2)</sup> |
| EG01C |  | 0.5 | 25 | 1000 | - | 10 | 3.3 | 0.5 | 50  | 100 <sup>(2)</sup> |

## EG1 Series, 0.6 - 1 A, Case Type: DO-41



|      |  |     |    |     |   |    |     |     |     |                    |
|------|--|-----|----|-----|---|----|-----|-----|-----|--------------------|
| EG1Y |  | 1.1 | 50 | 70  | - | 30 | 1.2 | 1.1 | 100 | 100 <sup>(2)</sup> |
| EG1Z |  | 0.8 | 50 | 200 | - | 15 | 1.7 | 0.8 | 50  | 100 <sup>(2)</sup> |
| EG1  |  | 0.8 | 50 | 400 | - | 15 | 1.8 | 0.8 | 50  | 100 <sup>(2)</sup> |
| EG1A |  | 0.6 | 25 | 600 | - | 10 | 2.0 | 0.6 | 100 | 100 <sup>(2)</sup> |

## ERA32-01 Series, 1 A, Case Type: DO-41



|          |  |     |    |     |   |    |      |     |    |                    |
|----------|--|-----|----|-----|---|----|------|-----|----|--------------------|
| ERA32-01 |  | 1.0 | 40 | 100 | - | 40 | 0.92 | 1.0 | 10 | 100 <sup>(2)</sup> |
| ERA32-02 |  | 1.0 | 40 | 200 | - | 40 | 0.92 | 1.0 | 10 | 100 <sup>(2)</sup> |

## 11DF1 Series, 1 A, Case Type: DO-41



|       |  |     |    |     |   |    |      |     |    |                   |
|-------|--|-----|----|-----|---|----|------|-----|----|-------------------|
| 11DF1 |  | 1.0 | 63 | 100 | - | 30 | 0.98 | 1.0 | 10 | 35 <sup>(1)</sup> |
| 11DF2 |  | 1.0 | 63 | 200 | - | 30 | 0.98 | 1.0 | 10 | 35 <sup>(1)</sup> |
| 11DF3 |  | 1.0 | 57 | 300 | - | 30 | 1.25 | 1.0 | 10 | 35 <sup>(1)</sup> |
| 11DF4 |  | 1.0 | 57 | 400 | - | 30 | 1.25 | 1.0 | 10 | 35 <sup>(1)</sup> |

## MUR120 Series, 1 A, Case Type: DO-41



|        |  |     |    |     |   |    |       |     |     |                   |
|--------|--|-----|----|-----|---|----|-------|-----|-----|-------------------|
| MUR120 |  | 1.0 | 25 | 200 | - | 35 | 0.875 | 1.0 | 2.0 | 25 <sup>(1)</sup> |
| MUR140 |  | 1.0 | 25 | 400 | - | 35 | 1.25  | 1.0 | 5.0 | 50 <sup>(1)</sup> |
| MUR160 |  | 1.0 | 25 | 600 | - | 35 | 1.25  | 1.0 | 5.0 | 50 <sup>(1)</sup> |

## RG10 Series, 1 - 1.5 A, Case Type: D2



|       |  |     |    |     |     |    |     |     |     |                   |
|-------|--|-----|----|-----|-----|----|-----|-----|-----|-------------------|
| RG10Y |  | 1.5 | 55 | 70  | 5.0 | 50 | 1.1 | 1.5 | 500 | 35 <sup>(1)</sup> |
| RG10  |  | 1.2 | 55 | 400 | 5.0 | 50 | 1.8 | 1.5 | 500 | 35 <sup>(1)</sup> |
| RG10A |  | 1.0 | 55 | 600 | 5.0 | 50 | 2.0 | 1.0 | 500 | 35 <sup>(1)</sup> |

Notes: (1) Reverse Recovery test conditions :  $I_F = 0.5$  A,  $I_R = 1$  A,  $I_{rr} = 0.25$  A

(2) Reverse Recovery test conditions :  $I_F = 100$  mA,  $I_R = 100$  mA



# Super Fast Rectifier Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.   |     | Max. Average Forward Rectified Current |      | Max. Repetitive Peak Reverse Voltage | Max. Repetitive Peak Forward Current | Max. Forward Surge Current | Max. Forward Voltage Drop at Ta=25°C |      | Max. Reverse Current at Ta=25°C | Max. Reverse Recovery Time |
|------------|-----|----------------------------------------|------|--------------------------------------|--------------------------------------|----------------------------|--------------------------------------|------|---------------------------------|----------------------------|
|            |     | IF(AV)                                 | @ Ta | VRRM                                 | IFRM                                 | IFSM                       | VF                                   | @ IF | IR                              | Trr                        |
| Axial Lead | SMD | (A)                                    | (°C) | (V)                                  | (A)                                  | (A)                        | (V)                                  | (A)  | (μA)                            | (ns)                       |

## UF1001 Series, 1 A, Case Type: DO-41



|        |  |     |    |      |   |    |      |     |     |                   |
|--------|--|-----|----|------|---|----|------|-----|-----|-------------------|
| UF1001 |  | 1.0 | 55 | 50   | - | 30 | 1.10 | 1.0 | 5.0 | 50 <sup>(1)</sup> |
| UF1002 |  | 1.0 | 55 | 100  | - | 30 | 1.10 | 1.0 | 5.0 | 50 <sup>(1)</sup> |
| UF1003 |  | 1.0 | 55 | 200  | - | 30 | 1.10 | 1.0 | 5.0 | 50 <sup>(1)</sup> |
| UF1004 |  | 1.0 | 55 | 400  | - | 30 | 1.10 | 1.0 | 5.0 | 50 <sup>(1)</sup> |
| UF1005 |  | 1.1 | 55 | 600  | - | 30 | 1.70 | 1.0 | 5.0 | 75 <sup>(1)</sup> |
| UF1006 |  | 1.0 | 55 | 800  | - | 30 | 1.70 | 1.0 | 5.0 | 75 <sup>(1)</sup> |
| UF1007 |  | 1.0 | 55 | 1000 | - | 30 | 1.70 | 1.0 | 5.0 | 75 <sup>(1)</sup> |

## UF4001 Series, 1 A, Case Type: DO-41



|        |  |     |    |      |   |    |      |     |    |                   |
|--------|--|-----|----|------|---|----|------|-----|----|-------------------|
| UF4001 |  | 1.0 | 55 | 50   | - | 30 | 1.00 | 1.0 | 10 | 50 <sup>(1)</sup> |
| UF4002 |  | 1.0 | 55 | 100  | - | 30 | 1.00 | 1.0 | 10 | 50 <sup>(1)</sup> |
| UF4003 |  | 1.0 | 55 | 200  | - | 30 | 1.00 | 1.0 | 10 | 50 <sup>(1)</sup> |
| UF4004 |  | 1.0 | 55 | 400  | - | 30 | 1.00 | 1.0 | 10 | 50 <sup>(1)</sup> |
| UF4005 |  | 1.0 | 55 | 600  | - | 30 | 1.70 | 1.0 | 10 | 75 <sup>(1)</sup> |
| UF4006 |  | 1.0 | 55 | 800  | - | 30 | 1.70 | 1.0 | 10 | 75 <sup>(1)</sup> |
| UF4007 |  | 1.0 | 55 | 1000 | - | 30 | 1.70 | 1.0 | 10 | 75 <sup>(1)</sup> |

## SF11/SS1A Series, 1 A, Case Type: DO-41/SMA



|      |      |     |    |      |     |    |      |     |     |                   |
|------|------|-----|----|------|-----|----|------|-----|-----|-------------------|
| SF11 | SS1A | 1.0 | 55 | 50   | 5.0 | 30 | 0.95 | 1.0 | 5.0 | 35 <sup>(1)</sup> |
| SF12 | SS1B | 1.0 | 55 | 100  | 5.0 | 30 | 0.95 | 1.0 | 5.0 | 35 <sup>(1)</sup> |
| SF13 | SS1C | 1.0 | 55 | 150  | 5.0 | 30 | 0.95 | 1.0 | 5.0 | 35 <sup>(1)</sup> |
| SF14 | SS1D | 1.0 | 55 | 200  | 5.0 | 30 | 0.95 | 1.0 | 5.0 | 35 <sup>(1)</sup> |
| SF15 | SS1E | 1.0 | 55 | 300  | 5.0 | 30 | 1.70 | 1.0 | 5.0 | 35 <sup>(1)</sup> |
| SF16 | SS1G | 1.0 | 55 | 400  | 5.0 | 30 | 1.70 | 1.0 | 5.0 | 35 <sup>(1)</sup> |
| SF17 | SS1J | 1.0 | 55 | 600  | 5.0 | 30 | 1.70 | 1.0 | 5.0 | 35 <sup>(1)</sup> |
| SF18 | SS1K | 1.0 | 55 | 800  | 5.0 | 30 | 4.00 | 1.0 | 10  | 35 <sup>(1)</sup> |
| SF19 | SS1M | 1.0 | 55 | 1000 | 5.0 | 30 | 4.00 | 1.0 | 10  | 35 <sup>(1)</sup> |

## ES1A Series, 1 A, Case Type: SMA



|  |      |     |                      |      |   |    |      |     |     |                   |
|--|------|-----|----------------------|------|---|----|------|-----|-----|-------------------|
|  | ES1A | 1.0 | 120(T <sub>L</sub> ) | 50   | - | 30 | 0.95 | 1.0 | 5.0 | 35 <sup>(1)</sup> |
|  | ES1B | 1.0 | 120(T <sub>L</sub> ) | 100  | - | 30 | 0.95 | 1.0 | 5.0 | 35 <sup>(1)</sup> |
|  | ES1C | 1.0 | 120(T <sub>L</sub> ) | 150  | - | 30 | 0.95 | 1.0 | 5.0 | 35 <sup>(1)</sup> |
|  | ES1D | 1.0 | 120(T <sub>L</sub> ) | 200  | - | 30 | 0.95 | 1.0 | 5.0 | 35 <sup>(1)</sup> |
|  | ES1E | 1.0 | 120(T <sub>L</sub> ) | 300  | - | 30 | 1.25 | 1.0 | 5.0 | 35 <sup>(1)</sup> |
|  | ES1G | 1.0 | 120(T <sub>L</sub> ) | 400  | - | 30 | 1.25 | 1.0 | 5.0 | 35 <sup>(1)</sup> |
|  | ES1J | 1.0 | 120(T <sub>L</sub> ) | 600  | - | 30 | 1.70 | 1.0 | 5.0 | 35 <sup>(1)</sup> |
|  | ES1K | 1.0 | 55                   | 800  | - | 30 | 4.00 | 1.0 | 10  | 35 <sup>(1)</sup> |
|  | ES1M | 1.0 | 55                   | 1000 | - | 30 | 4.00 | 1.0 | 10  | 35 <sup>(1)</sup> |

Notes: (1) Reverse Recovery test conditions : I<sub>F</sub> = 0.5 A, I<sub>R</sub> = 1 A, I<sub>rr</sub> = 0.25 A

(2) Reverse Recovery test conditions : I<sub>F</sub> = 100 mA, I<sub>R</sub> = 100 mA



# Super Fast Rectifier Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.   |     | Max. Average Forward Rectified Current |      | Max. Repetitive Peak Reverse Voltage | Max. Repetitive Peak Forward Current | Max. Forward Surge Current | Max. Forward Voltage Drop at Ta=25°C |      | Max. Reverse Current at Ta=25°C | Max. Reverse Recovery Time |
|------------|-----|----------------------------------------|------|--------------------------------------|--------------------------------------|----------------------------|--------------------------------------|------|---------------------------------|----------------------------|
|            |     | IF(AV)                                 | @ Ta | VRRM                                 | IFRM                                 | IFSM                       | VF                                   | @ IF | IR                              | Trr                        |
| Axial Lead | SMD | (A)                                    | (°C) | (V)                                  | (A)                                  | (A)                        | (V)                                  | (A)  | (μA)                            | (ns)                       |

## RG2 Series, 1 - 1.5 A, Case Type: D2



|      |  |     |    |     |     |    |     |     |     |                   |                    |
|------|--|-----|----|-----|-----|----|-----|-----|-----|-------------------|--------------------|
| RG2Y |  | 1.5 | 60 | 70  | 5.0 | 50 | 1.1 | 1.5 | 500 | 35 <sup>(1)</sup> | 100 <sup>(2)</sup> |
| RG2Z |  | 1.2 | 60 | 200 | 5.0 | 50 | 1.5 | 1.5 | 500 | 35 <sup>(1)</sup> | 100 <sup>(2)</sup> |
| RG2  |  | 1.2 | 60 | 400 | 5.0 | 50 | 1.8 | 1.5 | 500 | 35 <sup>(1)</sup> | 100 <sup>(2)</sup> |
| RG2A |  | 1.0 | 60 | 600 | 5.0 | 50 | 2.0 | 1.0 | 500 | 35 <sup>(1)</sup> | 100 <sup>(2)</sup> |

## RG4 Series, 1 - 2.0 A, Case Type: DO-201AD



|      |  |     |    |     |   |     |     |     |      |                   |                    |
|------|--|-----|----|-----|---|-----|-----|-----|------|-------------------|--------------------|
| RG4Y |  | 2.0 | 60 | 70  | - | 100 | 1.3 | 3.5 | 1000 | 35 <sup>(1)</sup> | 100 <sup>(2)</sup> |
| RG4Z |  | 1.0 | 60 | 200 | - | 80  | 1.7 | 3.0 | 1000 | 35 <sup>(1)</sup> | 100 <sup>(2)</sup> |
| RG4  |  | 1.0 | 60 | 400 | - | 80  | 1.8 | 3.0 | 500  | 35 <sup>(1)</sup> | 100 <sup>(2)</sup> |
| RG4A |  | 1.0 | 60 | 600 | - | 50  | 2.0 | 2.0 | 500  | 35 <sup>(1)</sup> | 100 <sup>(2)</sup> |

## EL1 Series, 1.5 A, Case Type: DO-41



|      |  |     |    |     |   |    |      |     |     |                    |  |
|------|--|-----|----|-----|---|----|------|-----|-----|--------------------|--|
| EL1Z |  | 1.5 | 25 | 200 | - | 20 | 0.98 | 1.5 | 100 | 50 <sup>(2)</sup>  |  |
| EL1  |  | 1.5 | 25 | 400 | - | 20 | 1.30 | 1.5 | 10  | 100 <sup>(2)</sup> |  |

## SFO1/SSOA Series, 1.5 A, Case Type: DO-41/SMA



|      |      |     |    |      |     |    |      |     |     |                   |  |
|------|------|-----|----|------|-----|----|------|-----|-----|-------------------|--|
| SFO1 | SSOA | 1.5 | 55 | 50   | 5.0 | 60 | 0.95 | 1.5 | 5.0 | 35 <sup>(1)</sup> |  |
| SFO2 | SSOB | 1.5 | 55 | 100  | 5.0 | 60 | 0.95 | 1.5 | 5.0 | 35 <sup>(1)</sup> |  |
| SFO3 | SSOC | 1.5 | 55 | 150  | 5.0 | 60 | 0.95 | 1.5 | 5.0 | 35 <sup>(1)</sup> |  |
| SFO4 | SSOD | 1.5 | 55 | 200  | 5.0 | 60 | 0.95 | 1.5 | 5.0 | 35 <sup>(1)</sup> |  |
| SFO5 | SSOE | 1.5 | 55 | 300  | 5.0 | 60 | 1.70 | 1.5 | 5.0 | 35 <sup>(1)</sup> |  |
| SFO6 | SSOG | 1.5 | 55 | 400  | 5.0 | 60 | 1.70 | 1.5 | 5.0 | 35 <sup>(1)</sup> |  |
| SFO7 | SSOJ | 1.5 | 55 | 600  | 5.0 | 60 | 1.70 | 1.5 | 5.0 | 35 <sup>(1)</sup> |  |
| SFO8 | SSOK | 1.5 | 55 | 800  | 5.0 | 60 | 4.00 | 1.5 | 20  | 35 <sup>(1)</sup> |  |
| SFO9 | SSOM | 1.5 | 55 | 1000 | 5.0 | 60 | 4.00 | 1.5 | 20  | 35 <sup>(1)</sup> |  |

## EPG20A Series, 2 A, Case Type: D2



|        |  |     |    |     |   |    |      |     |     |                   |  |
|--------|--|-----|----|-----|---|----|------|-----|-----|-------------------|--|
| EGP20A |  | 2.0 | 55 | 50  | - | 75 | 0.95 | 2.0 | 5.0 | 50 <sup>(1)</sup> |  |
| EGP20B |  | 2.0 | 55 | 100 | - | 75 | 0.95 | 2.0 | 5.0 | 50 <sup>(1)</sup> |  |
| EGP20C |  | 2.0 | 55 | 150 | - | 75 | 0.95 | 2.0 | 5.0 | 50 <sup>(1)</sup> |  |
| EGP20D |  | 2.0 | 55 | 200 | - | 75 | 0.95 | 2.0 | 5.0 | 50 <sup>(1)</sup> |  |

## UG2A-D Series, 2 A, Case Type: DO-41



|      |  |     |    |     |   |    |      |     |     |                   |  |
|------|--|-----|----|-----|---|----|------|-----|-----|-------------------|--|
| UG2A |  | 2.0 | 50 | 50  | - | 80 | 0.95 | 2.0 | 5.0 | 15 <sup>(1)</sup> |  |
| UG2B |  | 2.0 | 50 | 100 | - | 80 | 0.95 | 2.0 | 5.0 | 15 <sup>(1)</sup> |  |
| UG2C |  | 2.0 | 50 | 150 | - | 80 | 0.95 | 2.0 | 5.0 | 15 <sup>(1)</sup> |  |
| UG2D |  | 2.0 | 50 | 200 | - | 80 | 0.95 | 2.0 | 5.0 | 15 <sup>(1)</sup> |  |

Notes: (1) Reverse Recovery test conditions :  $I_F = 0.5 \text{ A}$ ,  $I_R = 1 \text{ A}$ ,  $t_{rr} = 0.25 \text{ A}$

(2) Reverse Recovery test conditions :  $I_F = 100 \text{ mA}$ ,  $I_R = 100 \text{ mA}$



# Super Fast Rectifier Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.   |     | Max. Average Forward Rectified Current |      | Max. Repetitive Peak Reverse Voltage | Max. Repetitive Peak Forward Current | Max. Forward Surge Current | Max. Forward Voltage Drop at Ta=25°C |      | Max. Reverse Current at Ta=25°C | Max. Reverse Recovery Time |
|------------|-----|----------------------------------------|------|--------------------------------------|--------------------------------------|----------------------------|--------------------------------------|------|---------------------------------|----------------------------|
|            |     | IF(AV)                                 | @ Ta | VRRM                                 | IFRM                                 | IFSM                       | VF                                   | @ IF | IR                              | Trr                        |
| Axial Lead | SMD | (A)                                    | (°C) | (V)                                  | (A)                                  | (A)                        | (V)                                  | (A)  | (μA)                            | (ns)                       |

## SF21/SS2A Series, 2 A, Case Type: D2/SMB



|      |      |     |    |      |    |    |      |     |     |                   |
|------|------|-----|----|------|----|----|------|-----|-----|-------------------|
| SF21 | SS2A | 2.0 | 55 | 50   | 10 | 75 | 0.95 | 2.0 | 5.0 | 35 <sup>(1)</sup> |
| SF22 | SS2B | 2.0 | 55 | 100  | 10 | 75 | 0.95 | 2.0 | 5.0 | 35 <sup>(1)</sup> |
| SF23 | SS2C | 2.0 | 55 | 150  | 10 | 75 | 0.95 | 2.0 | 5.0 | 35 <sup>(1)</sup> |
| SF24 | SS2D | 2.0 | 55 | 200  | 10 | 75 | 0.95 | 2.0 | 5.0 | 35 <sup>(1)</sup> |
| SF25 | SS2E | 2.0 | 55 | 300  | 10 | 75 | 1.70 | 2.0 | 5.0 | 35 <sup>(1)</sup> |
| SF26 | SS2G | 2.0 | 55 | 400  | 10 | 75 | 1.70 | 2.0 | 5.0 | 35 <sup>(1)</sup> |
| SF27 | SS2J | 2.0 | 55 | 600  | 10 | 75 | 1.70 | 2.0 | 5.0 | 35 <sup>(1)</sup> |
| SF28 | SS2K | 2.0 | 55 | 800  | 10 | 75 | 4.00 | 2.0 | 20  | 35 <sup>(1)</sup> |
| SF29 | SS2M | 2.0 | 55 | 1000 | 10 | 75 | 4.00 | 2.0 | 20  | 35 <sup>(1)</sup> |

## ES2A Series, 2 A, Case Type: SMB



|  |      |     |                      |     |   |    |      |     |     |                   |
|--|------|-----|----------------------|-----|---|----|------|-----|-----|-------------------|
|  | ES2A | 2.0 | 110(T <sub>L</sub> ) | 50  | - | 50 | 0.90 | 2.0 | 5.0 | 20 <sup>(1)</sup> |
|  | ES2B | 2.0 | 110(T <sub>L</sub> ) | 100 | - | 50 | 0.90 | 2.0 | 5.0 | 20 <sup>(1)</sup> |
|  | ES2C | 2.0 | 110(T <sub>L</sub> ) | 150 | - | 50 | 0.90 | 2.0 | 5.0 | 20 <sup>(1)</sup> |
|  | ES2D | 2.0 | 110(T <sub>L</sub> ) | 200 | - | 50 | 0.90 | 2.0 | 5.0 | 20 <sup>(1)</sup> |

\* For SMA package add suffix "A" e.g. ES2AA, ES2BA...

## SFT1/SSTA Series, 2.5 A, Case Type: D2A/SMB



|      |      |     |    |      |    |     |      |     |     |                   |
|------|------|-----|----|------|----|-----|------|-----|-----|-------------------|
| SFT1 | SSTA | 2.5 | 55 | 50   | 10 | 100 | 0.95 | 2.5 | 5.0 | 35 <sup>(1)</sup> |
| SFT2 | SSTB | 2.5 | 55 | 100  | 10 | 100 | 0.95 | 2.5 | 5.0 | 35 <sup>(1)</sup> |
| SFT3 | SSTC | 2.5 | 55 | 150  | 10 | 100 | 0.95 | 2.5 | 5.0 | 35 <sup>(1)</sup> |
| SFT4 | SSTD | 2.5 | 55 | 200  | 10 | 100 | 0.95 | 2.5 | 5.0 | 35 <sup>(1)</sup> |
| SFT5 | SSTE | 2.5 | 55 | 300  | 10 | 100 | 1.70 | 2.5 | 5.0 | 35 <sup>(1)</sup> |
| SFT6 | SSTG | 2.5 | 55 | 400  | 10 | 100 | 1.70 | 2.5 | 5.0 | 35 <sup>(1)</sup> |
| SFT7 | SSTJ | 2.5 | 55 | 600  | 10 | 100 | 1.70 | 2.5 | 5.0 | 35 <sup>(1)</sup> |
| SFT8 | SSTK | 2.5 | 55 | 800  | 10 | 100 | 4.00 | 2.5 | 5.0 | 35 <sup>(1)</sup> |
| SFT9 | SSTM | 2.5 | 55 | 1000 | 10 | 100 | 4.00 | 2.5 | 5.0 | 35 <sup>(1)</sup> |

## 1N5807/1N5807US Series, 3.0 A, Case Type: D2A/SMB



|        |          |     |    |     |   |     |       |   |   |                   |
|--------|----------|-----|----|-----|---|-----|-------|---|---|-------------------|
| 1N5807 | 1N5807US | 3.0 | 55 | 50  | - | 125 | 0.875 | 4 | 5 | 30 <sup>(2)</sup> |
| 1N5809 | 1N5809US | 3.0 | 55 | 100 | - | 125 | 0.875 | 4 | 5 | 30 <sup>(2)</sup> |
| 1N5811 | 1N5811US | 3.0 | 55 | 150 | - | 125 | 0.875 | 4 | 5 | 30 <sup>(2)</sup> |

## UF5404 Series, 3 A, Case Type: DO-201AD



|        |  |     |    |      |   |     |      |     |    |                   |
|--------|--|-----|----|------|---|-----|------|-----|----|-------------------|
| UF5404 |  | 3.0 | 55 | 300  | - | 150 | 1.00 | 3.0 | 10 | 50 <sup>(1)</sup> |
| UF5405 |  | 3.0 | 55 | 400  | - | 150 | 1.00 | 3.0 | 10 | 50 <sup>(1)</sup> |
| UF5406 |  | 3.0 | 55 | 600  | - | 150 | 1.70 | 3.0 | 10 | 75 <sup>(1)</sup> |
| UF5407 |  | 3.0 | 55 | 800  | - | 150 | 1.70 | 3.0 | 10 | 75 <sup>(1)</sup> |
| UF5408 |  | 3.0 | 55 | 1000 | - | 150 | 1.70 | 3.0 | 10 | 75 <sup>(1)</sup> |

Notes: (1) Reverse Recovery test conditions : I<sub>F</sub> = 0.5 A, I<sub>R</sub> = 1 A, I<sub>rr</sub> = 0.25 A

(2) Reverse Recovery test conditions : I<sub>F</sub> = 100 mA, I<sub>R</sub> = 100 mA



# Super Fast Rectifier Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.   |     | Max. Average Forward Rectified Current |      | Max. Repetitive Peak Reverse Voltage | Max. Repetitive Peak Forward Current | Max. Forward Surge Current | Max. Forward Voltage Drop at Ta=25°C |      | Max. Reverse Current at Ta=25°C | Max. Reverse Recovery Time |
|------------|-----|----------------------------------------|------|--------------------------------------|--------------------------------------|----------------------------|--------------------------------------|------|---------------------------------|----------------------------|
|            |     | IF(AV)                                 | @ Ta | VRRM                                 | IFRM                                 | IFSM                       | VF                                   | @ IF | IR                              | Trr                        |
| Axial Lead | SMD | (A)                                    | (°C) | (V)                                  | (A)                                  | (A)                        | (V)                                  | (A)  | (μA)                            | (ns)                       |

## ES3A-M Series, 3 A, Case Type: SMC



|  |      |     |    |      |   |     |      |     |    |                   |
|--|------|-----|----|------|---|-----|------|-----|----|-------------------|
|  | ES3A | 3.0 | 55 | 50   | - | 100 | 0.95 | 3.0 | 10 | 35 <sup>(1)</sup> |
|  | ES3B | 3.0 | 55 | 100  | - | 100 | 0.95 | 3.0 | 10 | 35 <sup>(1)</sup> |
|  | ES3C | 3.0 | 55 | 150  | - | 100 | 0.95 | 3.0 | 10 | 35 <sup>(1)</sup> |
|  | ES3D | 3.0 | 55 | 200  | - | 100 | 0.95 | 3.0 | 10 | 35 <sup>(1)</sup> |
|  | ES3E | 3.0 | 55 | 300  | - | 100 | 1.30 | 3.0 | 10 | 35 <sup>(1)</sup> |
|  | ES3G | 3.0 | 55 | 400  | - | 100 | 1.30 | 3.0 | 10 | 35 <sup>(1)</sup> |
|  | ES3J | 3.0 | 55 | 600  | - | 100 | 1.70 | 3.0 | 10 | 35 <sup>(1)</sup> |
|  | ES3K | 3.0 | 55 | 800  | - | 100 | 1.70 | 3.0 | 10 | 35 <sup>(1)</sup> |
|  | ES3M | 3.0 | 55 | 1000 | - | 100 | 1.70 | 3.0 | 10 | 35 <sup>(1)</sup> |

## SF31/SS3A Series, 3 A, Case Type: DO-201AD/SMC



|      |      |     |    |      |    |     |      |     |    |                   |
|------|------|-----|----|------|----|-----|------|-----|----|-------------------|
| SF31 | SS3A | 3.0 | 55 | 50   | 15 | 125 | 0.95 | 3.0 | 10 | 35 <sup>(1)</sup> |
| SF32 | SS3B | 3.0 | 55 | 100  | 15 | 125 | 0.95 | 3.0 | 10 | 35 <sup>(1)</sup> |
| SF33 | SS3C | 3.0 | 55 | 150  | 15 | 125 | 0.95 | 3.0 | 10 | 35 <sup>(1)</sup> |
| SF34 | SS3D | 3.0 | 55 | 200  | 15 | 125 | 0.95 | 3.0 | 10 | 35 <sup>(1)</sup> |
| SF35 | SS3E | 3.0 | 55 | 300  | 15 | 125 | 1.70 | 3.0 | 10 | 35 <sup>(1)</sup> |
| SF36 | SS3G | 3.0 | 55 | 400  | 15 | 125 | 1.70 | 3.0 | 10 | 35 <sup>(1)</sup> |
| SF37 | SS3J | 3.0 | 55 | 600  | 15 | 125 | 1.70 | 3.0 | 10 | 35 <sup>(1)</sup> |
| SF38 | SS3K | 3.0 | 55 | 800  | 15 | 125 | 4.00 | 3.0 | 10 | 35 <sup>(1)</sup> |
| SF39 | SS3M | 3.0 | 55 | 1000 | 15 | 125 | 4.00 | 3.0 | 10 | 35 <sup>(1)</sup> |

## SF51/SS5A Series, 5 A, Case Type: DO-201AD/SMC



|      |      |     |    |      |    |     |      |     |    |                   |
|------|------|-----|----|------|----|-----|------|-----|----|-------------------|
| SF51 | SS5A | 5.0 | 55 | 50   | 20 | 135 | 0.95 | 5.0 | 10 | 35 <sup>(1)</sup> |
| SF52 | SS5B | 5.0 | 55 | 100  | 20 | 135 | 0.95 | 5.0 | 10 | 35 <sup>(1)</sup> |
| SF53 | SS5C | 5.0 | 55 | 150  | 20 | 135 | 0.95 | 5.0 | 10 | 35 <sup>(1)</sup> |
| SF54 | SS5D | 5.0 | 55 | 200  | 20 | 135 | 0.95 | 5.0 | 10 | 35 <sup>(1)</sup> |
| SF55 | SS5E | 5.0 | 55 | 300  | 20 | 135 | 1.70 | 5.0 | 10 | 35 <sup>(1)</sup> |
| SF56 | SS5G | 5.0 | 55 | 400  | 20 | 135 | 1.70 | 5.0 | 10 | 35 <sup>(1)</sup> |
| SF57 | SS5J | 5.0 | 55 | 600  | 20 | 135 | 1.70 | 5.0 | 10 | 35 <sup>(1)</sup> |
| SF58 | SS5K | 5.0 | 55 | 800  | 20 | 135 | 4.00 | 5.0 | 10 | 35 <sup>(1)</sup> |
| SF59 | SS5M | 5.0 | 55 | 1000 | 20 | 135 | 4.00 | 5.0 | 10 | 35 <sup>(1)</sup> |

## SF61 Series, 6 A, Case Type: D6



|      |  |     |    |      |    |     |      |     |     |                   |
|------|--|-----|----|------|----|-----|------|-----|-----|-------------------|
| SF61 |  | 6.0 | 55 | 50   | 25 | 150 | 0.95 | 6.0 | 5.0 | 35 <sup>(1)</sup> |
| SF62 |  | 6.0 | 55 | 100  | 25 | 150 | 0.95 | 6.0 | 5.0 | 35 <sup>(1)</sup> |
| SF63 |  | 6.0 | 55 | 150  | 25 | 150 | 0.95 | 6.0 | 5.0 | 35 <sup>(1)</sup> |
| SF64 |  | 6.0 | 55 | 200  | 25 | 150 | 0.95 | 6.0 | 5.0 | 35 <sup>(1)</sup> |
| SF65 |  | 6.0 | 55 | 300  | 25 | 150 | 1.70 | 6.0 | 5.0 | 35 <sup>(1)</sup> |
| SF66 |  | 6.0 | 55 | 400  | 25 | 150 | 1.70 | 6.0 | 5.0 | 35 <sup>(1)</sup> |
| SF67 |  | 6.0 | 55 | 600  | 25 | 150 | 1.70 | 6.0 | 5.0 | 35 <sup>(1)</sup> |
| SF68 |  | 6.0 | 55 | 800  | 25 | 150 | 4.00 | 6.0 | 5.0 | 35 <sup>(1)</sup> |
| SF69 |  | 6.0 | 55 | 1000 | 25 | 150 | 4.00 | 6.0 | 5.0 | 35 <sup>(1)</sup> |

Note: (1) Reverse Recovery test conditions :  $I_F = 0.5 \text{ A}$ ,  $I_R = 1 \text{ A}$ ,  $I_{rr} = 0.25 \text{ A}$



# Super Fast Rectifier Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.   | Max. Average Forward Rectified Current |      | Max. Repetitive Peak Reverse Voltage | Max. Repetitive Peak Forward Current | Max. Forward Surge Current | Max. Forward Voltage Drop at Ta=25°C |      | Max. Reverse Current at Ta=25°C | Max. Reverse Recovery Time |
|------------|----------------------------------------|------|--------------------------------------|--------------------------------------|----------------------------|--------------------------------------|------|---------------------------------|----------------------------|
|            | IF(AV)                                 | @ Ta | VRRM                                 | IFRM                                 | IFSM                       | VF                                   | @ IF | IR                              | Trr <sup>(1)</sup>         |
| Axial Lead | (A)                                    | (°C) | (V)                                  | (A)                                  | (A)                        | (V)                                  | (A)  | (μA)                            | (ns)                       |

## FES8AT Series, 8 A, Case Type: TO-220AC



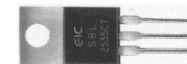
|                       |     |         |     |   |     |      |     |    |                   |
|-----------------------|-----|---------|-----|---|-----|------|-----|----|-------------------|
| FES8AT <sup>(2)</sup> | 8.0 | 100(Tc) | 50  | - | 125 | 0.95 | 8.0 | 10 | 35 <sup>(1)</sup> |
| FES8BT <sup>(2)</sup> | 8.0 | 100(Tc) | 100 | - | 125 | 0.95 | 8.0 | 10 | 35 <sup>(1)</sup> |
| FES8CT <sup>(2)</sup> | 8.0 | 100(Tc) | 150 | - | 125 | 0.95 | 8.0 | 10 | 35 <sup>(1)</sup> |
| FES8DT <sup>(2)</sup> | 8.0 | 100(Tc) | 200 | - | 125 | 0.95 | 8.0 | 10 | 35 <sup>(1)</sup> |
| FES8FT <sup>(2)</sup> | 8.0 | 100(Tc) | 300 | - | 125 | 1.30 | 8.0 | 10 | 50 <sup>(1)</sup> |
| FES8GT <sup>(2)</sup> | 8.0 | 100(Tc) | 400 | - | 125 | 1.30 | 8.0 | 10 | 50 <sup>(1)</sup> |
| FES8HT <sup>(2)</sup> | 8.0 | 100(Tc) | 500 | - | 125 | 1.50 | 8.0 | 10 | 50 <sup>(1)</sup> |
| FES8JT <sup>(2)</sup> | 8.0 | 100(Tc) | 600 | - | 125 | 1.50 | 8.0 | 10 | 50 <sup>(1)</sup> |

## FES16AT Series, 16 A, Case Type: TO-220AC



|                        |    |         |     |   |     |      |    |    |                   |
|------------------------|----|---------|-----|---|-----|------|----|----|-------------------|
| FES16AT <sup>(2)</sup> | 16 | 100(Tc) | 50  | - | 250 | 0.95 | 16 | 10 | 35 <sup>(1)</sup> |
| FES16BT <sup>(2)</sup> | 16 | 100(Tc) | 100 | - | 250 | 0.95 | 16 | 10 | 35 <sup>(1)</sup> |
| FES16CT <sup>(2)</sup> | 16 | 100(Tc) | 150 | - | 250 | 0.95 | 16 | 10 | 35 <sup>(1)</sup> |
| FES16DT <sup>(2)</sup> | 16 | 100(Tc) | 200 | - | 250 | 0.95 | 16 | 10 | 35 <sup>(1)</sup> |
| FES16FT <sup>(2)</sup> | 16 | 100(Tc) | 300 | - | 250 | 1.30 | 16 | 10 | 50 <sup>(1)</sup> |
| FES16GT <sup>(2)</sup> | 16 | 100(Tc) | 400 | - | 250 | 1.30 | 16 | 10 | 50 <sup>(1)</sup> |
| FES16HT <sup>(2)</sup> | 16 | 100(Tc) | 500 | - | 250 | 1.50 | 16 | 10 | 50 <sup>(1)</sup> |
| FES16JT <sup>(2)</sup> | 16 | 100(Tc) | 600 | - | 250 | 1.50 | 16 | 10 | 50 <sup>(1)</sup> |

## FEP16AT Series, 16 A, Case Type: TO-220AB



|         |    |         |     |   |     |      |    |    |    |
|---------|----|---------|-----|---|-----|------|----|----|----|
| FEP16AT | 16 | 100(Tc) | 50  | - | 125 | 0.95 | 16 | 10 | 35 |
| FEP16BT | 16 | 100(Tc) | 100 | - | 125 | 0.95 | 16 | 10 | 35 |
| FEP16CT | 16 | 100(Tc) | 150 | - | 125 | 0.95 | 16 | 10 | 35 |
| FEP16DT | 16 | 100(Tc) | 200 | - | 125 | 0.95 | 16 | 10 | 35 |
| FEP16FT | 16 | 100(Tc) | 300 | - | 125 | 1.30 | 16 | 10 | 50 |
| FEP16GT | 16 | 100(Tc) | 400 | - | 125 | 1.30 | 16 | 10 | 50 |
| FEP16HT | 16 | 100(Tc) | 500 | - | 125 | 1.50 | 16 | 10 | 50 |
| FEP16JT | 16 | 100(Tc) | 600 | - | 125 | 1.50 | 16 | 10 | 50 |

## FEP30AP Series, 30 A, Case Type: TO-247AD



|         |    |         |     |   |     |      |    |    |    |
|---------|----|---------|-----|---|-----|------|----|----|----|
| FEP30AP | 30 | 100(Tc) | 50  | - | 300 | 0.95 | 30 | 10 | 35 |
| FEP30BP | 30 | 100(Tc) | 100 | - | 300 | 0.95 | 30 | 10 | 35 |
| FEP30CP | 30 | 100(Tc) | 150 | - | 300 | 0.95 | 30 | 10 | 35 |
| FEP30DP | 30 | 100(Tc) | 200 | - | 300 | 0.95 | 30 | 10 | 35 |
| FEP30FP | 30 | 100(Tc) | 300 | - | 300 | 1.30 | 30 | 10 | 50 |
| FEP30GP | 30 | 100(Tc) | 400 | - | 300 | 1.30 | 30 | 10 | 50 |
| FEP30HP | 30 | 100(Tc) | 500 | - | 300 | 1.50 | 30 | 10 | 50 |
| FEP30JP | 30 | 100(Tc) | 600 | - | 300 | 1.50 | 30 | 10 | 50 |

## MUR1520/S, Case Type: TO-220AC



|          |    |        |     |   |     |      |    |    |    |
|----------|----|--------|-----|---|-----|------|----|----|----|
| MUR1520  | 15 | 150 Tc | 200 | - | 200 | 1.05 | 15 | 10 | 35 |
| MUR1520S | 15 | 150 Tc | 200 | - | 200 | 1.05 | 15 | 10 | 35 |

### Notes :

- (1) Reverse Recovery test conditions :  $I_F = 0.5 \text{ A}$ ,  $I_R = 1 \text{ A}$ ,  $I_{rr} = 0.25 \text{ A}$
- (2) For wire leads (case type ITO-220AC) add suffix "F" e.g. FESF8AT, FESF8BT, ..., FESF8JT and FESF16AT, FESF16BT, ..., FESF16JT



# Super Fast Glass Passivated Rectifier Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.   |     | Max. Average Forward Rectified Current |      | Max. Repetitive Peak Reverse Voltage | Max. Repetitive Peak Forward Current | Max. Surge Forward Current | Max. Forward Voltage Drop at Ta=25°C |      | Max. Reverse Current at Ta=25°C | Max. Reverse Recovery Time |
|------------|-----|----------------------------------------|------|--------------------------------------|--------------------------------------|----------------------------|--------------------------------------|------|---------------------------------|----------------------------|
|            |     | IF(AV)                                 | @ Ta | VRRM                                 | IFRM                                 | IFSM                       | VF                                   | @ IF | IR                              | Trr <sup>(1)</sup>         |
| Axial Lead | SMD | (A)                                    | (°C) | (V)                                  | (A)                                  | (A)                        | (V)                                  | (A)  | (μA)                            | (ns)                       |

## LMS1A Series, 1 A, Case Type: M1A

|       |  |     |    |      |   |    |      |     |     |    |
|-------|--|-----|----|------|---|----|------|-----|-----|----|
| LMS1A |  | 1.0 | 50 | 50   | - | 30 | 0.95 | 1.0 | 5.0 | 35 |
| LMS1B |  | 1.0 | 50 | 100  | - | 30 | 0.95 | 1.0 | 5.0 | 35 |
| LMS1D |  | 1.0 | 50 | 200  | - | 30 | 0.95 | 1.0 | 5.0 | 35 |
| LMS1G |  | 1.0 | 50 | 400  | - | 30 | 1.7  | 1.0 | 5.0 | 35 |
| LMS1J |  | 1.0 | 50 | 600  | - | 30 | 1.7  | 1.0 | 5.0 | 35 |
| LMS1K |  | 1.0 | 50 | 800  | - | 30 | 4.0  | 1.0 | 10  | 35 |
| LMS1M |  | 1.0 | 50 | 1000 | - | 30 | 4.0  | 1.0 | 10  | 35 |

## SF11G Series, 1 A, Case Type: DO-41

|       |  |     |    |      |   |    |      |     |     |    |
|-------|--|-----|----|------|---|----|------|-----|-----|----|
| SF11G |  | 1.0 | 55 | 50   | - | 30 | 0.95 | 1.0 | 5.0 | 35 |
| SF12G |  | 1.0 | 55 | 100  | - | 30 | 0.95 | 1.0 | 5.0 | 35 |
| SF13G |  | 1.0 | 55 | 150  | - | 30 | 0.95 | 1.0 | 5.0 | 35 |
| SF14G |  | 1.0 | 55 | 200  | - | 30 | 0.95 | 1.0 | 5.0 | 35 |
| SF15G |  | 1.0 | 55 | 300  | - | 30 | 1.7  | 1.0 | 5.0 | 35 |
| SF16G |  | 1.0 | 55 | 400  | - | 30 | 1.7  | 1.0 | 5.0 | 35 |
| SF17G |  | 1.0 | 55 | 600  | - | 30 | 1.7  | 1.0 | 5.0 | 35 |
| SF18G |  | 1.0 | 55 | 800  | - | 30 | 4.0  | 1.0 | 10  | 35 |
| SF19G |  | 1.0 | 55 | 1000 | - | 30 | 4.0  | 1.0 | 10  | 35 |

## S2L20U, 1.5 A, Case Type: D2A

|        |  |     |    |     |   |    |      |     |    |    |
|--------|--|-----|----|-----|---|----|------|-----|----|----|
| S2L20U |  | 1.5 | 25 | 200 | - | 50 | 0.98 | 1.5 | 10 | 35 |
|--------|--|-----|----|-----|---|----|------|-----|----|----|

## 1N5802/1N5802US Series, 2.5 A, Case Type: DO-41

|        |          |     |                      |     |   |    |       |     |     |    |
|--------|----------|-----|----------------------|-----|---|----|-------|-----|-----|----|
| 1N5802 | 1N5802US | 2.5 | 75 (T <sub>L</sub> ) | 50  | - | 35 | 0.875 | 1.0 | 1.0 | 25 |
| 1N5803 | 1N5803US | 2.5 | 75 (T <sub>L</sub> ) | 75  | - | 35 | 0.875 | 1.0 | 1.0 | 25 |
| 1N5804 | 1N5804US | 2.5 | 75 (T <sub>L</sub> ) | 100 | - | 35 | 0.875 | 1.0 | 1.0 | 25 |
| 1N5805 | 1N5805US | 2.5 | 75 (T <sub>L</sub> ) | 125 | - | 35 | 0.875 | 1.0 | 1.0 | 25 |
| 1N5806 | 1N5806US | 2.5 | 75 (T <sub>L</sub> ) | 150 | - | 35 | 0.875 | 1.0 | 1.0 | 25 |

## RHRP660F, 6 A, Case Type: ITO-220AC

|          |  |     |                      |     |   |    |     |     |    |    |
|----------|--|-----|----------------------|-----|---|----|-----|-----|----|----|
| RHRP660F |  | 6.0 | 100(T <sub>C</sub> ) | 600 | - | 80 | 2.7 | 6.0 | 10 | 20 |
|----------|--|-----|----------------------|-----|---|----|-----|-----|----|----|

## SF61G Series, 6 A, Case Type: D6

|       |  |     |    |      |   |     |      |     |     |    |
|-------|--|-----|----|------|---|-----|------|-----|-----|----|
| SF61G |  | 6.0 | 55 | 50   | - | 150 | 0.95 | 6.0 | 5.0 | 35 |
| SF62G |  | 6.0 | 55 | 100  | - | 150 | 0.95 | 6.0 | 5.0 | 35 |
| SF63G |  | 6.0 | 55 | 150  | - | 150 | 0.95 | 6.0 | 5.0 | 35 |
| SF64G |  | 6.0 | 55 | 200  | - | 150 | 0.95 | 6.0 | 5.0 | 35 |
| SF65G |  | 6.0 | 55 | 300  | - | 150 | 1.7  | 6.0 | 5.0 | 35 |
| SF66G |  | 6.0 | 55 | 400  | - | 150 | 1.7  | 6.0 | 5.0 | 35 |
| SF67G |  | 6.0 | 55 | 600  | - | 150 | 1.7  | 6.0 | 5.0 | 35 |
| SF68G |  | 6.0 | 55 | 800  | - | 150 | 4.0  | 6.0 | 10  | 35 |
| SF69G |  | 6.0 | 55 | 1000 | - | 150 | 4.0  | 6.0 | 10  | 35 |

## SMC1520, 15 A, Case Type: SMC

|         |  |    |                     |     |   |     |      |      |    |    |
|---------|--|----|---------------------|-----|---|-----|------|------|----|----|
| SMC1520 |  | 15 | 75(T <sub>C</sub> ) | 200 | - | 200 | 1.05 | 15.0 | 10 | 35 |
|---------|--|----|---------------------|-----|---|-----|------|------|----|----|

## MUR3020WT Series, Case Type: TO-247AD (TO-3P)

|           |  |      |                    |     |   |     |      |    |    |                   |
|-----------|--|------|--------------------|-----|---|-----|------|----|----|-------------------|
| MUR3020WT |  | 30 A | 150 T <sub>C</sub> | 200 | - | 200 | 1.05 | 15 | 10 | 30 <sup>(2)</sup> |
| MUR3040WT |  | 30 A | 150 T <sub>C</sub> | 400 | - | 150 | 1.25 | 15 | 10 | 60 <sup>(2)</sup> |

Notes : (1) Reverse Recovery test conditions : I<sub>F</sub> = 0.5 A, I<sub>R</sub> = 1 A, I<sub>rr</sub> = 0.25 A

(2) Reverse Recovery test conditions : I<sub>F</sub> = 1A, di/dt = 50 A/ms



# Schottky Barrier Rectifiers

The plastic material carries U/L recognition 94V-0.

| Type No.   |     | Max. Average Forward Rectified Current |      | Max. Repetitive Peak Reverse Voltage | Max. Repetitive Peak Forward Current | Max. Forward Surge Current | Max. Forward Voltage Drop at Ta=25°C |      | Max. Reverse Current at Ta=25°C |
|------------|-----|----------------------------------------|------|--------------------------------------|--------------------------------------|----------------------------|--------------------------------------|------|---------------------------------|
|            |     | IF(AV)                                 | @ TL | VRRM                                 | IFRM                                 | IFSM                       | VF                                   | @ IF | IR                              |
| Axial Lead | SMD | (A)                                    | (°C) | (V)                                  | (A)                                  | (A)                        | (V)                                  | (A)  | (mA)                            |

## AK03 Series, 0.7 - 1 A, Case Type: DO-41



|      |  |     |    |    |   |    |      |     |     |
|------|--|-----|----|----|---|----|------|-----|-----|
| AK03 |  | 1.0 | 25 | 30 | - | 25 | 0.55 | 1.0 | 1.0 |
| AK04 |  | 1.0 | 25 | 40 | - | 25 | 0.55 | 1.0 | 1.0 |
| AK06 |  | 0.7 | 40 | 60 | - | 10 | 0.62 | 0.7 | 1.0 |
| AK09 |  | 0.7 | 35 | 90 | - | 10 | 0.81 | 0.7 | 1.0 |

## 1N5817/SKN7 Series, 1 A, Case Type: DO-41/SMA



|        |      |     |    |    |     |    |      |     |     |
|--------|------|-----|----|----|-----|----|------|-----|-----|
| 1N5817 | SKN7 | 1.0 | 90 | 20 | 5.0 | 25 | 0.45 | 1.0 | 1.0 |
| 1N5818 | SKN8 | 1.0 | 90 | 30 | 5.0 | 25 | 0.55 | 1.0 | 1.0 |
| 1N5819 | SKN9 | 1.0 | 90 | 40 | 5.0 | 25 | 0.60 | 1.0 | 1.0 |

## LL5817 Series, 1 A, Case Type: MELF(Plastic)



|  |        |     |    |    |     |    |      |     |     |
|--|--------|-----|----|----|-----|----|------|-----|-----|
|  | LL5817 | 1.0 | 90 | 20 | 5.0 | 25 | 0.45 | 1.0 | 1.0 |
|  | LL5818 | 1.0 | 90 | 30 | 5.0 | 25 | 0.55 | 1.0 | 1.0 |
|  | LL5819 | 1.0 | 90 | 40 | 5.0 | 25 | 0.60 | 1.0 | 1.0 |

## 1S20 - 1SB0 Series, 1.0 A, Case Type: M1A



|      |  |     |     |     |   |    |      |     |     |
|------|--|-----|-----|-----|---|----|------|-----|-----|
| 1S20 |  | 1.0 | 75  | 20  | - | 35 | 0.55 | 1.0 | 1.0 |
| 1S30 |  | 1.0 | 75  | 30  | - | 35 | 0.55 | 1.0 | 1.0 |
| 1S40 |  | 1.0 | 75  | 40  | - | 35 | 0.55 | 1.0 | 1.0 |
| 1S50 |  | 1.0 | 100 | 50  | - | 35 | 0.70 | 1.0 | 1.0 |
| 1S60 |  | 1.0 | 100 | 60  | - | 35 | 0.70 | 1.0 | 1.0 |
| 1S80 |  | 1.0 | 100 | 80  | - | 35 | 0.85 | 1.0 | 1.0 |
| 1SB0 |  | 1.0 | 100 | 100 | - | 35 | 0.85 | 1.0 | 1.0 |

## ERA Series, 1 A, Case Type: DO-41



|           |  |     |     |    |   |    |      |     |     |
|-----------|--|-----|-----|----|---|----|------|-----|-----|
| ERA81-004 |  | 1.0 | 25  | 40 | - | 50 | 0.55 | 1.0 | 2.0 |
| ERA83-004 |  | 1.0 | 115 | 40 | - | 50 | 0.55 | 1.0 | 2.0 |
| ERA83-006 |  | 1.0 | 111 | 60 | - | 30 | 0.58 | 1.0 | 2.0 |
| ERA84-009 |  | 1.0 | 25  | 90 | - | 60 | 0.90 | 1.0 | 1.0 |

## SB120/SK12 Series, 1 A, Case Type: DO-41/SMA



|       |      |     |     |     |     |    |      |     |     |
|-------|------|-----|-----|-----|-----|----|------|-----|-----|
| SB120 | SK12 | 1.0 | 75  | 20  | 5.0 | 40 | 0.50 | 1.0 | 0.5 |
| SB130 | SK13 | 1.0 | 75  | 30  | 5.0 | 40 | 0.50 | 1.0 | 0.5 |
| SB140 | SK14 | 1.0 | 75  | 40  | 5.0 | 40 | 0.50 | 1.0 | 0.5 |
| SB150 | SK15 | 1.0 | 100 | 50  | 5.0 | 40 | 0.70 | 1.0 | 0.5 |
| SB160 | SK16 | 1.0 | 100 | 60  | 5.0 | 40 | 0.70 | 1.0 | 0.5 |
| SB170 | SK17 | 1.0 | 100 | 70  | 5.0 | 40 | 0.70 | 1.0 | 0.5 |
| SB180 | SK18 | 1.0 | 100 | 80  | 5.0 | 40 | 0.79 | 1.0 | 0.5 |
| SB190 | SK19 | 1.0 | 100 | 90  | 5.0 | 40 | 0.79 | 1.0 | 0.5 |
| SB1B0 | SK1B | 1.0 | 100 | 100 | 5.0 | 40 | 0.79 | 1.0 | 0.5 |



# Schottky Barrier Rectifiers

The plastic material carries U/L recognition 94V-0.

| Type No.   |     | Max. Average Forward Rectified Current |      | Max. Repetitive Peak Reverse Voltage | Max. Repetitive Peak Forward Current | Max. Forward Surge Current | Max. Forward Voltage Drop at Ta=25°C |      | Max. Reverse Current at Ta=25°C |
|------------|-----|----------------------------------------|------|--------------------------------------|--------------------------------------|----------------------------|--------------------------------------|------|---------------------------------|
|            |     | IF(AV)                                 | @ TL | VRRM                                 | IFRM                                 | IFSM                       | VF                                   | @ IF | IR                              |
| Axial Lead | SMD | (A)                                    | (°C) | (V)                                  | (A)                                  | (A)                        | (V)                                  | (A)  | (mA)                            |

## MBR150 Series, 1 A, Case Type: DO-41



|        |  |     |         |    |   |    |      |     |     |
|--------|--|-----|---------|----|---|----|------|-----|-----|
| MBR150 |  | 1.0 | 55 (Ta) | 50 | - | 25 | 0.75 | 1.0 | 0.5 |
| MBR160 |  | 1.0 | 55 (Ta) | 60 | - | 25 | 0.75 | 1.0 | 0.5 |

## EK Series, 1 - 1.5 A, Case Type: DO-41



|      |  |     |    |    |   |    |      |     |     |
|------|--|-----|----|----|---|----|------|-----|-----|
| EK03 |  | 1.0 | 25 | 30 | - | 25 | 0.55 | 1.0 | 1.0 |
| EK04 |  | 1.0 | 25 | 40 | - | 25 | 0.55 | 1.0 | 1.0 |
| EK13 |  | 1.5 | 40 | 30 | - | 40 | 0.55 | 2.0 | 5.0 |
| EK14 |  | 1.5 | 40 | 40 | - | 40 | 0.55 | 2.0 | 5.0 |
| EK16 |  | 1.5 | 40 | 60 | - | 25 | 0.62 | 1.5 | 1.0 |
| EK19 |  | 1.5 | 35 | 90 | - | 40 | 0.81 | 1.5 | 2.0 |

## 11DQ03 Series, 1.1 A, Case Type: DO-41



|        |  |     |         |     |   |    |      |     |     |
|--------|--|-----|---------|-----|---|----|------|-----|-----|
| 11DQ03 |  | 1.1 | 75 (Tc) | 30  | - | 42 | 0.55 | 1.1 | 6.0 |
| 11DQ04 |  | 1.1 | 75 (Tc) | 40  | - | 42 | 0.55 | 1.1 | 6.0 |
| 11DQ05 |  | 1.1 | 84 (Tc) | 50  | - | 26 | 0.58 | 1.1 | 11  |
| 11DQ06 |  | 1.1 | 84 (Tc) | 60  | - | 26 | 0.58 | 1.1 | 11  |
| 11DQ09 |  | 1.1 | 75 (Tc) | 90  | - | 42 | 0.85 | 1.1 | 0.5 |
| 11DQ10 |  | 1.1 | 75 (Tc) | 100 | - | 42 | 0.85 | 1.1 | 1.0 |

## 10MQ Series, 1.5 A, Case Type: SMA



|  |          |     |     |     |   |    |      |     |     |
|--|----------|-----|-----|-----|---|----|------|-----|-----|
|  | 10MQ040N | 1.5 | 123 | 40  | - | 30 | 0.62 | 1.5 | 0.5 |
|  | 10MQ100N | 1.5 | 126 | 100 | - | 30 | 0.85 | 1.5 | 0.1 |

## SL12 Series, 1.5 A, Case Type: SMA



|  |      |     |     |    |   |    |       |     |     |
|--|------|-----|-----|----|---|----|-------|-----|-----|
|  | SL12 | 1.5 | 105 | 20 | - | 50 | 0.445 | 1.0 | 0.2 |
|  | SL13 | 1.5 | 105 | 30 | - | 50 | 0.445 | 1.0 | 0.2 |

## RK13 Series, 1.5 - 1.7 A, Case Type: D2



|      |  |     |    |    |    |    |      |     |     |
|------|--|-----|----|----|----|----|------|-----|-----|
| RK13 |  | 1.7 | 75 | 30 | 15 | 50 | 0.55 | 1.7 | 5.1 |
| RK14 |  | 1.7 | 75 | 40 | 15 | 50 | 0.55 | 1.7 | 5.1 |
| RK16 |  | 1.5 | 75 | 60 | 15 | 50 | 0.62 | 1.5 | 1.0 |
| RK19 |  | 1.5 | 75 | 90 | 15 | 50 | 0.81 | 1.5 | 2.0 |

## 21DQ09 Series, 1.7 A, Case Type: DO-41



|        |  |     |    |     |   |    |      |     |     |
|--------|--|-----|----|-----|---|----|------|-----|-----|
| 21DQ09 |  | 1.7 | 47 | 90  | - | 70 | 0.85 | 2.0 | 1.0 |
| 21DQ10 |  | 1.7 | 43 | 100 | - | 70 | 0.85 | 2.0 | 1.0 |



# Schottky Barrier Rectifiers

The plastic material carries U/L recognition 94V-0.

| Type No.   |     | Max. Average Forward Rectified Current |      | Max. Repetitive Peak Reverse Voltage | Max. Repetitive Peak Forward Current | Max. Forward Surge Current | Max. Forward Voltage Drop at Ta=25°C |      | Max. Reverse Current at Ta=25°C |
|------------|-----|----------------------------------------|------|--------------------------------------|--------------------------------------|----------------------------|--------------------------------------|------|---------------------------------|
|            |     | IF(AV)                                 | @ TL | VRRM                                 | IFRM                                 | IFSM                       | VF                                   | @ IF | IR                              |
| Axial Lead | SMD | (A)                                    | (°C) | (V)                                  | (A)                                  | (A)                        | (V)                                  | (A)  | (mA)                            |

## SBO20 Series, 1.5 A, Case Type: DO-41



|       |  |     |     |     |   |    |      |     |     |
|-------|--|-----|-----|-----|---|----|------|-----|-----|
| SBO20 |  | 1.5 | 75  | 20  | - | 50 | 0.50 | 1.5 | 0.5 |
| SBO30 |  | 1.5 | 75  | 30  | - | 50 | 0.50 | 1.5 | 0.5 |
| SBO40 |  | 1.5 | 75  | 40  | - | 50 | 0.50 | 1.5 | 0.5 |
| SBO50 |  | 1.5 | 100 | 50  | - | 50 | 0.70 | 1.5 | 0.5 |
| SBO60 |  | 1.5 | 100 | 60  | - | 50 | 0.70 | 1.5 | 0.5 |
| SBO70 |  | 1.5 | 100 | 70  | - | 50 | 0.70 | 1.5 | 0.5 |
| SBO80 |  | 1.5 | 100 | 80  | - | 50 | 0.79 | 1.5 | 0.5 |
| SBO90 |  | 1.5 | 100 | 90  | - | 50 | 0.79 | 1.5 | 0.5 |
| SBOB0 |  | 1.5 | 100 | 100 | - | 50 | 0.79 | 1.5 | 0.5 |

## ERB81 Series, 2.0 A, Case Type: D2



|           |  |     |         |    |   |     |      |     |     |
|-----------|--|-----|---------|----|---|-----|------|-----|-----|
| ERB81-004 |  | 2.0 | 25 (Ta) | 40 | - | 100 | 0.55 | 2.0 | 5.0 |
| ERB83-004 |  | 2.0 | 25 (Ta) | 40 | - | 100 | 0.55 | 2.0 | 5.0 |
| ERB83-006 |  | 2.0 | 104     | 60 | - | 60  | 0.58 | 2.0 | 5.0 |
| ERB84-009 |  | 2.0 | 25 (Ta) | 90 | - | 60  | 0.90 | 2.0 | 2.0 |

## SB220/SK22 Series, 2.0 A, Case Type: D2/SMB



|       |      |     |     |     |    |    |      |     |     |
|-------|------|-----|-----|-----|----|----|------|-----|-----|
| SB220 | SK22 | 2.0 | 75  | 20  | 10 | 60 | 0.50 | 2.0 | 0.5 |
| SB230 | SK23 | 2.0 | 75  | 30  | 10 | 60 | 0.50 | 2.0 | 0.5 |
| SB240 | SK24 | 2.0 | 75  | 40  | 10 | 60 | 0.50 | 2.0 | 0.5 |
| SB250 | SK25 | 2.0 | 100 | 50  | 10 | 60 | 0.74 | 2.0 | 0.5 |
| SB260 | SK26 | 2.0 | 100 | 60  | 10 | 60 | 0.74 | 2.0 | 0.5 |
| SB270 | SK27 | 2.0 | 100 | 70  | 10 | 60 | 0.74 | 2.0 | 0.5 |
| SB280 | SK28 | 2.0 | 100 | 80  | 10 | 60 | 0.79 | 2.0 | 0.5 |
| SB290 | SK29 | 2.0 | 100 | 90  | 10 | 60 | 0.79 | 2.0 | 0.5 |
| SB2B0 | SK2B | 2.0 | 100 | 100 | 10 | 60 | 0.79 | 2.0 | 0.5 |

Also available in Axial DO-41 and SMD SMA Case Types. Use suffix "S" to order (e.g. SB220S, SK22S)

## SR220 - SR2100 Series, 2.0 A, Case Type: DO-41



|        |  |     |    |     |   |    |      |     |     |
|--------|--|-----|----|-----|---|----|------|-----|-----|
| SR220  |  | 2.0 | 40 | 20  | - | 50 | 0.55 | 2.0 | 2.0 |
| SR230  |  | 2.0 | 40 | 30  | - | 50 | 0.55 | 2.0 | 2.0 |
| SR240  |  | 2.0 | 40 | 40  | - | 50 | 0.55 | 2.0 | 2.0 |
| SR250  |  | 2.0 | 60 | 50  | - | 50 | 0.70 | 2.0 | 2.0 |
| SR260  |  | 2.0 | 60 | 60  | - | 50 | 0.70 | 2.0 | 2.0 |
| SR290  |  | 2.0 | 60 | 90  | - | 50 | 0.85 | 2.0 | 2.0 |
| SR2100 |  | 2.0 | 60 | 100 | - | 50 | 0.85 | 2.0 | 2.0 |

## RK33 Series, 2.0 - 2.5 A, Case Type: D2A



|      |  |     |    |    |    |    |      |     |     |
|------|--|-----|----|----|----|----|------|-----|-----|
| RK33 |  | 2.5 | 75 | 30 | 15 | 50 | 0.55 | 2.5 | 5.0 |
| RK34 |  | 2.5 | 75 | 40 | 15 | 50 | 0.55 | 2.5 | 5.0 |
| RK36 |  | 2.0 | 75 | 60 | 15 | 50 | 0.62 | 2.0 | 2.0 |
| RK39 |  | 2.0 | 75 | 90 | 15 | 50 | 0.81 | 2.0 | 3.0 |



# Schottky Barrier Rectifiers

The plastic material carries U/L recognition 94V-0.

| Type No.   |     | Max. Average Forward Rectified Current |      | Max. Repetitive Peak Reverse Voltage | Max. Repetitive Peak Forward Current | Max. Forward Surge Current | Max. Forward Voltage Drop at Ta=25°C |      | Max. Reverse Current at Ta=25°C |
|------------|-----|----------------------------------------|------|--------------------------------------|--------------------------------------|----------------------------|--------------------------------------|------|---------------------------------|
|            |     | IF(AV)                                 | @ TL | VRRM                                 | IFRM                                 | IFSM                       | VF                                   | @ IF | IR                              |
| Axial Lead | SMD | (A)                                    | (°C) | (V)                                  | (A)                                  | (A)                        | (V)                                  | (A)  | (mA)                            |

## SBT20 Series, 2.5 A, Case Type: D2A



|       |  |     |     |     |   |    |      |     |     |
|-------|--|-----|-----|-----|---|----|------|-----|-----|
| SBT20 |  | 2.5 | 75  | 20  | - | 50 | 0.50 | 1.5 | 0.5 |
| SBT30 |  | 2.5 | 75  | 30  | - | 50 | 0.50 | 1.5 | 0.5 |
| SBT40 |  | 2.5 | 75  | 40  | - | 50 | 0.50 | 1.5 | 0.5 |
| SBT50 |  | 2.5 | 100 | 50  | - | 50 | 0.74 | 1.5 | 0.5 |
| SBT60 |  | 2.5 | 100 | 60  | - | 50 | 0.74 | 1.5 | 0.5 |
| SBT70 |  | 2.5 | 100 | 70  | - | 50 | 0.74 | 1.5 | 0.5 |
| SBT80 |  | 2.5 | 100 | 80  | - | 50 | 0.79 | 1.5 | 0.5 |
| SBT90 |  | 2.5 | 100 | 90  | - | 50 | 0.79 | 1.5 | 0.5 |
| SBTB0 |  | 2.5 | 100 | 100 | - | 50 | 0.79 | 1.5 | 0.5 |

## ERC Series, 2.6 - 3.0 A, Case Type: DO-201AD



|           |  |     |     |    |   |     |      |     |     |
|-----------|--|-----|-----|----|---|-----|------|-----|-----|
| ERC81-004 |  | 2.6 | 25  | 40 | - | 120 | 0.55 | 3.0 | 5.0 |
| ERC81-006 |  | 3.0 | 104 | 60 | - | 80  | 0.58 | 3.0 | 5.0 |
| ERC84-009 |  | 3.0 | 85  | 90 | - | 120 | 0.80 | 3.0 | 0.5 |

## RB055L-40 3.0 A, Case Type: SMA



|           |  |     |    |    |   |    |      |     |     |
|-----------|--|-----|----|----|---|----|------|-----|-----|
| RB055L-40 |  | 3.0 | 25 | 40 | - | 40 | 0.65 | 3.0 | 0.5 |
|-----------|--|-----|----|----|---|----|------|-----|-----|

## 1N5820/SKN0 Series, 3 A, Case Type: DO-201AD/SMC



|        |      |     |    |    |    |    |       |     |     |
|--------|------|-----|----|----|----|----|-------|-----|-----|
| 1N5820 | SKN0 | 3.0 | 95 | 20 | 15 | 80 | 0.475 | 3.0 | 2.0 |
| 1N5821 | SKN1 | 3.0 | 95 | 30 | 15 | 80 | 0.500 | 3.0 | 2.0 |
| 1N5822 | SKN2 | 3.0 | 95 | 40 | 15 | 80 | 0.525 | 3.0 | 2.0 |

Also available in Axial D2A and SMD SMB Case Types. Use suffix "S" to order (e.g. 1N5820S, SKN0S)

## SB320/SK32 Series, 3 A, Case Type: DO-201AD/SMC



|       |      |     |     |     |    |    |      |     |     |
|-------|------|-----|-----|-----|----|----|------|-----|-----|
| SB320 | SK32 | 3.0 | 75  | 20  | 15 | 80 | 0.50 | 3.0 | 0.5 |
| SB330 | SK33 | 3.0 | 75  | 30  | 15 | 80 | 0.50 | 3.0 | 0.5 |
| SB340 | SK34 | 3.0 | 75  | 40  | 15 | 80 | 0.50 | 3.0 | 0.5 |
| SB350 | SK35 | 3.0 | 100 | 50  | 15 | 80 | 0.74 | 3.0 | 0.5 |
| SB360 | SK36 | 3.0 | 100 | 60  | 15 | 80 | 0.74 | 3.0 | 0.5 |
| SB370 | SK37 | 3.0 | 100 | 70  | 15 | 80 | 0.74 | 3.0 | 0.5 |
| SB380 | SK38 | 3.0 | 100 | 80  | 15 | 80 | 0.79 | 3.0 | 0.5 |
| SB390 | SK39 | 3.0 | 100 | 90  | 15 | 80 | 0.79 | 3.0 | 0.5 |
| SB3B0 | SK3B | 3.0 | 100 | 100 | 15 | 80 | 0.79 | 3.0 | 0.5 |

Also available in Axial D2A and SMD SMB Case Types. Use suffix "S" to order (e.g. SB320S, SK32S), SMA Case Types. Use suffix "A" to order (e.g. SK32A).

## MBR320 Series, 3 A, Case Type: DO-201AD



|        |  |     |         |    |   |    |      |     |     |
|--------|--|-----|---------|----|---|----|------|-----|-----|
| MBR320 |  | 3.0 | 65 (Ta) | 20 | - | 80 | 0.60 | 3.0 | 0.6 |
| MBR330 |  | 3.0 | 65 (Ta) | 30 | - | 80 | 0.60 | 3.0 | 0.6 |
| MBR340 |  | 3.0 | 65 (Ta) | 40 | - | 80 | 0.60 | 3.0 | 0.6 |
| MBR350 |  | 3.0 | 65 (Ta) | 50 | - | 80 | 0.74 | 3.0 | 0.6 |
| MBR360 |  | 3.0 | 65 (Ta) | 60 | - | 80 | 0.74 | 3.0 | 0.6 |



# Schottky Barrier Rectifiers

The plastic material carries U/L recognition 94V-0.

| Type No.   |     | Max. Average Forward Rectified Current |      | Max. Repetitive Peak Reverse Voltage | Max. Repetitive Peak Forward Current | Max. Forward Surge Current | Max. Forward Voltage Drop at Ta=25°C |      | Max. Reverse Current at Ta=25°C |
|------------|-----|----------------------------------------|------|--------------------------------------|--------------------------------------|----------------------------|--------------------------------------|------|---------------------------------|
|            |     | IF(AV)                                 | @ TL | VRRM                                 | IFRM                                 | IFSM                       | VF                                   | @ IF | IR                              |
| Axial Lead | SMD | (A)                                    | (°C) | (V)                                  | (A)                                  | (A)                        | (V)                                  | (A)  | (mA)                            |

## RK43 Series, 3.0 - 3.5 A, Case Type: DO-201AD



|      |  |     |     |    |   |    |      |     |     |
|------|--|-----|-----|----|---|----|------|-----|-----|
| RK43 |  | 3.0 | 109 | 30 | - | 80 | 0.55 | 3.0 | 5.0 |
| RK44 |  | 3.0 | 109 | 40 | - | 80 | 0.55 | 3.0 | 5.0 |
| RK46 |  | 3.5 | 109 | 60 | - | 70 | 0.62 | 3.5 | 3.0 |
| RK49 |  | 3.5 | 109 | 90 | - | 60 | 0.81 | 3.5 | 5.0 |

## 31DQ03 Series, 3.3 A, Case Type: DO-201AD



|        |  |     |         |     |   |     |      |     |     |
|--------|--|-----|---------|-----|---|-----|------|-----|-----|
| 31DQ03 |  | 3.3 | 48 (Tc) | 30  | - | 120 | 0.55 | 3.0 | 3.0 |
| 31DQ04 |  | 3.3 | 48 (Tc) | 40  | - | 120 | 0.55 | 3.0 | 3.0 |
| 31DQ09 |  | 3.3 | 53 (Tc) | 90  | - | 34  | 0.85 | 3.5 | 1.0 |
| 31DQ10 |  | 3.3 | 53 (Tc) | 100 | - | 34  | 0.85 | 3.5 | 1.0 |

## SB520/SK52 Series, 5 A, Case Type: DO-201AD/SMC



|       |      |     |    |     |    |     |      |     |     |
|-------|------|-----|----|-----|----|-----|------|-----|-----|
| SB520 | SK52 | 5.0 | 60 | 20  | 25 | 150 | 0.55 | 5.0 | 0.5 |
| SB530 | SK53 | 5.0 | 60 | 30  | 25 | 150 | 0.55 | 5.0 | 0.5 |
| SB540 | SK54 | 5.0 | 60 | 40  | 25 | 150 | 0.55 | 5.0 | 0.5 |
| SB550 | SK55 | 5.0 | 80 | 50  | 25 | 150 | 0.67 | 5.0 | 0.5 |
| SB560 | SK56 | 5.0 | 80 | 60  | 25 | 150 | 0.67 | 5.0 | 0.5 |
| SB570 | SK57 | 5.0 | 80 | 70  | 25 | 150 | 0.67 | 5.0 | 0.5 |
| SB580 | SK58 | 5.0 | 80 | 80  | 25 | 150 | 0.79 | 5.0 | 0.5 |
| SB590 | SK59 | 5.0 | 80 | 90  | 25 | 150 | 0.79 | 5.0 | 0.5 |
| SB5B0 | SK5B | 5.0 | 80 | 100 | 25 | 150 | 0.79 | 5.0 | 0.5 |

Also available in Axial D2A and SMD SMB Case Types. Use suffix "S" to order (e.g. SB520S, SK52S)

## SR520 Series, 5.0 A, Case Type: DO-201AD



|       |  |     |    |    |   |     |      |     |    |
|-------|--|-----|----|----|---|-----|------|-----|----|
| SR520 |  | 5.0 | 60 | 20 | - | 150 | 0.57 | 5.0 | 10 |
| SR530 |  | 5.0 | 60 | 30 | - | 120 | 0.57 | 5.0 | 10 |
| SR540 |  | 5.0 | 60 | 40 | - | 120 | 0.57 | 5.0 | 10 |
| SR550 |  | 5.0 | 85 | 50 | - | 120 | 0.70 | 5.0 | 10 |
| SR560 |  | 5.0 | 85 | 60 | - | 120 | 0.70 | 5.0 | 10 |

## SB5150-SB5200, 5.0 A, Case Type: DO-201AD



|        |  |     |        |     |   |     |      |     |      |
|--------|--|-----|--------|-----|---|-----|------|-----|------|
| SB5150 |  | 5.0 | 25(Ta) | 150 | - | 100 | 0.85 | 5.0 | 0.01 |
| SB5200 |  | 5.0 | 25(Ta) | 200 | - | 100 | 0.87 | 5.0 | 0.01 |

## MBR735 Series, 7.5 A, Case Type: TO-220AC



|        |  |     |         |    |   |     |      |     |     |
|--------|--|-----|---------|----|---|-----|------|-----|-----|
| MBR735 |  | 7.5 | 105(Tc) | 35 | - | 150 | -    | -   | 0.1 |
| MBR745 |  | 7.5 | 105(Tc) | 45 | - | 150 | -    | -   | 0.1 |
| MBR750 |  | 7.5 | 105(Tc) | 50 | - | 150 | 0.75 | 7.5 | 0.5 |
| MBR760 |  | 7.5 | 105(Tc) | 60 | - | 150 | 0.75 | 7.5 | 0.5 |

## SBL1030 Series, 10 A, Case Type: TO-220AC

|         |  |    |         |    |   |     |     |    |     |
|---------|--|----|---------|----|---|-----|-----|----|-----|
| SBL1030 |  | 10 | 110(Tc) | 30 | - | 250 | 0.6 | 10 | 1.0 |
| SBL1040 |  | 10 | 110(Tc) | 40 | - | 250 | 0.6 | 10 | 1.0 |



# Schottky Barrier Rectifiers

The plastic material carries U/L recognition 94V-0.

| Type No.   |     | Max. Average Forward Rectified Current |      | Max. Repetitive Peak Reverse Voltage | Max. Repetitive Peak Forward Current | Max. Forward Surge Current | Max. Forward Voltage Drop at Ta=25°C |      | Max. Reverse Current at Ta=25°C |
|------------|-----|----------------------------------------|------|--------------------------------------|--------------------------------------|----------------------------|--------------------------------------|------|---------------------------------|
|            |     | IF(AV)                                 | @ TL | VRRM                                 | IFRM                                 | IFSM                       | VF                                   | @ IF | IR                              |
| Axial Lead | SMD | (A)                                    | (°C) | (V)                                  | (A)                                  | (A)                        | (V)                                  | (A)  | (mA)                            |

## SD1045/SD1645, 10-16 A, Case Type: DO-201AD



|        |  |    |        |    |   |     |      |    |     |
|--------|--|----|--------|----|---|-----|------|----|-----|
| SD1045 |  | 10 | 100    | 45 | - | 340 | 0.55 | 10 | 0.8 |
| SD1545 |  | 15 | 25(Tc) | 45 | - | 300 | 0.54 | 15 | 0.2 |
| SD1645 |  | 16 | 25(Tc) | 45 | - | 300 | 0.55 | 16 | 0.2 |

## SK1045/SK1545, 10-15 A, Case Type: SMC



|        |  |    |        |    |   |     |      |    |     |
|--------|--|----|--------|----|---|-----|------|----|-----|
| SK1045 |  | 10 | 100    | 45 | - | 340 | 0.55 | 10 | 0.8 |
| SK1545 |  | 15 | 25(Tc) | 45 | - | 300 | 0.54 | 15 | 0.2 |

## MBRB1045/MBRB1545, 10-15 A, Case Type: D2PAK



|          |  |    |         |    |   |     |      |    |      |
|----------|--|----|---------|----|---|-----|------|----|------|
| MBRB1045 |  | 10 | 120(Tc) | 45 | - | 150 | 0.57 | 10 | 0.20 |
| MBRB1545 |  | 15 | 120(Tc) | 45 | - | 150 | 0.54 | 15 | 0.25 |

## MBR1035 Series, 10 A, Case Type: TO-220AC



|         |  |    |         |    |   |     |      |    |      |
|---------|--|----|---------|----|---|-----|------|----|------|
| MBR1035 |  | 10 | 125(Tc) | 35 | - | 150 | 0.84 | 10 | 0.10 |
| MBR1045 |  | 10 | 125(Tc) | 45 | - | 150 | 0.84 | 10 | 0.10 |
| MBR1050 |  | 10 | 125(Tc) | 50 | - | 150 | 0.80 | 10 | 0.15 |
| MBR1060 |  | 10 | 125(Tc) | 60 | - | 150 | 0.80 | 10 | 0.15 |

## SBL1030CT Series, 10 - 16 A, Case Type: TO-220AB



|           |  |    |        |    |   |     |      |   |     |
|-----------|--|----|--------|----|---|-----|------|---|-----|
| SBL1030CT |  | 10 | 95(Tc) | 30 | - | 250 | 0.55 | 5 | 0.5 |
| SBL1040CT |  | 10 | 95(Tc) | 40 | - | 250 | 0.55 | 5 | 0.5 |
| SBL1630CT |  | 16 | 95(Tc) | 30 | - | 250 | 0.55 | 8 | 0.5 |
| SBL1640CT |  | 16 | 95(Tc) | 40 | - | 250 | 0.55 | 8 | 0.5 |

## MBR1660CT Series, 16 A, Case Type: TO-220AB



|            |  |    |         |     |   |     |      |     |      |
|------------|--|----|---------|-----|---|-----|------|-----|------|
| MBR1660CT  |  | 16 | 115(Tc) | 60  | - | 150 | 0.75 | 8.0 | 1.00 |
| MBR16100CT |  | 16 | 133(Tc) | 100 | - | 150 | 0.84 | 16  | 0.10 |

## MBR1635 Series, 16 A, Case Type: TO-220AC



|         |  |    |         |    |   |     |      |    |      |
|---------|--|----|---------|----|---|-----|------|----|------|
| MBR1635 |  | 16 | 125(Tc) | 35 | - | 150 | 0.63 | 16 | 0.20 |
| MBR1645 |  | 16 | 125(Tc) | 45 | - | 150 | 0.63 | 16 | 0.20 |
| MBR1650 |  | 16 | 125(Tc) | 50 | - | 150 | 0.75 | 16 | 1.00 |
| MBR1660 |  | 16 | 125(Tc) | 60 | - | 150 | 0.75 | 16 | 1.00 |

## MBRF16H35 Series, 16 A, Case Type: ITO-220AC



|           |  |    |         |    |   |     |      |    |      |
|-----------|--|----|---------|----|---|-----|------|----|------|
| MBRF16H35 |  | 16 | 130(Tc) | 35 | - | 150 | 0.66 | 16 | 0.10 |
| MBRF16H45 |  | 16 | 130(Tc) | 45 | - | 150 | 0.66 | 16 | 0.10 |
| MBRF16H50 |  | 16 | 130(Tc) | 50 | - | 150 | 0.73 | 16 | 0.10 |
| MBRF16H60 |  | 16 | 130(Tc) | 60 | - | 150 | 0.73 | 16 | 0.10 |



# Schottky Barrier Rectifiers

The plastic material carries U/L recognition 94V-0.

| Type No.   |     | Max. Average Forward Rectified Current |      | Max. Repetitive Peak Reverse Voltage | Max. Repetitive Peak Forward Current | Max. Forward Surge Current | Max. Forward Voltage Drop at Ta=25°C |      | Max. Reverse Current at Ta=25°C |
|------------|-----|----------------------------------------|------|--------------------------------------|--------------------------------------|----------------------------|--------------------------------------|------|---------------------------------|
|            |     | IF(AV)                                 | @ TL | VRRM                                 | IFRM                                 | IFSM                       | VF                                   | @ IF | IR                              |
| Axial Lead | SMD | (A)                                    | (°C) | (V)                                  | (A)                                  | (A)                        | (V)                                  | (A)  | (mA)                            |

## MBR2035CT Series, 20 A, Case Type: TO-220AB



|           |  |    |         |    |   |     |      |    |      |
|-----------|--|----|---------|----|---|-----|------|----|------|
| MBR2035CT |  | 20 | 135(Tc) | 35 | - | 150 | 0.57 | 10 | 0.10 |
| MBR2045CT |  | 20 | 135(Tc) | 45 | - | 150 | 0.57 | 10 | 0.10 |
| MBR2050CT |  | 20 | 135(Tc) | 50 | - | 150 | 0.8  | 10 | 0.15 |
| MBR2060CT |  | 20 | 135(Tc) | 60 | - | 150 | 0.8  | 10 | 0.15 |

## MBR2535CT Series, 30 A, Case Type: TO-220AB



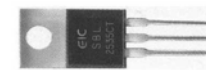
|           |  |    |         |    |    |     |      |    |      |
|-----------|--|----|---------|----|----|-----|------|----|------|
| MBR2535CT |  | 30 | 130(Tc) | 35 | 30 | 150 | 0.82 | 30 | 0.20 |
| MBR2545CT |  | 30 | 130(Tc) | 45 | 30 | 150 | 0.82 | 30 | 0.20 |
| MBR2550CT |  | 30 | 130(Tc) | 50 | 30 | 150 | 0.75 | 15 | 1.00 |
| MBR2560CT |  | 30 | 130(Tc) | 60 | 30 | 150 | 0.75 | 15 | 1.00 |

## MBRB3045CT Series, 30 A, Case Type: D<sup>2</sup>PAK



|  |            |    |         |    |   |     |      |    |     |
|--|------------|----|---------|----|---|-----|------|----|-----|
|  | MBRB3045CT | 30 | 110(Tc) | 45 | - | 200 | 0.76 | 30 | 1.0 |
|--|------------|----|---------|----|---|-----|------|----|-----|

## MBR3045CT Series, 30 A, Case Type: TO-220AB



|           |  |    |         |    |   |     |      |    |     |
|-----------|--|----|---------|----|---|-----|------|----|-----|
| MBR3045CT |  | 30 | 110(Tc) | 45 | - | 200 | 0.76 | 30 | 1.0 |
|-----------|--|----|---------|----|---|-----|------|----|-----|

## SBL2030PT Series, 20 - 40 A, Case Type: TO-247AD



|           |  |    |         |    |   |     |      |    |     |
|-----------|--|----|---------|----|---|-----|------|----|-----|
| SBL2030PT |  | 20 | 105(Tc) | 30 | - | 250 | 0.55 | 10 | 1.0 |
| SBL2040PT |  | 20 | 105(Tc) | 40 | - | 250 | 0.55 | 10 | 1.0 |
| SBL3030PT |  | 30 | 100(Tc) | 30 | - | 250 | 0.55 | 15 | 1.0 |
| SBL3040PT |  | 30 | 100(Tc) | 40 | - | 250 | 0.55 | 15 | 1.0 |
| SBL4030PT |  | 40 | 100(Tc) | 30 | - | 250 | 0.58 | 20 | 10  |
| SBL4040PT |  | 40 | 100(Tc) | 40 | - | 250 | 0.58 | 20 | 10  |

## MBR3035PT Series, 30 A, Case Type: TO-247AD



|           |  |    |         |    |    |     |      |    |     |
|-----------|--|----|---------|----|----|-----|------|----|-----|
| MBR3035PT |  | 30 | 105(Tc) | 35 | 30 | 200 | 0.76 | 30 | 1.0 |
| MBR3045PT |  | 30 | 105(Tc) | 45 | 30 | 200 | 0.76 | 30 | 1.0 |
| MBR3050PT |  | 30 | 125(Tc) | 50 | 30 | 300 | 0.75 | 20 | 5.0 |
| MBR3060PT |  | 30 | 125(Tc) | 60 | 30 | 300 | 0.75 | 20 | 5.0 |

## MBR4035PT Series, 40 A, Case Type: TO-247AD



|           |  |    |         |    |    |     |     |    |    |
|-----------|--|----|---------|----|----|-----|-----|----|----|
| MBR4035PT |  | 40 | 120(Tc) | 35 | 40 | 400 | 0.7 | 20 | 10 |
| MBR4045PT |  | 40 | 120(Tc) | 45 | 40 | 400 | 0.7 | 20 | 10 |
| MBR4050PT |  | 40 | 120(Tc) | 50 | 40 | 400 | 0.8 | 20 | 10 |
| MBR4060PT |  | 40 | 120(Tc) | 60 | 40 | 400 | 0.8 | 20 | 10 |



# Schottky Barrier Rectifiers

The plastic material carries U/L recognition 94V-0.

| Type No.   |     | Max. Average Forward Rectified Current |      | Max. Repetitive Peak Reverse Voltage | Max. Repetitive Peak Forward Current | Max. Forward Surge Current | Max. Forward Voltage Drop at Ta=25°C |      | Max. Reverse Current at Ta=25°C |
|------------|-----|----------------------------------------|------|--------------------------------------|--------------------------------------|----------------------------|--------------------------------------|------|---------------------------------|
|            |     | IF(AV)                                 | @ TL | VRRM                                 | IFRM                                 | IFSM                       | VF                                   | @ IF | IR                              |
| Axial Lead | SMD | (A)                                    | (°C) | (V)                                  | (A)                                  | (A)                        | (V)                                  | (A)  | (mA)                            |

## MBRS1 Series, 1 A, Case Type: SMB



|  |            |     |     |     |   |    |      |     |     |
|--|------------|-----|-----|-----|---|----|------|-----|-----|
|  | MBRS120T3  | 1.0 | 115 | 20  | - | 40 | 0.60 | 1.0 | 1.0 |
|  | MBRS130LT3 | 1.0 | 120 | 30  | - | 40 | 0.40 | 1.0 | 1.0 |
|  | MBRS140    | 1.0 | 115 | 40  | - | 40 | 0.60 | 1.0 | 1.0 |
|  | MBRS1100   | 1.0 | 120 | 100 | - | 50 | 0.75 | 1.0 | 0.5 |

## MBRS240LT3G, 2 A, Case Type: SMB



|  |             |     |         |    |   |    |      |     |     |
|--|-------------|-----|---------|----|---|----|------|-----|-----|
|  | MBRS240LT3G | 2.0 | 100(Tc) | 40 | - | 25 | 0.43 | 2.0 | 2.0 |
|--|-------------|-----|---------|----|---|----|------|-----|-----|

## MBRS3200, 3 A, Case Type: SMB



|  |          |     |     |     |   |     |      |     |     |
|--|----------|-----|-----|-----|---|-----|------|-----|-----|
|  | MBRS3200 | 3.0 | 120 | 200 | - | 100 | 0.84 | 3.0 | 1.0 |
|--|----------|-----|-----|-----|---|-----|------|-----|-----|

## MBRS3 Series, 3 A, Case Type: SMC



|  |           |     |        |     |   |     |      |     |      |
|--|-----------|-----|--------|-----|---|-----|------|-----|------|
|  | MBRS330T3 | 3.0 | 100    | 30  | - | 80  | 0.50 | 3.0 | 2.00 |
|  | MBRS340T3 | 3.0 | 100    | 40  | - | 80  | 0.53 | 3.0 | 2.00 |
|  | MBRS360T3 | 3.0 | 137    | 60  | - | 125 | 0.74 | 3.0 | 0.15 |
|  | MBRS3100  | 3.0 | 100    | 100 | - | 130 | 0.79 | 3.0 | 0.05 |
|  | MBRS3201  | 3.0 | 70(Tc) | 200 | - | 100 | 0.84 | 3.0 | 1.00 |

## MBRS4201, 4 A, Case Type: SMC



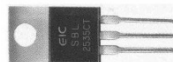
|  |          |     |    |     |   |     |      |     |     |
|--|----------|-----|----|-----|---|-----|------|-----|-----|
|  | MBRS4201 | 4.0 | 70 | 200 | - | 100 | 0.86 | 4.0 | 1.0 |
|--|----------|-----|----|-----|---|-----|------|-----|-----|

## SB5150/SB5200, 5 A, Case Type: DO-201AD



|  |        |     |         |     |   |     |      |     |      |
|--|--------|-----|---------|-----|---|-----|------|-----|------|
|  | SB5150 | 5.0 | 110(Ta) | 150 | - | 100 | 0.85 | 5.0 | 0.01 |
|  | SB5200 | 5.0 | 110(Ta) | 200 | - | 100 | 0.87 | 5.0 | 0.01 |

## FST10 Series, 10 A, Case Type: TO-220AB



|          |  |    |     |     |   |     |      |   |     |
|----------|--|----|-----|-----|---|-----|------|---|-----|
| FST10120 |  | 10 | 162 | 120 | - | 200 | 0.82 | 5 | 0.1 |
| FST10130 |  | 10 | 162 | 130 | - | 200 | 0.82 | 5 | 0.1 |
| FST10150 |  | 10 | 162 | 150 | - | 200 | 0.82 | 5 | 0.1 |
| FST10180 |  | 10 | 137 | 180 | - | 200 | 0.84 | 5 | 0.1 |
| FST10200 |  | 10 | 137 | 200 | - | 200 | 0.84 | 5 | 0.1 |

## MS10 Series, 10 A, Case Type: TO-220AC



|         |  |    |     |     |   |     |      |    |     |
|---------|--|----|-----|-----|---|-----|------|----|-----|
| MS10180 |  | 10 | 155 | 180 | - | 225 | 0.88 | 10 | 0.1 |
| MS10200 |  | 10 | 155 | 200 | - | 225 | 0.88 | 10 | 0.1 |



# Schottky Barrier Rectifiers

The plastic material carries U/L recognition 94V-0.

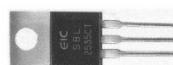
| Type No.   |     | Max. Average Forward Rectified Current |      | Max. Repetitive Peak Reverse Voltage | Max. Repetitive Peak Forward Current | Max. Forward Surge Current | Max. Forward Voltage Drop at Ta=25°C |      | Max. Reverse Current at Ta=25°C |
|------------|-----|----------------------------------------|------|--------------------------------------|--------------------------------------|----------------------------|--------------------------------------|------|---------------------------------|
|            |     | IF(AV)                                 | @ TL | VRRM                                 | IFRM                                 | IFSM                       | VF                                   | @ IF | IR                              |
| Axial Lead | SMD | (A)                                    | (°C) | (V)                                  | (A)                                  | (A)                        | (V)                                  | (A)  | (mA)                            |

## MS16 Series, 16 A, Case Type: TO-220AC



|         |  |    |     |     |   |     |      |    |     |
|---------|--|----|-----|-----|---|-----|------|----|-----|
| MS16180 |  | 16 | 146 | 180 | - | 250 | 0.88 | 16 | 0.1 |
| MS16200 |  | 16 | 146 | 200 | - | 250 | 0.88 | 16 | 0.1 |

## FST20 Series, 20 A, Case Type: TO-220AB



|          |  |    |     |     |   |     |      |    |     |
|----------|--|----|-----|-----|---|-----|------|----|-----|
| FST20120 |  | 20 | 157 | 120 | - | 225 | 0.83 | 10 | 0.1 |
| FST20130 |  | 20 | 157 | 130 | - | 225 | 0.83 | 10 | 0.1 |
| FST20150 |  | 20 | 157 | 150 | - | 225 | 0.83 | 10 | 0.1 |
| FST20180 |  | 20 | 155 | 180 | - | 225 | 0.88 | 10 | 0.1 |
| FST20200 |  | 20 | 155 | 200 | - | 225 | 0.88 | 10 | 0.1 |

## MBR20200CT, 20 A, Case Type: TO-220AB



|            |  |    |         |     |    |     |      |    |     |
|------------|--|----|---------|-----|----|-----|------|----|-----|
| MBR20200CT |  | 20 | 125(Tc) | 200 | 20 | 150 | 1.00 | 20 | 1.0 |
|------------|--|----|---------|-----|----|-----|------|----|-----|

\* For package ITO-220AB part number MBRF20200CT

## MS20 Series, 20 A, Case Type: TO-220AC



|         |  |    |     |     |   |     |      |    |     |
|---------|--|----|-----|-----|---|-----|------|----|-----|
| MS20180 |  | 20 | 141 | 180 | - | 250 | 0.85 | 20 | 0.1 |
| MS20200 |  | 20 | 141 | 200 | - | 250 | 0.85 | 20 | 0.1 |

## FST31 Series, 30 A, Case Type: TO-220AB



|          |  |    |     |     |   |     |      |    |      |
|----------|--|----|-----|-----|---|-----|------|----|------|
| FST31120 |  | 30 | 153 | 120 | - | 250 | 0.85 | 15 | 0.25 |
| FST31130 |  | 30 | 153 | 130 | - | 250 | 0.85 | 15 | 0.25 |
| FST31150 |  | 30 | 153 | 150 | - | 250 | 0.85 | 15 | 0.25 |
| FST31180 |  | 30 | 150 | 180 | - | 250 | 0.83 | 15 | 0.10 |
| FST31200 |  | 30 | 150 | 200 | - | 250 | 0.83 | 15 | 0.10 |



# Schottky Barrier Rectifiers

| Type No.   |     | Max. Average Forward Rectified Current |      | Max. Repetitive Peak Reverse Voltage | Max. Repetitive Peak Forward Current | Max. Forward Surge Current | Max. Forward Voltage Drop at Ta=25°C |      | Max. Reverse Current at Ta=25°C | Max. Power Dissipation |
|------------|-----|----------------------------------------|------|--------------------------------------|--------------------------------------|----------------------------|--------------------------------------|------|---------------------------------|------------------------|
|            |     | IF(AV)                                 | @ Ta | VRRM                                 | IFRM                                 | IFSM                       | VF                                   | @ IF | IR                              | Pd                     |
| Axial Lead | SMD | (mA)                                   | (°C) | (V)                                  | (mA)                                 | (A)                        | (V)                                  | (mA) | (μA)                            | (mW)                   |

## 1N5711/LL5711, Case Type: DO-35 / MiniMELF



|        |        |     |    |    |   |     |      |     |     |     |
|--------|--------|-----|----|----|---|-----|------|-----|-----|-----|
| 1N5711 | LL5711 | 1.0 | 25 | 70 | - | 2.0 | 0.41 | 1.0 | 0.2 | 400 |
| 1N6263 | LL6263 | 1.0 | 25 | 60 | - | 2.0 | 0.41 | 1.0 | 0.2 | 400 |

## 1SS88 Series, Case Type: DO-35



|        |  |    |    |    |   |   |      |     |     |     |
|--------|--|----|----|----|---|---|------|-----|-----|-----|
| 1SS88  |  | 15 | 25 | 10 | - | - | 0.43 | 1.0 | 0.2 | 150 |
| 1SS106 |  | 30 | 25 | 10 | - | - | 4.50 | 1.0 | 70  | -   |
| 1SS108 |  | 15 | 25 | 30 | - | - | 3.00 | 1.0 | 100 | -   |

## 1SS165 Series, Case Type: DO-34



|        |  |    |    |    |   |   |     |     |      |     |
|--------|--|----|----|----|---|---|-----|-----|------|-----|
| 1SS165 |  | 15 | 25 | 10 | - | - | 0.6 | 10  | 0.2  | 150 |
| 1SS166 |  | 15 | 25 | 10 | - | - | 0.6 | 10  | 0.2  | 150 |
| 1SS198 |  | 30 | 25 | 10 | - | - | 1.0 | 4.5 | 70   | -   |
| 1SS199 |  | 15 | 25 | 30 | - | - | 1.0 | 2.0 | 100  | -   |
| 1SS286 |  | 35 | 25 | 25 | - | - | 0.6 | 10  | 0.01 | 150 |

## BAT41 / LL41 Series, Case Type: DO-35 / MiniMELF



|       |      |     |    |     |     |      |      |     |         |         |
|-------|------|-----|----|-----|-----|------|------|-----|---------|---------|
| BAT41 | LL41 | 100 | 25 | 100 | 350 | 0.75 | 0.45 | 1.0 | 0.1     | 400     |
| BAT42 | LL42 | 200 | 25 | 30  | 500 | 4.00 | 0.40 | 10  | 0.5/1.0 | 200     |
| BAT43 | LL43 | 200 | 25 | 30  | 500 | 4.00 | 0.33 | 2.0 | 0.5/1.0 | 200     |
| BAT46 | LL46 | 150 | 25 | 100 | 350 | 0.75 | 0.45 | 10  | 5.0     | 150/200 |
| BAT48 | LL48 | 350 | 25 | 40  | 1A  | 0.75 | 0.40 | 10  | 25      | 330     |

## BAT81 Series, Case Type: DO-34



|       |  |    |    |    |     |     |      |     |     |     |
|-------|--|----|----|----|-----|-----|------|-----|-----|-----|
| BAT81 |  | 30 | 25 | 40 | 150 | 0.5 | 0.41 | 1.0 | 0.2 | 200 |
| BAT82 |  | 30 | 25 | 50 | 150 | 0.5 | 0.41 | 1.0 | 0.2 | 200 |
| BAT83 |  | 30 | 25 | 60 | 150 | 0.5 | 0.41 | 1.0 | 0.2 | 200 |

## BAT85/BAS85 Series, Case Type: DO-35 / MiniMELF



|       |       |     |    |    |     |     |      |    |     |     |
|-------|-------|-----|----|----|-----|-----|------|----|-----|-----|
| BAT85 | BAS85 | 200 | 25 | 30 | -   | 0.6 | 0.40 | 10 | 2.0 | 200 |
| BAT86 | BAS86 | 200 | 50 | 50 | 500 | -   | 0.45 | 10 | 5.0 | 200 |

## HSS100 Series, Case Type: DO-34



|        |  |    |    |    |   |   |     |    |      |     |
|--------|--|----|----|----|---|---|-----|----|------|-----|
| HSS100 |  | 35 | 25 | 60 | - | - | 0.9 | 20 | 0.10 | 150 |
| HSS101 |  | 35 | 25 | 30 | - | - | 0.7 | 10 | 0.01 | 150 |
| HSS102 |  | 35 | 25 | 70 | - | - | 1.1 | 20 | 0.01 | 150 |



# Schottky Barrier Rectifiers

| Type No.   |     | Max. Average Forward Rectified Current |      | Max. Repetitive Peak Reverse Voltage | Max. Repetitive Peak Forward Current | Max. Forward Surge Current | Max. Forward Voltage Drop at Ta=25°C |      | Max. Reverse Current at Ta=25°C | Max. Power Dissipation |
|------------|-----|----------------------------------------|------|--------------------------------------|--------------------------------------|----------------------------|--------------------------------------|------|---------------------------------|------------------------|
|            |     | IF(AV)                                 | @ Ta | VRRM                                 | IFRM                                 | IFSM                       | VF                                   | @ IF | IR                              | Pd                     |
| Axial Lead | SMD | (mA)                                   | (°C) | (V)                                  | (mA)                                 | (A)                        | (V)                                  | (mA) | (μA)                            | (mW)                   |

## MA700 Series, Case Type: DO-34



|        |  |     |    |    |   |   |     |     |      |   |
|--------|--|-----|----|----|---|---|-----|-----|------|---|
| MA700  |  | 150 | 25 | 15 | - | - | 0.4 | 10  | 0.10 | - |
| MA700A |  | 150 | 25 | 30 | - | - | 0.4 | 1.0 | 0.15 | - |

## RB441Q-40 & RB721Q-40. Case Type: DO-34



|           |  |    |    |    |   |       |      |     |     |   |
|-----------|--|----|----|----|---|-------|------|-----|-----|---|
| RB441Q-40 |  | 10 | 25 | 40 | - | 1.0   | 0.34 | 10  | 100 | - |
| RB721Q-40 |  | 30 | 25 | 40 | - | 200mA | 0.37 | 1.0 | 0.5 | - |

## SB0015-03A & SB0030-01A. Case Type: DO-34



|            |  |    |    |    |   |   |     |     |     |   |
|------------|--|----|----|----|---|---|-----|-----|-----|---|
| SB0015-03A |  | 15 | 25 | 30 | - | - | 1.0 | 3.0 | 100 | - |
| SB0030-01A |  | 30 | 25 | 10 | - | - | 1.0 | 4.5 | 70  | - |

## SD101A/LL101A Series, Case Type: DO-35/MiniMELF



|        |        |    |    |    |   |     |      |    |     |     |
|--------|--------|----|----|----|---|-----|------|----|-----|-----|
| SD101A | LL101A | 30 | 25 | 60 | - | 2.0 | 1.00 | 15 | 0.2 | 400 |
| SD101B | LL101B | 30 | 25 | 50 | - | 2.0 | 0.95 | 15 | 0.2 | 400 |
| SD101C | LL101C | 30 | 25 | 40 | - | 2.0 | 0.90 | 15 | 0.2 | 400 |

## BAS81 - BAS83, Case Type: MiniMELF



|       |  |    |    |    |   |       |     |    |     |   |
|-------|--|----|----|----|---|-------|-----|----|-----|---|
| BAS81 |  | 30 | 25 | 40 | - | 500mA | 1.0 | 15 | 0.2 | - |
| BAS82 |  | 30 | 25 | 50 | - | 500mA | 1.0 | 15 | 0.2 | - |
| BAS83 |  | 30 | 25 | 60 | - | 500mA | 1.0 | 15 | 0.2 | - |

## SD103A/LL103A Series, Case Type: DO-35/MiniMELF



|        |        |     |    |    |   |    |      |     |     |     |
|--------|--------|-----|----|----|---|----|------|-----|-----|-----|
| SD103A | LL103A | 200 | 25 | 40 | - | 15 | 0.55 | 200 | 5.0 | 400 |
| SD103B | LL103B | 200 | 25 | 50 | - | 15 | 0.55 | 200 | 5.0 | 400 |
| SD103C | LL103C | 200 | 25 | 60 | - | 15 | 0.55 | 200 | 5.0 | 400 |



# Schottky Barrier Rectifiers

The plastic material carries U/L recognition 94V-0.

| Type No. | Max. Average Forward Rectified Current |      | Max. Repetitive Peak Reverse Voltage | Max. Repetitive Peak Forward Current | Max. Forward Surge Current | Max. Forward Voltage Drop at Ta=25°C |      | Max. Reverse Current at Ta=25°C | Max. Power Dissipation |
|----------|----------------------------------------|------|--------------------------------------|--------------------------------------|----------------------------|--------------------------------------|------|---------------------------------|------------------------|
|          | IF(AV)                                 | @ Ta | VRRM                                 | IFRM                                 | IFSM                       | VF                                   | @ IF | IR                              | Pd                     |
| SMD      | (mA)                                   | (°C) | (V)                                  | (mA)                                 | (A)                        | (V)                                  | (mA) | (μA)                            | (mW)                   |

## BAT42W Series, Case Type: SOD-123



|         |     |    |     |   |      |      |     |     |     |
|---------|-----|----|-----|---|------|------|-----|-----|-----|
| BAT42W* | 200 | 25 | 30  | - | 4.0  | 1.00 | 200 | 0.5 | 200 |
| BAT43W* | 200 | 25 | 30  | - | 4.0  | 1.00 | 200 | 0.5 | 200 |
| BAT54W* | 200 | 25 | 30  | - | 1.0  | 0.65 | 100 | 2.0 | 200 |
| BAT46W  | 150 | 25 | 100 | - | 0.75 | 1.00 | 250 | 5.0 | 200 |

\* Also available in SMD SOD-323 Case Types. Use suffix "S" to order (e.g. BAT42WS, BAT43WS, BAT54WS)

and SOD-523 Case Types. Use suffix "T" to order (e.g. BAT42WT, BAT43WT, BAT54WT)

## MBR0520L, MBR0520-04 , Case Type: SOD-123



|          |     |                      |    |   |     |       |     |     |   |
|----------|-----|----------------------|----|---|-----|-------|-----|-----|---|
| MBR0520L | 500 | 90                   | 20 | - | 5.5 | 0.385 | 500 | 250 | - |
| MBR0520  | 500 | 129(T <sub>L</sub> ) | 20 | - | 6.5 | 0.440 | 500 | 150 | - |
| MBR0530  | 500 | 100                  | 30 | - | 5.5 | 0.430 | 500 | 130 | - |
| MBR0540  | 500 | 25                   | 40 | - | 5.5 | 0.510 | 500 | 20  | - |

## 1N5817WB Series, 1 A, Case Type: SOD-123



|          |      |    |    |   |   |      |     |     |     |
|----------|------|----|----|---|---|------|-----|-----|-----|
| 1N5817WB | 1(A) | 25 | 20 | - | - | 0.45 | 1.0 | 1.0 | 450 |
| 1N5818WB | 1(A) | 25 | 30 | - | - | 0.55 | 1.0 | 1.0 | 450 |
| 1N5819WB | 1(A) | 25 | 40 | - | - | 0.60 | 1.0 | 1.0 | 450 |

## MBR130W, Case Type: SOD-123



|         |      |                     |    |   |     |      |     |     |   |
|---------|------|---------------------|----|---|-----|------|-----|-----|---|
| MBR130W | 1(A) | 65(T <sub>L</sub> ) | 30 | - | 5.5 | 0.50 | 0.7 | 200 | - |
|---------|------|---------------------|----|---|-----|------|-----|-----|---|

## SD101AW-CW Series, Case Type: SOD-123



|         |    |    |    |   |     |      |    |     |     |
|---------|----|----|----|---|-----|------|----|-----|-----|
| SD101AW | 15 | 25 | 60 | - | 2.0 | 1.00 | 15 | 0.2 | 400 |
| SD101BW | 15 | 25 | 50 | - | 2.0 | 0.95 | 15 | 0.2 | 400 |
| SD101CW | 15 | 25 | 40 | - | 2.0 | 0.90 | 15 | 0.2 | 400 |

## SD103AW-CWS Series, Case Type: SOD-123



|         |     |    |    |   |     |      |     |     |     |
|---------|-----|----|----|---|-----|------|-----|-----|-----|
| SD103AW | 350 | 25 | 40 | - | 2.0 | 0.60 | 200 | 5.0 | 400 |
| SD103BW | 350 | 25 | 30 | - | 2.0 | 0.60 | 200 | 5.0 | 400 |
| SD103CW | 350 | 25 | 20 | - | 2.0 | 0.60 | 200 | 5.0 | 400 |



# Schottky Barrier Rectifiers

The plastic material carries U/L recognition 94V-0.

| Type No. | Max. Average Forward Rectified Current |      | Max. Repetitive Peak Reverse Voltage | Max. Repetitive Peak Forward Current | Max. Forward Surge Current | Max. Forward Voltage Drop at Ta=25°C |      | Max. Reverse Current at Ta=25°C | Max. Power Dissipation |
|----------|----------------------------------------|------|--------------------------------------|--------------------------------------|----------------------------|--------------------------------------|------|---------------------------------|------------------------|
|          | IF(AV)                                 | @ Ta | VRRM                                 | IFRM                                 | IFSM                       | VF                                   | @ IF | IR                              | Pd                     |
| SMD      | (mA)                                   | (°C) | (V)                                  | (mA)                                 | (A)                        | (V)                                  | (mA) | (μA)                            | (mW)                   |

## SD101AWS Series, Case Type: SOD-323



|          |    |    |    |   |     |      |    |     |     |
|----------|----|----|----|---|-----|------|----|-----|-----|
| SD101AWS | 30 | 25 | 60 | - | 2.0 | 1.00 | 15 | 0.2 | 150 |
| SD101BWS | 30 | 25 | 50 | - | 2.0 | 0.95 | 15 | 0.2 | 150 |
| SD101CWS | 30 | 25 | 40 | - | 2.0 | 0.90 | 15 | 0.2 | 150 |

## SD103AWS Series, Case Type: SOD-323



|          |     |    |    |   |     |      |     |     |     |
|----------|-----|----|----|---|-----|------|-----|-----|-----|
| SD103AWS | 200 | 25 | 40 | - | 2.0 | 0.60 | 200 | 5.0 | 150 |
| SD103BWS | 200 | 25 | 30 | - | 2.0 | 0.60 | 200 | 5.0 | 150 |
| SD103CWS | 200 | 25 | 20 | - | 2.0 | 0.60 | 200 | 5.0 | 150 |

## RB751V-40/RB501V-40 , Case Type: SOD-323



|            |     |    |    |   |     |      |     |     |   |
|------------|-----|----|----|---|-----|------|-----|-----|---|
| RB751V-40* | 30  | 25 | 40 | - | 0.2 | 0.37 | 1.0 | 0.5 | - |
| RB501V-40  | 100 | 25 | 45 | - | 1.0 | 0.55 | 100 | 30  | - |

\* Also available in SMD SOD-523 Case Types. Use suffix "S" to order p/n RB751S-40

## 1SS367 , Case Type: SOD-323



|        |     |    |    |   |     |     |     |    |   |
|--------|-----|----|----|---|-----|-----|-----|----|---|
| 1SS367 | 100 | 25 | 15 | - | 1.0 | 0.3 | 5.0 | 20 | - |
|--------|-----|----|----|---|-----|-----|-----|----|---|

## SDB412WS , Case Type: SOD-323



|          |     |    |    |   |     |     |     |     |   |
|----------|-----|----|----|---|-----|-----|-----|-----|---|
| SDB412WS | 500 | 25 | 40 | - | 0.5 | 0.5 | 500 | 200 | - |
|----------|-----|----|----|---|-----|-----|-----|-----|---|

## RB520S-30/RB521S-30, -40 , Case Type: SOD-523



|           |     |    |    |   |     |      |     |     |   |
|-----------|-----|----|----|---|-----|------|-----|-----|---|
| RB520S-30 | 200 | 25 | 30 | - | 1.0 | 0.60 | 200 | 1.0 | - |
| RB521S-30 | 200 | 25 | 30 | - | 1.0 | 0.50 | 200 | 30  | - |
| RB521S-40 | 200 | 25 | 40 | - | 1.0 | 0.50 | 200 | 90  | - |

## 1SS388, Case Type: SOD-523



|        |     |    |    |   |     |     |    |     |     |
|--------|-----|----|----|---|-----|-----|----|-----|-----|
| 1SS388 | 100 | 25 | 45 | - | 1.0 | 0.6 | 50 | 5.0 | 150 |
|--------|-----|----|----|---|-----|-----|----|-----|-----|

## RB521G-30, Case Type: SOD-523



|           |     |    |    |   |     |      |    |      |   |
|-----------|-----|----|----|---|-----|------|----|------|---|
| RB521G-30 | 100 | 25 | 30 | - | 1.0 | 0.35 | 10 | 10.0 | - |
|-----------|-----|----|----|---|-----|------|----|------|---|



# Schottky Barrier Rectifiers

The plastic material carries U/L recognition 94V-0.

| Type No. | Max. Average Forward Rectified Current |      | Max. Repetitive Peak Reverse Voltage | Max. Repetitive Peak Forward Current | Max. Forward Surge Current | Max. Forward Voltage Drop at Ta=25°C |      | Max. Reverse Current at Ta=25°C | Max. Power Dissipation |
|----------|----------------------------------------|------|--------------------------------------|--------------------------------------|----------------------------|--------------------------------------|------|---------------------------------|------------------------|
|          | IF(AV)                                 | @ Ta | VRRM                                 | IFRM                                 | IFSM                       | VF                                   | @ IF | IR                              | Pd                     |
| SMD      | (mA)                                   | (°C) | (V)                                  | (mA)                                 | (A)                        | (V)                                  | (mA) | (μA)                            | (mW)                   |

## 1SS294, Case Type: SOT-23



|        |     |    |    |   |   |     |    |     |     |
|--------|-----|----|----|---|---|-----|----|-----|-----|
| 1SS294 | 300 | 25 | 45 | - | - | 0.6 | 10 | 5.0 | 150 |
|--------|-----|----|----|---|---|-----|----|-----|-----|

## BAT400D, Case Type: SOT-23



|         |     |    |    |   |   |      |     |      |     |
|---------|-----|----|----|---|---|------|-----|------|-----|
| BAT400D | 500 | 25 | 40 | - | 3 | 0.55 | 500 | 50.0 | 480 |
|---------|-----|----|----|---|---|------|-----|------|-----|

## BAT54 Series, Case Type: SOT-23



|        |     |    |    |     |     |     |    |     |     |
|--------|-----|----|----|-----|-----|-----|----|-----|-----|
| BAT54  | 200 | 25 | 30 | 0.3 | 0.6 | 0.5 | 30 | 2.0 | 230 |
| BAT54A | 200 | 25 | 30 | 0.3 | 0.6 | 0.5 | 30 | 2.0 | 230 |
| BAT54C | 200 | 25 | 30 | 0.3 | 0.6 | 0.5 | 30 | 2.0 | 230 |
| BAT54S | 200 | 25 | 30 | 0.3 | 0.6 | 0.5 | 30 | 2.0 | 230 |

## BAS40 Series, Case Type: SOT-23



|          |     |    |    |   |     |     |    |     |   |
|----------|-----|----|----|---|-----|-----|----|-----|---|
| BAS40    | 200 | 25 | 40 | - | 0.6 | 1.0 | 40 | 0.2 | - |
| BAS40-04 | 200 | 25 | 40 | - | 0.6 | 1.0 | 40 | 0.2 | - |
| BAS40-05 | 200 | 25 | 40 | - | 0.6 | 1.0 | 40 | 0.2 | - |
| BAS40-06 | 200 | 25 | 40 | - | 0.6 | 1.0 | 40 | 0.2 | - |

## BAS40W Series, Case Type: SOT-23



|           |     |    |    |   |     |     |    |     |     |
|-----------|-----|----|----|---|-----|-----|----|-----|-----|
| BAS40W    | 200 | 25 | 40 | - | 0.6 | 1.0 | 40 | 0.2 | 200 |
| BAS40-04W | 200 | 25 | 40 | - | 0.6 | 1.0 | 40 | 0.2 | 200 |
| BAS40-05W | 200 | 25 | 40 | - | 0.6 | 1.0 | 40 | 0.2 | 200 |
| BAS40-06W | 200 | 25 | 40 | - | 0.6 | 1.0 | 40 | 0.2 | 200 |

## BAS70 Series, Case Type: SOT-23



|          |     |    |    |   |     |     |    |     |     |
|----------|-----|----|----|---|-----|-----|----|-----|-----|
| BAS70    | 200 | 25 | 70 | - | 0.6 | 1.0 | 15 | 0.1 | 200 |
| BAS70-04 | 200 | 25 | 70 | - | 0.6 | 1.0 | 15 | 0.1 | 200 |
| BAS70-05 | 200 | 25 | 70 | - | 0.6 | 1.0 | 15 | 0.1 | 200 |
| BAS70-06 | 200 | 25 | 70 | - | 0.6 | 1.0 | 15 | 0.1 | 200 |



## Zener Diodes 0.20 W

The plastic material carries U/L recognition 94V-0.

| Type No. | Marking | Zener Voltage (Note 1) |      |      | Test Current | Zener Impedance     |                     | Test Current | Leakage Current |     |
|----------|---------|------------------------|------|------|--------------|---------------------|---------------------|--------------|-----------------|-----|
|          |         | $V_Z$ @ $I_{ZT}$ (V)   |      |      | $I_{ZT}$     | $Z_{ZT}$ @ $I_{ZT}$ | $Z_{ZK}$ @ $I_{ZK}$ | $I_{ZK}$     | $I_R$ @ $V_R$   |     |
|          |         | Min.                   | Nom. | Max. | (mA)         | ( $\Omega$ )        | ( $\Omega$ )        | (mA)         | ( $\mu$ A)      | (V) |

### MM5Z2V4 Series, 0.2 W, Case Type : SOD-523



|         |    |      |       |      |   |     |      |     |      |      |
|---------|----|------|-------|------|---|-----|------|-----|------|------|
| MM5Z2V4 | Z7 | 2.2  | 2.4   | 2.6  | 5 | 100 | 1000 | 1.0 | 50   | 1.0  |
| MM5Z2V7 | A8 | 2.5  | 2.7   | 2.9  | 5 | 100 | 1000 | 1.0 | 20   | 1.0  |
| MM5Z3V0 | B8 | 2.8  | 3.0   | 3.2  | 5 | 100 | 1000 | 1.0 | 10   | 1.0  |
| MM5Z3V3 | C8 | 3.1  | 3.3   | 3.5  | 5 | 95  | 1000 | 1.0 | 5    | 1.0  |
| MM5Z3V6 | D8 | 3.4  | 3.6   | 3.8  | 5 | 90  | 1000 | 1.0 | 5    | 1.0  |
| MM5Z3V9 | E8 | 3.7  | 3.9   | 4.1  | 5 | 90  | 1000 | 1.0 | 3    | 1.0  |
| MM5Z4V3 | F8 | 4.0  | 4.3   | 4.6  | 5 | 90  | 1000 | 1.0 | 3    | 1.0  |
| MM5Z4V7 | G8 | 4.4  | 4.7   | 5.0  | 5 | 80  | 800  | 1.0 | 3    | 2.0  |
| MM5Z5V1 | H8 | 4.8  | 5.1   | 5.4  | 5 | 60  | 500  | 1.0 | 2    | 2.0  |
| MM5Z5V6 | I8 | 5.2  | 5.6   | 6.0  | 5 | 40  | 200  | 1.0 | 1    | 2.0  |
| MM5Z6V2 | J8 | 5.8  | 6.2   | 6.6  | 5 | 10  | 100  | 1.0 | 3    | 4.0  |
| MM5Z6V8 | K8 | 6.4  | 6.8   | 7.2  | 5 | 15  | 160  | 1.0 | 2    | 4.0  |
| MM5Z7V5 | L8 | 7.0  | 7.5   | 7.9  | 5 | 15  | 160  | 1.0 | 1    | 5.0  |
| MM5Z8V2 | M8 | 7.7  | 8.2   | 8.7  | 5 | 15  | 160  | 1.0 | 0.7  | 5.0  |
| MM5Z9V1 | N8 | 8.5  | 9.1   | 9.6  | 5 | 15  | 160  | 1.0 | 0.2  | 7.0  |
| MM5Z10V | O8 | 9.4  | 10    | 10.6 | 5 | 20  | 160  | 1.0 | 0.1  | 8.0  |
| MM5Z11V | P8 | 10.4 | 11    | 11.6 | 5 | 20  | 160  | 1.0 | 0.1  | 8.0  |
| MM5Z12V | Q8 | 11.4 | 12    | 12.7 | 5 | 25  | 80   | 1.0 | 0.1  | 8.0  |
| MM5Z13V | R8 | 12.4 | 13.25 | 14.1 | 5 | 30  | 80   | 1.0 | 0.1  | 8.0  |
| MM5Z15V | S8 | 14.3 | 15    | 15.8 | 5 | 30  | 80   | 1.0 | 0.05 | 10.5 |
| MM5Z16V | T8 | 15.3 | 16.2  | 17.1 | 5 | 40  | 80   | 1.0 | 0.05 | 11.2 |
| MM5Z18V | U8 | 16.8 | 18    | 19.1 | 5 | 45  | 80   | 1.0 | 0.05 | 12.6 |
| MM5Z20V | V8 | 18.8 | 20    | 21.2 | 5 | 55  | 100  | 1.0 | 0.05 | 14.0 |
| MM5Z22V | W8 | 20.8 | 22    | 23.3 | 5 | 55  | 100  | 1.0 | 0.05 | 15.4 |
| MM5Z24V | X8 | 22.8 | 24.2  | 25.6 | 5 | 70  | 120  | 1.0 | 0.05 | 16.8 |
| MM5Z27V | Y8 | 25.1 | 27    | 28.9 | 2 | 80  | 300  | 1.0 | 0.05 | 18.9 |
| MM5Z30V | Z8 | 28   | 30    | 32   | 2 | 80  | 300  | 1.0 | 0.05 | 21.0 |
| MM5Z33V | A9 | 31   | 33    | 35   | 2 | 80  | 300  | 1.0 | 0.05 | 23.2 |
| MM5Z36V | B9 | 34   | 36    | 38   | 2 | 90  | 500  | 1.0 | 0.05 | 25.2 |
| MM5Z39V | C9 | 37   | 39    | 41   | 2 | 130 | 500  | 1.0 | 0.05 | 27.3 |
| MM5Z43V | D9 | 40   | 43    | 46   | 2 | 150 | 500  | 1.0 | 0.05 | 30.1 |
| MM5Z47V | E9 | 44   | 47    | 50   | 2 | 170 | 500  | 1.0 | 0.05 | 32.9 |
| MM5Z51V | F9 | 48   | 51    | 54   | 2 | 180 | 500  | 1.0 | 0.05 | 35.7 |
| MM5Z56V | G9 | 52   | 56    | 60   | 2 | 200 | 500  | 1.0 | 0.05 | 39.2 |
| MM5Z62V | H9 | 58   | 62    | 66   | 2 | 215 | 500  | 1.0 | 0.05 | 43.4 |
| MM5Z68V | I9 | 64   | 68    | 72   | 2 | 240 | 500  | 1.0 | 0.05 | 47.6 |
| MM5Z75V | J9 | 70   | 75    | 79   | 2 | 255 | 500  | 1.0 | 0.05 | 52.5 |

#### Note :

(1) Zener voltage is measured with a pulse test current  $I_Z$  at an ambient temperature of 25 °C.



## Zener Diodes 0.20 W

The plastic material carries U/L recognition 94V-0.

| Type No. | Marking | Zener Voltage <sup>(1)</sup> |      |      | Test Current | Zener Impedance     | Test Current | Leakage Current |       |
|----------|---------|------------------------------|------|------|--------------|---------------------|--------------|-----------------|-------|
|          |         | $V_Z$ @ $I_{ZT}$ (V)         |      |      | $I_{ZT}$     | $Z_{ZT}$ @ $I_{ZT}$ | $I_{ZT}$     | $I_R$ @         | $V_R$ |
|          |         | Min.                         | Nom. | Max. | (mA)         | ( $\Omega$ )        | (mA)         | ( $\mu$ A)      | (V)   |

### MM5Z2B4 Series, 0.2 W, Case Type : SOD-523



|         |    |       |     |       |     |     |     |     |     |
|---------|----|-------|-----|-------|-----|-----|-----|-----|-----|
| MM5Z2B4 | XY | 2.352 | 2.4 | 2.448 | 5.0 | 100 | 5.0 | 120 | 1.0 |
| MM5Z2B7 | XZ | 2.646 | 2.7 | 2.754 | 5.0 | 110 | 5.0 | 120 | 1.0 |
| MM5Z3B0 | FR | 2.940 | 3.0 | 3.060 | 5.0 | 120 | 5.0 | 50  | 1.0 |
| MM5Z3B3 | FX | 3.234 | 3.3 | 3.366 | 5.0 | 130 | 5.0 | 20  | 1.0 |
| MM5Z3B6 | FY | 3.528 | 3.6 | 3.672 | 5.0 | 130 | 5.0 | 10  | 1.0 |
| MM5Z3B9 | FZ | 3.822 | 3.9 | 3.978 | 5.0 | 130 | 5.0 | 5.0 | 1.0 |
| MM5Z4B3 | HA | 4.214 | 4.3 | 4.386 | 5.0 | 130 | 5.0 | 5.0 | 1.0 |
| MM5Z4B7 | HB | 4.606 | 4.7 | 4.794 | 5.0 | 130 | 5.0 | 2.0 | 1.0 |
| MM5Z5B1 | HC | 4.998 | 5.1 | 5.202 | 5.0 | 130 | 5.0 | 2.0 | 1.5 |
| MM5Z5B6 | HD | 5.488 | 5.6 | 5.712 | 5.0 | 80  | 5.0 | 1.0 | 2.5 |
| MM5Z6B2 | HE | 6.076 | 6.2 | 6.324 | 5.0 | 50  | 5.0 | 1.0 | 3.0 |
| MM5Z6B8 | HF | 6.664 | 6.8 | 6.936 | 5.0 | 30  | 5.0 | 0.5 | 3.5 |
| MM5Z7B5 | HH | 7.350 | 7.5 | 7.650 | 5.0 | 30  | 5.0 | 0.5 | 4.0 |
| MM5Z8B2 | HJ | 8.036 | 8.2 | 8.364 | 5.0 | 30  | 5.0 | 0.5 | 5.0 |
| MM5Z9B1 | HK | 8.918 | 9.1 | 9.282 | 5.0 | 30  | 5.0 | 0.5 | 6.0 |
| MM5ZB10 | HM | 9.80  | 10  | 10.20 | 5.0 | 30  | 5.0 | 0.1 | 7.0 |
| MM5ZB11 | HN | 10.78 | 11  | 11.22 | 5.0 | 30  | 5.0 | 0.1 | 8.0 |
| MM5ZB12 | HP | 11.76 | 12  | 12.24 | 5.0 | 35  | 5.0 | 0.1 | 9.0 |
| MM5ZB13 | HR | 12.74 | 13  | 13.26 | 5.0 | 35  | 5.0 | 0.1 | 10  |
| MM5ZB15 | HX | 14.70 | 15  | 15.30 | 5.0 | 40  | 5.0 | 0.1 | 11  |
| MM5ZB16 | HY | 15.68 | 16  | 16.32 | 5.0 | 40  | 5.0 | 0.1 | 12  |
| MM5ZB18 | HZ | 17.64 | 18  | 18.36 | 5.0 | 45  | 5.0 | 0.1 | 13  |
| MM5ZB20 | JA | 19.60 | 20  | 20.40 | 5.0 | 50  | 5.0 | 0.1 | 15  |
| MM5ZB22 | JB | 21.56 | 22  | 22.44 | 5.0 | 55  | 5.0 | 0.1 | 17  |
| MM5ZB24 | JC | 23.52 | 24  | 24.48 | 5.0 | 60  | 5.0 | 0.1 | 19  |
| MM5ZB27 | JD | 26.46 | 27  | 27.54 | 5.0 | 70  | 2.0 | 0.1 | 21  |
| MM5ZB30 | JE | 29.40 | 30  | 30.60 | 5.0 | 80  | 2.0 | 0.1 | 23  |
| MM5ZB33 | JF | 32.34 | 33  | 33.66 | 5.0 | 80  | 2.0 | 0.1 | 25  |
| MM5ZB36 | JH | 35.28 | 36  | 36.72 | 5.0 | 90  | 2.0 | 0.1 | 27  |
| MM5ZB39 | JJ | 38.22 | 39  | 39.78 | 2.5 | 100 | 2.0 | 2.0 | 30  |
| MM5ZB43 | JK | 42.14 | 43  | 43.86 | 2.5 | 130 | 2.0 | 2.0 | 33  |
| MM5ZB47 | JM | 46.06 | 47  | 47.94 | 2.5 | 150 | 2.0 | 2.0 | 36  |
| MM5ZB51 | YA | 49.98 | 51  | 52.02 | 2.5 | 180 | 2.0 | 1.0 | 39  |
| MM5ZB56 | YB | 54.88 | 56  | 57.12 | 2.5 | 180 | 2.0 | 1.0 | 43  |
| MM5ZB62 | YC | 60.76 | 62  | 63.24 | 2.5 | 200 | 2.0 | 0.2 | 47  |
| MM5ZB68 | YD | 66.64 | 68  | 69.36 | 2.5 | 250 | 2.0 | 0.2 | 52  |
| MM5ZB75 | YE | 73.50 | 75  | 76.50 | 2.5 | 300 | 2.0 | 0.2 | 57  |

Note :

(1) Tested with pulses  $t_p = 20$  ms.



## Zener Diodes 0.25 W

| Type No. | Suffix <sup>(1)</sup> | Zener Voltage      |      | Test Current    | Maximum Dynamic Resistance |                  | Maximum Reverse Current |                  | Typical Temperature Coefficient * |                |
|----------|-----------------------|--------------------|------|-----------------|----------------------------|------------------|-------------------------|------------------|-----------------------------------|----------------|
|          |                       | V <sub>Z</sub> (V) |      | I <sub>ZT</sub> | r <sub>d</sub>             | @ I <sub>Z</sub> | I <sub>R</sub>          | @ V <sub>R</sub> | γ <sub>Z</sub> (mV/ °C)           | I <sub>Z</sub> |
|          |                       | min.               | max. | (mA)            | (Ω)                        | (mA)             | (μA)                    | (V)              |                                   | (mA)           |

### HZK-LL Series, 0.25 W, Case Type : MiniMELF



|        |   |     |     |     |     |     |     |     |     |    |
|--------|---|-----|-----|-----|-----|-----|-----|-----|-----|----|
| HZK2LL | A | 1.6 | 2.0 | 0.5 | 350 | 0.5 | 0.5 | 0.5 | 1.2 | 50 |
|        | B | 1.9 | 2.3 |     |     |     |     |     |     |    |
|        | C | 2.2 | 2.6 |     |     |     |     |     |     |    |
| HZK3LL | A | 2.5 | 2.9 | 0.5 | 360 | 0.5 | 0.5 | 1.0 | 1.2 | 50 |
|        | B | 2.8 | 3.2 |     |     |     |     |     |     |    |
|        | C | 3.1 | 3.5 |     |     |     |     |     |     |    |
| HZK4LL | A | 3.4 | 3.8 | 0.5 | 370 | 0.5 | 0.5 | 2.0 | 1.5 | 50 |
|        | B | 3.7 | 4.1 |     |     |     |     |     |     |    |
|        | C | 4.0 | 4.4 |     |     |     |     |     |     |    |
| HZK5LL | A | 4.3 | 4.7 | 0.5 | 380 | 0.5 | 0.5 | 3.0 | 1.5 | 50 |
|        | B | 4.6 | 5.0 |     |     |     |     |     |     |    |
|        | C | 4.9 | 5.3 |     |     |     |     |     |     |    |

\*  $\Delta V_{Z1} = V_Z (I_Z = 0.5 \text{ mA}) - V_{Z1} (I_Z = 0.05 \text{ mA})$

$\Delta V_{Z2} = V_{Z1} (I_Z = 0.05 \text{ mA}) - V_{Z2} (I_Z = 0.001 \text{ mA})$

#### Note:

(1) When placing an order for an HZK-LL type, enter "A", "B" or "C" suffix e.g. HZK2ALL, HZK2BLL ... HZK5CLL



## Zener Diodes 0.25 W

| Type No. | Grade | Zener Voltage<br>V <sub>Z</sub> @ I <sub>ZT</sub> |      |           |      |           |      | Test<br>Current | Maximum Dynamic<br>Resistance |   | Maximum<br>Reverse<br>Current |                |   |                |
|----------|-------|---------------------------------------------------|------|-----------|------|-----------|------|-----------------|-------------------------------|---|-------------------------------|----------------|---|----------------|
|          |       | Suffix -1                                         |      | Suffix -2 |      | Suffix -3 |      |                 |                               |   |                               |                |   |                |
|          |       | min.                                              | max. | min.      | max. | min.      | max. | I <sub>ZT</sub> | r <sub>d</sub>                | @ | I <sub>Z</sub>                | I <sub>R</sub> | @ | V <sub>R</sub> |
|          |       | (V)                                               | (V)  | (V)       | (V)  | (V)       | (V)  | (mA)            | (W)                           |   | (mA)                          | (μA)           |   | (V)            |

### HZS Series, 0.25 W, Case Type : DO-34



|       |   |      |      |      |      |      |      |   |     |   |    |      |
|-------|---|------|------|------|------|------|------|---|-----|---|----|------|
| HZS2  | A | 1.6  | 1.8  | 1.7  | 1.9  | 1.8  | 2.0  | 5 | 100 | 5 | 25 | 0.5  |
|       | B | 1.9  | 2.1  | 2.0  | 2.2  | 2.1  | 2.3  | 5 | 100 | 5 | 2  | 0.5  |
|       | C | 2.2  | 2.4  | 2.3  | 2.5  | 2.4  | 2.6  | 5 | 100 | 5 | 1  | 0.5  |
| HZS3  | A | 2.5  | 2.7  | 2.6  | 2.8  | 2.7  | 2.9  | 5 | 100 | 5 | 1  | 0.5  |
|       | B | 2.8  | 3.0  | 2.9  | 3.1  | 3.0  | 3.2  | 5 | 100 | 5 | 1  | 0.5  |
|       | C | 3.1  | 3.3  | 3.2  | 3.4  | 3.3  | 3.5  | 5 | 100 | 5 | 1  | 0.5  |
| HZS4  | A | 3.4  | 3.6  | 3.5  | 3.7  | 3.6  | 3.8  | 5 | 100 | 5 | 5  | 1.00 |
|       | B | 3.7  | 3.9  | 3.8  | 4.0  | 3.9  | 4.1  | 5 | 100 | 5 | 5  | 1.00 |
|       | C | 4.0  | 4.2  | 4.1  | 4.3  | 4.2  | 4.4  | 5 | 100 | 5 | 5  | 1.00 |
| HZS5  | A | 4.3  | 4.5  | 4.4  | 4.6  | 4.5  | 4.7  | 5 | 100 | 5 | 5  | 1.5  |
|       | B | 4.6  | 4.8  | 4.7  | 4.9  | 4.8  | 5.0  | 5 | 100 | 5 | 5  | 1.5  |
|       | C | 4.9  | 5.1  | 5.0  | 5.2  | 5.1  | 5.3  | 5 | 100 | 5 | 5  | 1.5  |
| HZS6  | A | 5.2  | 5.5  | 5.3  | 5.6  | 5.4  | 5.7  | 5 | 35  | 5 | 5  | 2.0  |
|       | B | 5.5  | 5.8  | 5.6  | 5.9  | 5.7  | 6.0  | 5 | 35  | 5 | 5  | 2.0  |
|       | C | 5.8  | 6.1  | 6.0  | 6.3  | 6.1  | 6.4  | 5 | 35  | 5 | 5  | 2.0  |
| HZS7  | A | 6.3  | 6.6  | 6.4  | 6.7  | 6.6  | 6.9  | 5 | 15  | 5 | 1  | 3.5  |
|       | B | 6.7  | 7.0  | 6.9  | 7.2  | 7.0  | 7.3  | 5 | 15  | 5 | 1  | 3.5  |
|       | C | 7.2  | 7.6  | 7.3  | 7.7  | 7.5  | 7.9  | 5 | 15  | 5 | 1  | 3.5  |
| HZS9  | A | 7.7  | 8.1  | 7.9  | 8.3  | 8.1  | 8.5  | 5 | 20  | 5 | 1  | 5.0  |
|       | B | 8.3  | 8.7  | 8.5  | 8.9  | 8.7  | 9.1  | 5 | 20  | 5 | 1  | 5.0  |
|       | C | 8.9  | 9.3  | 9.1  | 9.5  | 9.3  | 9.7  | 5 | 20  | 5 | 1  | 5.0  |
| HZS11 | A | 9.5  | 9.9  | 9.7  | 10.1 | 9.9  | 10.3 | 5 | 25  | 5 | 1  | 7.5  |
|       | B | 10.2 | 10.6 | 10.4 | 10.8 | 10.7 | 11.1 | 5 | 25  | 5 | 1  | 7.5  |
|       | C | 10.9 | 11.3 | 11.1 | 11.6 | 11.4 | 11.9 | 5 | 25  | 5 | 1  | 7.5  |
| HZS12 | A | 11.6 | 12.1 | 11.9 | 12.4 | 12.2 | 12.7 | 5 | 35  | 5 | 1  | 9.5  |
|       | B | 12.4 | 12.9 | 12.6 | 13.1 | 12.9 | 13.4 | 5 | 35  | 5 | 1  | 9.5  |
|       | C | 13.2 | 13.7 | 13.5 | 14.0 | 13.8 | 14.3 | 5 | 35  | 5 | 1  | 9.5  |
| HZS15 |   | 14.1 | 14.7 | 14.5 | 15.1 | 14.9 | 15.5 | 5 | 40  | 5 | 1  | 11   |
| HZS16 |   | 15.3 | 15.9 | 15.7 | 16.5 | 16.3 | 17.1 | 5 | 45  | 5 | 1  | 12   |
| HZS18 |   | 16.9 | 17.7 | 17.5 | 18.3 | 18.1 | 19.0 | 5 | 55  | 5 | 1  | 13   |
| HZS20 |   | 18.8 | 19.7 | 19.5 | 20.4 | 20.2 | 21.1 | 2 | 60  | 2 | 1  | 15   |
| HZS22 |   | 20.9 | 21.9 | 21.6 | 22.6 | 22.3 | 23.3 | 2 | 65  | 2 | 1  | 17   |
| HZS24 |   | 22.9 | 24.0 | 23.6 | 24.7 | 24.3 | 25.5 | 2 | 70  | 2 | 1  | 19   |
| HZS27 |   | 25.2 | 26.6 | 26.2 | 27.6 | 27.2 | 28.6 | 2 | 80  | 2 | 1  | 21   |
| HZS30 |   | 28.2 | 29.6 | 29.2 | 30.6 | 30.2 | 31.6 | 2 | 100 | 2 | 1  | 23   |
| HZS33 |   | 31.2 | 32.6 | 32.2 | 33.6 | 33.2 | 34.6 | 2 | 120 | 2 | 1  | 25   |
| HZS36 |   | 34.2 | 35.7 | 35.3 | 36.8 | 36.4 | 38.0 | 2 | 140 | 2 | 1  | 27   |

#### Note :

The lower voltage types (HZS2 - HZS12) are available in 3 grades, "A" to "C", each with suffix "-1", "-2" or "-3"

For example the type with  $V_Z = 8.5 - 8.9V$  is HZS9B-2

The higher voltage types are only available with suffix "-1", "-2" or "-3" (no grade) e.g. HZS30-3



## Zener Diodes 0.25 W

| Type No. | Suffix <sup>(1)</sup> | Zener Voltage      |      | Test Current    | Maximum Dynamic Resistance |   |                | Maximum Reverse Current |   | Typical Temperature Coefficient * |                         |
|----------|-----------------------|--------------------|------|-----------------|----------------------------|---|----------------|-------------------------|---|-----------------------------------|-------------------------|
|          |                       | V <sub>Z</sub> (V) |      | I <sub>ZT</sub> | r <sub>d</sub>             | @ | I <sub>Z</sub> | I <sub>R</sub>          | @ | V <sub>R</sub>                    | γ <sub>Z</sub> (mV/ °C) |
|          |                       | min.               | max. | (mA)            | (Ω)                        |   | (mA)           | (μA)                    |   | (V)                               | I <sub>Z</sub><br>(mA)  |

### HZS-LL Series, 0.25 W, Case Type : DO-34



|        |   |     |     |     |     |     |     |     |     |    |
|--------|---|-----|-----|-----|-----|-----|-----|-----|-----|----|
| HZS2LL | A | 1.6 | 2.0 | 0.5 | 100 | 0.5 | 350 | 0.5 | 1.2 | 50 |
|        | B | 1.9 | 2.3 |     |     |     |     |     |     |    |
|        | C | 2.2 | 2.6 |     |     |     |     |     |     |    |
| HZS3LL | A | 2.5 | 2.9 | 0.5 | 100 | 1.0 | 360 | 0.5 | 1.2 | 50 |
|        | B | 2.8 | 3.2 |     |     |     |     |     |     |    |
|        | C | 3.1 | 3.5 |     |     |     |     |     |     |    |
| HZS4LL | A | 3.4 | 3.8 | 0.5 | 100 | 2.0 | 370 | 0.5 | 1.5 | 50 |
|        | B | 3.7 | 4.1 |     |     |     |     |     |     |    |
|        | C | 4.0 | 4.4 |     |     |     |     |     |     |    |
| HZS5LL | A | 4.3 | 4.7 | 0.5 | 100 | 3.0 | 380 | 0.5 | 1.5 | 50 |
|        | B | 4.6 | 5.0 |     |     |     |     |     |     |    |
|        | C | 4.9 | 5.3 |     |     |     |     |     |     |    |

\*  $\Delta V_{Z1} = V_Z (I_Z = 0.5 \text{ mA}) - V_{Z1} (I_Z = 0.05 \text{ mA})$

$\Delta V_{Z1} = V_{Z1} (I_Z = 0.5 \text{ mA}) - V_{Z2} (I_Z = 0.05 \text{ mA})$

#### Note:

(1) When placing an order for HZS-LL type, enter suffix "A", "B" or "C" e.g. HZS2ALL, HZS2BLL .... HZS5CLL



## Zener Diodes 0.30 W

The plastic material carries U/L recognition 94V-0.

| Type No. | Marking | Zener Voltage <sup>(1)</sup> |                   |      | Test Current    | Zener Impedance <sup>(2)</sup>  | Test Current   | Leakage Current |                  | Temp. coefficient of Zener Voltage |      |
|----------|---------|------------------------------|-------------------|------|-----------------|---------------------------------|----------------|-----------------|------------------|------------------------------------|------|
|          |         | V <sub>Z</sub>               | @ I <sub>ZT</sub> | (V)  | I <sub>ZT</sub> | Z <sub>Z</sub> @ I <sub>Z</sub> | I <sub>Z</sub> | I <sub>R</sub>  | @ V <sub>R</sub> | TKvz (%/K)                         |      |
|          |         | Min.                         | Nom.              | Max. | (mA)            | (Ω)                             | (mA)           | (μA)            | (V)              | Min.                               | Max. |

### MM3Z2V0 Series, 0.3 W, Case Type : SOD-323



|         |    |      |     |      |     |     |     |     |     |       |       |
|---------|----|------|-----|------|-----|-----|-----|-----|-----|-------|-------|
| MM3Z2V0 | B0 | 1.80 | 2.0 | 2.15 | 5.0 | 100 | 5.0 | 120 | 0.5 | -0.09 | -0.06 |
| MM3Z2V2 | C0 | 2.08 | 2.2 | 2.33 | 5.0 | 100 | 5.0 | 120 | 0.7 | -0.09 | -0.06 |
| MM3Z2V4 | 1C | 2.28 | 2.4 | 2.56 | 5.0 | 100 | 5.0 | 120 | 1.0 | -0.09 | -0.06 |
| MM3Z2V7 | 1D | 2.5  | 2.7 | 2.9  | 5.0 | 110 | 5.0 | 120 | 1.0 | -0.09 | -0.06 |
| MM3Z3V0 | 1E | 2.8  | 3.0 | 3.2  | 5.0 | 120 | 5.0 | 50  | 1.0 | -0.08 | -0.05 |
| MM3Z3V3 | 1F | 3.1  | 3.3 | 3.5  | 5.0 | 130 | 5.0 | 20  | 1.0 | -0.08 | -0.05 |
| MM3Z3V6 | 1H | 3.4  | 3.6 | 3.8  | 5.0 | 130 | 5.0 | 10  | 1.0 | -0.08 | -0.05 |
| MM3Z3V9 | 1J | 3.7  | 3.9 | 4.1  | 5.0 | 130 | 5.0 | 5.0 | 1.0 | -0.08 | -0.05 |
| MM3Z4V3 | 1K | 4.0  | 4.3 | 4.6  | 5.0 | 130 | 5.0 | 5.0 | 1.0 | -0.06 | -0.03 |
| MM3Z4V7 | 1M | 4.4  | 4.7 | 5.0  | 5.0 | 130 | 5.0 | 2.0 | 1.0 | -0.05 | +0.02 |
| MM3Z5V1 | 1N | 4.8  | 5.1 | 5.4  | 5.0 | 130 | 5.0 | 2.0 | 1.5 | -0.02 | +0.02 |
| MM3Z5V6 | 1P | 5.2  | 5.6 | 6.0  | 5.0 | 80  | 5.0 | 1.0 | 2.5 | -0.05 | +0.05 |
| MM3Z6V2 | 1R | 5.8  | 6.2 | 6.6  | 5.0 | 50  | 5.0 | 1.0 | 3.0 | 0.03  | 0.06  |
| MM3Z6V8 | 1X | 6.4  | 6.8 | 7.2  | 5.0 | 30  | 5.0 | 0.5 | 3.5 | 0.03  | 0.07  |
| MM3Z7V5 | 1Y | 7.0  | 7.5 | 7.9  | 5.0 | 30  | 5.0 | 0.5 | 4.0 | 0.03  | 0.07  |
| MM3Z8V2 | 1Z | 7.7  | 8.2 | 8.7  | 5.0 | 30  | 5.0 | 0.5 | 5.0 | 0.03  | 0.08  |
| MM3Z9V1 | 2A | 8.5  | 9.1 | 9.6  | 5.0 | 30  | 5.0 | 0.5 | 6.0 | 0.03  | 0.09  |
| MM3Z10  | 2B | 9.4  | 10  | 10.6 | 5.0 | 30  | 5.0 | 0.1 | 7.0 | 0.03  | 0.10  |
| MM3Z11  | 2C | 10.4 | 11  | 11.6 | 5.0 | 30  | 5.0 | 0.1 | 8.0 | 0.03  | 0.11  |
| MM3Z12  | 2D | 11.4 | 12  | 12.7 | 5.0 | 35  | 5.0 | 0.1 | 9.0 | 0.03  | 0.11  |
| MM3Z13  | 2E | 12.4 | 13  | 14.1 | 5.0 | 35  | 5.0 | 0.1 | 10  | 0.03  | 0.11  |
| MM3Z15  | 2F | 13.8 | 15  | 15.8 | 5.0 | 40  | 5.0 | 0.1 | 11  | 0.03  | 0.11  |
| MM3Z16  | 2H | 15.3 | 16  | 17.1 | 5.0 | 40  | 5.0 | 0.1 | 12  | 0.03  | 0.11  |
| MM3Z18  | 2J | 16.8 | 18  | 19.1 | 5.0 | 45  | 5.0 | 0.1 | 13  | 0.03  | 0.11  |
| MM3Z20  | 2K | 18.8 | 20  | 21.2 | 5.0 | 50  | 5.0 | 0.1 | 15  | 0.03  | 0.11  |
| MM3Z22  | 2M | 20.8 | 22  | 23.3 | 5.0 | 55  | 5.0 | 0.1 | 17  | 0.04  | 0.12  |
| MM3Z24  | 2N | 22.8 | 24  | 25.6 | 5.0 | 60  | 2.0 | 0.1 | 19  | 0.04  | 0.12  |
| MM3Z27  | 2P | 25.1 | 27  | 28.9 | 5.0 | 70  | 2.0 | 0.1 | 21  | 0.04  | 0.12  |
| MM3Z30  | 2R | 28   | 30  | 32   | 5.0 | 80  | 2.0 | 0.1 | 23  | 0.04  | 0.12  |
| MM3Z33  | 2X | 31   | 33  | 35   | 5.0 | 80  | 2.0 | 0.1 | 25  | 0.04  | 0.12  |
| MM3Z36  | 2Y | 34   | 36  | 38   | 5.0 | 90  | 2.0 | 0.1 | 27  | 0.04  | 0.12  |
| MM3Z39  | 2Z | 37   | 39  | 41   | 2.5 | 100 | 2.0 | 2.0 | 30  | 0.04  | 0.12  |
| MM3Z43  | 3A | 40   | 43  | 46   | 2.5 | 130 | 2.0 | 2.0 | 33  | 0.04  | 0.12  |
| MM3Z47  | 3B | 44   | 47  | 50   | 2.5 | 150 | 2.0 | 2.0 | 36  | 0.04  | 0.12  |
| MM3Z51  | 3C | 48   | 51  | 54   | 2.5 | 180 | 2.0 | 1.0 | 39  | 0.04  | 0.12  |
| MM3Z56  | 3D | 52   | 56  | 60   | 2.5 | 180 | 2.0 | 1.0 | 43  | 0.04  | 0.12  |
| MM3Z62  | 3E | 58   | 62  | 66   | 2.5 | 200 | 2.0 | 0.2 | 47  | 0.04  | 0.12  |
| MM3Z68  | 3F | 64   | 68  | 72   | 2.5 | 250 | 2.0 | 0.2 | 52  | 0.04  | 0.12  |
| MM3Z75  | 3H | 70   | 75  | 79   | 2.5 | 300 | 2.0 | 0.2 | 57  | 0.04  | 0.12  |
| MM3Z82  | 3J | 77   | 82  | 87   | 2.5 | 300 | 2.0 | 0.2 | 63  | 0.05  | 0.12  |
| MM3Z91  | 3K | 85   | 91  | 96   | 1.0 | 700 | 1.0 | 0.2 | 69  | 0.05  | 0.12  |
| MM3Z100 | 3M | 94   | 100 | 106  | 1.0 | 700 | 1.0 | 0.2 | 76  | 0.05  | 0.12  |
| MM3Z110 | 3N | 104  | 110 | 116  | 1.0 | 800 | 1.0 | 0.2 | 84  | 0.05  | 0.12  |
| MM3Z120 | 3P | 114  | 120 | 127  | 1.0 | 900 | 1.0 | 0.2 | 91  | 0.05  | 0.12  |

Note :

(1) V<sub>Z</sub> is tested with pulses (20 ms).



## Zener Diodes 0.30 W

The plastic material carries U/L recognition 94V-0.

| Type No. | Marking | Zener Voltage <sup>(1)</sup> |                   |      | Test Current    | Dynamic Impedance <sup>(2)</sup> | Test Current   | Reverse Leakage Current |                  | Temp. coefficient of Zener Voltage |      |
|----------|---------|------------------------------|-------------------|------|-----------------|----------------------------------|----------------|-------------------------|------------------|------------------------------------|------|
|          |         | V <sub>Z</sub>               | @ I <sub>ZT</sub> | (V)  | I <sub>ZT</sub> | Z <sub>Z</sub> @ I <sub>Z</sub>  | I <sub>Z</sub> | I <sub>R</sub>          | @ V <sub>R</sub> | TK <sub>VZ</sub> (%/K)             |      |
|          |         | Min.                         | Nom.              | Max. | (mA)            | (Ω)                              | (mA)           | (μA)                    | (V)              | Min.                               | Max. |

### MM3Z2V2B Series, 0.3 W, Case Type : SOD-323



|          |    |       |     |       |   |     |   |     |     |       |       |
|----------|----|-------|-----|-------|---|-----|---|-----|-----|-------|-------|
| MM3Z2V2B | MF | 2.08  | 2.2 | 2.33  | 5 | 100 | 5 | 120 | 0.7 | -0.09 | -0.06 |
| MM3Z2V4B | 7C | 2.30  | 2.4 | 2.65  | 5 | 100 | 5 | 120 | 1.0 | -0.09 | -0.06 |
| MM3Z2V7B | 7D | 2.65  | 2.7 | 2.95  | 5 | 110 | 5 | 120 | 1.0 | -0.09 | -0.06 |
| MM3Z3V0B | 7E | 2.95  | 3.0 | 3.25  | 5 | 120 | 5 | 50  | 1.0 | -0.08 | -0.05 |
| MM3Z3V3B | 7F | 3.25  | 3.3 | 3.55  | 5 | 120 | 5 | 20  | 1.0 | -0.08 | -0.05 |
| MM3Z3V6B | 7H | 3.60  | 3.6 | 3.845 | 5 | 100 | 5 | 10  | 1.0 | -0.08 | -0.05 |
| MM3Z3V9B | 7J | 3.89  | 3.9 | 4.16  | 5 | 100 | 5 | 5   | 1.0 | -0.08 | -0.05 |
| MM3Z4V3B | 7K | 4.17  | 4.3 | 4.43  | 5 | 100 | 5 | 5   | 1.0 | -0.06 | -0.03 |
| MM3Z4V7B | 7M | 4.55  | 4.7 | 4.75  | 5 | 100 | 5 | 2   | 1.0 | -0.05 | +0.02 |
| MM3Z5V1B | 7N | 4.98  | 5.1 | 5.20  | 5 | 80  | 5 | 2   | 1.5 | -0.02 | +0.02 |
| MM3Z5V6B | 7P | 5.49  | 5.6 | 5.73  | 5 | 60  | 5 | 1   | 2.5 | -0.05 | +0.05 |
| MM3Z6V2B | 7R | 6.06  | 6.2 | 6.33  | 5 | 60  | 5 | 1   | 3.0 | 0.03  | 0.06  |
| MM3Z6V8B | 7X | 6.65  | 6.8 | 6.93  | 5 | 40  | 5 | 0.5 | 3.5 | 0.03  | 0.07  |
| MM3Z7V5B | 7Y | 7.28  | 7.5 | 7.60  | 5 | 30  | 5 | 0.5 | 4.0 | 0.03  | 0.07  |
| MM3Z8V2B | 7Z | 8.02  | 8.2 | 8.36  | 5 | 30  | 5 | 0.5 | 5.0 | 0.03  | 0.08  |
| MM3Z9V1B | 8A | 8.85  | 9.1 | 9.23  | 5 | 30  | 5 | 0.5 | 6.0 | 0.03  | 0.09  |
| MM3Z10B  | 8B | 9.77  | 10  | 10.21 | 5 | 30  | 5 | 0.1 | 7.0 | 0.03  | 0.10  |
| MM3Z11B  | 8C | 10.76 | 11  | 11.22 | 5 | 30  | 5 | 0.1 | 8.0 | 0.03  | 0.11  |
| MM3Z12B  | 8D | 11.74 | 12  | 12.24 | 5 | 30  | 5 | 0.1 | 9.0 | 0.03  | 0.11  |
| MM3Z13B  | 8E | 12.91 | 13  | 13.49 | 5 | 37  | 5 | 0.1 | 10  | 0.03  | 0.11  |
| MM3Z15B  | 8F | 14.34 | 15  | 14.98 | 5 | 42  | 5 | 0.1 | 11  | 0.03  | 0.11  |
| MM3Z16B  | 8H | 15.85 | 16  | 16.51 | 5 | 50  | 5 | 0.1 | 12  | 0.03  | 0.11  |
| MM3Z18B  | 8J | 17.56 | 18  | 18.35 | 5 | 65  | 5 | 0.1 | 13  | 0.03  | 0.11  |
| MM3Z20B  | 8K | 19.52 | 20  | 20.39 | 5 | 85  | 5 | 0.1 | 15  | 0.03  | 0.11  |
| MM3Z22B  | 8M | 21.54 | 22  | 22.47 | 5 | 100 | 5 | 0.1 | 17  | 0.04  | 0.12  |
| MM3Z24B  | 8N | 23.72 | 24  | 24.78 | 5 | 120 | 5 | 0.1 | 19  | 0.04  | 0.12  |
| MM3Z27B  | 8P | 26.19 | 27  | 27.53 | 5 | 150 | 2 | 0.1 | 21  | 0.04  | 0.12  |
| MM3Z30B  | 8R | 29.19 | 30  | 30.69 | 5 | 200 | 2 | 0.1 | 23  | 0.04  | 0.12  |
| MM3Z33B  | 8X | 32.15 | 33  | 33.79 | 5 | 250 | 2 | 0.1 | 25  | 0.04  | 0.12  |
| MM3Z36B  | 8Y | 35.07 | 36  | 36.87 | 5 | 300 | 2 | 0.1 | 27  | 0.04  | 0.12  |
| MM3Z39B  | 8Z | 37.00 | 39  | 41.00 | 5 | 100 | 2 | 2.0 | 30  | 0.04  | 0.12  |

#### Notes :

(1) V<sub>Z</sub> is tested with pulses (20 ms).

(2) Z<sub>Z</sub> is measured at I<sub>Z</sub> by given a very small A.C. current signal.



# Zener Diodes 0.30 W

The plastic material carries U/L recognition 94V-0.

| Type No. | Marking | V <sub>Z1</sub><br>@ I <sub>ZT1</sub> = 5 mA<br>(Note 1) |     |     | Z <sub>1T1</sub><br>@ I <sub>ZT1</sub> = 5 mA | V <sub>Z2</sub><br>@ I <sub>ZT2</sub> = 1 mA<br>(Note 1) |     | Z <sub>2T2</sub><br>@ I <sub>ZT2</sub> = 1 mA | V <sub>Z3</sub><br>@ I <sub>ZT3</sub> = 20 mA<br>(Note 1) |     | Z <sub>3T3</sub><br>@ I <sub>ZT3</sub> = 20 mA | Max. Reverse<br>Leakage<br>Current<br>I <sub>R</sub> @ V <sub>R</sub> |     | Θ <sub>VZ</sub><br>(mV/k)<br>@ I <sub>ZT1</sub> = 5 mA |     | C (pF)<br>@ V <sub>R</sub> = 0<br>f = 1 MHz |
|----------|---------|----------------------------------------------------------|-----|-----|-----------------------------------------------|----------------------------------------------------------|-----|-----------------------------------------------|-----------------------------------------------------------|-----|------------------------------------------------|-----------------------------------------------------------------------|-----|--------------------------------------------------------|-----|---------------------------------------------|
|          |         | (V)                                                      |     |     | (Ω)                                           | (V)                                                      |     | (Ω)                                           | (V)                                                       |     | (Ω)                                            |                                                                       |     |                                                        |     |                                             |
|          |         | Min                                                      | Nom | Max |                                               | Min                                                      | Max |                                               | Min                                                       | Max |                                                | (μA)                                                                  | (V) | Min                                                    | Max |                                             |

## BZX84Cxx Series, 0.30 W, Case Type : SOT-23



| BZX84C2V4 | C8      | 2.2                                                            | 2.4 | 2.6  | 100                                                    | 1.7                                                              | 2.1  | 600                                                      | 2.6                                                             | 3.2  | 50                                                      | 50                                                                    | 1.0  | -3.5                                                         | 0    | 450                                         |
|-----------|---------|----------------------------------------------------------------|-----|------|--------------------------------------------------------|------------------------------------------------------------------|------|----------------------------------------------------------|-----------------------------------------------------------------|------|---------------------------------------------------------|-----------------------------------------------------------------------|------|--------------------------------------------------------------|------|---------------------------------------------|
| BZX84C2V7 | D8      | 2.5                                                            | 2.7 | 2.9  | 100                                                    | 1.9                                                              | 2.4  | 600                                                      | 3.0                                                             | 3.6  | 50                                                      | 20                                                                    | 1.0  | -3.5                                                         | 0    | 450                                         |
| BZX84C3V0 | E8      | 2.8                                                            | 3.0 | 3.2  | 95                                                     | 2.1                                                              | 2.7  | 600                                                      | 3.3                                                             | 3.9  | 50                                                      | 10                                                                    | 1.0  | -3.5                                                         | 0    | 450                                         |
| BZX84C3V3 | F8      | 3.1                                                            | 3.3 | 3.5  | 95                                                     | 2.3                                                              | 2.9  | 600                                                      | 3.6                                                             | 4.2  | 40                                                      | 5                                                                     | 1.0  | -3.5                                                         | 0    | 450                                         |
| BZX84C3V6 | H8      | 3.4                                                            | 3.6 | 3.8  | 90                                                     | 2.7                                                              | 3.3  | 600                                                      | 3.9                                                             | 4.5  | 40                                                      | 5                                                                     | 1.0  | -3.5                                                         | 0    | 450                                         |
| BZX84C3V9 | J8      | 3.7                                                            | 3.9 | 4.1  | 90                                                     | 2.9                                                              | 3.5  | 600                                                      | 4.1                                                             | 4.7  | 30                                                      | 3                                                                     | 1.0  | -3.5                                                         | -2.5 | 450                                         |
| BZX84C4V3 | K8      | 4.0                                                            | 4.3 | 4.6  | 90                                                     | 3.3                                                              | 4.0  | 600                                                      | 4.4                                                             | 5.1  | 30                                                      | 3                                                                     | 1.0  | -3.5                                                         | 0    | 450                                         |
| BZX84C4V7 | M8      | 4.4                                                            | 4.7 | 5.0  | 80                                                     | 3.7                                                              | 4.7  | 500                                                      | 4.5                                                             | 5.4  | 15                                                      | 3                                                                     | 2.0  | -3.5                                                         | 0.2  | 260                                         |
| BZX84C5V1 | N8      | 4.8                                                            | 5.1 | 5.4  | 60                                                     | 4.2                                                              | 5.3  | 480                                                      | 5.0                                                             | 5.9  | 15                                                      | 2                                                                     | 2.0  | -2.7                                                         | 1.2  | 225                                         |
| BZX84C5V6 | P8      | 5.2                                                            | 5.6 | 6.0  | 40                                                     | 4.8                                                              | 6.0  | 400                                                      | 5.2                                                             | 6.3  | 10                                                      | 1                                                                     | 2.0  | -2.0                                                         | 2.5  | 200                                         |
| BZX84C6V2 | R8      | 5.8                                                            | 6.2 | 6.6  | 10                                                     | 5.6                                                              | 6.6  | 150                                                      | 5.8                                                             | 6.8  | 6                                                       | 3                                                                     | 4.0  | 0.4                                                          | 3.7  | 185                                         |
| BZX84C6V8 | X8      | 6.4                                                            | 6.8 | 7.2  | 15                                                     | 6.3                                                              | 7.2  | 80                                                       | 6.4                                                             | 7.4  | 6                                                       | 2                                                                     | 4.0  | 1.2                                                          | 4.5  | 155                                         |
| BZX84C7V5 | Y8      | 7.0                                                            | 7.5 | 7.9  | 15                                                     | 6.9                                                              | 7.9  | 80                                                       | 7.0                                                             | 8.0  | 6                                                       | 1                                                                     | 5.0  | 2.5                                                          | 5.3  | 140                                         |
| BZX84C8V2 | Z8      | 7.7                                                            | 8.2 | 8.7  | 15                                                     | 7.6                                                              | 8.7  | 80                                                       | 7.7                                                             | 8.8  | 6                                                       | 0.7                                                                   | 5.0  | 3.2                                                          | 6.2  | 135                                         |
| BZX84C9V1 | A9      | 8.5                                                            | 9.1 | 9.6  | 15                                                     | 8.4                                                              | 9.6  | 100                                                      | 8.5                                                             | 9.7  | 8                                                       | 0.5                                                                   | 6.0  | 3.8                                                          | 7.0  | 130                                         |
| BZX84C10  | B9      | 9.4                                                            | 10  | 10.6 | 20                                                     | 9.3                                                              | 10.6 | 150                                                      | 9.4                                                             | 10.7 | 10                                                      | 0.2                                                                   | 7.0  | 4.5                                                          | 8.0  | 130                                         |
| BZX84C11  | C9      | 10.4                                                           | 11  | 11.6 | 20                                                     | 10.2                                                             | 11.6 | 150                                                      | 10.4                                                            | 11.8 | 10                                                      | 0.1                                                                   | 8.0  | 5.4                                                          | 9.0  | 130                                         |
| BZX84C12  | D9      | 11.4                                                           | 12  | 12.7 | 25                                                     | 11.2                                                             | 12.7 | 150                                                      | 11.4                                                            | 12.9 | 10                                                      | 0.1                                                                   | 8.0  | 6.0                                                          | 10.0 | 130                                         |
| BZX84C13  | E9      | 12.4                                                           | 13  | 14.1 | 30                                                     | 12.3                                                             | 14.0 | 170                                                      | 12.5                                                            | 14.2 | 15                                                      | 0.1                                                                   | 8.0  | 7.0                                                          | 11.0 | 120                                         |
| BZX84C15  | F9      | 13.8                                                           | 15  | 15.6 | 30                                                     | 13.7                                                             | 15.5 | 200                                                      | 13.9                                                            | 15.7 | 20                                                      | 0.05                                                                  | 10.5 | 9.2                                                          | 13.0 | 110                                         |
| BZX84C16  | H9      | 15.3                                                           | 16  | 17.1 | 40                                                     | 15.2                                                             | 17.0 | 200                                                      | 15.4                                                            | 17.2 | 20                                                      | 0.05                                                                  | 11.2 | 10.4                                                         | 14.0 | 105                                         |
| BZX84C18  | J9      | 16.8                                                           | 18  | 19.1 | 45                                                     | 16.7                                                             | 19.0 | 225                                                      | 16.9                                                            | 19.2 | 20                                                      | 0.05                                                                  | 12.6 | 12.4                                                         | 16.0 | 100                                         |
| BZX84C20  | K9      | 18.8                                                           | 20  | 21.2 | 55                                                     | 18.7                                                             | 21.1 | 225                                                      | 18.9                                                            | 21.4 | 20                                                      | 0.05                                                                  | 14.0 | 14.4                                                         | 18.0 | 85                                          |
| BZX84C22  | M9      | 20.8                                                           | 22  | 23.3 | 55                                                     | 20.7                                                             | 23.2 | 250                                                      | 20.9                                                            | 23.4 | 25                                                      | 0.05                                                                  | 15.4 | 16.4                                                         | 20.0 | 85                                          |
| BZX84C24  | N9      | 22.8                                                           | 24  | 25.6 | 70                                                     | 22.7                                                             | 25.5 | 250                                                      | 22.9                                                            | 25.7 | 25                                                      | 0.05                                                                  | 16.8 | 18.4                                                         | 22.0 | 80                                          |
| TYPE NO.  | Marking | V <sub>Z1</sub> Below<br>@ I <sub>ZT1</sub> = 2 mA<br>(Note 1) |     |      | Z <sub>1T1</sub><br>Below<br>@ I <sub>ZT1</sub> = 2 mA | V <sub>Z2</sub> Below<br>@ I <sub>ZT2</sub> = 0.1 mA<br>(Note 1) |      | Z <sub>2T2</sub><br>Below<br>@ I <sub>ZT2</sub> = 0.5 mA | V <sub>Z3</sub> Below<br>@ I <sub>ZT3</sub> = 10 mA<br>(Note 1) |      | Z <sub>3T3</sub><br>Below<br>@ I <sub>ZT3</sub> = 10 mA | Max. Reverse<br>Leakage<br>Current<br>I <sub>R</sub> @ V <sub>R</sub> |      | Θ <sub>VZ</sub><br>(mV/k) Below<br>@ I <sub>ZT1</sub> = 2 mA |      | C (pF)<br>@ V <sub>R</sub> = 0<br>f = 1 MHz |
|           |         | (V)                                                            |     |      | (Ω)                                                    | (V)                                                              |      | (Ω)                                                      | (V)                                                             |      | (Ω)                                                     |                                                                       |      |                                                              |      |                                             |
|           |         | Min                                                            | Nom | Max  |                                                        | Min                                                              | Max  |                                                          | Min                                                             | Max  |                                                         | (μA)                                                                  | (V)  | Min                                                          | Max  |                                             |
| BZX84C27  | P9      | 25.1                                                           | 27  | 28.9 | 80                                                     | 25                                                               | 28.9 | 300                                                      | 25.2                                                            | 29.3 | 45                                                      | 0.05                                                                  | 18.9 | 21.4                                                         | 25.3 | 70                                          |
| BZX84C30  | R9      | 28                                                             | 30  | 32   | 80                                                     | 27.8                                                             | 32   | 300                                                      | 28.1                                                            | 32.4 | 50                                                      | 0.05                                                                  | 21.0 | 24.4                                                         | 29.4 | 70                                          |
| BZX84C33  | X9      | 31                                                             | 33  | 35   | 80                                                     | 30.8                                                             | 35   | 325                                                      | 31.1                                                            | 35.4 | 55                                                      | 0.05                                                                  | 23.1 | 27.4                                                         | 33.4 | 70                                          |
| BZX84C36  | Y9      | 34                                                             | 36  | 38   | 90                                                     | 33.8                                                             | 38   | 350                                                      | 34.1                                                            | 38.4 | 60                                                      | 0.05                                                                  | 25.2 | 30.4                                                         | 37.4 | 70                                          |
| BZX84C39  | Z9      | 37                                                             | 39  | 41   | 130                                                    | 36.7                                                             | 41   | 35                                                       | 37.1                                                            | 41.5 | 70                                                      | 0.05                                                                  | 27.3 | 33.4                                                         | 41.2 | 45                                          |
| BZX84C43  | A0      | 40                                                             | 43  | 46   | 150                                                    | 39.7                                                             | 46   | 375                                                      | 40.1                                                            | 46.5 | 80                                                      | 0.05                                                                  | 30.1 | 37.6                                                         | 46.6 | 40                                          |
| BZX84C47  | B0      | 44                                                             | 47  | 50   | 170                                                    | 43.7                                                             | 50   | 375                                                      | 44.1                                                            | 50.5 | 90                                                      | 0.05                                                                  | 32.9 | 42.0                                                         | 51.8 | 40                                          |
| BZX84C51  | C0      | 48                                                             | 51  | 54   | 180                                                    | 47.6                                                             | 54   | 400                                                      | 48.1                                                            | 54.6 | 100                                                     | 0.05                                                                  | 35.7 | 46.6                                                         | 57.2 | 40                                          |
| BZX84C56  | D0      | 52                                                             | 56  | 60   | 200                                                    | 51.5                                                             | 60   | 425                                                      | 52.1                                                            | 60.8 | 110                                                     | 0.05                                                                  | 39.2 | 52.2                                                         | 63.8 | 40                                          |
| BZX84C62  | E0      | 58                                                             | 62  | 66   | 215                                                    | 57.4                                                             | 66   | 450                                                      | 58.2                                                            | 67.0 | 120                                                     | 0.05                                                                  | 43.4 | 58.8                                                         | 71.6 | 35                                          |
| BZX84C68  | F0      | 64                                                             | 68  | 72   | 240                                                    | 63.4                                                             | 72   | 475                                                      | 64.2                                                            | 73.2 | 130                                                     | 0.05                                                                  | 47.6 | 65.6                                                         | 79.8 | 35                                          |
| BZX84C75  | H0      | 70                                                             | 75  | 79   | 255                                                    | 69.4                                                             | 79   | 500                                                      | 70.3                                                            | 80.2 | 140                                                     | 0.05                                                                  | 52.5 | 73.4                                                         | 88.6 | 35                                          |

Note: (1) Zener voltage is measured with pulse test current I<sub>Z</sub> at an ambient temperature of 25 °C



## Zener Diodes 0.35 W

The plastic material carries U/L recognition 94V-0.

| TYPE NO. | Marking | $V_{Z1}$<br>@ $I_{ZT1} = 5 \text{ mA}$<br>(Note 1) |     |     | $Z_{ZT1}$<br>@ $I_{ZT1} = 5 \text{ mA}$ | $V_{Z2}$<br>@ $I_{ZT2} = 1 \text{ mA}$<br>(Note 1) |     | $Z_{ZT2}$<br>@ $I_{ZT2} = 1 \text{ mA}^{(2)}$ | $V_{Z3}$<br>@ $I_{ZT3} = 20 \text{ mA}$<br>(Note 1) |     | $Z_{ZT3}$<br>@ $I_{ZT3} = 20 \text{ mA}$ | Max. Reverse<br>Leakage<br>Current<br>$I_R$ @ $V_R$ |     | $\Theta_{VZ}$<br>(mV/k)<br>@ $I_{ZT1} = 5 \text{ mA}$ |     | $C$ (pF)<br>@ $V_R = 0$<br>$f = 1 \text{ MHz}$ |
|----------|---------|----------------------------------------------------|-----|-----|-----------------------------------------|----------------------------------------------------|-----|-----------------------------------------------|-----------------------------------------------------|-----|------------------------------------------|-----------------------------------------------------|-----|-------------------------------------------------------|-----|------------------------------------------------|
|          |         | (V)                                                |     |     | (Ω)                                     | (V)                                                |     | (Ω)                                           | (V)                                                 |     | (Ω)                                      | (μA)                                                | (V) |                                                       |     |                                                |
|          |         | Min                                                | Nom | Max |                                         | Min                                                | Max |                                               | Min                                                 | Max |                                          |                                                     |     | Min                                                   | Max |                                                |

### BZX84Bxx Series, 0.35 W, Case Type : SOT-23



| BZX84B2V4 | CR      | 2.35                                                     | 2.4 | 2.45 | 100                                              | 1.7                                                        | 2.1  | 600                                                | 2.6                                                       | 3.2  | 50                                                | 50                                                  | 1.0  | -3.5                                                        | 0    | 450                                            |
|-----------|---------|----------------------------------------------------------|-----|------|--------------------------------------------------|------------------------------------------------------------|------|----------------------------------------------------|-----------------------------------------------------------|------|---------------------------------------------------|-----------------------------------------------------|------|-------------------------------------------------------------|------|------------------------------------------------|
| BZX84B2V7 | CX      | 2.64                                                     | 2.7 | 2.76 | 100                                              | 1.9                                                        | 2.4  | 600                                                | 3.0                                                       | 3.6  | 50                                                | 20                                                  | 1.0  | -3.5                                                        | 0    | 450                                            |
| BZX84B3V0 | CY      | 2.94                                                     | 3.0 | 3.06 | 95                                               | 2.1                                                        | 2.7  | 600                                                | 3.3                                                       | 3.9  | 50                                                | 10                                                  | 1.0  | -3.5                                                        | 0    | 450                                            |
| BZX84B3V3 | CZ      | 3.23                                                     | 3.3 | 3.37 | 95                                               | 2.3                                                        | 2.9  | 600                                                | 3.6                                                       | 4.2  | 40                                                | 5                                                   | 1.0  | -3.5                                                        | 0    | 450                                            |
| BZX84B3V6 | DA      | 3.52                                                     | 3.6 | 3.68 | 90                                               | 2.7                                                        | 3.3  | 600                                                | 3.9                                                       | 4.5  | 40                                                | 5                                                   | 1.0  | -3.5                                                        | 0    | 450                                            |
| BZX84B3V9 | DB      | 3.82                                                     | 3.9 | 3.98 | 90                                               | 2.9                                                        | 3.5  | 600                                                | 4.1                                                       | 4.7  | 30                                                | 3                                                   | 1.0  | -3.5                                                        | -2.5 | 450                                            |
| BZX84B4V3 | DC      | 4.21                                                     | 4.3 | 4.39 | 90                                               | 3.3                                                        | 4.0  | 600                                                | 4.4                                                       | 5.1  | 30                                                | 3                                                   | 1.0  | -3.5                                                        | 0    | 450                                            |
| BZX84B4V7 | DD      | 4.60                                                     | 4.7 | 4.8  | 80                                               | 3.7                                                        | 4.7  | 500                                                | 4.5                                                       | 5.4  | 15                                                | 3                                                   | 2.0  | -3.5                                                        | 0.2  | 260                                            |
| BZX84B5V1 | DE      | 4.99                                                     | 5.1 | 5.2  | 60                                               | 4.2                                                        | 5.3  | 480                                                | 5.0                                                       | 5.9  | 15                                                | 2                                                   | 2.0  | -2.7                                                        | 1.2  | 225                                            |
| BZX84B5V6 | DF      | 5.49                                                     | 5.6 | 5.71 | 40                                               | 4.8                                                        | 6.0  | 400                                                | 5.2                                                       | 6.3  | 10                                                | 1                                                   | 2.0  | -2.0                                                        | 2.5  | 200                                            |
| BZX84B6V2 | DH      | 6.07                                                     | 6.2 | 6.32 | 10                                               | 5.6                                                        | 6.6  | 150                                                | 5.8                                                       | 6.8  | 6                                                 | 3                                                   | 4.0  | 0.4                                                         | 3.7  | 185                                            |
| BZX84B6V8 | DJ      | 6.66                                                     | 6.8 | 6.94 | 15                                               | 6.3                                                        | 7.2  | 80                                                 | 6.4                                                       | 7.4  | 6                                                 | 2                                                   | 4.0  | 1.2                                                         | 4.5  | 155                                            |
| BZX84B7V5 | DK      | 7.35                                                     | 7.5 | 7.65 | 15                                               | 6.9                                                        | 7.9  | 80                                                 | 7.0                                                       | 8.0  | 6                                                 | 1                                                   | 5.0  | 2.5                                                         | 5.3  | 140                                            |
| BZX84B8V2 | DM      | 8.04                                                     | 8.2 | 8.36 | 15                                               | 7.6                                                        | 8.7  | 80                                                 | 7.7                                                       | 8.8  | 6                                                 | 0.7                                                 | 5.0  | 3.2                                                         | 6.2  | 135                                            |
| BZX84B9V1 | DN      | 8.92                                                     | 9.1 | 9.28 | 15                                               | 8.4                                                        | 9.6  | 100                                                | 8.5                                                       | 9.7  | 8                                                 | 0.5                                                 | 6.0  | 3.8                                                         | 7.0  | 130                                            |
| BZX84B10  | DP      | 9.80                                                     | 10  | 10.2 | 20                                               | 9.3                                                        | 10.6 | 150                                                | 9.4                                                       | 10.7 | 10                                                | 0.2                                                 | 7.0  | 4.5                                                         | 8.0  | 130                                            |
| BZX84B11  | DR      | 10.8                                                     | 11  | 11.2 | 20                                               | 10.2                                                       | 11.6 | 150                                                | 10.4                                                      | 11.8 | 10                                                | 0.1                                                 | 8.0  | 5.4                                                         | 9.0  | 130                                            |
| BZX84B12  | DX      | 11.8                                                     | 12  | 12.2 | 25                                               | 11.2                                                       | 12.7 | 150                                                | 11.4                                                      | 12.9 | 10                                                | 0.1                                                 | 8.0  | 6.0                                                         | 10.0 | 130                                            |
| BZX84B13  | DY      | 12.7                                                     | 13  | 13.3 | 30                                               | 12.3                                                       | 14.0 | 170                                                | 12.5                                                      | 14.2 | 15                                                | 0.1                                                 | 8.0  | 7.0                                                         | 11.0 | 120                                            |
| BZX84B15  | DZ      | 14.7                                                     | 15  | 15.3 | 30                                               | 13.7                                                       | 15.5 | 200                                                | 13.9                                                      | 15.7 | 20                                                | 0.05                                                | 10.5 | 9.2                                                         | 13.0 | 110                                            |
| BZX84B16  | EA      | 15.7                                                     | 16  | 16.3 | 40                                               | 15.2                                                       | 17.0 | 200                                                | 15.4                                                      | 17.2 | 20                                                | 0.05                                                | 11.2 | 10.4                                                        | 14.0 | 105                                            |
| BZX84B18  | EB      | 17.6                                                     | 18  | 18.4 | 45                                               | 16.7                                                       | 19.0 | 225                                                | 16.9                                                      | 19.2 | 20                                                | 0.05                                                | 12.6 | 12.4                                                        | 16.0 | 100                                            |
| BZX84B20  | EC      | 19.6                                                     | 20  | 20.4 | 55                                               | 18.7                                                       | 21.1 | 225                                                | 18.9                                                      | 21.4 | 20                                                | 0.05                                                | 14.0 | 14.4                                                        | 18.0 | 85                                             |
| BZX84B22  | ED      | 21.6                                                     | 22  | 22.5 | 55                                               | 20.7                                                       | 23.2 | 250                                                | 20.9                                                      | 23.4 | 25                                                | 0.05                                                | 15.4 | 16.4                                                        | 20.0 | 85                                             |
| BZX84B24  | EE      | 23.5                                                     | 24  | 24.5 | 70                                               | 22.7                                                       | 25.5 | 250                                                | 22.9                                                      | 25.7 | 25                                                | 0.05                                                | 16.8 | 18.4                                                        | 22.0 | 80                                             |
| TYPE NO.  | Marking | $V_{Z1}$ Below<br>@ $I_{ZT1} = 2 \text{ mA}$<br>(Note 1) |     |      | $Z_{ZT1}$<br>Below<br>@ $I_{ZT1} = 2 \text{ mA}$ | $V_{Z2}$ Below<br>@ $I_{ZT2} = 0.1 \text{ mA}$<br>(Note 1) |      | $Z_{ZT2}$<br>Below<br>@ $I_{ZT4} = 0.5 \text{ mA}$ | $V_{Z3}$ Below<br>@ $I_{ZT3} = 10 \text{ mA}$<br>(Note 1) |      | $Z_{ZT3}$<br>Below<br>@ $I_{ZT3} = 10 \text{ mA}$ | Max. Reverse<br>Leakage<br>Current<br>$I_R$ @ $V_R$ |      | $\Theta_{VZ}$<br>(mV/k) Below<br>@ $I_{ZT1} = 2 \text{ mA}$ |      | $C$ (pF)<br>@ $V_R = 0$<br>$f = 1 \text{ MHz}$ |
|           |         | (V)                                                      |     |      | (Ω)                                              | (V)                                                        |      | (Ω)                                                | (V)                                                       |      | (Ω)                                               | (μA)                                                | (V)  |                                                             |      |                                                |
|           |         | Min                                                      | Nom | Max  |                                                  | Min                                                        | Max  |                                                    | Min                                                       | Max  |                                                   |                                                     |      | Min                                                         | Max  |                                                |
| BZX84B27  | EF      | 26.4                                                     | 27  | 27.6 | 80                                               | 25                                                         | 28.9 | 300                                                | 25.2                                                      | 29.3 | 45                                                | 0.05                                                | 18.9 | 21.4                                                        | 25.3 | 70                                             |
| BZX84B30  | EH      | 29.4                                                     | 30  | 30.6 | 80                                               | 27.8                                                       | 32   | 300                                                | 28.1                                                      | 32.4 | 50                                                | 0.05                                                | 21.0 | 24.4                                                        | 29.4 | 70                                             |
| BZX84B33  | EJ      | 32.3                                                     | 33  | 33.7 | 80                                               | 30.8                                                       | 35   | 325                                                | 31.1                                                      | 35.4 | 55                                                | 0.05                                                | 23.1 | 27.4                                                        | 33.4 | 70                                             |
| BZX84B36  | EK      | 35.2                                                     | 36  | 36.8 | 90                                               | 33.8                                                       | 38   | 350                                                | 34.1                                                      | 38.4 | 60                                                | 0.05                                                | 25.2 | 30.4                                                        | 37.4 | 70                                             |
| BZX84B39  | EM      | 38.2                                                     | 39  | 39.8 | 130                                              | 36.7                                                       | 41   | 35                                                 | 37.1                                                      | 41.5 | 70                                                | 0.05                                                | 27.3 | 33.4                                                        | 41.2 | 45                                             |
| BZX84B43  | EN      | 42.1                                                     | 43  | 43.9 | 150                                              | 39.7                                                       | 46   | 375                                                | 40.1                                                      | 46.5 | 80                                                | 0.05                                                | 30.1 | 37.6                                                        | 46.6 | 40                                             |
| BZX84B47  | EP      | 46.0                                                     | 47  | 48   | 170                                              | 43.7                                                       | 50   | 375                                                | 44.1                                                      | 50.5 | 90                                                | 0.05                                                | 32.9 | 42.0                                                        | 51.8 | 40                                             |

#### Notes :

(1) Tested with pulses  $t_p = 20 \text{ ms}$ .

(1) The Zener impedance,  $Z_{ZT2}$  for the 27 through 75 volt types is tested at 0.5 mA rather than the test current of 0.1mA used for  $V_{Z2}$



## Zener Diodes 0.35 W

The plastic material carries U/L recognition 94V-0.

| Type No. | Marking Code | Zener Voltage <sup>(1)</sup> |      | Test Current | Max. Dynamic Resistance |                   | Test Current | Maximum Reverse Voltage |     | Maximum Zener Current |
|----------|--------------|------------------------------|------|--------------|-------------------------|-------------------|--------------|-------------------------|-----|-----------------------|
|          |              | $V_Z @ I_{ZT}$ (V)           |      | $I_{ZT}$     | $Z_{ZT} @ I_{ZT}$       | $Z_{ZK} @ I_{ZK}$ | $I_{ZK}$     | $I_R$ at $V_R$          |     | $I_{ZM}$              |
|          |              | Min.                         | Max. | (mA)         | ( $\Omega$ )            | ( $\Omega$ )      | (mA)         | ( $\mu$ A)              | (V) | (mA)                  |

### BZX84CxxCA Series, 0.35 W, Case Type : SOT-23



|             |    |      |      |     |     |     |     |      |     |     |
|-------------|----|------|------|-----|-----|-----|-----|------|-----|-----|
| BZX84C3V0CA | MR | 2.8  | 3.2  | 5.0 | 100 | 600 | 1.0 | 4.0  | 1.0 | 109 |
| BZX84C3V3CA | MX | 3.1  | 3.5  | 5.0 | 95  | 600 | 1.0 | 2.0  | 1.0 | 100 |
| BZX84C3V6CA | MY | 3.4  | 3.8  | 5.0 | 95  | 600 | 1.0 | 2.0  | 1.0 | 92  |
| BZX84C3V9CA | MZ | 3.7  | 4.1  | 5.0 | 90  | 600 | 1.0 | 2.0  | 1.0 | 85  |
| BZX84C4V3CA | NA | 4.0  | 4.6  | 5.0 | 90  | 600 | 1.0 | 1.0  | 1.0 | 76  |
| BZX84C4V7CA | NB | 4.4  | 5.0  | 5.0 | 80  | 500 | 1.0 | 3.0  | 2.0 | 70  |
| BZX84C5V1CA | NC | 4.8  | 5.4  | 5.0 | 60  | 480 | 1.0 | 2.0  | 2.0 | 65  |
| BZX84C5V6CA | ND | 5.2  | 6.0  | 5.0 | 40  | 400 | 1.0 | 1.0  | 2.0 | 58  |
| BZX84C6V2CA | NE | 5.8  | 6.6  | 5.0 | 10  | 150 | 1.0 | 3.0  | 4.0 | 53  |
| BZX84C6V8CA | NF | 6.4  | 7.2  | 5.0 | 10  | 80  | 1.0 | 2.0  | 4.0 | 49  |
| BZX84C7V5CA | NH | 7.0  | 7.9  | 5.0 | 10  | 80  | 1.0 | 1.0  | 5.0 | 44  |
| BZX84C8V2CA | NJ | 7.7  | 8.7  | 5.0 | 10  | 80  | 1.0 | 0.7  | 5.0 | 40  |
| BZX84C9V1CA | NK | 8.5  | 9.6  | 5.0 | 15  | 100 | 1.0 | 0.5  | 6.0 | 36  |
| BZX84C10CA  | NM | 9.4  | 10.6 | 5.0 | 20  | 150 | 1.0 | 0.2  | 7.0 | 33  |
| BZX84C11CA  | NN | 10.4 | 11.6 | 5.0 | 20  | 150 | 1.0 | 0.1  | 8.0 | 30  |
| BZX84C12CA  | NP | 11.4 | 12.7 | 5.0 | 25  | 150 | 1.0 | 0.1  | 8.0 | 28  |
| BZX84C13CA  | NX | 12.4 | 14.1 | 5.0 | 30  | 170 | 1.0 | 0.1  | 8.0 | 25  |
| BZX84C15CA  | NY | 13.8 | 15.6 | 5.0 | 30  | 200 | 1.0 | 0.05 | 10  | 22  |
| BZX84C16CA  | NZ | 15.3 | 17.1 | 5.0 | 40  | 200 | 1.0 | 0.05 | 11  | 20  |
| BZX84C18CA  | PA | 16.8 | 19.1 | 5.0 | 50  | 225 | 1.0 | 0.05 | 13  | 18  |
| BZX84C20CA  | PB | 18.8 | 21.2 | 5.0 | 50  | 225 | 1.0 | 0.05 | 14  | 17  |
| BZX84C22CA  | PC | 20.8 | 23.3 | 5.0 | 55  | 250 | 1.0 | 0.05 | 15  | 15  |
| BZX84C24CA  | PD | 22.8 | 25.6 | 5.0 | 80  | 250 | 1.0 | 0.05 | 17  | 14  |
| BZX84C27CA  | PE | 25.1 | 28.9 | 2.0 | 80  | 300 | 0.5 | 0.05 | 19  | 12  |
| BZX84C30CA  | PF | 28   | 32   | 2.0 | 80  | 300 | 0.5 | 0.05 | 21  | 11  |
| BZX84C33CA  | PH | 31   | 35   | 2.0 | 80  | 325 | 0.5 | 0.05 | 23  | 10  |
| BZX84C36CA  | PJ | 34   | 38   | 2.0 | 90  | 350 | 0.5 | 0.05 | 25  | 9   |
| BZX84C39CA  | PM | 37   | 41   | 2.0 | 90  | 350 | 0.5 | 0.05 | 27  | 9   |
| BZX84C43CA  | PN | 40   | 46   | 2.0 | 100 | 375 | 0.5 | 0.05 | 30  | 8   |
| BZX84C47CA  | PP | 44   | 50   | 2.0 | 100 | 375 | 0.5 | 0.05 | 33  | 7   |

Note : (1) Tested with pulses  $t_p = 20$  ms.



## Zener Diodes 0.35 W

The plastic material carries U/L recognition 94V-0.

| Type No. | Marking Code | Zener Voltage <sup>(1)</sup> |      |      | Test Current | Max. Dynamic Resistance | Maximum Reverse Voltage |       |
|----------|--------------|------------------------------|------|------|--------------|-------------------------|-------------------------|-------|
|          |              | $V_Z @ I_{ZT}$ (V)           |      |      | $I_{ZT}$     | $Z_{ZT} @ I_{ZT}$       | $I_R$ at                | $V_R$ |
|          |              | Min.                         | Nom. | Max. | (mA)         | ( $\Omega$ )            | ( $\mu A$ )             | (V)   |

### BZX84CxxCC Series, 0.35 W, Case Type : SOT-23



|             |    |      |     |      |     |     |      |      |
|-------------|----|------|-----|------|-----|-----|------|------|
| BZX84C2V4CC | JH | 2.2  | 2.4 | 2.6  | 5.0 | 100 | 50   | 1.0  |
| BZX84C2V7CC | JJ | 2.5  | 2.7 | 2.9  | 5.0 | 100 | 20   | 1.0  |
| BZX84C3V0CC | JK | 2.8  | 3.0 | 3.2  | 5.0 | 95  | 10   | 1.0  |
| BZX84C3V3CC | JM | 3.1  | 3.3 | 3.5  | 5.0 | 95  | 5.0  | 1.0  |
| BZX84C3V6CC | JN | 3.4  | 3.6 | 3.8  | 5.0 | 90  | 5.0  | 1.0  |
| BZX84C3V9CC | JP | 3.7  | 3.9 | 4.1  | 5.0 | 90  | 3.0  | 1.0  |
| BZX84C4V3CC | JR | 4.0  | 4.3 | 4.6  | 5.0 | 90  | 3.0  | 1.0  |
| BZX84C4V7CC | JX | 4.4  | 4.7 | 5.0  | 5.0 | 80  | 3.0  | 2.0  |
| BZX84C5V1CC | JY | 4.8  | 5.1 | 5.4  | 5.0 | 60  | 2.0  | 2.0  |
| BZX84C5V6CC | JZ | 5.2  | 5.6 | 6.0  | 5.0 | 40  | 1.0  | 2.0  |
| BZX84C6V2CC | KA | 5.8  | 6.2 | 6.6  | 5.0 | 10  | 3.0  | 4.0  |
| BZX84C6V8CC | KB | 6.4  | 6.8 | 7.2  | 5.0 | 15  | 2.0  | 4.0  |
| BZX84C7V5CC | KC | 7.0  | 7.5 | 7.9  | 5.0 | 15  | 1.0  | 5.0  |
| BZX84C8V2CC | KD | 7.7  | 8.2 | 8.7  | 5.0 | 15  | 0.7  | 5.0  |
| BZX84C9V1CC | KE | 8.5  | 9.1 | 9.6  | 5.0 | 15  | 0.5  | 6.0  |
| BZX84C10CC  | KF | 9.4  | 10  | 10.6 | 5.0 | 20  | 0.2  | 7.0  |
| BZX84C11CC  | KH | 10.4 | 11  | 11.6 | 5.0 | 20  | 0.1  | 8.0  |
| BZX84C12CC  | KJ | 11.4 | 12  | 12.7 | 5.0 | 25  | 0.1  | 8.0  |
| BZX84C13CC  | KK | 12.4 | 13  | 14.1 | 5.0 | 30  | 0.1  | 8.0  |
| BZX84C15CC  | KM | 13.8 | 15  | 15.6 | 5.0 | 30  | 0.05 | 10.5 |
| BZX84C16CC  | KN | 15.3 | 16  | 17.1 | 5.0 | 40  | 0.05 | 11.2 |
| BZX84C18CC  | KP | 16.8 | 18  | 19.1 | 5.0 | 45  | 0.05 | 12.6 |
| BZX84C20CC  | KR | 18.8 | 20  | 21.2 | 5.0 | 55  | 0.05 | 14.0 |
| BZX84C22CC  | KX | 20.8 | 22  | 23.3 | 5.0 | 55  | 0.05 | 15.4 |
| BZX84C24CC  | KY | 22.8 | 24  | 25.6 | 5.0 | 70  | 0.05 | 16.8 |
| BZX84C27CC  | KZ | 25.1 | 27  | 28.9 | 2.0 | 80  | 0.05 | 18.9 |
| BZX84C30CC  | MA | 28   | 30  | 32   | 2.0 | 80  | 0.05 | 21.0 |
| BZX84C33CC  | MB | 31   | 33  | 35   | 2.0 | 80  | 0.05 | 23.1 |
| BZX84C36CC  | MC | 34   | 36  | 38   | 2.0 | 90  | 0.05 | 25.2 |
| BZX84C39CC  | MD | 37   | 39  | 41   | 2.0 | 130 | 0.05 | 27.3 |
| BZX84C43CC  | ME | 40   | 43  | 46   | 2.0 | 150 | 0.05 | 30.1 |
| BZX84C47CC  | MF | 44   | 47  | 50   | 2.0 | 170 | 0.05 | 32.9 |
| BZX84C51CC  | MH | 48   | 51  | 54   | 2.0 | 180 | 0.05 | 35.7 |
| BZX84C56CC  | MJ | 52   | 56  | 60   | 2.0 | 200 | 0.05 | 39.2 |
| BZX84C62CC  | MK | 58   | 62  | 66   | 2.0 | 215 | 0.05 | 43.4 |
| BZX84C68CC  | MM | 64   | 68  | 72   | 2.0 | 240 | 0.05 | 47.6 |
| BZX84C75CC  | MN | 70   | 75  | 79   | 2.0 | 255 | 0.05 | 52.5 |

Note : (1) Tested with pulses  $t_p = 20$  ms.



## Zener Diodes 0.35 W

The plastic material carries U/L recognition 94V-0.

| Type No. | Marking | Zener Voltage <sup>(1)</sup> |                   |      | Test Current    | Maximum Zener Impedance           |                                   | Test Current    | Maximum Reverse Leakage Current |     |
|----------|---------|------------------------------|-------------------|------|-----------------|-----------------------------------|-----------------------------------|-----------------|---------------------------------|-----|
|          |         | V <sub>Z</sub>               | @ I <sub>ZT</sub> | (V)  | I <sub>ZT</sub> | Z <sub>ZT</sub> @ I <sub>ZT</sub> | Z <sub>ZK</sub> @ I <sub>ZK</sub> | I <sub>ZK</sub> | I <sub>R</sub> @ V <sub>R</sub> |     |
|          |         | Min.                         | Nom.              | Max. | (mA)            | (Ω)                               | (Ω)                               | (mA)            | (μA)                            | (V) |

### MMBZ5221B Series, 0.35 W, Case Type : SOT-23



|           |    |       |     |       |     |     |      |      |     |     |
|-----------|----|-------|-----|-------|-----|-----|------|------|-----|-----|
| MMBZ5221B | Y0 | 2.28  | 2.4 | 2.52  | 20  | 30  | 1200 | 0.25 | 100 | 1.0 |
| MMBZ5223B | Z0 | 2.57  | 2.7 | 2.84  | 20  | 30  | 1300 | 0.25 | 75  | 1.0 |
| MMBZ5225B | AA | 2.85  | 3.0 | 3.15  | 20  | 29  | 1600 | 0.25 | 50  | 1.0 |
| MMBZ5226B | AB | 3.14  | 3.3 | 3.47  | 20  | 28  | 1600 | 0.25 | 25  | 1.0 |
| MMBZ5227B | AC | 3.42  | 3.6 | 3.78  | 20  | 24  | 1700 | 0.25 | 15  | 1.0 |
| MMBZ5228B | AD | 3.71  | 3.9 | 4.10  | 20  | 23  | 1900 | 0.25 | 10  | 1.0 |
| MMBZ5229B | AE | 4.09  | 4.3 | 4.52  | 20  | 22  | 2000 | 0.25 | 5   | 1.0 |
| MMBZ5230B | AF | 4.47  | 4.7 | 4.94  | 20  | 19  | 1900 | 0.25 | 5   | 2.0 |
| MMBZ5231B | AH | 4.85  | 5.1 | 5.36  | 20  | 17  | 1600 | 0.25 | 5   | 2.0 |
| MMBZ5232B | AJ | 5.32  | 5.6 | 5.88  | 20  | 11  | 1600 | 0.25 | 5   | 3.0 |
| MMBZ5233B | AK | 5.70  | 6.0 | 6.30  | 20  | 7   | 1600 | 0.25 | 5   | 3.5 |
| MMBZ5234B | AM | 5.89  | 6.2 | 6.51  | 20  | 7   | 1000 | 0.25 | 5   | 4.0 |
| MMBZ5235B | AN | 6.46  | 6.8 | 7.14  | 20  | 5   | 750  | 0.25 | 3   | 5.0 |
| MMBZ5236B | AP | 7.13  | 7.5 | 7.88  | 20  | 6   | 500  | 0.25 | 3   | 6.0 |
| MMBZ5237B | AR | 7.79  | 8.2 | 8.61  | 20  | 8   | 500  | 0.25 | 3   | 6.5 |
| MMBZ5238B | AX | 8.27  | 8.7 | 9.14  | 20  | 8   | 600  | 0.25 | 3   | 6.5 |
| MMBZ5239B | AY | 8.65  | 9.1 | 9.56  | 20  | 10  | 600  | 0.25 | 3   | 7.0 |
| MMBZ5240B | AZ | 9.50  | 10  | 10.50 | 20  | 17  | 600  | 0.25 | 3   | 8.0 |
| MMBZ5241B | BA | 10.45 | 11  | 11.50 | 20  | 22  | 600  | 0.25 | 2   | 8.4 |
| MMBZ5242B | BB | 11.40 | 12  | 12.60 | 20  | 30  | 600  | 0.25 | 1   | 9.1 |
| MMBZ5243B | BC | 12.35 | 13  | 13.65 | 9.5 | 13  | 600  | 0.25 | 0.5 | 9.9 |
| MMBZ5245B | BE | 14.25 | 15  | 15.75 | 8.5 | 16  | 600  | 0.25 | 0.1 | 11  |
| MMBZ5246B | BF | 15.20 | 16  | 16.80 | 7.8 | 17  | 600  | 0.25 | 0.1 | 12  |
| MMBZ5247B | BH | 16.15 | 17  | 17.85 | 7.4 | 19  | 600  | 0.25 | 0.1 | 13  |
| MMBZ5248B | BJ | 17.10 | 18  | 18.90 | 7.0 | 21  | 600  | 0.25 | 0.1 | 14  |
| MMBZ5249B | BK | 18.05 | 19  | 19.95 | 6.6 | 23  | 600  | 0.25 | 0.1 | 14  |
| MMBZ5250B | BM | 19.00 | 20  | 21.00 | 6.2 | 25  | 600  | 0.25 | 0.1 | 15  |
| MMBZ5251B | BN | 20.90 | 22  | 23.10 | 5.6 | 29  | 600  | 0.25 | 0.1 | 17  |
| MMBZ5252B | BP | 22.80 | 24  | 25.20 | 5.2 | 33  | 600  | 0.25 | 0.1 | 18  |
| MMBZ5253B | BR | 23.75 | 25  | 26.25 | 5.0 | 35  | 600  | 0.25 | 0.1 | 19  |
| MMBZ5254B | BX | 25.65 | 27  | 28.35 | 4.6 | 41  | 600  | 0.25 | 0.1 | 21  |
| MMBZ5255B | BY | 26.60 | 28  | 29.40 | 4.5 | 44  | 600  | 0.25 | 0.1 | 21  |
| MMBZ5256B | BZ | 28.50 | 30  | 31.50 | 4.2 | 49  | 600  | 0.25 | 0.1 | 23  |
| MMBZ5257B | CA | 31.35 | 33  | 34.65 | 3.8 | 58  | 700  | 0.25 | 0.1 | 25  |
| MMBZ5258B | CB | 34.20 | 36  | 37.80 | 3.4 | 70  | 700  | 0.25 | 0.1 | 27  |
| MMBZ5259B | CC | 37.05 | 39  | 40.95 | 3.2 | 80  | 800  | 0.25 | 0.1 | 30  |
| MMBZ5260B | CD | 40.85 | 43  | 45.15 | 3.0 | 93  | 900  | 0.25 | 0.1 | 33  |
| MMBZ5261B | CE | 44.65 | 47  | 49.35 | 2.7 | 105 | 1000 | 0.25 | 0.1 | 36  |

Note :

(1) Tested with pulses tp = 20 ms



## Zener Diodes 0.40 W

| Type No. | Grade | Zener Voltage<br>V <sub>Z</sub> @ I <sub>ZT</sub> |      |           |      |           |      | Test<br>Current | Maximum Dynamic<br>Resistance |  | Maximum<br>Reverse<br>Current |  |                 |                     |                                 |
|----------|-------|---------------------------------------------------|------|-----------|------|-----------|------|-----------------|-------------------------------|--|-------------------------------|--|-----------------|---------------------|---------------------------------|
|          |       | Suffix -1                                         |      | Suffix -2 |      | Suffix -3 |      |                 |                               |  |                               |  |                 |                     |                                 |
|          |       | min.                                              | max. | min.      | max. | min.      | max. |                 |                               |  |                               |  | I <sub>ZT</sub> | rd @ I <sub>Z</sub> | I <sub>R</sub> @ V <sub>R</sub> |
|          |       | (V)                                               | (V)  | (V)       | (V)  | (V)       | (V)  |                 |                               |  |                               |  | (mA)            | (Ω) (mA)            | (μA) (V)                        |

### HZ6L Series, 0.4 W, Case Type : DO-35



|       |   |      |      |      |      |      |      |     |     |     |   |      |
|-------|---|------|------|------|------|------|------|-----|-----|-----|---|------|
| HZ6L  | A | 5.2  | 5.5  | 5.3  | 5.6  | 5.4  | 5.7  | 0.5 | 150 | 0.5 | 1 | 2.0  |
|       | B | 5.5  | 5.8  | 5.6  | 5.9  | 5.7  | 6.0  | 0.5 | 80  | 0.5 | 1 | 2.0  |
|       | C | 5.8  | 6.1  | 6.0  | 6.3  | 6.1  | 6.4  | 0.5 | 60  | 0.5 | 1 | 2.0  |
| HZ7L  | A | 6.3  | 6.6  | 6.4  | 6.7  | 6.6  | 6.9  | 0.5 | 60  | 0.5 | 1 | 3.5  |
|       | B | 6.7  | 7.0  | 6.9  | 7.2  | 7.0  | 7.3  | 0.5 | 60  | 0.5 | 1 | 3.5  |
|       | C | 7.2  | 7.6  | 7.3  | 7.7  | 7.5  | 7.9  | 0.5 | 60  | 0.5 | 1 | 3.5  |
| HZ9L  | A | 7.7  | 8.1  | 7.9  | 8.3  | 8.1  | 8.5  | 0.5 | 60  | 0.5 | 1 | 6.0  |
|       | B | 8.3  | 8.7  | 8.5  | 8.9  | 8.7  | 9.1  | 0.5 | 60  | 0.5 | 1 | 6.0  |
|       | C | 8.9  | 9.3  | 9.1  | 9.5  | 9.3  | 9.7  | 0.5 | 60  | 0.5 | 1 | 6.0  |
| HZ11L | A | 9.5  | 9.9  | 9.7  | 10.1 | 9.9  | 10.3 | 0.5 | 80  | 0.5 | 1 | 8.0  |
|       | B | 10.2 | 10.6 | 10.4 | 10.8 | 10.7 | 11.1 | 0.5 | 80  | 0.5 | 1 | 8.0  |
|       | C | 10.9 | 11.3 | 11.1 | 11.6 | 11.4 | 11.9 | 0.5 | 80  | 0.5 | 1 | 8.0  |
| HZ12L | A | 11.6 | 12.1 | 11.9 | 12.4 | 12.2 | 12.7 | 0.5 | 80  | 0.5 | 1 | 10.5 |
|       | B | 12.4 | 12.9 | 12.6 | 13.1 | 12.9 | 13.4 | 0.5 | 80  | 0.5 | 1 | 10.5 |
|       | C | 13.2 | 13.7 | 13.5 | 14.0 | 13.8 | 14.3 | 0.5 | 80  | 0.5 | 1 | 10.5 |
| HZ15L |   | 14.1 | 14.7 | 14.5 | 15.1 | 14.9 | 15.5 | 0.5 | 80  | 0.5 | 1 | 13.0 |
| HZ16L |   | 15.3 | 15.9 | 15.7 | 16.5 | 16.3 | 17.1 | 0.5 | 80  | 0.5 | 1 | 14.0 |
| HZ18L |   | 16.9 | 17.7 | 17.5 | 18.3 | 18.1 | 19.0 | 0.5 | 80  | 0.5 | 1 | 15.0 |
| HZ20L |   | 18.8 | 19.7 | 19.5 | 20.4 | 20.2 | 21.1 | 0.5 | 100 | 0.5 | 1 | 18.0 |
| HZ22L |   | 20.9 | 21.9 | 21.6 | 22.6 | 22.3 | 23.3 | 0.5 | 100 | 0.5 | 1 | 20.0 |
| HZ24L |   | 22.9 | 24.0 | 23.6 | 24.7 | 24.3 | 25.5 | 0.5 | 120 | 0.5 | 1 | 22.0 |
| HZ27L |   | 25.2 | 26.6 | 26.2 | 27.6 | 27.2 | 28.6 | 0.5 | 150 | 0.5 | 1 | 24.0 |
| HZ30L |   | 28.2 | 29.6 | 29.2 | 30.6 | 30.2 | 31.6 | 0.5 | 200 | 0.5 | 1 | 27.0 |
| HZ33L |   | 31.2 | 32.6 | 32.2 | 33.6 | 33.2 | 34.6 | 0.5 | 250 | 0.5 | 1 | 30.0 |
| HZ36L |   | 34.2 | 35.7 | 35.3 | 36.8 | 36.4 | 38.0 | 0.5 | 300 | 0.5 | 1 | 33.0 |

#### Note :

The lower voltage types (HZ6L - HZ12L) are available in 3 grades, "A" to "C", each with suffix "-1", "-2" or "-3"

For example the type with  $V_Z = 8.5 - 8.9V$  is HZ9B2L

The higher voltage types are only available with suffix "-1", "-2" or "-3" (no grade) e.g. HZ30-3L



## Zener Diodes 0.40 W

| Type No. | Suffix <sup>(1)</sup> | Zener Voltage      |      | Test Current    | Maximum Dynamic Resistance |                  | Maximum Reverse Current |                  | Typical Temperature Coefficient * |                |
|----------|-----------------------|--------------------|------|-----------------|----------------------------|------------------|-------------------------|------------------|-----------------------------------|----------------|
|          |                       | V <sub>Z</sub> (V) |      | I <sub>ZT</sub> | r <sub>d</sub>             | @ I <sub>Z</sub> | I <sub>R</sub>          | @ V <sub>R</sub> | γ <sub>Z</sub> (mV/ °C)           | I <sub>Z</sub> |
|          |                       | min.               | max. | (mA)            | (Ω)                        | (mA)             | (μA)                    | (V)              |                                   | (mA)           |

### HZK-L Series, 0.4 W, Case Type : Mini MELF



|        |    |      |      |     |     |     |   |      |     |     |     |
|--------|----|------|------|-----|-----|-----|---|------|-----|-----|-----|
| HZK6L  | A1 | 5.2  | 5.5  | 0.5 | 150 | 0.5 | 1 | 2.0  | 1.0 | 0.5 |     |
|        | A2 | 5.3  | 5.6  |     | 80  |     |   |      |     |     |     |
|        | A3 | 5.4  | 5.7  |     |     |     |   |      |     |     |     |
|        | B1 | 5.5  | 5.8  |     |     |     |   |      |     |     |     |
|        | B2 | 5.6  | 5.9  |     |     |     |   |      |     |     |     |
|        | B3 | 5.7  | 6.0  |     |     |     |   |      |     |     |     |
|        | C1 | 5.8  | 6.1  |     |     |     |   |      |     |     |     |
|        | C2 | 6.0  | 6.3  |     |     |     |   |      |     |     |     |
|        | C3 | 6.1  | 6.4  |     |     |     |   |      |     |     | 60  |
| HZK7L  | A1 | 6.3  | 6.6  | 0.5 | 60  | 0.5 | 1 | 3.5  | 2.0 | 0.5 |     |
|        | A2 | 6.4  | 6.7  |     |     |     |   |      |     |     |     |
|        | A3 | 6.6  | 6.9  |     |     |     |   |      |     |     |     |
|        | B1 | 6.7  | 7.0  |     |     |     |   |      |     |     |     |
|        | B2 | 6.9  | 7.2  |     |     |     |   |      |     |     |     |
|        | B3 | 7.0  | 7.3  |     |     |     |   |      |     |     |     |
|        | C1 | 7.2  | 7.6  |     |     |     |   |      |     |     |     |
|        | C2 | 7.3  | 7.7  |     |     |     |   |      |     |     |     |
|        | C3 | 7.5  | 7.9  |     |     |     |   |      |     |     | 0.5 |
| HZK9L  | A1 | 7.7  | 8.1  |     |     |     |   |      |     |     |     |
|        | A2 | 7.9  | 8.3  |     |     |     |   |      |     |     |     |
|        | A3 | 8.1  | 8.5  |     |     |     |   |      |     |     |     |
|        | B1 | 8.3  | 8.7  |     |     |     |   |      |     |     |     |
|        | B2 | 8.5  | 8.9  |     |     |     |   |      |     |     |     |
|        | B3 | 8.7  | 9.1  |     |     |     |   |      |     |     |     |
|        | C1 | 8.9  | 9.3  |     |     |     |   |      |     |     |     |
|        | C2 | 9.1  | 9.5  |     |     |     |   |      |     |     |     |
|        | C3 | 9.3  | 9.7  | 0.5 | 80  | 0.5 | 1 | 8.0  | 5.0 | 0.5 |     |
| HZK11L | A1 | 9.5  | 9.9  |     |     |     |   |      |     |     |     |
|        | A2 | 9.7  | 10.1 |     |     |     |   |      |     |     |     |
|        | A3 | 9.9  | 10.3 |     |     |     |   |      |     |     |     |
|        | B1 | 10.2 | 10.6 |     |     |     |   |      |     |     |     |
|        | B2 | 10.4 | 10.8 |     |     |     |   |      |     |     |     |
|        | B3 | 10.7 | 11.1 |     |     |     |   |      |     |     |     |
|        | C1 | 10.9 | 11.3 |     |     |     |   |      |     |     |     |
|        | C2 | 11.1 | 11.6 |     |     |     |   |      |     |     |     |
|        | C3 | 11.4 | 11.9 | 0.5 | 80  | 0.5 | 1 | 10.5 | 7.0 | 0.5 |     |
| HZK12L | A1 | 11.6 | 12.1 |     |     |     |   |      |     |     |     |
|        | A2 | 11.9 | 12.4 |     |     |     |   |      |     |     |     |
|        | A3 | 12.2 | 12.7 |     |     |     |   |      |     |     |     |
|        | B1 | 12.4 | 12.9 |     |     |     |   |      |     |     |     |
|        | B2 | 12.6 | 13.1 |     |     |     |   |      |     |     |     |
|        | B3 | 12.9 | 13.4 |     |     |     |   |      |     |     |     |
|        | C1 | 13.2 | 13.7 |     |     |     |   |      |     |     |     |
|        | C2 | 13.5 | 14.0 |     |     |     |   |      |     |     |     |
|        | C3 | 13.8 | 14.3 |     |     |     |   |      |     |     |     |

**Note :** (1) When placing an order for HZK-L type, enter suffix as follows: HZK6A1L, HZK6A2L.....HZK36-3L



## Zener Diodes 0.40 W

| Type No. | Suffix <sup>(1)</sup> | Zener Voltage      |      | Test Current    | Maximum Dynamic Resistance |                  | Maximum Reverse Current |                  | Typical Temperature Coefficient * |                |
|----------|-----------------------|--------------------|------|-----------------|----------------------------|------------------|-------------------------|------------------|-----------------------------------|----------------|
|          |                       | V <sub>Z</sub> (V) |      | I <sub>ZT</sub> | r <sub>d</sub>             | @ I <sub>Z</sub> | I <sub>R</sub>          | @ V <sub>R</sub> | γ <sub>Z</sub> (mV/ °C)           | I <sub>Z</sub> |
|          |                       | min.               | max. | (mA)            | (Ω)                        | (mA)             | (μA)                    | (V)              |                                   | (mA)           |

### HZK-L Series, 0.4 W, Case Type : Mini MELF



|        |   |      |      |     |     |     |   |      |      |     |
|--------|---|------|------|-----|-----|-----|---|------|------|-----|
| HZK15L | 1 | 14.1 | 14.7 | 0.5 | 80  | 0.5 | 1 | 13.0 | 9.0  | 0.5 |
|        | 2 | 14.5 | 15.1 |     |     |     |   |      |      |     |
|        | 3 | 14.9 | 15.5 |     |     |     |   |      |      |     |
| HZK16L | 1 | 15.3 | 15.9 | 0.5 | 80  | 0.5 | 1 | 14.0 | 10.0 | 0.5 |
|        | 2 | 15.7 | 16.5 |     |     |     |   |      |      |     |
|        | 3 | 16.3 | 17.1 |     |     |     |   |      |      |     |
| HZK18L | 1 | 16.9 | 17.7 | 0.5 | 80  | 0.5 | 1 | 15.0 | 12.0 | 0.5 |
|        | 2 | 17.5 | 18.3 |     |     |     |   |      |      |     |
|        | 3 | 18.1 | 19.0 |     |     |     |   |      |      |     |
| HZK20L | 1 | 18.8 | 19.7 | 0.5 | 100 | 0.5 | 1 | 18.0 | 14.0 | 0.5 |
|        | 2 | 19.5 | 20.4 |     |     |     |   |      |      |     |
|        | 3 | 20.2 | 21.1 |     |     |     |   |      |      |     |
| HZK22L | 1 | 20.9 | 21.9 | 0.5 | 100 | 0.5 | 1 | 20.0 | 16.0 | 0.5 |
|        | 2 | 21.6 | 22.6 |     |     |     |   |      |      |     |
|        | 3 | 22.3 | 23.3 |     |     |     |   |      |      |     |
| HZK24L | 1 | 22.9 | 24.0 | 0.5 | 120 | 0.5 | 1 | 22.0 | 18.0 | 0.5 |
|        | 2 | 23.6 | 24.7 |     |     |     |   |      |      |     |
|        | 3 | 24.3 | 25.5 |     |     |     |   |      |      |     |
| HZK27L | 1 | 25.2 | 26.6 | 0.5 | 150 | 0.5 | 1 | 24.0 | 20.0 | 0.5 |
|        | 2 | 26.2 | 27.6 |     |     |     |   |      |      |     |
|        | 3 | 27.2 | 28.6 |     |     |     |   |      |      |     |
| HZK30L | 1 | 28.2 | 29.6 | 0.5 | 200 | 0.5 | 1 | 27.0 | 23.0 | 0.5 |
|        | 2 | 29.2 | 30.6 |     |     |     |   |      |      |     |
|        | 3 | 30.2 | 31.6 |     |     |     |   |      |      |     |
| HZK33L | 1 | 31.2 | 32.6 | 0.5 | 250 | 0.5 | 1 | 30.0 | 26.0 | 0.5 |
|        | 2 | 32.2 | 33.6 |     |     |     |   |      |      |     |
|        | 3 | 33.2 | 34.6 |     |     |     |   |      |      |     |
| HZK36L | 1 | 34.2 | 35.7 | 0.5 | 300 | 0.5 | 1 | 33.0 | 30.0 | 0.5 |
|        | 2 | 35.3 | 36.8 |     |     |     |   |      |      |     |
|        | 3 | 36.4 | 38.0 |     |     |     |   |      |      |     |

#### Note:

(1) When placing an order for HZK-L type, enter suffix as follows: HZK6A1L, HZK6A2L....HZK36-3L



## Zener Diodes 0.40 W

| Type No. | Suffix <sup>(1)</sup> | Zener Voltage      |      | Test Current    | Maximum Dynamic Resistance |                  | Maximum Reverse Current |                  | Typical Temperature Coefficient * |                |
|----------|-----------------------|--------------------|------|-----------------|----------------------------|------------------|-------------------------|------------------|-----------------------------------|----------------|
|          |                       | V <sub>Z</sub> (V) |      | I <sub>ZT</sub> | r <sub>d</sub>             | @ I <sub>Z</sub> | I <sub>R</sub>          | @ V <sub>R</sub> | γ <sub>Z</sub> (mV/ °C)           | I <sub>Z</sub> |
|          |                       | min.               | max. | (mA)            | (Ω)                        | (mA)             | (μA)                    | (V)              |                                   | (mA)           |

### HZS-L Series, 0.4 W, Case Type : DO-34



|        |    |      |      |     |     |     |   |      |      |     |
|--------|----|------|------|-----|-----|-----|---|------|------|-----|
| HZS6L  | A1 | 5.2  | 5.5  | 0.5 | 150 | 0.5 | 1 | 2.0  | 2.0  | 0.5 |
|        | A2 | 5.3  | 5.6  |     |     |     |   |      |      |     |
|        | A3 | 5.4  | 5.7  |     |     |     |   |      |      |     |
|        | B1 | 5.5  | 5.8  |     |     |     |   |      |      |     |
|        | B2 | 5.6  | 5.9  |     |     |     |   |      |      |     |
|        | B3 | 5.7  | 6.0  |     |     |     |   |      |      |     |
|        | C1 | 5.8  | 6.1  |     |     |     |   |      |      |     |
|        | C2 | 6.0  | 6.3  |     |     |     |   |      |      |     |
|        | C3 | 6.1  | 6.4  |     |     |     |   |      |      |     |
| HZS7L  | A1 | 6.3  | 6.6  | 0.5 | 60  | 0.5 | 1 | 3.5  | 3.0  | 0.5 |
|        | A2 | 6.4  | 6.7  |     |     |     |   |      |      |     |
|        | A3 | 6.6  | 6.9  |     |     |     |   |      |      |     |
|        | B1 | 6.7  | 7.0  |     |     |     |   |      |      |     |
|        | B2 | 6.9  | 7.2  |     |     |     |   |      |      |     |
|        | B3 | 7.0  | 7.3  |     |     |     |   |      |      |     |
|        | C1 | 7.2  | 7.6  |     |     |     |   |      |      |     |
|        | C2 | 7.3  | 7.7  |     |     |     |   |      |      |     |
|        | C3 | 7.5  | 7.9  |     |     |     |   |      |      |     |
| HZS9L  | A1 | 7.7  | 8.1  | 0.5 | 60  | 0.5 | 1 | 6.0  | 7.0  | 0.5 |
|        | A2 | 7.9  | 8.3  |     |     |     |   |      |      |     |
|        | A3 | 8.1  | 8.5  |     |     |     |   |      |      |     |
|        | B1 | 8.3  | 8.7  |     |     |     |   |      |      |     |
|        | B2 | 8.5  | 8.9  |     |     |     |   |      |      |     |
|        | B3 | 8.7  | 9.1  |     |     |     |   |      |      |     |
|        | C1 | 8.9  | 9.3  |     |     |     |   |      |      |     |
|        | C2 | 9.1  | 9.5  |     |     |     |   |      |      |     |
|        | C3 | 9.3  | 9.7  |     |     |     |   |      |      |     |
| HZS11L | A1 | 9.5  | 9.9  | 0.5 | 80  | 0.5 | 1 | 8.0  | 1.0  | 2.0 |
|        | A2 | 9.7  | 10.1 |     |     |     |   |      |      |     |
|        | A3 | 9.9  | 10.3 |     |     |     |   |      |      |     |
|        | B1 | 10.2 | 10.6 |     |     |     |   |      |      |     |
|        | B2 | 10.4 | 10.8 |     |     |     |   |      |      |     |
|        | B3 | 10.7 | 11.1 |     |     |     |   |      |      |     |
|        | C1 | 10.9 | 11.3 |     |     |     |   |      |      |     |
|        | C2 | 11.1 | 11.6 |     |     |     |   |      |      |     |
|        | C3 | 11.4 | 11.9 |     |     |     |   |      |      |     |
| HZS12L | A1 | 11.6 | 12.1 | 0.5 | 80  | 0.5 | 1 | 10.5 | 10.0 | 0.5 |
|        | A2 | 11.9 | 12.4 |     |     |     |   |      |      |     |
|        | A3 | 12.2 | 12.7 |     |     |     |   |      |      |     |
|        | B1 | 12.4 | 12.9 |     |     |     |   |      |      |     |
|        | B2 | 12.6 | 13.1 |     |     |     |   |      |      |     |
|        | B3 | 12.9 | 13.4 |     |     |     |   |      |      |     |
|        | C1 | 13.2 | 13.7 |     |     |     |   |      |      |     |
|        | C2 | 13.5 | 14.0 |     |     |     |   |      |      |     |
|        | C3 | 13.8 | 14.3 |     |     |     |   |      |      |     |

**Note:** (1) When placing an order for HZS-L type, enter suffix as follows: HZS6A1, HZS6A2L ..... HZS36-3L



## Zener Diodes 0.40 W

| Type No. | Suffix <sup>(1)</sup> | Zener Voltage      |      | Test Current    | Maximum Dynamic Resistance |                  | Maximum Reverse Current |                  | Typical Temperature Coefficient * |                |
|----------|-----------------------|--------------------|------|-----------------|----------------------------|------------------|-------------------------|------------------|-----------------------------------|----------------|
|          |                       | V <sub>Z</sub> (V) |      | I <sub>ZT</sub> | r <sub>d</sub>             | @ I <sub>Z</sub> | I <sub>R</sub>          | @ V <sub>R</sub> | γ <sub>Z</sub> (mV/ °C)           | I <sub>Z</sub> |
|          |                       | min.               | max. | (mA)            | (Ω)                        | (mA)             | (μA)                    | (V)              |                                   | (mA)           |

### HZS-L Series, 0.4 W, Case Type : DO-34



|        |   |      |      |     |     |     |   |      |      |     |
|--------|---|------|------|-----|-----|-----|---|------|------|-----|
| HZS15L | 1 | 14.1 | 14.7 | 0.5 | 80  | 0.5 | 1 | 13.0 | 12.0 | 0.5 |
|        | 2 | 14.5 | 15.1 |     |     |     |   |      |      |     |
|        | 3 | 14.9 | 15.5 |     |     |     |   |      |      |     |
| HZS16L | 1 | 15.3 | 15.9 | 0.5 | 80  | 0.5 | 1 | 14.0 | 13.0 | 0.5 |
|        | 2 | 15.7 | 16.5 |     |     |     |   |      |      |     |
|        | 3 | 16.3 | 17.1 |     |     |     |   |      |      |     |
| HZS18L | 1 | 16.9 | 17.7 | 0.5 | 80  | 0.5 | 1 | 15.0 | 16.0 | 0.5 |
|        | 2 | 17.5 | 18.3 |     |     |     |   |      |      |     |
|        | 3 | 18.1 | 19.0 |     |     |     |   |      |      |     |
| HZS20L | 1 | 18.8 | 19.7 | 0.5 | 100 | 0.5 | 1 | 18.0 | 18.0 | 0.5 |
|        | 2 | 19.5 | 20.4 |     |     |     |   |      |      |     |
|        | 3 | 20.2 | 21.1 |     |     |     |   |      |      |     |
| HZS22L | 1 | 20.9 | 21.9 | 0.5 | 100 | 0.5 | 1 | 20.0 | 20.0 | 0.5 |
|        | 2 | 21.6 | 22.6 |     |     |     |   |      |      |     |
|        | 3 | 22.3 | 23.3 |     |     |     |   |      |      |     |
| HZS24L | 1 | 22.9 | 24.0 | 0.5 | 120 | 0.5 | 1 | 22.0 | 23.0 | 0.5 |
|        | 2 | 23.6 | 24.7 |     |     |     |   |      |      |     |
|        | 3 | 24.3 | 25.5 |     |     |     |   |      |      |     |
| HZS27L | 1 | 25.2 | 26.6 | 0.5 | 150 | 0.5 | 1 | 24.0 | 26.0 | 0.5 |
|        | 2 | 26.2 | 27.6 |     |     |     |   |      |      |     |
|        | 3 | 27.2 | 28.6 |     |     |     |   |      |      |     |
| HZS30L | 1 | 28.2 | 29.6 | 0.5 | 200 | 0.5 | 1 | 27.0 | 29.0 | 0.5 |
|        | 2 | 29.2 | 30.6 |     |     |     |   |      |      |     |
|        | 3 | 30.2 | 31.6 |     |     |     |   |      |      |     |
| HZS33L | 1 | 31.2 | 32.6 | 0.5 | 250 | 0.5 | 1 | 30.0 | 32.0 | 0.5 |
|        | 2 | 32.2 | 33.6 |     |     |     |   |      |      |     |
|        | 3 | 33.2 | 34.6 |     |     |     |   |      |      |     |
| HZS36L | 1 | 34.2 | 35.7 | 0.5 | 300 | 0.5 | 1 | 33.0 | 36.0 | 0.5 |
|        | 2 | 35.3 | 36.8 |     |     |     |   |      |      |     |
|        | 3 | 36.4 | 38.0 |     |     |     |   |      |      |     |

#### Note:

(1) When placing an order for HZS-L type, enter suffix as follows: HZS6A1, HZS6A2L .....HZS36-3L



## Zener Diodes 0.40 W

| Type | Suffix <sup>(3)</sup> | Zener Voltage <sup>(1)</sup> |      | Test Current | Maximum Zener <sup>(2)</sup><br>Impedance |                     |          | Maximum Reverse Current |          |
|------|-----------------------|------------------------------|------|--------------|-------------------------------------------|---------------------|----------|-------------------------|----------|
|      |                       | $V_Z$ (V) at $I_{ZT}$        |      | $I_{ZT}$     | $Z_{ZT}$ @ $I_{ZT}$                       | $Z_{ZK}$ @ $I_{ZK}$ | $I_{ZK}$ | $I_R$                   | at $V_R$ |
|      |                       | min.                         | max. | (mA)         | ( $\Omega$ )                              | ( $\Omega$ )        | (mA)     | ( $\mu$ A)              | (V)      |

### RD2.0ES Series, 0.4 W, Case Type : DO-34



|         |     |      |      |   |     |      |     |     |     |
|---------|-----|------|------|---|-----|------|-----|-----|-----|
| RD2.0ES | AB  | 1.88 | 2.20 | 5 | 100 | 1000 | 0.5 | 120 | 0.5 |
|         | AB1 | 1.88 | 2.10 |   |     |      |     |     |     |
|         | AB2 | 2.02 | 2.20 |   |     |      |     |     |     |
| RD2.2ES | AB  | 2.12 | 2.41 | 5 | 100 | 1000 | 0.5 | 120 | 0.7 |
|         | AB1 | 2.12 | 2.30 |   |     |      |     |     |     |
|         | AB2 | 2.22 | 2.41 |   |     |      |     |     |     |
| RD2.4ES | AB  | 2.33 | 2.63 | 5 | 100 | 1000 | 0.5 | 120 | 1.0 |
|         | AB1 | 2.33 | 2.52 |   |     |      |     |     |     |
|         | AB2 | 2.43 | 2.63 |   |     |      |     |     |     |
| RD2.7ES | AB  | 2.54 | 2.91 | 5 | 110 | 1000 | 0.5 | 100 | 1.0 |
|         | AB1 | 2.54 | 2.75 |   |     |      |     |     |     |
|         | AB2 | 2.69 | 2.91 |   |     |      |     |     |     |
| RD3.0ES | AB  | 2.85 | 3.22 | 5 | 120 | 1000 | 0.5 | 50  | 1.0 |
|         | AB1 | 2.85 | 3.07 |   |     |      |     |     |     |
|         | AB2 | 3.01 | 3.22 |   |     |      |     |     |     |
| RD3.3ES | AB  | 3.16 | 3.53 | 5 | 120 | 1000 | 0.5 | 20  | 1.0 |
|         | AB1 | 3.16 | 3.38 |   |     |      |     |     |     |
|         | AB2 | 3.32 | 3.53 |   |     |      |     |     |     |
| RD3.6ES | AB  | 3.47 | 3.83 | 5 | 120 | 1100 | 0.5 | 10  | 1.0 |
|         | AB1 | 3.47 | 3.68 |   |     |      |     |     |     |
|         | AB2 | 3.62 | 3.83 |   |     |      |     |     |     |
| RD3.9ES | AB  | 3.77 | 4.14 | 5 | 120 | 1200 | 0.5 | 5   | 1.0 |
|         | AB1 | 3.77 | 3.98 |   |     |      |     |     |     |
|         | AB2 | 3.92 | 4.14 |   |     |      |     |     |     |
| RD4.3ES | AB  | 4.05 | 4.53 | 5 | 120 | 1200 | 0.5 | 5   | 1.0 |
|         | AB1 | 4.05 | 4.26 |   |     |      |     |     |     |
|         | AB2 | 4.20 | 4.40 |   |     |      |     |     |     |
|         | AB3 | 4.34 | 4.53 |   |     |      |     |     |     |
| RD4.7ES | AB  | 4.47 | 4.91 | 5 | 100 | 1200 | 0.5 | 5   | 1.0 |
|         | AB1 | 4.47 | 4.65 |   |     |      |     |     |     |
|         | AB2 | 4.59 | 4.77 |   |     |      |     |     |     |
|         | AB3 | 4.71 | 4.91 |   |     |      |     |     |     |
| RD5.1ES | AB  | 4.85 | 5.35 | 5 | 70  | 1200 | 0.5 | 5   | 1.5 |
|         | AB1 | 4.85 | 5.03 |   |     |      |     |     |     |
|         | AB2 | 4.97 | 5.18 |   |     |      |     |     |     |
|         | AB3 | 5.12 | 5.35 |   |     |      |     |     |     |
| RD5.6ES | AB  | 5.29 | 5.88 | 5 | 40  | 900  | 0.5 | 5   | 2.5 |
|         | AB1 | 5.29 | 5.52 |   |     |      |     |     |     |
|         | AB2 | 5.46 | 5.70 |   |     |      |     |     |     |
|         | AB3 | 5.64 | 5.88 |   |     |      |     |     |     |
| RD6.2ES | AB  | 5.81 | 6.40 | 5 | 30  | 500  | 0.5 | 5   | 3.0 |
|         | AB1 | 5.81 | 6.06 |   |     |      |     |     |     |
|         | AB2 | 5.99 | 6.24 |   |     |      |     |     |     |
|         | AB3 | 6.16 | 6.40 |   |     |      |     |     |     |



## Zener Diodes 0.40 W

| Type | Suffix <sup>(3)</sup> | Zener Voltage <sup>(1)</sup> |      | Test Current | Maximum Zener <sup>(2)</sup><br>Impedance |                     |          | Maximum Reverse Current |          |
|------|-----------------------|------------------------------|------|--------------|-------------------------------------------|---------------------|----------|-------------------------|----------|
|      |                       | $V_Z$ (V) at $I_{ZT}$        |      | $I_{ZT}$     | $Z_{ZT}$ @ $I_{ZT}$                       | $Z_{ZK}$ @ $I_{ZK}$ | $I_{ZK}$ | $I_R$                   | at $V_R$ |
|      |                       | min.                         | max. | (mA)         | ( $\Omega$ )                              | ( $\Omega$ )        | (mA)     | ( $\mu$ A)              | (V)      |

### RD2.0ES Series, 0.4 W, Case Type : DO-34



|         |     |       |       |   |    |     |     |     |     |
|---------|-----|-------|-------|---|----|-----|-----|-----|-----|
| RD6.8ES | AB  | 6.32  | 6.97  | 5 | 25 | 150 | 0.5 | 2   | 3.5 |
|         | AB1 | 6.32  | 6.59  |   |    |     |     |     |     |
|         | AB2 | 6.52  | 6.79  |   |    |     |     |     |     |
|         | AB3 | 6.70  | 6.97  |   |    |     |     |     |     |
| RD7.5ES | AB  | 6.88  | 7.64  | 5 | 25 | 120 | 0.5 | 0.5 | 4.0 |
|         | AB1 | 6.88  | 7.19  |   |    |     |     |     |     |
|         | AB2 | 7.11  | 7.41  |   |    |     |     |     |     |
|         | AB3 | 7.33  | 7.64  |   |    |     |     |     |     |
| RD8.2ES | AB  | 7.56  | 8.41  | 5 | 20 | 120 | 0.5 | 0.5 | 5.0 |
|         | AB1 | 7.56  | 7.90  |   |    |     |     |     |     |
|         | AB2 | 7.82  | 8.15  |   |    |     |     |     |     |
|         | AB3 | 8.07  | 8.41  |   |    |     |     |     |     |
| RD9.1ES | AB  | 8.33  | 9.29  | 5 | 20 | 120 | 0.5 | 0.5 | 6.0 |
|         | AB1 | 8.33  | 8.70  |   |    |     |     |     |     |
|         | AB2 | 8.61  | 8.99  |   |    |     |     |     |     |
|         | AB3 | 8.89  | 9.29  |   |    |     |     |     |     |
| RD10ES  | AB  | 9.19  | 10.30 | 5 | 20 | 120 | 0.5 | 0.2 | 7.0 |
|         | AB1 | 9.19  | 9.59  |   |    |     |     |     |     |
|         | AB2 | 9.48  | 9.90  |   |    |     |     |     |     |
|         | AB3 | 9.82  | 10.30 |   |    |     |     |     |     |
| RD11ES  | AB  | 10.18 | 11.26 | 5 | 20 | 120 | 0.5 | 0.2 | 8.0 |
|         | AB1 | 10.18 | 10.63 |   |    |     |     |     |     |
|         | AB2 | 10.50 | 10.95 |   |    |     |     |     |     |
|         | AB3 | 10.82 | 11.26 |   |    |     |     |     |     |
| RD12ES  | AB  | 11.13 | 12.30 | 5 | 25 | 110 | 0.5 | 0.2 | 9.0 |
|         | AB1 | 11.13 | 11.63 |   |    |     |     |     |     |
|         | AB2 | 11.50 | 11.92 |   |    |     |     |     |     |
|         | AB3 | 11.80 | 12.30 |   |    |     |     |     |     |
| RD13ES  | AB  | 12.18 | 13.62 | 5 | 25 | 110 | 0.5 | 0.2 | 10  |
|         | AB1 | 12.18 | 12.71 |   |    |     |     |     |     |
|         | AB2 | 12.59 | 13.16 |   |    |     |     |     |     |
|         | AB3 | 13.03 | 13.62 |   |    |     |     |     |     |
| RD15ES  | AB  | 13.48 | 15.02 | 5 | 25 | 110 | 0.5 | 0.2 | 11  |
|         | AB1 | 13.48 | 14.09 |   |    |     |     |     |     |
|         | AB2 | 13.95 | 14.56 |   |    |     |     |     |     |
|         | AB3 | 14.42 | 15.02 |   |    |     |     |     |     |
| RD16ES  | AB  | 14.87 | 16.50 | 5 | 25 | 150 | 0.5 | 0.2 | 12  |
|         | AB1 | 14.87 | 15.50 |   |    |     |     |     |     |
|         | AB2 | 15.33 | 15.96 |   |    |     |     |     |     |
|         | AB3 | 15.79 | 16.50 |   |    |     |     |     |     |
| RD18ES  | AB  | 16.34 | 18.30 | 5 | 30 | 150 | 0.5 | 0.2 | 13  |
|         | AB1 | 16.34 | 17.06 |   |    |     |     |     |     |
|         | AB2 | 16.90 | 17.67 |   |    |     |     |     |     |
|         | AB3 | 17.51 | 18.30 |   |    |     |     |     |     |

## Zener Diodes 0.40 W

| Type | Suffix <sup>(3)</sup> | Zener Voltage <sup>(1)</sup> |      | Test Current | Maximum Zener <sup>(2)</sup><br>Impedance |                     |          | Maximum Reverse Current |          |
|------|-----------------------|------------------------------|------|--------------|-------------------------------------------|---------------------|----------|-------------------------|----------|
|      |                       | $V_Z$ (V) at $I_{ZT}$        |      | $I_{ZT}$     | $Z_{ZT}$ @ $I_{ZT}$                       | $Z_{ZK}$ @ $I_{ZK}$ | $I_{ZK}$ | $I_R$                   | at $V_R$ |
|      |                       | min.                         | max. | (mA)         | ( $\Omega$ )                              | ( $\Omega$ )        | (mA)     | ( $\mu$ A)              | (V)      |

### RD2.0ES Series, 0.4 W, Case Type : DO-34



|        |     |       |       |   |    |     |     |     |    |
|--------|-----|-------|-------|---|----|-----|-----|-----|----|
| RD20ES | AB  | 18.14 | 20.45 | 5 | 30 | 200 | 0.5 | 0.2 | 15 |
|        | AB1 | 18.14 | 18.96 |   |    |     |     |     |    |
|        | AB2 | 18.80 | 19.68 |   |    |     |     |     |    |
|        | AB3 | 19.52 | 20.45 |   |    |     |     |     |    |
| RD22ES | AB  | 20.23 | 22.61 | 5 | 30 | 200 | 0.5 | 0.2 | 17 |
|        | AB1 | 20.23 | 21.08 |   |    |     |     |     |    |
|        | AB2 | 20.76 | 21.65 |   |    |     |     |     |    |
|        | AB3 | 21.22 | 22.09 |   |    |     |     |     |    |
|        | AB4 | 21.68 | 22.61 |   |    |     |     |     |    |
| RD24ES | AB  | 22.26 | 24.81 | 5 | 30 | 200 | 0.5 | 0.2 | 19 |
|        | AB1 | 22.26 | 23.12 |   |    |     |     |     |    |
|        | AB2 | 22.75 | 23.73 |   |    |     |     |     |    |
|        | AB3 | 23.29 | 24.27 |   |    |     |     |     |    |
|        | AB4 | 23.81 | 24.81 |   |    |     |     |     |    |
| RD27ES | AB  | 24.26 | 27.64 | 5 | 45 | 250 | 0.5 | 0.2 | 21 |
|        | AB1 | 24.26 | 25.52 |   |    |     |     |     |    |
|        | AB2 | 24.97 | 26.26 |   |    |     |     |     |    |
|        | AB3 | 25.63 | 26.95 |   |    |     |     |     |    |
|        | AB4 | 26.29 | 27.64 |   |    |     |     |     |    |
| RD30ES | AB  | 26.99 | 30.51 | 5 | 55 | 250 | 0.5 | 0.2 | 23 |
|        | AB1 | 26.99 | 28.39 |   |    |     |     |     |    |
|        | AB2 | 27.70 | 29.13 |   |    |     |     |     |    |
|        | AB3 | 28.36 | 29.82 |   |    |     |     |     |    |
|        | AB4 | 29.02 | 30.51 |   |    |     |     |     |    |
| RD33ES | AB  | 29.68 | 33.11 | 5 | 65 | 250 | 0.5 | 0.2 | 25 |
|        | AB1 | 29.68 | 31.22 |   |    |     |     |     |    |
|        | AB2 | 30.32 | 31.88 |   |    |     |     |     |    |
|        | AB3 | 30.90 | 32.50 |   |    |     |     |     |    |
|        | AB4 | 31.49 | 33.11 |   |    |     |     |     |    |
| RD36ES | AB  | 32.14 | 35.77 | 5 | 75 | 250 | 0.5 | 0.2 | 27 |
|        | AB1 | 32.14 | 33.79 |   |    |     |     |     |    |
|        | AB2 | 32.79 | 34.49 |   |    |     |     |     |    |
|        | AB3 | 33.40 | 35.13 |   |    |     |     |     |    |
|        | AB4 | 34.01 | 35.77 |   |    |     |     |     |    |
| RD39ES | AB  | 34.68 | 38.52 | 5 | 85 | 250 | 0.5 | 0.2 | 30 |
|        | AB1 | 34.68 | 36.47 |   |    |     |     |     |    |
|        | AB2 | 35.36 | 37.19 |   |    |     |     |     |    |
|        | AB3 | 36.00 | 37.85 |   |    |     |     |     |    |
|        | AB4 | 36.63 | 38.52 |   |    |     |     |     |    |

#### Notes :

- (1) Tested with pulse (40 ms)
- (2)  $Z_Z$  and  $Z_{ZK}$  are measured at  $I_Z$  by applying a very small AC current signal
- (3) When placing an order for an RD2.0ES type, please add suffix e.g. RD2.0ESAB, RD2.0ESAB1... RD39ESAB4



## Zener Diodes 0.40 W

| Type No. | Suffix <sup>(3)</sup> | Zener Voltage <sup>(1)</sup> |      |            | Dynamic Impedance  |            | Knee Dynamic Impedance |            | Reverse Current  |           |
|----------|-----------------------|------------------------------|------|------------|--------------------|------------|------------------------|------------|------------------|-----------|
|          |                       | $V_Z$ (V)                    |      |            | $Z_Z$ ( $\Omega$ ) |            | $Z_{ZK}$ ( $\Omega$ )  |            | $I_R$ ( $\mu$ A) |           |
|          |                       | Min.                         | Max. | $I_Z$ (mA) | Max.               | $I_Z$ (mA) | Max.                   | $I_Z$ (mA) | Max.             | $V_R$ (V) |

### RD4.7JS Series, 0.4 W, Case Type : DO-34



|         |     |       |       |   |     |   |     |     |     |     |
|---------|-----|-------|-------|---|-----|---|-----|-----|-----|-----|
| RD4.7JS | AB  | 4.42  | 4.90  | 5 | 100 | 5 | 800 | 0.5 | 2.0 | 1.0 |
|         | AB1 | 4.42  | 4.61  |   |     |   |     |     |     |     |
|         | AB2 | 4.55  | 4.75  |   |     |   |     |     |     |     |
|         | AB3 | 4.69  | 4.90  |   |     |   |     |     |     |     |
| RD5.1JS | AB  | 4.84  | 5.37  | 5 | 80  | 5 | 500 | 0.5 | 2.0 | 1.5 |
|         | AB1 | 4.84  | 5.04  |   |     |   |     |     |     |     |
|         | AB2 | 4.98  | 5.20  |   |     |   |     |     |     |     |
|         | AB3 | 5.14  | 5.37  |   |     |   |     |     |     |     |
| RD5.6JS | AB  | 5.31  | 5.92  | 5 | 60  | 5 | 200 | 0.5 | 1.0 | 2.5 |
|         | AB1 | 5.31  | 5.55  |   |     |   |     |     |     |     |
|         | AB2 | 5.49  | 5.73  |   |     |   |     |     |     |     |
|         | AB3 | 5.67  | 5.92  |   |     |   |     |     |     |     |
| RD6.2JS | AB  | 5.86  | 6.53  | 5 | 60  | 5 | 100 | 0.5 | 1.0 | 3.0 |
|         | AB1 | 5.86  | 6.12  |   |     |   |     |     |     |     |
|         | AB2 | 6.06  | 6.33  |   |     |   |     |     |     |     |
|         | AB3 | 6.26  | 6.53  |   |     |   |     |     |     |     |
| RD6.8JS | AB  | 6.47  | 7.14  | 5 | 40  | 5 | 60  | 0.5 | 0.5 | 3.5 |
|         | AB1 | 6.47  | 6.73  |   |     |   |     |     |     |     |
|         | AB2 | 6.65  | 6.93  |   |     |   |     |     |     |     |
|         | AB3 | 6.86  | 7.14  |   |     |   |     |     |     |     |
| RD7.5JS | AB  | 7.06  | 7.84  | 5 | 30  | 5 | 60  | 0.5 | 0.5 | 4.0 |
|         | AB1 | 7.06  | 7.36  |   |     |   |     |     |     |     |
|         | AB2 | 7.28  | 7.60  |   |     |   |     |     |     |     |
|         | AB3 | 7.52  | 7.84  |   |     |   |     |     |     |     |
| RD8.2JS | AB  | 7.76  | 8.64  | 5 | 30  | 5 | 60  | 0.5 | 0.5 | 5.0 |
|         | AB1 | 7.76  | 8.10  |   |     |   |     |     |     |     |
|         | AB2 | 8.02  | 8.36  |   |     |   |     |     |     |     |
|         | AB3 | 8.28  | 8.64  |   |     |   |     |     |     |     |
| RD9.1JS | AB  | 8.56  | 9.55  | 5 | 30  | 5 | 60  | 0.5 | 0.5 | 6.0 |
|         | AB1 | 8.56  | 8.93  |   |     |   |     |     |     |     |
|         | AB2 | 8.85  | 9.23  |   |     |   |     |     |     |     |
|         | AB3 | 9.15  | 9.55  |   |     |   |     |     |     |     |
| RD10JS  | AB  | 9.45  | 10.55 | 5 | 30  | 5 | 60  | 0.5 | 0.1 | 7.0 |
|         | AB1 | 9.45  | 9.87  |   |     |   |     |     |     |     |
|         | AB2 | 9.77  | 10.21 |   |     |   |     |     |     |     |
|         | AB3 | 10.11 | 10.55 |   |     |   |     |     |     |     |
| RD11JS  | AB  | 10.44 | 11.56 | 5 | 30  | 5 | 60  | 0.5 | 0.1 | 8.0 |
|         | AB1 | 10.44 | 10.88 |   |     |   |     |     |     |     |
|         | AB2 | 10.76 | 11.22 |   |     |   |     |     |     |     |
|         | AB3 | 11.10 | 11.56 |   |     |   |     |     |     |     |
| RD12JS  | AB  | 11.42 | 12.60 | 5 | 30  | 5 | 80  | 0.5 | 0.1 | 9.0 |
|         | AB1 | 11.42 | 11.90 |   |     |   |     |     |     |     |
|         | AB2 | 11.74 | 12.24 |   |     |   |     |     |     |     |
|         | AB3 | 12.08 | 12.60 |   |     |   |     |     |     |     |
| RD13JS  | AB  | 12.47 | 13.69 | 5 | 37  | 5 | 80  | 0.5 | 0.1 | 10  |
|         | AB1 | 12.47 | 13.03 |   |     |   |     |     |     |     |
|         | AB2 | 12.91 | 13.49 |   |     |   |     |     |     |     |
|         | AB3 | 13.37 | 13.96 |   |     |   |     |     |     |     |

## Zener Diodes 0.40 W

| Type No. | Suffix <sup>(3)</sup> | Zener Voltage <sup>(1)</sup> |      |            | Dynamic Impedance  |            | Knee Dynamic Impedance |            | Reverse Current  |           |
|----------|-----------------------|------------------------------|------|------------|--------------------|------------|------------------------|------------|------------------|-----------|
|          |                       | $V_Z$ (V)                    |      |            | $Z_Z$ ( $\Omega$ ) |            | $Z_{ZK}$ ( $\Omega$ )  |            | $I_R$ ( $\mu$ A) |           |
|          |                       | Min.                         | Max. | $I_Z$ (mA) | Max.               | $I_Z$ (mA) | Max.                   | $I_Z$ (mA) | Max.             | $V_R$ (V) |

### RD4.7JS Series, 0.4 W, Case Type : DO-34



|        |     |       |       |   |     |   |     |     |     |    |
|--------|-----|-------|-------|---|-----|---|-----|-----|-----|----|
| RD15JS | AB  | 13.84 | 15.52 | 5 | 42  | 5 | 80  | 0.5 | 0.1 | 11 |
|        | AB1 | 13.84 | 14.46 |   |     |   |     |     |     |    |
|        | AB2 | 14.34 | 14.98 |   |     |   |     |     |     |    |
|        | AB3 | 14.85 | 15.52 |   |     |   |     |     |     |    |
| RD16JS | AB  | 15.37 | 17.09 | 5 | 50  | 5 | 80  | 0.5 | 0.1 | 12 |
|        | AB1 | 15.37 | 16.01 |   |     |   |     |     |     |    |
|        | AB2 | 15.85 | 16.51 |   |     |   |     |     |     |    |
|        | AB3 | 16.35 | 17.09 |   |     |   |     |     |     |    |
| RD18JS | AB  | 16.94 | 19.03 | 5 | 65  | 5 | 80  | 0.5 | 0.1 | 13 |
|        | AB1 | 16.94 | 17.70 |   |     |   |     |     |     |    |
|        | AB2 | 17.56 | 18.53 |   |     |   |     |     |     |    |
|        | AB3 | 18.21 | 19.03 |   |     |   |     |     |     |    |
| RD20JS | AB  | 18.86 | 21.08 | 5 | 85  | 5 | 100 | 0.5 | 0.1 | 15 |
|        | AB1 | 18.86 | 19.70 |   |     |   |     |     |     |    |
|        | AB2 | 19.52 | 20.39 |   |     |   |     |     |     |    |
|        | AB3 | 20.21 | 21.08 |   |     |   |     |     |     |    |
| RD22JS | AB  | 20.88 | 23.17 | 5 | 100 | 5 | 100 | 0.5 | 0.1 | 17 |
|        | AB1 | 20.88 | 21.77 |   |     |   |     |     |     |    |
|        | AB2 | 21.54 | 22.47 |   |     |   |     |     |     |    |
|        | AB3 | 22.23 | 23.17 |   |     |   |     |     |     |    |
| RD24JS | AB  | 22.93 | 25.57 | 5 | 120 | 5 | 120 | 0.5 | 0.1 | 19 |
|        | AB1 | 22.93 | 23.96 |   |     |   |     |     |     |    |
|        | AB2 | 23.72 | 24.78 |   |     |   |     |     |     |    |
|        | AB3 | 24.54 | 25.57 |   |     |   |     |     |     |    |
| RD27JS | AB  | 25.20 | 28.61 | 5 | 150 | 5 | 150 | 0.5 | 0.1 | 21 |
|        | AB1 | 25.20 | 26.50 |   |     |   |     |     |     |    |
|        | AB2 | 26.19 | 27.53 |   |     |   |     |     |     |    |
|        | AB3 | 27.21 | 28.61 |   |     |   |     |     |     |    |
| RD30JS | AB  | 28.22 | 31.74 | 5 | 200 | 5 | 200 | 0.5 | 0.1 | 23 |
|        | AB1 | 28.22 | 29.66 |   |     |   |     |     |     |    |
|        | AB2 | 29.19 | 30.69 |   |     |   |     |     |     |    |
|        | AB3 | 30.20 | 31.74 |   |     |   |     |     |     |    |
| RD33JS | AB  | 32.18 | 34.83 | 5 | 250 | 5 | 250 | 0.5 | 0.1 | 25 |
|        | AB1 | 32.18 | 32.78 |   |     |   |     |     |     |    |
|        | AB2 | 32.15 | 33.79 |   |     |   |     |     |     |    |
|        | AB3 | 33.13 | 34.83 |   |     |   |     |     |     |    |
| RD36JS | AB  | 34.12 | 37.91 | 5 | 300 | 5 | 300 | 0.5 | 0.1 | 27 |
|        | AB1 | 34.12 | 35.86 |   |     |   |     |     |     |    |
|        | AB2 | 35.07 | 36.87 |   |     |   |     |     |     |    |
|        | AB3 | 36.07 | 37.91 |   |     |   |     |     |     |    |
| RD39JS | AB  | 37.04 | 40.99 | 5 | 360 | 5 | 360 | 0.5 | 0.1 | 30 |
|        | AB1 | 37.04 | 38.94 |   |     |   |     |     |     |    |
|        | AB2 | 38.00 | 39.94 |   |     |   |     |     |     |    |
|        | AB3 | 38.99 | 40.99 |   |     |   |     |     |     |    |

#### Notes:

- (1) Tested with pulse (40 ms).
- (2)  $Z_Z$  and  $Z_{ZK}$  are measured at  $I_Z$  by applying a very small AC current signal.
- (3) When placing an order for an RD4.7JS type, please add suffix e.g. RD4.7JSAB, RD4.7JSAB1... RD39JSAB3

# Zener Diodes 0.50 W

| Type No.   |     | Nominal Zener Voltage            | Test Current    | Maximum Zener Impedance <sup>(1)</sup> |                                             | Maximum Reverse Leakage Current |     | Typical Temperature Coefficient | Maximum Regulator Current <sup>(2)</sup> |
|------------|-----|----------------------------------|-----------------|----------------------------------------|---------------------------------------------|---------------------------------|-----|---------------------------------|------------------------------------------|
|            |     | V <sub>Z</sub> @ I <sub>ZT</sub> | I <sub>ZT</sub> | Z <sub>ZT</sub> @ I <sub>ZT</sub>      | Z <sub>ZK</sub> at I <sub>ZK</sub> = 0.25mA | I <sub>R</sub> @ V <sub>R</sub> |     | α <sub>VZ</sub> (%/ °C)         | I <sub>ZM</sub>                          |
| Axial Lead | SMD | (V)                              | (mA)            | (Ω)                                    | (Ω)                                         | (μA)                            | (V) |                                 | (mA)                                     |

## 1N5221/ZMM5221 Series, Case Type: DO-35/Mini MELF



|        |         |     |     |     |      |     |     |         |      |
|--------|---------|-----|-----|-----|------|-----|-----|---------|------|
| 1N5221 | ZMM5221 | 2.4 | 20  | 30  | 1200 | 100 | 1.0 | -0.085  | 190  |
| 1N5222 | ZMM5222 | 2.5 | 20  | 30  | 1250 | 100 | 1.0 | -0.085  | 182  |
| 1N5223 | ZMM5223 | 2.7 | 20  | 30  | 1300 | 75  | 1.0 | -0.080  | 168  |
| 1N5224 | ZMM5224 | 2.8 | 20  | 30  | 1400 | 75  | 1.0 | -0.080  | 162  |
| 1N5225 | ZMM5225 | 3.0 | 20  | 29  | 1600 | 50  | 1.0 | -0.075  | 152  |
| 1N5226 | ZMM5226 | 3.3 | 20  | 28  | 1600 | 25  | 1.0 | -0.070  | 138  |
| 1N5227 | ZMM5227 | 3.6 | 20  | 24  | 1700 | 15  | 1.0 | -0.065  | 126  |
| 1N5228 | ZMM5228 | 3.9 | 20  | 23  | 1900 | 10  | 1.0 | -0.060  | 115  |
| 1N5229 | ZMM5229 | 4.3 | 20  | 22  | 2000 | 5.0 | 1.0 | -0.055  | 106  |
| 1N5230 | ZMM5230 | 4.7 | 20  | 19  | 1900 | 5.0 | 2.0 | ± 0.030 | 97   |
| 1N5231 | ZMM5231 | 5.1 | 20  | 17  | 1600 | 5.0 | 2.0 | ± 0.030 | 89   |
| 1N5232 | ZMM5232 | 5.6 | 20  | 11  | 1600 | 5.0 | 3.0 | +0.038  | 81   |
| 1N5233 | ZMM5233 | 6.0 | 20  | 7   | 1600 | 5.0 | 3.5 | +0.038  | 76   |
| 1N5234 | ZMM5234 | 6.2 | 20  | 7   | 1000 | 5.0 | 4.0 | +0.045  | 73   |
| 1N5235 | ZMM5235 | 6.8 | 20  | 5   | 750  | 3.0 | 5.0 | +0.050  | 67   |
| 1N5236 | ZMM5236 | 7.5 | 20  | 6   | 500  | 3.0 | 6.0 | +0.058  | 61   |
| 1N5237 | ZMM5237 | 8.2 | 20  | 8   | 500  | 3.0 | 6.5 | +0.062  | 55   |
| 1N5238 | ZMM5238 | 8.7 | 20  | 8   | 600  | 3.0 | 6.5 | +0.065  | 52   |
| 1N5239 | ZMM5239 | 9.1 | 20  | 10  | 600  | 3.0 | 7.0 | +0.068  | 50   |
| 1N5240 | ZMM5240 | 10  | 20  | 17  | 600  | 3.0 | 8.0 | +0.075  | 45   |
| 1N5241 | ZMM5241 | 11  | 20  | 22  | 600  | 2.0 | 8.4 | +0.076  | 41   |
| 1N5242 | ZMM5242 | 12  | 20  | 30  | 600  | 1.0 | 9.1 | +0.077  | 38   |
| 1N5243 | ZMM5243 | 13  | 9.5 | 13  | 600  | 0.5 | 9.9 | +0.079  | 35   |
| 1N5244 | ZMM5244 | 14  | 9.0 | 15  | 600  | 0.1 | 10  | +0.082  | 32   |
| 1N5245 | ZMM5245 | 15  | 8.5 | 16  | 600  | 0.1 | 11  | +0.082  | 30   |
| 1N5246 | ZMM5246 | 16  | 7.8 | 17  | 600  | 0.1 | 12  | +0.083  | 28   |
| 1N5247 | ZMM5247 | 17  | 7.4 | 19  | 600  | 0.1 | 13  | +0.084  | 27   |
| 1N5248 | ZMM5248 | 18  | 7.0 | 21  | 600  | 0.1 | 14  | +0.085  | 25   |
| 1N5249 | ZMM5249 | 19  | 6.6 | 23  | 600  | 0.1 | 14  | +0.086  | 24   |
| 1N5250 | ZMM5250 | 20  | 6.2 | 25  | 600  | 0.1 | 15  | +0.086  | 23   |
| 1N5251 | ZMM5251 | 22  | 5.6 | 29  | 600  | 0.1 | 17  | +0.087  | 21   |
| 1N5252 | ZMM5252 | 24  | 5.2 | 33  | 600  | 0.1 | 18  | +0.088  | 19.1 |
| 1N5253 | ZMM5253 | 25  | 5.0 | 35  | 600  | 0.1 | 19  | +0.089  | 18.2 |
| 1N5254 | ZMM5254 | 27  | 4.6 | 41  | 600  | 0.1 | 21  | +0.090  | 16.8 |
| 1N5255 | ZMM5255 | 28  | 4.5 | 44  | 600  | 0.1 | 21  | +0.091  | 16.2 |
| 1N5256 | ZMM5256 | 30  | 4.2 | 49  | 600  | 0.1 | 23  | +0.091  | 15.1 |
| 1N5257 | ZMM5257 | 33  | 3.8 | 58  | 700  | 0.1 | 25  | +0.092  | 13.8 |
| 1N5258 | ZMM5258 | 36  | 3.4 | 70  | 700  | 0.1 | 27  | +0.093  | 12.6 |
| 1N5259 | ZMM5259 | 39  | 3.2 | 80  | 800  | 0.1 | 30  | +0.094  | 11.6 |
| 1N5260 | ZMM5260 | 43  | 3.0 | 93  | 900  | 0.1 | 33  | +0.095  | 10.6 |
| 1N5261 | ZMM5261 | 47  | 2.7 | 105 | 1000 | 0.1 | 36  | +0.095  | 9.7  |
| 1N5262 | ZMM5262 | 51  | 2.5 | 125 | 1100 | 0.1 | 39  | +0.096  | 8.9  |
| 1N5263 | ZMM5263 | 56  | 2.2 | 150 | 1300 | 0.1 | 43  | +0.096  | -    |
| 1N5264 | ZMM5264 | 60  | 2.1 | 170 | 1400 | 0.1 | 46  | +0.097  | -    |
| 1N5265 | ZMM5265 | 62  | 2.0 | 185 | 1400 | 0.1 | 47  | +0.098  | -    |
| 1N5266 | ZMM5266 | 68  | 1.8 | 230 | 1600 | 0.1 | 52  | +0.097  | -    |
| 1N5267 | ZMM5267 | 75  | 1.7 | 270 | 1700 | 0.1 | 56  | +0.098  | -    |

### Notes :

- (1) The Zener impedance is derived from the 1 KHz AC voltage which results when an AC current having an RMS value equal to 10% of the Zener current (I<sub>ZT</sub> or I<sub>ZK</sub>) is superimposed on I<sub>ZT</sub> or I<sub>ZK</sub>. Zener impedance is measured at two points to ensure a sharp knee on the breakdown curve and to eliminate unstable units
- (2) V<sub>F</sub> = 1.1 Vmax. @ I<sub>F</sub> = 200 mA
- (3) Standard Zener voltage tolerance is ± 10%. Add suffix "B" for ± 5% tolerance, Add suffix "C" for ± 2% tolerance .



## Zener Diodes 0.50 W

| Type No. | Zener Voltage<br>$V_Z @ I_{ZT}$ |                            |             |                        | Maximum DC<br>Zener Current     | Voltage<br>Regulation              | Maximum Reverse<br>Leakage Current |                 |
|----------|---------------------------------|----------------------------|-------------|------------------------|---------------------------------|------------------------------------|------------------------------------|-----------------|
|          | Min.<br>(V)                     | Nom. <sup>(1)</sup><br>(V) | Max.<br>(V) | $I_{ZT}$<br>( $\mu$ A) | $I_{ZM}$ <sup>(2)</sup><br>(mA) | $\Delta V_Z$ <sup>(4)</sup><br>(V) | $I_R$ <sup>(3)</sup><br>( $\mu$ A) | at $V_R$<br>(V) |
| SMD      |                                 |                            |             |                        |                                 |                                    |                                    |                 |

### TZS4678 Series, Case Type: Mini MELF



|         |       |     |       |    |      |      |      |      |
|---------|-------|-----|-------|----|------|------|------|------|
| TZS4678 | 1.710 | 1.8 | 1.89  | 50 | 120  | 0.70 | 7.5  | 1.0  |
| TZS4679 | 1.900 | 2.0 | 2.10  | 50 | 110  | 0.70 | 5.0  | 1.0  |
| TZS4680 | 2.090 | 2.2 | 2.310 | 50 | 100  | 0.75 | 4.0  | 1.0  |
| TZS4681 | 2.280 | 2.4 | 2.520 | 50 | 95.0 | 0.80 | 2.0  | 1.0  |
| TZS4682 | 2.565 | 2.7 | 2.835 | 50 | 90.0 | 0.85 | 1.0  | 1.0  |
| TZS4683 | 2.850 | 3.0 | 3.150 | 50 | 85.0 | 0.90 | 0.8  | 1.0  |
| TZS4684 | 3.135 | 3.3 | 3.465 | 50 | 80.0 | 0.95 | 7.5  | 1.5  |
| TZS4685 | 3.420 | 3.6 | 3.780 | 50 | 75.0 | 0.95 | 7.5  | 2.0  |
| TZS4686 | 3.705 | 3.9 | 4.095 | 50 | 70.0 | 0.97 | 5.0  | 2.0  |
| TZS4687 | 4.085 | 4.3 | 4.515 | 50 | 65.0 | 0.99 | 4.0  | 2.0  |
| TZS4688 | 4.465 | 4.7 | 4.935 | 50 | 60.0 | 0.99 | 10   | 3.0  |
| TZS4689 | 4.845 | 5.1 | 5.355 | 50 | 55.0 | 0.97 | 10   | 3.0  |
| TZS4690 | 5.320 | 5.6 | 5.880 | 50 | 50.0 | 0.96 | 10   | 4.0  |
| TZS4691 | 5.890 | 6.2 | 6.510 | 50 | 45.0 | 0.95 | 10   | 5.0  |
| TZS4692 | 6.460 | 6.8 | 7.140 | 50 | 35.0 | 0.90 | 10   | 5.10 |
| TZS4693 | 7.125 | 7.5 | 7.875 | 50 | 31.8 | 0.75 | 10   | 5.70 |
| TZS4694 | 7.790 | 8.2 | 8.610 | 50 | 29.0 | 0.50 | 1.0  | 6.20 |
| TZS4695 | 8.265 | 8.7 | 9.135 | 50 | 27.4 | 0.10 | 1.0  | 6.60 |
| TZS4696 | 8.645 | 9.1 | 9.555 | 50 | 26.2 | 0.08 | 1.0  | 6.90 |
| TZS4697 | 9.500 | 10  | 10.50 | 50 | 24.8 | 0.10 | 1.0  | 7.60 |
| TZS4698 | 10.45 | 11  | 11.55 | 50 | 21.6 | 0.11 | 0.05 | 8.40 |
| TZS4699 | 11.40 | 12  | 12.60 | 50 | 20.4 | 0.12 | 0.05 | 9.10 |
| TZS4700 | 12.35 | 13  | 13.65 | 50 | 19.0 | 0.13 | 0.05 | 9.80 |
| TZS4701 | 13.30 | 14  | 14.70 | 50 | 17.5 | 0.14 | 0.05 | 10.6 |
| TZS4702 | 14.25 | 15  | 15.75 | 50 | 16.3 | 0.15 | 0.05 | 11.4 |
| TZS4703 | 15.20 | 16  | 16.80 | 50 | 15.4 | 0.16 | 0.05 | 12.1 |
| TZS4704 | 16.15 | 17  | 17.85 | 50 | 14.5 | 0.17 | 0.05 | 12.9 |
| TZS4705 | 17.10 | 18  | 18.90 | 50 | 13.2 | 0.18 | 0.05 | 13.6 |
| TZS4706 | 18.05 | 19  | 19.95 | 50 | 12.5 | 0.19 | 0.05 | 14.4 |
| TZS4707 | 19.00 | 20  | 21.00 | 50 | 11.9 | 0.20 | 0.01 | 15.2 |
| TZS4708 | 20.90 | 22  | 23.10 | 50 | 10.8 | 0.22 | 0.01 | 16.7 |
| TZS4709 | 22.80 | 24  | 25.20 | 50 | 9.90 | 0.24 | 0.01 | 18.2 |
| TZS4710 | 23.75 | 25  | 26.25 | 50 | 9.50 | 0.25 | 0.01 | 19.0 |
| TZS4711 | 25.65 | 27  | 28.35 | 50 | 8.80 | 0.27 | 0.01 | 20.4 |
| TZS4712 | 26.60 | 28  | 29.40 | 50 | 8.50 | 0.28 | 0.01 | 21.2 |
| TZS4713 | 28.50 | 30  | 31.50 | 50 | 7.90 | 0.30 | 0.01 | 22.8 |
| TZS4714 | 31.35 | 33  | 34.65 | 50 | 7.20 | 0.33 | 0.01 | 25.0 |
| TZS4715 | 34.20 | 36  | 37.80 | 50 | 6.60 | 0.36 | 0.01 | 27.3 |
| TZS4716 | 37.05 | 39  | 40.95 | 50 | 6.10 | 0.39 | 0.01 | 29.6 |
| TZS4717 | 40.85 | 43  | 45.15 | 50 | 5.50 | 0.43 | 0.01 | 32.6 |

#### Notes :

- (1) The type number shown have a standard tolerance of  $\pm 5\%$  on the nominal zener voltage.
- (2) Maximum zener current ratings are based on maximum zener voltage of the individual unit.
- (3) Reverse leakage current are guaranteed and measured at  $V_R$  as shown on the table.
- (4) Voltage change is equal to the difference between  $V_Z$  at 100  $\mu$ A and  $V_Z$  at 10  $\mu$ A.



## Zener Diodes 0.50 W

| Type No. | Nominal<br>Zener Voltage <sup>(3)</sup> | Test<br>Current | Maximum<br>Zener<br>Impedance | Maximum Reverse<br>Leakage Current<br>$I_R @ V_R=1V$ |                    | Maximum DC<br>Zener Current <sup>(2)</sup> |
|----------|-----------------------------------------|-----------------|-------------------------------|------------------------------------------------------|--------------------|--------------------------------------------|
|          | $V_Z @ I_{ZT}$                          | $I_{ZT}$        | $Z_{ZT} @ I_{ZT}^{(1)}$       | $T_a=25^{\circ}C$                                    | $T_a=150^{\circ}C$ | $I_{ZM}$                                   |
|          | (V)                                     | (mA)            | ( $\Omega$ )                  | ( $\mu A$ )                                          | ( $\mu A$ )        | (mA)                                       |

### 1N746A Series, 0.5 W, Case Type : DO-35



|        |     |    |    |     |    |     |
|--------|-----|----|----|-----|----|-----|
| 1N746A | 3.3 | 20 | 28 | 10  | 30 | 110 |
| 1N747A | 3.6 | 20 | 24 | 10  | 30 | 100 |
| 1N748A | 3.9 | 20 | 23 | 10  | 30 | 95  |
| 1N749A | 4.3 | 20 | 22 | 2   | 30 | 85  |
| 1N750A | 4.7 | 20 | 19 | 2   | 30 | 75  |
| 1N751A | 5.1 | 20 | 17 | 1   | 20 | 70  |
| 1N752A | 5.6 | 20 | 11 | 1   | 20 | 65  |
| 1N753A | 6.2 | 20 | 7  | 0.1 | 20 | 60  |
| 1N754A | 6.8 | 20 | 5  | 0.1 | 20 | 55  |
| 1N755A | 7.5 | 20 | 6  | 0.1 | 20 | 50  |
| 1N756A | 8.2 | 20 | 8  | 0.1 | 20 | 45  |
| 1N757A | 9.1 | 20 | 10 | 0.1 | 20 | 40  |
| 1N758A | 10  | 20 | 17 | 0.1 | 20 | 35  |
| 1N759A | 12  | 20 | 30 | 0.1 | 20 | 30  |

#### Notes :

- (1) The Zener impedance is derived from the 1 KHz AC voltage which results when an AC current having an RMS value equal to 10% of the Zener current ( $I_{ZT}$ ) is superimposed on  $I_{ZT}$ . Zener impedance is measured at two points to ensure a sharp knee on the breakdown curve and to eliminate unstable units
- (2) Valid provided that leads are at a distance of 3/8" from case and kept at ambient temperature.
- (3) Measured with device junction in thermal equilibrium
- (4) Standard zener voltage tolerance is  $\pm 5\%$  for suffix "A" . Other tolerances are available upon request
- (5)  $V_F = 1.5 V_{max}$ . @  $I_F = 200 mA$



## Zener Diodes 0.50 W

| Type No. | Zener Voltage<br>$V_Z @ I_{ZT}^{(3)}$ |          | Maximum Zener<br>Impedance <sup>(1)</sup> |                   |          | Maximum Reverse<br>Leakage Current |     | Maximum DC<br>Zener Current |
|----------|---------------------------------------|----------|-------------------------------------------|-------------------|----------|------------------------------------|-----|-----------------------------|
|          | Nominal                               | $I_{ZT}$ | $Z_{ZT} @ I_{ZT}$                         | $Z_{ZK} @ I_{ZK}$ | $I_{ZK}$ | $I_R @ V_R$                        |     | $I_{ZM}^{(2)}$              |
|          | (V)                                   | (mA)     | ( $\Omega$ )                              | ( $\Omega$ )      | (mA)     | ( $\mu A$ )                        | (V) | (mA)                        |

### 1N957B Series, 0.5 W, Case Type : DO-35



|        |     |      |      |      |      |     |      |     |
|--------|-----|------|------|------|------|-----|------|-----|
| 1N957B | 6.8 | 18.5 | 4.5  | 700  | 1.00 | 150 | 5.2  | 58  |
| 1N958B | 7.5 | 16.5 | 5.5  | 700  | 0.50 | 75  | 5.7  | 53  |
| 1N959B | 8.2 | 15.0 | 6.5  | 700  | 0.50 | 50  | 6.2  | 47  |
| 1N960B | 9.1 | 14.0 | 7.5  | 700  | 0.50 | 25  | 6.9  | 43  |
| 1N961B | 10  | 12.5 | 8.5  | 700  | 0.25 | 10  | 7.6  | 40  |
| 1N962B | 11  | 11.5 | 9.5  | 700  | 0.25 | 5   | 8.4  | 36  |
| 1N963B | 12  | 10.5 | 11.5 | 700  | 0.25 | 5   | 9.1  | 32  |
| 1N964B | 13  | 9.5  | 13   | 700  | 0.25 | 5   | 9.9  | 29  |
| 1N965B | 15  | 8.5  | 16   | 700  | 0.25 | 5   | 11.4 | 27  |
| 1N966B | 16  | 7.8  | 17   | 700  | 0.25 | 5   | 12.2 | 24  |
| 1N967B | 18  | 7.0  | 21   | 750  | 0.25 | 5   | 13.7 | 21  |
| 1N968B | 20  | 6.2  | 25   | 750  | 0.25 | 5   | 15.2 | 20  |
| 1N969B | 22  | 5.6  | 29   | 750  | 0.25 | 5   | 16.7 | 18  |
| 1N970B | 24  | 5.2  | 33   | 750  | 0.25 | 5   | 18.2 | 16  |
| 1N971B | 27  | 4.6  | 41   | 750  | 0.25 | 5   | 20.6 | 14  |
| 1N972B | 30  | 4.2  | 49   | 1000 | 0.25 | 5   | 22.8 | 13  |
| 1N973B | 33  | 3.8  | 58   | 1000 | 0.25 | 5   | 25.1 | 12  |
| 1N974B | 36  | 3.4  | 70   | 1000 | 0.25 | 5   | 27.4 | 11  |
| 1N975B | 39  | 3.2  | 80   | 1000 | 0.25 | 5   | 29.7 | 10  |
| 1N976B | 43  | 3.0  | 93   | 1500 | 0.25 | 5   | 32.7 | 9.2 |
| 1N977B | 47  | 2.7  | 105  | 1500 | 0.25 | 5   | 35.8 | 8.5 |
| 1N978B | 51  | 2.5  | 125  | 1500 | 0.25 | 5   | 38.8 | 7.8 |
| 1N979B | 56  | 2.2  | 150  | 2000 | 0.25 | 5   | 42.6 | 6.9 |
| 1N980B | 62  | 2.0  | 185  | 2000 | 0.25 | 5   | 47.1 | 6.3 |
| 1N981B | 68  | 1.8  | 230  | 2000 | 0.25 | 5   | 51.7 | 5.7 |
| 1N982B | 75  | 1.7  | 270  | 2000 | 0.25 | 5   | 56.0 | 5.2 |
| 1N983B | 82  | 1.5  | 330  | 3000 | 0.25 | 5   | 62.2 | 4.7 |
| 1N984B | 91  | 1.4  | 440  | 3000 | 0.25 | 5   | 69.2 | 4.3 |

#### Notes :

- (1) The Zener Impedance is derived from the 1 KHz AC voltage which results when an AC current having an RMS value equal to 10% of the Zener current ( $I_{ZT}$ ) is superimposed on  $I_{ZT}$ . Zener Impedance is measured at two points to ensure a sharp knee on the breakdown curve and to eliminate unstable units.
- (2) Valid provided that leads are at a distance of 3/8" from case and kept at 25°C ambient temperature.
- (3) Measured with device junction in thermal equilibrium.
- (4) Standard zener voltage tolerance is  $\pm 5\%$  for suffix "B". Other tolerances are available upon request.
- (5)  $V_F = 1.5 V_{max.} @ I_F = 200 \text{ mA}$



## Zener Diodes 0.50 W

| Type No. | Zener Voltage<br>$V_Z @ I_{ZT}$ |            |            |                  | Maximum Zener<br>Impedance        |                                   |                  | Maximum Reverse<br>Leakage Current, $I_R$   |                                              |                 | Temp. coefficient<br>of Zener Voltage<br>at $I_Z = 5\text{mA}$<br>$\alpha_{VZ}(\% / ^\circ\text{C})$ | Admissible<br>Zener<br>Current <sup>(2)</sup><br>$I_{ZM}(\text{mA})$ |
|----------|---------------------------------|------------|------------|------------------|-----------------------------------|-----------------------------------|------------------|---------------------------------------------|----------------------------------------------|-----------------|------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|
|          | Nom <sup>(1)</sup><br>(V)       | Min<br>(V) | Max<br>(V) | $I_{ZT}$<br>(mA) | $Z_{ZT} @ I_{ZT}$<br>( $\Omega$ ) | $Z_{ZK} @ I_{ZK}$<br>( $\Omega$ ) | $I_{ZK}$<br>(mA) | $T_a=25^\circ\text{C}$<br>( $\mu\text{A}$ ) | $T_a=150^\circ\text{C}$<br>( $\mu\text{A}$ ) | At $V_R$<br>(V) |                                                                                                      |                                                                      |

### BZX55 Series, 0.5 W, Case Type : DO-35



|           |     |      |      |     |     |      |     |     |     |     |                         |     |
|-----------|-----|------|------|-----|-----|------|-----|-----|-----|-----|-------------------------|-----|
| BZX55C2V0 | 2.0 | 1.90 | 2.10 | 5.0 | 85  | 600  | 1.0 | 100 | 200 | 1.0 | -0.09...-0.06           | 175 |
| BZX55C2V2 | 2.2 | 2.09 | 2.31 | 5.0 | 85  | 600  | 1.0 | 50  | 100 | 1.0 | -0.09...-0.06           | 160 |
| BZX55C2V4 | 2.4 | 2.28 | 2.56 | 5.0 | 85  | 600  | 1.0 | 50  | 100 | 1.0 | -0.09...-0.06           | 145 |
| BZX55C2V7 | 2.7 | 2.5  | 2.9  | 5.0 | 85  | 600  | 1.0 | 10  | 50  | 1.0 | -0.09...-0.06           | 135 |
| BZX55C3V0 | 3.0 | 2.8  | 3.2  | 5.0 | 85  | 600  | 1.0 | 4.0 | 40  | 1.0 | -0.08...-0.05           | 125 |
| BZX55C3V3 | 3.3 | 3.1  | 3.5  | 5.0 | 85  | 600  | 1.0 | 2.0 | 40  | 1.0 | -0.08...-0.05           | 115 |
| BZX55C3V6 | 3.6 | 3.4  | 3.8  | 5.0 | 85  | 600  | 1.0 | 2.0 | 40  | 1.0 | -0.08...-0.05           | 105 |
| BZX55C3V9 | 3.9 | 3.7  | 4.1  | 5.0 | 85  | 600  | 1.0 | 2.0 | 40  | 1.0 | -0.08...-0.05           | 95  |
| BZX55C4V3 | 4.3 | 4.0  | 4.6  | 5.0 | 75  | 600  | 1.0 | 1.0 | 20  | 1.0 | -0.06...-0.03           | 90  |
| BZX55C4V7 | 4.7 | 4.4  | 5.0  | 5.0 | 60  | 600  | 1.0 | 0.5 | 10  | 1.0 | -0.05...+0.02           | 85  |
| BZX55C5V1 | 5.1 | 4.8  | 5.4  | 5.0 | 35  | 550  | 1.0 | 0.1 | 2   | 1.0 | -0.02...+0.02           | 80  |
| BZX55C5V6 | 5.6 | 5.2  | 6.0  | 5.0 | 25  | 450  | 1.0 | 0.1 | 2   | 1.0 | -0.05...+0.05           | 70  |
| BZX55C6V2 | 6.2 | 5.8  | 6.6  | 5.0 | 10  | 200  | 1.0 | 0.1 | 2   | 2.0 | 0.03...0.06             | 64  |
| BZX55C6V8 | 6.8 | 6.4  | 7.2  | 5.0 | 8   | 150  | 1.0 | 0.1 | 2   | 3.0 | 0.03...0.07             | 58  |
| BZX55C7V5 | 7.5 | 7.0  | 7.9  | 5.0 | 7   | 50   | 1.0 | 0.1 | 2   | 5.0 | 0.03...0.07             | 53  |
| BZX55C8V2 | 8.2 | 7.7  | 8.7  | 5.0 | 7   | 50   | 1.0 | 0.1 | 2   | 6.2 | 0.03...0.08             | 47  |
| BZX55C9V1 | 9.1 | 8.5  | 9.6  | 5.0 | 10  | 50   | 1.0 | 0.1 | 2   | 6.8 | 0.03...0.09             | 43  |
| BZX55C10  | 10  | 9.4  | 10.6 | 5.0 | 15  | 70   | 1.0 | 0.1 | 2   | 7.5 | 0.03...0.10             | 40  |
| BZX55C11  | 11  | 10.4 | 11.6 | 5.0 | 20  | 70   | 1.0 | 0.1 | 2   | 8.2 | 0.03...0.11             | 36  |
| BZX55C12  | 12  | 11.4 | 12.7 | 5.0 | 20  | 90   | 1.0 | 0.1 | 2   | 9.1 | 0.03...0.11             | 32  |
| BZX55C13  | 13  | 12.4 | 14.1 | 5.0 | 26  | 110  | 1.0 | 0.1 | 2   | 10  | 0.03...0.11             | 29  |
| BZX55C15  | 15  | 13.8 | 15.6 | 5.0 | 30  | 110  | 1.0 | 0.1 | 2   | 11  | 0.03...0.11             | 28  |
| BZX55C16  | 16  | 15.3 | 17.1 | 5.0 | 40  | 170  | 1.0 | 0.1 | 2   | 12  | 0.03...0.11             | 27  |
| BZX55C18  | 18  | 16.8 | 19.1 | 5.0 | 50  | 170  | 1.0 | 0.1 | 2   | 13  | 0.03...0.11             | 24  |
| BZX55C20  | 20  | 18.8 | 21.2 | 5.0 | 55  | 220  | 1.0 | 0.1 | 2   | 15  | 0.03...0.11             | 21  |
| BZX55C22  | 22  | 20.8 | 23.3 | 5.0 | 55  | 220  | 1.0 | 0.1 | 2   | 16  | 0.04...0.12             | 20  |
| BZX55C24  | 24  | 22.8 | 25.6 | 5.0 | 80  | 220  | 1.0 | 0.1 | 2   | 18  | 0.04...0.12             | 18  |
| BZX55C27  | 27  | 25.1 | 28.9 | 5.0 | 80  | 220  | 1.0 | 0.1 | 2   | 20  | 0.04...0.12             | 16  |
| BZX55C30  | 30  | 28   | 32   | 5.0 | 80  | 220  | 1.0 | 0.1 | 2   | 22  | 0.04...0.12             | 14  |
| BZX55C33  | 33  | 31   | 35   | 5.0 | 80  | 220  | 1.0 | 0.1 | 2   | 24  | 0.04...0.12             | 13  |
| BZX55C36  | 36  | 34   | 38   | 5.0 | 80  | 220  | 1.0 | 0.1 | 2   | 27  | 0.04...0.12             | 12  |
| BZX55C39  | 39  | 37   | 41   | 2.5 | 90  | 500  | 0.5 | 0.1 | 5   | 30  | 0.04...0.12             | 11  |
| BZX55C43  | 43  | 40   | 46   | 2.5 | 90  | 500  | 0.5 | 0.1 | 5   | 33  | 0.04...0.12             | 10  |
| BZX55C47  | 47  | 44   | 50   | 2.5 | 110 | 600  | 0.5 | 0.1 | 5   | 36  | 0.04...0.12             | 9.2 |
| BZX55C51  | 51  | 48   | 54   | 2.5 | 125 | 700  | 0.5 | 0.1 | 10  | 39  | 0.04...0.12             | 8.5 |
| BZX55C56  | 56  | 52   | 60   | 2.5 | 135 | 700  | 0.5 | 0.1 | 10  | 43  | typ. 0.1 <sup>(4)</sup> | 7.8 |
| BZX55C62  | 62  | 58   | 66   | 2.5 | 150 | 1000 | 0.5 | 0.1 | 10  | 47  | typ. 0.1 <sup>(4)</sup> | 7.0 |
| BZX55C68  | 68  | 64   | 72   | 2.5 | 200 | 1000 | 0.5 | 0.1 | 10  | 51  | typ. 0.1 <sup>(4)</sup> | 6.4 |
| BZX55C75  | 75  | 70   | 79   | 2.5 | 250 | 1000 | 0.5 | 0.1 | 10  | 56  | typ. 0.1 <sup>(4)</sup> | 5.9 |
| BZX55C82  | 82  | 77   | 87   | 2.5 | 300 | 1500 | 0.5 | 0.1 | 10  | 62  | typ. 0.1 <sup>(4)</sup> | 5.3 |
| BZX55C91  | 91  | 85   | 96   | 1.0 | 450 | 2000 | 0.1 | 0.1 | 10  | 68  | typ. 0.1 <sup>(4)</sup> | 4.8 |
| BZX55C100 | 100 | 94   | 106  | 1.0 | 450 | 5000 | 0.1 | 0.1 | 10  | 75  | typ. 0.1 <sup>(4)</sup> | 4.4 |

#### Notes:

- (1) Tested with pulse  $t_p = 20\text{ ms}$
- (2) Valid provided that leads are kept at ambient temperature at a distance of 8 mm from case
- (3) For  $\pm 2\%$  tolerance replace the sixth letter of the type from "C" to "B" e.g. BZX55B15
- (4) At  $I_Z = 2.5\text{ mA}$
- (5)  $V_F = 1\text{ Vmax. @ } I_F = 100\text{ mA}$



## Zener Diodes 0.50 W

| Type No. | Zener Voltage<br>$V_Z @ I_{ZT}$ |          | Maximum Zener<br>Impedance, $f = 1\text{kHz}$ |                   |          | Maximum Reverse<br>Leakage Current |          | Temp. coefficient<br>of Zener Voltage<br>at $I_{ZT}$ |
|----------|---------------------------------|----------|-----------------------------------------------|-------------------|----------|------------------------------------|----------|------------------------------------------------------|
|          | Nom <sup>(1)</sup>              | $I_{ZT}$ | $Z_{ZT} @ I_{ZT}$                             | $Z_{ZK} @ I_{ZK}$ | $I_{ZK}$ | $I_R$                              | at $V_R$ |                                                      |
|          | (V)                             | (mA)     | ( $\Omega$ )                                  | ( $\Omega$ )      | (mA)     | ( $\mu\text{A}$ )                  | (V)      | $\alpha_{VZ}(\% / ^\circ\text{C})$                   |

### BZV55 Series, 0.5 W, Case Type : Mini MELF



|           |     |     |     |     |     |      |     |               |
|-----------|-----|-----|-----|-----|-----|------|-----|---------------|
| BZV55C2V4 | 2.4 | 5.0 | 100 | 600 | 1.0 | 50   | 1.0 | -0.08...-0.06 |
| BZV55C2V7 | 2.7 | 5.0 | 100 | 600 | 1.0 | 20   | 1.0 | -0.08...-0.06 |
| BZV55C3V0 | 3.0 | 5.0 | 95  | 600 | 1.0 | 10   | 1.0 | -0.08...-0.05 |
| BZV55C3V3 | 3.3 | 5.0 | 95  | 600 | 1.0 | 5.0  | 1.0 | -0.08...-0.05 |
| BZV55C3V6 | 3.6 | 5.0 | 90  | 600 | 1.0 | 5.0  | 1.0 | -0.08...-0.04 |
| BZV55C3V9 | 3.9 | 5.0 | 90  | 600 | 1.0 | 3.0  | 1.0 | -0.07...-0.03 |
| BZV55C4V3 | 4.3 | 5.0 | 90  | 600 | 1.0 | 3.0  | 1.0 | -0.04...-0.01 |
| BZV55C4V7 | 4.7 | 5.0 | 80  | 500 | 1.0 | 3.0  | 2.0 | -0.03...+0.01 |
| BZV55C5V1 | 5.1 | 5.0 | 60  | 480 | 1.0 | 2.0  | 2.0 | -0.02...+0.05 |
| BZV55C5V6 | 5.6 | 5.0 | 40  | 400 | 1.0 | 1.0  | 2.0 | -0.01...+0.06 |
| BZV55C6V2 | 6.2 | 5.0 | 10  | 150 | 1.0 | 3.0  | 4.0 | 0.00...0.07   |
| BZV55C6V8 | 6.8 | 5.0 | 15  | 80  | 1.0 | 2.0  | 4.0 | 0.01...0.08   |
| BZV55C7V5 | 7.5 | 5.0 | 15  | 80  | 1.0 | 1.0  | 5.0 | 0.01...0.09   |
| BZV55C8V2 | 8.2 | 5.0 | 15  | 80  | 1.0 | 0.7  | 5.0 | 0.01...0.09   |
| BZV55C9V1 | 9.1 | 5.0 | 15  | 100 | 1.0 | 0.5  | 6.0 | 0.02...0.10   |
| BZV55C10  | 10  | 5.0 | 20  | 150 | 1.0 | 0.2  | 7.0 | 0.03...0.11   |
| BZV55C11  | 11  | 5.0 | 20  | 150 | 1.0 | 0.1  | 8.0 | 0.03...0.11   |
| BZV55C12  | 12  | 5.0 | 25  | 150 | 1.0 | 0.1  | 8.0 | 0.03...0.11   |
| BZV55C13  | 13  | 5.0 | 30  | 170 | 1.0 | 0.1  | 8.0 | 0.03...0.11   |
| BZV55C15  | 15  | 5.0 | 30  | 200 | 1.0 | 0.05 | 10  | 0.03...0.11   |
| BZV55C16  | 16  | 5.0 | 40  | 200 | 1.0 | 0.05 | 11  | 0.03...0.11   |
| BZV55C18  | 18  | 5.0 | 45  | 225 | 1.0 | 0.05 | 13  | 0.03...0.11   |
| BZV55C20  | 20  | 5.0 | 55  | 225 | 1.0 | 0.05 | 14  | 0.03...0.11   |
| BZV55C22  | 22  | 5.0 | 55  | 250 | 1.0 | 0.05 | 15  | 0.03...0.11   |
| BZV55C24  | 24  | 5.0 | 70  | 250 | 1.0 | 0.05 | 17  | 0.04...0.12   |
| BZV55C27  | 27  | 2.0 | 80  | 300 | 0.5 | 0.05 | 19  | 0.04...0.12   |
| BZV55C30  | 30  | 2.0 | 80  | 300 | 0.5 | 0.05 | 21  | 0.04...0.12   |
| BZV55C33  | 33  | 2.0 | 80  | 325 | 0.5 | 0.05 | 23  | 0.04...0.12   |
| BZV55C36  | 36  | 2.0 | 90  | 350 | 0.5 | 0.05 | 25  | 0.04...0.12   |
| BZV55C39  | 39  | 2.0 | 130 | 350 | 0.5 | 0.05 | 27  | 0.04...0.12   |
| BZV55C43  | 43  | 2.0 | 150 | 375 | 0.5 | 0.05 | 30  | 0.04...0.12   |
| BZV55C47  | 47  | 2.0 | 170 | 375 | 0.5 | 0.05 | 33  | 0.04...0.12   |
| BZV55C51  | 51  | 2.0 | 180 | 400 | 0.5 | 0.05 | 36  | 0.04...0.12   |
| BZV55C56  | 56  | 2.0 | 200 | 425 | 0.5 | 0.05 | 39  | 0.1 (typ.)    |
| BZV55C62  | 62  | 2.0 | 215 | 450 | 0.5 | 0.05 | 43  | 0.1 (typ.)    |
| BZV55C68  | 68  | 2.0 | 240 | 475 | 0.5 | 0.05 | 48  | 0.1 (typ.)    |
| BZV55C75  | 75  | 2.0 | 255 | 500 | 0.5 | 0.05 | 53  | 0.1 (typ.)    |

#### Notes.

- (1) Tested with pulse  $t_p = 5\text{ ms}$
- (2) The type numbers listed have a standard tolerance on the nominal zener voltage of  $\pm 5\%$   
For  $\pm 2\%$  tolerance replace the sixth letter of the type from "C" to "B" e.g. BZV55B15
- (3)  $V_F = 0.9 V_{max}$ . @  $I_F = 10\text{ mA}$



## Zener Diodes 0.50 W

| Type No. | Zener Voltage<br>$V_Z @ I_{ZT}$ |          | Maximum Zener<br>Impedance, $f = 1\text{ kHz}$ |                   |          | Maximum Reverse<br>Leakage Current |          | Temp. coefficient<br>of Zener Voltage<br>at $I_{ZT}$ | Admissible<br>Zener Current <sup>(2)</sup> | Maximum<br>Capacitance<br>$V_R=0, f=1\text{ MHz}$ |
|----------|---------------------------------|----------|------------------------------------------------|-------------------|----------|------------------------------------|----------|------------------------------------------------------|--------------------------------------------|---------------------------------------------------|
|          | Nom <sup>(1)</sup>              | $I_{ZT}$ | $Z_{ZT} @ I_{ZT}$                              | $Z_{Zk} @ I_{Zk}$ | $I_{Zk}$ | $I_R$                              | at $V_R$ |                                                      |                                            |                                                   |
|          | (V)                             | (mA)     | ( $\Omega$ )                                   | ( $\Omega$ )      | (mA)     | ( $\mu\text{A}$ )                  | (V)      | $\alpha_{mvz}(\% / ^\circ\text{C})$                  | (mA)                                       | (pF)                                              |

### BZX79 Series, 0.5 W, Case Type : DO-35



|           |     |     |     |     |     |      |     |               |     |     |
|-----------|-----|-----|-----|-----|-----|------|-----|---------------|-----|-----|
| BZX79C2V4 | 2.4 | 5.0 | 100 | 600 | 1.0 | 50   | 1.0 | -0.08...-0.06 | 167 | 450 |
| BZX79C2V7 | 2.7 | 5.0 | 100 | 600 | 1.0 | 20   | 1.0 | -0.08...-0.06 | 135 | 450 |
| BZX79C3V0 | 3.0 | 5.0 | 95  | 600 | 1.0 | 10   | 1.0 | -0.08...-0.05 | 125 | 450 |
| BZX79C3V3 | 3.3 | 5.0 | 95  | 600 | 1.0 | 5.0  | 1.0 | -0.08...-0.05 | 115 | 450 |
| BZX79C3V6 | 3.6 | 5.0 | 90  | 600 | 1.0 | 5.0  | 1.0 | -0.08...-0.04 | 105 | 450 |
| BZX79C3V9 | 3.9 | 5.0 | 90  | 600 | 1.0 | 3.0  | 1.0 | -0.07...-0.03 | 95  | 450 |
| BZX79C4V3 | 4.3 | 5.0 | 90  | 600 | 1.0 | 3.0  | 1.0 | -0.04...-0.01 | 90  | 450 |
| BZX79C4V7 | 4.7 | 5.0 | 80  | 500 | 1.0 | 3.0  | 1.0 | -0.03...+0.01 | 85  | 300 |
| BZX79C5V1 | 5.1 | 5.0 | 60  | 480 | 1.0 | 2.0  | 1.0 | -0.02...+0.05 | 80  | 300 |
| BZX79C5V6 | 5.6 | 5.0 | 40  | 400 | 1.0 | 1.0  | 1.0 | -0.01...+0.06 | 70  | 300 |
| BZX79C6V2 | 6.2 | 5.0 | 10  | 150 | 1.0 | 3.0  | 2.0 | 0.00...0.07   | 64  | 200 |
| BZX79C6V8 | 6.8 | 5.0 | 15  | 80  | 1.0 | 2.0  | 3.0 | 0.01...0.08   | 58  | 200 |
| BZX79C7V5 | 7.5 | 5.0 | 15  | 80  | 1.0 | 1.0  | 5.0 | 0.01...0.09   | 53  | 150 |
| BZX79C8V2 | 8.2 | 5.0 | 15  | 80  | 1.0 | 0.7  | 6.0 | 0.01...0.09   | 47  | 150 |
| BZX79C9V1 | 9.1 | 5.0 | 15  | 100 | 1.0 | 0.5  | 7.0 | 0.02...0.10   | 43  | 150 |
| BZX79C10  | 10  | 5.0 | 20  | 150 | 1.0 | 0.2  | 7.5 | 0.03...0.11   | 40  | 90  |
| BZX79C11  | 11  | 5.0 | 20  | 150 | 1.0 | 0.1  | 8.5 | 0.03...0.11   | 36  | 85  |
| BZX79C12  | 12  | 5.0 | 25  | 150 | 1.0 | 0.1  | 9.0 | 0.03...0.11   | 32  | 85  |
| BZX79C13  | 13  | 5.0 | 30  | 170 | 1.0 | 0.1  | 10  | 0.03...0.11   | 29  | 80  |
| BZX79C15  | 15  | 5.0 | 30  | 200 | 1.0 | 0.05 | 11  | 0.03...0.11   | 27  | 75  |
| BZX79C16  | 16  | 5.0 | 40  | 200 | 1.0 | 0.05 | 12  | 0.03...0.11   | 24  | 75  |
| BZX79C18  | 18  | 5.0 | 45  | 225 | 1.0 | 0.05 | 14  | 0.03...0.11   | 21  | 70  |
| BZX79C20  | 20  | 5.0 | 55  | 225 | 1.0 | 0.05 | 15  | 0.03...0.11   | 20  | 60  |
| BZX79C22  | 22  | 5.0 | 55  | 250 | 1.0 | 0.05 | 17  | 0.03...0.11   | 18  | 60  |
| BZX79C24  | 24  | 5.0 | 70  | 250 | 1.0 | 0.05 | 18  | 0.04...0.12   | 16  | 55  |
| BZX79C27  | 27  | 2.0 | 80  | 300 | 0.5 | 0.05 | 20  | 0.04...0.12   | 14  | 50  |
| BZX79C30  | 30  | 2.0 | 80  | 300 | 0.5 | 0.05 | 22  | 0.04...0.12   | 13  | 50  |
| BZX79C33  | 33  | 2.0 | 80  | 325 | 0.5 | 0.05 | 24  | 0.04...0.12   | 12  | 45  |
| BZX79C36  | 36  | 2.0 | 90  | 350 | 0.5 | 0.05 | 27  | 0.04...0.12   | 11  | 45  |
| BZX79C39  | 39  | 2.0 | 130 | 350 | 0.5 | 0.05 | 28  | 0.04...0.12   | 10  | 45  |
| BZX79C43  | 43  | 2.0 | 150 | 375 | 0.5 | 0.05 | 32  | 0.04...0.12   | 9.2 | 40  |
| BZX79C47  | 47  | 2.0 | 170 | 375 | 0.5 | 0.05 | 35  | 0.04...0.12   | 8.5 | 40  |
| BZX79C51  | 51  | 2.0 | 180 | 400 | 0.5 | 0.05 | 38  | 0.04...0.12   | 7.8 | 40  |
| BZX79C56  | 56  | 2.0 | 200 | 425 | 0.5 | 0.05 | 39  | 0.1(typ.)     | 7.1 | 40  |
| BZX79C62  | 62  | 2.0 | 215 | 450 | 0.5 | 0.05 | 43  | 0.1(typ.)     | 6.4 | 35  |
| BZX79C68  | 68  | 2.0 | 240 | 475 | 0.5 | 0.05 | 48  | 0.1(typ.)     | 5.8 | 35  |
| BZX79C75  | 75  | 2.0 | 255 | 500 | 0.5 | 0.05 | 53  | 0.1(typ.)     | 5.3 | 35  |

#### Notes:

- (1) Tested with pulse  $t_p = 5\text{ ms}$
- (2) Valid provided that leads are kept at ambient temperature at a distance of 8 mm from case
- (3) The type numbers listed have a standard tolerance on the nominal zener voltage of  $\pm 5\%$   
For  $\pm 2\%$  tolerance replace the sixth letter of the type from "C" to "B" e.g. BZX79B13
- (4)  $V_F = 0.9\text{ Vmax.} @ I_F = 10\text{ mA}$



## Zener Diodes 0.50 W

| Type No. | Suffix <sup>(2)</sup> | Zener Voltage                                        |      | Test Current    | Maximum Zener Impedance , f = 1kHz |                                   |                 | Maximum Reverse Current |                   |
|----------|-----------------------|------------------------------------------------------|------|-----------------|------------------------------------|-----------------------------------|-----------------|-------------------------|-------------------|
|          |                       | V <sub>Z</sub> (V) at I <sub>ZT</sub> <sup>(1)</sup> |      | I <sub>ZT</sub> | Z <sub>ZT</sub> @ I <sub>ZT</sub>  | Z <sub>ZK</sub> @ I <sub>ZK</sub> | I <sub>ZK</sub> | I <sub>R</sub>          | at V <sub>R</sub> |
|          |                       | min.                                                 | max. | (mA)            | (Ω)                                | (Ω)                               | (mA)            | (μA)                    | (V)               |

### GLZ Series, 0.5 W, Case Type : Mini MELF



|        |   |       |        |    |    |      |     |     |     |
|--------|---|-------|--------|----|----|------|-----|-----|-----|
| GLZ3.3 | A | 3.160 | 3.380  | 20 | 70 | 1000 | 1   | 20  | 1   |
|        | B | 3.320 | 3.530  |    |    |      |     |     |     |
| GLZ3.6 | A | 3.455 | 3.695  | 20 | 60 | 1000 | 1   | 10  | 1   |
|        | B | 3.600 | 3.845  |    |    |      |     |     |     |
| GLZ3.9 | A | 3.74  | 4.01   | 20 | 50 | 1000 | 1   | 5   | 1   |
|        | B | 3.89  | 4.16   |    |    |      |     |     |     |
| GLZ4.3 | A | 4.04  | 4.29   | 20 | 40 | 1000 | 1   | 5   | 1   |
|        | B | 4.17  | 4.43   |    |    |      |     |     |     |
|        | C | 4.30  | 4.57   |    |    |      |     |     |     |
| GLZ4.7 | A | 4.44  | 4.68   | 20 | 25 | 900  | 1   | 5   | 1   |
|        | B | 4.55  | 4.80   |    |    |      |     |     |     |
|        | C | 4.68  | 4.93   |    |    |      |     |     |     |
| GLZ5.1 | A | 4.81  | 5.07   | 20 | 20 | 800  | 1   | 5   | 1.5 |
|        | B | 4.94  | 5.20   |    |    |      |     |     |     |
|        | C | 5.09  | 5.37   |    |    |      |     |     |     |
| GLZ5.6 | A | 5.28  | 5.55   | 20 | 13 | 500  | 1   | 5   | 2.5 |
|        | B | 5.45  | 5.73   |    |    |      |     |     |     |
|        | C | 5.61  | 5.91   |    |    |      |     |     |     |
| GLZ6.2 | A | 5.78  | 6.09   | 20 | 10 | 300  | 1   | 5   | 3   |
|        | B | 5.96  | 6.27   |    |    |      |     |     |     |
|        | C | 6.12  | 6.44   |    |    |      |     |     |     |
| GLZ6.8 | A | 6.29  | 6.63   | 20 | 8  | 150  | 0.5 | 2   | 3.5 |
|        | B | 6.49  | 6.83   |    |    |      |     |     |     |
|        | C | 6.66  | 7.01   |    |    |      |     |     |     |
| GLZ7.5 | A | 6.85  | 7.22   | 20 | 8  | 120  | 0.5 | 0.5 | 4   |
|        | B | 7.07  | 7.45   |    |    |      |     |     |     |
|        | C | 6.29  | 7.67   |    |    |      |     |     |     |
| GLZ8.2 | A | 7.53  | 7.92   | 20 | 8  | 120  | 0.5 | 0.5 | 5   |
|        | B | 7.78  | 8.19   |    |    |      |     |     |     |
|        | C | 8.03  | 8.45   |    |    |      |     |     |     |
| GLZ9.1 | A | 8.29  | 8.73   | 20 | 8  | 120  | 0.5 | 0.5 | 6   |
|        | B | 8.57  | 9.01   |    |    |      |     |     |     |
|        | C | 8.83  | 9.30   |    |    |      |     |     |     |
| GLZ10  | A | 9.12  | 9.59   | 20 | 8  | 120  | 0.5 | 0.2 | 7   |
|        | B | 9.41  | 9.90   |    |    |      |     |     |     |
|        | C | 9.70  | 10.20  |    |    |      |     |     |     |
|        | D | 9.94  | 10.44  |    |    |      |     |     |     |
| GLZ11  | A | 10.18 | 10.71  | 20 | 10 | 120  | 0.5 | 0.2 | 8   |
|        | B | 10.50 | 115.00 |    |    |      |     |     |     |
|        | C | 10.82 | 11.38  |    |    |      |     |     |     |
| GLZ12  | A | 11.13 | 11.71  | 20 | 12 | 110  | 0.5 | 0.2 | 9   |
|        | B | 11.44 | 12.03  |    |    |      |     |     |     |
|        | C | 11.74 | 12.35  |    |    |      |     |     |     |
| GLZ13  | A | 12.11 | 12.75  | 10 | 14 | 110  | 0.5 | 0.2 | 10  |
|        | B | 12.55 | 13.21  |    |    |      |     |     |     |
|        | C | 12.99 | 13.66  |    |    |      |     |     |     |



## Zener Diodes 0.50 W

| Type No. | Suffix <sup>(2)</sup> | Zener Voltage                                        |      | Test Current    | Maximum Zener Impedance , f = 1kHz |                                   |                 | Maximum Reverse Current |                   |
|----------|-----------------------|------------------------------------------------------|------|-----------------|------------------------------------|-----------------------------------|-----------------|-------------------------|-------------------|
|          |                       | V <sub>Z</sub> (V) at I <sub>ZT</sub> <sup>(1)</sup> |      | I <sub>ZT</sub> | Z <sub>ZT</sub> @ I <sub>ZT</sub>  | Z <sub>ZK</sub> @ I <sub>ZK</sub> | I <sub>ZK</sub> | I <sub>R</sub>          | at V <sub>R</sub> |
|          |                       | min.                                                 | max. | (mA)            | (Ω)                                | (Ω)                               | (mA)            | (μA)                    | (V)               |

### GLZ Series, 0.5 W, Case Type : Mini MELF



|       |   |       |       |    |    |     |     |     |    |
|-------|---|-------|-------|----|----|-----|-----|-----|----|
| GLZ15 | A | 13.45 | 14.13 | 10 | 16 | 110 | 0.5 | 0.2 | 11 |
|       | B | 13.89 | 14.62 |    |    |     |     |     |    |
|       | C | 14.35 | 15.09 |    |    |     |     |     |    |
| GLZ16 | A | 14.80 | 15.57 | 10 | 18 | 150 | 0.5 | 0.2 | 12 |
|       | B | 15.25 | 16.04 |    |    |     |     |     |    |
|       | C | 15.69 | 16.51 |    |    |     |     |     |    |
| GLZ18 | A | 16.22 | 17.06 | 10 | 23 | 150 | 0.5 | 0.2 | 13 |
|       | B | 16.82 | 17.70 |    |    |     |     |     |    |
|       | C | 17.42 | 18.33 |    |    |     |     |     |    |
| GLZ20 | A | 18.02 | 18.96 | 10 | 28 | 200 | 0.5 | 0.2 | 15 |
|       | B | 18.63 | 19.59 |    |    |     |     |     |    |
|       | C | 19.23 | 20.22 |    |    |     |     |     |    |
|       | D | 19.72 | 20.72 |    |    |     |     |     |    |
| GLZ22 | A | 20.15 | 21.20 | 5  | 30 | 200 | 0.5 | 0.2 | 17 |
|       | B | 20.64 | 21.71 |    |    |     |     |     |    |
|       | C | 21.08 | 22.17 |    |    |     |     |     |    |
|       | D | 21.52 | 22.63 |    |    |     |     |     |    |
| GLZ24 | A | 22.05 | 23.18 | 5  | 35 | 200 | 0.5 | 0.2 | 19 |
|       | B | 22.61 | 23.77 |    |    |     |     |     |    |
|       | C | 23.12 | 24.31 |    |    |     |     |     |    |
|       | D | 23.63 | 24.85 |    |    |     |     |     |    |
| GLZ27 | A | 24.26 | 25.52 | 5  | 45 | 200 | 0.5 | 0.2 | 21 |
|       | B | 24.97 | 26.26 |    |    |     |     |     |    |
|       | C | 25.63 | 26.95 |    |    |     |     |     |    |
|       | D | 26.29 | 27.54 |    |    |     |     |     |    |
| GLZ30 | A | 26.99 | 28.39 | 5  | 55 | 250 | 0.5 | 0.2 | 23 |
|       | B | 27.70 | 29.13 |    |    |     |     |     |    |
|       | C | 28.36 | 29.82 |    |    |     |     |     |    |
|       | D | 29.20 | 30.51 |    |    |     |     |     |    |
| GLZ33 | A | 29.68 | 31.22 | 5  | 65 | 250 | 0.5 | 0.2 | 25 |
|       | B | 30.32 | 31.88 |    |    |     |     |     |    |
|       | C | 30.90 | 32.50 |    |    |     |     |     |    |
|       | D | 31.49 | 33.11 |    |    |     |     |     |    |
| GLZ36 | A | 31.14 | 33.79 | 5  | 75 | 250 | 0.5 | 0.2 | 27 |
|       | B | 32.76 | 34.49 |    |    |     |     |     |    |
|       | C | 33.40 | 35.13 |    |    |     |     |     |    |
|       | D | 34.01 | 35.77 |    |    |     |     |     |    |
| GLZ39 | A | 34.68 | 36.47 | 5  | 85 | 250 | 0.5 | 0.2 | 30 |
|       | B | 35.36 | 37.19 |    |    |     |     |     |    |
|       | C | 36.00 | 37.85 |    |    |     |     |     |    |
|       | D | 36.63 | 38.52 |    |    |     |     |     |    |

#### Notes:

- (1) The Zener voltage is measured 40ms after power is supplied
- (2) When ordering use suffix "A", "B", "C" or "D" to specify zener voltage e.g. GLZ3.3A....GLZ39D



## Zener Diodes 0.50 W

| Type No. | Grade | Zener Voltage<br>V <sub>Z</sub> @ I <sub>ZT</sub> |      |           |      |           |      | Test<br>Current | Maximum Dynamic<br>Resistance |  | Maximum<br>Reverse<br>Current |  |                 |     |   |                |                |   |                |
|----------|-------|---------------------------------------------------|------|-----------|------|-----------|------|-----------------|-------------------------------|--|-------------------------------|--|-----------------|-----|---|----------------|----------------|---|----------------|
|          |       | Suffix -1                                         |      | Suffix -2 |      | Suffix -3 |      |                 |                               |  |                               |  |                 |     |   |                |                |   |                |
|          |       | min.                                              | max. | min.      | max. | min.      | max. |                 |                               |  |                               |  | I <sub>ZT</sub> | rd  | @ | I <sub>Z</sub> | I <sub>R</sub> | @ | V <sub>R</sub> |
|          |       | (V)                                               | (V)  | (V)       | (V)  | (V)       | (V)  |                 |                               |  |                               |  | (mA)            | (Ω) |   | (mA)           | (μA)           |   | (V)            |

### HZ Series, 0.5 W, Case Type : DO-35



|      |   |      |      |      |      |      |      |   |     |   |    |     |
|------|---|------|------|------|------|------|------|---|-----|---|----|-----|
| HZ2  | A | 1.6  | 1.8  | 1.7  | 1.9  | 1.8  | 2.0  | 5 | 100 | 5 | 25 | 0.5 |
|      | B | 1.9  | 2.1  | 2.0  | 2.2  | 2.1  | 2.3  | 5 | 100 | 5 | 2  | 0.5 |
|      | C | 2.2  | 2.4  | 2.3  | 2.5  | 2.4  | 2.6  | 5 | 100 | 5 | 1  | 0.5 |
| HZ3  | A | 2.5  | 2.7  | 2.6  | 2.8  | 2.7  | 2.9  | 5 | 100 | 5 | 1  | 0.5 |
|      | B | 2.8  | 3.0  | 2.9  | 3.1  | 3.0  | 3.2  | 5 | 100 | 5 | 1  | 0.5 |
|      | C | 3.1  | 3.3  | 3.2  | 3.4  | 3.3  | 3.5  | 5 | 100 | 5 | 1  | 0.5 |
| HZ4  | A | 3.4  | 3.6  | 3.5  | 3.7  | 3.6  | 3.8  | 5 | 100 | 5 | 5  | 1.0 |
|      | B | 3.7  | 3.9  | 3.8  | 4.0  | 3.9  | 4.1  | 5 | 100 | 5 | 5  | 1.0 |
|      | C | 4.0  | 4.2  | 4.1  | 4.3  | 4.2  | 4.4  | 5 | 100 | 5 | 5  | 1.0 |
| HZ5  | A | 4.3  | 4.5  | 4.4  | 4.6  | 4.5  | 4.7  | 5 | 100 | 5 | 5  | 1.5 |
|      | B | 4.6  | 4.8  | 4.7  | 4.9  | 4.8  | 5.0  | 5 | 100 | 5 | 5  | 1.5 |
|      | C | 4.9  | 5.1  | 5.0  | 5.2  | 5.1  | 5.3  | 5 | 100 | 5 | 5  | 1.5 |
| HZ6  | A | 5.2  | 5.5  | 5.3  | 5.6  | 5.4  | 5.7  | 5 | 35  | 5 | 5  | 2.0 |
|      | B | 5.5  | 5.8  | 5.6  | 5.9  | 5.7  | 6.0  | 5 | 35  | 5 | 5  | 2.0 |
|      | C | 5.8  | 6.1  | 6.0  | 6.3  | 6.1  | 6.4  | 5 | 35  | 5 | 5  | 2.0 |
| HZ7  | A | 6.3  | 6.6  | 6.4  | 6.7  | 6.6  | 6.9  | 5 | 15  | 5 | 1  | 3.5 |
|      | B | 6.7  | 7.0  | 6.9  | 7.2  | 7.0  | 7.3  | 5 | 15  | 5 | 1  | 3.5 |
|      | C | 7.2  | 7.6  | 7.3  | 7.7  | 7.5  | 7.9  | 5 | 15  | 5 | 1  | 3.5 |
| HZ9  | A | 7.7  | 8.1  | 7.9  | 8.3  | 8.1  | 8.5  | 5 | 20  | 5 | 1  | 5.0 |
|      | B | 8.3  | 8.7  | 8.5  | 8.9  | 8.7  | 9.1  | 5 | 20  | 5 | 1  | 5.0 |
|      | C | 8.9  | 9.3  | 9.1  | 9.5  | 9.3  | 9.7  | 5 | 20  | 5 | 1  | 5.0 |
| HZ11 | A | 9.5  | 9.9  | 9.7  | 10.1 | 9.9  | 10.3 | 5 | 25  | 5 | 1  | 7.5 |
|      | B | 10.2 | 10.6 | 10.4 | 10.8 | 10.7 | 11.1 | 5 | 25  | 5 | 1  | 7.5 |
|      | C | 10.9 | 11.3 | 11.1 | 11.6 | 11.4 | 11.9 | 5 | 25  | 5 | 1  | 7.5 |
| HZ12 | A | 11.6 | 12.1 | 11.9 | 12.4 | 12.2 | 12.7 | 5 | 35  | 5 | 1  | 9.5 |
|      | B | 12.4 | 12.9 | 12.6 | 13.1 | 12.9 | 13.4 | 5 | 35  | 5 | 1  | 9.5 |
|      | C | 13.2 | 13.7 | 13.5 | 14.0 | 13.8 | 14.3 | 5 | 35  | 5 | 1  | 9.5 |
| HZ15 |   | 14.1 | 14.7 | 14.5 | 15.1 | 14.9 | 15.5 | 5 | 40  | 5 | 1  | 11  |
| HZ16 |   | 15.3 | 15.9 | 15.7 | 16.5 | 16.3 | 17.1 | 5 | 45  | 5 | 1  | 12  |
| HZ18 |   | 16.9 | 17.7 | 17.5 | 18.3 | 18.1 | 19.0 | 5 | 55  | 5 | 1  | 13  |
| HZ20 |   | 18.8 | 19.7 | 19.5 | 20.4 | 20.2 | 21.1 | 2 | 60  | 2 | 1  | 15  |
| HZ22 |   | 20.9 | 21.9 | 21.6 | 22.6 | 22.3 | 23.3 | 2 | 65  | 2 | 1  | 17  |
| HZ24 |   | 22.9 | 24.0 | 23.6 | 24.7 | 24.3 | 25.5 | 2 | 70  | 2 | 1  | 19  |
| HZ27 |   | 25.2 | 26.6 | 26.2 | 27.6 | 27.2 | 28.6 | 2 | 80  | 2 | 1  | 21  |
| HZ30 |   | 28.2 | 29.6 | 29.2 | 30.6 | 30.2 | 31.6 | 2 | 100 | 2 | 1  | 23  |
| HZ33 |   | 31.2 | 32.6 | 32.2 | 33.6 | 33.2 | 34.6 | 2 | 120 | 2 | 1  | 25  |
| HZ36 |   | 34.2 | 35.7 | 35.3 | 36.8 | 36.4 | 38.0 | 2 | 140 | 2 | 1  | 27  |

Note : The lower voltage types (HZ2 - HZ12) are available in 3 grades, "A" to "C", each with suffix "-1", "-2" or "-3"

For example the type with  $V_Z = 8.5 - 8.9V$  is HZ9B-2

The higher voltage types are only available with suffix "-1", "-2" or "-3" (no grade) e.g. HZ36-3



## Zener Diodes 0.50 W

The plastic material carries U/L recognition 94V-0.

| Type No. | Marking | Zener Voltage <sup>(2)</sup>         |      |      | Test Current    | Dynamic Impedance <sup>(3)</sup>  |      | Max. Reverse Leakage Current    |     | Temp. Coefficient of Zener Voltage |      |
|----------|---------|--------------------------------------|------|------|-----------------|-----------------------------------|------|---------------------------------|-----|------------------------------------|------|
|          |         | V <sub>Z</sub> @ I <sub>ZT</sub> (V) |      |      | I <sub>ZT</sub> | Z <sub>ZT</sub> @ I <sub>ZT</sub> |      | I <sub>R</sub> @ V <sub>R</sub> |     | TK <sub>VZ</sub> (%/K)             |      |
|          |         | Min.                                 | Nom. | Max. | (mA)            | (Ω)                               | (mA) | (μA)                            | (V) | Min.                               | Max. |

### MM1Z2V4 Series, 0.5 W, Case Type : SOD-123



|         |    |      |     |      |     |     |   |     |     |       |       |
|---------|----|------|-----|------|-----|-----|---|-----|-----|-------|-------|
| MM1Z2V4 | 4C | 2.28 | 2.4 | 2.56 | 5.0 | 100 | 5 | 120 | 1.0 | -0.09 | -0.06 |
| MM1Z2V7 | 4D | 2.5  | 2.7 | 2.9  | 5.0 | 110 | 5 | 120 | 1.0 | -0.09 | -0.06 |
| MM1Z3V0 | 4E | 2.8  | 3.0 | 3.2  | 5.0 | 120 | 5 | 50  | 1.0 | -0.08 | -0.05 |
| MM1Z3V3 | 4F | 3.1  | 3.3 | 3.5  | 5.0 | 130 | 5 | 20  | 1.0 | -0.08 | -0.05 |
| MM1Z3V6 | 4H | 3.4  | 3.6 | 3.8  | 5.0 | 130 | 5 | 10  | 1.0 | -0.08 | -0.05 |
| MM1Z3V9 | 4J | 3.7  | 3.9 | 4.1  | 5.0 | 130 | 5 | 5.0 | 1.0 | -0.08 | -0.05 |
| MM1Z4V3 | 4K | 4.0  | 4.3 | 4.6  | 5.0 | 130 | 5 | 5.0 | 1.0 | -0.06 | -0.03 |
| MM1Z4V7 | 4M | 4.4  | 4.7 | 5.0  | 5.0 | 130 | 5 | 2.0 | 1.0 | -0.05 | +0.02 |
| MM1Z5V1 | 4N | 4.8  | 5.1 | 5.4  | 5.0 | 130 | 5 | 2.0 | 1.5 | -0.02 | +0.02 |
| MM1Z5V6 | 4P | 5.2  | 5.6 | 6.0  | 5.0 | 80  | 5 | 1.0 | 2.5 | -0.05 | +0.05 |
| MM1Z6V2 | 4R | 5.8  | 6.2 | 6.6  | 5.0 | 50  | 5 | 1.0 | 3.0 | 0.03  | 0.06  |
| MM1Z6V8 | 4X | 6.4  | 6.8 | 7.2  | 5.0 | 30  | 5 | 0.5 | 3.5 | 0.03  | 0.07  |
| MM1Z7V5 | 4Y | 7.0  | 7.5 | 7.9  | 5.0 | 30  | 5 | 0.5 | 4.0 | 0.03  | 0.07  |
| MM1Z8V2 | 4Z | 7.7  | 8.2 | 8.7  | 5.0 | 30  | 5 | 0.5 | 5.0 | 0.03  | 0.08  |
| MM1Z9V1 | 5A | 8.5  | 9.1 | 9.6  | 5.0 | 30  | 5 | 0.5 | 6.0 | 0.03  | 0.09  |
| MM1Z10  | 5B | 9.4  | 10  | 10.6 | 5.0 | 30  | 5 | 0.1 | 7.0 | 0.03  | 0.1   |
| MM1Z11  | 5C | 10.4 | 11  | 11.6 | 5.0 | 30  | 5 | 0.1 | 8.0 | 0.03  | 0.11  |
| MM1Z12  | 5D | 11.4 | 12  | 12.7 | 5.0 | 35  | 5 | 0.1 | 9.0 | 0.03  | 0.11  |
| MM1Z13  | 5E | 12.4 | 13  | 14.1 | 5.0 | 35  | 5 | 0.1 | 10  | 0.03  | 0.11  |
| MM1Z15  | 5F | 13.8 | 15  | 15.6 | 5.0 | 40  | 5 | 0.1 | 11  | 0.03  | 0.11  |
| MM1Z16  | 5H | 15.3 | 16  | 17.1 | 5.0 | 40  | 5 | 0.1 | 12  | 0.03  | 0.11  |
| MM1Z18  | 5J | 16.8 | 18  | 19.1 | 5.0 | 45  | 5 | 0.1 | 13  | 0.03  | 0.11  |
| MM1Z20  | 5K | 18.8 | 20  | 21.2 | 5.0 | 50  | 5 | 0.1 | 15  | 0.03  | 0.11  |
| MM1Z22  | 5M | 20.8 | 22  | 23.3 | 5.0 | 55  | 5 | 0.1 | 17  | 0.04  | 0.12  |
| MM1Z24  | 5N | 22.8 | 24  | 25.6 | 5.0 | 60  | 5 | 0.1 | 19  | 0.04  | 0.12  |
| MM1Z27  | 5P | 25.1 | 27  | 28.9 | 5.0 | 70  | 2 | 0.1 | 21  | 0.04  | 0.12  |
| MM1Z30  | 5R | 28.0 | 30  | 32.0 | 5.0 | 80  | 2 | 0.1 | 23  | 0.04  | 0.12  |
| MM1Z33  | 5X | 31.0 | 33  | 35.0 | 5.0 | 80  | 2 | 0.1 | 25  | 0.04  | 0.12  |
| MM1Z36  | 5Y | 34.0 | 36  | 38.0 | 5.0 | 90  | 2 | 0.1 | 27  | 0.04  | 0.12  |
| MM1Z39  | 5Z | 37.0 | 39  | 41.0 | 2.5 | 100 | 2 | 2.0 | 30  | 0.04  | 0.12  |
| MM1Z43  | 6A | 40.0 | 43  | 46.0 | 2.5 | 130 | 2 | 2.0 | 33  | 0.04  | 0.12  |
| MM1Z47  | 6B | 44.0 | 47  | 50.0 | 2.5 | 150 | 2 | 2.0 | 36  | 0.04  | 0.12  |
| MM1Z51  | 6C | 48.0 | 51  | 54.0 | 2.5 | 180 | 2 | 1.0 | 39  | 0.04  | 0.12  |
| MM1Z56  | 6D | 52.0 | 56  | 60.0 | 2.5 | 180 | 2 | 1.0 | 43  | 0.04  | 0.12  |
| MM1Z62  | 6E | 58.0 | 62  | 66.0 | 2.5 | 200 | 2 | 0.2 | 47  | 0.04  | 0.12  |
| MM1Z68  | 6F | 64.0 | 68  | 72.0 | 2.5 | 250 | 2 | 0.2 | 52  | 0.04  | 0.12  |
| MM1Z75  | 6H | 70.0 | 75  | 79.0 | 2.5 | 300 | 2 | 0.2 | 57  | 0.04  | 0.12  |

#### Notes :

- (1) The type number shown have a standard tolerance of  $\pm 5\%$  on the nominal Zener Voltage.
- (2)  $V_Z$  is tested with pulses (20ms).
- (3)  $V_Z$  is measured at  $I_Z$  by given a very small A.C. current signal.



## Zener Diodes 0.50 W

The plastic material carries U/L recognition 94V-0.

| TYPE NO. | Marking | Zener Voltage <sup>(1)</sup>         |      |      | Test Current    | Dynamic Impedance <sup>(2)</sup>  |      | Max. Reverse Leakage Current    |     | Temp. Coefficient of Zener Voltage |      |
|----------|---------|--------------------------------------|------|------|-----------------|-----------------------------------|------|---------------------------------|-----|------------------------------------|------|
|          |         | V <sub>Z</sub> @ I <sub>ZT</sub> (V) |      |      | I <sub>ZT</sub> | Z <sub>ZT</sub> @ I <sub>ZT</sub> |      | I <sub>R</sub> @ V <sub>R</sub> |     | TK <sub>VZ</sub> (%/K)             |      |
|          |         | Min.                                 | Nom. | Max. | (mA)            | (Ω)                               | (mA) | (μA)                            | (V) | Min.                               | Max. |

### MM1Z2V7B Series, 0.5 W, Case Type : SOD-123



|          |    |       |     |       |   |     |   |     |     |       |       |
|----------|----|-------|-----|-------|---|-----|---|-----|-----|-------|-------|
| MM1Z2V7B | 9D | 2.65  | 2.7 | 2.95  | 5 | 110 | 5 | 120 | 1.0 | -0.09 | -0.06 |
| MM1Z3V0B | 9E | 2.95  | 3.0 | 3.25  | 5 | 120 | 5 | 50  | 1.0 | -0.08 | -0.05 |
| MM1Z3V3B | 9F | 3.25  | 3.3 | 3.55  | 5 | 130 | 5 | 20  | 1.0 | -0.08 | -0.05 |
| MM1Z3V6B | 9H | 3.60  | 3.6 | 3.845 | 5 | 130 | 5 | 10  | 1.0 | -0.08 | -0.05 |
| MM1Z3V9B | 9J | 3.89  | 3.9 | 4.16  | 5 | 130 | 5 | 5.0 | 1.0 | -0.08 | -0.05 |
| MM1Z4V3B | 9K | 4.17  | 4.3 | 4.43  | 5 | 130 | 5 | 5.0 | 1.0 | -0.06 | -0.03 |
| MM1Z4V7B | 9M | 4.55  | 4.7 | 4.80  | 5 | 130 | 5 | 2.0 | 1.0 | -0.05 | +0.02 |
| MM1Z5V1B | 9N | 4.95  | 5.1 | 5.20  | 5 | 130 | 5 | 2.0 | 1.5 | -0.02 | +0.02 |
| MM1Z5V6B | 9P | 5.45  | 5.6 | 5.73  | 5 | 80  | 5 | 1.0 | 2.5 | -0.05 | +0.05 |
| MM1Z6V2B | 9R | 6.00  | 6.2 | 6.33  | 5 | 50  | 5 | 1.0 | 3.0 | 0.03  | 0.06  |
| MM1Z6V8B | 9X | 6.65  | 6.8 | 7.00  | 5 | 30  | 5 | 0.5 | 3.5 | 0.03  | 0.07  |
| MM1Z7V5B | 9Y | 7.28  | 7.5 | 7.70  | 5 | 30  | 5 | 0.5 | 4.0 | 0.03  | 0.07  |
| MM1Z8V2B | 9Z | 8.02  | 8.2 | 8.45  | 5 | 30  | 5 | 0.5 | 5.0 | 0.03  | 0.08  |
| MM1Z9V1B | 0A | 8.80  | 9.1 | 9.30  | 5 | 30  | 5 | 0.5 | 6.0 | 0.03  | 0.09  |
| MM1Z10B  | 0B | 9.75  | 10  | 10.30 | 5 | 30  | 5 | 0.1 | 7.0 | 0.03  | 0.10  |
| MM1Z11B  | 0C | 10.70 | 11  | 11.28 | 5 | 30  | 5 | 0.1 | 8.0 | 0.03  | 0.11  |
| MM1Z12B  | 0D | 11.70 | 12  | 12.30 | 5 | 35  | 5 | 0.1 | 9.0 | 0.03  | 0.11  |
| MM1Z13B  | 0E | 12.43 | 13  | 14.00 | 5 | 35  | 5 | 0.1 | 10  | 0.03  | 0.11  |
| MM1Z15B  | 0F | 13.80 | 15  | 15.56 | 5 | 40  | 5 | 0.1 | 11  | 0.03  | 0.11  |
| MM1Z16B  | 0H | 15.31 | 16  | 17.14 | 5 | 40  | 5 | 0.1 | 12  | 0.03  | 0.11  |
| MM1Z18B  | 0J | 16.89 | 18  | 19.08 | 5 | 45  | 5 | 0.1 | 13  | 0.03  | 0.11  |
| MM1Z20B  | 0K | 18.80 | 20  | 21.14 | 5 | 50  | 5 | 0.1 | 15  | 0.03  | 0.11  |
| MM1Z22B  | 0M | 20.81 | 22  | 23.25 | 5 | 55  | 5 | 0.1 | 17  | 0.04  | 0.12  |
| MM1Z24B  | 0N | 22.86 | 24  | 25.66 | 5 | 60  | 5 | 0.1 | 19  | 0.04  | 0.12  |
| MM1Z27B  | 0P | 25.10 | 27  | 28.90 | 5 | 70  | 2 | 0.1 | 21  | 0.04  | 0.12  |
| MM1Z30B  | 0R | 28.00 | 30  | 32.00 | 5 | 80  | 2 | 0.1 | 23  | 0.04  | 0.12  |
| MM1Z33B  | 0X | 31.00 | 33  | 35.00 | 5 | 80  | 2 | 0.1 | 25  | 0.04  | 0.12  |
| MM1Z36B  | 0Y | 34.00 | 36  | 38.00 | 5 | 90  | 2 | 0.1 | 27  | 0.04  | 0.12  |
| MM1Z39B  | 0Z | 37.00 | 39  | 41.00 | 5 | 100 | 2 | 2.0 | 30  | 0.04  | 0.12  |
| MM1Z36B  | 0Y | 34.00 | 36  | 38.00 | 5 | 90  | 2 | 0.1 | 27  | 0.04  | 0.12  |
| MM1Z39B  | 0Z | 37.00 | 39  | 41.00 | 5 | 100 | 2 | 2.0 | 30  | 0.04  | 0.12  |

#### Notes :

(1)  $V_Z$  is tested with pulses (20ms).

(2)  $V_Z$  is measured at  $I_Z$  by given a very small A.C. current signal.



## Zener Diodes 0.50 W

The plastic material carries U/L recognition 94V-0.

| Type No. | Marking | Zener Voltage <sup>(1,2)</sup>       |      |      | Test Current    | Maximum Reverse Leakage Current |                |
|----------|---------|--------------------------------------|------|------|-----------------|---------------------------------|----------------|
|          |         | V <sub>Z</sub> @ I <sub>ZT</sub> (V) |      |      | I <sub>ZT</sub> | I <sub>R</sub> @                | V <sub>R</sub> |
|          |         | Min.                                 | Nom. | Max. | (μA)            | (μA)                            | (V)            |

### MM1Z4689 Series, 0.5 W, Case Type : SOD-123



|          |    |       |     |       |    |      |      |
|----------|----|-------|-----|-------|----|------|------|
| MM1Z4689 | BX | 4.85  | 5.1 | 5.36  | 50 | 10   | 3.0  |
| MM1Z4690 | BY | 5.32  | 5.6 | 5.88  | 50 | 10   | 4.0  |
| MM1Z4691 | BZ | 5.89  | 6.2 | 6.51  | 50 | 10   | 5.0  |
| MM1Z4692 | CA | 6.46  | 6.8 | 7.14  | 50 | 10   | 5.1  |
| MM1Z4693 | CB | 7.13  | 7.5 | 7.88  | 50 | 10   | 5.7  |
| MM1Z4694 | CC | 7.79  | 8.2 | 8.61  | 50 | 1.0  | 6.2  |
| MM1Z4696 | CE | 8.65  | 9.1 | 9.56  | 50 | 1.0  | 6.9  |
| MM1Z4697 | CF | 9.50  | 10  | 10.50 | 50 | 1.0  | 7.6  |
| MM1Z4698 | CH | 10.45 | 11  | 11.50 | 50 | 0.05 | 8.4  |
| MM1Z4699 | CJ | 11.40 | 12  | 12.60 | 50 | 0.05 | 9.1  |
| MM1Z4700 | CK | 12.35 | 13  | 13.65 | 50 | 0.05 | 9.8  |
| MM1Z4702 | CN | 14.25 | 15  | 15.75 | 50 | 0.05 | 11.4 |
| MM1Z4703 | CP | 15.20 | 16  | 16.80 | 50 | 0.05 | 12.1 |
| MM1Z4705 | CX | 17.10 | 18  | 18.90 | 50 | 0.05 | 13.6 |
| MM1Z4707 | CZ | 19.00 | 20  | 21.00 | 50 | 0.01 | 15.2 |
| MM1Z4708 | DA | 20.90 | 22  | 23.10 | 50 | 0.01 | 16.7 |
| MM1Z4709 | DB | 22.80 | 24  | 25.20 | 50 | 0.01 | 18.2 |
| MM1Z4711 | DD | 25.65 | 27  | 28.35 | 50 | 0.01 | 20.4 |
| MM1Z4713 | DF | 28.50 | 30  | 31.50 | 50 | 0.01 | 22.8 |
| MM1Z4714 | DH | 31.35 | 33  | 34.65 | 50 | 0.01 | 25.0 |
| MM1Z4715 | DJ | 34.20 | 36  | 37.80 | 50 | 0.01 | 27.3 |
| MM1Z4716 | DK | 37.05 | 39  | 40.95 | 50 | 0.01 | 29.6 |
| MM1Z4717 | DM | 40.85 | 43  | 45.15 | 50 | 0.01 | 32.6 |

#### Notes :

(1) Tested with pulses  $t_p = 20$  ms



## Zener Diodes 0.50 W

The plastic material carries U/L recognition 94V-0.

| Type No. | Marking | Zener Voltage                        |      |      | Test Current    | Maximum Zener Impedance           |                                   | Test Current    | Maximum Reverse Leakage Current |     |
|----------|---------|--------------------------------------|------|------|-----------------|-----------------------------------|-----------------------------------|-----------------|---------------------------------|-----|
|          |         | V <sub>Z</sub> @ I <sub>ZT</sub> (V) |      |      | I <sub>ZT</sub> | Z <sub>ZT</sub> @ I <sub>ZT</sub> | Z <sub>ZK</sub> @ I <sub>ZK</sub> | I <sub>ZK</sub> | I <sub>R</sub> @ V <sub>R</sub> |     |
|          |         | Min.                                 | Nom. | Max. | (mA)            | (Ω)                               | (Ω)                               | (mA)            | (μA)                            | (V) |

### MM1Z5221B Series, 0.5 W, Case Type : SOD-123



|           |    |       |     |       |     |     |      |      |     |     |
|-----------|----|-------|-----|-------|-----|-----|------|------|-----|-----|
| MM1Z5221B | A4 | 2.28  | 2.4 | 2.52  | 20  | 30  | 1200 | 0.25 | 100 | 1.0 |
| MM1Z5223B | B4 | 2.57  | 2.7 | 2.84  | 20  | 30  | 1300 | 0.25 | 75  | 1.0 |
| MM1Z5225B | C4 | 2.85  | 3.0 | 3.15  | 20  | 29  | 1600 | 0.25 | 50  | 1.0 |
| MM1Z5226B | D4 | 3.14  | 3.3 | 3.47  | 20  | 28  | 1600 | 0.25 | 25  | 1.0 |
| MM1Z5227B | E4 | 3.42  | 3.6 | 3.78  | 20  | 24  | 1700 | 0.25 | 15  | 1.0 |
| MM1Z5228B | F4 | 3.71  | 3.9 | 4.10  | 20  | 23  | 1900 | 0.25 | 10  | 1.0 |
| MM1Z5229B | H4 | 4.09  | 4.3 | 4.52  | 20  | 22  | 2000 | 0.25 | 5   | 1.0 |
| MM1Z5230B | J4 | 4.47  | 4.7 | 4.94  | 20  | 19  | 1900 | 0.25 | 5   | 2.0 |
| MM1Z5231B | K4 | 4.85  | 5.1 | 5.36  | 20  | 17  | 1600 | 0.25 | 5   | 2.0 |
| MM1Z5232B | M4 | 5.32  | 5.6 | 5.88  | 20  | 11  | 1600 | 0.25 | 5   | 3.0 |
| MM1Z5234B | N4 | 5.89  | 6.2 | 6.51  | 20  | 7   | 1000 | 0.25 | 5   | 4.0 |
| MM1Z5235B | P4 | 6.46  | 6.8 | 7.14  | 20  | 5   | 750  | 0.25 | 3   | 5.0 |
| MM1Z5236B | R4 | 7.13  | 7.5 | 7.88  | 20  | 6   | 500  | 0.25 | 3   | 6.0 |
| MM1Z5237B | X4 | 7.79  | 8.2 | 8.61  | 20  | 8   | 500  | 0.25 | 3   | 6.5 |
| MM1Z5239B | Y4 | 8.65  | 9.1 | 9.56  | 20  | 10  | 600  | 0.25 | 3   | 7.0 |
| MM1Z5240B | Z4 | 9.50  | 10  | 10.50 | 20  | 17  | 600  | 0.25 | 3   | 8.0 |
| MM1Z5241B | A5 | 10.45 | 11  | 11.50 | 20  | 22  | 600  | 0.25 | 2   | 8.4 |
| MM1Z5242B | B5 | 11.40 | 12  | 12.60 | 20  | 30  | 600  | 0.25 | 1   | 9.1 |
| MM1Z5243B | C5 | 12.35 | 13  | 13.65 | 9.5 | 13  | 600  | 0.25 | 0.5 | 9.9 |
| MM1Z5245B | D5 | 14.25 | 15  | 15.75 | 8.5 | 16  | 600  | 0.25 | 0.1 | 11  |
| MM1Z5246B | E5 | 15.20 | 16  | 16.80 | 7.8 | 17  | 600  | 0.25 | 0.1 | 12  |
| MM1Z5248B | F5 | 17.10 | 18  | 18.90 | 7.0 | 21  | 600  | 0.25 | 0.1 | 14  |
| MM1Z5249B | K9 | 18.05 | 19  | 19.95 | 6.6 | 23  | 600  | 0.25 | 0.1 | 14  |
| MM1Z5250B | H5 | 19.00 | 20  | 21.00 | 6.2 | 25  | 600  | 0.25 | 0.1 | 15  |
| MM1Z5251B | J5 | 20.90 | 22  | 23.10 | 5.6 | 29  | 600  | 0.25 | 0.1 | 17  |
| MM1Z5252B | K5 | 22.80 | 24  | 25.20 | 5.2 | 33  | 600  | 0.25 | 0.1 | 18  |
| MM1Z5253B | M9 | 23.75 | 25  | 26.25 | 5.0 | 35  | 600  | 0.25 | 0.1 | 19  |
| MM1Z5254B | M5 | 25.65 | 27  | 28.35 | 4.6 | 41  | 600  | 0.25 | 0.1 | 21  |
| MM1Z5256B | N5 | 28.50 | 30  | 31.50 | 4.2 | 49  | 600  | 0.25 | 0.1 | 23  |
| MM1Z5257B | P5 | 31.35 | 33  | 34.65 | 3.8 | 58  | 700  | 0.25 | 0.1 | 25  |
| MM1Z5258B | R5 | 34.20 | 36  | 37.80 | 3.4 | 70  | 700  | 0.25 | 0.1 | 27  |
| MM1Z5259B | X5 | 37.05 | 39  | 40.95 | 3.2 | 80  | 800  | 0.25 | 0.1 | 30  |
| MM1Z5260B | Y5 | 40.85 | 43  | 45.15 | 3.0 | 93  | 900  | 0.25 | 0.1 | 33  |
| MM1Z5261B | Z5 | 44.65 | 47  | 49.35 | 2.7 | 105 | 1000 | 0.25 | 0.1 | 36  |
| MM1Z5262B | A6 | 48.45 | 51  | 53.55 | 2.5 | 125 | 1100 | 0.25 | 0.1 | 39  |
| MM1Z5263B | B6 | 53.20 | 56  | 58.80 | 2.2 | 150 | 1300 | 0.25 | 0.1 | 43  |
| MM1Z5265B | C6 | 58.90 | 62  | 65.10 | 2.0 | 185 | 1400 | 0.25 | 0.1 | 47  |
| MM1Z5266B | D6 | 64.60 | 68  | 71.40 | 1.8 | 230 | 1600 | 0.25 | 0.1 | 52  |
| MM1Z5267B | E6 | 71.25 | 75  | 78.75 | 1.7 | 270 | 1700 | 0.25 | 0.1 | 56  |

Notes: (1)  $V_Z$  is tested with pulses (20 ms)

(2) Nominal Zener voltage is measured with the device junction in thermal equilibrium at  $T_L = 30^\circ C \pm 1^\circ C$

(3)  $Z_{ZT}$  and  $Z_{ZK}$  are measured by device drop across the device by the AC current applied.

The specified limits are for  $I_{Z(AC)} = 0.1 I_{Z(DC)}$  with the AC frequency 1 KHz



# Zener Diodes 0.50 W

| Type No.   |     | Zener Voltage<br>$V_Z @ I_{ZT}^{(1)}$ |      |      |                         |      |      |                         |      |      |          |      |      | Test<br>Current | Maximum Zener<br>Impedance |                   |                   | Maximum<br>Reverse<br>Current |             |
|------------|-----|---------------------------------------|------|------|-------------------------|------|------|-------------------------|------|------|----------|------|------|-----------------|----------------------------|-------------------|-------------------|-------------------------------|-------------|
|            |     | Suffix A <sup>(2)</sup>               |      |      | Suffix B <sup>(2)</sup> |      |      | Suffix C <sup>(2)</sup> |      |      | Suffix D |      |      |                 |                            |                   |                   |                               |             |
|            |     | Min.                                  | Nom. | Max. | Min.                    | Nom. | Max. | Min.                    | Nom. | Max. | Min.     | Nom. | Max. |                 | $I_{ZT}$                   | $Z_{ZT} @ I_{ZT}$ | $Z_{Zk} @ I_{Zk}$ | $I_{Zk}$                      | $I_R @ V_R$ |
| Axial Lead | SMD | (V)                                   | (V)  | (V)  | (V)                     | (V)  | (V)  | (V)                     | (V)  | (V)  | (V)      | (V)  | (mA) | (Ω)             | (Ω)                        | (mA)              | (μA)              | (V)                           |             |

## MTZJ / MMZJ Series, Case Type : DO-34 / Mini MELF



|         |         |       |       |       |       |       |       |       |       |       |       |       |       |   |     |      |     |     |     |
|---------|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---|-----|------|-----|-----|-----|
| MTZJ2.0 | MMZJ2.0 | 1.89  | 2.00  | 2.11  | 2.02  | 2.11  | 2.20  | -     | -     | -     | -     | -     | -     | 5 | 100 | 1000 | 0.5 | 120 | 0.5 |
| MTZJ2.2 | MMZJ2.2 | 2.11  | 2.20  | 2.29  | 2.22  | 2.32  | 2.42  | -     | -     | -     | -     | -     | -     | 5 | 100 | 1000 | 0.5 | 120 | 0.7 |
| MTZJ2.4 | MMZJ2.4 | 2.34  | 2.44  | 2.54  | 2.43  | 2.53  | 2.63  | -     | -     | -     | -     | -     | -     | 5 | 100 | 1000 | 0.5 | 120 | 1.0 |
| MTZJ2.7 | MMZJ2.7 | 2.54  | 2.65  | 2.76  | 2.69  | 2.8   | 2.91  | -     | -     | -     | -     | -     | -     | 5 | 100 | 1000 | 0.5 | 100 | 1.0 |
| MTZJ3.0 | MMZJ3.0 | 2.85  | 2.96  | 3.07  | 3.01  | 3.12  | 3.23  | -     | -     | -     | -     | -     | -     | 5 | 120 | 1000 | 0.5 | 50  | 1.0 |
| MTZJ3.3 | MMZJ3.3 | 3.16  | 3.27  | 3.38  | 3.32  | 3.43  | 3.54  | -     | -     | -     | -     | -     | -     | 5 | 120 | 1000 | 0.5 | 20  | 1.0 |
| MTZJ3.6 | MMZJ3.6 | 3.45  | 3.58  | 3.70  | 3.60  | 3.72  | 3.845 | -     | -     | -     | -     | -     | -     | 5 | 100 | 1000 | 1.0 | 10  | 1.0 |
| MTZJ3.9 | MMZJ3.9 | 3.74  | 3.88  | 4.01  | 3.89  | 4.03  | 4.16  | -     | -     | -     | -     | -     | -     | 5 | 100 | 1000 | 1.0 | 5   | 1.0 |
| MTZJ4.3 | MMZJ4.3 | 4.04  | 4.17  | 4.29  | 4.17  | 4.30  | 4.43  | -     | -     | -     | -     | -     | -     | 5 | 100 | 1000 | 1.0 | 5   | 1.0 |
| MTZJ4.7 | MMZJ4.7 | 4.44  | 4.56  | 4.67  | 4.55  | 4.68  | 4.80  | -     | -     | -     | -     | -     | -     | 5 | 80  | 900  | 0.5 | 5   | 1.0 |
| MTZJ5.1 | MMZJ5.1 | 4.81  | 4.94  | 5.06  | 4.94  | 5.07  | 5.20  | 5.08  | 5.23  | 5.37  | -     | -     | -     | 5 | 70  | 1200 | 1.0 | 5   | 1.5 |
| MTZJ5.6 | MMZJ5.6 | 5.11  | 5.42  | 5.55  | 5.45  | 5.59  | 5.72  | 5.61  | 5.76  | 5.90  | -     | -     | -     | 5 | 40  | 900  | 1.0 | 5   | 2.5 |
| MTZJ6.2 | MMZJ6.2 | 5.78  | 5.94  | 6.09  | 5.96  | 6.12  | 6.27  | 6.12  | 6.28  | 6.43  | -     | -     | -     | 5 | 30  | 500  | 1.0 | 5   | 3.0 |
| MTZJ6.8 | MMZJ6.8 | 6.33  | 6.46  | 6.62  | 6.49  | 6.66  | 6.82  | 6.66  | 6.84  | 7.01  | -     | -     | -     | 5 | 20  | 150  | 0.5 | 2   | 3.5 |
| MTZJ7.5 | MMZJ7.5 | 6.85  | 7.04  | 7.22  | 7.07  | 7.26  | 7.44  | 7.29  | 7.48  | 7.66  | -     | -     | -     | 5 | 20  | 120  | 0.5 | 0.5 | 4.0 |
| MTZJ8.2 | MMZJ8.2 | 7.53  | 7.73  | 7.92  | 7.79  | 8.00  | 8.20  | 8.03  | 8.24  | 8.44  | -     | -     | -     | 5 | 20  | 120  | 0.5 | 0.5 | 5.0 |
| MTZJ9.1 | MMZJ9.1 | 8.28  | 8.51  | 8.73  | 8.57  | 8.79  | 9.00  | 8.83  | 9.07  | 9.30  | -     | -     | -     | 5 | 20  | 120  | 0.5 | 0.5 | 6.0 |
| MTZJ10  | MMZJ10  | 9.13  | 9.36  | 9.59  | 9.41  | 9.66  | 9.90  | 9.70  | 9.95  | 10.19 | 9.94  | 10.20 | 10.45 | 5 | 20  | 120  | 0.5 | 0.2 | 7.0 |
| MTZJ11  | MMZJ11  | 10.14 | 10.40 | 10.66 | 10.53 | 10.80 | 11.07 | 10.82 | 11.10 | 11.37 | -     | -     | -     | 5 | 20  | 120  | 0.5 | 0.2 | 8.0 |
| MTZJ12  | MMZJ12  | 11.11 | 11.40 | 11.68 | 11.40 | 11.70 | 11.99 | 11.70 | 12.00 | 12.30 | -     | -     | -     | 5 | 25  | 110  | 0.5 | 0.2 | 9.0 |
| MTZJ13  | MMZJ13  | 12.07 | 12.40 | 12.72 | 12.56 | 12.90 | 13.23 | 12.96 | 13.30 | 13.63 | -     | -     | -     | 5 | 25  | 110  | 0.5 | 0.2 | 10  |
| MTZJ15  | MMZJ15  | 13.45 | 13.80 | 14.14 | 13.92 | 14.30 | 14.67 | 14.33 | 14.70 | 15.06 | -     | -     | -     | 5 | 25  | 110  | 0.5 | 0.2 | 11  |
| MTZJ16  | MMZJ16  | 14.82 | 15.20 | 15.58 | 15.21 | 15.60 | 15.99 | 15.69 | 16.10 | 16.50 | -     | -     | -     | 5 | 25  | 150  | 0.5 | 0.2 | 12  |
| MTZJ18  | MMZJ18  | 16.19 | 16.60 | 17.02 | 16.87 | 17.30 | 17.73 | 17.39 | 17.80 | 18.21 | -     | -     | -     | 5 | 30  | 150  | 0.5 | 0.2 | 13  |
| MTZJ20  | MMZJ20  | 18.04 | 18.50 | 18.96 | 18.62 | 19.10 | 19.58 | 19.21 | 19.70 | 20.19 | 19.70 | 20.20 | 20.71 | 5 | 30  | 200  | 0.5 | 0.2 | 15  |
| MTZJ22  | MMZJ22  | 20.18 | 20.70 | 21.22 | 20.67 | 21.20 | 21.73 | 21.06 | 21.60 | 22.14 | 21.55 | 22.10 | 22.65 | 5 | 30  | 200  | 0.5 | 0.2 | 17  |
| MTZJ24  | MMZJ24  | 22.04 | 22.60 | 23.17 | 22.62 | 23.20 | 23.78 | 23.11 | 23.70 | 24.29 | 23.60 | 24.20 | 24.81 | 5 | 35  | 200  | 0.5 | 0.2 | 19  |
| MTZJ27  | MMZJ27  | 24.28 | 24.90 | 25.52 | 24.96 | 25.60 | 26.24 | 26.33 | 27.00 | 27.68 | 26.54 | 27.00 | 27.46 | 5 | 45  | 250  | 0.5 | 0.2 | 21  |
| MTZJ30  | MMZJ30  | 27.01 | 27.70 | 28.39 | 27.69 | 28.40 | 29.11 | 28.37 | 29.10 | 29.83 | 29.06 | 29.80 | 30.55 | 5 | 55  | 250  | 0.5 | 0.2 | 23  |
| MTZJ33  | MMZJ33  | 29.64 | 30.40 | 31.16 | 30.32 | 31.10 | 31.88 | 30.91 | 31.70 | 32.49 | 31.49 | 32.30 | 33.11 | 5 | 65  | 250  | 0.5 | 0.2 | 25  |
| MTZJ36  | MMZJ36  | 32.18 | 33.00 | 33.83 | 32.76 | 33.60 | 34.44 | 33.44 | 34.30 | 35.16 | 34.03 | 34.90 | 35.77 | 5 | 75  | 250  | 0.5 | 0.2 | 27  |
| MTZJ39  | MMZJ39  | 34.71 | 35.60 | 36.49 | 35.47 | 36.30 | 37.13 | 35.98 | 36.90 | 37.82 | 36.66 | 37.60 | 38.54 | 5 | 85  | 250  | 0.5 | 0.2 | 30  |

### Note :

- (1) The Zener voltage is measured 40ms after power is supplied
- (2) When placing an order for an MTZJ or MMZJ type, please add suffix e.g. MTZJ2.0A, MTZJ2.0B.....MMZJ39C



## Zener Diodes 0.50 W

The plastic material carries U/L recognition 94V-0.

| Type<br>Number | Zener Voltage<br>$V_Z @ I_{ZT}$ |     |     |          | Maximum Zener<br>Impedance |                   |          | Max. Reverse<br>Leakage Current |          | Temp. coefficient<br>of Zener Voltage<br>$TK_{VZ}$ | Admissible<br>Zener<br>Current<br>$I_{ZM}$ (mA) |
|----------------|---------------------------------|-----|-----|----------|----------------------------|-------------------|----------|---------------------------------|----------|----------------------------------------------------|-------------------------------------------------|
|                | Nom.                            | Min | Max | $I_{ZT}$ | $Z_{ZT} @ I_{ZT}$          | $Z_{ZK} @ I_{ZK}$ | $I_{ZK}$ | $I_R$                           | at $V_R$ |                                                    |                                                 |
|                | (V)                             | (V) | (V) | (mA)     | ( $\Omega$ )               | ( $\Omega$ )      | (mA)     | ( $\mu A$ )                     | (V)      | (% / K)                                            |                                                 |

### MZ55C Series, 0.5 W, Case Type : M1A



|          |     |      |      |     |      |       |     |     |      |               |     |
|----------|-----|------|------|-----|------|-------|-----|-----|------|---------------|-----|
| MZ55C3V0 | 3.0 | 2.8  | 3.2  | 5.0 | 85   | 600   | 1.0 | 4.0 | 1.0  | -0.08...-0.05 | 125 |
| MZ55C3V3 | 3.3 | 3.1  | 3.5  | 5.0 | 85   | 600   | 1.0 | 2.0 | 1.0  | -0.08...-0.05 | 115 |
| MZ55C3V6 | 3.6 | 3.4  | 3.8  | 5.0 | 85   | 600   | 1.0 | 2.0 | 1.0  | -0.08...-0.05 | 105 |
| MZ55C3V9 | 3.9 | 3.7  | 4.1  | 5.0 | 85   | 600   | 1.0 | 2.0 | 1.0  | -0.08...-0.05 | 95  |
| MZ55C4V3 | 4.3 | 4.0  | 4.6  | 5.0 | 75   | 600   | 1.0 | 1.0 | 1.0  | -0.06...-0.03 | 90  |
| MZ55C4V7 | 4.7 | 4.4  | 5.0  | 5.0 | 60   | 600   | 1.0 | 1.0 | 1.0  | -0.05...+0.02 | 85  |
| MZ55C5V1 | 5.1 | 4.8  | 5.4  | 5.0 | 35   | 550   | 1.0 | 1.0 | 1.0  | -0.02...+0.02 | 80  |
| MZ55C5V6 | 5.6 | 5.2  | 6.0  | 5.0 | 25   | 450   | 1.0 | 1.0 | 1.0  | -0.05...+0.05 | 70  |
| MZ55C6V2 | 6.2 | 5.8  | 6.6  | 5.0 | 10   | 200   | 1.0 | 1.0 | 2.0  | 0.03...0.06   | 64  |
| MZ55C6V8 | 6.8 | 6.4  | 7.2  | 5.0 | 8    | 150   | 1.0 | 1.0 | 3.0  | 0.03...0.07   | 58  |
| MZ55C7V5 | 7.5 | 7.0  | 7.9  | 5.0 | 7    | 50    | 1.0 | 1.0 | 5.0  | 0.03...0.07   | 53  |
| MZ55C8V2 | 8.2 | 7.7  | 8.7  | 5.0 | 7    | 50    | 1.0 | 1.0 | 6.2  | 0.03...0.08   | 47  |
| MZ55C9V1 | 9.1 | 8.5  | 9.6  | 5.0 | 10   | 50    | 1.0 | 1.0 | 6.8  | 0.03...0.09   | 43  |
| MZ55C10  | 10  | 9.4  | 10.6 | 5.0 | 15   | 70    | 1.0 | 1.0 | 7.5  | 0.03...0.10   | 40  |
| MZ55C11  | 11  | 10.4 | 11.6 | 5.0 | 20   | 70    | 1.0 | 1.0 | 8.2  | 0.03...0.11   | 36  |
| MZ55C12  | 12  | 11.4 | 12.7 | 5.0 | 20   | 90    | 1.0 | 1.0 | 9.1  | 0.03...0.11   | 32  |
| MZ55C13  | 13  | 12.4 | 14.1 | 5.0 | 26   | 110   | 1.0 | 1.0 | 10.0 | 0.03...0.11   | 29  |
| MZ55C14  | 14  | 13.1 | 15.0 | 5.0 | 28   | 110   | 1.0 | 1.0 | 10.5 | 0.03...0.11   | 28  |
| MZ55C15  | 15  | 13.8 | 15.6 | 5.0 | 30   | 110   | 1.0 | 1.0 | 11   | 0.03...0.11   | 27  |
| MZ55C16  | 16  | 15.3 | 17.1 | 5.0 | 40   | 170   | 1.0 | 1.0 | 12   | 0.03...0.11   | 24  |
| MZ55C18  | 18  | 16.8 | 19.1 | 5.0 | 50   | 170   | 1.0 | 1.0 | 13   | 0.03...0.11   | 21  |
| MZ55C20  | 20  | 18.8 | 21.2 | 5.0 | 55   | 220   | 1.0 | 1.0 | 15   | 0.03...0.11   | 20  |
| MZ55C22  | 22  | 20.8 | 23.3 | 5.0 | 55   | 220   | 1.0 | 1.0 | 16   | 0.04...0.12   | 18  |
| MZ55C24  | 24  | 22.8 | 25.6 | 5.0 | 80   | 220   | 1.0 | 1.0 | 18   | 0.04...0.12   | 16  |
| MZ55C27  | 27  | 25.1 | 28.9 | 5.0 | 80   | 220   | 1.0 | 1.0 | 20   | 0.04...0.12   | 14  |
| MZ55C30  | 30  | 28   | 32   | 5.0 | 80   | 220   | 1.0 | 1.0 | 22   | 0.04...0.12   | 13  |
| MZ55C33  | 33  | 31   | 35   | 5.0 | 80   | 220   | 1.0 | 1.0 | 24   | 0.04...0.12   | 12  |
| MZ55C36  | 36  | 34   | 38   | 5.0 | 80   | 220   | 1.0 | 1.0 | 27   | 0.04...0.12   | 11  |
| MZ55C39  | 39  | 37   | 41   | 2.5 | 90   | 500   | 0.5 | 1.0 | 30   | 0.04...0.12   | 10  |
| MZ55C43  | 43  | 40   | 46   | 2.5 | 90   | 500   | 0.5 | 1.0 | 33   | 0.04...0.12   | 9.2 |
| MZ55C47  | 47  | 44   | 50   | 2.5 | 110  | 600   | 0.5 | 1.0 | 36   | 0.04...0.12   | 8.5 |
| MZ55C51  | 51  | 48   | 54   | 2.5 | 125  | 700   | 0.5 | 1.0 | 39   | 0.04...0.12   | 7.8 |
| MZ55C56  | 56  | 52   | 60   | 2.5 | 135  | 700   | 0.5 | 1.0 | 43   | 0.04...0.12   | 7.0 |
| MZ55C62  | 62  | 58   | 66   | 2.5 | 150  | 1000  | 0.5 | 1.0 | 47   | 0.04...0.12   | 6.4 |
| MZ55C68  | 68  | 64   | 72   | 2.5 | 200  | 1000  | 0.5 | 1.0 | 51   | 0.04...0.12   | 5.9 |
| MZ55C75  | 75  | 70   | 79   | 2.5 | 250  | 1000  | 0.5 | 1.0 | 56   | 0.04...0.12   | 5.3 |
| MZ55C82  | 82  | 77   | 87   | 2.5 | 300  | 1500  | 0.5 | 1.0 | 62   | 0.05...0.12   | 4.8 |
| MZ55C91  | 91  | 85   | 96   | 1.0 | 450  | 2000  | 0.5 | 1.0 | 68   | 0.05...0.12   | 4.4 |
| MZ55C100 | 100 | 94   | 106  | 1.0 | 450  | 5000  | 0.5 | 1.0 | 75   | 0.05...0.12   | 4.0 |
| MZ55C110 | 110 | 104  | 116  | 1.0 | 600  | 5000  | 0.5 | 1.0 | 82   | 0.05...0.12   | 3.6 |
| MZ55C120 | 120 | 114  | 127  | 1.0 | 800  | 5500  | 0.5 | 1.0 | 91   | 0.05...0.12   | 3.3 |
| MZ55C130 | 130 | 124  | 141  | 1.0 | 950  | 6000  | 0.5 | 1.0 | 100  | 0.05...0.12   | 3.1 |
| MZ55C150 | 150 | 138  | 156  | 1.0 | 1250 | 6500  | 0.5 | 1.0 | 110  | 0.05...0.12   | 3.7 |
| MZ55C160 | 160 | 153  | 171  | 1.0 | 1400 | 7000  | 0.5 | 1.0 | 120  | 0.05...0.12   | 2.5 |
| MZ55C180 | 180 | 168  | 191  | 1.0 | 1700 | 8500  | 0.5 | 1.0 | 130  | 0.05...0.12   | 2.2 |
| MZ55C190 | 190 | 180  | 199  | 1.0 | 1850 | 9500  | 0.5 | 1.0 | 140  | 0.05...0.12   | 2.1 |
| MZ55C200 | 200 | 188  | 212  | 1.0 | 2000 | 10000 | 0.5 | 1.0 | 150  | 0.05...0.12   | 2.0 |

#### Note :

- (1) The type number listed have a standard tolerance on the nominal zener voltage of  $\pm 5.0\%$ .  
For  $\pm 2\%$  tolerance altered the fifth letter of type from "C" to be "B"



## Zener Diodes 0.50 W

| Type No. | Suffix <sup>(2)</sup> | Zener Voltage <sup>(1)</sup> |      |            | Dynamic Impedance |            | Knee Dynamic Impedance |            | Reverse Current |           | Zener Voltage Temperature |            |
|----------|-----------------------|------------------------------|------|------------|-------------------|------------|------------------------|------------|-----------------|-----------|---------------------------|------------|
|          |                       | $V_Z$ (V)                    |      |            | $Z_Z(\Omega)$     |            | $Z_{ZK}(\Omega)$       |            | $I_R(\mu A)$    |           | $\gamma_Z(mV/^\circ C)$   |            |
|          |                       | Min.                         | Max. | $I_Z$ (mA) | Max.              | $I_Z$ (mA) | Max.                   | $I_Z$ (mA) | Max.            | $V_R$ (V) | Max.                      | $I_Z$ (mA) |

### RD2.0E Series, 0.5 W, Case Type : DO-35



|        |    |      |      |    |     |    |      |     |     |     |      |    |
|--------|----|------|------|----|-----|----|------|-----|-----|-----|------|----|
| RD2.0E | B  | 1.88 | 2.20 | 20 | 140 | 20 | 2000 | 1.0 | 120 | 0.5 | -1.0 | 20 |
|        | B1 | 1.88 | 2.10 |    |     |    |      |     |     |     |      |    |
|        | B2 | 2.02 | 2.20 |    |     |    |      |     |     |     |      |    |
| RD2.2E | B  | 2.12 | 2.41 | 20 | 120 | 20 | 2000 | 1.0 | 120 | 0.7 | -1.5 | 20 |
|        | B1 | 2.12 | 2.3  |    |     |    |      |     |     |     |      |    |
|        | B2 | 2.22 | 2.41 |    |     |    |      |     |     |     |      |    |
| RD2.4E | B  | 2.33 | 2.63 | 20 | 100 | 20 | 2000 | 1.0 | 120 | 1.0 | -1.5 | 20 |
|        | B1 | 2.33 | 2.52 |    |     |    |      |     |     |     |      |    |
|        | B2 | 2.43 | 2.63 |    |     |    |      |     |     |     |      |    |
| RD2.7E | B  | 2.54 | 2.91 | 20 | 100 | 20 | 1000 | 1.0 | 100 | 1.0 | -1.5 | 20 |
|        | B1 | 2.54 | 2.75 |    |     |    |      |     |     |     |      |    |
|        | B2 | 2.69 | 2.91 |    |     |    |      |     |     |     |      |    |
| RD3.0E | B  | 2.85 | 3.22 | 20 | 80  | 20 | 1000 | 1.0 | 50  | 1.0 | -2.0 | 20 |
|        | B1 | 2.85 | 3.07 |    |     |    |      |     |     |     |      |    |
|        | B2 | 3.01 | 3.22 |    |     |    |      |     |     |     |      |    |
| RD3.3E | B  | 3.16 | 3.53 | 20 | 70  | 20 | 1000 | 1.0 | 20  | 1.0 | -2.0 | 20 |
|        | B1 | 3.16 | 3.38 |    |     |    |      |     |     |     |      |    |
|        | B2 | 3.32 | 3.53 |    |     |    |      |     |     |     |      |    |
| RD3.6E | B  | 3.47 | 3.83 | 20 | 60  | 20 | 1000 | 1.0 | 10  | 1.0 | -2.0 | 20 |
|        | B1 | 3.47 | 3.68 |    |     |    |      |     |     |     |      |    |
|        | B2 | 3.62 | 3.83 |    |     |    |      |     |     |     |      |    |
| RD3.9E | B  | 3.77 | 4.14 | 20 | 50  | 20 | 1000 | 1.0 | 5.0 | 1.0 | -2.0 | 20 |
|        | B1 | 3.77 | 3.98 |    |     |    |      |     |     |     |      |    |
|        | B2 | 3.92 | 4.14 |    |     |    |      |     |     |     |      |    |
| RD4.3E | B  | 4.05 | 4.53 | 20 | 40  | 20 | 1000 | 1.0 | 5.0 | 1.0 | -1.5 | 20 |
|        | B1 | 4.05 | 4.26 |    |     |    |      |     |     |     |      |    |
|        | B2 | 4.20 | 4.40 |    |     |    |      |     |     |     |      |    |
|        | B3 | 4.34 | 4.53 |    |     |    |      |     |     |     |      |    |
| RD4.7E | B  | 4.47 | 4.91 | 20 | 25  | 20 | 900  | 1.0 | 5.0 | 1.0 | -1.5 | 20 |
|        | B1 | 4.47 | 4.65 |    |     |    |      |     |     |     |      |    |
|        | B2 | 4.59 | 4.77 |    |     |    |      |     |     |     |      |    |
|        | B3 | 4.71 | 4.91 |    |     |    |      |     |     |     |      |    |
| RD5.1E | B  | 4.85 | 5.35 | 20 | 20  | 20 | 800  | 1.0 | 5.0 | 1.5 | 0.5  | 20 |
|        | B1 | 4.85 | 5.03 |    |     |    |      |     |     |     |      |    |
|        | B2 | 4.97 | 5.18 |    |     |    |      |     |     |     |      |    |
|        | B3 | 5.12 | 5.35 |    |     |    |      |     |     |     |      |    |
| RD5.6E | B  | 5.29 | 5.88 | 20 | 13  | 20 | 500  | 1.0 | 5.0 | 2.5 | 1.5  | 20 |
|        | B1 | 5.29 | 5.52 |    |     |    |      |     |     |     |      |    |
|        | B2 | 5.46 | 5.70 |    |     |    |      |     |     |     |      |    |
|        | B3 | 5.64 | 5.88 |    |     |    |      |     |     |     |      |    |
| RD6.2E | B  | 5.81 | 6.40 | 20 | 10  | 20 | 300  | 1.0 | 5.0 | 3.0 | 2.0  | 20 |
|        | B1 | 5.81 | 6.06 |    |     |    |      |     |     |     |      |    |
|        | B2 | 5.99 | 6.24 |    |     |    |      |     |     |     |      |    |
|        | B3 | 6.16 | 6.40 |    |     |    |      |     |     |     |      |    |



## Zener Diodes 0.50 W

| Type No. | Suffix <sup>(2)</sup> | Zener Voltage <sup>(1)</sup> |      |            | Dynamic Impedance |            | Knee Dynamic Impedance |            | Reverse Current |           | Zener Voltage Temperature |            |
|----------|-----------------------|------------------------------|------|------------|-------------------|------------|------------------------|------------|-----------------|-----------|---------------------------|------------|
|          |                       | $V_Z$ (V)                    |      |            | $Z_Z(\Omega)$     |            | $Z_{ZK}(\Omega)$       |            | $I_R(\mu A)$    |           | $\gamma_Z(mV/^\circ C)$   |            |
|          |                       | Min.                         | Max. | $I_Z$ (mA) | Max.              | $I_Z$ (mA) | Max.                   | $I_Z$ (mA) | Max.            | $V_R$ (V) | Max.                      | $I_Z$ (mA) |

### RD2.0E Series, 0.5 W, Case Type : DO-35



|        |    |       |       |    |    |    |     |     |     |     |     |    |
|--------|----|-------|-------|----|----|----|-----|-----|-----|-----|-----|----|
| RD6.8E | B  | 6.32  | 6.97  | 20 | 8  | 20 | 150 | 0.5 | 2.0 | 3.5 | 2.5 | 20 |
|        | B1 | 6.32  | 6.59  |    |    |    |     |     |     |     |     |    |
|        | B2 | 6.52  | 6.79  |    |    |    |     |     |     |     |     |    |
|        | B3 | 6.70  | 6.97  |    |    |    |     |     |     |     |     |    |
| RD7.5E | B  | 6.88  | 7.64  | 20 | 8  | 20 | 120 | 0.5 | 0.5 | 4.0 | 3.0 | 20 |
|        | B1 | 6.88  | 7.19  |    |    |    |     |     |     |     |     |    |
|        | B2 | 7.11  | 7.41  |    |    |    |     |     |     |     |     |    |
|        | B3 | 7.33  | 7.64  |    |    |    |     |     |     |     |     |    |
| RD8.2E | B  | 7.56  | 8.41  | 20 | 8  | 20 | 120 | 0.5 | 0.5 | 5.0 | 4.0 | 20 |
|        | B1 | 7.56  | 7.90  |    |    |    |     |     |     |     |     |    |
|        | B2 | 7.82  | 8.15  |    |    |    |     |     |     |     |     |    |
|        | B3 | 8.07  | 8.41  |    |    |    |     |     |     |     |     |    |
| RD9.1E | B  | 8.33  | 9.29  | 20 | 8  | 20 | 120 | 0.5 | 0.5 | 6.0 | 4.5 | 20 |
|        | B1 | 8.33  | 8.70  |    |    |    |     |     |     |     |     |    |
|        | B2 | 8.61  | 8.99  |    |    |    |     |     |     |     |     |    |
|        | B3 | 8.89  | 9.29  |    |    |    |     |     |     |     |     |    |
| RD10E  | B  | 9.19  | 10.30 | 20 | 8  | 20 | 120 | 0.5 | 0.2 | 7.0 | 5.5 | 20 |
|        | B1 | 9.19  | 9.59  |    |    |    |     |     |     |     |     |    |
|        | B2 | 9.48  | 9.90  |    |    |    |     |     |     |     |     |    |
|        | B3 | 9.82  | 10.30 |    |    |    |     |     |     |     |     |    |
| RD11E  | B  | 10.18 | 11.26 | 10 | 10 | 10 | 120 | 0.5 | 0.2 | 8.0 | 6.5 | 10 |
|        | B1 | 10.18 | 10.63 |    |    |    |     |     |     |     |     |    |
|        | B2 | 10.50 | 10.95 |    |    |    |     |     |     |     |     |    |
|        | B3 | 10.82 | 11.26 |    |    |    |     |     |     |     |     |    |
| RD12E  | B  | 11.13 | 12.30 | 10 | 12 | 10 | 110 | 0.5 | 0.2 | 9.0 | 7.5 | 10 |
|        | B1 | 11.13 | 11.63 |    |    |    |     |     |     |     |     |    |
|        | B2 | 11.50 | 11.92 |    |    |    |     |     |     |     |     |    |
|        | B3 | 11.80 | 12.30 |    |    |    |     |     |     |     |     |    |
| RD13E  | B  | 12.18 | 13.62 | 10 | 14 | 10 | 110 | 0.5 | 0.2 | 10  | 8.5 | 10 |
|        | B1 | 12.18 | 12.71 |    |    |    |     |     |     |     |     |    |
|        | B2 | 12.59 | 13.16 |    |    |    |     |     |     |     |     |    |
|        | B3 | 13.03 | 13.62 |    |    |    |     |     |     |     |     |    |
| RD15E  | B  | 13.48 | 15.02 | 10 | 16 | 10 | 110 | 0.5 | 0.2 | 11  | 10  | 10 |
|        | B1 | 13.48 | 14.09 |    |    |    |     |     |     |     |     |    |
|        | B2 | 13.95 | 14.56 |    |    |    |     |     |     |     |     |    |
|        | B3 | 14.40 | 15.02 |    |    |    |     |     |     |     |     |    |
| RD16E  | B  | 14.87 | 16.50 | 10 | 18 | 10 | 150 | 0.5 | 0.2 | 12  | 11  | 10 |
|        | B1 | 14.87 | 15.50 |    |    |    |     |     |     |     |     |    |
|        | B2 | 13.55 | 15.93 |    |    |    |     |     |     |     |     |    |
|        | B3 | 15.79 | 16.50 |    |    |    |     |     |     |     |     |    |
| RD18E  | B  | 16.34 | 18.30 | 10 | 23 | 10 | 150 | 0.5 | 0.2 | 13  | 13  | 10 |
|        | B1 | 16.34 | 17.06 |    |    |    |     |     |     |     |     |    |
|        | B2 | 16.90 | 17.67 |    |    |    |     |     |     |     |     |    |
|        | B3 | 17.51 | 18.30 |    |    |    |     |     |     |     |     |    |



## Zener Diodes 0.50 W

| Type No. | Suffix <sup>(2)</sup> | Zener Voltage <sup>(1)</sup> |      |            | Dynamic Impedance |            | Knee Dynamic Impedance |            | Reverse Current |           | Zener Voltage Temperature |            |
|----------|-----------------------|------------------------------|------|------------|-------------------|------------|------------------------|------------|-----------------|-----------|---------------------------|------------|
|          |                       | $V_Z$ (V)                    |      |            | $Z_Z(\Omega)$     |            | $Z_{ZK}(\Omega)$       |            | $I_R(\mu A)$    |           | $\gamma_Z(mV/^\circ C)$   |            |
|          |                       | Min.                         | Max. | $I_Z$ (mA) | Max.              | $I_Z$ (mA) | Max.                   | $I_Z$ (mA) | Max.            | $V_R$ (V) | Max.                      | $I_Z$ (mA) |

### RD2.0E Series, 0.5 W, Case Type : DO-35



|       |    |       |       |    |    |    |     |     |     |    |    |     |
|-------|----|-------|-------|----|----|----|-----|-----|-----|----|----|-----|
| RD20E | B  | 18.11 | 20.72 | 10 | 28 | 10 | 200 | 0.5 | 0.2 | 15 | 15 | 10  |
|       | B1 | 18.11 | 18.92 |    |    |    |     |     |     |    |    |     |
|       | B2 | 18.73 | 19.57 |    |    |    |     |     |     |    |    |     |
|       | B3 | 19.38 | 20.22 |    |    |    |     |     |     |    |    |     |
|       | B4 | 19.88 | 20.72 |    |    |    |     |     |     |    |    |     |
| RD22E | B  | 20.23 | 22.61 | 5  | 30 | 5  | 200 | 0.5 | 0.2 | 17 | 17 | 5.0 |
|       | B1 | 20.23 | 21.08 |    |    |    |     |     |     |    |    |     |
|       | B2 | 20.76 | 21.65 |    |    |    |     |     |     |    |    |     |
|       | B3 | 21.22 | 22.09 |    |    |    |     |     |     |    |    |     |
|       | B4 | 21.68 | 22.61 |    |    |    |     |     |     |    |    |     |
| RD24E | B  | 22.26 | 24.81 | 5  | 35 | 5  | 200 | 0.5 | 0.2 | 19 | 19 | 5.0 |
|       | B1 | 22.26 | 23.12 |    |    |    |     |     |     |    |    |     |
|       | B2 | 22.75 | 23.75 |    |    |    |     |     |     |    |    |     |
|       | B3 | 23.29 | 24.27 |    |    |    |     |     |     |    |    |     |
|       | B4 | 23.81 | 24.81 |    |    |    |     |     |     |    |    |     |
| RD27E | B  | 24.26 | 27.64 | 5  | 45 | 5  | 250 | 0.5 | 0.2 | 21 | 21 | 5.0 |
|       | B1 | 24.26 | 25.52 |    |    |    |     |     |     |    |    |     |
|       | B2 | 24.97 | 26.26 |    |    |    |     |     |     |    |    |     |
|       | B3 | 25.63 | 26.95 |    |    |    |     |     |     |    |    |     |
|       | B4 | 26.29 | 27.64 |    |    |    |     |     |     |    |    |     |
| RD30E | B  | 26.99 | 30.51 | 5  | 55 | 5  | 250 | 0.5 | 0.2 | 23 | 24 | 5.0 |
|       | B1 | 26.99 | 28.39 |    |    |    |     |     |     |    |    |     |
|       | B2 | 27.70 | 29.13 |    |    |    |     |     |     |    |    |     |
|       | B3 | 28.36 | 29.82 |    |    |    |     |     |     |    |    |     |
|       | B4 | 29.02 | 30.51 |    |    |    |     |     |     |    |    |     |
| RD33E | B  | 29.63 | 33.11 | 5  | 65 | 5  | 250 | 0.5 | 0.2 | 25 | 26 | 5.0 |
|       | B1 | 29.68 | 31.22 |    |    |    |     |     |     |    |    |     |
|       | B2 | 30.32 | 31.88 |    |    |    |     |     |     |    |    |     |
|       | B3 | 30.90 | 32.50 |    |    |    |     |     |     |    |    |     |
|       | B4 | 31.49 | 33.11 |    |    |    |     |     |     |    |    |     |
| RD36E | B  | 32.14 | 35.77 | 5  | 75 | 5  | 250 | 0.5 | 0.2 | 27 | 29 | 5.0 |
|       | B1 | 32.14 | 33.79 |    |    |    |     |     |     |    |    |     |
|       | B2 | 32.79 | 34.49 |    |    |    |     |     |     |    |    |     |
|       | B3 | 33.40 | 35.13 |    |    |    |     |     |     |    |    |     |
|       | B4 | 34.01 | 35.77 |    |    |    |     |     |     |    |    |     |
| RD39E | B  | 34.68 | 40.80 | 5  | 85 | 5  | 250 | 0.5 | 0.2 | 30 | 32 | 5.0 |
|       | B1 | 34.68 | 36.47 |    |    |    |     |     |     |    |    |     |
|       | B2 | 35.36 | 37.19 |    |    |    |     |     |     |    |    |     |
|       | B3 | 36.00 | 37.85 |    |    |    |     |     |     |    |    |     |
|       | B4 | 36.63 | 38.52 |    |    |    |     |     |     |    |    |     |

#### Notes:

- (1) The zener voltage ( $V_Z$ ) is tested for 40 ms after power is supplied
- (2) When placing an order for an RD2.0E type, please add suffix e.g. RD2.0EB, RD2.0EB1 ..... RD39EB4  
The B grade is a wide specification, covering full voltage range for suffix "B1" to "B4"



## Zener Diodes 0.50 W

| Type No. | Zener Voltage<br>$V_Z @ I_{ZT}^{(1)}$ |      | Test<br>Current | Maximum Zener<br>Impedance |                   |          | Maximum<br>Reverse Current At $V_R$ |       |
|----------|---------------------------------------|------|-----------------|----------------------------|-------------------|----------|-------------------------------------|-------|
|          | Min.                                  | Max. | $I_{ZT}$        | $Z_{ZT} @ I_{ZT}$          | $Z_{ZK} @ I_{ZK}$ | $I_{ZK}$ | $I_R$                               | $V_R$ |
|          | (V)                                   | (V)  | (mA)            | ( $\Omega$ )               | ( $\Omega$ )      | (mA)     | ( $\mu A$ )                         | (V)   |

### RLZ Series, Case Type : MiniMELF



|         |       |       |    |    |      |     |     |     |
|---------|-------|-------|----|----|------|-----|-----|-----|
| RLZ3.6B | 3.60  | 3.85  | 20 | 60 | 1000 | 1.0 | 10  | 1.0 |
| RLZ3.9B | 3.89  | 4.16  | 20 | 50 | 1000 | 1.0 | 5   | 1.0 |
| RLZ4.3B | 4.17  | 4.43  | 20 | 40 | 1000 | 1.0 | 5   | 1.0 |
| RLZ4.7B | 4.55  | 4.80  | 20 | 25 | 900  | 1.0 | 5   | 1.0 |
| RLZ5.1B | 4.94  | 5.20  | 20 | 20 | 800  | 1.0 | 5   | 1.5 |
| RLZ5.6B | 5.45  | 5.73  | 20 | 13 | 500  | 1.0 | 5   | 2.5 |
| RLZ6.2B | 5.96  | 6.27  | 20 | 10 | 300  | 1.0 | 5   | 3.0 |
| RLZ6.8B | 6.49  | 6.83  | 20 | 8  | 150  | 0.5 | 2   | 3.5 |
| RLZ7.5B | 7.07  | 7.45  | 20 | 8  | 120  | 0.5 | 0.5 | 4.0 |
| RLZ8.2B | 7.78  | 8.19  | 20 | 8  | 120  | 0.5 | 0.5 | 5.0 |
| RLZ9.1B | 8.57  | 9.01  | 20 | 8  | 120  | 0.5 | 0.5 | 6.0 |
| RLZ10B  | 9.41  | 9.90  | 20 | 8  | 120  | 0.5 | 0.2 | 7.0 |
| RLZ11B  | 10.50 | 11.05 | 10 | 10 | 120  | 0.5 | 0.2 | 8.0 |
| RLZ12B  | 11.44 | 12.03 | 10 | 12 | 110  | 0.5 | 0.2 | 9.0 |
| RLZ13B  | 12.55 | 13.21 | 10 | 14 | 110  | 0.5 | 0.2 | 10  |
| RLZ15B  | 13.89 | 14.62 | 10 | 16 | 110  | 0.5 | 0.2 | 11  |
| RLZ16B  | 15.25 | 16.04 | 10 | 18 | 150  | 0.5 | 0.2 | 12  |
| RLZ18B  | 16.82 | 17.70 | 10 | 23 | 150  | 0.5 | 0.2 | 13  |
| RLZ20B  | 18.63 | 19.59 | 10 | 28 | 200  | 0.5 | 0.2 | 15  |
| RLZ22B  | 20.64 | 21.71 | 5  | 30 | 200  | 0.5 | 0.2 | 17  |
| RLZ24B  | 22.61 | 23.77 | 5  | 35 | 200  | 0.5 | 0.2 | 19  |
| RLZ27B  | 24.97 | 26.26 | 5  | 45 | 250  | 0.5 | 0.2 | 21  |
| RLZ30B  | 27.70 | 29.13 | 5  | 55 | 250  | 0.5 | 0.2 | 23  |
| RLZ33B  | 30.32 | 31.88 | 5  | 65 | 250  | 0.5 | 0.2 | 25  |
| RLZ36B  | 32.79 | 34.49 | 5  | 75 | 250  | 0.5 | 0.2 | 27  |
| RLZ39B  | 35.36 | 37.19 | 5  | 85 | 250  | 0.5 | 0.2 | 30  |

#### Note :

(1) The Zener voltage is measured 40ms after power is supplied

# Zener Diodes 0.50 W

| Type | Zener Voltage<br>$V_Z @ I_{ZT}$ |          |                    | Maximum Zener<br>Impedance |                   |          | Maximum Reverse<br>Leakage Current |             |          | Temp. coefficient<br>of Zener Voltage<br><br>$\alpha_{V_Z} (\% / K)$ |
|------|---------------------------------|----------|--------------------|----------------------------|-------------------|----------|------------------------------------|-------------|----------|----------------------------------------------------------------------|
|      | Nom                             | $I_{ZT}$ | $V_{ZT}$           | $Z_{ZT} @ I_{ZT}$          | $Z_{ZK} @ I_{ZK}$ | $I_{ZK}$ | $I_R$                              | $I_R^{(2)}$ | at $V_R$ |                                                                      |
|      | (V)                             | (mA)     | (V) <sup>(1)</sup> | ( $\Omega$ )               | ( $\Omega$ )      | (mA)     | ( $\mu A$ )                        | ( $\mu A$ ) | (V)      |                                                                      |

## TZMC Series, 0.5 W, Case Type : Mini MELF



|         |     |     |              |       |        |     |       |       |     |               |
|---------|-----|-----|--------------|-------|--------|-----|-------|-------|-----|---------------|
| TZMC2V4 | 2.4 | 5   | 2.28 to 2.56 | < 85  | < 600  | 1.0 | < 50  | < 100 | 1.0 | -0.09...-0.06 |
| TZMC2V7 | 2.7 | 5   | 2.5 to 2.9   | < 85  | < 600  | 1.0 | < 10  | < 50  | 1.0 | -0.09...-0.06 |
| TZMC3V0 | 3.0 | 5   | 2.8 to 3.2   | < 90  | < 600  | 1.0 | < 4   | < 40  | 1.0 | -0.08...-0.05 |
| TZMC3V3 | 3.3 | 5   | 3.1 to 3.5   | < 90  | < 600  | 1.0 | < 2   | < 40  | 1.0 | -0.08...-0.05 |
| TZMC3V6 | 3.6 | 5   | 3.4 to 3.8   | < 90  | < 600  | 1.0 | < 2   | < 40  | 1.0 | -0.08...-0.05 |
| TZMC3V9 | 3.9 | 5   | 3.7 to 4.1   | < 90  | < 600  | 1.0 | < 2   | < 40  | 1.0 | -0.08...-0.05 |
| TZMC4V3 | 4.3 | 5   | 4.0 to 4.6   | < 90  | < 600  | 1.0 | < 1   | < 20  | 1.0 | -0.06...-0.03 |
| TZMC4V7 | 4.7 | 5   | 4.4 to 5.0   | < 80  | < 600  | 1.0 | < 0.5 | < 10  | 1.0 | -0.05...-0.02 |
| TZMC5V1 | 5.1 | 5   | 4.8 to 5.4   | < 60  | < 550  | 1.0 | < 0.1 | < 2   | 1.0 | -0.02...+0.02 |
| TZMC5V6 | 5.6 | 5   | 5.2 to 6.0   | < 40  | < 450  | 1.0 | < 0.1 | < 2   | 1.0 | -0.05...+0.05 |
| TZMC6V2 | 6.2 | 5   | 5.8 to 6.6   | < 10  | < 200  | 1.0 | < 0.1 | < 2   | 2.0 | -0.03...+0.06 |
| TZMC6V8 | 6.8 | 5   | 6.4 to 7.2   | < 8   | < 150  | 1.0 | < 0.1 | < 2   | 3.0 | 0.03...0.07   |
| TZMC7V5 | 7.5 | 5   | 7.0 to 7.9   | < 7   | < 50   | 1.0 | < 0.1 | < 2   | 5.0 | 0.03...0.07   |
| TZMC8V2 | 8.2 | 5   | 7.7 to 8.7   | < 7   | < 50   | 1.0 | < 0.1 | < 2   | 6.2 | 0.03...0.08   |
| TZMC9V1 | 9.1 | 5   | 8.5 to 9.6   | < 10  | < 50   | 1.0 | < 0.1 | < 2   | 6.8 | 0.03...0.09   |
| TZMC10  | 10  | 5   | 9.4 to 10.6  | < 15  | < 70   | 1.0 | < 0.1 | < 2   | 7.5 | 0.03...0.10   |
| TZMC11  | 11  | 5   | 10.4 to 11.6 | < 20  | < 70   | 1.0 | < 0.1 | < 2   | 8.2 | 0.03...0.11   |
| TZMC12  | 12  | 5   | 11.4 to 12.7 | < 20  | < 90   | 1.0 | < 0.1 | < 2   | 9.1 | 0.03...0.11   |
| TZMC13  | 13  | 5   | 12.4 to 14.1 | < 26  | < 110  | 1.0 | < 0.1 | < 2   | 10  | 0.03...0.11   |
| TZMC15  | 15  | 5   | 13.8 to 15.6 | < 30  | < 110  | 1.0 | < 0.1 | < 2   | 11  | 0.03...0.11   |
| TZMC16  | 16  | 5   | 15.3 to 17.1 | < 40  | < 170  | 1.0 | < 0.1 | < 2   | 12  | 0.03...0.11   |
| TZMC18  | 18  | 5   | 16.8 to 19.1 | < 50  | < 170  | 1.0 | < 0.1 | < 2   | 13  | 0.03...0.11   |
| TZMC20  | 20  | 5   | 18.8 to 21.2 | < 55  | < 220  | 1.0 | < 0.1 | < 2   | 15  | 0.03...0.11   |
| TZMC22  | 22  | 5   | 20.8 to 23.3 | < 55  | < 220  | 1.0 | < 0.1 | < 2   | 16  | 0.04...0.12   |
| TZMC24  | 24  | 5   | 22.8 to 25.6 | < 80  | < 220  | 1.0 | < 0.1 | < 2   | 18  | 0.04...0.12   |
| TZMC27  | 27  | 5   | 25.1 to 28.9 | < 80  | < 220  | 1.0 | < 0.1 | < 2   | 20  | 0.04...0.12   |
| TZMC30  | 30  | 5   | 28 to 32     | < 80  | < 220  | 1.0 | < 0.1 | < 2   | 22  | 0.04...0.12   |
| TZMC33  | 33  | 5   | 31 to 35     | < 80  | < 220  | 1.0 | < 0.1 | < 2   | 24  | 0.04...0.12   |
| TZMC36  | 36  | 5   | 34 to 38     | < 80  | < 220  | 1.0 | < 0.1 | < 2   | 27  | 0.04...0.12   |
| TZMC39  | 39  | 2.5 | 37 to 41     | < 90  | < 500  | 1.0 | < 0.1 | < 5   | 30  | 0.04...0.12   |
| TZMC43  | 43  | 2.5 | 40 to 46     | < 90  | < 600  | 0.5 | < 0.1 | < 5   | 33  | 0.04...0.12   |
| TZMC47  | 47  | 2.5 | 44 to 50     | < 110 | < 700  | 0.5 | < 0.1 | < 5   | 36  | 0.04...0.12   |
| TZMC51  | 51  | 2.5 | 48 to 54     | < 125 | < 700  | 0.5 | < 0.1 | < 10  | 39  | 0.04...0.12   |
| TZMC56  | 56  | 2.5 | 52 to 60     | < 135 | < 1000 | 0.5 | < 0.1 | < 10  | 43  | 0.04...0.12   |
| TZMC62  | 62  | 2.5 | 58 to 66     | < 150 | < 1000 | 0.5 | < 0.1 | < 10  | 47  | 0.04...0.12   |
| TZMC68  | 68  | 2.5 | 64 to 72     | < 200 | < 1000 | 0.5 | < 0.1 | < 10  | 51  | 0.04...0.12   |
| TZMC75  | 75  | 2.5 | 70 to 79     | < 250 | < 1500 | 0.5 | < 0.1 | < 10  | 56  | 0.04...0.12   |

### Notes :

(1) Tighter tolerances are available on request:

TZMA...  $\pm 1\%$  of  $V_{Znom}$

TZMB...  $\pm 2\%$  of  $V_{Znom}$

TZMF...  $\pm 3\%$  of  $V_{Znom}$

(2) At  $T_j = 150^\circ C$



## Zener Diodes 0.50 W

| Type No. | Zener Voltage<br>$V_Z @ I_{ZT}$ |          | Dynamic Resistance                          |                                             | Maximum Reverse<br>Leakage Current |          | Temp. coefficient of<br>Zener Voltage At $I_{ZT}$ |      | Admissible<br>Zener Current <sup>(2)</sup> |
|----------|---------------------------------|----------|---------------------------------------------|---------------------------------------------|------------------------------------|----------|---------------------------------------------------|------|--------------------------------------------|
|          | Nom <sup>(1)</sup>              | $I_{ZT}$ | at $I_Z = 5\text{mA}$<br>$f = 1\text{ kHz}$ | at $I_Z = 1\text{mA}$<br>$f = 1\text{ kHz}$ | $I_R$                              | at $V_R$ | $\alpha_{VZ}(10^{-4} / ^\circ\text{C})$           |      |                                            |
|          | (V)                             | (mA)     | $r_{Zj} (\Omega)$                           | $r_{Zj} (\Omega)$                           | ( $\mu\text{A}$ )                  | (V)      | min.                                              | max. | (mA)                                       |

### ZMM Series, 0.5 W, Case Type : Mini MELF



|        |     |     |                      |                       |     |      |             |      |     |
|--------|-----|-----|----------------------|-----------------------|-----|------|-------------|------|-----|
| ZMM2.4 | 2.4 | 5   | < 100                | < 600                 | 50  | 0.8  | -10         | -5   | 175 |
| ZMM2.7 | 2.7 | 5   | 75 (< 83)            | < 500                 | 20  | 0.8  | -9          | -4   | 160 |
| ZMM3.0 | 3.0 | 5   | 80 (< 95)            | < 500                 | 10  | 0.8  | -9          | -3   | 140 |
| ZMM3.3 | 3.3 | 5   | 80 (< 95)            | < 500                 | 6.0 | 0.8  | -8          | -3   | 130 |
| ZMM3.6 | 3.6 | 5   | 80 (< 95)            | < 500                 | 6.0 | 0.8  | -8          | -3   | 120 |
| ZMM3.9 | 3.9 | 5   | 80 (< 95)            | < 500                 | 1.6 | 0.8  | -7          | -3   | 110 |
| ZMM4.3 | 4.3 | 5   | 80 (< 95)            | < 500                 | 1.0 | 0.8  | -6          | -1   | 100 |
| ZMM4.7 | 4.7 | 5   | 70 (< 78)            | < 500                 | 0.1 | 0.8  | -5          | +2   | 90  |
| ZMM5.1 | 5.1 | 5   | 30 (< 60)            | < 480                 | 0.1 | 0.8  | -3          | +4   | 80  |
| ZMM5.6 | 5.6 | 5   | 10 (< 40)            | < 400                 | 0.1 | 1    | -2          | +6   | 70  |
| ZMM6.2 | 6.2 | 5   | 4.8 (< 10)           | < 200                 | 0.1 | 2    | -1          | +7   | 64  |
| ZMM6.8 | 6.8 | 5   | 4.5 (< 8)            | < 150                 | 0.1 | 3    | +2          | +7   | 58  |
| ZMM7.5 | 7.5 | 5   | 4 (< 7)              | < 50                  | 0.1 | 5    | +3          | +7   | 53  |
| ZMM8.2 | 8.2 | 5   | 4.5 (< 7)            | < 50                  | 0.1 | 6    | +4          | +7   | 47  |
| ZMM9.1 | 9.1 | 5   | 4.8 (< 10)           | < 50                  | 0.1 | 7    | +5          | +8   | 43  |
| ZMM10  | 10  | 5   | 5.2 (< 15)           | < 70                  | 0.1 | 7.5  | +5          | +8   | 40  |
| ZMM11  | 11  | 5   | 6 (< 20)             | < 70                  | 0.1 | 8.5  | +5          | +9   | 36  |
| ZMM12  | 12  | 5   | 7 (< 20)             | < 90                  | 0.1 | 9    | +6          | +9   | 32  |
| ZMM13  | 13  | 5   | 9 (< 25)             | < 110                 | 0.1 | 10   | +7          | +9   | 29  |
| ZMM15  | 15  | 5   | 11 (< 30)            | < 110                 | 0.1 | 11   | +7          | +9   | 27  |
| ZMM16  | 16  | 5   | 13 (< 40)            | < 170                 | 0.1 | 12   | +8          | +9.5 | 24  |
| ZMM18  | 18  | 5   | 18 (< 50)            | < 170                 | 0.1 | 14   | +8          | +9.5 | 21  |
| ZMM20  | 20  | 5   | 20 (< 50)            | < 220                 | 0.1 | 15   | +8          | +10  | 20  |
| ZMM22  | 22  | 5   | 25 (< 55)            | < 220                 | 0.1 | 17   | +8          | +10  | 18  |
| ZMM24  | 24  | 5   | 28 (< 80)            | < 220                 | 0.1 | 18   | +8          | +10  | 16  |
| ZMM27  | 27  | 5   | 30 (< 80)            | < 250                 | 0.1 | 20   | +8          | +10  | 14  |
| ZMM30  | 30  | 5   | 35 (< 80)            | < 250                 | 0.1 | 22.5 | +8          | +10  | 13  |
| ZMM33  | 33  | 5   | 40 (< 80)            | < 250                 | 0.1 | 25   | +8          | +10  | 12  |
| ZMM36  | 36  | 5   | 40 (< 90)            | < 250                 | 0.1 | 27   | +8          | +10  | 11  |
| ZMM39  | 39  | 5   | 50 (< 90)            | < 300                 | 0.1 | 29   | +10         | +12  | 10  |
| ZMM43  | 43  | 5   | 60 (< 100)           | < 700                 | 0.1 | 32   | +10         | +12  | 9.2 |
| ZMM47  | 47  | 5   | 70 (< 100)           | < 750                 | 0.1 | 35   | +10         | +12  | 8.5 |
| ZMM51  | 51  | 5   | 70 (< 100)           | < 750                 | 0.1 | 38   | +10         | +12  | 7.8 |
| ZMM56  | 56  | 2.5 | < 135 <sup>(3)</sup> | < 1000 <sup>(4)</sup> | 0.1 | 42   | +10 (typ.)  |      | 7.1 |
| ZMM62  | 62  | 2.5 | < 150 <sup>(3)</sup> | < 1000 <sup>(4)</sup> | 0.1 | 47   | + 10 (typ.) |      | 6.4 |
| ZMM68  | 68  | 2.5 | < 200 <sup>(3)</sup> | < 1000 <sup>(4)</sup> | 0.1 | 51   | + 10 (typ.) |      | 5.8 |
| ZMM75  | 75  | 2.5 | < 250 <sup>(3)</sup> | < 1500 <sup>(4)</sup> | 0.1 | 55   | + 10 (typ.) |      | 5.3 |

#### Notes:

- (1) Tested with pulse  $t_p = 5\text{ ms}$
- (2) Valid provided that leads are kept at ambient temperature
- (3) At  $I_Z = 2.5\text{mA}$
- (4) At  $I_Z = 0.5\text{mA}$
- (5) Standard zener voltage tolerance is  $\pm 5\%$ . Other tolerances are available upon request
- (6)  $V_F = 1.25\text{ Vmax. @ } I_F = 200\text{ mA}$



## Zener Diodes 0.50 W

The plastic material carries U/L recognition 94V-0.

| Type No. | Nominal Zener Voltage | Test Current | Maximum Zener Impedance |                   |          | Maximum Reverse Leakage Current |     | Maximum DC Zener Current | Maximum Surge Current |
|----------|-----------------------|--------------|-------------------------|-------------------|----------|---------------------------------|-----|--------------------------|-----------------------|
|          | $V_Z @ I_{ZT}$        | $I_{ZT}$     | $Z_{ZT} @ I_{ZT}$       | $Z_{ZK} @ I_{ZK}$ | $I_{ZK}$ | $I_R @ V_R$                     |     | $I_{ZM}$                 | $I_{RM}^{(2)}$        |
|          | (V)                   | (mA)         |                         | ( $\Omega$ )      | (mA)     | ( $\mu$ A)                      | (V) | (mA)                     | (mApk)                |

### Z043 Series, 0.5 W, Case Type : DO-41



|       |     |      |      |      |      |     |     |      |      |
|-------|-----|------|------|------|------|-----|-----|------|------|
| Z043  | 43  | 2.75 | 70   | 1500 | 0.25 | 5.0 | 32  | 11.0 | 52   |
| Z047  | 47  | 2.40 | 80   | 1500 | 0.25 | 5.0 | 35  | 9.6  | 47   |
| Z051  | 51  | 2.23 | 95   | 1500 | 0.25 | 5.0 | 38  | 8.9  | 44   |
| Z056  | 56  | 2.00 | 110  | 2000 | 0.25 | 5.0 | 42  | 8.0  | 40   |
| Z062  | 62  | 1.83 | 125  | 2000 | 0.25 | 5.0 | 47  | 7.3  | 36   |
| Z068  | 68  | 1.65 | 150  | 2000 | 0.25 | 5.0 | 52  | 6.6  | 33   |
| Z075  | 75  | 1.50 | 175  | 2000 | 0.25 | 5.0 | 57  | 6.0  | 30   |
| Z082  | 82  | 1.37 | 200  | 3000 | 0.25 | 5.0 | 62  | 5.5  | 27   |
| Z091  | 91  | 1.25 | 250  | 3000 | 0.25 | 5.0 | 73  | 5.0  | 24   |
| Z0100 | 100 | 1.12 | 350  | 3000 | 0.25 | 5.0 | 76  | 4.5  | 22   |
| Z0110 | 110 | 1.00 | 450  | 4000 | 0.25 | 5.0 | 83  | 4.1  | 20   |
| Z0120 | 120 | 0.95 | 550  | 4500 | 0.25 | 5.0 | 91  | 3.8  | 18   |
| Z0130 | 130 | 0.88 | 700  | 5000 | 0.25 | 5.0 | 98  | 3.5  | 17   |
| Z0150 | 150 | 0.75 | 1000 | 6000 | 0.25 | 5.0 | 114 | 3.0  | 15   |
| Z0160 | 160 | 0.70 | 1100 | 6500 | 0.25 | 5.0 | 121 | 2.8  | 14   |
| Z0180 | 180 | 0.62 | 1400 | 7000 | 0.25 | 5.0 | 136 | 2.5  | 12.5 |
| Z0190 | 190 | 0.57 | 1400 | 7500 | 0.25 | 5.0 | 144 | 2.3  | 11.8 |
| Z0200 | 200 | 0.55 | 1700 | 8000 | 0.25 | 5.0 | 152 | 2.2  | 11.2 |

#### Notes :

- The type numbers listed have a standard tolerance on the nominal zener voltage of  $\pm 10\%$   
Add suffix "A" for  $\pm 5\%$  tolerance, add suffix "B" for  $\pm 2\%$  tolerance
- Surge current is a non-repetitive 8.3ms square pulse width wave or equivalent sine-wave superimposed on  $I_{ZT}$  as per JEDEC method



## Zener Diodes 0.50 W

| Type No. | Zener Voltage                    |                 | Dynamic Resistance     |                        | Reverse Voltage            | Temp. coefficient of Zener Voltage At I <sub>ZT</sub> |      | Admissible Zener Current <sup>(2)</sup> |
|----------|----------------------------------|-----------------|------------------------|------------------------|----------------------------|-------------------------------------------------------|------|-----------------------------------------|
|          | V <sub>Z</sub> @ I <sub>ZT</sub> |                 | at I <sub>Z</sub> =5mA | at I <sub>Z</sub> =1mA |                            |                                                       |      |                                         |
|          | Nom <sup>(1)</sup>               | I <sub>ZT</sub> | f = 1 kHz              | f = 1 kHz              | at I <sub>R</sub> = 100 nA | α <sub>vz</sub> (10 <sup>-4</sup> / °C)               |      |                                         |
|          | (V)                              | (mA)            | r <sub>zj</sub> (Ω)    | r <sub>zj</sub> (Ω)    | V <sub>R</sub> (V)         | min.                                                  | max. |                                         |

### ZPD Series, 0.5 W, Case Type : DO-35



|        |     |     |                     |                       |        |            |      |     |
|--------|-----|-----|---------------------|-----------------------|--------|------------|------|-----|
| ZPD2.7 | 2.7 | 5   | 6.5 (<8)            | < 500                 | -      | -9         | -4   | 160 |
| ZPD3.0 | 3.0 | 5   | 75 (<83)            | < 500                 | -      | -9         | -3   | 140 |
| ZPD3.3 | 3.3 | 5   | 80 (<95)            | < 500                 | -      | -8         | -3   | 130 |
| ZPD3.6 | 3.6 | 5   | 80 (<95)            | < 500                 | -      | -8         | -3   | 120 |
| ZPD3.9 | 3.9 | 5   | 80 (<95)            | < 500                 | -      | -7         | -3   | 110 |
| ZPD4.3 | 4.3 | 5   | 80 (<95)            | < 500                 | -      | -6         | -1   | 100 |
| ZPD4.7 | 4.7 | 5   | 70 (<78)            | < 500                 | -      | -5         | +2   | 90  |
| ZPD5.1 | 5.1 | 5   | 30 (<60)            | < 480                 | > 0.8  | -3         | +4   | 80  |
| ZPD5.6 | 5.6 | 5   | 10 (<40)            | < 400                 | > 1    | -2         | +6   | 70  |
| ZPD6.2 | 6.2 | 5   | 4.8 (<10)           | < 200                 | > 2    | -1         | +7   | 64  |
| ZPD6.8 | 6.8 | 5   | 4.5 (<8)            | < 150                 | > 3    | +2         | +7   | 58  |
| ZPD7.5 | 7.5 | 5   | 4.0 (<7)            | < 50                  | > 5    | +3         | +7   | 53  |
| ZPD8.2 | 8.2 | 5   | 4.5 (<7)            | < 50                  | > 6    | +4         | +7   | 47  |
| ZPD9.1 | 9.1 | 5   | 4.8 (<10)           | < 50                  | > 7    | +5         | +8   | 43  |
| ZPD10  | 10  | 5   | 5.2 (<15)           | < 70                  | > 7.5  | +5         | +8   | 40  |
| ZPD11  | 11  | 5   | 6 (<20)             | < 70                  | > 8.5  | +5         | +9   | 36  |
| ZPD12  | 12  | 5   | 7 (<20)             | < 90                  | > 9    | +6         | +9   | 32  |
| ZPD13  | 13  | 5   | 9 (<25)             | < 110                 | > 10   | +7         | +9   | 29  |
| ZPD15  | 15  | 5   | 11 (<30)            | < 110                 | > 11   | +7         | +9   | 27  |
| ZPD16  | 16  | 5   | 13 (<40)            | < 170                 | > 12   | +8         | +9.5 | 24  |
| ZPD18  | 18  | 5   | 18 (<50)            | < 170                 | > 14   | +8         | +9.5 | 21  |
| ZPD20  | 20  | 5   | 20 (<50)            | < 220                 | > 15   | +8         | +10  | 20  |
| ZPD22  | 22  | 5   | 25 (<55)            | < 220                 | > 17   | +8         | +10  | 18  |
| ZPD24  | 24  | 5   | 28 (<80)            | < 220                 | > 18   | +8         | +10  | 16  |
| ZPD27  | 27  | 5   | 30 (<80)            | < 250                 | > 20   | +8         | +10  | 14  |
| ZPD30  | 30  | 5   | 35 (<80)            | < 250                 | > 22.5 | +8         | +10  | 13  |
| ZPD33  | 33  | 5   | 40 (<80)            | < 250                 | > 25   | +8         | +10  | 12  |
| ZPD36  | 36  | 5   | 40 (<90)            | < 250                 | > 27   | +8         | +10  | 11  |
| ZPD39  | 39  | 5   | 50 (<90)            | < 300                 | > 29   | +10        | +12  | 10  |
| ZPD43  | 43  | 5   | 60 (<100)           | < 700                 | > 32   | +10        | +12  | 9.2 |
| ZPD47  | 47  | 5   | 70 (<100)           | < 750                 | > 35   | +10        | +12  | 8.5 |
| ZPD51  | 51  | 5   | 70 (<100)           | < 750                 | > 38   | +10        | +12  | 7.8 |
| ZPD56  | 56  | 2.5 | <135 <sup>(3)</sup> | < 1000 <sup>(4)</sup> | > 42   | +10 (typ.) |      | 7.1 |
| ZPD62  | 62  | 2.5 | <150 <sup>(3)</sup> | < 1000 <sup>(4)</sup> | > 47   | +10 (typ.) |      | 6.4 |
| ZPD68  | 68  | 2.5 | <200 <sup>(3)</sup> | < 1000 <sup>(4)</sup> | > 51   | +10 (typ.) |      | 5.8 |
| ZPD75  | 75  | 2.5 | <250 <sup>(3)</sup> | <1500 <sup>(4)</sup>  | > 55   | +10 (typ.) |      | 5.3 |

#### Notes :

- (1) Tested with pulse  $t_p = 5$  ms
- (2) Valid provided that leads are at distance of 4 mm from case and kept at ambient temperature
- (3) At  $I_Z = 2.5$  mA
- (4) At  $I_Z = 0.5$  mA
- (5) The type numbers listed have a standard tolerance on the nominal zener voltage of  $\pm 5.0\%$



# Zener Diodes 1.0 W

The plastic material carries U/L recognition 94V-0.

| Type No.   |     | Nominal Zener Voltage                          |                 | Maximum Zener Impedance           |                                   |                 | Maximum Reverse Leakage Current |     | Maximum DC Zener Current |
|------------|-----|------------------------------------------------|-----------------|-----------------------------------|-----------------------------------|-----------------|---------------------------------|-----|--------------------------|
|            |     | V <sub>Z</sub> @I <sub>ZT</sub> <sup>(2)</sup> | I <sub>ZT</sub> | Z <sub>zT</sub> @ I <sub>ZT</sub> | Z <sub>zK</sub> @ I <sub>zK</sub> | I <sub>zK</sub> | I <sub>R</sub> @ V <sub>R</sub> |     | I <sub>ZM</sub>          |
| Axial Lead | SMD | (V)                                            | (mA)            | (Ω)                               | (Ω)                               | (mA)            | (μA)                            | (V) | (mA)                     |

## 1N4728/SZ10 Series, 1 W, Case Type : DO-41/SMA

|        |        |     |      |      |      |      |     |       |     |
|--------|--------|-----|------|------|------|------|-----|-------|-----|
| 1N4728 | SZ103D | 3.3 | 76.0 | 10   | 400  | 1.0  | 100 | 1.0   | 276 |
| 1N4729 | SZ103G | 3.6 | 69.0 | 10   | 400  | 1.0  | 100 | 1.0   | 252 |
| 1N4730 | SZ103J | 3.9 | 64.0 | 9.0  | 400  | 1.0  | 50  | 1.0   | 234 |
| 1N4731 | SZ104D | 4.3 | 58.0 | 9.0  | 400  | 1.0  | 10  | 1.0   | 217 |
| 1N4732 | SZ104H | 4.7 | 53.0 | 8.0  | 500  | 1.0  | 10  | 1.0   | 193 |
| 1N4733 | SZ105B | 5.1 | 49.0 | 7.0  | 550  | 1.0  | 10  | 1.0   | 178 |
| 1N4734 | SZ105G | 5.6 | 45.0 | 5.0  | 600  | 1.0  | 10  | 2.0   | 162 |
| 1N4735 | SZ106C | 6.2 | 41.0 | 2.0  | 700  | 1.0  | 10  | 3.0   | 146 |
| 1N4736 | SZ106I | 6.8 | 37.0 | 3.5  | 700  | 1.0  | 10  | 4.0   | 133 |
| 1N4737 | SZ107F | 7.5 | 34.0 | 4.0  | 700  | 0.5  | 10  | 5.0   | 121 |
| 1N4738 | SZ108C | 8.2 | 31.0 | 4.5  | 700  | 0.5  | 10  | 6.0   | 110 |
| 1N4739 | SZ109B | 9.1 | 28.0 | 5.0  | 700  | 0.5  | 10  | 7.0   | 100 |
| 1N4740 | SZ1010 | 10  | 25.0 | 7.0  | 700  | 0.25 | 10  | 7.6   | 91  |
| 1N4741 | SZ1011 | 11  | 23.0 | 8.0  | 700  | 0.25 | 5.0 | 8.4   | 83  |
| 1N4742 | SZ1012 | 12  | 21.0 | 9.0  | 700  | 0.25 | 5.0 | 9.1   | 76  |
| 1N4743 | SZ1013 | 13  | 19.0 | 10   | 700  | 0.25 | 5.0 | 9.9   | 69  |
| 1N4744 | SZ1015 | 15  | 17.0 | 14   | 700  | 0.25 | 5.0 | 11.4  | 61  |
| 1N4745 | SZ1016 | 16  | 15.5 | 16   | 700  | 0.25 | 5.0 | 12.2  | 57  |
| 1N4746 | SZ1018 | 18  | 14.0 | 20   | 750  | 0.25 | 5.0 | 13.7  | 50  |
| 1N4747 | SZ1020 | 20  | 12.5 | 22   | 750  | 0.25 | 5.0 | 15.2  | 45  |
| 1N4748 | SZ1022 | 22  | 11.5 | 23   | 750  | 0.25 | 5.0 | 16.7  | 41  |
| 1N4749 | SZ1024 | 24  | 10.5 | 25   | 750  | 0.25 | 5.0 | 18.2  | 38  |
| 1N4750 | SZ1027 | 27  | 9.5  | 35   | 750  | 0.25 | 5.0 | 20.6  | 34  |
| 1N4751 | SZ1030 | 30  | 8.5  | 40   | 1000 | 0.25 | 5.0 | 22.8  | 30  |
| 1N4752 | SZ1033 | 33  | 7.5  | 45   | 1000 | 0.25 | 5.0 | 25.1  | 27  |
| 1N4753 | SZ1036 | 36  | 7.0  | 50   | 1000 | 0.25 | 5.0 | 27.4  | 25  |
| 1N4754 | SZ1039 | 39  | 6.5  | 60   | 1000 | 0.25 | 5.0 | 29.7  | 23  |
| 1N4755 | SZ1043 | 43  | 6.0  | 70   | 1500 | 0.25 | 5.0 | 32.7  | 22  |
| 1N4756 | SZ1047 | 47  | 5.5  | 80   | 1500 | 0.25 | 5.0 | 35.8  | 19  |
| 1N4757 | SZ1051 | 51  | 5.0  | 95   | 1500 | 0.25 | 5.0 | 38.8  | 18  |
| 1N4758 | SZ1056 | 56  | 4.5  | 110  | 2000 | 0.25 | 5.0 | 42.6  | 16  |
| 1N4759 | SZ1062 | 62  | 4.0  | 125  | 2000 | 0.25 | 5.0 | 47.1  | 14  |
| 1N4760 | SZ1068 | 68  | 3.7  | 150  | 2000 | 0.25 | 5.0 | 51.7  | 13  |
| 1N4761 | SZ1075 | 75  | 3.3  | 175  | 2000 | 0.25 | 5.0 | 56.0  | 12  |
| 1N4762 | SZ1082 | 82  | 3.0  | 200  | 3000 | 0.25 | 5.0 | 62.2  | 11  |
| 1N4763 | SZ1091 | 91  | 2.8  | 250  | 3000 | 0.25 | 5.0 | 69.2  | 10  |
| 1N4764 | SZ10B0 | 100 | 2.5  | 350  | 3000 | 0.25 | 5.0 | 76.0  | 9.0 |
| Z1110  | SZ10B1 | 110 | 2.3  | 450  | 4000 | 0.25 | 5.0 | 83.6  | 8.6 |
| Z1120  | SZ10B2 | 120 | 2.0  | 550  | 4500 | 0.25 | 5.0 | 91.2  | 7.8 |
| Z1130  | SZ10B3 | 130 | 1.9  | 700  | 5000 | 0.25 | 5.0 | 98.8  | 7.0 |
| Z1150  | SZ10B5 | 150 | 1.7  | 1000 | 6000 | 0.25 | 5.0 | 114.0 | 6.4 |
| Z1160  | SZ10B6 | 160 | 1.6  | 1100 | 6500 | 0.25 | 5.0 | 121.6 | 5.8 |
| Z1180  | SZ10B8 | 180 | 1.4  | 1200 | 7000 | 0.25 | 5.0 | 136.8 | 5.2 |
| Z1200  | SZ10D0 | 200 | 1.2  | 1900 | 9990 | 0.25 | 5.0 | 152.0 | 4.7 |
| Z1220  | SZ10D2 | 220 | 1.0  | 1600 | 8000 | 0.25 | 5.0 | 167.2 | 4.0 |
| Z1240  | SZ10D4 | 240 | 0.93 | 1800 | 8500 | 0.25 | 5.0 | 182.4 | 3.8 |
| Z1250  | SZ10D5 | 250 | 0.9  | 2000 | 9000 | 0.25 | 5.0 | 190   | 3.6 |
| Z1270  | SZ10D7 | 270 | 0.82 | 2100 | 9000 | 0.25 | 5.0 | 205   | 3.3 |
| Z1300  | SZ10E0 | 300 | 0.75 | 2300 | 9500 | 0.25 | 5.0 | 228   | 3.0 |

### Notes :

- (1) For V<sub>Z</sub> ≤ 200 V; V<sub>F</sub> = 1.2 V<sub>max</sub>. @ I<sub>F</sub> = 200 mA and for V<sub>Z</sub> > 200 V; V<sub>F</sub> = 2 V<sub>max</sub>. @ I<sub>F</sub> = 200 mA.
- (2) The type numbers listed have a standard tolerance on the nominal zener voltage of ± 10%. A standard tolerance of ± 5% is also available by adding suffix "A" to the standard type for Axial Lead or by replacing the fourth digit of standard type from "0" to "5" for SMD.
- (3) "SZ" for SMD parts will be omitted on marking of the diode
- (4) Use suffix "C" for tolerance ± 2% (Axial Lead)



## Zener Diodes 1.0 W

The plastic material carries U/L recognition 94V-0.

| Type No. <sup>(2)</sup> | Nominal Zener Voltage |          | Maximum Zener Impedance |                   |          | Maximum Reverse Leakage Current |     |
|-------------------------|-----------------------|----------|-------------------------|-------------------|----------|---------------------------------|-----|
|                         | $V_Z @ I_{ZT}^{(1)}$  | $I_{ZT}$ | $Z_{ZT} @ I_{ZT}$       | $Z_{ZK} @ I_{ZK}$ | $I_{ZK}$ | $I_R @ V_R$                     |     |
| Axial Lead              | (V)                   | (mA)     | ( $\Omega$ )            | ( $\Omega$ )      | (mA)     | ( $\mu$ A)                      | (V) |

### Z1T-100B Series, 1 W, Case Type : DO-41



|          |     |      |      |      |     |     |     |
|----------|-----|------|------|------|-----|-----|-----|
| Z1T-100B | 100 | 0.95 | 750  | 5000 | 0.1 | 0.1 | 86  |
| Z1T-110B | 110 | 0.95 | 750  | 5000 | 0.1 | 0.1 | 94  |
| Z1T-115B | 115 | 0.95 | 750  | 5000 | 0.1 | 0.1 | 98  |
| Z1T-120B | 120 | 0.95 | 850  | 5000 | 0.1 | 0.1 | 103 |
| Z1T-130B | 130 | 0.95 | 1000 | 5000 | 0.1 | 0.1 | 111 |
| Z1T-140B | 140 | 0.90 | 1200 | 5000 | 0.1 | 0.1 | 120 |
| Z1T-150B | 150 | 0.85 | 1300 | 5000 | 0.1 | 0.1 | 128 |
| Z1T-160B | 160 | 0.80 | 1500 | 5000 | 0.1 | 0.1 | 137 |
| Z1T-170B | 170 | 0.74 | 2200 | 5000 | 0.1 | 0.1 | 145 |
| Z1T-180B | 180 | 0.68 | 2200 | 5000 | 0.1 | 0.1 | 154 |
| Z1T-190B | 190 | 0.66 | 2500 | 5000 | 0.1 | 0.1 | 162 |
| Z1T-200B | 200 | 0.65 | 2500 | 8000 | 0.1 | 0.1 | 171 |
| Z1T-210B | 210 | 0.62 | 5000 | 9000 | 0.1 | 0.1 | 180 |
| Z1T-220B | 220 | 0.59 | 5000 | 9000 | 0.1 | 0.1 | 188 |
| Z1T-230B | 230 | 0.57 | 5000 | 9000 | 0.1 | 0.1 | 197 |
| Z1T-240B | 240 | 0.54 | 5000 | 9000 | 0.1 | 0.1 | 205 |
| Z1T-250B | 250 | 0.52 | 5000 | 9000 | 0.1 | 0.1 | 214 |
| Z1T-260B | 260 | 0.50 | 5000 | 9000 | 0.1 | 0.1 | 222 |
| Z1T-270B | 270 | 0.48 | 5000 | 9000 | 0.1 | 0.1 | 231 |
| Z1T-280B | 280 | 0.46 | 5000 | 9000 | 0.1 | 0.1 | 239 |
| Z1T-290B | 290 | 0.45 | 5000 | 9000 | 0.1 | 0.1 | 248 |
| Z1T-300B | 300 | 0.43 | 5000 | 9000 | 0.1 | 0.1 | 257 |
| Z1T-310B | 310 | 0.42 | 5000 | 9500 | 0.1 | 0.1 | 265 |
| Z1T-320B | 320 | 0.41 | 5000 | 9500 | 0.1 | 0.1 | 274 |
| Z1T-330B | 330 | 0.39 | 5000 | 9500 | 0.1 | 0.1 | 282 |

#### Notes :

(1)  $V_F = 1.2 V_{max.} @ I_F = 200 \text{ mA}$

(2) Suffix " B " indicates  $\pm 5.0\%$  tolerance, " A " indicates  $\pm 10\%$  tolerance.



## Zener Diodes 1.0 W

The plastic material carries U/L recognition 94V-0.

| Type No.   | Nominal Zener Voltage  |          | Maximum Zener Impedance |                     |          | Maximum Reverse Leakage Current |     | Maximum DC Zener Current | Maximum Surge Current |
|------------|------------------------|----------|-------------------------|---------------------|----------|---------------------------------|-----|--------------------------|-----------------------|
|            | $V_Z^{(1)}$ @ $I_{ZT}$ | $I_{ZT}$ | $Z_{ZT}$ @ $I_{ZT}$     | $Z_{ZK}$ @ $I_{ZK}$ | $I_{ZK}$ | $I_R$ @ $V_R$                   |     | $I_{ZM}$                 | $I_{RM}$              |
| Axial Lead | (V)                    | (mA)     | ( $\Omega$ )            | ( $\Omega$ )        | (mA)     | ( $\mu$ A)                      | (V) | (mA)                     | (mApk)                |

### MZ4728 Series, 1.0 W, Case Type : M1A



|        |     |      |      |      |      |     |       |     |      |
|--------|-----|------|------|------|------|-----|-------|-----|------|
| MZ4728 | 3.3 | 76.0 | 10   | 400  | 1.0  | 100 | 1.0   | 276 | 1380 |
| MZ4729 | 3.6 | 69.0 | 10   | 400  | 1.0  | 100 | 1.0   | 252 | 1260 |
| MZ4730 | 3.9 | 64.0 | 9.0  | 400  | 1.0  | 50  | 1.0   | 234 | 1190 |
| MZ4731 | 4.3 | 58.0 | 9.0  | 400  | 1.0  | 10  | 1.0   | 217 | 1070 |
| MZ4732 | 4.7 | 53.0 | 8.0  | 500  | 1.0  | 10  | 1.0   | 193 | 970  |
| MZ4733 | 5.1 | 49.0 | 7.0  | 550  | 1.0  | 10  | 1.0   | 178 | 890  |
| MZ4734 | 5.6 | 45.0 | 5.0  | 600  | 1.0  | 10  | 2.0   | 162 | 810  |
| MZ4735 | 6.2 | 41.0 | 2.0  | 700  | 1.0  | 10  | 3.0   | 146 | 730  |
| MZ4736 | 6.8 | 37.0 | 3.5  | 700  | 1.0  | 10  | 4.0   | 133 | 660  |
| MZ4737 | 7.5 | 34.0 | 4.0  | 700  | 0.5  | 10  | 5.0   | 121 | 605  |
| MZ4738 | 8.2 | 31.0 | 4.5  | 700  | 0.5  | 10  | 6.0   | 110 | 550  |
| MZ4739 | 9.1 | 28.0 | 5.0  | 700  | 0.5  | 10  | 7.0   | 100 | 500  |
| MZ4740 | 10  | 25.0 | 7.0  | 700  | 0.25 | 10  | 7.6   | 91  | 454  |
| MZ4741 | 11  | 23.0 | 8.0  | 700  | 0.25 | 5.0 | 8.4   | 83  | 414  |
| MZ4742 | 12  | 21.0 | 9.0  | 700  | 0.25 | 5.0 | 9.1   | 76  | 380  |
| MZ4743 | 13  | 19.0 | 10   | 700  | 0.25 | 5.0 | 9.9   | 69  | 344  |
| MZ4744 | 15  | 17.0 | 14   | 700  | 0.25 | 5.0 | 11.4  | 61  | 305  |
| MZ4745 | 16  | 15.5 | 16   | 700  | 0.25 | 5.0 | 12.2  | 57  | 285  |
| MZ4746 | 18  | 14.0 | 20   | 750  | 0.25 | 5.0 | 13.7  | 50  | 250  |
| MZ4747 | 20  | 12.5 | 22   | 750  | 0.25 | 5.0 | 15.2  | 45  | 225  |
| MZ4748 | 22  | 11.5 | 23   | 750  | 0.25 | 5.0 | 16.7  | 41  | 205  |
| MZ4749 | 24  | 10.5 | 25   | 750  | 0.25 | 5.0 | 18.2  | 38  | 190  |
| MZ4750 | 27  | 9.5  | 35   | 750  | 0.25 | 5.0 | 20.6  | 34  | 170  |
| MZ4751 | 30  | 8.5  | 40   | 1000 | 0.25 | 5.0 | 22.8  | 30  | 150  |
| MZ4752 | 33  | 7.5  | 45   | 1000 | 0.25 | 5.0 | 25.1  | 27  | 135  |
| MZ4753 | 36  | 7.0  | 50   | 1000 | 0.25 | 5.0 | 27.4  | 25  | 125  |
| MZ4754 | 39  | 6.5  | 60   | 1000 | 0.25 | 5.0 | 29.7  | 23  | 115  |
| MZ4755 | 43  | 6.0  | 70   | 1500 | 0.25 | 5.0 | 32.7  | 22  | 110  |
| MZ4756 | 47  | 5.5  | 80   | 1500 | 0.25 | 5.0 | 35.8  | 19  | 95   |
| MZ4757 | 51  | 5.0  | 95   | 1500 | 0.25 | 5.0 | 38.8  | 18  | 90   |
| MZ4758 | 56  | 4.5  | 110  | 2000 | 0.25 | 5.0 | 42.6  | 16  | 80   |
| MZ4759 | 62  | 4.0  | 125  | 2000 | 0.25 | 5.0 | 47.1  | 14  | 70   |
| MZ4760 | 68  | 3.7  | 150  | 2000 | 0.25 | 5.0 | 51.7  | 13  | 65   |
| MZ4761 | 75  | 3.3  | 175  | 2000 | 0.25 | 5.0 | 56.0  | 12  | 60   |
| MZ4762 | 82  | 3.0  | 200  | 3000 | 0.25 | 5.0 | 62.2  | 11  | 55   |
| MZ4763 | 91  | 2.8  | 250  | 3000 | 0.25 | 5.0 | 69.2  | 10  | 50   |
| MZ4764 | 100 | 2.5  | 350  | 3000 | 0.25 | 5.0 | 76.0  | 9.0 | 45   |
| MZ1110 | 110 | 2.3  | 450  | 4000 | 0.25 | 5.0 | 83.6  | 8.6 | 40   |
| MZ1120 | 120 | 2.0  | 550  | 4500 | 0.25 | 5.0 | 91.2  | 7.8 | 37   |
| MZ1130 | 130 | 1.9  | 700  | 5000 | 0.25 | 5.0 | 98.8  | 7.0 | 34   |
| MZ1150 | 150 | 1.7  | 1000 | 6000 | 0.25 | 5.0 | 114.0 | 6.4 | 30   |
| MZ1160 | 160 | 1.6  | 1100 | 6500 | 0.25 | 5.0 | 121.6 | 5.8 | 28   |
| MZ1180 | 180 | 1.4  | 1200 | 7000 | 0.25 | 5.0 | 136.8 | 5.2 | 25   |
| MZ1200 | 200 | 1.2  | 1900 | 9990 | 0.25 | 5.0 | 152.0 | 4.7 | 22   |

Note : (1) The type number listed have a standard tolerance on the nominal zener voltage of  $\pm 10\%$ .

Suffix "A" indicates  $\pm 5\%$  tolerance, suffix "C" indicates  $\pm 2\%$  tolerance

# Zener Diodes 1.0 W

| Type No.   |     | Nominal Zener Voltage <sup>(3)</sup> |                 | Maximum Zener Impedance <sup>(1)</sup> |                                   |                 | Maximum Reverse Leakage Current |     | Maximum Regulator Current      | Maximum Surge Current |
|------------|-----|--------------------------------------|-----------------|----------------------------------------|-----------------------------------|-----------------|---------------------------------|-----|--------------------------------|-----------------------|
|            |     | V <sub>Z</sub> @ I <sub>ZT</sub>     | I <sub>ZT</sub> | Z <sub>VT</sub> @ I <sub>ZT</sub>      | Z <sub>ZK</sub> @ I <sub>ZK</sub> | I <sub>ZK</sub> | I <sub>R</sub> @ V <sub>R</sub> |     | I <sub>ZM</sub> <sup>(2)</sup> | I <sub>RM</sub>       |
| Axial Lead | SMD | (V)                                  | (mA)            | (Ω)                                    | (Ω)                               | (mA)            | (μA)                            | (V) | (mA)                           | (mA)                  |

## 1N4728AG/ZM4728A Series, Case Type : DO-41G / MELF



|          |         |     |      |     |      |      |     |      |     |      |
|----------|---------|-----|------|-----|------|------|-----|------|-----|------|
| 1N4728AG | ZM4728A | 3.3 | 76.0 | 10  | 400  | 1.0  | 100 | 1.0  | 276 | 1380 |
| 1N4729AG | ZM4729A | 3.6 | 69.0 | 10  | 400  | 1.0  | 100 | 1.0  | 252 | 1260 |
| 1N4730AG | ZM4730A | 3.9 | 64.0 | 9.0 | 400  | 1.0  | 50  | 1.0  | 234 | 1190 |
| 1N4731AG | ZM4731A | 4.3 | 58.0 | 9.0 | 400  | 1.0  | 10  | 1.0  | 217 | 1070 |
| 1N4732AG | ZM4732A | 4.7 | 53.0 | 8.0 | 500  | 1.0  | 10  | 1.0  | 193 | 970  |
| 1N4733AG | ZM4733A | 5.1 | 49.0 | 7.0 | 550  | 1.0  | 10  | 1.0  | 178 | 890  |
| 1N4734AG | ZM4734A | 5.6 | 45.0 | 5.0 | 600  | 1.0  | 10  | 2.0  | 162 | 810  |
| 1N4735AG | ZM4735A | 6.2 | 41   | 2.0 | 700  | 1.0  | 10  | 3.0  | 146 | 730  |
| 1N4736AG | ZM4736A | 6.8 | 37.0 | 3.5 | 700  | 1.0  | 10  | 4.0  | 133 | 660  |
| 1N4737AG | ZM4737A | 7.5 | 34.0 | 4.0 | 700  | 0.5  | 10  | 5.0  | 121 | 605  |
| 1N4738AG | ZM4738A | 8.2 | 31   | 4.5 | 700  | 0.5  | 10  | 6.0  | 110 | 550  |
| 1N4739AG | ZM4739A | 9.1 | 28.0 | 5.0 | 700  | 0.5  | 10  | 7.0  | 100 | 500  |
| 1N4740AG | ZM4740A | 10  | 25.0 | 7.0 | 700  | 0.25 | 10  | 7.6  | 91  | 454  |
| 1N4741AG | ZM4741A | 11  | 23.0 | 8.0 | 700  | 0.25 | 5.0 | 8.4  | 83  | 414  |
| 1N4742AG | ZM4742A | 12  | 21   | 9.0 | 700  | 0.25 | 5.0 | 9.1  | 76  | 380  |
| 1N4743AG | ZM4743A | 13  | 19.0 | 10  | 700  | 0.25 | 5.0 | 9.9  | 69  | 344  |
| 1N4744AG | ZM4744A | 15  | 17.0 | 14  | 700  | 0.25 | 5.0 | 11.4 | 61  | 305  |
| 1N4745AG | ZM4745A | 16  | 15.5 | 16  | 700  | 0.25 | 5.0 | 12.2 | 57  | 285  |
| 1N4746AG | ZM4746A | 18  | 14.0 | 20  | 750  | 0.25 | 5.0 | 13.7 | 50  | 250  |
| 1N4747AG | ZM4747A | 20  | 12.5 | 22  | 750  | 0.25 | 5.0 | 15.2 | 45  | 225  |
| 1N4748AG | ZM4748A | 22  | 11.5 | 23  | 750  | 0.25 | 5.0 | 16.7 | 41  | 205  |
| 1N4749AG | ZM4749A | 24  | 10.5 | 25  | 750  | 0.25 | 5.0 | 18.2 | 38  | 190  |
| 1N4750AG | ZM4750A | 27  | 9.5  | 35  | 750  | 0.25 | 5.0 | 20.6 | 34  | 170  |
| 1N4751AG | ZM4751A | 30  | 8.5  | 40  | 1000 | 0.25 | 5.0 | 22.8 | 30  | 150  |
| 1N4752AG | ZM4752A | 33  | 7.5  | 45  | 1000 | 0.25 | 5.0 | 25.1 | 27  | 135  |
| 1N4753AG | ZM4753A | 36  | 7.0  | 50  | 1000 | 0.25 | 5.0 | 27.4 | 25  | 125  |
| 1N4754AG | ZM4754A | 39  | 6.5  | 60  | 1000 | 0.25 | 5.0 | 29.7 | 23  | 115  |
| 1N4755AG | ZM4755A | 43  | 6.0  | 70  | 1500 | 0.25 | 5.0 | 32.7 | 22  | 110  |
| 1N4756AG | ZM4756A | 47  | 5.5  | 80  | 1500 | 0.25 | 5.0 | 35.8 | 19  | 95   |
| 1N4757AG | ZM4757A | 51  | 5.0  | 95  | 1500 | 0.25 | 5.0 | 38.8 | 18  | 90   |
| 1N4758AG | ZM4758A | 56  | 4.5  | 110 | 2000 | 0.25 | 5.0 | 42.6 | 16  | 80   |
| 1N4759AG | ZM4759A | 62  | 4.0  | 125 | 2000 | 0.25 | 5.0 | 47.1 | 14  | 70   |
| 1N4760AG | ZM4760A | 68  | 3.7  | 150 | 2000 | 0.25 | 5.0 | 51.7 | 13  | 65   |
| 1N4761AG | ZM4761A | 75  | 3.3  | 175 | 2000 | 0.25 | 5.0 | 56.0 | 12  | 60   |
| 1N4762AG | ZM4762A | 82  | 3.0  | 200 | 3000 | 0.25 | 5.0 | 62.2 | 11  | 55   |
| 1N4763AG | ZM4763A | 91  | 2.8  | 250 | 3000 | 0.25 | 5.0 | 69.2 | 10  | 50   |
| 1N4764AG | ZM4764A | 100 | 2.5  | 350 | 3000 | 0.25 | 5.0 | 76.0 | 9.0 | 45   |

### Notes:

- (1) The Zener impedance is derived from the 1kHz AC voltage which results when an AC current having an RMS value equal to 10% of the Zener current (I<sub>ZT</sub> or I<sub>ZK</sub>) is superimposed on I<sub>ZT</sub> or I<sub>ZK</sub>. Zener impedance is measured at two points to ensure a sharp knee on the breakdown curve and to eliminate unstable units
- (2) Valid provided that electrodes are at a distance of 10mm from case and kept at ambient temperature
- (3) Measured under thermal equilibrium and DC test conditions
- (4) Standard Zener voltage tolerance is ± 5% tolerance. Other Zener voltages and tolerances are available upon request.
- (5) V<sub>F</sub> = 1.2 Vmax. @ I<sub>F</sub> = 200 mA



## Zener Diodes 1.0 W

The plastic material carries U/L recognition 94V-0.

| Type No. | Nominal Zener Voltage | Test Current | Maximum Zener Impedance |                   |          | Maximum Reverse Leakage Current |     | Maximum DC Zener Current | Maximum Surge Current |
|----------|-----------------------|--------------|-------------------------|-------------------|----------|---------------------------------|-----|--------------------------|-----------------------|
|          | $V_Z @ I_{ZT}$        | $I_{ZT}$     | $Z_{ZT} @ I_{ZT}$       | $Z_{ZK} @ I_{ZK}$ | $I_{ZK}$ | $I_R @ V_R$                     |     | $I_{ZM}$                 | $I_{RM}^{(2)}$        |
|          | (V)                   | (mA)         |                         | ( $\Omega$ )      | (mA)     | ( $\mu A$ )                     | (V) | (mA)                     | (mApk)                |

### 1SMA4728A Series, 1 W, Case Type : SMA



|           |     |      |     |      |      |     |      |     |      |
|-----------|-----|------|-----|------|------|-----|------|-----|------|
| 1SMA4728A | 3.3 | 76.0 | 10  | 400  | 1.0  | 100 | 1.0  | 276 | 1380 |
| 1SMA4729A | 3.6 | 69.0 | 10  | 400  | 1.0  | 100 | 1.0  | 252 | 1260 |
| 1SMA4730A | 3.9 | 58.0 | 9.0 | 400  | 1.0  | 50  | 1.0  | 234 | 1190 |
| 1SMA4731A | 4.3 | 58.0 | 9.0 | 400  | 1.0  | 10  | 1.0  | 217 | 1070 |
| 1SMA4732A | 4.7 | 53.0 | 8.0 | 500  | 1.0  | 10  | 1.0  | 193 | 970  |
| 1SMA4733A | 5.1 | 49.0 | 7.0 | 550  | 1.0  | 10  | 1.0  | 178 | 890  |
| 1SMA4734A | 5.6 | 45.0 | 5.0 | 600  | 1.0  | 10  | 2.0  | 162 | 810  |
| 1SMA4735A | 6.2 | 41.0 | 2.0 | 700  | 1.0  | 10  | 3.0  | 146 | 730  |
| 1SMA4736A | 6.8 | 37.0 | 3.5 | 700  | 1.0  | 10  | 4.0  | 133 | 660  |
| 1SMA4737A | 7.5 | 34.0 | 4.0 | 700  | 0.5  | 10  | 5.0  | 121 | 605  |
| 1SMA4738A | 8.2 | 31.0 | 4.5 | 700  | 0.5  | 10  | 6.0  | 110 | 550  |
| 1SMA4739A | 9.1 | 28.0 | 5.0 | 700  | 0.5  | 10  | 7.0  | 100 | 500  |
| 1SMA4740A | 10  | 25.0 | 7.0 | 700  | 0.25 | 10  | 7.6  | 91  | 454  |
| 1SMA4741A | 11  | 23.0 | 8.0 | 700  | 0.25 | 5.0 | 8.4  | 83  | 414  |
| 1SMA4742A | 12  | 21.0 | 9.0 | 700  | 0.25 | 5.0 | 9.1  | 76  | 380  |
| 1SMA4743A | 13  | 19.0 | 10  | 700  | 0.25 | 5.0 | 9.9  | 69  | 344  |
| 1SMA4744A | 15  | 17.0 | 14  | 700  | 0.25 | 5.0 | 11.4 | 61  | 305  |
| 1SMA4745A | 16  | 15.5 | 16  | 700  | 0.25 | 5.0 | 12.2 | 57  | 285  |
| 1SMA4746A | 18  | 14.0 | 20  | 750  | 0.25 | 5.0 | 13.7 | 50  | 250  |
| 1SMA4747A | 20  | 12.5 | 22  | 750  | 0.25 | 5.0 | 15.2 | 45  | 225  |
| 1SMA4748A | 22  | 11.5 | 23  | 750  | 0.25 | 5.0 | 16.7 | 41  | 205  |
| 1SMA4749A | 24  | 10.5 | 25  | 750  | 0.25 | 5.0 | 18.2 | 38  | 190  |
| 1SMA4750A | 27  | 9.5  | 35  | 750  | 0.25 | 5.0 | 20.6 | 34  | 170  |
| 1SMA4751A | 30  | 8.5  | 40  | 1000 | 0.25 | 5.0 | 22.8 | 30  | 150  |
| 1SMA4752A | 33  | 7.5  | 45  | 1000 | 0.25 | 5.0 | 25.1 | 27  | 135  |
| 1SMA4753A | 36  | 7.0  | 50  | 1000 | 0.25 | 5.0 | 27.4 | 25  | 125  |
| 1SMA4754A | 39  | 6.5  | 60  | 1000 | 0.25 | 5.0 | 29.7 | 23  | 115  |
| 1SMA4755A | 43  | 6.0  | 70  | 1500 | 0.25 | 5.0 | 32.7 | 22  | 110  |
| 1SMA4756A | 47  | 5.5  | 80  | 1500 | 0.25 | 5.0 | 35.8 | 19  | 95   |
| 1SMA4757A | 51  | 5.0  | 95  | 1500 | 0.25 | 5.0 | 38.8 | 18  | 90   |
| 1SMA4758A | 56  | 4.5  | 110 | 2000 | 0.25 | 5.0 | 42.6 | 16  | 80   |
| 1SMA4759A | 62  | 4.0  | 125 | 2000 | 0.25 | 5.0 | 47.1 | 14  | 70   |
| 1SMA4760A | 68  | 3.7  | 150 | 2000 | 0.25 | 5.0 | 51.7 | 13  | 65   |
| 1SMA4761A | 75  | 3.3  | 175 | 2000 | 0.25 | 5.0 | 56.0 | 12  | 60   |
| 1SMA4762A | 82  | 3.0  | 200 | 3000 | 0.25 | 5.0 | 62.2 | 11  | 55   |
| 1SMA4763A | 91  | 2.8  | 250 | 3000 | 0.25 | 5.0 | 69.2 | 10  | 50   |
| 1SMA4764A | 100 | 2.5  | 350 | 3000 | 0.25 | 5.0 | 76.0 | 9.0 | 45   |

#### Notes :

- (1) The type numbers listed have a standard tolerance on the nominal zener voltage of  $\pm 5\%$ .
- (2) Surge current is a non-repetitive 8.3ms square pulse width wave or equivalent sine-wave superimposed on  $I_{ZT}$  as per JEDEC method



## Zener Diodes 1.0 W

The plastic material carries U/L recognition 94V-0.

| Type No. | Zener Voltage   |      |      | Test Current | Maximum Zener Impedance |         | Maximum Reverse Current |         | Typical Temperature Coefficient |       |
|----------|-----------------|------|------|--------------|-------------------------|---------|-------------------------|---------|---------------------------------|-------|
|          | $V_Z (V)^{(1)}$ |      |      | $I_{ZT}$     | $Z_Z$                   | @ $I_Z$ | $I_R$                   | @ $V_R$ | $\gamma_Z$                      | $I_Z$ |
|          | Min.            | Typ. | Max. | (mA)         | ( $\Omega$ )            | (mA)    | ( $\mu A$ )             | (V)     | (mV/°C)                         | (mA)  |

### PTZ3.6B Series, 1 W, Case Type : SMA



|         |      |       |      |    |    |    |    |      |      |    |
|---------|------|-------|------|----|----|----|----|------|------|----|
| PTZ3.6B | 3.6  | 3.813 | 4.00 | 40 | 15 | 40 | 60 | 1.0  | -2.8 | 40 |
| PTZ3.9B | 3.9  | 4.136 | 4.40 | 40 | 15 | 40 | 40 | 1.0  | -2.4 | 40 |
| PTZ4.3B | 4.3  | 4.572 | 4.80 | 40 | 15 | 40 | 20 | 1.0  | -2.1 | 40 |
| PTZ4.7B | 4.7  | 4.924 | 5.20 | 40 | 10 | 40 | 20 | 1.0  | -1.7 | 40 |
| PTZ5.1B | 5.1  | 5.368 | 5.70 | 40 | 8  | 40 | 20 | 1.5  | -0.6 | 40 |
| PTZ5.6B | 5.6  | 5.856 | 6.30 | 40 | 8  | 40 | 20 | 2.5  | 1.4  | 40 |
| PTZ6.2B | 6.2  | 6.509 | 7.00 | 40 | 6  | 40 | 20 | 3.0  | 2.5  | 40 |
| PTZ6.8B | 6.8  | 7.280 | 7.70 | 40 | 6  | 40 | 20 | 3.5  | 3.2  | 40 |
| PTZ7.5B | 7.5  | 7.889 | 8.40 | 40 | 4  | 40 | 20 | 4.0  | 4.2  | 40 |
| PTZ8.2B | 8.2  | 8.655 | 9.30 | 40 | 4  | 40 | 20 | 5.0  | 5.0  | 40 |
| PTZ9.1B | 9.1  | 9.747 | 10.2 | 40 | 6  | 40 | 20 | 6.0  | 5.9  | 40 |
| PTZ10B  | 10   | 10.31 | 11.2 | 40 | 6  | 40 | 10 | 7.0  | 6.9  | 40 |
| PTZ11B  | 11   | 11.51 | 12.3 | 20 | 8  | 20 | 10 | 8.0  | 7.9  | 20 |
| PTZ12B  | 12   | 12.50 | 13.5 | 20 | 8  | 20 | 10 | 9.0  | 8.7  | 20 |
| PTZ13B  | 13.3 | 13.82 | 15.0 | 20 | 10 | 20 | 10 | 10.0 | 10.1 | 20 |
| PTZ15B  | 14.7 | 15.35 | 16.5 | 20 | 10 | 20 | 10 | 11.0 | 11.8 | 20 |
| PTZ16B  | 16.2 | 16.86 | 18.3 | 20 | 12 | 20 | 10 | 12.0 | 13.3 | 20 |
| PTZ18B  | 18   | 19.00 | 20.3 | 20 | 12 | 20 | 10 | 13.0 | 15.0 | 20 |
| PTZ20B  | 20   | 20.82 | 22.4 | 20 | 14 | 20 | 10 | 15.0 | 17.4 | 20 |
| PTZ22B  | 22   | 23.85 | 24.5 | 10 | 14 | 10 | 10 | 17.0 | 19.4 | 10 |
| PTZ24B  | 24   | 25.31 | 27.6 | 10 | 16 | 10 | 10 | 19.0 | 21.6 | 10 |
| PTZ27B  | 27   | 28.70 | 30.8 | 10 | 16 | 10 | 10 | 21.0 | 24.6 | 10 |
| PTZ30B  | 30   | 31.57 | 34.0 | 10 | 18 | 10 | 10 | 23.0 | 27.5 | 10 |
| PTZ33B  | 33   | 34.95 | 37.0 | 10 | 18 | 10 | 10 | 25.0 | 30.8 | 10 |
| PTZ36B  | 36   | 39.24 | 40.0 | 10 | 20 | 10 | 10 | 27.0 | 37.0 | 10 |

Note :

(1) The Zener Voltage  $V_Z$  is measured 40 ms after power is supplied



## Zener Diodes 1.0 W

| Type No. | Suffix <sup>(3)</sup> | Zener Voltage<br>$V_Z^{(1)}$ |      |       | Dynamic Impedance<br>$Z_Z^{(2)}$ |       | Reverse Current<br>$I_R$ |       |
|----------|-----------------------|------------------------------|------|-------|----------------------------------|-------|--------------------------|-------|
|          |                       | Min.                         | Max. | $I_Z$ | Max.                             | $I_Z$ | Max.                     | $V_R$ |
|          |                       | V                            | V    | mA    | $\Omega$                         | mA    | ( $\mu$ A)               | (V)   |

### RD2.0F Series, 1 W, Case Type : DO-41 Glass



|        |    |      |      |    |    |    |     |     |
|--------|----|------|------|----|----|----|-----|-----|
| RD2.0F | B  | 1.88 | 2.25 | 40 | 25 | 40 | 200 | 0.5 |
|        | B1 | 1.88 | 2.12 |    |    |    |     |     |
|        | B2 | 2.01 | 2.25 |    |    |    |     |     |
| RD2.2F | B  | 2.11 | 2.45 | 40 | 20 | 40 | 200 | 0.7 |
|        | B1 | 2.11 | 2.34 |    |    |    |     |     |
|        | B2 | 2.21 | 2.45 |    |    |    |     |     |
| RD2.4F | B  | 2.31 | 2.65 | 40 | 15 | 40 | 200 | 1.0 |
|        | B1 | 2.31 | 2.55 |    |    |    |     |     |
|        | B2 | 2.41 | 2.65 |    |    |    |     |     |
| RD2.7F | B  | 2.52 | 2.93 | 40 | 15 | 40 | 150 | 1.0 |
|        | B1 | 2.52 | 2.78 |    |    |    |     |     |
|        | B2 | 2.68 | 2.93 |    |    |    |     |     |
| RD3.0F | B  | 2.83 | 3.22 | 40 | 15 | 40 | 100 | 1.0 |
|        | B1 | 2.83 | 3.07 |    |    |    |     |     |
|        | B2 | 2.97 | 3.22 |    |    |    |     |     |
| RD3.3F | B  | 3.13 | 3.51 | 40 | 15 | 40 | 80  | 1.0 |
|        | B1 | 3.13 | 3.37 |    |    |    |     |     |
|        | B2 | 3.27 | 3.51 |    |    |    |     |     |
| RD3.6F | B  | 3.43 | 3.83 | 40 | 15 | 40 | 60  | 1.0 |
|        | B1 | 3.43 | 3.68 |    |    |    |     |     |
|        | B2 | 3.58 | 3.83 |    |    |    |     |     |
| RD3.9F | B  | 3.73 | 4.15 | 40 | 15 | 40 | 40  | 1.0 |
|        | B1 | 3.73 | 4.00 |    |    |    |     |     |
|        | B2 | 3.88 | 4.15 |    |    |    |     |     |
| RD4.3F | B  | 4.03 | 4.55 | 40 | 15 | 40 | 20  | 1.0 |
|        | B1 | 4.03 | 4.28 |    |    |    |     |     |
|        | B2 | 4.15 | 4.41 |    |    |    |     |     |
|        | B3 | 4.28 | 4.55 |    |    |    |     |     |
| RD4.7F | B  | 4.41 | 4.91 | 40 | 10 | 40 | 20  | 1.0 |
|        | B1 | 4.41 | 4.65 |    |    |    |     |     |
|        | B2 | 4.53 | 4.78 |    |    |    |     |     |
|        | B3 | 4.66 | 4.91 |    |    |    |     |     |
| RD5.1F | B  | 4.79 | 5.38 | 40 | 8  | 40 | 20  | 1.0 |
|        | B1 | 4.79 | 5.05 |    |    |    |     |     |
|        | B2 | 4.95 | 5.22 |    |    |    |     |     |
|        | B3 | 5.10 | 5.38 |    |    |    |     |     |
| RD5.6F | B  | 5.28 | 5.95 | 40 | 8  | 40 | 20  | 1.5 |
|        | B1 | 5.28 | 5.56 |    |    |    |     |     |
|        | B2 | 5.46 | 5.75 |    |    |    |     |     |
|        | B3 | 5.65 | 5.95 |    |    |    |     |     |
| RD6.2F | B  | 5.76 | 6.52 | 40 | 6  | 40 | 20  | 3.0 |
|        | B1 | 5.76 | 6.14 |    |    |    |     |     |
|        | B2 | 5.98 | 6.33 |    |    |    |     |     |
|        | B3 | 6.17 | 6.52 |    |    |    |     |     |



## Zener Diodes 1.0 W

| Type No. | Suffix <sup>(3)</sup> | Zener Voltage<br>$V_Z^{(1)}$ |      |       | Dynamic Impedance<br>$Z_Z^{(2)}$ |       | Reverse Current<br>$I_R$ |       |
|----------|-----------------------|------------------------------|------|-------|----------------------------------|-------|--------------------------|-------|
|          |                       | Min.                         | Max. | $I_Z$ | Max.                             | $I_Z$ | Max.                     | $V_R$ |
|          |                       | V                            | V    | mA    | $\Omega$                         | mA    | ( $\mu$ A)               | (V)   |

### RD2.0F Series, 1 W, Case Type : DO-41 Glass



|        |    |       |       |    |    |    |    |     |
|--------|----|-------|-------|----|----|----|----|-----|
| RD6.8F | B  | 6.35  | 7.10  | 40 | 6  | 40 | 20 | 3.5 |
|        | B1 | 6.35  | 6.71  |    |    |    |    |     |
|        | B2 | 6.55  | 6.90  |    |    |    |    |     |
|        | B3 | 6.74  | 7.10  |    |    |    |    |     |
| RD7.5F | B  | 6.93  | 7.80  | 40 | 4  | 40 | 20 | 4.0 |
|        | B1 | 6.93  | 7.33  |    |    |    |    |     |
|        | B2 | 7.17  | 7.55  |    |    |    |    |     |
|        | B3 | 7.39  | 7.80  |    |    |    |    |     |
| RD8.2F | B  | 7.58  | 8.54  | 40 | 4  | 40 | 20 | 5.0 |
|        | B1 | 7.58  | 8.03  |    |    |    |    |     |
|        | B2 | 7.87  | 8.28  |    |    |    |    |     |
|        | B3 | 8.12  | 8.54  |    |    |    |    |     |
| RD9.1F | B  | 8.34  | 9.38  | 40 | 6  | 40 | 20 | 6.0 |
|        | B1 | 8.34  | 8.80  |    |    |    |    |     |
|        | B2 | 8.64  | 9.08  |    |    |    |    |     |
|        | B3 | 8.91  | 9.38  |    |    |    |    |     |
| RD10F  | B  | 9.16  | 10.40 | 40 | 6  | 40 | 10 | 7.0 |
|        | B1 | 9.16  | 9.67  |    |    |    |    |     |
|        | B2 | 9.50  | 9.99  |    |    |    |    |     |
|        | B3 | 9.83  | 10.40 |    |    |    |    |     |
| RD11F  | B  | 10.22 | 11.43 | 20 | 8  | 20 | 10 | 8.0 |
|        | B1 | 10.22 | 10.75 |    |    |    |    |     |
|        | B2 | 10.54 | 11.19 |    |    |    |    |     |
|        | B3 | 10.87 | 11.43 |    |    |    |    |     |
| RD12F  | B  | 11.19 | 12.41 | 20 | 8  | 20 | 10 | 8.0 |
|        | B1 | 11.19 | 11.77 |    |    |    |    |     |
|        | B2 | 11.50 | 12.09 |    |    |    |    |     |
|        | B3 | 11.80 | 12.41 |    |    |    |    |     |
| RD13F  | B  | 12.19 | 13.83 | 20 | 10 | 20 | 10 | 10  |
|        | B1 | 12.19 | 12.85 |    |    |    |    |     |
|        | B2 | 12.63 | 13.30 |    |    |    |    |     |
|        | B3 | 13.11 | 13.83 |    |    |    |    |     |
| RD15F  | B  | 13.55 | 15.26 | 20 | 10 | 20 | 10 | 11  |
|        | B1 | 13.55 | 14.28 |    |    |    |    |     |
|        | B2 | 14.05 | 14.77 |    |    |    |    |     |
|        | B3 | 14.52 | 15.26 |    |    |    |    |     |
| RD16F  | B  | 14.98 | 16.71 | 20 | 12 | 20 | 10 | 12  |
|        | B1 | 14.98 | 15.75 |    |    |    |    |     |
|        | B2 | 15.44 | 16.23 |    |    |    |    |     |
|        | B3 | 15.89 | 16.71 |    |    |    |    |     |
| RD18F  | B  | 16.37 | 18.55 | 20 | 12 | 20 | 10 | 13  |
|        | B1 | 16.37 | 17.27 |    |    |    |    |     |
|        | B2 | 17.03 | 17.91 |    |    |    |    |     |
|        | B3 | 17.64 | 18.55 |    |    |    |    |     |



## Zener Diodes 1.0 W

| Type No. | Suffix <sup>(3)</sup> | Zener Voltage<br>$V_Z^{(1)}$ |      |       | Dynamic Impedance<br>$Z_Z^{(2)}$ |       | Reverse Current<br>$I_R$ |       |
|----------|-----------------------|------------------------------|------|-------|----------------------------------|-------|--------------------------|-------|
|          |                       | Min.                         | Max. | $I_Z$ | Max.                             | $I_Z$ | Max.                     | $V_R$ |
|          |                       | V                            | V    | mA    | $\Omega$                         | mA    | ( $\mu$ A)               | (V)   |

### RD2.0F Series, 1 W, Case Type : DO-41 Glass



|       |    |       |       |    |    |    |    |    |
|-------|----|-------|-------|----|----|----|----|----|
| RD20F | B  | 18.26 | 20.84 | 20 | 14 | 20 | 10 | 15 |
|       | B1 | 18.26 | 19.21 |    |    |    |    |    |
|       | B2 | 18.93 | 19.91 |    |    |    |    |    |
|       | B3 | 19.59 | 20.84 |    |    |    |    |    |
| RD22F | B  | 20.45 | 22.86 | 10 | 14 | 10 | 10 | 17 |
|       | B1 | 20.45 | 21.51 |    |    |    |    |    |
|       | B2 | 21.10 | 22.18 |    |    |    |    |    |
|       | B3 | 21.75 | 22.86 |    |    |    |    |    |
| RD24F | B  | 22.44 | 25.14 | 10 | 16 | 10 | 10 | 19 |
|       | B1 | 22.44 | 23.59 |    |    |    |    |    |
|       | B2 | 23.17 | 24.36 |    |    |    |    |    |
|       | B3 | 23.90 | 25.14 |    |    |    |    |    |
| RD27F | B  | 24.63 | 28.43 | 10 | 16 | 10 | 10 | 21 |
|       | B1 | 24.63 | 26.10 |    |    |    |    |    |
|       | B2 | 25.70 | 27.12 |    |    |    |    |    |
|       | B3 | 26.72 | 28.43 |    |    |    |    |    |
| RD30F | B  | 27.43 | 31.26 | 10 | 18 | 10 | 10 | 23 |
|       | B1 | 27.43 | 29.09 |    |    |    |    |    |
|       | B2 | 28.64 | 30.10 |    |    |    |    |    |
|       | B3 | 29.57 | 31.26 |    |    |    |    |    |
| RD33F | B  | 30.35 | 34.15 | 10 | 18 | 10 | 10 | 25 |
|       | B1 | 30.35 | 31.97 |    |    |    |    |    |
|       | B2 | 31.49 | 33.06 |    |    |    |    |    |
|       | B3 | 32.39 | 34.15 |    |    |    |    |    |
| RD36F | B  | 33.24 | 37.01 | 10 | 20 | 10 | 10 | 27 |
|       | B1 | 33.24 | 34.94 |    |    |    |    |    |
|       | B2 | 34.26 | 36.01 |    |    |    |    |    |
|       | B3 | 35.19 | 37.01 |    |    |    |    |    |
| RD39F | B  | 36.11 | 40.80 | 10 | 20 | 10 | 10 | 30 |
|       | B1 | 36.11 | 38.00 |    |    |    |    |    |
|       | B2 | 37.14 | 39.04 |    |    |    |    |    |
|       | B3 | 38.13 | 40.80 |    |    |    |    |    |
| RD43F | B  | 40.00 | 45.00 | 10 | 50 | 10 | 5  | 33 |
| RD47F | B  | 44.00 | 49.00 | 10 | 50 | 10 | 5  | 36 |
| RD51F | B  | 48.00 | 54.00 | 10 | 50 | 10 | 5  | 39 |
| RD56F | B  | 53.00 | 60.00 | 10 | 50 | 10 | 5  | 43 |
| RD62F | B  | 58.00 | 66.00 | 10 | 50 | 10 | 5  | 47 |
| RD68F | B  | 64.00 | 72.00 | 10 | 70 | 10 | 5  | 52 |
| RD75F | B  | 70.00 | 79.00 | 10 | 90 | 10 | 5  | 57 |
| RD82F | B  | 77.00 | 87.00 | 10 | 90 | 10 | 5  | 63 |

#### Notes:

- (1) Test with pulse (40 ms)
- (2)  $Z_Z$  is measured at  $I_Z$  given an very small AC Current Signal
- (3) When placing an order for an RD2.0F type, please add suffix e.g. RD2.0FB, RD2.0FB1 ..... RD82FB4  
The B grade is a wide specification, covering full voltage range for suffix "B1" to "B3"



## Zener Diodes 1.0 W

The plastic material carries U/L recognition 94V-0.

| Type No. | Zener Voltage <sup>(2)</sup><br>V <sub>Z</sub> @ I <sub>ZT</sub> |     |     |                 | Maximum Zener<br>Impedance        |                                   |                 | Maximum Reverse<br>Leakage Current, I <sub>R</sub> |     | Maximum<br>DC Zener<br>Current <sup>(1)</sup> |
|----------|------------------------------------------------------------------|-----|-----|-----------------|-----------------------------------|-----------------------------------|-----------------|----------------------------------------------------|-----|-----------------------------------------------|
|          | Nom                                                              | Min | Max | I <sub>ZT</sub> | Z <sub>ZT</sub> @ I <sub>ZT</sub> | Z <sub>Zk</sub> @ I <sub>ZK</sub> | I <sub>ZK</sub> | I <sub>R</sub> @ V <sub>R</sub>                    |     |                                               |
|          | (V)                                                              | (V) | (V) | (mA)            | (Ω)                               | (Ω)                               | (mA)            | (μA)                                               | (V) | I <sub>ZM</sub> (mA)                          |

### SMAZ5V1 Series, 1 W, Case Type : SMA



|         |      |       |       |     |     |     |     |     |      |     |
|---------|------|-------|-------|-----|-----|-----|-----|-----|------|-----|
| SMAZ5V1 | 5.1  | 4.84  | 5.40  | 100 | 5.0 | 500 | 1.0 | 2.5 | 1.0  | 196 |
| SMAZ5V6 | 5.6  | 5.32  | 5.88  | 100 | 2.0 | 250 | 2.0 | 5.0 | 2.0  | 179 |
| SMAZ6V2 | 6.2  | 5.89  | 6.51  | 100 | 2.0 | 200 | 2.0 | 5.0 | 3.0  | 161 |
| SMAZ6V8 | 6.8  | 6.46  | 7.14  | 100 | 2.0 | 200 | 1.0 | 5.0 | 4.0  | 147 |
| SMAZ7V5 | 7.5  | 7.13  | 7.88  | 100 | 2.0 | 450 | 1.0 | 5.0 | 5.0  | 133 |
| SMAZ8V2 | 8.2  | 7.79  | 8.61  | 100 | 2.0 | 200 | 1.0 | 5.0 | 6.0  | 122 |
| SMAZ9V1 | 9.1  | 8.65  | 9.56  | 50  | 4.0 | 200 | 1.0 | 5.0 | 7.0  | 110 |
| SMAZ10  | 10.0 | 9.50  | 10.50 | 50  | 4.0 | 200 | 1.0 | 1.0 | 7.6  | 100 |
| SMAZ12  | 12.0 | 11.40 | 12.60 | 50  | 7.0 | 150 | 1.0 | 1.0 | 9.1  | 83  |
| SMAZ15  | 15.0 | 14.25 | 15.75 | 50  | 10  | 150 | 1.0 | 1.0 | 11.4 | 67  |
| SMAZ16  | 16.0 | 15.20 | 16.80 | 25  | 15  | 150 | 1.0 | 0.5 | 12.2 | 63  |
| SMAZ18  | 18.0 | 17.10 | 18.90 | 25  | 15  | 150 | 1.0 | 0.5 | 13.7 | 56  |
| SMAZ20  | 20.0 | 19.00 | 21.00 | 25  | 15  | 180 | 1.0 | 0.5 | 15.2 | 50  |
| SMAZ22  | 22.0 | 20.90 | 23.10 | 25  | 15  | 180 | 1.0 | 0.5 | 16.7 | 45  |
| SMAZ24  | 24.0 | 22.80 | 25.20 | 25  | 15  | 180 | 1.0 | 0.5 | 18.2 | 42  |
| SMAZ27  | 27.0 | 25.65 | 28.35 | 25  | 15  | 200 | 1.0 | 0.5 | 20.5 | 37  |
| SMAZ30  | 30.0 | 28.50 | 31.50 | 25  | 15  | 250 | 1.0 | 0.5 | 22.8 | 33  |
| SMAZ33  | 33.0 | 31.35 | 34.65 | 25  | 15  | 300 | 1.0 | 0.5 | 25.1 | 30  |
| SMAZ36  | 36.0 | 34.20 | 37.80 | 10  | 40  | 350 | 1.0 | 0.5 | 27.4 | 28  |
| SMAZ39  | 39.0 | 37.05 | 40.95 | 10  | 40  | 450 | 1.0 | 0.5 | 29.6 | 26  |

#### Notes :

- (1) PCB mounted on 1" x 0.85" x 0.062" copper area pads
- (2) Short duration test pulse used to minimize self-heating effect
- (3) "SMA" will be omitted in marking on the diode.



# Zener Diodes 1.0 W

The plastic material carries U/L recognition 94V-0.

| Type No. | Nominal Zener Voltage  |          | Maximum Zener Impedance |                     |          | Maximum Reverse Leakage Current |     | Maximum DC Zener Current | Maximum Surge Current |
|----------|------------------------|----------|-------------------------|---------------------|----------|---------------------------------|-----|--------------------------|-----------------------|
|          | $V_Z^{(1)}$ @ $I_{ZT}$ | $I_{ZT}$ | $Z_{ZT}$ @ $I_{ZT}$     | $Z_{ZK}$ @ $I_{ZK}$ | $I_{ZK}$ | $I_R$ @ $V_R$                   |     | $I_{ZM}$                 | $I_{RM}^{(2)}$        |
|          | (V)                    | (mA)     | ( $\Omega$ )            | ( $\Omega$ )        | (mA)     | ( $\mu$ A)                      | (V) | (mA)                     | (mA <sub>pk</sub> )   |

## SML4728 Series, 1 W, Case Type : SMA



|         |     |      |     |      |      |     |      |     |      |
|---------|-----|------|-----|------|------|-----|------|-----|------|
| SML4728 | 3.3 | 76.0 | 10  | 400  | 1.0  | 100 | 1.0  | 276 | 1380 |
| SML4729 | 3.6 | 69.0 | 10  | 400  | 1.0  | 100 | 1.0  | 252 | 1260 |
| SML4730 | 3.9 | 64.0 | 9.0 | 400  | 1.0  | 50  | 1.0  | 234 | 1190 |
| SML4731 | 4.3 | 58.0 | 9.0 | 400  | 1.0  | 10  | 1.0  | 217 | 1070 |
| SML4732 | 4.7 | 53.0 | 8.0 | 500  | 1.0  | 10  | 1.0  | 193 | 970  |
| SML4733 | 5.1 | 49.0 | 7.0 | 550  | 1.0  | 10  | 1.0  | 178 | 890  |
| SML4734 | 5.6 | 45.0 | 5.0 | 600  | 1.0  | 10  | 2.0  | 162 | 810  |
| SML4735 | 6.2 | 41.0 | 2.0 | 700  | 1.0  | 10  | 3.0  | 146 | 730  |
| SML4736 | 6.8 | 37.0 | 3.5 | 700  | 1.0  | 10  | 4.0  | 133 | 660  |
| SML4737 | 7.5 | 34.0 | 4.0 | 700  | 0.5  | 10  | 5.0  | 121 | 605  |
| SML4738 | 8.2 | 31.0 | 4.5 | 700  | 0.5  | 10  | 6.0  | 110 | 550  |
| SML4739 | 9.1 | 28.0 | 5.0 | 700  | 0.5  | 10  | 7.0  | 100 | 500  |
| SML4740 | 10  | 25.0 | 7.0 | 700  | 0.25 | 10  | 7.6  | 91  | 454  |
| SML4741 | 11  | 23.0 | 8.0 | 700  | 0.25 | 5.0 | 8.4  | 83  | 414  |
| SML4742 | 12  | 21.0 | 9.0 | 700  | 0.25 | 5.0 | 9.1  | 76  | 380  |
| SML4743 | 13  | 19.0 | 10  | 700  | 0.25 | 5.0 | 9.9  | 69  | 344  |
| SML4744 | 15  | 17.0 | 14  | 700  | 0.25 | 5.0 | 11.4 | 61  | 305  |
| SML4745 | 16  | 15.5 | 16  | 700  | 0.25 | 5.0 | 12.2 | 57  | 285  |
| SML4746 | 18  | 14.0 | 20  | 750  | 0.25 | 5.0 | 13.7 | 50  | 250  |
| SML4747 | 20  | 12.5 | 22  | 750  | 0.25 | 5.0 | 15.2 | 45  | 225  |
| SML4748 | 22  | 11.5 | 23  | 750  | 0.25 | 5.0 | 16.7 | 41  | 205  |
| SML4749 | 24  | 10.5 | 25  | 750  | 0.25 | 5.0 | 18.2 | 38  | 190  |
| SML4750 | 27  | 9.5  | 35  | 750  | 0.25 | 5.0 | 20.6 | 34  | 170  |
| SML4751 | 30  | 8.5  | 40  | 1000 | 0.25 | 5.0 | 22.8 | 30  | 150  |
| SML4752 | 33  | 7.5  | 45  | 1000 | 0.25 | 5.0 | 25.1 | 27  | 135  |
| SML4753 | 36  | 7.0  | 50  | 1000 | 0.25 | 5.0 | 27.4 | 25  | 125  |
| SML4754 | 39  | 6.5  | 60  | 1000 | 0.25 | 5.0 | 29.7 | 23  | 115  |
| SML4755 | 43  | 6.0  | 70  | 1500 | 0.25 | 5.0 | 32.7 | 22  | 110  |
| SML4756 | 47  | 5.5  | 80  | 1500 | 0.25 | 5.0 | 35.8 | 19  | 95   |
| SML4757 | 51  | 5.0  | 95  | 1500 | 0.25 | 5.0 | 38.8 | 18  | 90   |
| SML4758 | 56  | 4.5  | 110 | 2000 | 0.25 | 5.0 | 42.6 | 16  | 80   |
| SML4759 | 62  | 4.0  | 125 | 2000 | 0.25 | 5.0 | 47.1 | 14  | 70   |
| SML4760 | 68  | 3.7  | 150 | 2000 | 0.25 | 5.0 | 51.7 | 13  | 65   |
| SML4761 | 75  | 3.3  | 175 | 2000 | 0.25 | 5.0 | 56.0 | 12  | 60   |
| SML4762 | 82  | 3.0  | 200 | 3000 | 0.25 | 5.0 | 62.2 | 11  | 55   |
| SML4763 | 91  | 2.8  | 250 | 3000 | 0.25 | 5.0 | 69.2 | 10  | 50   |
| SML4764 | 100 | 2.5  | 350 | 3000 | 0.25 | 5.0 | 76.0 | 9.0 | 45   |

### Notes :

- (1) Standard voltage tolerance is 10%, add suffix "A" for  $\pm 5\%$  tolerance
- (2) Surge current is a non-repetitive 8.3ms square pulse width wave or equivalent sine-wave superimposed on  $I_{ZT}$  per JEDEC method
- (3) " SML " will be omitted on marking of the diode



## Zener Diodes 1.0 W

| Type No. | Zener Voltage <sup>(1)</sup>     |     | Test Current    | Dynamic Resistance at I <sub>ZT</sub><br>f = 1kHz | Reverse Voltage at I <sub>R</sub> = 0.5 μA | Admissible Zener current <sup>(2)</sup> | Temp. Coeff. of Zener Voltage at I <sub>ZT</sub> |      |
|----------|----------------------------------|-----|-----------------|---------------------------------------------------|--------------------------------------------|-----------------------------------------|--------------------------------------------------|------|
|          | V <sub>Z</sub> @ I <sub>ZT</sub> |     |                 |                                                   |                                            |                                         | α <sub>VZ</sub> (10 <sup>-4</sup> /°C)           |      |
|          | Min                              | Max | I <sub>ZT</sub> | rzj                                               | V <sub>R</sub>                             | I <sub>Z</sub>                          |                                                  |      |
|          | (V)                              | (V) | (mA)            | (Ω)                                               | (V)                                        | (mA)                                    | Min.                                             | Max. |

### ZMU Series, 1 W, Case Type : MELF



|        |     |     |   |            |      |   |   |    |
|--------|-----|-----|---|------------|------|---|---|----|
| ZMU100 | 88  | 110 | 5 | 140 (<300) | >75  | 7 | 9 | 13 |
| ZMU120 | 107 | 134 | 5 | 170 (<330) | >90  | 6 | 9 | 13 |
| ZMU150 | 130 | 165 | 5 | 200 (<360) | >112 | 5 | 9 | 13 |
| ZMU180 | 160 | 200 | 5 | 220 (<380) | >134 | 4 | 9 | 13 |

### ZMY Series, 1 W, Case Type : MELF



|        |      |      |     |           |       |     |    |    |
|--------|------|------|-----|-----------|-------|-----|----|----|
| ZMY3.9 | 3.7  | 4.1  | 100 | 4(<7)     | -     | 203 | -7 | 2  |
| ZMY4.3 | 4.0  | 4.6  | 100 | 4(<7)     | -     | 182 | -7 | 3  |
| ZMY4.7 | 4.4  | 5.0  | 100 | 4(<7)     | -     | 165 | -7 | 4  |
| ZMY5.1 | 4.8  | 5.4  | 100 | 2(<5)     | >0.7  | 150 | -6 | 5  |
| ZMY5.6 | 5.2  | 6.0  | 100 | 1(<2)     | >1.5  | 135 | -3 | 5  |
| ZMY6.2 | 5.8  | 6.6  | 100 | 1(<2)     | >2.0  | 128 | -1 | 6  |
| ZMY6.8 | 6.4  | 7.2  | 100 | 1(<2)     | >3.0  | 110 | 0  | 7  |
| ZMY7.5 | 7.0  | 7.9  | 100 | 1(<2)     | >5.0  | 100 | 0  | 7  |
| ZMY8.2 | 7.7  | 8.7  | 100 | 1(<2)     | >6.0  | 89  | 3  | 8  |
| ZMY9.1 | 8.5  | 9.6  | 50  | 2(<4)     | >7.0  | 82  | 3  | 8  |
| ZMY10  | 9.4  | 10.6 | 50  | 2(<4)     | >7.5  | 74  | 5  | 9  |
| ZMY11  | 10.4 | 11.6 | 50  | 3(<7)     | >8.5  | 66  | 5  | 10 |
| ZMY12  | 11.4 | 12.7 | 50  | 3(<7)     | >9.0  | 60  | 5  | 10 |
| ZMY13  | 12.4 | 14.1 | 50  | 4(<9)     | >10   | 55  | 5  | 10 |
| ZMY15  | 13.8 | 15.8 | 50  | 4(<9)     | >11   | 49  | 5  | 10 |
| ZMY16  | 15.3 | 17.1 | 25  | 5(<10)    | >12   | 44  | 7  | 11 |
| ZMY18  | 16.8 | 19.1 | 25  | 5(<11)    | >14   | 40  | 7  | 11 |
| ZMY20  | 18.8 | 21.2 | 25  | 6(<12)    | >15   | 36  | 7  | 11 |
| ZMY22  | 20.8 | 23.3 | 25  | 7(<13)    | >17   | 34  | 7  | 11 |
| ZMY24  | 22.8 | 25.6 | 25  | 8(<14)    | >18   | 29  | 7  | 12 |
| ZMY27  | 25.1 | 28.9 | 25  | 9(<15)    | >20   | 27  | 7  | 12 |
| ZMY30  | 28   | 32   | 25  | 10(<20)   | >22.5 | 25  | 7  | 12 |
| ZMY33  | 31   | 35   | 25  | 11(<20)   | >25   | 22  | 7  | 12 |
| ZMY36  | 34   | 38   | 10  | 25(<60)   | >27   | 20  | 7  | 12 |
| ZMY39  | 37   | 41   | 10  | 30(<60)   | >29   | 18  | 8  | 12 |
| ZMY43  | 40   | 46   | 10  | 35(<80)   | >32   | 17  | 8  | 13 |
| ZMY47  | 44   | 50   | 10  | 40(<80)   | >35   | 15  | 8  | 13 |
| ZMY51  | 48   | 54   | 10  | 45(<100)  | >38   | 14  | 8  | 13 |
| ZMY56  | 52   | 60   | 10  | 50(<100)  | >42   | 13  | 8  | 13 |
| ZMY62  | 58   | 66   | 10  | 60(<130)  | >47   | 11  | 8  | 13 |
| ZMY68  | 64   | 72   | 10  | 65(<130)  | >51   | 10  | 8  | 13 |
| ZMY75  | 70   | 79   | 10  | 70(<160)  | >56   | 9.0 | 8  | 13 |
| ZMY82  | 77   | 88   | 10  | 80(<160)  | >61   | 8.0 | 8  | 13 |
| ZMY91  | 85   | 96   | 5   | 120(<250) | >68   | 7.5 | 9  | 13 |
| ZMY100 | 94   | 106  | 5   | 130(<250) | >75   | 7.0 | 9  | 13 |

#### Notes:

- (1) Tested with pulse  $t_p = 5\text{ms}$
- (2) Valid provided that electrodes are kept at ambient temperature
- (3) For ZMY Series standard zener voltage tolerance is  $\pm 5\%$ . Add suffix "C" for  $\pm 2\%$  tolerance.



# Zener Diodes 1.3 W

The plastic material carries U/L recognition 94V-0.

| Type No.   |     | Nominal Zener Voltage |      | Maximum Zener Impedance |           |      | Maximum Reverse Leakage Current |     | Maximum DC Zener Current |
|------------|-----|-----------------------|------|-------------------------|-----------|------|---------------------------------|-----|--------------------------|
|            |     | Vz @ IzT              | IzT  | ZzT @ IzT               | Zzk @ Izk | Izk  | IR @ VR                         |     | IzM                      |
| Axial Lead | SMD | (V)                   | (mA) | (W)                     | (W)       | (mA) | (mA)                            | (V) | (mA)                     |

## BZX85/SZ25 Series, 1.3 W, Case Type : DO-41/SMA

|           |        |     |     |      |      |      |     |     |     |
|-----------|--------|-----|-----|------|------|------|-----|-----|-----|
| BZX85C2V4 | SZ252D | 2.4 | 80  | 20   | 400  | 1.0  | 150 | 1.0 | 410 |
| BZX85C2V7 | SZ252H | 2.7 | 80  | 20   | 400  | 1.0  | 150 | 1.0 | 370 |
| BZX85C3V0 | SZ253A | 3.0 | 80  | 20   | 400  | 1.0  | 100 | 1.0 | 340 |
| BZX85C3V3 | SZ253D | 3.3 | 80  | 20   | 400  | 1.0  | 40  | 1.0 | 320 |
| BZX85C3V6 | SZ253G | 3.6 | 70  | 20   | 500  | 1.0  | 20  | 1.0 | 290 |
| BZX85C3V9 | SZ253J | 3.9 | 60  | 15   | 500  | 1.0  | 10  | 1.0 | 280 |
| BZX85C4V3 | SZ254D | 4.3 | 50  | 13   | 500  | 1.0  | 3.0 | 1.0 | 250 |
| BZX85C4V7 | SZ254H | 4.7 | 45  | 13   | 500  | 1.0  | 3.0 | 1.0 | 215 |
| BZX85C5V1 | SZ255B | 5.1 | 45  | 10   | 500  | 1.0  | 1.0 | 1.5 | 200 |
| BZX85C5V6 | SZ255G | 5.6 | 45  | 7.0  | 400  | 1.0  | 1.0 | 2.0 | 190 |
| BZX85C6V2 | SZ256C | 6.2 | 35  | 4.0  | 300  | 1.0  | 1.0 | 3.0 | 170 |
| BZX85C6V8 | SZ256I | 6.8 | 35  | 3.5  | 300  | 1.0  | 50  | 4.0 | 155 |
| BZX85C7V5 | SZ257F | 7.5 | 35  | 3.0  | 200  | 0.5  | 50  | 4.5 | 140 |
| BZX85C8V2 | SZ258C | 8.2 | 25  | 5.0  | 200  | 0.5  | 50  | 6.2 | 130 |
| BZX85C9V1 | SZ259B | 9.1 | 25  | 5.0  | 200  | 0.5  | 50  | 6.8 | 120 |
| BZX85C10  | SZ2510 | 10  | 25  | 7.0  | 200  | 0.5  | 0.5 | 7.5 | 105 |
| BZX85C11  | SZ2511 | 11  | 20  | 8.0  | 300  | 0.5  | 0.5 | 8.2 | 97  |
| BZX85C12  | SZ2512 | 12  | 20  | 9.0  | 350  | 0.5  | 0.5 | 9.1 | 88  |
| BZX85C13  | SZ2513 | 13  | 20  | 10   | 400  | 0.5  | 0.5 | 10  | 79  |
| BZX85C15  | SZ2515 | 15  | 15  | 15   | 500  | 0.5  | 0.5 | 11  | 71  |
| BZX85C16  | SZ2516 | 16  | 15  | 15   | 500  | 0.5  | 0.5 | 12  | 66  |
| BZX85C18  | SZ2518 | 18  | 15  | 20   | 500  | 0.5  | 0.5 | 13  | 62  |
| BZX85C20  | SZ2520 | 20  | 10  | 24   | 600  | 0.5  | 0.5 | 15  | 56  |
| BZX85C22  | SZ2522 | 22  | 10  | 25   | 600  | 0.5  | 0.5 | 16  | 52  |
| BZX85C24  | SZ2524 | 24  | 10  | 25   | 600  | 0.5  | 0.5 | 18  | 47  |
| BZX85C27  | SZ2527 | 27  | 8.0 | 30   | 750  | 0.25 | 0.5 | 20  | 41  |
| BZX85C30  | SZ2530 | 30  | 8.0 | 30   | 1000 | 0.25 | 0.5 | 22  | 36  |
| BZX85C33  | SZ2533 | 33  | 8.0 | 35   | 1000 | 0.25 | 0.5 | 24  | 33  |
| BZX85C36  | SZ2536 | 36  | 8.0 | 40   | 1000 | 0.25 | 0.5 | 27  | 30  |
| BZX85C39  | SZ2539 | 39  | 6.0 | 50   | 1000 | 0.25 | 0.5 | 30  | 28  |
| BZX85C43  | SZ2543 | 43  | 6.0 | 50   | 1000 | 0.25 | 0.5 | 33  | 26  |
| BZX85C47  | SZ2547 | 47  | 4.0 | 90   | 1500 | 0.25 | 0.5 | 36  | 23  |
| BZX85C51  | SZ2551 | 51  | 4.0 | 115  | 1500 | 0.25 | 0.5 | 39  | 21  |
| BZX85C56  | SZ2556 | 56  | 4.0 | 120  | 2000 | 0.25 | 0.5 | 43  | 19  |
| BZX85C62  | SZ2562 | 62  | 4.0 | 125  | 2000 | 0.25 | 0.5 | 47  | 16  |
| BZX85C68  | SZ2568 | 68  | 4.0 | 130  | 2000 | 0.25 | 0.5 | 51  | 15  |
| BZX85C75  | SZ2575 | 75  | 4.0 | 135  | 2000 | 0.25 | 0.5 | 56  | 14  |
| BZX85C82  | SZ2582 | 82  | 2.7 | 200  | 3000 | 0.25 | 0.5 | 62  | 12  |
| BZX85C91  | SZ2591 | 91  | 2.7 | 250  | 3000 | 0.25 | 0.5 | 68  | 10  |
| BZX85C100 | SZ25B0 | 100 | 2.7 | 350  | 3000 | 0.25 | 0.5 | 75  | 9.4 |
| BZX85C110 | SZ25B1 | 110 | 2.7 | 450  | 4000 | 0.25 | 0.5 | 82  | 8.6 |
| BZX85C120 | SZ25B2 | 120 | 2.0 | 550  | 4500 | 0.25 | 0.5 | 91  | 7.8 |
| BZX85C130 | SZ25B3 | 130 | 2.0 | 700  | 5000 | 0.25 | 0.5 | 100 | 7.0 |
| BZX85C150 | SZ25B5 | 150 | 2.0 | 1000 | 6000 | 0.25 | 0.5 | 110 | 6.4 |
| BZX85C160 | SZ25B6 | 160 | 1.5 | 1100 | 6500 | 0.25 | 0.5 | 120 | 5.8 |
| BZX85C180 | SZ25B8 | 180 | 1.5 | 1200 | 7000 | 0.25 | 0.5 | 130 | 5.2 |
| BZX85C200 | SZ25D0 | 200 | 1.5 | 1500 | 8000 | 0.25 | 0.5 | 150 | 4.7 |

### Notes:

- (1)  $V_F = 1.2 V_{max}$ . @  $I_F = 200 \text{ mA}$ .
- (2) The type numbers listed have a standard tolerance on the nominal zener voltage of  $\pm 5\%$ . Add suffix "B" for  $\pm 2\%$  tolerance for axial lead.
- (3) "BZX" for Axial Lead / "SZ" for SMD will be omitted on marking of the diode.



# Zener Diodes 1.3 W

The plastic material carries U/L recognition 94V-0.

| Type No.   | Nominal Zener Voltage |          | Maximum Zener Impedance |                   |          | Maximum Reverse Leakage Current |     | Maximum DC Zener Current |
|------------|-----------------------|----------|-------------------------|-------------------|----------|---------------------------------|-----|--------------------------|
|            | $V_Z @ I_{ZT}$        | $I_{ZT}$ | $Z_{ZT} @ I_{ZT}$       | $Z_{ZK} @ I_{ZK}$ | $I_{ZK}$ | $I_R @ V_R$                     |     | $I_{ZM}$                 |
| Axial Lead | (V)                   | (mA)     | ( $\Omega$ )            | ( $\Omega$ )      | (mA)     | ( $\mu A$ )                     | (V) | (mA)                     |

## MZ85C Series, 1.3 W, Case Type : M1A



|          |     |     |      |      |      |     |     |     |
|----------|-----|-----|------|------|------|-----|-----|-----|
| MZ85C3V0 | 3.0 | 80  | 20   | 400  | 1.0  | 100 | 1.0 | 340 |
| MZ85C3V3 | 3.3 | 80  | 20   | 400  | 1.0  | 40  | 1.0 | 320 |
| MZ85C3V6 | 3.6 | 70  | 20   | 500  | 1.0  | 20  | 1.0 | 290 |
| MZ85C3V9 | 3.9 | 60  | 15   | 500  | 1.0  | 10  | 1.0 | 280 |
| MZ85C4V3 | 4.3 | 50  | 13   | 500  | 1.0  | 3.0 | 1.0 | 250 |
| MZ85C4V7 | 4.7 | 45  | 13   | 500  | 1.0  | 3.0 | 1.0 | 215 |
| MZ85C5V1 | 5.1 | 45  | 10   | 500  | 1.0  | 1.0 | 1.5 | 200 |
| MZ85C5V6 | 5.6 | 45  | 7.0  | 400  | 1.0  | 1.0 | 2.0 | 190 |
| MZ85C6V2 | 6.2 | 35  | 4.0  | 300  | 1.0  | 1.0 | 3.0 | 170 |
| MZ85C6V8 | 6.8 | 35  | 3.5  | 300  | 1.0  | 50  | 4.0 | 155 |
| MZ85C7V5 | 7.5 | 35  | 3.0  | 200  | 0.5  | 50  | 4.5 | 140 |
| MZ85C8V2 | 8.2 | 25  | 5.0  | 200  | 0.5  | 50  | 6.2 | 130 |
| MZ85C9V1 | 9.1 | 25  | 5.0  | 200  | 0.5  | 50  | 6.8 | 120 |
| MZ85C10  | 10  | 25  | 7.0  | 200  | 0.5  | 50  | 7.5 | 105 |
| MZ85C11  | 11  | 20  | 8.0  | 300  | 0.5  | 50  | 8.2 | 97  |
| MZ85C12  | 12  | 20  | 9.0  | 350  | 0.5  | 0.5 | 9.1 | 88  |
| MZ85C13  | 13  | 20  | 10   | 400  | 0.5  | 0.5 | 10  | 79  |
| MZ85C15  | 15  | 15  | 15   | 500  | 0.5  | 0.5 | 11  | 71  |
| MZ85C16  | 16  | 15  | 15   | 500  | 0.5  | 0.5 | 12  | 66  |
| MZ85C18  | 18  | 15  | 20   | 500  | 0.5  | 0.5 | 13  | 62  |
| MZ85C19  | 19  | 15  | 20   | 550  | 0.5  | 0.5 | 14  | 58  |
| MZ85C20  | 20  | 10  | 24   | 600  | 0.5  | 0.5 | 15  | 56  |
| MZ85C22  | 22  | 10  | 25   | 600  | 0.5  | 0.5 | 16  | 52  |
| MZ85C24  | 24  | 10  | 25   | 600  | 0.5  | 0.5 | 18  | 47  |
| MZ85C27  | 27  | 8.0 | 30   | 750  | 0.25 | 0.5 | 20  | 41  |
| MZ85C30  | 30  | 8.0 | 30   | 1000 | 0.25 | 0.5 | 22  | 36  |
| MZ85C33  | 33  | 8.0 | 35   | 1000 | 0.25 | 0.5 | 24  | 33  |
| MZ85C36  | 36  | 8.0 | 40   | 1000 | 0.25 | 0.5 | 27  | 30  |
| MZ85C39  | 39  | 6.0 | 50   | 1000 | 0.25 | 0.5 | 30  | 28  |
| MZ85C43  | 43  | 6.0 | 50   | 1000 | 0.25 | 0.5 | 33  | 26  |
| MZ85C47  | 47  | 4.0 | 90   | 1500 | 0.25 | 0.5 | 36  | 23  |
| MZ85C51  | 51  | 4.0 | 115  | 1500 | 0.25 | 0.5 | 39  | 21  |
| MZ85C56  | 56  | 4.0 | 120  | 2000 | 0.25 | 0.5 | 43  | 19  |
| MZ85C62  | 62  | 4.0 | 125  | 2000 | 0.25 | 0.5 | 47  | 16  |
| MZ85C68  | 68  | 4.0 | 130  | 2000 | 0.25 | 0.5 | 51  | 15  |
| MZ85C75  | 75  | 4.0 | 135  | 2000 | 0.25 | 0.5 | 56  | 14  |
| MZ85C82  | 82  | 2.7 | 200  | 3000 | 0.25 | 0.5 | 62  | 12  |
| MZ85C91  | 91  | 2.7 | 250  | 3000 | 0.25 | 0.5 | 68  | 10  |
| MZ85C100 | 100 | 2.7 | 350  | 3000 | 0.25 | 0.5 | 75  | 9.4 |
| MZ85C110 | 110 | 2.7 | 450  | 4000 | 0.25 | 0.5 | 82  | 8.6 |
| MZ85C120 | 120 | 2.0 | 550  | 4500 | 0.25 | 0.5 | 91  | 7.8 |
| MZ85C130 | 130 | 2.0 | 700  | 5000 | 0.25 | 0.5 | 100 | 7.0 |
| MZ85C150 | 150 | 2.0 | 1000 | 6000 | 0.25 | 0.5 | 110 | 6.4 |
| MZ85C160 | 160 | 1.5 | 1100 | 6500 | 0.25 | 0.5 | 120 | 5.8 |
| MZ85C180 | 180 | 1.5 | 1200 | 7000 | 0.25 | 0.5 | 130 | 5.2 |
| MZ85C200 | 200 | 1.5 | 1900 | 9990 | 0.25 | 0.5 | 150 | 4.7 |

Note :

(1) The type number listed have a standard tolerance on the nominal zener voltage of  $\pm 5.0\%$ .

## Zener Diodes 1.3 W

| Type No. | Zener Voltage <sup>(1)</sup><br>V <sub>Z</sub> @ I <sub>ZT</sub> |      | Test<br>Current | Dynamic<br>Resistance<br>at I <sub>ZT</sub> , f = 1 kHz | Reverse Voltage<br>at I <sub>R</sub> = 0.5 mA | Admissible<br>Zener Current   | Temp. coefficient<br>of Zener Voltage   |      |
|----------|------------------------------------------------------------------|------|-----------------|---------------------------------------------------------|-----------------------------------------------|-------------------------------|-----------------------------------------|------|
|          | Min.                                                             | Max. | I <sub>ZT</sub> |                                                         | V <sub>R</sub>                                | I <sub>Z</sub> <sup>(2)</sup> | $\alpha_{VZ}(10^{-4} / ^\circ\text{C})$ |      |
|          | (V)                                                              | (V)  | (mA)            | r <sub>Zj</sub> ( $\Omega$ )                            | (V)                                           | (mA)                          | min.                                    | max. |

### ZPY Series, 1.3 W, Case Type : DO-41 Glass



|        |      |      |     |             |        |     |    |     |
|--------|------|------|-----|-------------|--------|-----|----|-----|
| ZPY3.9 | 3.7  | 4.1  | 100 | 4 (< 7)     | -      | 290 | -7 | +2  |
| ZPY4.3 | 4.0  | 4.6  | 100 | 4 (< 7)     | -      | 280 | -7 | +3  |
| ZPY4.7 | 4.4  | 5.0  | 100 | 2 (< 5)     | -      | 250 | -7 | +4  |
| ZPY5.1 | 4.8  | 6.4  | 100 | 1 (< 2)     | > 0.7  | 215 | -6 | +5  |
| ZPY5.6 | 5.2  | 6.0  | 100 | 1 (< 2)     | > 1.5  | 200 | -3 | +5  |
| ZPY6.2 | 5.8  | 6.6  | 100 | 1 (< 2)     | > 2.0  | 190 | -1 | +6  |
| ZPY6.8 | 6.4  | 7.2  | 100 | 1 (< 2)     | > 3.0  | 170 | 0  | +7  |
| ZPY7.5 | 7.0  | 7.9  | 100 | 1 (< 2)     | > 5.0  | 155 | 0  | +7  |
| ZPY8.2 | 7.7  | 8.7  | 100 | 1 (< 2)     | > 6.0  | 140 | +3 | +8  |
| ZPY9.1 | 8.5  | 9.6  | 50  | 2 (< 4)     | > 7.0  | 130 | +3 | +8  |
| ZPY10  | 9.41 | 10.6 | 50  | 2 (< 4)     | > 7.5  | 120 | +5 | +9  |
| ZPY11  | 10.4 | 11.6 | 50  | 3 (< 7)     | > 8.5  | 105 | +5 | +10 |
| ZPY12  | 11.4 | 12.7 | 50  | 3 (< 7)     | > 9.0  | 97  | +5 | +10 |
| ZPY13  | 12.4 | 14.1 | 50  | 4 (< 9)     | > 10   | 88  | +5 | +10 |
| ZPY15  | 13.8 | 15.8 | 50  | 4 (< 9)     | > 11   | 79  | +5 | +10 |
| ZPY16  | 15.3 | 17.1 | 25  | 5 (< 10)    | > 12   | 71  | +7 | +11 |
| ZPY18  | 16.8 | 19.1 | 25  | 5 (< 11)    | > 14   | 66  | +7 | +11 |
| ZPY20  | 18.8 | 21.2 | 25  | 6 (< 12)    | > 15   | 62  | +7 | +11 |
| ZPY22  | 20.8 | 23.3 | 25  | 7 (< 13)    | > 17   |     | +7 | +11 |
| ZPY24  | 22.8 | 25.6 | 25  | 8 (< 14)    | > 18   | 56  | +7 | +12 |
| ZPY27  | 25.1 | 28.9 | 25  | 9 (< 15)    | > 20   | 52  | +7 | +12 |
| ZPY30  | 28   | 32   | 25  | 10 (< 20)   | > 22.5 | 47  | +7 | +12 |
| ZPY33  | 31   | 35   | 25  | 11 (< 20)   | > 25   | 41  | +7 | +12 |
| ZPY36  | 34   | 38   | 10  | 25 (< 60)   | > 27   | 36  | +7 | +12 |
| ZPY39  | 37   | 41   | 10  | 30 (< 60)   | > 29   | 33  | +8 | +12 |
| ZPY43  | 40   | 46   | 10  | 35 (< 80)   | > 32   | 30  | +8 | +13 |
| ZPY47  | 44   | 50   | 10  | 40 (< 80)   | > 35   | 28  | +8 | +13 |
| ZPY51  | 48   | 64   | 10  | 45 (< 100)  | > 38   | 26  | +8 | +13 |
| ZPY56  | 52   | 60   | 10  | 50 (< 100)  | > 42   | 23  | +8 | +13 |
| ZPY62  | 58   | 66   | 10  | 60 (< 130)  | > 47   | 21  | +8 | +13 |
| ZPY68  | 64   | 72   | 10  | 65 (< 130)  | > 51   | 19  | +8 | +13 |
| ZPY75  | 70   | 79   | 10  | 70 (< 160)  | > 56   | 16  | +8 | +13 |
| ZPY82  | 77   | 88   | 10  | 80 (< 160)  | > 61   | 15  | +8 | +13 |
| ZPY91  | 85   | 96   | 5   | 120 (< 250) | > 68   | 14  | +9 | +13 |
| ZPY100 | 94   | 106  | 5   | 130 (< 250) | > 75   | 12  | +9 | +13 |

#### Notes:

(1) Tested with pulse tp = 5 ms

(2) Valid provided that leads are kept at ambient temperature at a distance of 10 mm from case.

For devices in glass DO-41 case with higher Zener voltage but same power dissipation see types ZPU100 ... ZPU180



## Zener Diodes 1.5 W

The plastic material carries U/L recognition 94V-0.

| Type No. | Nominal Zener Voltage            |                 | Maximum Zener Impedance           |                                   |                 | Maximum Reverse Leakage Current |     | Maximum DC Zener Current |
|----------|----------------------------------|-----------------|-----------------------------------|-----------------------------------|-----------------|---------------------------------|-----|--------------------------|
|          | V <sub>Z</sub> @ I <sub>ZT</sub> | I <sub>ZT</sub> | Z <sub>ZT</sub> @ I <sub>ZT</sub> | Z <sub>ZK</sub> @ I <sub>ZK</sub> | I <sub>ZK</sub> | I <sub>R</sub> @ V <sub>R</sub> |     | I <sub>ZM</sub>          |
|          | (V)                              | (mA)            | (Ω)                               | (Ω)                               | (mA)            | (μA)                            | (V) | (mA)                     |

### MZ5913A Series, 1.5 W, Case Type : M1A



|         |     |       |      |      |      |     |       |     |
|---------|-----|-------|------|------|------|-----|-------|-----|
| MZ5913A | 3.3 | 113.6 | 10.0 | 500  | 1.0  | 100 | 1.0   | 454 |
| MZ5914A | 3.6 | 104.2 | 9.0  | 500  | 1.0  | 75  | 1.0   | 416 |
| MZ5915A | 3.9 | 96.1  | 7.5  | 500  | 1.0  | 25  | 1.0   | 384 |
| MZ5916A | 4.3 | 87.2  | 6.0  | 500  | 1.0  | 5.0 | 1.0   | 348 |
| MZ5917A | 4.7 | 79.8  | 5.0  | 500  | 1.0  | 5.0 | 1.5   | 319 |
| MZ5918A | 5.1 | 73.5  | 4.0  | 350  | 1.0  | 5.0 | 2.0   | 294 |
| MZ5919A | 5.6 | 66.9  | 2.0  | 250  | 1.0  | 5.0 | 3.0   | 267 |
| MZ5920A | 6.2 | 60.5  | 2.0  | 200  | 1.0  | 5.0 | 4.0   | 241 |
| MZ5921A | 6.8 | 55.1  | 2.5  | 200  | 1.0  | 5.0 | 5.2   | 220 |
| MZ5922A | 7.5 | 50.0  | 3.0  | 400  | 0.5  | 5.0 | 6.0   | 200 |
| MZ5923A | 8.2 | 45.7  | 3.5  | 400  | 0.5  | 5.0 | 6.5   | 182 |
| MZ5924A | 9.1 | 41.2  | 4.0  | 500  | 0.5  | 5.0 | 7.0   | 164 |
| MZ5925A | 10  | 37.5  | 4.5  | 500  | 0.25 | 5.0 | 8.0   | 150 |
| MZ5926A | 11  | 34.1  | 5.5  | 550  | 0.25 | 1.0 | 8.4   | 136 |
| MZ5927A | 12  | 31.2  | 6.5  | 550  | 0.25 | 1.0 | 9.1   | 125 |
| MZ5928A | 13  | 28.8  | 7.0  | 550  | 0.25 | 1.0 | 9.9   | 115 |
| MZ5929A | 15  | 25.0  | 9.0  | 600  | 0.25 | 1.0 | 11.4  | 100 |
| MZ5930A | 16  | 23.4  | 10   | 600  | 0.25 | 1.0 | 12.2  | 93  |
| MZ5931A | 18  | 20.8  | 12   | 650  | 0.25 | 1.0 | 13.7  | 83  |
| MZ5932A | 20  | 18.7  | 14   | 650  | 0.25 | 1.0 | 15.2  | 75  |
| MZ5933A | 22  | 17.0  | 17.5 | 650  | 0.25 | 1.0 | 16.7  | 68  |
| MZ5934A | 24  | 15.6  | 19   | 700  | 0.25 | 1.0 | 18.2  | 62  |
| MZ5935A | 27  | 13.9  | 23   | 700  | 0.25 | 1.0 | 20.6  | 55  |
| MZ5936A | 30  | 12.5  | 26   | 750  | 0.25 | 1.0 | 22.8  | 50  |
| MZ5937A | 33  | 11.4  | 33   | 800  | 0.25 | 1.0 | 25.1  | 45  |
| MZ5938A | 36  | 10.4  | 38   | 850  | 0.25 | 1.0 | 27.4  | 41  |
| MZ5939A | 39  | 9.6   | 45   | 900  | 0.25 | 1.0 | 29.7  | 38  |
| MZ5940A | 43  | 8.7   | 53   | 950  | 0.25 | 1.0 | 32.7  | 34  |
| MZ5941A | 47  | 8.0   | 67   | 1000 | 0.25 | 1.0 | 35.8  | 31  |
| MZ5942A | 51  | 7.3   | 70   | 1100 | 0.25 | 1.0 | 38.8  | 29  |
| MZ5943A | 56  | 6.7   | 86   | 1300 | 0.25 | 1.0 | 42.6  | 26  |
| MZ5944A | 62  | 6.0   | 100  | 1500 | 0.25 | 1.0 | 47.1  | 24  |
| MZ5945A | 68  | 5.5   | 120  | 1700 | 0.25 | 1.0 | 51.7  | 22  |
| MZ5946A | 75  | 5.0   | 140  | 2000 | 0.25 | 1.0 | 56.0  | 20  |
| MZ5947A | 82  | 4.6   | 160  | 2500 | 0.25 | 1.0 | 62.2  | 18  |
| MZ5948A | 91  | 4.1   | 200  | 3000 | 0.25 | 1.0 | 69.2  | 16  |
| MZ5949A | 100 | 3.7   | 250  | 3100 | 0.25 | 1.0 | 76.0  | 15  |
| MZ5950A | 110 | 3.4   | 300  | 4000 | 0.25 | 1.0 | 83.6  | 13  |
| MZ5951A | 120 | 3.1   | 380  | 4500 | 0.25 | 1.0 | 91.2  | 12  |
| MZ5952A | 130 | 2.9   | 450  | 5000 | 0.25 | 1.0 | 98.8  | 11  |
| MZ5953A | 150 | 2.5   | 600  | 6000 | 0.25 | 1.0 | 114.0 | 10  |
| MZ5954A | 160 | 2.3   | 700  | 6500 | 0.25 | 1.0 | 121.6 | 9.0 |
| MZ5955A | 180 | 2.1   | 900  | 7000 | 0.25 | 1.0 | 136.8 | 8.0 |
| MZ5956A | 200 | 1.9   | 1200 | 8000 | 0.25 | 1.0 | 152.0 | 7.0 |

Note : (1) Suffix "A" is for  $\pm 10\%$  tolerance. Use suffix "B" for  $\pm 5\%$  tolerance (Axial lead)



## Zener Diodes 1.5 W

The plastic material carries U/L recognition 94V-0.

| Type No. | Nominal Zener Voltage | Test Current | Maximum Zener Impedance |                   |          | Maximum Reverse Leakage Current |     | Maximum DC Zener Current |
|----------|-----------------------|--------------|-------------------------|-------------------|----------|---------------------------------|-----|--------------------------|
|          | $V_Z @ I_{ZT}$        | $I_{ZT}$     | $Z_{ZT} @ I_{ZT}$       | $Z_{ZK} @ I_{ZK}$ | $I_{ZK}$ | $I_R @ V_R$                     |     | $I_{ZM}$                 |
|          | (V)                   | (mA)         |                         | ( $\Omega$ )      | (mA)     | ( $\mu A$ )                     | (V) | (mA)                     |

### 1SMA5913A Series, 1.5 W, Case Type : SMA



|           |     |       |      |      |      |     |       |     |
|-----------|-----|-------|------|------|------|-----|-------|-----|
| 1SMA5913A | 3.3 | 113.6 | 10   | 500  | 1.0  | 100 | 1.0   | 454 |
| 1SMA5914A | 3.6 | 104.2 | 9.0  | 500  | 1.0  | 75  | 1.0   | 416 |
| 1SMA5915A | 3.9 | 96.1  | 7.5  | 500  | 1.0  | 25  | 1.0   | 384 |
| 1SMA5916A | 4.3 | 87.2  | 6.0  | 500  | 1.0  | 5.0 | 1.0   | 348 |
| 1SMA5917A | 4.7 | 79.8  | 5.0  | 500  | 1.0  | 5.0 | 1.5   | 319 |
| 1SMA5918A | 5.1 | 73.5  | 4.0  | 500  | 1.0  | 5.0 | 2.0   | 294 |
| 1SMA5919A | 5.6 | 66.9  | 2.0  | 500  | 1.0  | 5.0 | 3.0   | 267 |
| 1SMA5920A | 6.2 | 60.5  | 2.0  | 200  | 1.0  | 5.0 | 4.0   | 241 |
| 1SMA5921A | 6.8 | 55.1  | 2.5  | 200  | 1.0  | 5.0 | 5.2   | 220 |
| 1SMA5922A | 7.5 | 50.0  | 3.0  | 400  | 0.5  | 5.0 | 6.0   | 200 |
| 1SMA5923A | 8.2 | 45.7  | 3.5  | 400  | 0.5  | 5.0 | 6.5   | 182 |
| 1SMA5924A | 9.1 | 41.2  | 4.0  | 500  | 0.5  | 5.0 | 7.0   | 164 |
| 1SMA5925A | 10  | 37.5  | 4.5  | 500  | 0.25 | 5.0 | 8.0   | 150 |
| 1SMA5926A | 11  | 34.1  | 5.5  | 550  | 0.25 | 1.0 | 8.4   | 136 |
| 1SMA5927A | 12  | 31.2  | 6.5  | 550  | 0.25 | 1.0 | 9.1   | 125 |
| 1SMA5928A | 13  | 28.8  | 7.0  | 550  | 0.25 | 1.0 | 9.9   | 115 |
| 1SMA5929A | 15  | 25.0  | 9.0  | 600  | 0.25 | 1.0 | 11.4  | 100 |
| 1SMA5930A | 16  | 23.4  | 10   | 600  | 0.25 | 1.0 | 12.2  | 93  |
| 1SMA5931A | 18  | 20.8  | 12   | 650  | 0.25 | 1.0 | 13.7  | 83  |
| 1SMA5932A | 20  | 18.7  | 14   | 650  | 0.25 | 1.0 | 15.2  | 75  |
| 1SMA5933A | 22  | 17.0  | 17.5 | 650  | 0.25 | 1.0 | 16.7  | 68  |
| 1SMA5934A | 24  | 15.6  | 19   | 700  | 0.25 | 1.0 | 18.2  | 62  |
| 1SMA5935A | 27  | 13.9  | 23   | 700  | 0.25 | 1.0 | 20.6  | 55  |
| 1SMA5936A | 30  | 12.5  | 26   | 750  | 0.25 | 1.0 | 22.8  | 50  |
| 1SMA5937A | 33  | 11.4  | 33   | 800  | 0.25 | 1.0 | 25.1  | 45  |
| 1SMA5938A | 36  | 10.4  | 38   | 850  | 0.25 | 1.0 | 27.4  | 41  |
| 1SMA5939A | 39  | 9.6   | 45   | 900  | 0.25 | 1.0 | 29.7  | 38  |
| 1SMA5940A | 43  | 8.7   | 53   | 950  | 0.25 | 1.0 | 32.7  | 34  |
| 1SMA5941A | 47  | 8.0   | 67   | 1000 | 0.25 | 1.0 | 35.8  | 31  |
| 1SMA5942A | 51  | 7.3   | 70   | 1100 | 0.25 | 1.0 | 38.8  | 29  |
| 1SMA5943A | 56  | 6.7   | 86   | 1300 | 0.25 | 1.0 | 42.6  | 26  |
| 1SMA5944A | 62  | 6.0   | 100  | 1500 | 0.25 | 1.0 | 47.1  | 24  |
| 1SMA5945A | 68  | 5.5   | 120  | 1700 | 0.25 | 1.0 | 51.7  | 22  |
| 1SMA5946A | 75  | 5.0   | 140  | 2000 | 0.25 | 1.0 | 56.0  | 20  |
| 1SMA5947A | 82  | 4.6   | 160  | 2500 | 0.25 | 1.0 | 62.2  | 18  |
| 1SMA5948A | 91  | 4.1   | 200  | 3000 | 0.25 | 1.0 | 69.2  | 16  |
| 1SMA5949A | 100 | 3.7   | 250  | 3100 | 0.25 | 1.0 | 76.0  | 15  |
| 1SMA5950A | 110 | 3.4   | 300  | 4000 | 0.25 | 1.0 | 83.6  | 13  |
| 1SMA5951A | 120 | 3.1   | 380  | 4500 | 0.25 | 1.0 | 91.2  | 12  |
| 1SMA5952A | 130 | 2.9   | 450  | 5000 | 0.25 | 1.0 | 98.8  | 11  |
| 1SMA5953A | 150 | 2.5   | 600  | 6000 | 0.25 | 1.0 | 114.0 | 10  |
| 1SMA5954A | 160 | 2.3   | 700  | 6500 | 0.25 | 1.0 | 121.6 | 9.0 |
| 1SMA5955A | 180 | 2.1   | 900  | 7000 | 0.25 | 1.0 | 136.8 | 8.0 |
| 1SMA5956A | 200 | 1.9   | 1200 | 8000 | 0.25 | 1.0 | 152.0 | 7.0 |
| 1SMA5957A | 240 | 1.5   | 1600 | 9000 | 0.25 | 1.0 | 182.4 | 6.0 |

Notes: (1) Suffix "A" indicates  $\pm 10\%$  tolerance, change to suffix "B" for  $\pm 5\%$  tolerance.

(2) "1SMA5" will be omitted in marking on the diode.



## Zener Diodes 2.0 W

The plastic material carries U/L recognition 94V-0.

| Type No.   |     | Nominal Zener Voltage            |                 | Maximum Zener Impedance           |                                   |                 | Maximum Reverse Leakage Current |     | Maximum DC Zener Current |
|------------|-----|----------------------------------|-----------------|-----------------------------------|-----------------------------------|-----------------|---------------------------------|-----|--------------------------|
|            |     | V <sub>Z</sub> @ I <sub>ZT</sub> | I <sub>ZT</sub> | Z <sub>ZT</sub> @ I <sub>ZT</sub> | Z <sub>ZK</sub> @ I <sub>ZK</sub> | I <sub>ZK</sub> | I <sub>R</sub> @ V <sub>R</sub> |     | I <sub>ZM</sub>          |
| Axial Lead | SMD | (V)                              | (mA)            | (Ω)                               | (Ω)                               | (mA)            | (μA)                            | (V) | (mA)                     |

### 2EZ / SZ45 Series, 2.0 W, Case Type : DO-41/SMA

|          |        |     |      |      |      |      |     |       |     |
|----------|--------|-----|------|------|------|------|-----|-------|-----|
| 2EZ2.7D5 | SZ452H | 2.7 | 80   | 10   | 400  | 1.0  | 100 | 1.0   | 660 |
| 2EZ3.0D5 | SZ453A | 3.0 | 160  | 8.0  | 400  | 1.0  | 100 | 1.0   | 600 |
| 2EZ3.3D5 | SZ453D | 3.3 | 145  | 8.0  | 400  | 1.0  | 80  | 1.0   | 545 |
| 2EZ3.6D5 | SZ453G | 3.6 | 139  | 5.0  | 400  | 1.0  | 80  | 1.0   | 504 |
| 2EZ3.9D5 | SZ453J | 3.9 | 128  | 5.0  | 400  | 1.0  | 30  | 1.0   | 468 |
| 2EZ4.3D5 | SZ454D | 4.3 | 116  | 4.5  | 400  | 1.0  | 20  | 1.0   | 434 |
| 2EZ4.7D5 | SZ454H | 4.7 | 106  | 4.5  | 550  | 1.0  | 5.0 | 1.0   | 386 |
| 2EZ5.1D5 | SZ455B | 5.1 | 98.0 | 3.5  | 600  | 1.0  | 5.0 | 1.0   | 356 |
| 2EZ5.6D5 | SZ455G | 5.6 | 89.5 | 2.5  | 500  | 1.0  | 5.0 | 2.0   | 324 |
| 2EZ6.2D5 | SZ456C | 6.2 | 80.5 | 1.5  | 700  | 1.0  | 5.0 | 3.0   | 292 |
| 2EZ6.8D5 | SZ456I | 6.8 | 73.5 | 2.0  | 700  | 1.0  | 5.0 | 4.0   | 266 |
| 2EZ7.5D5 | SZ457F | 7.5 | 66.5 | 2.0  | 700  | 0.5  | 5.0 | 5.0   | 242 |
| 2EZ8.2D5 | SZ458C | 8.2 | 61.0 | 2.3  | 700  | 0.5  | 5.0 | 6.0   | 220 |
| 2EZ9.1D5 | SZ459B | 9.1 | 55.0 | 2.5  | 700  | 0.5  | 3.0 | 7.0   | 200 |
| 2EZ10D5  | SZ4510 | 10  | 50.0 | 3.5  | 700  | 0.25 | 3.0 | 7.6   | 182 |
| 2EZ11D5  | SZ4511 | 11  | 45.5 | 4.0  | 700  | 0.25 | 1.0 | 8.4   | 166 |
| 2EZ12D5  | SZ4512 | 12  | 41.5 | 4.5  | 700  | 0.25 | 1.0 | 9.1   | 152 |
| 2EZ13D5  | SZ4513 | 13  | 38.5 | 5.0  | 700  | 0.25 | 0.5 | 9.9   | 138 |
| 2EZ14D5  | SZ4514 | 14  | 35.7 | 5.5  | 700  | 0.25 | 0.5 | 10.6  | 130 |
| 2EZ15D5  | SZ4515 | 15  | 33.4 | 7.0  | 700  | 0.25 | 0.5 | 11.4  | 122 |
| 2EZ16D5  | SZ4516 | 16  | 31.2 | 8.0  | 700  | 0.25 | 0.5 | 12.2  | 114 |
| 2EZ17D5  | SZ4517 | 17  | 29.4 | 9.0  | 750  | 0.25 | 0.5 | 13.0  | 107 |
| 2EZ18D5  | SZ4518 | 18  | 27.8 | 10   | 750  | 0.25 | 0.5 | 13.7  | 100 |
| 2EZ19D5  | SZ4519 | 19  | 26.3 | 11   | 750  | 0.25 | 0.5 | 14.4  | 95  |
| 2EZ20D5  | SZ4520 | 20  | 25.0 | 11   | 750  | 0.25 | 0.5 | 15.2  | 90  |
| 2EZ22D5  | SZ4522 | 22  | 22.8 | 12   | 750  | 0.25 | 0.5 | 16.7  | 82  |
| 2EZ24D5  | SZ4524 | 24  | 20.8 | 13   | 750  | 0.25 | 0.5 | 18.2  | 76  |
| 2EZ27D5  | SZ4527 | 27  | 18.5 | 18   | 750  | 0.25 | 0.5 | 20.6  | 68  |
| 2EZ30D5  | SZ4530 | 30  | 16.6 | 20   | 1000 | 0.25 | 0.5 | 22.5  | 60  |
| 2EZ33D5  | SZ4533 | 33  | 15.1 | 23   | 1000 | 0.25 | 0.5 | 25.1  | 55  |
| 2EZ36D5  | SZ4536 | 36  | 13.9 | 25   | 1000 | 0.25 | 0.5 | 27.4  | 50  |
| 2EZ39D5  | SZ4539 | 39  | 12.8 | 30   | 1000 | 0.25 | 0.5 | 29.7  | 47  |
| 2EZ43D5  | SZ4543 | 43  | 11.6 | 35   | 1500 | 0.25 | 0.5 | 32.7  | 43  |
| 2EZ47D5  | SZ4547 | 47  | 10.6 | 40   | 1500 | 0.25 | 0.5 | 35.8  | 39  |
| 2EZ51D5  | SZ4551 | 51  | 9.8  | 48   | 1500 | 0.25 | 0.5 | 38.8  | 36  |
| 2EZ56D5  | SZ4556 | 56  | 9.0  | 55   | 2000 | 0.25 | 0.5 | 42.6  | 32  |
| 2EZ62D5  | SZ4562 | 62  | 8.1  | 60   | 2000 | 0.25 | 0.5 | 47.1  | 29  |
| 2EZ68D5  | SZ4568 | 68  | 7.4  | 75   | 2000 | 0.25 | 0.5 | 51.7  | 27  |
| 2EZ75D5  | SZ4575 | 75  | 6.7  | 90   | 2000 | 0.25 | 0.5 | 56.0  | 24  |
| 2EZ82D5  | SZ4582 | 82  | 6.1  | 100  | 3000 | 0.25 | 0.5 | 62.2  | 22  |
| 2EZ91D5  | SZ4591 | 91  | 5.5  | 125  | 3000 | 0.25 | 0.5 | 69.2  | 20  |
| 2EZ100D5 | SZ45B0 | 100 | 5.0  | 175  | 3000 | 0.25 | 0.5 | 76.0  | 18  |
| 2EZ110D5 | SZ45B1 | 110 | 4.5  | 250  | 4000 | 0.25 | 0.5 | 83.6  | 17  |
| 2EZ120D5 | SZ45B2 | 120 | 4.2  | 325  | 4500 | 0.25 | 0.5 | 91.2  | 15  |
| 2EZ130D5 | SZ45B3 | 130 | 3.8  | 400  | 5000 | 0.25 | 0.5 | 98.8  | 14  |
| 2EZ140D5 | SZ45B4 | 140 | 3.6  | 500  | 5500 | 0.25 | 0.5 | 106.4 | 13  |
| 2EZ150D5 | SZ45B5 | 150 | 3.3  | 575  | 6000 | 0.25 | 0.5 | 114.0 | 12  |
| 2EZ160D5 | SZ45B6 | 160 | 3.1  | 650  | 6500 | 0.25 | 0.5 | 121.6 | 11  |
| 2EZ170D5 | SZ45B7 | 170 | 2.9  | 675  | 7000 | 0.25 | 0.5 | 130.4 | 11  |
| 2EZ180D5 | SZ45B8 | 180 | 2.8  | 725  | 7000 | 0.25 | 0.5 | 136.8 | 10  |
| 2EZ190D5 | SZ45B9 | 190 | 2.6  | 825  | 8000 | 0.25 | 0.5 | 144.8 | 10  |
| 2EZ200D5 | SZ45D0 | 200 | 2.5  | 900  | 8000 | 0.25 | 0.5 | 152.0 | 9.0 |
| 2EZ220D5 | SZ45D2 | 220 | 2.0  | 2000 | 8500 | 0.25 | 0.5 | 167   | 8.0 |
| 2EZ270D5 | SZ45D7 | 270 | 1.6  | 2200 | 8500 | 0.25 | 0.5 | 205   | 6.7 |
| 2EZ300D5 | SZ45E0 | 300 | 1.5  | 2200 | 9000 | 0.25 | 0.5 | 228   | 5.9 |
| 2EZ330D5 | SZ45E3 | 330 | 1.4  | 2300 | 9000 | 0.25 | 0.5 | 250   | 5.4 |

#### Notes :

- (1) For V<sub>Z</sub> ≤ 200 V; V<sub>F</sub> = 1.2 V<sub>max</sub>. @ I<sub>F</sub> = 200 mA and for V<sub>Z</sub> > 200 V; V<sub>F</sub> = 2 V<sub>max</sub>. @ I<sub>F</sub> = 200 mA.
- (2) Suffix "5" indicates ± 5% tolerance, suffix "10" indicates ± 10% tolerance (Axial lead) / replace the fourth digit of type from "0" for ± 10% tolerance to "5" for ± 5% tolerance (SMD)
- (3) "EZ" for Axial Lead / "SZ" for SMD will be omitted on marking of the diode



## Zener Diodes 2.0 W

The plastic material carries U/L recognition 94V-0.

| Type No. | Zener Voltage <sup>(2)</sup><br>at I <sub>ZT</sub> |      | Test<br>Current      | Dynamic<br>resistance<br>at I <sub>ZT</sub> | Temp. coeff.<br>of Zener<br>Voltage at I <sub>ZT</sub> | Maximum<br>Reverse<br>at I <sub>R</sub> = 1 μA | Admissible<br>Zener Current <sup>(1)</sup><br>at Ta = 25 °C |
|----------|----------------------------------------------------|------|----------------------|---------------------------------------------|--------------------------------------------------------|------------------------------------------------|-------------------------------------------------------------|
|          | V <sub>Z</sub> (V)                                 |      |                      |                                             |                                                        |                                                |                                                             |
|          | min.                                               | max. | I <sub>ZT</sub> (mA) | max. rzj (Ω)                                | α <sub>VZ</sub> (10 <sup>-4</sup> /K)                  | V <sub>R</sub> (V)                             | I <sub>Z</sub> (mA)                                         |

### ZY3.6 Series, 2 W, Case Type : DO-41



|       |      |      |     |     |            |        |     |
|-------|------|------|-----|-----|------------|--------|-----|
| ZY3.6 | 3.4  | 3.8  | 100 | 7   | -7...+2    | -      | 440 |
| ZY3.9 | 3.7  | 4.1  | 100 | 7   | -7...+2    | -      | 410 |
| ZY4.3 | 4.0  | 4.6  | 100 | 7   | -7...+3    | -      | 360 |
| ZY4.7 | 4.4  | 5.0  | 100 | 7   | -7...+4    | -      | 330 |
| ZY5.1 | 4.8  | 5.4  | 100 | 5   | -6...+5    | -      | 300 |
| ZY5.6 | 5.2  | 6.0  | 100 | 2   | -3...+5    | >1.5   | 275 |
| ZY6.2 | 5.8  | 6.6  | 100 | 2   | -1...+6    | >1.5   | 245 |
| ZY6.8 | 6.4  | 7.2  | 100 | 1   | 0...+7     | >2.0   | 220 |
| ZY7.5 | 7.0  | 7.9  | 100 | 1   | 0...+7     | >2.0   | 200 |
| ZY8.2 | 7.7  | 8.7  | 100 | 1   | +3...+8    | >3.5   | 180 |
| ZY9.1 | 8.5  | 9.6  | 50  | 4   | +3...+8    | >7.4   | 165 |
| ZY10  | 9.4  | 10.6 | 50  | 4   | +5...+9    | >8.2   | 145 |
| ZY11  | 10.4 | 11.6 | 50  | 7   | +5...+10   | >9.2   | 135 |
| ZY12  | 11.4 | 12.7 | 50  | 7   | +5...+10   | >10    | 120 |
| ZY13  | 12.4 | 14.1 | 50  | 10  | +5...+10   | >10.7  | 110 |
| ZY15  | 13.8 | 15.8 | 50  | 10  | +5...+10   | >12    | 98  |
| ZY16  | 15.3 | 17.1 | 25  | 15  | +6...+11   | >13.3  | 90  |
| ZY18  | 16.8 | 19.1 | 25  | 15  | +6...+11   | >14.7  | 80  |
| ZY20  | 18.8 | 21.2 | 25  | 15  | +6...+11   | >16.5  | 72  |
| ZY22  | 20.8 | 23.3 | 25  | 15  | +6...+11   | >18.3  | 66  |
| ZY24  | 22.8 | 25.6 | 25  | 15  | +6...+11   | >20.1  | 60  |
| ZY27  | 25.1 | 28.9 | 25  | 15  | +6...+11   | >22.5  | 53  |
| ZY30  | 28   | 32   | 25  | 15  | +6...+11   | >25.1  | 48  |
| ZY33  | 31   | 35   | 25  | 15  | +6...+11   | >27.8  | 44  |
| ZY36  | 34   | 38   | 10  | 40  | +6...+11   | >30.2  | 40  |
| ZY39  | 37   | 41   | 10  | 40  | +6...+11   | >32.9  | 37  |
| ZY43  | 40   | 46   | 10  | 45  | +7...+12   | >35.6  | 33  |
| ZY47  | 44   | 50   | 10  | 45  | +7...+12   | >39.2  | 30  |
| ZY51  | 48   | 54   | 10  | 60  | +7...+12   | >42.8  | 27  |
| ZY56  | 52   | 60   | 10  | 60  | +7...+12   | >47.3  | 25  |
| ZY62  | 58   | 66   | 10  | 80  | +8...+13   | >51.7  | 21  |
| ZY68  | 64   | 72   | 10  | 80  | +8...+13   | >57.1  | 20  |
| ZY75  | 70   | 79   | 10  | 100 | +8...+13   | >63.2  | 18  |
| ZY82  | 77   | 88   | 10  | 100 | +8...+13   | >68.6  | 16  |
| ZY91  | 85   | 96   | 5   | 200 | +9...+13   | >75.7  | 15  |
| ZY100 | 94   | 106  | 5   | 200 | +9...+13   | >83.7  | 13  |
| ZY110 | 104  | 116  | 5   | 250 | +9...+13   | >92.6  | 12  |
| ZY120 | 114  | 127  | 5   | 250 | +9...+13   | >101.6 | 11  |
| ZY130 | 124  | 141  | 5   | 300 | +9...+13   | >110.5 | 10  |
| ZY150 | 138  | 156  | 5   | 300 | +9...+13   | >123   | 9   |
| ZY160 | 153  | 171  | 5   | 350 | +9...+13   | >136   | 8.5 |
| ZY180 | 168  | 191  | 5   | 350 | +9...+13   | >149   | 8   |
| ZY200 | 168  | 212  | 5   | 350 | +9 ... +13 | >167   | 7.5 |

#### Notes :

(1) Valid provided that leads are kept at ambient temperature at a distance of 10 mm from case

(2) Tested with pulse  $t_p = 5$  ms



## Zener Diodes 3.0 W

The plastic material carries U/L recognition 94V-0.

| Type No.   |     | Nominal Zener Voltage            |                 | Maximum Zener Impedance           |                                   |                 | Maximum Reverse Leakage Current |     | Maximum DC Zener Current |
|------------|-----|----------------------------------|-----------------|-----------------------------------|-----------------------------------|-----------------|---------------------------------|-----|--------------------------|
|            |     | V <sub>Z</sub> @ I <sub>ZT</sub> | I <sub>ZT</sub> | Z <sub>ZT</sub> @ I <sub>ZT</sub> | Z <sub>ZK</sub> @ I <sub>ZK</sub> | I <sub>ZK</sub> | I <sub>R</sub> @ V <sub>R</sub> |     | I <sub>ZM</sub>          |
| Axial Lead | SMD | (V)                              | (mA)            | (Ω)                               | (Ω)                               | (mA)            | (μA)                            | (V) | (mA)                     |

### 1N5913A/SZ303D Series, 3.0/1.5 W, Case Type : DO-41/SMA

|         |        |     |       |      |      |      |     |       |     |
|---------|--------|-----|-------|------|------|------|-----|-------|-----|
| 1N5913A | SZ303D | 3.3 | 113.6 | 10.0 | 500  | 1.0  | 100 | 1.0   | 454 |
| 1N5914A | SZ303G | 3.6 | 104.2 | 9.0  | 500  | 1.0  | 75  | 1.0   | 416 |
| 1N5915A | SZ303J | 3.9 | 96.1  | 7.5  | 500  | 1.0  | 25  | 1.0   | 384 |
| 1N5916A | SZ304D | 4.3 | 87.2  | 6.0  | 500  | 1.0  | 5.0 | 1.0   | 348 |
| 1N5917A | SZ304H | 4.7 | 79.8  | 5.0  | 500  | 1.0  | 5.0 | 1.5   | 319 |
| 1N5918A | SZ305B | 5.1 | 73.5  | 4.0  | 350  | 1.0  | 5.0 | 2.0   | 294 |
| 1N5919A | SZ305G | 5.6 | 66.9  | 2.0  | 250  | 1.0  | 5.0 | 3.0   | 267 |
| 1N5920A | SZ306C | 6.2 | 60.5  | 2.0  | 200  | 1.0  | 5.0 | 4.0   | 241 |
| 1N5921A | SZ306I | 6.8 | 55.1  | 2.5  | 200  | 1.0  | 5.0 | 5.2   | 220 |
| 1N5922A | SZ307F | 7.5 | 50.0  | 3.0  | 400  | 0.5  | 5.0 | 6.0   | 200 |
| 1N5923A | SZ308C | 8.2 | 45.7  | 3.5  | 400  | 0.5  | 5.0 | 6.5   | 182 |
| 1N5924A | SZ309B | 9.1 | 41.2  | 4.0  | 500  | 0.5  | 5.0 | 7.0   | 164 |
| 1N5925A | SZ3010 | 10  | 37.5  | 4.5  | 500  | 0.25 | 5.0 | 8.0   | 150 |
| 1N5926A | SZ3011 | 11  | 34.1  | 5.5  | 550  | 0.25 | 1.0 | 8.4   | 136 |
| 1N5927A | SZ3012 | 12  | 31.2  | 6.5  | 550  | 0.25 | 1.0 | 9.1   | 125 |
| 1N5928A | SZ3013 | 13  | 28.8  | 7.0  | 550  | 0.25 | 1.0 | 9.9   | 115 |
| 1N5929A | SZ3015 | 15  | 25.0  | 9.0  | 600  | 0.25 | 1.0 | 11.4  | 100 |
| 1N5930A | SZ3016 | 16  | 23.4  | 10   | 600  | 0.25 | 1.0 | 12.2  | 93  |
| 1N5931A | SZ3018 | 18  | 20.8  | 12   | 650  | 0.25 | 1.0 | 13.7  | 83  |
| 1N5932A | SZ3020 | 20  | 18.7  | 14   | 650  | 0.25 | 1.0 | 15.2  | 75  |
| 1N5933A | SZ3022 | 22  | 17.0  | 17.5 | 650  | 0.25 | 1.0 | 16.7  | 68  |
| 1N5934A | SZ3024 | 24  | 15.6  | 19   | 700  | 0.25 | 1.0 | 18.2  | 62  |
| 1N5935A | SZ3027 | 27  | 13.9  | 23   | 700  | 0.25 | 1.0 | 20.6  | 55  |
| 1N5936A | SZ3030 | 30  | 12.5  | 26   | 750  | 0.25 | 1.0 | 22.8  | 50  |
| 1N5937A | SZ3033 | 33  | 11.4  | 33   | 800  | 0.25 | 1.0 | 25.1  | 45  |
| 1N5938A | SZ3036 | 36  | 10.4  | 38   | 850  | 0.25 | 1.0 | 27.4  | 41  |
| 1N5939A | SZ3039 | 39  | 9.6   | 45   | 900  | 0.25 | 1.0 | 29.7  | 38  |
| 1N5940A | SZ3043 | 43  | 8.7   | 53   | 950  | 0.25 | 1.0 | 32.7  | 34  |
| 1N5941A | SZ3047 | 47  | 8.0   | 67   | 1000 | 0.25 | 1.0 | 35.8  | 31  |
| 1N5942A | SZ3051 | 51  | 7.3   | 70   | 1100 | 0.25 | 1.0 | 38.8  | 29  |
| 1N5943A | SZ3056 | 56  | 6.7   | 86   | 1300 | 0.25 | 1.0 | 42.6  | 26  |
| 1N5944A | SZ3062 | 62  | 6.0   | 100  | 1500 | 0.25 | 1.0 | 47.1  | 24  |
| 1N5945A | SZ3068 | 68  | 5.5   | 120  | 1700 | 0.25 | 1.0 | 51.7  | 22  |
| 1N5946A | SZ3075 | 75  | 5.0   | 140  | 2000 | 0.25 | 1.0 | 56.0  | 20  |
| 1N5947A | SZ3082 | 82  | 4.6   | 160  | 2500 | 0.25 | 1.0 | 62.2  | 18  |
| 1N5948A | SZ3091 | 91  | 4.1   | 200  | 3000 | 0.25 | 1.0 | 69.2  | 16  |
| 1N5949A | SZ30B0 | 100 | 3.7   | 250  | 3100 | 0.25 | 1.0 | 76.0  | 15  |
| 1N5950A | SZ30B1 | 110 | 3.4   | 300  | 4000 | 0.25 | 1.0 | 83.6  | 13  |
| 1N5951A | SZ30B2 | 120 | 3.1   | 380  | 4500 | 0.25 | 1.0 | 91.2  | 12  |
| 1N5952A | SZ30B3 | 130 | 2.9   | 450  | 5000 | 0.25 | 1.0 | 98.8  | 11  |
| 1N5953A | SZ30B5 | 150 | 2.5   | 600  | 6000 | 0.25 | 1.0 | 114.0 | 10  |
| 1N5954A | SZ30B6 | 160 | 2.3   | 700  | 6500 | 0.25 | 1.0 | 121.6 | 9.0 |
| 1N5955A | SZ30B8 | 180 | 2.1   | 900  | 7000 | 0.25 | 1.0 | 136.8 | 8.0 |
| 1N5956A | SZ30D0 | 200 | 1.9   | 1200 | 8000 | 0.25 | 1.0 | 152.0 | 7.0 |

#### Notes :

- (1) V<sub>F</sub> = 1.5 Vmax. @ I<sub>F</sub> = 200mA
- (2) Suffix "A" is for ± 10% tolerance. Use suffix "B" for ± 5% tolerance (Axial lead) / replace the fourth digit of type from "0" for ± 10% tolerance to "5" for ± 5% tolerance (SMD)
- (3) "SZ" for SMD will be omitted on marking of the diode.



## Zener Diodes 3.0 W

The plastic material carries U/L recognition 94V-0.

| Type No.   | Nominal Zener Voltage            |                 | Maximum Zener Impedance           |                                   |                 | Maximum Reverse Leakage Current |     | Maximum DC Zener Current |
|------------|----------------------------------|-----------------|-----------------------------------|-----------------------------------|-----------------|---------------------------------|-----|--------------------------|
|            | V <sub>Z</sub> @ I <sub>ZT</sub> | I <sub>ZT</sub> | Z <sub>ZT</sub> @ I <sub>ZT</sub> | Z <sub>ZK</sub> @ I <sub>ZK</sub> | I <sub>ZK</sub> | I <sub>R</sub> @ V <sub>R</sub> |     | I <sub>ZM</sub>          |
| Axial Lead | (V)                              | (mA)            | (Ω)                               | (Ω)                               | (mA)            | (μA)                            | (V) | (mA)                     |

### 1SMB5913A Series, 3.0W, Case Type : SMB



|           |     |       |      |      |      |     |       |     |
|-----------|-----|-------|------|------|------|-----|-------|-----|
| 1SMB5913A | 3.3 | 113.6 | 10.0 | 500  | 1.0  | 100 | 1.0   | 454 |
| 1SMB5914A | 3.6 | 104.2 | 9.0  | 500  | 1.0  | 75  | 1.0   | 416 |
| 1SMB5915A | 3.9 | 96.1  | 7.5  | 500  | 1.0  | 25  | 1.0   | 384 |
| 1SMB5916A | 4.3 | 87.2  | 6.0  | 500  | 1.0  | 5.0 | 1.0   | 348 |
| 1SMB5917A | 4.7 | 79.8  | 5.0  | 500  | 1.0  | 5.0 | 1.5   | 319 |
| 1SMB5918A | 5.1 | 73.5  | 4.0  | 350  | 1.0  | 5.0 | 2.0   | 294 |
| 1SMB5919A | 5.6 | 66.9  | 2.0  | 250  | 1.0  | 5.0 | 3.0   | 267 |
| 1SMB5920A | 6.2 | 60.5  | 2.0  | 200  | 1.0  | 5.0 | 4.0   | 241 |
| 1SMB5921A | 6.8 | 55.1  | 2.5  | 200  | 1.0  | 5.0 | 5.2   | 220 |
| 1SMB5922A | 7.5 | 50.0  | 3.0  | 400  | 0.5  | 5.0 | 6.0   | 200 |
| 1SMB5923A | 8.2 | 45.7  | 3.5  | 400  | 0.5  | 5.0 | 6.5   | 182 |
| 1SMB5924A | 9.1 | 41.2  | 4.0  | 500  | 0.5  | 5.0 | 7.0   | 164 |
| 1SMB5925A | 10  | 37.5  | 4.5  | 500  | 0.25 | 5.0 | 8.0   | 150 |
| 1SMB5926A | 11  | 34.1  | 5.5  | 550  | 0.25 | 1.0 | 8.4   | 136 |
| 1SMB5927A | 12  | 31.2  | 6.5  | 550  | 0.25 | 1.0 | 9.1   | 125 |
| 1SMB5928A | 13  | 28.8  | 7.0  | 550  | 0.25 | 1.0 | 9.9   | 115 |
| 1SMB5929A | 15  | 25.0  | 9.0  | 600  | 0.25 | 1.0 | 11.4  | 100 |
| 1SMB5930A | 16  | 23.4  | 10   | 600  | 0.25 | 1.0 | 12.2  | 93  |
| 1SMB5931A | 18  | 20.8  | 12   | 650  | 0.25 | 1.0 | 13.7  | 83  |
| 1SMB5932A | 20  | 18.7  | 14   | 650  | 0.25 | 1.0 | 15.2  | 75  |
| 1SMB5933A | 22  | 17.0  | 17.5 | 650  | 0.25 | 1.0 | 16.7  | 68  |
| 1SMB5934A | 24  | 15.6  | 19   | 700  | 0.25 | 1.0 | 18.2  | 62  |
| 1SMB5935A | 27  | 13.9  | 23   | 700  | 0.25 | 1.0 | 20.6  | 55  |
| 1SMB5936A | 30  | 12.5  | 26   | 750  | 0.25 | 1.0 | 22.8  | 50  |
| 1SMB5937A | 33  | 11.4  | 33   | 800  | 0.25 | 1.0 | 25.1  | 45  |
| 1SMB5938A | 36  | 10.4  | 38   | 850  | 0.25 | 1.0 | 27.4  | 41  |
| 1SMB5939A | 39  | 9.6   | 45   | 900  | 0.25 | 1.0 | 29.7  | 38  |
| 1SMB5940A | 43  | 8.7   | 53   | 950  | 0.25 | 1.0 | 32.7  | 34  |
| 1SMB5941A | 47  | 8.0   | 67   | 1000 | 0.25 | 1.0 | 35.8  | 31  |
| 1SMB5942A | 51  | 7.3   | 70   | 1100 | 0.25 | 1.0 | 38.8  | 29  |
| 1SMB5943A | 56  | 6.7   | 86   | 1300 | 0.25 | 1.0 | 42.6  | 26  |
| 1SMB5944A | 62  | 6.0   | 100  | 1500 | 0.25 | 1.0 | 47.1  | 24  |
| 1SMB5945A | 68  | 5.5   | 120  | 1700 | 0.25 | 1.0 | 51.7  | 22  |
| 1SMB5946A | 75  | 5.0   | 140  | 2000 | 0.25 | 1.0 | 56.0  | 20  |
| 1SMB5947A | 82  | 4.6   | 160  | 2500 | 0.25 | 1.0 | 62.2  | 18  |
| 1SMB5948A | 91  | 4.1   | 200  | 3000 | 0.25 | 1.0 | 69.2  | 16  |
| 1SMB5949A | 100 | 3.7   | 250  | 3100 | 0.25 | 1.0 | 76.0  | 15  |
| 1SMB5950A | 110 | 3.4   | 300  | 4000 | 0.25 | 1.0 | 83.6  | 13  |
| 1SMB5951A | 120 | 3.1   | 380  | 4500 | 0.25 | 1.0 | 91.2  | 12  |
| 1SMB5952A | 130 | 2.9   | 450  | 5000 | 0.25 | 1.0 | 98.8  | 11  |
| 1SMB5953A | 150 | 2.5   | 600  | 6000 | 0.25 | 1.0 | 114.0 | 10  |
| 1SMB5954A | 160 | 2.3   | 700  | 6500 | 0.25 | 1.0 | 121.6 | 9.0 |
| 1SMB5955A | 180 | 2.1   | 900  | 7000 | 0.25 | 1.0 | 136.8 | 8.0 |
| 1SMB5956A | 200 | 1.9   | 1200 | 8000 | 0.25 | 1.0 | 152.0 | 7.0 |

#### Notes :

- (1) V<sub>F</sub> = 1.5 Vmax. @ I<sub>F</sub> = 200mA
- (2) Suffix "A" is for ± 10% tolerance. Use suffix "B" for ± 5% tolerance.
- (3) "SMB59" for SMD will be omitted on marking of the diode.



# Zener Diodes 3.0 W

The plastic material carries U/L recognition 94V-0.

| Type No.   |     | Nominal Zener Voltage            |                 | Maximum Zener Impedance           |                                   |                 | Maximum Reverse Leakage Current |     | Maximum DC Zener Current |
|------------|-----|----------------------------------|-----------------|-----------------------------------|-----------------------------------|-----------------|---------------------------------|-----|--------------------------|
|            |     | V <sub>Z</sub> @ I <sub>ZT</sub> | I <sub>ZT</sub> | Z <sub>ZT</sub> @ I <sub>ZT</sub> | Z <sub>ZK</sub> @ I <sub>ZK</sub> | I <sub>ZK</sub> | I <sub>R</sub> @ V <sub>R</sub> |     | I <sub>ZM</sub>          |
| Axial Lead | SMD | (V)                              | (mA)            | (Ω)                               | (Ω)                               | (mA)            | (μA)                            | (V) | (mA)                     |

## 3EZ / SZ55 Series, 3.0 W, Case Type : DO-41/SMA

|          |        |     |     |     |      |      |     |       |     |
|----------|--------|-----|-----|-----|------|------|-----|-------|-----|
| 3EZ3.9D5 | SZ553J | 3.9 | 192 | 4.5 | 400  | 1.0  | 80  | 1.0   | 630 |
| 3EZ4.3D5 | SZ554D | 4.3 | 174 | 4.5 | 400  | 1.0  | 30  | 1.0   | 590 |
| 3EZ4.7D5 | SZ554H | 4.7 | 160 | 4.0 | 500  | 1.0  | 20  | 1.0   | 550 |
| 3EZ5.1D5 | SZ555B | 5.1 | 147 | 3.5 | 550  | 1.0  | 5.0 | 1.0   | 520 |
| 3EZ5.6D5 | SZ555G | 5.6 | 134 | 2.5 | 600  | 1.0  | 5.0 | 2.0   | 480 |
| 3EZ6.2D5 | SZ556C | 6.2 | 121 | 1.5 | 700  | 1.0  | 5.0 | 3.0   | 435 |
| 3EZ6.8D5 | SZ556I | 6.8 | 110 | 2.0 | 700  | 1.0  | 5.0 | 4.0   | 393 |
| 3EZ7.5D5 | SZ557F | 7.5 | 100 | 2.0 | 700  | 0.5  | 5.0 | 5.0   | 360 |
| 3EZ8.2D5 | SZ558C | 8.2 | 91  | 2.3 | 700  | 0.5  | 5.0 | 6.0   | 330 |
| 3EZ9.1D5 | SZ559B | 9.1 | 82  | 2.5 | 700  | 0.5  | 5.0 | 7.0   | 297 |
| 3EZ10D5  | SZ5510 | 10  | 75  | 3.5 | 700  | 0.25 | 3.0 | 7.6   | 270 |
| 3EZ11D5  | SZ5511 | 11  | 68  | 4.0 | 700  | 0.25 | 3.0 | 8.4   | 225 |
| 3EZ12D5  | SZ5512 | 12  | 63  | 4.5 | 700  | 0.25 | 1.0 | 9.1   | 246 |
| 3EZ13D5  | SZ5513 | 13  | 58  | 4.5 | 700  | 0.25 | 0.5 | 9.9   | 208 |
| 3EZ14D5  | SZ5514 | 14  | 53  | 5.0 | 700  | 0.25 | 0.5 | 10.6  | 193 |
| 3EZ15D5  | SZ5515 | 15  | 50  | 5.5 | 700  | 0.25 | 0.5 | 11.4  | 180 |
| 3EZ16D5  | SZ5516 | 16  | 47  | 5.5 | 700  | 0.25 | 0.5 | 12.2  | 169 |
| 3EZ17D5  | SZ5517 | 17  | 44  | 6.0 | 750  | 0.25 | 0.5 | 13.0  | 159 |
| 3EZ18D5  | SZ5518 | 18  | 42  | 6.0 | 750  | 0.25 | 0.5 | 13.7  | 150 |
| 3EZ19D5  | SZ5519 | 19  | 40  | 7.0 | 750  | 0.25 | 0.5 | 14.4  | 142 |
| 3EZ20D5  | SZ5520 | 20  | 37  | 7.0 | 750  | 0.25 | 0.5 | 15.2  | 135 |
| 3EZ22D5  | SZ5522 | 22  | 34  | 8.0 | 750  | 0.25 | 0.5 | 16.7  | 123 |
| 3EZ24D5  | SZ5524 | 24  | 31  | 9.0 | 750  | 0.25 | 0.5 | 18.2  | 112 |
| 3EZ27D5  | SZ5527 | 27  | 28  | 10  | 750  | 0.25 | 0.5 | 20.6  | 100 |
| 3EZ28D5  | SZ5528 | 28  | 27  | 12  | 750  | 0.25 | 0.5 | 21.0  | 96  |
| 3EZ30D5  | SZ5530 | 30  | 25  | 16  | 1000 | 0.25 | 0.5 | 22.5  | 90  |
| 3EZ33D5  | SZ5533 | 33  | 23  | 20  | 1000 | 0.25 | 0.5 | 25.1  | 82  |
| 3EZ36D5  | SZ5536 | 36  | 21  | 22  | 1000 | 0.25 | 0.5 | 27.4  | 75  |
| 3EZ39D5  | SZ5539 | 39  | 19  | 28  | 1000 | 0.25 | 0.5 | 29.7  | 69  |
| 3EZ43D5  | SZ5543 | 43  | 17  | 33  | 1500 | 0.25 | 0.5 | 32.7  | 63  |
| 3EZ47D5  | SZ5547 | 47  | 16  | 38  | 1500 | 0.25 | 0.5 | 35.6  | 57  |
| 3EZ51D5  | SZ5551 | 51  | 15  | 45  | 1500 | 0.25 | 0.5 | 38.8  | 53  |
| 3EZ56D5  | SZ5556 | 56  | 13  | 50  | 2000 | 0.25 | 0.5 | 42.6  | 48  |
| 3EZ62D5  | SZ5562 | 62  | 12  | 55  | 2000 | 0.25 | 0.5 | 47.1  | 44  |
| 3EZ68D5  | SZ5568 | 68  | 11  | 70  | 2000 | 0.25 | 0.5 | 51.7  | 40  |
| 3EZ75D5  | SZ5575 | 75  | 10  | 85  | 2000 | 0.25 | 0.5 | 56.0  | 36  |
| 3EZ82D5  | SZ5582 | 82  | 9.1 | 95  | 3000 | 0.25 | 0.5 | 62.2  | 33  |
| 3EZ91D5  | SZ5591 | 91  | 8.2 | 115 | 3000 | 0.25 | 0.5 | 69.2  | 30  |
| 3EZ100D5 | SZ55B0 | 100 | 7.5 | 160 | 3000 | 0.25 | 0.5 | 76.0  | 27  |
| 3EZ110D5 | SZ55B1 | 110 | 6.8 | 225 | 4000 | 0.25 | 0.5 | 83.6  | 25  |
| 3EZ120D5 | SZ55B2 | 120 | 6.3 | 300 | 4500 | 0.25 | 0.5 | 91.2  | 22  |
| 3EZ130D5 | SZ55B3 | 130 | 5.8 | 375 | 5000 | 0.25 | 0.5 | 98.8  | 21  |
| 3EZ140D5 | SZ55B4 | 140 | 5.3 | 475 | 5000 | 0.25 | 0.5 | 106.4 | 19  |
| 3EZ150D5 | SZ55B5 | 150 | 5.0 | 550 | 6000 | 0.25 | 0.5 | 114.0 | 18  |
| 3EZ160D5 | SZ55B6 | 160 | 4.7 | 625 | 6500 | 0.25 | 0.5 | 121.6 | 17  |
| 3EZ170D5 | SZ55B7 | 170 | 4.4 | 650 | 7000 | 0.25 | 0.5 | 130.4 | 16  |
| 3EZ180D5 | SZ55B8 | 180 | 4.2 | 700 | 7000 | 0.25 | 0.5 | 136.8 | 15  |
| 3EZ190D5 | SZ55B9 | 190 | 4.0 | 800 | 8000 | 0.25 | 0.5 | 144.8 | 14  |
| 3EZ200D5 | SZ55D0 | 200 | 3.7 | 875 | 8000 | 0.25 | 0.5 | 152.0 | 13  |

### Notes :

- (1) V<sub>F</sub> = 1.5 Vmax. @ I<sub>F</sub> = 200mA.
- (2) Suffix "5" indicates ± 5% tolerance, suffix "10" indicates ± 10% tolerance ( Axial lead ) / replace the fourth digit of type from "0" for ± 10% tolerance to "5" for ± 5% tolerance (SMD)
- (3) " 3EZ " for Axial Lead / "SZ " for SMD will be omitted on marking of the diode



## Zener Diodes 3.0 W

The plastic material carries U/L recognition 94V-0.

| Type No. | Working Voltage |      |      | Test Current | Differential Resistance            |      | Temperature Coefficient      |      | Maximum Reverse Leakage Current |     |
|----------|-----------------|------|------|--------------|------------------------------------|------|------------------------------|------|---------------------------------|-----|
|          | $V_Z @ I_Z$     |      |      | $I_Z$        | $r_{diff}(\Omega) \text{ at } I_Z$ |      | $S_Z (\%/K) \text{ at } I_Z$ |      | $I_R @ V_R$                     |     |
|          | Min.            | Nom. | Max. | (mA)         | Typ.                               | Max. | Min.                         | Max. | ( $\mu A$ )                     | (V) |

### BZG03-C Series, 3 W, Case Type : SMA



|            |      |     |      |     |     |      |      |      |     |     |
|------------|------|-----|------|-----|-----|------|------|------|-----|-----|
| BZG03-C10  | 9.4  | 10  | 10.6 | 50  | 2   | 4    | 0.05 | 0.09 | 7.0 | 7.5 |
| BZG03-C11  | 10.4 | 11  | 11.6 | 50  | 4   | 7    | 0.05 | 0.10 | 4.0 | 8.2 |
| BZG03-C12  | 11.4 | 12  | 12.7 | 50  | 4   | 7    | 0.05 | 0.10 | 3.0 | 9.1 |
| BZG03-C13  | 12.4 | 13  | 14.1 | 50  | 5   | 10   | 0.05 | 0.10 | 2.0 | 10  |
| BZG03-C15  | 13.8 | 15  | 15.6 | 50  | 5   | 10   | 0.05 | 0.10 | 1.0 | 11  |
| BZG03-C16  | 15.3 | 16  | 17.1 | 25  | 6   | 15   | 0.05 | 0.11 | 1.0 | 12  |
| BZG03-C18  | 16.8 | 18  | 19.1 | 25  | 6   | 15   | 0.06 | 0.11 | 1.0 | 13  |
| BZG03-C20  | 18.8 | 20  | 21.2 | 25  | 6   | 15   | 0.06 | 0.11 | 1.0 | 15  |
| BZG03-C22  | 20.8 | 22  | 23.3 | 25  | 6   | 15   | 0.06 | 0.11 | 1.0 | 16  |
| BZG03-C24  | 22.8 | 24  | 25.6 | 25  | 7   | 15   | 0.06 | 0.11 | 1.0 | 18  |
| BZG03-C27  | 25.1 | 27  | 28.9 | 25  | 7   | 15   | 0.06 | 0.11 | 1.0 | 20  |
| BZG03-C30  | 28   | 30  | 32   | 25  | 8   | 15   | 0.06 | 0.11 | 1.0 | 22  |
| BZG03-C33  | 31   | 33  | 35   | 25  | 8   | 15   | 0.06 | 0.11 | 1.0 | 24  |
| BZG03-C36  | 34   | 36  | 38   | 10  | 21  | 40   | 0.06 | 0.11 | 1.0 | 27  |
| BZG03-C39  | 37   | 39  | 41   | 10  | 21  | 40   | 0.06 | 0.11 | 1.0 | 30  |
| BZG03-C43  | 40   | 43  | 46   | 10  | 24  | 45   | 0.07 | 0.12 | 1.0 | 33  |
| BZG03-C47  | 44   | 47  | 50   | 10  | 24  | 45   | 0.07 | 0.12 | 1.0 | 36  |
| BZG03-C51  | 48   | 51  | 54   | 10  | 25  | 60   | 0.07 | 0.12 | 1.0 | 39  |
| BZG03-C56  | 52   | 56  | 60   | 10  | 25  | 60   | 0.07 | 0.12 | 1.0 | 43  |
| BZG03-C62  | 58   | 62  | 66   | 10  | 25  | 80   | 0.08 | 0.13 | 1.0 | 47  |
| BZG03-C68  | 64   | 68  | 72   | 10  | 25  | 80   | 0.08 | 0.13 | 1.0 | 51  |
| BZG03-C75  | 70   | 75  | 79   | 10  | 30  | 100  | 0.08 | 0.13 | 1.0 | 56  |
| BZG03-C82  | 77   | 82  | 87   | 10  | 30  | 100  | 0.08 | 0.13 | 1.0 | 62  |
| BZG03-C91  | 85   | 91  | 96   | 5.0 | 60  | 200  | 0.09 | 0.13 | 1.0 | 68  |
| BZG03-C100 | 94   | 100 | 106  | 5.0 | 60  | 200  | 0.09 | 0.13 | 1.0 | 75  |
| BZG03-C110 | 104  | 110 | 116  | 5.0 | 80  | 250  | 0.09 | 0.13 | 1.0 | 82  |
| BZG03-C120 | 114  | 120 | 127  | 5.0 | 80  | 250  | 0.09 | 0.13 | 1.0 | 91  |
| BZG03-C130 | 124  | 130 | 141  | 5.0 | 110 | 300  | 0.09 | 0.13 | 1.0 | 100 |
| BZG03-C150 | 138  | 150 | 156  | 5.0 | 130 | 300  | 0.09 | 0.13 | 1.0 | 110 |
| BZG03-C160 | 153  | 160 | 171  | 5.0 | 150 | 350  | 0.09 | 0.13 | 1.0 | 120 |
| BZG03-C180 | 168  | 180 | 191  | 5.0 | 180 | 400  | 0.09 | 0.13 | 1.0 | 130 |
| BZG03-C200 | 188  | 200 | 212  | 5.0 | 200 | 500  | 0.09 | 0.13 | 1.0 | 150 |
| BZG03-C220 | 208  | 220 | 233  | 2.0 | 350 | 750  | 0.09 | 0.13 | 1.0 | 160 |
| BZG03-C240 | 228  | 240 | 256  | 2.0 | 400 | 850  | 0.09 | 0.13 | 1.0 | 180 |
| BZG03-C270 | 251  | 270 | 289  | 2.0 | 450 | 1000 | 0.09 | 0.13 | 1.0 | 200 |

**Note :** (1) "BZG03-" will be omitted in marking on the diode, e.g. p/n BZG03-C10 marking "C10".



## Zener Diodes 3.0 W

The plastic material carries U/L recognition 94V-0.

| Type No. | Standoff Voltage |                     | Min. Breakdown Voltage             |    | T <sub>KVZ</sub> @ I <sub>R</sub> |     | Max. Clamping Voltage                |                   | Typical Junction Capacitance     |
|----------|------------------|---------------------|------------------------------------|----|-----------------------------------|-----|--------------------------------------|-------------------|----------------------------------|
|          | V <sub>R</sub>   | I <sub>R(max)</sub> | V <sub>(BR)</sub> @ I <sub>R</sub> |    | (% / K)                           |     | V <sub>CL(R)</sub> @ I <sub>PP</sub> | @ I <sub>ZT</sub> | @ V <sub>R</sub> = 0 V, f = 1MHz |
|          | V                | ( $\mu$ A)          | V                                  | mA | typ                               | Max | V <sup>(1)</sup>                     | A <sup>(1)</sup>  | C <sub>J</sub> (pF)              |

### BZG04- Series, 3 W, Case Type : SMA



|           |     |    |      |    |      |      |       |      |      |
|-----------|-----|----|------|----|------|------|-------|------|------|
| BZG04-8V2 | 8.2 | 20 | 9.4  | 50 | 0.05 | 0.09 | 14.8  | 20.3 | 1200 |
| BZG04-9V1 | 9.1 | 5  | 10.4 | 50 | 0.05 | 0.10 | 15.7  | 19.1 | 1100 |
| BZG04-10  | 10  | 5  | 11.4 | 50 | 0.05 | 0.10 | 17.0  | 17.7 | 1000 |
| BZG04-11  | 11  | 5  | 12.4 | 50 | 0.05 | 0.10 | 18.9  | 15.9 | 850  |
| BZG04-12  | 12  | 5  | 13.8 | 50 | 0.05 | 0.11 | 20.9  | 14.4 | 815  |
| BZG04-13  | 13  | 5  | 15.3 | 25 | 0.06 | 0.11 | 22.9  | 13.1 | 785  |
| BZG04-15  | 15  | 5  | 16.8 | 25 | 0.06 | 0.11 | 25.6  | 11.7 | 710  |
| BZG04-16  | 16  | 5  | 18.8 | 25 | 0.06 | 0.11 | 28.4  | 10.6 | 655  |
| BZG04-18  | 18  | 5  | 20.8 | 25 | 0.06 | 0.11 | 31.0  | 9.7  | 610  |
| BZG04-20  | 20  | 5  | 22.8 | 25 | 0.06 | 0.11 | 33.8  | 8.9  | 570  |
| BZG04-22  | 22  | 5  | 25.1 | 25 | 0.06 | 0.11 | 38.1  | 7.9  | 545  |
| BZG04-24  | 24  | 5  | 28   | 25 | 0.06 | 0.11 | 42.2  | 7.1  | 505  |
| BZG04-27  | 27  | 5  | 31   | 25 | 0.06 | 0.11 | 46.2  | 6.5  | 475  |
| BZG04-30  | 30  | 5  | 34   | 10 | 0.06 | 0.11 | 50.1  | 6.0  | 450  |
| BZG04-33  | 33  | 5  | 37   | 10 | 0.06 | 0.11 | 54.1  | 5.5  | 420  |
| BZG04-36  | 36  | 5  | 40   | 10 | 0.07 | 0.12 | 60.7  | 4.9  | 390  |
| BZG04-39  | 39  | 5  | 44   | 10 | 0.07 | 0.12 | 65.5  | 4.6  | 370  |
| BZG04-43  | 43  | 5  | 48   | 10 | 0.07 | 0.12 | 70.8  | 4.2  | 350  |
| BZG04-47  | 47  | 5  | 52   | 10 | 0.07 | 0.12 | 78.6  | 3.8  | 330  |
| BZG04-51  | 51  | 5  | 58   | 10 | 0.08 | 0.13 | 86.5  | 3.5  | 310  |
| BZG04-56  | 56  | 5  | 64   | 10 | 0.08 | 0.13 | 94.4  | 3.2  | 291  |
| BZG04-62  | 62  | 5  | 70   | 10 | 0.08 | 0.13 | 103.5 | 2.9  | 280  |
| BZG04-68  | 68  | 5  | 77   | 10 | 0.08 | 0.13 | 114   | 2.6  | 275  |
| BZG04-75  | 75  | 5  | 85   | 5  | 0.09 | 0.13 | 126   | 2.4  | 260  |
| BZG04-82  | 82  | 5  | 94   | 5  | 0.09 | 0.13 | 139   | 2.2  | 250  |
| BZG04-91  | 91  | 5  | 104  | 5  | 0.09 | 0.13 | 152   | 2.0  | 243  |
| BZG04-100 | 100 | 5  | 114  | 5  | 0.09 | 0.13 | 167   | 1.8  | 170  |
| BZG04-110 | 110 | 5  | 124  | 5  | 0.09 | 0.13 | 185   | 1.6  | 153  |
| BZG04-120 | 120 | 5  | 138  | 5  | 0.09 | 0.13 | 204   | 1.5  | 150  |
| BZG04-130 | 130 | 5  | 153  | 5  | 0.09 | 0.13 | 224   | 1.3  | 145  |
| BZG04-150 | 150 | 5  | 168  | 5  | 0.09 | 0.13 | 249   | 1.2  | 140  |
| BZG04-160 | 160 | 5  | 188  | 5  | 0.09 | 0.13 | 276   | 1.1  | 135  |
| BZG04-180 | 180 | 5  | 208  | 2  | 0.09 | 0.13 | 305   | 1.0  | 131  |
| BZG04-200 | 200 | 5  | 228  | 2  | 0.09 | 0.13 | 336   | 0.9  | 122  |
| BZG04-220 | 220 | 5  | 251  | 2  | 0.09 | 0.13 | 380   | 0.8  | 120  |

Note : (1) "BZG0 - " will be omitted in marking on the diode, e.g. p/n BZG04-8V2 marking "48V2".



## Zener Diodes 3.0 W

The plastic material carries U/L recognition 94V-0.

| Type No. | Zener Voltage                    |     |     | Test Current    | Maximum Dynamic Resistance |                   | Test Current    | Temp. coefficient of Zener Voltage |     | Maximum Reverse Leakage Current |                  |
|----------|----------------------------------|-----|-----|-----------------|----------------------------|-------------------|-----------------|------------------------------------|-----|---------------------------------|------------------|
|          | V <sub>Z</sub> @ I <sub>ZT</sub> |     |     |                 | r <sub>zT</sub> @          | r <sub>zK</sub> @ |                 | @I <sub>ZT</sub>                   |     |                                 |                  |
|          | Min                              | typ | Max | I <sub>ZT</sub> | I <sub>ZK</sub>            | I <sub>ZK</sub>   | I <sub>ZK</sub> | (% / K)                            |     | I <sub>R</sub>                  | @ V <sub>R</sub> |
|          | (V)                              | (V) | (V) | (mA)            | (Ω)                        | (Ω)               | (mA)            | Min                                | Max | (μA)                            | (V)              |

### BZG05C Series, 3 W, Case Type : SMA



|           |      |     |      |     |     |      |      |       |       |     |     |
|-----------|------|-----|------|-----|-----|------|------|-------|-------|-----|-----|
| BZG05C3V3 | 3.1  | 3.3 | 3.5  | 80  | 20  | 400  | 1.0  | -0.08 | 0.05  | 40  | 1.0 |
| BZG05C3V6 | 3.4  | 3.6 | 3.8  | 60  | 20  | 500  | 1.0  | -0.08 | -0.05 | 20  | 1.0 |
| BZG05C3V9 | 3.7  | 3.9 | 4.1  | 60  | 15  | 500  | 1.0  | -0.07 | -0.02 | 10  | 1.0 |
| BZG05C4V3 | 4.0  | 4.3 | 4.6  | 50  | 13  | 500  | 1.0  | -0.07 | -0.01 | 3.0 | 1.0 |
| BZG05C4V7 | 4.4  | 4.7 | 5.0  | 45  | 13  | 600  | 1.0  | -0.03 | 0.040 | 3.0 | 1.0 |
| BZG05C5V1 | 4.8  | 5.1 | 5.4  | 45  | 10  | 500  | 1.0  | -0.01 | 0.040 | 1.0 | 1.5 |
| BZG05C5V6 | 5.2  | 5.6 | 6.0  | 45  | 7.0 | 400  | 1.0  | 0.00  | 0.045 | 1.0 | 2.0 |
| BZG05C6V2 | 5.8  | 6.2 | 6.6  | 35  | 4.0 | 300  | 1.0  | 0.010 | 0.055 | 1.0 | 3.0 |
| BZG05C6V8 | 6.4  | 6.8 | 7.2  | 35  | 3.5 | 300  | 1.0  | 0.015 | 0.060 | 1.0 | 4.0 |
| BZG05C7V5 | 7.0  | 7.5 | 7.9  | 35  | 3.0 | 200  | 0.5  | 0.020 | 0.065 | 1.0 | 4.5 |
| BZG05C8V2 | 7.7  | 8.2 | 8.7  | 25  | 5.0 | 200  | 0.5  | 0.030 | 0.070 | 1.0 | 6.2 |
| BZG05C9V1 | 8.5  | 9.1 | 9.6  | 25  | 5.0 | 200  | 0.5  | 0.035 | 0.075 | 1.0 | 6.8 |
| BZG05C10  | 9.4  | 10  | 10.6 | 25  | 7.0 | 200  | 0.5  | 0.040 | 0.080 | 0.5 | 7.0 |
| BZG05C11  | 10.4 | 11  | 11.6 | 20  | 8.0 | 300  | 0.5  | 0.045 | 0.080 | 0.5 | 8.2 |
| BZG05C12  | 11.4 | 12  | 12.7 | 20  | 9.0 | 350  | 0.5  | 0.045 | 0.085 | 0.5 | 9.1 |
| BZG05C13  | 12.4 | 13  | 14.1 | 20  | 10  | 400  | 0.5  | 0.050 | 0.085 | 0.5 | 10  |
| BZG05C15  | 13.8 | 15  | 15.6 | 15  | 15  | 500  | 0.5  | 0.055 | 0.090 | 0.5 | 11  |
| BZG05C16  | 15.3 | 16  | 17.1 | 15  | 15  | 500  | 0.5  | 0.055 | 0.090 | 0.5 | 12  |
| BZG05C18  | 16.8 | 18  | 19.1 | 15  | 20  | 500  | 0.5  | 0.060 | 0.090 | 0.5 | 13  |
| BZG05C20  | 18.8 | 20  | 21.2 | 10  | 24  | 600  | 0.5  | 0.060 | 0.090 | 0.5 | 15  |
| BZG05C22  | 20.8 | 22  | 23.3 | 10  | 25  | 600  | 0.5  | 0.060 | 0.095 | 0.5 | 16  |
| BZG05C24  | 22.8 | 24  | 25.6 | 10  | 25  | 600  | 0.5  | 0.060 | 0.095 | 0.5 | 18  |
| BZG05C27  | 25.1 | 27  | 28.9 | 8   | 30  | 750  | 0.25 | 0.060 | 0.095 | 0.5 | 20  |
| BZG05C30  | 28   | 30  | 32   | 8   | 30  | 1000 | 0.25 | 0.060 | 0.095 | 0.5 | 22  |
| BZG05C33  | 31   | 33  | 35   | 8   | 35  | 1000 | 0.25 | 0.060 | 0.095 | 0.5 | 24  |
| BZG05C36  | 34   | 36  | 38   | 8   | 40  | 1000 | 0.25 | 0.060 | 0.095 | 0.5 | 27  |
| BZG05C39  | 37   | 39  | 41   | 6   | 50  | 1000 | 0.25 | 0.060 | 0.095 | 0.5 | 30  |
| BZG05C43  | 40   | 43  | 46   | 6   | 50  | 1000 | 0.25 | 0.060 | 0.095 | 0.5 | 33  |
| BZG05C47  | 44   | 47  | 50   | 4   | 90  | 1500 | 0.25 | 0.060 | 0.095 | 0.5 | 36  |
| BZG05C51  | 48   | 51  | 54   | 4   | 115 | 1500 | 0.25 | 0.060 | 0.095 | 0.5 | 39  |
| BZG05C56  | 52   | 56  | 60   | 4   | 120 | 2000 | 0.25 | 0.060 | 0.095 | 0.5 | 43  |
| BZG05C62  | 58   | 62  | 66   | 4   | 125 | 2000 | 0.25 | 0.060 | 0.095 | 0.5 | 47  |
| BZG05C68  | 64   | 68  | 72   | 4   | 130 | 2000 | 0.25 | 0.060 | 0.095 | 0.5 | 51  |
| BZG05C75  | 70   | 75  | 79   | 4   | 135 | 2000 | 0.25 | 0.060 | 0.095 | 0.5 | 56  |
| BZG05C82  | 77   | 82  | 87   | 2.7 | 200 | 3000 | 0.25 | 0.060 | 0.095 | 0.5 | 62  |
| BZG05C91  | 85   | 91  | 96   | 2.7 | 250 | 3000 | 0.25 | 0.060 | 0.095 | 0.5 | 68  |
| BZG05C100 | 95   | 100 | 106  | 2.7 | 350 | 3000 | 0.25 | 0.060 | 0.095 | 0.5 | 75  |

Note : (1) "BZG0 C " will be omitted in marking on the diode, e.g. p/n BZG05C3V3 marking "53V3".



# Zener Diodes 5.0 W

The plastic material carries U/L recognition 94V-0.

| Type No.   |     | Nominal Zener Voltage            |                 | Maximum Zener Impedance           |                                   |                 | Maximum Reverse Leakage Current     |            |            | Maximum DC. Zener Current |
|------------|-----|----------------------------------|-----------------|-----------------------------------|-----------------------------------|-----------------|-------------------------------------|------------|------------|---------------------------|
|            |     | V <sub>Z</sub> @ I <sub>ZT</sub> | I <sub>ZT</sub> | Z <sub>zT</sub> @ I <sub>ZT</sub> | Z <sub>zK</sub> @ I <sub>zK</sub> | I <sub>zK</sub> | I <sub>R</sub> @ V <sub>R</sub> (V) |            |            | I <sub>zM</sub>           |
| Axial Lead | SMD | (V)                              | (mA)            | (Ω)                               | (Ω)                               | (mA)            | (μA)                                | Suffix "A" | Suffix "B" | (mA)                      |

## 1N5333A/SZ60 Series, 5 W, Case Type : DO-15/SMB

|         |        |     |     |     |      |     |     |      |      |      |
|---------|--------|-----|-----|-----|------|-----|-----|------|------|------|
| 1N5338A | SZ605B | 5.1 | 240 | 1.5 | 400  | 1.0 | 1.0 | 1.0  | 1.0  | 930  |
| 1N5339A | SZ605G | 5.6 | 220 | 1.0 | 400  | 1.0 | 1.0 | 2.0  | 2.0  | 856  |
| 1N5340A | SZ606A | 6.0 | 200 | 1.0 | 300  | 1.0 | 1.0 | 3.0  | 3.0  | 790  |
| 1N5341A | SZ606C | 6.2 | 200 | 1.0 | 200  | 1.0 | 1.0 | 3.0  | 3.0  | 765  |
| 1N5342A | SZ606I | 6.8 | 175 | 1.0 | 200  | 1.0 | 10  | 4.9  | 5.2  | 700  |
| 1N5343A | SZ607F | 7.5 | 175 | 1.5 | 200  | 1.0 | 10  | 5.4  | 5.7  | 630  |
| 1N5344A | SZ608C | 8.2 | 150 | 1.5 | 200  | 1.0 | 10  | 5.9  | 6.2  | 580  |
| 1N5345A | SZ608H | 8.7 | 150 | 2.0 | 200  | 1.0 | 10  | 6.25 | 6.6  | 545  |
| 1N5346A | SZ609B | 9.1 | 150 | 2.0 | 150  | 1.0 | 7.5 | 6.6  | 6.9  | 520  |
| 1N5347A | SZ6010 | 10  | 125 | 2.0 | 125  | 1.0 | 5.0 | 7.2  | 7.6  | 475  |
| 1N5348A | SZ6011 | 11  | 125 | 2.5 | 125  | 1.0 | 5.0 | 8.0  | 8.4  | 430  |
| 1N5349A | SZ6012 | 12  | 100 | 2.5 | 125  | 1.0 | 2.0 | 8.6  | 9.1  | 395  |
| 1N5350A | SZ6013 | 13  | 100 | 2.5 | 100  | 1.0 | 1.0 | 9.4  | 9.9  | 365  |
| 1N5351A | SZ6014 | 14  | 100 | 2.5 | 75   | 1.0 | 1.0 | 10.1 | 10.6 | 340  |
| 1N5352A | SZ6015 | 15  | 75  | 2.5 | 75   | 1.0 | 1.0 | 10.8 | 11.5 | 315  |
| 1N5353A | SZ6016 | 16  | 75  | 2.5 | 75   | 1.0 | 1.0 | 11.5 | 12.2 | 295  |
| 1N5354A | SZ6017 | 17  | 70  | 2.5 | 75   | 1.0 | 0.5 | 12.2 | 12.9 | 280  |
| 1N5355A | SZ6018 | 18  | 65  | 2.5 | 75   | 1.0 | 0.5 | 13.0 | 13.7 | 265  |
| 1N5356A | SZ6019 | 19  | 65  | 8.0 | 75   | 1.0 | 0.5 | 13.7 | 14.4 | 250  |
| 1N5357A | SZ6020 | 20  | 65  | 3.0 | 75   | 1.0 | 0.5 | 14.4 | 15.2 | 237  |
| 1N5358A | SZ6022 | 22  | 50  | 3.5 | 75   | 1.0 | 0.5 | 15.8 | 16.7 | 216  |
| 1N5359A | SZ6024 | 24  | 50  | 3.5 | 100  | 1.0 | 0.5 | 17.3 | 18.2 | 198  |
| 1N5360A | SZ6025 | 25  | 50  | 4.0 | 110  | 1.0 | 0.5 | 18.0 | 19.0 | 190  |
| 1N5361A | SZ6027 | 27  | 50  | 5.0 | 120  | 1.0 | 0.5 | 19.4 | 20.6 | 176  |
| 1N5362A | SZ6028 | 28  | 50  | 6.0 | 130  | 1.0 | 0.5 | 20.1 | 21.2 | 170  |
| 1N5363A | SZ6030 | 30  | 40  | 8.0 | 140  | 1.0 | 0.5 | 21.6 | 22.8 | 158  |
| 1N5364A | SZ6033 | 33  | 40  | 10  | 150  | 1.0 | 0.5 | 23.8 | 25.1 | 144  |
| 1N5365A | SZ6036 | 36  | 30  | 11  | 160  | 1.0 | 0.5 | 25.9 | 27.4 | 132  |
| 1N5366A | SZ6039 | 39  | 30  | 14  | 170  | 1.0 | 0.5 | 28.1 | 29.7 | 122  |
| 1N5367A | SZ6043 | 43  | 30  | 20  | 190  | 1.0 | 0.5 | 31.0 | 32.7 | 110  |
| 1N5368A | SZ6047 | 47  | 25  | 25  | 210  | 1.0 | 0.5 | 33.8 | 35.8 | 100  |
| 1N5369A | SZ6051 | 51  | 25  | 27  | 230  | 1.0 | 0.5 | 36.7 | 38.8 | 93.0 |
| 1N5370A | SZ6056 | 56  | 20  | 35  | 280  | 1.0 | 0.5 | 40.3 | 42.6 | 86.0 |
| 1N5371A | SZ6060 | 60  | 20  | 40  | 350  | 1.0 | 0.5 | 43.0 | 45.5 | 79.0 |
| 1N5372A | SZ6062 | 62  | 20  | 42  | 400  | 1.0 | 0.5 | 44.6 | 47.1 | 76.0 |
| 1N5373A | SZ6068 | 68  | 20  | 44  | 500  | 1.0 | 0.5 | 49.0 | 51.7 | 70.0 |
| 1N5374A | SZ6075 | 75  | 20  | 45  | 620  | 1.0 | 0.5 | 54.0 | 56.0 | 63.0 |
| 1N5375A | SZ6082 | 82  | 15  | 65  | 720  | 1.0 | 0.5 | 59.0 | 62.2 | 58.0 |
| 1N5376A | SZ6087 | 87  | 15  | 75  | 760  | 1.0 | 0.5 | 63.0 | 66.0 | 54.5 |
| 1N5377A | SZ6091 | 91  | 15  | 75  | 760  | 1.0 | 0.5 | 65.5 | 69.2 | 52.5 |
| 1N5378A | SZ60B0 | 100 | 12  | 90  | 800  | 1.0 | 0.5 | 72.0 | 76.0 | 47.5 |
| 1N5379A | SZ60B1 | 110 | 12  | 125 | 1000 | 1.0 | 0.5 | 79.2 | 83.6 | 43.0 |
| 1N5380A | SZ60B2 | 120 | 10  | 170 | 1150 | 1.0 | 0.5 | 86.4 | 91.2 | 39.5 |
| 1N5381A | SZ60B3 | 130 | 10  | 190 | 1250 | 1.0 | 0.5 | 93.2 | 98.8 | 36.6 |
| 1N5382A | SZ60B4 | 140 | 8.0 | 230 | 1500 | 1.0 | 0.5 | 101  | 106  | 34.0 |
| 1N5383A | SZ60B5 | 150 | 8.0 | 330 | 1500 | 1.0 | 0.5 | 108  | 114  | 31.6 |
| 1N5384A | SZ60B6 | 160 | 8.0 | 350 | 1650 | 1.0 | 0.5 | 115  | 122  | 29.4 |
| 1N5385A | SZ60B7 | 170 | 8.0 | 380 | 1750 | 1.0 | 0.5 | 122  | 129  | 28.0 |
| 1N5386A | SZ60B8 | 180 | 5.0 | 430 | 1750 | 1.0 | 0.5 | 130  | 137  | 26.4 |
| 1N5387A | SZ60B9 | 190 | 5.0 | 450 | 1850 | 1.0 | 0.5 | 137  | 144  | 25.0 |
| 1N5388A | SZ60D0 | 200 | 5.0 | 480 | 1850 | 1.0 | 0.5 | 144  | 152  | 23.6 |

### Notes :

- (1) V<sub>F</sub> = 1.2 Vmax. @ I<sub>F</sub> = 1 A(3.3V to 200V)
- (2) V<sub>F</sub> = 2.0 Vmax. @ I<sub>F</sub> = 1 A(220V to 240V)
- (3) Use suffix "A" for ± 10% tolerance and suffix "B" for ± 5% tolerance (Axial lead) / replace the fourth digit of type from "0" for ± 10% tolerance to "5" for ± 5% tolerance (SMD).
- (4) "SZ" for SMD will be omitted on marking of the diode



## Zener Diodes 5.0 W

The plastic material carries U/L recognition 94V-0.

| Type No. | Nominal Zener Voltage            |                 | Maximum Zener Impedance           |                                   |                 | Maximum Reverse Leakage Current |     | Maximum DC. Zener Current |
|----------|----------------------------------|-----------------|-----------------------------------|-----------------------------------|-----------------|---------------------------------|-----|---------------------------|
|          | V <sub>Z</sub> @ I <sub>ZT</sub> | I <sub>ZT</sub> | Z <sub>ZT</sub> @ I <sub>ZT</sub> | Z <sub>ZK</sub> @ I <sub>ZK</sub> | I <sub>ZK</sub> | I <sub>R</sub> @ V <sub>R</sub> |     | I <sub>ZM</sub>           |
|          | (V)                              | (mA)            | (Ω)                               | (Ω)                               | (mA)            | (μA)                            | (V) | (mA)                      |

### 1N4954 Series, 5 W, Case Type : DO-15



|        |     |     |     |      |     |      |       |      |
|--------|-----|-----|-----|------|-----|------|-------|------|
| 1N4954 | 6.8 | 175 | 1.0 | 1000 | 1.0 | 150  | 5.2   | 29.3 |
| 1N4955 | 7.5 | 175 | 1.5 | 800  | 1.0 | 100  | 5.7   | 26.4 |
| 1N4956 | 8.2 | 150 | 1.5 | 600  | 1.0 | 50   | 6.2   | 24.0 |
| 1N4957 | 9.1 | 150 | 2.0 | 400  | 1.0 | 25   | 6.9   | 22.0 |
| 1N4958 | 10  | 125 | 2.0 | 125  | 1.0 | 25.0 | 7.6   | 20.0 |
| 1N4959 | 11  | 125 | 2.5 | 130  | 1.0 | 10.0 | 8.4   | 19.0 |
| 1N4960 | 12  | 100 | 2.5 | 140  | 1.0 | 10.0 | 9.1   | 18.0 |
| 1N4961 | 13  | 100 | 3.0 | 145  | 1.0 | 10.0 | 9.9   | 16.0 |
| 1N4962 | 15  | 75  | 3.5 | 150  | 1.0 | 5.0  | 11.4  | 12.0 |
| 1N4963 | 16  | 75  | 3.5 | 155  | 1.0 | 5.0  | 12.2  | 10.0 |
| 1N4964 | 18  | 65  | 4.0 | 160  | 1.0 | 5.0  | 13.7  | 9.0  |
| 1N4965 | 20  | 65  | 4.5 | 165  | 1.0 | 2.0  | 15.2  | 8.0  |
| 1N4966 | 22  | 50  | 5.0 | 170  | 1.0 | 2.0  | 16.7  | 7.0  |
| 1N4967 | 24  | 50  | 5.0 | 175  | 1.0 | 2.0  | 18.2  | 6.5  |
| 1N4968 | 27  | 50  | 6.0 | 180  | 1.0 | 2.0  | 20.6  | 6.0  |
| 1N4969 | 30  | 40  | 8.0 | 190  | 1.0 | 2.0  | 22.8  | 5.5  |
| 1N4970 | 33  | 40  | 10  | 200  | 1.0 | 2.0  | 25.1  | 5.0  |
| 1N4971 | 36  | 30  | 11  | 220  | 1.0 | 2.0  | 27.4  | 4.5  |
| 1N4972 | 39  | 30  | 14  | 230  | 1.0 | 2.0  | 29.7  | 4.0  |
| 1N4973 | 43  | 30  | 20  | 240  | 1.0 | 2.0  | 32.7  | 3.5  |
| 1N4974 | 47  | 25  | 25  | 250  | 1.0 | 2.0  | 35.8  | 3.2  |
| 1N4975 | 51  | 25  | 27  | 270  | 1.0 | 2.0  | 38.8  | 3.0  |
| 1N4976 | 56  | 20  | 35  | 320  | 1.0 | 2.0  | 42.6  | 2.8  |
| 1N4977 | 62  | 20  | 42  | 400  | 1.0 | 2.0  | 47.1  | 2.5  |
| 1N4978 | 68  | 20  | 50  | 500  | 1.0 | 2.0  | 51.7  | 2.2  |
| 1N4979 | 75  | 20  | 55  | 620  | 1.0 | 2.0  | 56.0  | 2.0  |
| 1N4980 | 82  | 15  | 80  | 720  | 1.0 | 2.0  | 62.2  | 1.8  |
| 1N4981 | 91  | 15  | 90  | 760  | 1.0 | 2.0  | 69.2  | 1.6  |
| 1N4982 | 100 | 12  | 110 | 800  | 1.0 | 2.0  | 76.0  | 1.4  |
| 1N4983 | 110 | 12  | 125 | 1000 | 1.0 | 2.0  | 83.6  | 1.2  |
| 1N4984 | 120 | 10  | 170 | 1150 | 1.0 | 2.0  | 91.2  | 1.00 |
| 1N4985 | 130 | 10  | 190 | 1250 | 1.0 | 2.0  | 98.8  | 0.80 |
| 1N4986 | 150 | 8   | 330 | 1500 | 1.0 | 2.0  | 114   | 0.75 |
| 1N4987 | 160 | 8   | 350 | 1650 | 1.0 | 2.0  | 121.6 | 0.70 |
| 1N4988 | 180 | 5   | 450 | 1750 | 1.0 | 2.0  | 136.8 | 0.60 |
| 1N4989 | 200 | 5   | 500 | 1850 | 1.0 | 2.0  | 152   | 0.50 |

#### Notes :

- (1) Maximum voltage change  $\Delta V_Z$  between 10% of  $I_{ZM}$  and 50% of  $I_{ZM}$
- (2) Standard voltage tolerance is  $\pm 5\%$



# Zener Diodes 5.0 W

The plastic material carries U/L recognition 94V-0.

| Type No. | Nominal Zener Voltage | Test Current | Maximum Zener Impedance |                   |          | Maximum Reverse Leakage Current |            |            | Maximum DC Zener Current |
|----------|-----------------------|--------------|-------------------------|-------------------|----------|---------------------------------|------------|------------|--------------------------|
|          | $V_Z @ I_{ZT}$        | $I_{ZT}$     | $Z_{ZT} @ I_{ZT}$       | $Z_{ZK} @ I_{ZK}$ | $I_{ZK}$ | $I_R @ V_R (V)$                 |            |            | $I_{ZM}$                 |
|          | (V)                   | (mA)         | ( $\Omega$ )            | ( $\Omega$ )      | (mA)     | ( $\mu A$ )                     | Suffix "A" | Suffix "B" | (mA)                     |

## SMBJ5333A Series, 5 W, Case Type : SMB



|           |     |     |     |      |     |     |      |      |      |
|-----------|-----|-----|-----|------|-----|-----|------|------|------|
| SMBJ5338A | 5.1 | 240 | 1.5 | 400  | 1.0 | 1.0 | 1.0  | 1.0  | 930  |
| SMBJ5339A | 5.6 | 220 | 1.0 | 400  | 1.0 | 1.0 | 2.0  | 2.0  | 856  |
| SMBJ5340A | 6.0 | 200 | 1.0 | 300  | 1.0 | 1.0 | 3.0  | 3.0  | 790  |
| SMBJ5341A | 6.2 | 200 | 1.0 | 200  | 1.0 | 1.0 | 3.0  | 3.0  | 765  |
| SMBJ5342A | 6.8 | 175 | 1.0 | 200  | 1.0 | 10  | 4.9  | 5.2  | 700  |
| SMBJ5343A | 7.5 | 175 | 1.0 | 200  | 1.0 | 10  | 5.4  | 5.7  | 630  |
| SMBJ5344A | 8.2 | 150 | 1.0 | 200  | 1.0 | 10  | 5.9  | 6.2  | 580  |
| SMBJ5345A | 8.7 | 150 | 1.0 | 200  | 1.0 | 10  | 6.25 | 6.6  | 545  |
| SMBJ5346A | 9.1 | 150 | 2.0 | 150  | 1.0 | 7.5 | 6.6  | 6.9  | 520  |
| SMBJ5347A | 10  | 125 | 2.0 | 125  | 1.0 | 5.0 | 7.2  | 7.6  | 475  |
| SMBJ5348A | 11  | 125 | 2.0 | 125  | 1.0 | 5.0 | 8.0  | 8.4  | 430  |
| SMBJ5349A | 12  | 100 | 2.5 | 125  | 1.0 | 2.0 | 8.6  | 9.1  | 395  |
| SMBJ5350A | 13  | 100 | 2.5 | 100  | 1.0 | 1.0 | 9.4  | 9.9  | 365  |
| SMBJ5351A | 14  | 100 | 2.5 | 75   | 1.0 | 1.0 | 10.1 | 10.6 | 340  |
| SMBJ5352A | 15  | 75  | 2.5 | 75   | 1.0 | 1.0 | 10.8 | 11.5 | 315  |
| SMBJ5353A | 16  | 75  | 2.5 | 75   | 1.0 | 1.0 | 11.5 | 12.2 | 295  |
| SMBJ5354A | 17  | 70  | 2.5 | 75   | 1.0 | 0.5 | 12.2 | 12.9 | 280  |
| SMBJ5355A | 18  | 65  | 2.5 | 75   | 1.0 | 0.5 | 13.0 | 13.7 | 265  |
| SMBJ5356A | 19  | 65  | 3.0 | 75   | 1.0 | 0.5 | 13.7 | 14.4 | 250  |
| SMBJ5357A | 20  | 65  | 3.0 | 75   | 1.0 | 0.5 | 14.4 | 15.2 | 237  |
| SMBJ5358A | 22  | 50  | 3.5 | 75   | 1.0 | 0.5 | 15.8 | 16.7 | 216  |
| SMBJ5359A | 24  | 50  | 3.5 | 100  | 1.0 | 0.5 | 17.3 | 18.2 | 198  |
| SMBJ5360A | 25  | 50  | 4.0 | 110  | 1.0 | 0.5 | 18.0 | 19.0 | 190  |
| SMBJ5361A | 27  | 50  | 5.0 | 120  | 1.0 | 0.5 | 19.4 | 20.6 | 176  |
| SMBJ5362A | 28  | 50  | 6.0 | 130  | 1.0 | 0.5 | 20.1 | 21.2 | 170  |
| SMBJ5363A | 30  | 40  | 8.0 | 140  | 1.0 | 0.5 | 21.6 | 22.8 | 158  |
| SMBJ5364A | 33  | 40  | 10  | 150  | 1.0 | 0.5 | 23.8 | 25.1 | 144  |
| SMBJ5365A | 36  | 30  | 11  | 160  | 1.0 | 0.5 | 25.9 | 27.4 | 132  |
| SMBJ5366A | 39  | 30  | 14  | 170  | 1.0 | 0.5 | 28.1 | 29.7 | 122  |
| SMBJ5367A | 43  | 30  | 20  | 190  | 1.0 | 0.5 | 31.0 | 32.7 | 110  |
| SMBJ5368A | 47  | 25  | 25  | 210  | 1.0 | 0.5 | 33.8 | 35.8 | 100  |
| SMBJ5369A | 51  | 25  | 27  | 230  | 1.0 | 0.5 | 36.7 | 38.8 | 93.0 |
| SMBJ5370A | 56  | 20  | 35  | 280  | 1.0 | 0.5 | 40.3 | 42.6 | 86.0 |
| SMBJ5371A | 60  | 20  | 40  | 350  | 1.0 | 0.5 | 43.0 | 45.5 | 79.0 |
| SMBJ5372A | 62  | 20  | 42  | 400  | 1.0 | 0.5 | 44.6 | 47.1 | 76.0 |
| SMBJ5373A | 68  | 20  | 44  | 500  | 1.0 | 0.5 | 49.0 | 51.7 | 70.0 |
| SMBJ5374A | 75  | 20  | 45  | 620  | 1.0 | 0.5 | 54.0 | 56.0 | 63.0 |
| SMBJ5375A | 82  | 15  | 65  | 720  | 1.0 | 0.5 | 59.0 | 62.2 | 58.0 |
| SMBJ5376A | 87  | 15  | 75  | 760  | 1.0 | 0.5 | 63.0 | 66.0 | 54.5 |
| SMBJ5377A | 91  | 15  | 75  | 760  | 1.0 | 0.5 | 65.5 | 69.2 | 52.5 |
| SMBJ5378A | 100 | 12  | 90  | 800  | 1.0 | 0.5 | 72.0 | 76.0 | 47.5 |
| SMBJ5379A | 110 | 12  | 125 | 1000 | 1.0 | 0.5 | 79.2 | 83.6 | 43.0 |
| SMBJ5380A | 120 | 10  | 170 | 1150 | 1.0 | 0.5 | 86.4 | 91.2 | 39.5 |
| SMBJ5381A | 130 | 10  | 190 | 1250 | 1.0 | 0.5 | 93.2 | 98.8 | 36.6 |
| SMBJ5382A | 140 | 8.0 | 230 | 1500 | 1.0 | 0.5 | 101  | 106  | 34.0 |
| SMBJ5383A | 150 | 8.0 | 330 | 1500 | 1.0 | 0.5 | 108  | 114  | 31.6 |
| SMBJ5384A | 160 | 8.0 | 350 | 1650 | 1.0 | 0.5 | 115  | 122  | 29.4 |
| SMBJ5385A | 170 | 8.0 | 380 | 1750 | 1.0 | 0.5 | 122  | 129  | 28.0 |
| SMBJ5386A | 180 | 5.0 | 430 | 1750 | 1.0 | 0.5 | 130  | 137  | 26.4 |
| SMBJ5387A | 190 | 5.0 | 450 | 1850 | 1.0 | 0.5 | 137  | 144  | 25.0 |
| SMBJ5388A | 200 | 5.0 | 480 | 1850 | 1.0 | 0.5 | 144  | 152  | 23.6 |

Note : Suffix "A" indicates  $\pm 10\%$  tolerance, change to suffix "B" for  $\pm 5\%$  tolerance. "SMBJ53" will be omitted on marking of the diode.



# Transient Voltage Suppressor Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.       | Breakdown Voltage @ $I_T$ |      | Working Peak Reverse Voltage | Maximum Reverse Leakage @ $V_{WM}$ | Maximum Peak Pulse Surge Current | Maximum Clamping Voltage @ $I_{PPM}$ |
|----------------|---------------------------|------|------------------------------|------------------------------------|----------------------------------|--------------------------------------|
|                | $V_{BR}$ (V)              |      | $V_{WM}$                     | $I_R$                              | $I_{PPM}$                        | $V_C$                                |
| Unidirectional | Min.                      | Max. | (mA)                         | (V)                                | ( $\mu$ A)                       | (A)                                  |

## TGL34 Series, 150W, Case Type: Mini MELF (Plastic)



|            |      |      |     |      |      |      |      |
|------------|------|------|-----|------|------|------|------|
| TGL34-6.8  | 6.12 | 7.48 | 10  | 5.5  | 1000 | 10.8 | 13.9 |
| TGL34-6.8A | 6.45 | 7.14 | 10  | 5.8  | 1000 | 10.5 | 14.3 |
| TGL34-7.5  | 6.75 | 8.25 | 10  | 6.0  | 500  | 11.7 | 12.8 |
| TGL34-7.5A | 7.13 | 7.88 | 10  | 6.4  | 500  | 11.3 | 13.3 |
| TGL34-8.2  | 7.38 | 9.02 | 10  | 6.6  | 200  | 12.5 | 12.0 |
| TGL34-8.2A | 7.79 | 8.61 | 10  | 7.0  | 200  | 12.1 | 12.4 |
| TGL34-9.1  | 8.19 | 10.0 | 1.0 | 7.3  | 50   | 13.8 | 10.9 |
| TGL34-9.1A | 8.65 | 9.55 | 1.0 | 7.7  | 50   | 13.4 | 11.2 |
| TGL34-10   | 9.0  | 11.0 | 1.0 | 8.1  | 10   | 15.0 | 10.0 |
| TGL34-10A  | 9.5  | 10.5 | 1.0 | 8.5  | 10   | 14.5 | 10.3 |
| TGL34-11   | 9.9  | 12.1 | 1.0 | 8.9  | 5    | 16.2 | 9.3  |
| TGL34-11A  | 10.5 | 11.6 | 1.0 | 9.4  | 5    | 15.6 | 9.6  |
| TGL34-12   | 10.8 | 13.2 | 1.0 | 9.7  | 5    | 17.3 | 8.7  |
| TGL34-12A  | 11.4 | 12.6 | 1.0 | 10.2 | 5    | 16.7 | 9.0  |
| TGL34-13   | 11.7 | 14.3 | 1.0 | 10.5 | 5    | 19.0 | 7.9  |
| TGL34-13A  | 12.4 | 13.7 | 1.0 | 11.1 | 5    | 18.2 | 8.2  |
| TGL34-15   | 13.5 | 16.5 | 1.0 | 12.1 | 5    | 22.0 | 6.8  |
| TGL34-15A  | 14.3 | 15.8 | 1.0 | 12.8 | 5    | 21.2 | 7.1  |
| TGL34-16   | 14.4 | 17.6 | 1.0 | 12.9 | 5    | 23.5 | 6.4  |
| TGL34-16A  | 15.2 | 16.8 | 1.0 | 13.6 | 5    | 22.5 | 6.7  |
| TGL34-18   | 16.2 | 19.8 | 1.0 | 14.5 | 5    | 26.5 | 5.7  |
| TGL34-18A  | 17.1 | 18.9 | 1.0 | 15.3 | 5    | 25.2 | 6.0  |
| TGL34-20   | 18.0 | 22.0 | 1.0 | 16.2 | 5    | 29.1 | 5.2  |
| TGL34-20A  | 19.0 | 21.0 | 1.0 | 17.1 | 5    | 27.7 | 5.4  |
| TGL34-22   | 19.8 | 24.2 | 1.0 | 17.8 | 5    | 31.9 | 4.7  |
| TGL34-22A  | 20.9 | 23.1 | 1.0 | 18.8 | 5    | 30.6 | 4.9  |
| TGL34-24   | 21.6 | 26.4 | 1.0 | 19.4 | 5    | 34.7 | 4.3  |
| TGL34-24A  | 22.8 | 25.2 | 1.0 | 20.5 | 5    | 33.2 | 4.5  |
| TGL34-27   | 24.3 | 29.7 | 1.0 | 21.8 | 5    | 39.1 | 3.8  |
| TGL34-27A  | 25.7 | 28.4 | 1.0 | 23.1 | 5    | 37.5 | 4.0  |
| TGL34-30   | 27.0 | 30.0 | 1.0 | 24.3 | 5    | 43.5 | 3.4  |
| TGL34-30A  | 28.5 | 31.5 | 1.0 | 25.6 | 5    | 41.4 | 3.6  |
| TGL34-33   | 29.7 | 36.3 | 1.0 | 26.8 | 5    | 47.7 | 3.1  |
| TGL34-33A  | 31.4 | 34.7 | 1.0 | 28.2 | 5    | 45.7 | 3.3  |
| TGL34-36   | 32.4 | 39.6 | 1.0 | 29.1 | 5    | 52.0 | 2.9  |
| TGL34-36A  | 34.2 | 37.8 | 1.0 | 30.8 | 5    | 49.9 | 3.0  |
| TGL34-39   | 35.1 | 42.9 | 1.0 | 31.6 | 5    | 56.4 | 2.7  |
| TGL34-39A  | 37.1 | 41.0 | 1.0 | 33.3 | 5    | 53.9 | 2.8  |

Note : (1) For bidirectional use suffix "C" or "CA"



# Transient Voltage Suppressor Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.       | Breakdown Voltage @ $I_T$ |      | Working Peak Reverse Voltage | Maximum Reverse Leakage @ $V_{WM}$ | Maximum Peak Pulse Surge Current | Maximum Clamping Voltage @ $I_{PPM}$ |
|----------------|---------------------------|------|------------------------------|------------------------------------|----------------------------------|--------------------------------------|
|                | $V_{BR}$ (V)              |      | $V_{WM}$                     | $I_R$                              | $I_{PPM}$                        | $V_C$                                |
| Unidirectional | Min.                      | Max. | (mA)                         | (V)                                | ( $\mu$ A)                       | (A)                                  |

## TGL34 Series, 150W, Case Type: Mini MELF (Plastic)



|            |      |      |     |      |   |      |     |
|------------|------|------|-----|------|---|------|-----|
| TGL34-43   | 38.7 | 47.3 | 1.0 | 34.8 | 5 | 61.9 | 2.4 |
| TGL34-43A  | 40.9 | 45.2 | 1.0 | 36.8 | 5 | 59.3 | 2.5 |
| TGL34-47   | 42.3 | 51.7 | 1.0 | 38.1 | 5 | 67.8 | 2.2 |
| TGL34-47A  | 44.7 | 49.4 | 1.0 | 40.2 | 5 | 64.8 | 2.3 |
| TGL34-51   | 45.9 | 56.1 | 1.0 | 41.3 | 5 | 73.5 | 2.0 |
| TGL34-51A  | 48.5 | 53.6 | 1.0 | 43.6 | 5 | 70.1 | 2.1 |
| TGL34-56   | 50.4 | 61.6 | 1.0 | 45.4 | 5 | 81   | 1.9 |
| TGL34-564A | 53.2 | 58.8 | 1.0 | 47.8 | 5 | 77   | 1.9 |
| TGL34-62   | 55.8 | 68.8 | 1.0 | 50.2 | 5 | 89   | 1.7 |
| TGL34-62A  | 58.9 | 65.1 | 1.0 | 53.0 | 5 | 85   | 1.8 |
| TGL34-68   | 61.2 | 74.8 | 1.0 | 55.1 | 5 | 98   | 1.5 |
| TGL34-68A  | 64.6 | 71.4 | 1.0 | 58.1 | 5 | 92   | 1.6 |
| TGL34-75   | 67.5 | 82.5 | 1.0 | 60.7 | 5 | 108  | 1.4 |
| TGL34-75A  | 71.3 | 78.8 | 1.0 | 64.1 | 5 | 103  | 1.5 |
| TGL34-82   | 73.8 | 90.2 | 1.0 | 66.4 | 5 | 118  | 1.3 |
| TGL34-82A  | 77.9 | 86.1 | 1.0 | 70.1 | 5 | 113  | 1.3 |
| TGL34-91   | 81.9 | 100  | 1.0 | 73.7 | 5 | 131  | 1.1 |
| TGL34-91A  | 86.5 | 95.5 | 1.0 | 77.8 | 5 | 125  | 1.2 |
| TGL34-100  | 90   | 110  | 1.0 | 81.0 | 5 | 144  | 1.0 |
| TGL34-100A | 95   | 105  | 1.0 | 85.5 | 5 | 137  | 1.1 |
| TGL34-110  | 99   | 121  | 1.0 | 89.2 | 5 | 158  | 0.9 |
| TGL34-110A | 105  | 116  | 1.0 | 94.0 | 5 | 152  | 1.0 |
| TGL34-120  | 108  | 132  | 1.0 | 97.2 | 5 | 173  | 0.9 |
| TGL34-120A | 114  | 126  | 1.0 | 102  | 5 | 165  | 0.9 |
| TGL34-130  | 117  | 143  | 1.0 | 105  | 5 | 187  | 0.8 |
| TGL34-130A | 124  | 137  | 1.0 | 111  | 5 | 179  | 0.8 |
| TGL34-150  | 135  | 165  | 1.0 | 121  | 5 | 215  | 0.7 |
| TGL34-150A | 143  | 158  | 1.0 | 128  | 5 | 207  | 0.7 |
| TGL34-160  | 144  | 176  | 1.0 | 130  | 5 | 230  | 0.7 |
| TGL34-160A | 152  | 168  | 1.0 | 136  | 5 | 219  | 0.7 |
| TGL34-170  | 153  | 187  | 1.0 | 138  | 5 | 244  | 0.6 |
| TGL34-170A | 162  | 179  | 1.0 | 145  | 5 | 234  | 0.6 |
| TGL34-180  | 162  | 198  | 1.0 | 146  | 5 | 258  | 0.6 |
| TGL34-180A | 171  | 189  | 1.0 | 154  | 5 | 246  | 0.6 |
| TGL34-200  | 180  | 220  | 1.0 | 162  | 5 | 287  | 0.5 |
| TGL34-200A | 190  | 210  | 1.0 | 171  | 5 | 274  | 0.5 |

Note : (1) For bidirectional use suffix "C" or "CA"



# Transient Voltage Suppressor Diodes

The plastic material carries U/L recognition 94V-0.

| Type No. | Working Peak Reverse Voltage <sup>(1)</sup> | Breakdown Voltage @ $I_T$ |     |      | Test Current | Max. Reverse Leakage Current | Max. Clamping Voltage at $I_{PP}$ | Max. Reverse Peak Pulse Current <sup>(3)</sup> |
|----------|---------------------------------------------|---------------------------|-----|------|--------------|------------------------------|-----------------------------------|------------------------------------------------|
|          | $V_{RWM}$                                   | $V_{BR}$ @ $I_T$          |     |      | $I_T$        | $I_R$ @ $V_{RWM}$            | $V_C$                             | $I_{PP}$                                       |
|          | (V)                                         | Min                       | Nom | Max. | (mA)         | ( $\mu$ A)                   | (V)                               | (mA)                                           |

## SMF5.0A Series, 200W, Case Type: SOD-123FL



|         |     |      |        |      |     |     |      |      |
|---------|-----|------|--------|------|-----|-----|------|------|
| SMF5.0A | 5.0 | 6.40 | 6.70   | 7.00 | 10  | 400 | 9.2  | 21.7 |
| SMF6.0A | 6.0 | 6.67 | 7.02   | 7.37 | 10  | 400 | 10.3 | 19.4 |
| SMF6.5A | 6.5 | 7.22 | 7.60   | 7.98 | 10  | 250 | 11.2 | 17.9 |
| SMF7.0A | 7.0 | 7.78 | 8.20   | 8.60 | 10  | 100 | 12.0 | 16.7 |
| SMF7.5A | 7.5 | 8.33 | 8.77   | 9.21 | 1.0 | 50  | 12.9 | 15.5 |
| SMF8.0A | 8.0 | 8.89 | 9.36   | 9.83 | 1.0 | 25  | 13.6 | 14.7 |
| SMF8.5A | 8.5 | 9.44 | 9.92   | 10.4 | 1.0 | 10  | 14.4 | 13.9 |
| SMF9.0A | 9.0 | 10.0 | 10.55  | 11.1 | 1.0 | 5.0 | 15.4 | 13.0 |
| SMF10A  | 10  | 11.1 | 11.70  | 12.3 | 1.0 | 2.5 | 17.0 | 11.8 |
| SMF11A  | 11  | 12.2 | 12.85  | 13.5 | 1.0 | 2.5 | 18.2 | 11.0 |
| SMF12A  | 12  | 13.3 | 14.00  | 14.7 | 1.0 | 2.5 | 19.9 | 10.1 |
| SMF13A  | 13  | 14.4 | 15.15  | 15.9 | 1.0 | 1.0 | 21.5 | 9.3  |
| SMF14A  | 14  | 15.6 | 16.40  | 17.2 | 1.0 | 1.0 | 23.2 | 8.6  |
| SMF15A  | 15  | 16.7 | 17.60  | 18.5 | 1.0 | 1.0 | 24.4 | 8.2  |
| SMF16A  | 16  | 17.8 | 18.75  | 19.7 | 1.0 | 1.0 | 26.0 | 7.7  |
| SMF17A  | 17  | 18.9 | 19.90  | 20.9 | 1.0 | 1.0 | 27.6 | 7.2  |
| SMF18A  | 18  | 20.0 | 21.00  | 22.1 | 1.0 | 1.0 | 29.2 | 6.8  |
| SMF20A  | 20  | 22.2 | 23.35  | 24.5 | 1.0 | 1.0 | 32.4 | 6.2  |
| SMF22A  | 22  | 24.4 | 25.60  | 26.9 | 1.0 | 1.0 | 35.5 | 5.6  |
| SMF24A  | 24  | 26.7 | 28.10  | 29.5 | 1.0 | 1.0 | 38.9 | 5.1  |
| SMF26A  | 26  | 28.9 | 30.40  | 31.9 | 1.0 | 1.0 | 42.1 | 4.8  |
| SMF28A  | 28  | 31.1 | 32.80  | 34.4 | 1.0 | 1.0 | 45.4 | 4.4  |
| SMF30A  | 30  | 33.3 | 35.10  | 36.8 | 1.0 | 1.0 | 48.4 | 4.1  |
| SMF33A  | 33  | 36.7 | 38.70  | 40.6 | 1.0 | 1.0 | 53.3 | 3.8  |
| SMF36A  | 36  | 40.0 | 42.10  | 44.2 | 1.0 | 1.0 | 58.1 | 3.4  |
| SMF40A  | 40  | 44.4 | 46.80  | 49.1 | 1.0 | 1.0 | 64.5 | 3.1  |
| SMF43A  | 43  | 47.8 | 50.30  | 52.8 | 1.0 | 1.0 | 69.4 | 2.9  |
| SMF45A  | 45  | 50.0 | 52.65  | 55.3 | 1.0 | 1.0 | 72.7 | 2.8  |
| SMF48A  | 48  | 53.3 | 56.10  | 58.9 | 1.0 | 1.0 | 77.4 | 2.6  |
| SMF51A  | 51  | 56.7 | 59.70  | 62.7 | 1.0 | 1.0 | 82.4 | 2.4  |
| SMF54A  | 54  | 60.0 | 63.15  | 66.3 | 1.0 | 1.0 | 87.1 | 2.3  |
| SMF58A  | 58  | 64.4 | 67.80  | 71.2 | 1.0 | 1.0 | 93.6 | 2.1  |
| SMF60A  | 60  | 66.7 | 70.20  | 73.7 | 1.0 | 1.0 | 96.8 | 1.8  |
| SMF64A  | 64  | 71.1 | 74.85  | 78.6 | 1.0 | 1.0 | 103  | 1.7  |
| SMF70A  | 70  | 77.8 | 81.90  | 86.0 | 1.0 | 1.0 | 113  | 1.5  |
| SMF75A  | 75  | 83.3 | 87.70  | 92.1 | 1.0 | 1.0 | 121  | 1.4  |
| SMF78A  | 78  | 86.7 | 91.25  | 95.8 | 1.0 | 1.0 | 126  | 1.4  |
| SMF85A  | 85  | 94.4 | 99.20  | 104  | 1.0 | 1.0 | 137  | 1.3  |
| SMF90A  | 90  | 100  | 105.50 | 111  | 1.0 | 1.0 | 146  | 1.2  |
| SMF100A | 100 | 111  | 117.00 | 123  | 1.0 | 1.0 | 162  | 1.1  |
| SMF110A | 110 | 122  | 128.50 | 135  | 1.0 | 1.0 | 177  | 1.0  |
| SMF120A | 120 | 133  | 140.00 | 147  | 1.0 | 1.0 | 193  | 0.9  |
| SMF130A | 130 | 144  | 151.50 | 159  | 1.0 | 1.0 | 209  | 0.8  |
| SMF150A | 150 | 167  | 176.00 | 185  | 1.0 | 1.0 | 243  | 0.7  |
| SMF160A | 160 | 178  | 187.50 | 197  | 1.0 | 1.0 | 259  | 0.7  |
| SMF170A | 170 | 189  | 199.00 | 209  | 1.0 | 1.0 | 275  | 0.6  |

Note : (1) A transient suppressor is normally selected according to the Working Peak Reverse Voltage ( $V_{RWM}$ ) which should be equal to or greater than the DC or continuous peak operating voltage level.



# Transient Voltage Suppressor Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.       |     | Breakdown Voltage @ It (Note 1) |      |         | Working Peak Reverse Voltage | Maximum Reverse Leakage @ VRWM | Maximum Reverse Current | Maximum Clamping Voltage @ IRSM | Maximum Temperature Coefficient of VBR |
|----------------|-----|---------------------------------|------|---------|------------------------------|--------------------------------|-------------------------|---------------------------------|----------------------------------------|
| Unidirectional |     | VBR (V)                         |      | It (mA) | VRWM (V)                     | IR (μA)                        | IRSM (A)                | VRSM (V)                        | of VBR (% / °C)                        |
| Axial Lead     | SMD | Min.                            | Max. | (mA)    | (V)                          | (μA)                           | (A)                     | (V)                             | (% / °C)                               |

## BZW04 / STUB Series, 400W, Case Type: DO-41/SMA

|           |         |      |      |     |      |      |      |      |       |
|-----------|---------|------|------|-----|------|------|------|------|-------|
| BZW04P5V8 | STUB06I | 6.45 | 7.48 | 10  | 5.80 | 1000 | 38.0 | 10.5 | 0.057 |
| BZW04-5V8 | STUB56I | 6.45 | 7.14 | 10  | 5.80 | 1000 | 38.0 | 10.5 | 0.057 |
| BZW04P6V4 | STUB07F | 7.13 | 8.25 | 10  | 6.40 | 500  | 35.4 | 11.3 | 0.061 |
| BZW04-6V4 | STUB57F | 7.13 | 7.88 | 10  | 6.40 | 500  | 35.4 | 11.3 | 0.061 |
| BZW04P7V0 | STUB08C | 7.79 | 9.02 | 10  | 7.02 | 200  | 33.0 | 12.1 | 0.065 |
| BZW04-7V0 | STUB58C | 7.79 | 8.61 | 10  | 7.02 | 200  | 33.0 | 12.1 | 0.065 |
| BZW04P7V8 | STUB09B | 8.65 | 10.0 | 1.0 | 7.78 | 50   | 30.0 | 13.4 | 0.068 |
| BZW04-7V8 | STUB59B | 8.65 | 9.55 | 1.0 | 7.78 | 50   | 30.0 | 13.4 | 0.068 |
| BZW04P8V5 | STUB010 | 9.50 | 11.0 | 1.0 | 8.55 | 10   | 27.6 | 14.5 | 0.073 |
| BZW04-8V5 | STUB510 | 9.50 | 10.5 | 1.0 | 8.55 | 10   | 27.6 | 14.5 | 0.073 |
| BZW04P9V4 | STUB011 | 10.5 | 12.1 | 1.0 | 9.40 | 5.0  | 25.7 | 15.6 | 0.075 |
| BZW04-9V4 | STUB511 | 10.5 | 11.6 | 1.0 | 9.40 | 5.0  | 25.7 | 15.6 | 0.075 |
| BZW04P10  | STUB012 | 11.4 | 13.2 | 1.0 | 10.2 | 5.0  | 24.0 | 16.7 | 0.078 |
| BZW04-10  | STUB512 | 11.4 | 12.6 | 1.0 | 10.2 | 5.0  | 24.0 | 16.7 | 0.078 |
| BZW04P11  | STUB013 | 12.4 | 14.3 | 1.0 | 11.1 | 5.0  | 22.0 | 18.2 | 0.081 |
| BZW04-11  | STUB513 | 12.4 | 13.7 | 1.0 | 11.1 | 5.0  | 22.0 | 18.2 | 0.081 |
| BZW04P13  | STUB015 | 14.3 | 16.5 | 1.0 | 12.8 | 5.0  | 19.0 | 21.2 | 0.084 |
| BZW04-13  | STUB515 | 14.3 | 15.8 | 1.0 | 12.8 | 5.0  | 19.0 | 21.2 | 0.084 |
| BZW04P14  | STUB016 | 15.2 | 17.6 | 1.0 | 13.6 | 5.0  | 17.8 | 22.5 | 0.086 |
| BZW04-14  | STUB516 | 15.2 | 16.8 | 1.0 | 13.6 | 5.0  | 17.8 | 22.5 | 0.086 |
| BZW04P15  | STUB018 | 17.1 | 19.8 | 1.0 | 15.3 | 5.0  | 16.0 | 25.2 | 0.088 |
| BZW04-15  | STUB518 | 17.1 | 18.9 | 1.0 | 15.3 | 5.0  | 16.0 | 25.2 | 0.088 |
| BZW04P17  | STUB020 | 19.0 | 22.0 | 1.0 | 17.1 | 5.0  | 14.5 | 27.7 | 0.090 |
| BZW04-17  | STUB520 | 19.0 | 21.0 | 1.0 | 17.1 | 5.0  | 14.5 | 27.7 | 0.090 |
| BZW04P19  | STUB022 | 20.9 | 24.2 | 1.0 | 18.8 | 5.0  | 13.0 | 30.6 | 0.092 |
| BZW04-19  | STUB522 | 20.9 | 23.1 | 1.0 | 18.8 | 5.0  | 13.0 | 30.6 | 0.092 |
| BZW04P20  | STUB024 | 22.8 | 26.4 | 1.0 | 20.5 | 5.0  | 12.0 | 33.2 | 0.094 |
| BZW04-20  | STUB524 | 22.8 | 25.2 | 1.0 | 20.5 | 5.0  | 12.0 | 33.2 | 0.094 |
| BZW04P23  | STUB027 | 25.7 | 29.7 | 1.0 | 23.1 | 5.0  | 10.7 | 37.5 | 0.096 |
| BZW04-23  | STUB527 | 25.7 | 28.4 | 1.0 | 23.1 | 5.0  | 10.7 | 37.5 | 0.096 |
| BZW04P26  | STUB030 | 28.5 | 33.0 | 1.0 | 25.6 | 5.0  | 9.6  | 41.5 | 0.097 |
| BZW04-26  | STUB530 | 28.5 | 31.5 | 1.0 | 25.6 | 5.0  | 9.6  | 41.5 | 0.097 |
| BZW04P28  | STUB033 | 31.4 | 36.3 | 1.0 | 28.2 | 5.0  | 8.8  | 45.7 | 0.098 |
| BZW04-28  | STUB533 | 31.4 | 34.7 | 1.0 | 28.2 | 5.0  | 8.8  | 45.7 | 0.098 |
| BZW04P31  | STUB036 | 34.2 | 39.6 | 1.0 | 30.8 | 5.0  | 8.0  | 49.9 | 0.099 |
| BZW04-31  | STUB536 | 34.2 | 37.8 | 1.0 | 30.8 | 5.0  | 8.0  | 49.9 | 0.099 |
| BZW04P33  | STUB039 | 37.1 | 42.9 | 1.0 | 33.3 | 5.0  | 7.4  | 53.9 | 0.100 |
| BZW04-33  | STUB539 | 37.1 | 41.0 | 1.0 | 33.3 | 5.0  | 7.4  | 53.9 | 0.100 |
| BZW04P37  | STUB043 | 40.9 | 47.3 | 1.0 | 36.8 | 5.0  | 6.7  | 59.3 | 0.101 |
| BZW04-37  | STUB543 | 40.9 | 45.2 | 1.0 | 36.8 | 5.0  | 6.7  | 59.3 | 0.101 |
| BZW04P40  | STUB047 | 44.7 | 51.7 | 1.0 | 40.2 | 5.0  | 6.2  | 64.8 | 0.101 |
| BZW04-40  | STUB547 | 44.7 | 49.4 | 1.0 | 40.2 | 5.0  | 6.2  | 64.8 | 0.101 |
| BZW04P44  | STUB051 | 48.5 | 56.1 | 1.0 | 43.6 | 5.0  | 5.7  | 70.1 | 0.102 |
| BZW04-44  | STUB551 | 48.5 | 53.6 | 1.0 | 43.6 | 5.0  | 5.7  | 70.1 | 0.102 |
| BZW04P48  | STUB056 | 53.2 | 61.6 | 1.0 | 47.8 | 5.0  | 5.2  | 77.0 | 0.103 |
| BZW04-48  | STUB556 | 53.2 | 58.8 | 1.0 | 47.8 | 5.0  | 5.2  | 77.0 | 0.103 |
| BZW04P53  | STUB062 | 58.9 | 68.2 | 1.0 | 53.0 | 5.0  | 4.7  | 85.0 | 0.104 |
| BZW04-53  | STUB562 | 58.9 | 65.1 | 1.0 | 53.0 | 5.0  | 4.7  | 85.0 | 0.104 |



# Transient Voltage Suppressor Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.       |     | Breakdown Voltage @ It (Note 1) |      |      | Working Peak Reverse Voltage | Maximum Reverse Leakage @ VRWM | Maximum Reverse Current | Maximum Clamping Voltage @ IRSM | Maximum Temperature Coefficient of VBR |
|----------------|-----|---------------------------------|------|------|------------------------------|--------------------------------|-------------------------|---------------------------------|----------------------------------------|
| Unidirectional |     | VBR (V)                         |      | It   | VRWM                         | IR                             | IRSM                    | VRSM                            |                                        |
| Axial Lead     | SMD | Min.                            | Max. | (mA) | (V)                          | (μA)                           | (A)                     | (V)                             | (% / °C)                               |

## BZW04 / STUB Series, 400W, Case Type: DO-41/SMA

|           |         |      |      |     |      |     |     |      |       |
|-----------|---------|------|------|-----|------|-----|-----|------|-------|
| BZW04P58  | STUB068 | 64.6 | 74.8 | 1.0 | 58.1 | 5.0 | 4.3 | 92.0 | 0.104 |
| BZW04-58  | STUB568 | 64.6 | 71.4 | 1.0 | 58.1 | 5.0 | 4.3 | 92.0 | 0.104 |
| BZW04P64  | STUB075 | 71.3 | 82.5 | 1.0 | 64.1 | 5.0 | 3.9 | 103  | 0.105 |
| BZW04-64  | STUB575 | 71.3 | 78.8 | 1.0 | 64.1 | 5.0 | 3.9 | 103  | 0.105 |
| BZW04P70  | STUB082 | 77.9 | 90.2 | 1.0 | 70.1 | 5.0 | 3.5 | 113  | 0.105 |
| BZW04-70  | STUB582 | 77.9 | 86.1 | 1.0 | 70.1 | 5.0 | 3.5 | 113  | 0.105 |
| BZW04P78  | STUB091 | 86.5 | 100  | 1.0 | 77.8 | 5.0 | 3.2 | 125  | 0.106 |
| BZW04-78  | STUB591 | 86.5 | 95.5 | 1.0 | 77.8 | 5.0 | 3.2 | 125  | 0.106 |
| BZW04P85  | STUB0B0 | 95.0 | 110  | 1.0 | 85.5 | 5.0 | 2.9 | 137  | 0.106 |
| BZW04-85  | STUB5B0 | 95.0 | 105  | 1.0 | 85.5 | 5.0 | 2.9 | 137  | 0.106 |
| BZW04P94  | STUB0B1 | 105  | 121  | 1.0 | 94.0 | 5.0 | 2.6 | 152  | 0.107 |
| BZW04-94  | STUB5B1 | 105  | 116  | 1.0 | 94.0 | 5.0 | 2.6 | 152  | 0.107 |
| BZW04P102 | STUB0B2 | 114  | 132  | 1.0 | 102  | 5.0 | 2.4 | 165  | 0.107 |
| BZW04-102 | STUB5B2 | 114  | 126  | 1.0 | 102  | 5.0 | 2.4 | 165  | 0.107 |
| BZW04P111 | STUB0B3 | 124  | 143  | 1.0 | 111  | 5.0 | 2.2 | 179  | 0.107 |
| BZW04-111 | STUB5B3 | 124  | 137  | 1.0 | 111  | 5.0 | 2.2 | 179  | 0.107 |
| BZW04P128 | STUB0B5 | 143  | 165  | 1.0 | 128  | 5.0 | 2.0 | 207  | 0.108 |
| BZW04-128 | STUB5B5 | 143  | 158  | 1.0 | 128  | 5.0 | 2.0 | 207  | 0.108 |
| BZW04P136 | STUB0B6 | 152  | 176  | 1.0 | 136  | 5.0 | 1.8 | 219  | 0.108 |
| BZW04-136 | STUB5B6 | 152  | 168  | 1.0 | 136  | 5.0 | 1.8 | 219  | 0.108 |
| BZW04P145 | STUB0B7 | 161  | 187  | 1.0 | 145  | 5.0 | 1.7 | 234  | 0.108 |
| BZW04-145 | STUB5B7 | 161  | 179  | 1.0 | 145  | 5.0 | 1.7 | 234  | 0.108 |
| BZW04P154 | STUB0B8 | 171  | 198  | 1.0 | 154  | 5.0 | 1.6 | 246  | 0.108 |
| BZW04-154 | STUB5B8 | 171  | 189  | 1.0 | 154  | 5.0 | 1.6 | 246  | 0.108 |
| BZW04P171 | STUB0D0 | 190  | 220  | 1.0 | 171  | 5.0 | 1.5 | 274  | 0.108 |
| BZW04-171 | STUB5D0 | 190  | 210  | 1.0 | 171  | 5.0 | 1.5 | 274  | 0.108 |
| BZW04P188 | STUB0D2 | 209  | 242  | 1.0 | 188  | 5.0 | 1.4 | 301  | 0.108 |
| BZW04-188 | STUB5D2 | 209  | 231  | 1.0 | 188  | 5.0 | 1.4 | 301  | 0.108 |
| BZW04P213 | STUB0D5 | 237  | 275  | 1.0 | 213  | 5.0 | 1.3 | 344  | 0.110 |
| BZW04-213 | STUB5D5 | 237  | 263  | 1.0 | 213  | 5.0 | 1.3 | 344  | 0.110 |
| BZW04P239 | STUB0D8 | 266  | 308  | 1.0 | 239  | 5.0 | 1.3 | 384  | 0.110 |
| BZW04-239 | STUB5D8 | 266  | 294  | 1.0 | 239  | 5.0 | 1.3 | 384  | 0.110 |
| BZW04P256 | STUB0E0 | 285  | 330  | 1.0 | 256  | 5.0 | 1.2 | 414  | 0.110 |
| BZW04-256 | STUB5E0 | 285  | 315  | 1.0 | 256  | 5.0 | 1.2 | 414  | 0.110 |
| BZW04P273 | STUB0E2 | 304  | 352  | 1.0 | 273  | 5.0 | 1.2 | 438  | 0.110 |
| BZW04-273 | STUB5E2 | 304  | 336  | 1.0 | 273  | 5.0 | 1.2 | 438  | 0.110 |
| BZW04P299 | STUB0E5 | 332  | 385  | 1.0 | 299  | 5.0 | 0.9 | 482  | 0.110 |
| BZW04-299 | STUB5E5 | 332  | 368  | 1.0 | 299  | 5.0 | 0.9 | 482  | 0.110 |
| BZW04P342 | STUB0G0 | 380  | 440  | 1.0 | 342  | 5.0 | 0.9 | 548  | 0.110 |
| BZW04-342 | STUB5G0 | 380  | 420  | 1.0 | 342  | 5.0 | 0.9 | 548  | 0.110 |
| BZW04P376 | STUB0G4 | 418  | 484  | 1.0 | 376  | 5.0 | 0.8 | 603  | 0.110 |
| BZW04-376 | STUB5G4 | 418  | 462  | 1.0 | 376  | 5.0 | 0.8 | 603  | 0.110 |

### Notes:

- (1) VBR measured after It applied for 300 μs, It = square wave pulse or equivalent
- (2) VF = 3.5 Vmax., IF = 25 A (6.8 V to 110 V)  
VF = 5.0 Vmax., IF = 25 A (120 V to 400 V) per 1/2 square or equivalent sine wave  
PW = 8.3 ms, duty cycle = 4 pulses per minute maximum
- (3) For bidirectional use "B" suffix (Axial Lead) / replace the third digit of type from "U" to "B" (SMD)
- (4) "ZW04" for Axial lead / "STU" or "STB" for SMD will be omitted on marking of the diode
- (5) For bidirectional types having VR of 10 V and under, the IR limit is doubled



# Transient Voltage Suppressor Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.       |     | Breakdown Voltage @ It<br>( Note 1 ) |      |      | Working Peak Reverse Voltage | Maximum Reverse Leakage @ VRWM | Maximum Reverse Current | Maximum Clamping Voltage @ IRSM | Maximum Temperature Coefficient of VBR |
|----------------|-----|--------------------------------------|------|------|------------------------------|--------------------------------|-------------------------|---------------------------------|----------------------------------------|
| Unidirectional |     | VBR (V)                              |      | It   | VRWM                         | IR                             | IRSM                    | VRSM                            |                                        |
| Axial Lead     | SMD | Min.                                 | Max. | (mA) | (V)                          | (μA)                           | (A)                     | (V)                             | (% / °C)                               |

## P4KE / STUP Series, 400W, Case Type: DO-41/SMA



|          |         |      |      |     |      |      |      |      |       |
|----------|---------|------|------|-----|------|------|------|------|-------|
| P4KE6.8  | STUP06I | 6.12 | 7.48 | 10  | 5.50 | 1000 | 38.0 | 10.8 | 0.057 |
| P4KE6.8A | STUP56I | 6.45 | 7.14 | 10  | 5.80 | 1000 | 40.0 | 10.5 | 0.057 |
| P4KE7.5  | STUP07F | 6.75 | 8.25 | 10  | 6.05 | 500  | 36.0 | 11.7 | 0.061 |
| P4KE7.5A | STUP57F | 7.13 | 7.88 | 10  | 6.40 | 500  | 37.0 | 11.3 | 0.061 |
| P4KE8.2  | STUP08C | 7.38 | 9.02 | 10  | 6.63 | 200  | 33.0 | 12.5 | 0.065 |
| P4KE8.2A | STUP58C | 7.79 | 8.61 | 10  | 7.02 | 200  | 35.0 | 12.1 | 0.065 |
| P4KE9.1  | STUP09B | 8.19 | 10.0 | 1.0 | 7.37 | 50   | 30.0 | 13.8 | 0.068 |
| P4KE9.1A | STUP59B | 8.65 | 9.55 | 1.0 | 7.78 | 50   | 31.0 | 13.4 | 0.068 |
| P4KE10   | STUP010 | 9.00 | 11.0 | 1.0 | 8.10 | 10   | 28.0 | 15.0 | 0.073 |
| P4KE10A  | STUP510 | 9.50 | 10.5 | 1.0 | 8.55 | 10   | 29.0 | 14.5 | 0.073 |
| P4KE11   | STUP011 | 9.90 | 12.1 | 1.0 | 8.92 | 5.0  | 26.0 | 16.2 | 0.075 |
| P4KE11A  | STUP511 | 10.5 | 11.6 | 1.0 | 9.40 | 5.0  | 27.0 | 15.6 | 0.075 |
| P4KE12   | STUP012 | 10.8 | 13.2 | 1.0 | 9.72 | 5.0  | 24.0 | 17.3 | 0.078 |
| P4KE12A  | STUP512 | 11.4 | 12.6 | 1.0 | 10.2 | 5.0  | 25.0 | 16.7 | 0.078 |
| P4KE13   | STUP013 | 11.7 | 14.3 | 1.0 | 10.5 | 5.0  | 22.0 | 19.0 | 0.081 |
| P4KE13A  | STUP513 | 12.4 | 13.7 | 1.0 | 11.1 | 5.0  | 23.0 | 18.2 | 0.081 |
| P4KE15   | STUP015 | 13.5 | 16.5 | 1.0 | 12.1 | 5.0  | 19.0 | 22.0 | 0.084 |
| P4KE15A  | STUP515 | 14.3 | 15.8 | 1.0 | 12.8 | 5.0  | 20.0 | 21.2 | 0.084 |
| P4KE16   | STUP016 | 14.4 | 17.6 | 1.0 | 12.9 | 5.0  | 18.0 | 23.5 | 0.086 |
| P4KE16A  | STUP516 | 15.2 | 16.8 | 1.0 | 13.6 | 5.0  | 19.0 | 22.5 | 0.086 |
| P4KE17   | STUP017 | 15.3 | 18.7 | 1.0 | 13.7 | 5.0  | 17.0 | 25.0 | 0.087 |
| P4KE17A  | STUP517 | 16.2 | 17.9 | 1.0 | 14.5 | 5.0  | 18.0 | 24.0 | 0.087 |
| P4KE18   | STUP018 | 16.2 | 19.8 | 1.0 | 14.5 | 5.0  | 16.0 | 26.5 | 0.088 |
| P4KE18A  | STUP518 | 17.1 | 18.9 | 1.0 | 15.3 | 5.0  | 17.0 | 25.5 | 0.088 |
| P4KE20   | STUP020 | 18.0 | 22.0 | 1.0 | 16.2 | 5.0  | 14.0 | 29.1 | 0.090 |
| P4KE20A  | STUP520 | 19.0 | 21.0 | 1.0 | 17.1 | 5.0  | 15.0 | 27.7 | 0.090 |
| P4KE22   | STUP022 | 19.8 | 24.2 | 1.0 | 17.8 | 5.0  | 13.0 | 31.9 | 0.092 |
| P4KE22A  | STUP522 | 20.9 | 23.1 | 1.0 | 18.8 | 5.0  | 14.0 | 30.6 | 0.092 |
| P4KE24   | STUP024 | 21.6 | 26.4 | 1.0 | 19.4 | 5.0  | 12.0 | 34.7 | 0.094 |
| P4KE24A  | STUP524 | 22.8 | 25.2 | 1.0 | 20.5 | 5.0  | 13.0 | 33.2 | 0.094 |
| P4KE27   | STUP027 | 24.3 | 29.7 | 1.0 | 21.8 | 5.0  | 11.0 | 39.1 | 0.096 |
| P4KE27A  | STUP527 | 25.7 | 28.4 | 1.0 | 23.1 | 5.0  | 11.2 | 37.5 | 0.096 |
| P4KE30   | STUP030 | 27.0 | 33.0 | 1.0 | 24.3 | 5.0  | 10.0 | 43.5 | 0.097 |
| P4KE30A  | STUP530 | 28.5 | 31.5 | 1.0 | 25.6 | 5.0  | 10.0 | 41.4 | 0.097 |
| P4KE33   | STUP033 | 29.7 | 36.3 | 1.0 | 26.8 | 5.0  | 9.0  | 47.7 | 0.098 |
| P4KE33A  | STUP533 | 31.4 | 34.7 | 1.0 | 28.2 | 5.0  | 9.0  | 45.7 | 0.098 |
| P4KE36   | STUP036 | 32.4 | 39.6 | 1.0 | 29.1 | 5.0  | 8.0  | 52.0 | 0.099 |
| P4KE36A  | STUP536 | 34.2 | 37.8 | 1.0 | 30.8 | 5.0  | 8.4  | 49.9 | 0.099 |
| P4KE39   | STUP039 | 35.1 | 42.9 | 1.0 | 31.6 | 5.0  | 7.4  | 56.4 | 0.100 |
| P4KE39A  | STUP539 | 37.1 | 41.0 | 1.0 | 33.3 | 5.0  | 7.8  | 53.9 | 0.100 |
| P4KE43   | STUP043 | 38.7 | 47.3 | 1.0 | 34.8 | 5.0  | 6.8  | 61.9 | 0.101 |
| P4KE43A  | STUP543 | 40.9 | 45.2 | 1.0 | 36.8 | 5.0  | 7.1  | 59.3 | 0.101 |
| P4KE47   | STUP047 | 42.3 | 51.7 | 1.0 | 38.1 | 5.0  | 6.2  | 67.8 | 0.101 |
| P4KE47A  | STUP547 | 44.7 | 49.4 | 1.0 | 40.2 | 5.0  | 6.5  | 64.8 | 0.101 |
| P4KE51   | STUP051 | 45.9 | 56.1 | 1.0 | 41.3 | 5.0  | 5.7  | 73.5 | 0.102 |
| P4KE51A  | STUP551 | 48.5 | 53.6 | 1.0 | 43.6 | 5.0  | 6.0  | 70.1 | 0.102 |
| P4KE56   | STUP056 | 50.4 | 61.6 | 1.0 | 45.4 | 5.0  | 5.2  | 80.5 | 0.103 |
| P4KE56A  | STUP556 | 53.2 | 58.8 | 1.0 | 47.8 | 5.0  | 5.5  | 77.0 | 0.103 |



# Transient Voltage Suppressor Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.       |     | Breakdown Voltage @ It<br>( Note 1 ) |      |      | Working Peak Reverse Voltage | Maximum Reverse Leakage @ VRWM | Maximum Reverse Current | Maximum Clamping Voltage @ IRSM | Maximum Temperature Coefficient of VBR |
|----------------|-----|--------------------------------------|------|------|------------------------------|--------------------------------|-------------------------|---------------------------------|----------------------------------------|
| Unidirectional |     | VBR (V)                              |      | It   | VRWM                         | IR                             | IRSM                    | VRSM                            |                                        |
| Axial Lead     | SMD | Min.                                 | Max. | (mA) | (V)                          | (μA)                           | (A)                     | (V)                             | (% / °C)                               |

## P4KE / STUP Series, 400W, Case Type: DO-41/SMA



|          |         |      |      |     |      |     |      |      |       |
|----------|---------|------|------|-----|------|-----|------|------|-------|
| P4KE62   | STUP062 | 55.8 | 68.2 | 1.0 | 50.2 | 5.0 | 4.7  | 89.0 | 0.104 |
| P4KE62A  | STUP562 | 58.9 | 65.1 | 1.0 | 53.0 | 5.0 | 5.0  | 85.0 | 0.104 |
| P4KE68   | STUP068 | 61.2 | 74.8 | 1.0 | 55.1 | 5.0 | 4.3  | 98.0 | 0.104 |
| P4KE68A  | STUP568 | 64.6 | 71.4 | 1.0 | 58.1 | 5.0 | 4.6  | 92.0 | 0.104 |
| P4KE75   | STUP075 | 67.5 | 82.5 | 1.0 | 60.7 | 5.0 | 3.9  | 108  | 0.105 |
| P4KE75A  | STUP575 | 71.3 | 78.8 | 1.0 | 64.1 | 5.0 | 4.1  | 103  | 0.105 |
| P4KE82   | STUP082 | 73.8 | 90.2 | 1.0 | 66.4 | 5.0 | 3.6  | 118  | 0.105 |
| P4KE82A  | STUP582 | 77.9 | 86.1 | 1.0 | 70.1 | 5.0 | 3.7  | 113  | 0.105 |
| P4KE91   | STUP091 | 81.9 | 100  | 1.0 | 73.7 | 5.0 | 3.2  | 131  | 0.106 |
| P4KE91A  | STUP591 | 86.5 | 95.5 | 1.0 | 77.8 | 5.0 | 3.4  | 125  | 0.106 |
| P4KE100  | STUP0B0 | 90.0 | 110  | 1.0 | 81   | 5.0 | 2.9  | 144  | 0.106 |
| P4KE100A | STUP5B0 | 95.0 | 105  | 1.0 | 85.5 | 5.0 | 3.1  | 137  | 0.106 |
| P4KE110  | STUP0B1 | 99.0 | 121  | 1.0 | 89.2 | 5.0 | 2.7  | 158  | 0.107 |
| P4KE110A | STUP5B1 | 105  | 116  | 1.0 | 94.0 | 5.0 | 2.8  | 152  | 0.107 |
| P4KE120  | STUP0B2 | 108  | 132  | 1.0 | 97.2 | 5.0 | 2.4  | 173  | 0.107 |
| P4KE120A | STUP5B2 | 114  | 126  | 1.0 | 102  | 5.0 | 2.5  | 165  | 0.107 |
| P4KE130  | STUP0B3 | 117  | 143  | 1.0 | 105  | 5.0 | 2.2  | 187  | 0.107 |
| P4KE130A | STUP5B3 | 124  | 137  | 1.0 | 111  | 5.0 | 2.3  | 179  | 0.107 |
| P4KE150  | STUP0B5 | 135  | 165  | 1.0 | 121  | 5.0 | 2.0  | 215  | 0.108 |
| P4KE150A | STUP5B5 | 143  | 158  | 1.0 | 128  | 5.0 | 2.0  | 207  | 0.108 |
| P4KE160  | STUP0B6 | 144  | 176  | 1.0 | 130  | 5.0 | 1.8  | 230  | 0.108 |
| P4KE160A | STUP5B6 | 152  | 168  | 1.0 | 136  | 5.0 | 1.9  | 219  | 0.108 |
| P4KE170  | STUP0B7 | 153  | 187  | 1.0 | 138  | 5.0 | 1.7  | 244  | 0.108 |
| P4KE170A | STUP5B7 | 162  | 179  | 1.0 | 145  | 5.0 | 1.8  | 234  | 0.108 |
| P4KE180  | STUP0B8 | 162  | 198  | 1.0 | 146  | 5.0 | 1.6  | 258  | 0.108 |
| P4KE180A | STUP5B8 | 171  | 189  | 1.0 | 154  | 5.0 | 1.7  | 246  | 0.108 |
| P4KE200  | STUP0D0 | 180  | 220  | 1.0 | 162  | 5.0 | 1.5  | 287  | 0.108 |
| P4KE200A | STUP5D0 | 190  | 210  | 1.0 | 171  | 5.0 | 1.53 | 274  | 0.108 |
| P4KE220  | STUP0D2 | 198  | 242  | 1.0 | 175  | 5.0 | 1.16 | 344  | 0.108 |
| P4KE220A | STUP5D2 | 209  | 231  | 1.0 | 185  | 5.0 | 1.22 | 328  | 0.108 |
| P4KE250  | STUP0D5 | 225  | 275  | 1.0 | 202  | 5.0 | 1.11 | 360  | 0.110 |
| P4KE250A | STUP5D5 | 237  | 263  | 1.0 | 214  | 5.0 | 1.16 | 344  | 0.110 |
| P4KE300  | STUP0E0 | 270  | 330  | 1.0 | 243  | 5.0 | 0.93 | 430  | 0.110 |
| P4KE300A | STUP5E0 | 285  | 315  | 1.0 | 256  | 5.0 | 0.97 | 414  | 0.110 |
| P4KE350  | STUP0E5 | 315  | 385  | 1.0 | 284  | 5.0 | 0.79 | 504  | 0.110 |
| P4KE350A | STUP5E5 | 332  | 368  | 1.0 | 300  | 5.0 | 0.83 | 482  | 0.110 |
| P4KE400  | STUP0G0 | 360  | 440  | 1.0 | 324  | 5.0 | 0.70 | 574  | 0.110 |
| P4KE400A | STUP5G0 | 380  | 420  | 1.0 | 342  | 5.0 | 0.73 | 548  | 0.110 |
| P4KE440  | STUP0G4 | 396  | 484  | 1.0 | 356  | 5.0 | 0.95 | 631  | 0.110 |
| P4KE440A | STUP5G4 | 418  | 462  | 1.0 | 376  | 5.0 | 1.00 | 602  | 0.110 |

### Notes:

- (1) VBR measured after It applied for 300 μs, It = square wave pulse or equivalent
- (2) VF = 3.5 Vmax., IF = 25 A (6.8 V to 91 V)  
VF = 5.0 Vmax., IF = 25 A ( 100 V to 400 V) per 1/2 square or equivalent sine wave  
PW = 8.3 ms, duty cycle = 4 pulses per minute maximum
- (3) For bidirectional use "C" or "CA" suffix (Axial Lead) / replace the third letter of type from "U" to "B" (SMD)
- (4) "4KE" for Axial lead / "STU" or "STB" for SMD will be omitted on marking of the diode
- (5) For bidirectional types having VR of 10 V and under, the IR limit is doubled



# Transient Voltage Suppressor Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.       | Breakdown<br>Voltage @ It<br>( Note 1 ) |      | Working Peak<br>Reverse<br>Voltage | Maximum<br>Reverse Leakage<br>@ VRWM | Maximum<br>Reverse<br>Current | Maximum<br>Clamping<br>Voltage @ IRSM | Maximum<br>Temperature<br>Coefficient<br>of VBR |          |
|----------------|-----------------------------------------|------|------------------------------------|--------------------------------------|-------------------------------|---------------------------------------|-------------------------------------------------|----------|
|                | VBR (V)                                 |      | It                                 | VRWM                                 | IR                            | IRSM                                  | VRSM                                            |          |
| Unidirectional | Min.                                    | Max. | (mA)                               | (V)                                  | (μA)                          | (A)                                   | (V)                                             | (% / °C) |

## TGL41 Series, 400W, Case Type: MELF(Plastic)



|            |      |      |     |      |      |      |      |       |
|------------|------|------|-----|------|------|------|------|-------|
| TGL41-6.8  | 6.12 | 7.48 | 10  | 5.50 | 1000 | 37.0 | 10.8 | 0.060 |
| TGL41-6.8A | 6.45 | 7.14 | 10  | 5.80 | 1000 | 38.1 | 10.5 | 0.060 |
| TGL41-7.5  | 6.75 | 8.25 | 10  | 6.05 | 500  | 34.2 | 11.7 | 0.064 |
| TGL41-7.5A | 7.13 | 7.88 | 10  | 6.40 | 500  | 35.4 | 11.3 | 0.064 |
| TGL41-8.2  | 7.38 | 9.02 | 10  | 6.63 | 200  | 32.0 | 12.5 | 0.068 |
| TGL41-8.2A | 7.79 | 8.61 | 10  | 7.02 | 200  | 33.1 | 12.1 | 0.068 |
| TGL41-9.1  | 8.19 | 10.0 | 1.0 | 7.37 | 50   | 29.0 | 13.8 | 0.071 |
| TGL41-9.1A | 8.65 | 9.55 | 1.0 | 7.78 | 50   | 29.9 | 13.4 | 0.071 |
| TGL41-10   | 9.0  | 11.0 | 1.0 | 8.10 | 10   | 26.7 | 15.0 | 0.076 |
| TGL41-10A  | 9.5  | 10.5 | 1.0 | 8.55 | 10   | 27.6 | 14.0 | 0.076 |
| TGL41-11   | 9.9  | 12.1 | 1.0 | 8.92 | 5    | 24.7 | 16.2 | 0.078 |
| TGL41-11A  | 10.5 | 11.6 | 1.0 | 9.40 | 5    | 25.6 | 15.6 | 0.078 |
| TGL41-12   | 10.8 | 13.2 | 1.0 | 9.72 | 5    | 23.1 | 17.3 | 0.081 |
| TGL41-12A  | 11.4 | 12.6 | 1.0 | 10.2 | 5    | 24.0 | 16.7 | 0.081 |
| TGL41-13   | 11.7 | 14.3 | 1.0 | 10.5 | 5    | 21.1 | 19.0 | 0.084 |
| TGL41-13A  | 12.4 | 13.7 | 1.0 | 11.1 | 5    | 22.0 | 18.2 | 0.084 |
| TGL41-15   | 13.5 | 16.5 | 1.0 | 12.1 | 5    | 18.2 | 22.0 | 0.087 |
| TGL41-15A  | 14.3 | 15.8 | 1.0 | 12.8 | 5    | 18.9 | 21.2 | 0.087 |
| TGL41-16   | 14.4 | 17.6 | 1.0 | 12.9 | 5    | 17.0 | 23.5 | 0.089 |
| TGL41-16A  | 15.2 | 16.8 | 1.0 | 13.6 | 5    | 17.8 | 22.5 | 0.089 |
| TGL41-18   | 16.2 | 19.8 | 1.0 | 14.5 | 5    | 15.1 | 26.5 | 0.091 |
| TGL41-18A  | 17.1 | 18.9 | 1.0 | 15.3 | 5    | 15.9 | 25.2 | 0.091 |
| TGL41-20   | 18.0 | 22.0 | 1.0 | 16.2 | 5    | 13.7 | 29.1 | 0.093 |
| TGL41-20A  | 19.0 | 21.0 | 1.0 | 17.1 | 5    | 14.4 | 27.7 | 0.093 |
| TGL41-22   | 19.8 | 24.2 | 1.0 | 17.8 | 5    | 12.5 | 31.9 | 0.095 |
| TGL41-22A  | 20.9 | 23.1 | 1.0 | 18.8 | 5    | 13.1 | 30.6 | 0.095 |
| TGL41-24   | 21.6 | 26.4 | 1.0 | 19.4 | 5    | 11.5 | 34.7 | 0.097 |
| TGL41-24A  | 22.8 | 25.2 | 1.0 | 20.5 | 5    | 12.0 | 33.2 | 0.097 |
| TGL41-27   | 24.3 | 29.7 | 1.0 | 21.8 | 5    | 10.2 | 39.1 | 0.099 |
| TGL41-27A  | 25.7 | 28.4 | 1.0 | 23.1 | 5    | 10.7 | 37.5 | 0.099 |
| TGL41-30   | 27.0 | 30.0 | 1.0 | 24.3 | 5    | 9.2  | 43.5 | 0.100 |
| TGL41-30A  | 28.5 | 31.5 | 1.0 | 25.6 | 5    | 9.7  | 41.4 | 0.100 |
| TGL41-33   | 29.7 | 36.3 | 1.0 | 26.8 | 5    | 8.4  | 47.7 | 0.101 |
| TGL41-33A  | 31.4 | 34.7 | 1.0 | 28.2 | 5    | 8.8  | 45.7 | 0.101 |
| TGL41-36   | 32.4 | 39.6 | 1.0 | 29.1 | 5    | 7.7  | 52.0 | 0.102 |
| TGL41-36A  | 34.2 | 37.8 | 1.0 | 30.8 | 5    | 8.0  | 49.9 | 0.102 |
| TGL41-39   | 35.1 | 42.9 | 1.0 | 31.6 | 5    | 7.1  | 56.4 | 0.103 |
| TGL41-39A  | 37.1 | 41.0 | 1.0 | 33.3 | 5    | 7.4  | 53.9 | 0.103 |
| TGL41-43   | 38.7 | 47.3 | 1.0 | 34.8 | 5    | 6.5  | 61.9 | 0.104 |
| TGL41-43A  | 40.9 | 45.2 | 1.0 | 36.8 | 5    | 6.7  | 59.3 | 0.104 |



# Transient Voltage Suppressor Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.       | Breakdown<br>Voltage @ It<br>( Note 1 ) |      | Working Peak<br>Reverse<br>Voltage | Maximum<br>Reverse Leakage<br>@ VRWM | Maximum<br>Reverse<br>Current | Maximum<br>Clamping<br>Voltage @ IRSM | Maximum<br>Temperature<br>Coefficient<br>of VBR |
|----------------|-----------------------------------------|------|------------------------------------|--------------------------------------|-------------------------------|---------------------------------------|-------------------------------------------------|
|                | VBR (V)                                 |      | It                                 | VRWM                                 | IR                            | IRSM                                  | VRSM                                            |
|                | Min.                                    | Max. | (mA)                               | (V)                                  | (μA)                          | (A)                                   | (V)                                             |
| Unidirectional |                                         |      |                                    |                                      |                               |                                       | (% / °C)                                        |

## TGL41 Series, 400W, Case Type: MELF(Plastic)



|            |      |      |     |      |   |      |      |       |
|------------|------|------|-----|------|---|------|------|-------|
| TGL41-47   | 42.3 | 51.7 | 1.0 | 38.1 | 5 | 5.9  | 67.8 | 0.104 |
| TGL41-47A  | 44.7 | 49.4 | 1.0 | 40.2 | 5 | 6.2  | 64.8 | 0.104 |
| TGL41-51   | 45.9 | 56.1 | 1.0 | 41.3 | 5 | 5.4  | 73.5 | 0.105 |
| TGL41-51A  | 48.5 | 53.6 | 1.0 | 43.6 | 5 | 5.7  | 70.1 | 0.105 |
| TGL41-56   | 50.4 | 61.6 | 1.0 | 45.4 | 5 | 5.0  | 80.5 | 0.106 |
| TGL41-564A | 53.2 | 58.8 | 1.0 | 47.8 | 5 | 5.2  | 77.0 | 0.106 |
| TGL41-62   | 55.8 | 68.8 | 1.0 | 50.2 | 5 | 4.5  | 89.0 | 0.107 |
| TGL41-62A  | 58.9 | 65.1 | 1.0 | 53.0 | 5 | 4.7  | 85.0 | 0.107 |
| TGL41-68   | 61.2 | 74.8 | 1.0 | 55.1 | 5 | 4.1  | 98.0 | 0.107 |
| TGL41-68A  | 64.6 | 71.4 | 1.0 | 58.1 | 5 | 4.3  | 92.0 | 0.107 |
| TGL41-75   | 67.5 | 82.5 | 1.0 | 60.7 | 5 | 3.7  | 108  | 0.108 |
| TGL41-75A  | 71.3 | 78.8 | 1.0 | 64.1 | 5 | 3.9  | 103  | 0.108 |
| TGL41-82   | 73.8 | 90.2 | 1.0 | 66.4 | 5 | 3.4  | 118  | 0.108 |
| TGL41-82A  | 77.9 | 86.1 | 1.0 | 70.1 | 5 | 3.5  | 113  | 0.108 |
| TGL41-91   | 81.9 | 100  | 1.0 | 73.7 | 5 | 3.1  | 131  | 0.109 |
| TGL41-91A  | 86.5 | 95.5 | 1.0 | 77.8 | 5 | 3.2  | 125  | 0.109 |
| TGL41-100  | 90   | 110  | 1.0 | 81.0 | 5 | 1.39 | 144  | 0.109 |
| TGL41-100A | 95   | 105  | 1.0 | 85.5 | 5 | 1.46 | 137  | 0.109 |
| TGL41-110  | 99   | 121  | 1.0 | 89.2 | 5 | 1.27 | 158  | 0.110 |
| TGL41-110A | 105  | 116  | 1.0 | 94.0 | 5 | 1.32 | 152  | 0.110 |
| TGL41-120  | 108  | 132  | 1.0 | 97.2 | 5 | 1.16 | 173  | 0.110 |
| TGL41-120A | 114  | 126  | 1.0 | 102  | 5 | 1.21 | 165  | 0.110 |
| TGL41-130  | 117  | 143  | 1.0 | 105  | 5 | 1.07 | 187  | 0.110 |
| TGL41-130A | 124  | 137  | 1.0 | 111  | 5 | 1.12 | 179  | 0.110 |
| TGL41-150  | 135  | 165  | 1.0 | 121  | 5 | 0.93 | 215  | 0.111 |
| TGL41-150A | 143  | 158  | 1.0 | 128  | 5 | 0.97 | 207  | 0.111 |
| TGL41-160  | 144  | 176  | 1.0 | 130  | 5 | 0.87 | 230  | 0.111 |
| TGL41-160A | 152  | 168  | 1.0 | 136  | 5 | 0.91 | 219  | 0.111 |
| TGL41-170  | 153  | 187  | 1.0 | 138  | 5 | 0.82 | 244  | 0.111 |
| TGL41-170A | 162  | 179  | 1.0 | 145  | 5 | 0.85 | 234  | 0.111 |
| TGL41-180  | 162  | 198  | 1.0 | 146  | 5 | 0.78 | 258  | 0.111 |
| TGL41-180A | 171  | 189  | 1.0 | 154  | 5 | 0.81 | 246  | 0.111 |
| TGL41-200  | 180  | 220  | 1.0 | 162  | 5 | 0.70 | 287  | 0.111 |
| TGL41-200A | 190  | 210  | 1.0 | 171  | 5 | 0.73 | 274  | 0.111 |

### Note :

- (1) Pulse test:  $t_p \leq 50$  ms
- (2) For bidirectional use "C" or "CA" suffix



# Transient Voltage Suppressor Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.       | Breakdown Voltage @ $I_t^{(1)}$ |       | Working Peak Reverse Voltage | Max. Reverse Leakage @ $V_{RWM}$ | Maximum Peak Pulse Surge Current | Maximum Clamping Voltage @ $I_{PPM}$ |
|----------------|---------------------------------|-------|------------------------------|----------------------------------|----------------------------------|--------------------------------------|
|                | $V_{BR}$ (V)                    | $I_t$ | $V_{RWM}$                    | $I_R^{(3)}$                      | $I_{PPM}$                        | $V_C$                                |
| Unidirectional | Min.                            | Max.  | (mA)                         | (V)                              | ( $\mu A$ )                      | (V)                                  |

## SMAJ Series, 400W, Case Type: SMA



|                         |      |      |     |     |     |      |      |
|-------------------------|------|------|-----|-----|-----|------|------|
| SMAJ5.0                 | 6.40 | 7.82 | 10  | 5.0 | 800 | 41.7 | 9.6  |
| SMAJ5.0A <sup>(4)</sup> | 6.40 | 7.07 | 10  | 5.0 | 800 | 43.5 | 9.2  |
| SMAJ6.0                 | 6.67 | 8.15 | 10  | 6.0 | 800 | 35.1 | 11.4 |
| SMAJ6.0A                | 6.67 | 7.37 | 10  | 6.0 | 800 | 38.8 | 10.3 |
| SMAJ6.5                 | 7.22 | 8.82 | 10  | 6.5 | 500 | 32.5 | 12.3 |
| SMAJ6.5A                | 7.22 | 7.98 | 10  | 6.5 | 500 | 35.7 | 11.2 |
| SMAJ7.0                 | 7.78 | 9.51 | 10  | 7.0 | 200 | 30.1 | 13.3 |
| SMAJ7.0A                | 7.78 | 8.6  | 10  | 7.0 | 200 | 33.3 | 12.0 |
| SMAJ7.5                 | 8.33 | 10.2 | 1.0 | 7.5 | 100 | 28.0 | 14.3 |
| SMAJ7.5A                | 8.33 | 9.21 | 1.0 | 7.5 | 100 | 31.0 | 12.9 |
| SMAJ8.0                 | 8.89 | 10.9 | 1.0 | 8.0 | 50  | 26.7 | 15.0 |
| SMAJ8.0A                | 8.89 | 9.83 | 1.0 | 8.0 | 50  | 29.4 | 13.6 |
| SMAJ8.5                 | 9.44 | 11.5 | 1.0 | 8.5 | 10  | 25.2 | 15.9 |
| SMAJ8.5A                | 9.44 | 10.4 | 1.0 | 8.5 | 10  | 27.8 | 14.4 |
| SMAJ9.0                 | 10.0 | 12.2 | 1.0 | 9.0 | 5.0 | 23.7 | 16.9 |
| SMAJ9.0A                | 10.0 | 11.1 | 1.0 | 9.0 | 5.0 | 26.0 | 15.4 |
| SMAJ10                  | 11.1 | 13.6 | 1.0 | 10  | 1.0 | 21.2 | 18.8 |
| SMAJ10A                 | 11.1 | 12.3 | 1.0 | 10  | 1.0 | 23.5 | 17.0 |
| SMAJ11                  | 12.2 | 14.9 | 1.0 | 11  | 1.0 | 19.9 | 20.1 |
| SMAJ11A                 | 12.2 | 13.5 | 1.0 | 11  | 1.0 | 22.0 | 18.2 |
| SMAJ12                  | 13.3 | 16.3 | 1.0 | 12  | 1.0 | 18.2 | 22.0 |
| SMAJ12A                 | 13.3 | 14.7 | 1.0 | 12  | 1.0 | 20.1 | 19.9 |
| SMAJ13                  | 14.4 | 17.6 | 1.0 | 13  | 1.0 | 16.8 | 23.8 |
| SMAJ13A                 | 14.4 | 15.9 | 1.0 | 13  | 1.0 | 18.6 | 21.5 |
| SMAJ14                  | 15.6 | 19.1 | 1.0 | 14  | 1.0 | 15.5 | 25.8 |
| SMAJ14A                 | 15.6 | 17.2 | 1.0 | 14  | 1.0 | 17.2 | 23.2 |
| SMAJ15                  | 16.7 | 20.4 | 1.0 | 15  | 1.0 | 14.8 | 26.9 |
| SMAJ15A                 | 16.7 | 18.5 | 1.0 | 15  | 1.0 | 16.4 | 24.4 |
| SMAJ16                  | 17.8 | 21.8 | 1.0 | 16  | 1.0 | 13.9 | 28.8 |
| SMAJ16A                 | 17.8 | 19.7 | 1.0 | 16  | 1.0 | 15.4 | 26.0 |
| SMAJ17                  | 18.9 | 23.1 | 1.0 | 17  | 1.0 | 13.1 | 30.5 |
| SMAJ17A                 | 18.9 | 20.9 | 1.0 | 17  | 1.0 | 14.5 | 27.6 |
| SMAJ18                  | 20.0 | 24.4 | 1.0 | 18  | 1.0 | 12.4 | 32.2 |
| SMAJ18A                 | 20.0 | 22.1 | 1.0 | 18  | 1.0 | 13.7 | 29.2 |
| SMAJ20                  | 22.2 | 27.1 | 1.0 | 20  | 1.0 | 11.2 | 35.8 |
| SMAJ20A                 | 22.2 | 24.5 | 1.0 | 20  | 1.0 | 12.3 | 32.4 |
| SMAJ22                  | 24.4 | 29.8 | 1.0 | 22  | 1.0 | 10.2 | 39.4 |
| SMAJ22A                 | 24.4 | 26.9 | 1.0 | 22  | 1.0 | 11.3 | 35.5 |
| SMAJ24                  | 26.7 | 32.6 | 1.0 | 24  | 1.0 | 9.3  | 43.0 |
| SMAJ24A                 | 26.7 | 29.5 | 1.0 | 24  | 1.0 | 10.3 | 38.9 |
| SMAJ26                  | 28.9 | 35.3 | 1.0 | 26  | 1.0 | 8.6  | 46.6 |
| SMAJ26A                 | 28.9 | 31.9 | 1.0 | 26  | 1.0 | 9.5  | 42.1 |
| SMAJ28                  | 31.1 | 38.0 | 1.0 | 28  | 1.0 | 8.0  | 50.0 |
| SMAJ28A                 | 31.1 | 34.4 | 1.0 | 28  | 1.0 | 8.8  | 45.4 |
| SMAJ30                  | 33.3 | 40.7 | 1.0 | 30  | 1.0 | 7.5  | 53.5 |
| SMAJ30A                 | 33.3 | 36.8 | 1.0 | 30  | 1.0 | 8.3  | 48.4 |
| SMAJ33                  | 36.7 | 44.9 | 1.0 | 33  | 1.0 | 6.8  | 59.0 |
| SMAJ33A                 | 36.7 | 40.6 | 1.0 | 33  | 1.0 | 7.5  | 53.3 |
| SMAJ36                  | 40.0 | 48.9 | 1.0 | 36  | 1.0 | 6.2  | 64.3 |
| SMAJ36A                 | 40.0 | 44.2 | 1.0 | 36  | 1.0 | 6.9  | 58.1 |



# Transient Voltage Suppressor Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.       | Breakdown Voltage @ $I_t^{(1)}$ |       | Working Peak Reverse Voltage | Max. Reverse Leakage @ $V_{RWM}$ | Maximum Peak Pulse Surge Current | Maximum Clamping Voltage @ $I_{PPM}$ |
|----------------|---------------------------------|-------|------------------------------|----------------------------------|----------------------------------|--------------------------------------|
|                | $V_{BR}$ (V)                    | $I_t$ | $V_{RWM}$                    | $I_R^{(3)}$                      | $I_{PPM}$                        | $V_C$                                |
| Unidirectional | Min.                            | Max.  | (mA)                         | (V)                              | ( $\mu A$ )                      | (V)                                  |

## SMAJ Series, 400W, Case Type: SMA



|          |      |      |     |     |     |      |      |
|----------|------|------|-----|-----|-----|------|------|
| SMAJ40   | 44.4 | 54.3 | 1.0 | 40  | 1.0 | 5.6  | 71.4 |
| SMAJ40A  | 44.4 | 49.1 | 1.0 | 40  | 1.0 | 6.2  | 64.5 |
| SMAJ43   | 47.8 | 58.4 | 1.0 | 43  | 1.0 | 5.2  | 76.7 |
| SMAJ43A  | 47.8 | 52.8 | 1.0 | 43  | 1.0 | 5.7  | 69.4 |
| SMAJ45   | 50.0 | 61.1 | 1.0 | 45  | 1.0 | 5.0  | 80.3 |
| SMAJ45A  | 50.0 | 55.3 | 1.0 | 45  | 1.0 | 5.5  | 72.7 |
| SMAJ48   | 53.3 | 65.1 | 1.0 | 48  | 1.0 | 4.7  | 85.5 |
| SMAJ48A  | 53.3 | 58.9 | 1.0 | 48  | 1.0 | 5.2  | 77.4 |
| SMAJ51   | 56.7 | 69.3 | 1.0 | 51  | 1.0 | 4.4  | 91.1 |
| SMAJ51A  | 56.7 | 62.7 | 1.0 | 51  | 1.0 | 4.9  | 82.4 |
| SMAJ54   | 60.0 | 73.3 | 1.0 | 54  | 1.0 | 4.2  | 96.3 |
| SMAJ54A  | 60.0 | 66.3 | 1.0 | 54  | 1.0 | 4.6  | 87.1 |
| SMAJ58   | 64.4 | 78.7 | 1.0 | 58  | 1.0 | 3.9  | 103  |
| SMAJ58A  | 64.4 | 71.2 | 1.0 | 58  | 1.0 | 4.3  | 93.6 |
| SMAJ60   | 66.7 | 81.5 | 1.0 | 60  | 1.0 | 3.7  | 107  |
| SMAJ60A  | 66.7 | 73.7 | 1.0 | 60  | 1.0 | 4.1  | 96.8 |
| SMAJ64   | 71.1 | 86.4 | 1.0 | 64  | 1.0 | 3.5  | 114  |
| SMAJ64A  | 71.1 | 78.6 | 1.0 | 64  | 1.0 | 3.9  | 103  |
| SMAJ70   | 77.8 | 95.1 | 1.0 | 70  | 1.0 | 3.2  | 125  |
| SMAJ70A  | 77.8 | 86   | 1.0 | 70  | 1.0 | 3.5  | 113  |
| SMAJ75   | 83.3 | 102  | 1.0 | 75  | 1.0 | 3.0  | 134  |
| SMAJ75A  | 83.3 | 92.1 | 1.0 | 75  | 1.0 | 3.3  | 121  |
| SMAJ78   | 86.7 | 106  | 1.0 | 78  | 1.0 | 2.9  | 139  |
| SMAJ78A  | 86.7 | 95.8 | 1.0 | 78  | 1.0 | 3.2  | 126  |
| SMAJ85   | 94.4 | 115  | 1.0 | 85  | 1.0 | 2.0  | 151  |
| SMAJ85A  | 94.4 | 104  | 1.0 | 85  | 1.0 | 2.2  | 137  |
| SMAJ90   | 100  | 122  | 1.0 | 90  | 1.0 | 1.9  | 160  |
| SMAJ90A  | 100  | 111  | 1.0 | 90  | 1.0 | 2.1  | 146  |
| SMAJ100  | 111  | 136  | 1.0 | 100 | 1.0 | 1.7  | 179  |
| SMAJ100A | 111  | 123  | 1.0 | 100 | 1.0 | 1.9  | 162  |
| SMAJ110  | 122  | 149  | 1.0 | 110 | 1.0 | 1.5  | 196  |
| SMAJ110A | 122  | 135  | 1.0 | 110 | 1.0 | 1.7  | 177  |
| SMAJ120  | 133  | 163  | 1.0 | 120 | 1.0 | 1.4  | 214  |
| SMAJ120A | 133  | 147  | 1.0 | 120 | 1.0 | 1.6  | 193  |
| SMAJ130  | 144  | 176  | 1.0 | 130 | 1.0 | 1.3  | 231  |
| SMAJ130A | 144  | 159  | 1.0 | 130 | 1.0 | 1.4  | 209  |
| SMAJ150  | 167  | 204  | 1.0 | 150 | 1.0 | 1.1  | 268  |
| SMAJ150A | 167  | 185  | 1.0 | 150 | 1.0 | 1.2  | 243  |
| SMAJ160  | 178  | 218  | 1.0 | 160 | 1.0 | 1.0  | 287  |
| SMAJ160A | 178  | 197  | 1.0 | 160 | 1.0 | 1.2  | 259  |
| SMAJ170  | 189  | 231  | 1.0 | 170 | 1.0 | 0.99 | 304  |
| SMAJ170A | 189  | 209  | 1.0 | 170 | 1.0 | 1.09 | 275  |
| SMAJ188  | 209  | 255  | 1.0 | 188 | 1.0 | 0.90 | 344  |
| SMAJ188A | 209  | 231  | 1.0 | 188 | 1.0 | 0.91 | 328  |

### Notes :

- (1) Pulse test :  $t_p \leq 50ms$
- (2) For bidirectional use "C" or "CA" suffix
- (3) For bi-directional types having  $V_R$  of 10 V and less , the  $I_R$  limit is doubled
- (4) For the bidirectional SMAJ5.0CA, the maximum  $V_{BR}$  is 7.25V
- (5) "SMAJ" will be omitted on marking of the diode



# Transient Voltage Suppressor Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.       |     | Breakdown Voltage @ It<br>( Note 1 ) |      | Working Peak Reverse Voltage | Maximum Reverse Leakage @ VRWM | Maximum Reverse Current | Maximum Clamping Voltage @ IRSM | Maximum Voltage Temperature Variation of VBR |
|----------------|-----|--------------------------------------|------|------------------------------|--------------------------------|-------------------------|---------------------------------|----------------------------------------------|
| Unidirectional |     | VBR (V)                              |      | VRWM                         | IR                             | IRSM                    | VRSM                            |                                              |
| Axial Lead     | SMD | Min.                                 | Max. | (mA)                         | (V)                            | (μA)                    | (A)                             | (V)                                          |

## SA / STUS Series, 500W, Case Type: DO-41/SMA

|        |         |      |      |     |      |     |      |      |      |
|--------|---------|------|------|-----|------|-----|------|------|------|
| SA5.0  | STUS06H | 6.40 | 7.3  | 10  | 5.0  | 600 | 52.0 | 9.6  | 5.0  |
| SA5.0A | STUS56H | 6.40 | 7.0  | 10  | 5.0  | 600 | 54.3 | 9.2  | 5.0  |
| SA6.0  | STUS07A | 6.67 | 8.15 | 10  | 6.0  | 600 | 43.9 | 11.4 | 5.0  |
| SA6.0A | STUS57A | 6.67 | 7.37 | 10  | 6.0  | 600 | 48.5 | 10.3 | 5.0  |
| SA6.5  | STUS07G | 7.22 | 8.82 | 10  | 6.5  | 400 | 40.7 | 12.3 | 5.0  |
| SA6.5A | STUS57G | 7.22 | 7.98 | 10  | 6.5  | 400 | 44.7 | 11.2 | 5.0  |
| SA7.0  | STUS08C | 7.78 | 9.51 | 10  | 7.0  | 150 | 37.8 | 13.3 | 6.0  |
| SA7.0A | STUS58C | 7.78 | 8.60 | 10  | 7.0  | 150 | 41.7 | 12.0 | 6.0  |
| SA7.5  | STUS08I | 8.33 | 10.2 | 1.0 | 7.5  | 50  | 35.0 | 14.3 | 7.0  |
| SA7.5A | STUS58I | 8.33 | 9.21 | 1.0 | 7.5  | 50  | 38.8 | 12.9 | 7.0  |
| SA8.0  | STUS09B | 8.89 | 10.9 | 1.0 | 8.0  | 25  | 33.3 | 15.0 | 7.0  |
| SA8.0A | STUS59B | 8.89 | 9.83 | 1.0 | 8.0  | 25  | 36.7 | 13.6 | 7.0  |
| SA8.5  | STUS010 | 9.44 | 11.5 | 1.0 | 8.5  | 5.0 | 31.4 | 15.9 | 8.0  |
| SA8.5A | STUS510 | 9.44 | 10.4 | 1.0 | 8.5  | 5.0 | 34.7 | 14.4 | 8.0  |
| SA9.0  | STUS011 | 10.0 | 12.2 | 1.0 | 9.0  | 1.0 | 29.5 | 16.9 | 9.0  |
| SA9.0A | STUS511 | 10.0 | 11.1 | 1.0 | 9.0  | 1.0 | 32.5 | 15.4 | 9.0  |
| SA10   | STUS012 | 11.1 | 13.6 | 1.0 | 10.0 | 1.0 | 26.6 | 18.8 | 10.0 |
| SA10A  | STUS512 | 11.1 | 12.3 | 1.0 | 10.0 | 1.0 | 29.4 | 17.0 | 10.0 |
| SA11   | STUS013 | 12.2 | 14.9 | 1.0 | 11.0 | 1.0 | 24.9 | 20.1 | 11.0 |
| SA11A  | STUS513 | 12.2 | 13.5 | 1.0 | 11.0 | 1.0 | 27.4 | 18.2 | 11.0 |
| SA12   | STUS014 | 13.3 | 16.3 | 1.0 | 12.0 | 1.0 | 22.7 | 22.0 | 12.0 |
| SA12A  | STUS514 | 13.3 | 14.7 | 1.0 | 12.0 | 1.0 | 25.1 | 19.9 | 12.0 |
| SA13   | STUS015 | 14.4 | 17.6 | 1.0 | 13.0 | 1.0 | 21   | 23.8 | 13.0 |
| SA13A  | STUS515 | 14.4 | 15.9 | 1.0 | 13.0 | 1.0 | 23.2 | 21.5 | 13.0 |
| SA14   | STUS016 | 15.6 | 19.1 | 1.0 | 14.0 | 1.0 | 19.4 | 25.8 | 14.0 |
| SA14A  | STUS516 | 15.6 | 17.2 | 1.0 | 14.0 | 1.0 | 21.5 | 23.2 | 14.0 |
| SA15   | STUS018 | 16.7 | 20.4 | 1.0 | 15.0 | 1.0 | 18.8 | 26.9 | 16.0 |
| SA15A  | STUS518 | 16.7 | 18.5 | 1.0 | 15.0 | 1.0 | 20.6 | 24.4 | 16.0 |
| SA16   | STUS019 | 17.8 | 21.8 | 1.0 | 16.0 | 1.0 | 17.6 | 28.8 | 19.0 |
| SA16A  | STUS519 | 17.8 | 19.7 | 1.0 | 16.0 | 1.0 | 19.2 | 26.0 | 17.0 |
| SA17   | STUS020 | 18.9 | 23.1 | 1.0 | 17.0 | 1.0 | 16.4 | 30.5 | 20.0 |
| SA17A  | STUS520 | 18.9 | 20.9 | 1.0 | 17.0 | 1.0 | 18.1 | 27.6 | 19.0 |
| SA18   | STUS021 | 20.0 | 24.4 | 1.0 | 18.0 | 1.0 | 15.5 | 32.2 | 21.0 |
| SA18A  | STUS521 | 20.0 | 22.1 | 1.0 | 18.0 | 1.0 | 17.2 | 29.2 | 20.0 |
| SA20   | STUS023 | 22.2 | 27.1 | 1.0 | 20.0 | 1.0 | 13.9 | 35.8 | 25.0 |
| SA20A  | STUS523 | 22.2 | 24.5 | 1.0 | 20.0 | 1.0 | 15.4 | 32.4 | 23.0 |
| SA22   | STUS026 | 24.4 | 29.8 | 1.0 | 22.0 | 1.0 | 12.7 | 39.4 | 28.0 |
| SA22A  | STUS526 | 24.4 | 26.9 | 1.0 | 22.0 | 1.0 | 14.1 | 35.5 | 25.0 |
| SA24   | STUS028 | 26.7 | 32.6 | 1.0 | 24.0 | 1.0 | 11.6 | 43.0 | 31.0 |
| SA24A  | STUS528 | 26.7 | 29.5 | 1.0 | 24.0 | 1.0 | 12.8 | 38.9 | 28.0 |
| SA26   | STUS030 | 28.9 | 35.3 | 1.0 | 26.0 | 1.0 | 10.7 | 46.6 | 31.0 |
| SA26A  | STUS530 | 28.9 | 31.9 | 1.0 | 26.0 | 1.0 | 11.9 | 42.1 | 30.0 |
| SA28   | STUS033 | 31.1 | 38.0 | 1.0 | 28.0 | 1.0 | 9.9  | 50.0 | 35.0 |
| SA28A  | STUS533 | 31.1 | 34.4 | 1.0 | 28.0 | 1.0 | 11   | 45.4 | 31.0 |
| SA30   | STUS035 | 33.3 | 40.7 | 1.0 | 30.0 | 1.0 | 9.3  | 53.5 | 39.0 |
| SA30A  | STUS535 | 33.3 | 36.8 | 1.0 | 30.0 | 1.0 | 10.3 | 48.4 | 36.0 |
| SA33   | STUS039 | 36.7 | 44.9 | 1.0 | 33.0 | 1.0 | 8.5  | 59.0 | 42.0 |
| SA33A  | STUS539 | 36.7 | 40.6 | 1.0 | 33.0 | 1.0 | 9.4  | 53.3 | 39.0 |
| SA36   | STUS042 | 40.0 | 48.9 | 1.0 | 36.0 | 1.0 | 7.8  | 64.3 | 46.0 |
| SA36A  | STUS542 | 40.0 | 44.2 | 1.0 | 36.0 | 1.0 | 8.6  | 58.1 | 41.0 |



# Transient Voltage Suppressor Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.       |     | Breakdown Voltage @ It<br>( Note 1 ) |      | Working Peak Reverse Voltage | Maximum Reverse Leakage @ VRWM | Maximum Reverse Current | Maximum Clamping Voltage @ IRSM | Maximum Voltage Temperature Variation of VBR |
|----------------|-----|--------------------------------------|------|------------------------------|--------------------------------|-------------------------|---------------------------------|----------------------------------------------|
| Unidirectional |     | VBR (V)                              |      | VRWM                         | IR                             | IRSM                    | VRSM                            |                                              |
| Axial Lead     | SMD | Min.                                 | Max. | (mA)                         | (V)                            | (μA)                    | (A)                             | (V)                                          |

## SA / STUS Series, 500W, Case Type: DO-41/SMA

|        |         |      |      |     |      |     |     |      |      |
|--------|---------|------|------|-----|------|-----|-----|------|------|
| SA40   | STUS047 | 44.4 | 54.3 | 1.0 | 40.0 | 1.0 | 7.0 | 71.4 | 51.0 |
| SA40A  | STUS547 | 44.4 | 49.1 | 1.0 | 40.0 | 1.0 | 7.8 | 64.5 | 46.0 |
| SA43   | STUS050 | 47.8 | 58.4 | 1.0 | 43.0 | 1.0 | 6.5 | 76.7 | 55.0 |
| SA43A  | STUS550 | 47.8 | 52.8 | 1.0 | 43.0 | 1.0 | 7.2 | 69.4 | 50.0 |
| SA45   | STUS053 | 50.0 | 61.1 | 1.0 | 45.0 | 1.0 | 6.2 | 80.3 | 58.0 |
| SA45A  | STUS553 | 50.0 | 55.3 | 1.0 | 45.0 | 1.0 | 6.9 | 72.7 | 52.0 |
| SA48   | STUS056 | 53.3 | 65.1 | 1.0 | 48.0 | 1.0 | 5.8 | 85.5 | 63.0 |
| SA48A  | STUS556 | 53.3 | 58.9 | 1.0 | 48.0 | 1.0 | 6.5 | 77.4 | 56.0 |
| SA51   | STUS060 | 56.7 | 69.3 | 1.0 | 51.0 | 1.0 | 5.5 | 91.1 | 66.0 |
| SA51A  | STUS560 | 56.7 | 62.7 | 1.0 | 51.0 | 1.0 | 6.1 | 82.4 | 61.0 |
| SA54   | STUS063 | 60.0 | 73.3 | 1.0 | 54.0 | 1.0 | 5.2 | 96.3 | 71.0 |
| SA54A  | STUS563 | 60.0 | 66.3 | 1.0 | 54.0 | 1.0 | 5.7 | 87.1 | 65.0 |
| SA58   | STUS068 | 64.4 | 78.7 | 1.0 | 58.0 | 1.0 | 4.9 | 103  | 78.0 |
| SA58A  | STUS568 | 64.4 | 71.2 | 1.0 | 58.0 | 1.0 | 5.3 | 93.6 | 70.0 |
| SA60   | STUS071 | 66.7 | 81.5 | 1.0 | 60.0 | 1.0 | 4.7 | 107  | 80.0 |
| SA60A  | STUS571 | 66.7 | 73.7 | 1.0 | 60.0 | 1.0 | 5.2 | 96.8 | 71.0 |
| SA64   | STUS075 | 71.1 | 86.9 | 1.0 | 64.0 | 1.0 | 4.4 | 114  | 86.0 |
| SA64A  | STUS575 | 71.1 | 78.6 | 1.0 | 64.0 | 1.0 | 4.9 | 103  | 76.0 |
| SA70   | STUS082 | 77.8 | 95.1 | 1.0 | 70.0 | 1.0 | 4.0 | 125  | 94.0 |
| SA70A  | STUS582 | 77.8 | 86.0 | 1.0 | 70.0 | 1.0 | 4.4 | 113  | 85.0 |
| SA75   | STUS088 | 83.3 | 102  | 1.0 | 75.0 | 1.0 | 3.7 | 134  | 101  |
| SA75A  | STUS588 | 83.3 | 92.1 | 1.0 | 75.0 | 1.0 | 4.1 | 121  | 91.0 |
| SA78   | STUS091 | 86.7 | 106  | 1.0 | 78.0 | 1.0 | 3.6 | 139  | 105  |
| SA78A  | STUS591 | 86.7 | 95.8 | 1.0 | 78.0 | 1.0 | 4.0 | 126  | 95.0 |
| SA85   | STUS099 | 94.4 | 115  | 1.0 | 85.0 | 1.0 | 3.3 | 151  | 114  |
| SA85A  | STUS599 | 94.4 | 104  | 1.0 | 85.0 | 1.0 | 3.6 | 137  | 103  |
| SA90   | STUS0B1 | 100  | 122  | 1.0 | 90.0 | 1.0 | 3.1 | 160  | 121  |
| SA90A  | STUS5B1 | 100  | 111  | 1.0 | 90.0 | 1.0 | 3.4 | 146  | 110  |
| SA100  | STUS0B2 | 111  | 136  | 1.0 | 100  | 1.0 | 2.8 | 179  | 135  |
| SA100A | STUS5B2 | 111  | 123  | 1.0 | 100  | 1.0 | 3.1 | 162  | 123  |
| SA110  | STUS0B3 | 122  | 149  | 1.0 | 110  | 1.0 | 2.6 | 196  | 148  |
| SA110A | STUS5B3 | 122  | 135  | 1.0 | 110  | 1.0 | 2.8 | 177  | 133  |
| SA120  | STUS0B4 | 133  | 163  | 1.0 | 120  | 1.0 | 2.3 | 214  | 162  |
| SA120A | STUS5B4 | 133  | 147  | 1.0 | 120  | 1.0 | 2.0 | 193  | 146  |
| SA130  | STUS0B5 | 144  | 176  | 1.0 | 130  | 1.0 | 2.2 | 231  | 175  |
| SA130A | STUS5B5 | 144  | 159  | 1.0 | 130  | 1.0 | 2.4 | 209  | 158  |
| SA150  | STUS0B8 | 167  | 204  | 1.0 | 150  | 1.0 | 1.9 | 268  | 203  |
| SA150A | STUS5B8 | 167  | 185  | 1.0 | 150  | 1.0 | 2.1 | 243  | 184  |
| SA160  | STUS0B9 | 178  | 218  | 1.0 | 160  | 1.0 | 1.7 | 287  | 217  |
| SA160A | STUS5B9 | 178  | 197  | 1.0 | 160  | 1.0 | 1.9 | 259  | 196  |
| SA170  | STUS0D0 | 189  | 231  | 1.0 | 170  | 1.0 | 1.6 | 304  | 230  |
| SA170A | STUS5D0 | 189  | 209  | 1.0 | 170  | 1.0 | 1.8 | 275  | 208  |

### Notes:

- (1) VBR measured after It applied for 300 μs., It = square wave pulse or equivalent
- (2) VF = 3.5 Vmax., IF = 35 A (6.8 V to 91 V)  
VF = 5.0 Vmax., IF = 35 A (150 V to 200 V) per 1/2 square or equivalent sine wave  
PW = 8.3 ms, duty cycle = 4 pulses per minute maximum
- (3) For bidirectional use suffix "C" or "CA" (Axial Lead) / replace the third digit of type from "U" to "B" (SMD)
- (4) "STU" or "STB" will be omitted on marking of the diode.
- (5) For bidirectional types having VR of 10 V and under, the IR limit is doubled



# Transient Voltage Suppressor Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.       | Breakdown<br>Voltage @ It<br>( Note 1 ) |      | Working Peak<br>Reverse<br>Voltage | Maximum<br>Reverse Leakage<br>@ VRWM | Maximum<br>Peak pulse<br>Current | Maximum<br>Clamping<br>Voltage @ IRSM |
|----------------|-----------------------------------------|------|------------------------------------|--------------------------------------|----------------------------------|---------------------------------------|
|                | VBR (V)                                 | It   | VRWM                               | IR                                   | Ipp                              | VRSM                                  |
| Unidirectional | Min.                                    | Max. | (mA)                               | (V)                                  | (μA)                             | (A)                                   |
|                |                                         |      |                                    |                                      |                                  | (V)                                   |

## BZW06 Series, 600W, Case Type: DO-15



|           |      |      |     |      |      |      |      |
|-----------|------|------|-----|------|------|------|------|
| BZW06P5V8 | 6.45 | 7.48 | 10  | 5.80 | 1000 | 57   | 10.5 |
| BZW06-5V8 | 6.45 | 7.14 | 10  | 5.80 | 1000 | 57   | 10.5 |
| BZW06P6V4 | 7.13 | 7.25 | 10  | 6.40 | 500  | 53   | 11.3 |
| BZW06-6V4 | 7.13 | 7.88 | 10  | 6.40 | 500  | 53   | 11.3 |
| BZW06P7V0 | 7.79 | 9.02 | 10  | 7.02 | 200  | 50   | 12.1 |
| BZW06-7V0 | 7.79 | 8.61 | 10  | 7.02 | 200  | 50   | 12.1 |
| BZW06P7V8 | 8.65 | 10.0 | 1.0 | 7.78 | 50   | 45   | 13.4 |
| BZW06-7V8 | 8.65 | 9.55 | 1.0 | 7.78 | 50   | 45   | 13.4 |
| BZW06P8V5 | 9.50 | 11.0 | 1.0 | 8.55 | 10   | 41   | 14.5 |
| BZW06-8V5 | 9.50 | 10.5 | 1.0 | 8.55 | 10   | 41   | 14.5 |
| BZW06P9V4 | 10.5 | 12.1 | 1.0 | 9.40 | 5.0  | 38   | 15.6 |
| BZW06-9V4 | 10.5 | 11.6 | 1.0 | 9.40 | 5.0  | 38   | 15.6 |
| BZW06P10  | 11.4 | 13.2 | 1.0 | 10.2 | 5.0  | 36   | 16.7 |
| BZW06-10  | 11.4 | 12.6 | 1.0 | 10.2 | 5.0  | 36   | 16.7 |
| BZW06P11  | 12.4 | 14.3 | 1.0 | 11.1 | 5.0  | 33   | 18.2 |
| BZW06-11  | 12.4 | 13.7 | 1.0 | 11.1 | 5.0  | 33   | 18.2 |
| BZW06P13  | 14.3 | 16.5 | 1.0 | 12.8 | 5.0  | 28   | 21.2 |
| BZW06-13  | 14.3 | 15.8 | 1.0 | 12.8 | 5.0  | 28   | 21.2 |
| BZW06P14  | 15.2 | 17.6 | 1.0 | 13.6 | 5.0  | 27   | 22.5 |
| BZW06-14  | 15.2 | 16.8 | 1.0 | 13.6 | 5.0  | 27   | 22.5 |
| BZW06P15  | 17.1 | 19.8 | 1.0 | 15.3 | 1.0  | 24   | 25.2 |
| BZW06-15  | 17.1 | 18.9 | 1.0 | 15.3 | 1.0  | 24   | 25.2 |
| BZW06P17  | 19.0 | 22.0 | 1.0 | 17.1 | 1.0  | 22   | 27.2 |
| BZW06-17  | 19.0 | 21.0 | 1.0 | 17.1 | 1.0  | 22   | 27.2 |
| BZW06P19  | 20.9 | 24.2 | 1.0 | 18.8 | 1.0  | 20   | 30.6 |
| BZW06-19  | 20.9 | 23.1 | 1.0 | 18.8 | 1.0  | 20   | 30.6 |
| BZW06P20  | 22.8 | 26.4 | 1.0 | 20.5 | 1.0  | 18   | 33.2 |
| BZW06-20  | 22.8 | 25.2 | 1.0 | 20.5 | 1.0  | 18   | 33.2 |
| BZW06P23  | 25.7 | 29.7 | 1.0 | 23.1 | 1.0  | 16   | 37.5 |
| BZW06-23  | 25.7 | 28.4 | 1.0 | 23.1 | 1.0  | 16   | 37.5 |
| BZW06P26  | 28.5 | 33.0 | 1.0 | 25.6 | 1.0  | 14.5 | 41.5 |
| BZW06-26  | 28.5 | 31.5 | 1.0 | 25.6 | 1.0  | 14.5 | 41.5 |
| BZW06P28  | 31.4 | 36.3 | 1.0 | 28.2 | 1.0  | 13.1 | 45.7 |
| BZW06-28  | 31.4 | 34.7 | 1.0 | 28.2 | 1.0  | 13.1 | 45.7 |
| BZW06P31  | 34.2 | 39.6 | 1.0 | 30.8 | 1.0  | 12.0 | 49.9 |
| BZW06-31  | 34.2 | 37.8 | 1.0 | 30.8 | 1.0  | 12.0 | 49.9 |
| BZW06P33  | 37.1 | 42.9 | 1.0 | 33.3 | 1.0  | 11.1 | 53.9 |
| BZW06-33  | 37.1 | 41.0 | 1.0 | 33.3 | 1.0  | 11.1 | 53.9 |
| BZW06P37  | 40.9 | 47.3 | 1.0 | 36.8 | 1.0  | 10.1 | 59.3 |
| BZW06-37  | 40.9 | 45.2 | 1.0 | 36.8 | 1.0  | 10.1 | 59.3 |
| BZW06P40  | 44.7 | 51.7 | 1.0 | 40.2 | 1.0  | 9.3  | 64.8 |
| BZW06-40  | 44.7 | 49.4 | 1.0 | 40.2 | 1.0  | 9.3  | 64.8 |
| BZW06P44  | 48.5 | 56.1 | 1.0 | 43.6 | 1.0  | 8.6  | 70.1 |
| BZW06-44  | 48.5 | 53.6 | 1.0 | 43.6 | 1.0  | 8.6  | 70.1 |
| BZW06P48  | 53.2 | 61.6 | 1.0 | 47.8 | 1.0  | 7.8  | 77   |
| BZW06-48  | 53.2 | 58.8 | 1.0 | 47.8 | 1.0  | 7.8  | 77   |
| BZW06P53  | 58.9 | 68.2 | 1.0 | 53   | 1.0  | 7.1  | 85   |
| BZW06-53  | 58.9 | 65.1 | 1.0 | 53   | 1.0  | 7.1  | 85   |



# Transient Voltage Suppressor Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.       | Breakdown<br>Voltage @ It<br>( Note 1 ) |      | Working Peak<br>Reverse<br>Voltage | Maximum<br>Reverse Leakage<br>@ VRWM | Maximum<br>Peak pulse<br>Current | Maximum<br>Clamping<br>Voltage @ IRSM |
|----------------|-----------------------------------------|------|------------------------------------|--------------------------------------|----------------------------------|---------------------------------------|
|                | VBR (V)                                 | It   | VRWM                               | IR                                   | I <sub>PP</sub>                  | VRSM                                  |
| Unidirectional | Min.                                    | Max. | (mA)                               | (V)                                  | (μA)                             | (A)                                   |
|                |                                         |      |                                    |                                      |                                  | (V)                                   |

## BZW06 Series, 600W, Case Type: DO-15



|           |      |      |     |      |     |     |     |
|-----------|------|------|-----|------|-----|-----|-----|
| BZW06P58  | 64.6 | 74.8 | 1.0 | 58.1 | 1.0 | 6.5 | 92  |
| BZW06-58  | 64.6 | 71.4 | 1.0 | 58.1 | 1.0 | 6.5 | 92  |
| BZW06P64  | 71.3 | 82.5 | 1.0 | 64.1 | 1.0 | 5.8 | 103 |
| BZW06-64  | 71.3 | 78.8 | 1.0 | 64.1 | 1.0 | 5.8 | 103 |
| BZW06P70  | 77.9 | 90.2 | 1.0 | 70.1 | 1.0 | 5.3 | 113 |
| BZW06-70  | 77.9 | 86.1 | 1.0 | 70.1 | 1.0 | 5.3 | 113 |
| BZW06P78  | 86.5 | 100  | 1.0 | 77.8 | 1.0 | 4.8 | 125 |
| BZW06-78  | 86.5 | 95.5 | 1.0 | 77.8 | 1.0 | 4.8 | 125 |
| BZW06P85  | 95   | 110  | 1.0 | 85.8 | 1.0 | 4.4 | 137 |
| BZW06-85  | 95   | 105  | 1.0 | 85.8 | 1.0 | 4.4 | 137 |
| BZW06P94  | 105  | 121  | 1.0 | 94   | 1.0 | 3.9 | 152 |
| BZW06-94  | 105  | 116  | 1.0 | 94   | 1.0 | 3.9 | 152 |
| BZW06P102 | 114  | 132  | 1.0 | 102  | 1.0 | 3.6 | 165 |
| BZW06-102 | 114  | 126  | 1.0 | 102  | 1.0 | 3.6 | 165 |
| BZW06P111 | 124  | 143  | 1.0 | 111  | 1.0 | 3.4 | 179 |
| BZW06-111 | 124  | 137  | 1.0 | 111  | 1.0 | 3.4 | 179 |
| BZW06P128 | 143  | 165  | 1.0 | 128  | 1.0 | 2.9 | 207 |
| BZW06-128 | 143  | 158  | 1.0 | 128  | 1.0 | 2.9 | 207 |
| BZW06P136 | 152  | 176  | 1.0 | 136  | 1.0 | 2.7 | 219 |
| BZW06-136 | 152  | 168  | 1.0 | 136  | 1.0 | 2.7 | 219 |
| BZW06P145 | 161  | 187  | 1.0 | 145  | 1.0 | 2.6 | 234 |
| BZW06-145 | 161  | 179  | 1.0 | 145  | 1.0 | 2.6 | 234 |
| BZW06P154 | 171  | 198  | 1.0 | 154  | 1.0 | 2.4 | 246 |
| BZW06-154 | 171  | 189  | 1.0 | 154  | 1.0 | 2.4 | 246 |
| BZW06P171 | 190  | 220  | 1.0 | 171  | 1.0 | 2.2 | 274 |
| BZW06-171 | 190  | 210  | 1.0 | 171  | 1.0 | 2.2 | 274 |
| BZW06P188 | 209  | 242  | 1.0 | 188  | 1.0 | 2.0 | 301 |
| BZW06-188 | 209  | 231  | 1.0 | 188  | 1.0 | 2.0 | 301 |
| BZW06P213 | 237  | 275  | 1.0 | 213  | 1.0 | 1.8 | 344 |
| BZW06-213 | 237  | 263  | 1.0 | 213  | 1.0 | 1.8 | 344 |
| BZW06P239 | 266  | 308  | 1.0 | 239  | 1.0 | 1.7 | 384 |
| BZW06-239 | 266  | 294  | 1.0 | 239  | 1.0 | 1.7 | 384 |
| BZW06P256 | 285  | 330  | 1.0 | 256  | 1.0 | 1.6 | 414 |
| BZW06-256 | 285  | 315  | 1.0 | 256  | 1.0 | 1.6 | 414 |
| BZW06P273 | 304  | 352  | 1.0 | 273  | 1.0 | 1.6 | 436 |
| BZW06-273 | 304  | 336  | 1.0 | 273  | 1.0 | 1.6 | 436 |
| BZW06P299 | 332  | 285  | 1.0 | 299  | 1.0 | 1.6 | 482 |
| BZW06-299 | 332  | 368  | 1.0 | 299  | 1.0 | 1.6 | 482 |
| BZW06P342 | 380  | 440  | 1.0 | 342  | 1.0 | 1.3 | 548 |
| BZW06-342 | 380  | 420  | 1.0 | 342  | 1.0 | 1.3 | 548 |
| BZW06P376 | 418  | 484  | 1.0 | 376  | 1.0 | 1.3 | 603 |
| BZW06-376 | 418  | 462  | 1.0 | 376  | 1.0 | 1.3 | 603 |

### Notes:

- (1) Pulse test :  $t_p < 50$  ms
- (2) For Bidirectional use suffix "B" (Axial Lead)
- (3) For bidirectional types having  $V_R$  of 10 V and under, the  $I_R$  limit is doubled
- (4) "ZW06" will be omitted on marking of the diode.
- (5) For case type D2 (Axial Lead) , we can support until the end of 2008.



# Transient Voltage Suppressor Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.       |     | Breakdown Voltage @ $I_t$<br>( Note 1 ) |       | Working Peak Reverse Voltage | Maximum Reverse Leakage @ $V_{RWM}$ | Maximum Reverse Current | Maximum Clamping Voltage @ $I_{RSM}$ | Maximum Temperature Coefficient of $V_{BR}$ |
|----------------|-----|-----------------------------------------|-------|------------------------------|-------------------------------------|-------------------------|--------------------------------------|---------------------------------------------|
| Unidirectional |     | $V_{BR}$ (V)                            | $I_t$ | $V_{RWM}$                    | $I_R$                               | $I_{RSM}$               | $V_{RSM}$                            |                                             |
| Axial Lead     | SMD | Min.                                    | Max.  | (mA)                         | (V)                                 | ( $\mu$ A)              | (A)                                  | (V)                                         |
|                |     |                                         |       |                              |                                     |                         |                                      | (% / °C)                                    |

## P6KE/STU6 Series, 600W, Case Type: DO-15/SMB



|          |         |      |      |     |      |      |      |      |       |
|----------|---------|------|------|-----|------|------|------|------|-------|
| P6KE6.8  | STU606I | 6.12 | 7.48 | 10  | 5.50 | 1000 | 55.5 | 10.8 | 0.057 |
| P6KE6.8A | STU656I | 6.45 | 7.14 | 10  | 5.80 | 1000 | 57.0 | 10.5 | 0.057 |
| P6KE7.5  | STU607F | 6.75 | 8.25 | 10  | 6.05 | 500  | 51.0 | 11.7 | 0.061 |
| P6KE7.5A | STU657F | 7.13 | 7.88 | 10  | 6.40 | 500  | 53.0 | 11.3 | 0.061 |
| P6KE8.2  | STU608C | 7.38 | 9.02 | 10  | 6.63 | 200  | 48.0 | 12.5 | 0.065 |
| P6KE8.2A | STU658C | 7.79 | 8.61 | 10  | 7.02 | 200  | 50.0 | 12.1 | 0.065 |
| P6KE9.1  | STU609B | 8.19 | 10.0 | 1.0 | 7.37 | 50   | 44.0 | 13.8 | 0.068 |
| P6KE9.1A | STU659B | 8.65 | 9.55 | 1.0 | 7.78 | 50   | 45.0 | 13.4 | 0.068 |
| P6KE10   | STU6010 | 9.00 | 11.0 | 1.0 | 8.10 | 10   | 40.0 | 15.0 | 0.073 |
| P6KE10A  | STU6510 | 9.50 | 10.5 | 1.0 | 8.55 | 10   | 41.0 | 14.5 | 0.073 |
| P6KE11   | STU6011 | 9.90 | 12.1 | 1.0 | 8.92 | 5.0  | 37.0 | 16.2 | 0.075 |
| P6KE11A  | STU6511 | 10.5 | 11.6 | 1.0 | 9.40 | 5.0  | 38.0 | 15.6 | 0.075 |
| P6KE12   | STU6012 | 10.8 | 13.2 | 1.0 | 9.72 | 5.0  | 35.0 | 17.3 | 0.078 |
| P6KE12A  | STU6512 | 11.4 | 12.6 | 1.0 | 10.2 | 5.0  | 36.0 | 16.7 | 0.078 |
| P6KE13   | STU6013 | 11.7 | 14.3 | 1.0 | 10.5 | 5.0  | 32.0 | 19.0 | 0.081 |
| P6KE13A  | STU6513 | 12.4 | 13.7 | 1.0 | 11.1 | 5.0  | 33.0 | 18.2 | 0.081 |
| P6KE15   | STU6015 | 13.5 | 16.3 | 1.0 | 12.1 | 5.0  | 27.0 | 22.0 | 0.084 |
| P6KE15A  | STU6515 | 14.3 | 15.8 | 1.0 | 12.8 | 5.0  | 28.0 | 21.2 | 0.084 |
| P6KE16   | STU6016 | 14.4 | 17.6 | 1.0 | 12.9 | 5.0  | 26.0 | 23.5 | 0.086 |
| P6KE16A  | STU6516 | 15.2 | 16.8 | 1.0 | 13.6 | 5.0  | 27.0 | 22.5 | 0.086 |
| P6KE18   | STU6018 | 16.2 | 19.8 | 1.0 | 14.5 | 5.0  | 23.0 | 26.5 | 0.088 |
| P6KE18A  | STU6518 | 17.1 | 18.9 | 1.0 | 15.3 | 5.0  | 24.0 | 25.2 | 0.088 |
| P6KE20   | STU6020 | 18.0 | 22.0 | 1.0 | 16.2 | 5.0  | 21.0 | 29.1 | 0.090 |
| P6KE20A  | STU6520 | 19.0 | 21.0 | 1.0 | 17.1 | 5.0  | 22.0 | 27.7 | 0.090 |
| P6KE22   | STU6022 | 19.8 | 24.2 | 1.0 | 17.8 | 5.0  | 19.0 | 31.9 | 0.092 |
| P6KE22A  | STU6522 | 20.9 | 23.1 | 1.0 | 18.8 | 5.0  | 20.0 | 30.6 | 0.092 |
| P6KE24   | STU6024 | 21.6 | 26.4 | 1.0 | 19.4 | 5.0  | 17.0 | 34.7 | 0.094 |
| P6KE24A  | STU6524 | 22.8 | 25.2 | 1.0 | 20.5 | 5.0  | 18.0 | 33.2 | 0.094 |
| P6KE27   | STU6027 | 24.3 | 29.7 | 1.0 | 21.8 | 5.0  | 15.0 | 39.1 | 0.096 |
| P6KE27A  | STU6527 | 25.7 | 28.4 | 1.0 | 23.1 | 5.0  | 16.0 | 37.5 | 0.096 |
| P6KE30   | STU6030 | 27.0 | 33.0 | 1.0 | 24.3 | 5.0  | 14.0 | 43.5 | 0.097 |
| P6KE30A  | STU6530 | 28.5 | 31.5 | 1.0 | 25.6 | 5.0  | 14.4 | 41.4 | 0.097 |
| P6KE33   | STU6033 | 29.7 | 36.3 | 1.0 | 26.8 | 5.0  | 12.6 | 47.7 | 0.098 |
| P6KE33A  | STU6533 | 31.4 | 34.7 | 1.0 | 28.2 | 5.0  | 13.2 | 45.7 | 0.098 |
| P6KE36   | STU6036 | 32.4 | 39.6 | 1.0 | 29.1 | 5.0  | 11.6 | 52.0 | 0.099 |
| P6KE36A  | STU6536 | 34.2 | 37.8 | 1.0 | 30.8 | 5.0  | 12.0 | 49.9 | 0.099 |
| P6KE39   | STU6039 | 35.1 | 42.9 | 1.0 | 31.6 | 5.0  | 10.6 | 56.4 | 0.100 |
| P6KE39A  | STU6539 | 37.1 | 41.0 | 1.0 | 33.3 | 5.0  | 11.2 | 53.9 | 0.100 |
| P6KE43   | STU6043 | 38.7 | 47.3 | 1.0 | 34.8 | 5.0  | 9.6  | 61.9 | 0.101 |
| P6KE43A  | STU6543 | 40.9 | 45.2 | 1.0 | 36.8 | 5.0  | 10.1 | 59.3 | 0.101 |
| P6KE47   | STU6047 | 42.3 | 51.7 | 1.0 | 38.1 | 5.0  | 8.9  | 67.8 | 0.101 |
| P6KE47A  | STU6547 | 44.7 | 49.4 | 1.0 | 40.2 | 5.0  | 9.3  | 64.8 | 0.101 |
| P6KE51   | STU6051 | 45.9 | 56.1 | 1.0 | 41.3 | 5.0  | 8.2  | 73.5 | 0.102 |
| P6KE51A  | STU6551 | 48.5 | 53.6 | 1.0 | 43.6 | 5.0  | 8.6  | 70.1 | 0.102 |
| P6KE56   | STU6056 | 50.4 | 61.6 | 1.0 | 45.4 | 5.0  | 7.4  | 80.5 | 0.103 |
| P6KE56A  | STU6556 | 53.2 | 58.8 | 1.0 | 47.8 | 5.0  | 7.8  | 77.0 | 0.103 |
| P6KE62   | STU6062 | 55.8 | 68.2 | 1.0 | 50.2 | 5.0  | 6.8  | 89.0 | 0.104 |
| P6KE62A  | STU6562 | 58.9 | 65.1 | 1.0 | 53.0 | 5.0  | 7.1  | 85.0 | 0.104 |



# Transient Voltage Suppressor Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.       |     | Breakdown Voltage @ $I_t$<br>( Note 1 ) |       | Working Peak Reverse Voltage | Maximum Reverse Leakage @ $V_{RWM}$ | Maximum Reverse Current | Maximum Clamping Voltage @ $I_{RSM}$ | Maximum Temperature Coefficient of $V_{BR}$ |
|----------------|-----|-----------------------------------------|-------|------------------------------|-------------------------------------|-------------------------|--------------------------------------|---------------------------------------------|
| Unidirectional |     | $V_{BR}$ (V)                            | $I_t$ | $V_{RWM}$                    | $I_R$                               | $I_{RSM}$               | $V_{RSM}$                            |                                             |
| Axial Lead     | SMD | Min.                                    | Max.  | (mA)                         | (V)                                 | ( $\mu$ A)              | (A)                                  | (V)                                         |
|                |     |                                         |       |                              |                                     |                         |                                      | (% / °C)                                    |

## P6KE/STU6 Series, 600W, Case Type: DO-15/SMB



|          |         |      |      |     |      |     |      |      |       |
|----------|---------|------|------|-----|------|-----|------|------|-------|
| P6KE68   | STU6068 | 61.2 | 74.8 | 1.0 | 55.1 | 5.0 | 6.1  | 98.0 | 0.104 |
| P6KE68A  | STU6568 | 64.6 | 71.4 | 1.0 | 58.1 | 5.0 | 6.5  | 92.0 | 0.104 |
| P6KE75   | STU6075 | 67.5 | 82.5 | 1.0 | 60.7 | 5.0 | 5.5  | 108  | 0.105 |
| P6KE75A  | STU6575 | 71.3 | 78.8 | 1.0 | 64.1 | 5.0 | 5.8  | 103  | 0.105 |
| P6KE82   | STU6082 | 73.8 | 90.2 | 1.0 | 66.4 | 5.0 | 5.1  | 118  | 0.105 |
| P6KE82A  | STU6582 | 77.9 | 86.1 | 1.0 | 70.1 | 5.0 | 5.3  | 113  | 0.105 |
| P6KE91   | STU6091 | 81.9 | 100  | 1.0 | 73.7 | 5.0 | 4.5  | 131  | 0.106 |
| P6KE91A  | STU6591 | 86.5 | 95.5 | 1.0 | 77.8 | 5.0 | 4.8  | 125  | 0.106 |
| P6KE100  | STU60B0 | 90.0 | 110  | 1.0 | 81   | 5.0 | 4.2  | 144  | 0.106 |
| P6KE100A | STU65B0 | 95.0 | 105  | 1.0 | 85.5 | 5.0 | 4.4  | 137  | 0.106 |
| P6KE110  | STU60B1 | 99.0 | 121  | 1.0 | 89.2 | 5.0 | 3.8  | 158  | 0.107 |
| P6KE110A | STU65B1 | 105  | 116  | 1.0 | 94.0 | 5.0 | 4.0  | 152  | 0.107 |
| P6KE120  | STU60B2 | 108  | 132  | 1.0 | 97.2 | 5.0 | 3.5  | 173  | 0.107 |
| P6KE120A | STU65B2 | 114  | 126  | 1.0 | 102  | 5.0 | 3.6  | 165  | 0.107 |
| P6KE130  | STU60B3 | 117  | 143  | 1.0 | 106  | 5.0 | 3.2  | 187  | 0.107 |
| P6KE130A | STU65B3 | 124  | 137  | 1.0 | 111  | 5.0 | 3.3  | 179  | 0.107 |
| P6KE150  | STU60B5 | 135  | 165  | 1.0 | 121  | 5.0 | 2.8  | 215  | 0.108 |
| P6KE150A | STU65B5 | 143  | 158  | 1.0 | 128  | 5.0 | 2.9  | 207  | 0.108 |
| P6KE160  | STU60B6 | 144  | 176  | 1.0 | 130  | 5.0 | 2.6  | 230  | 0.108 |
| P6KE160A | STU65B6 | 152  | 168  | 1.0 | 136  | 5.0 | 2.7  | 219  | 0.108 |
| P6KE170  | STU60B7 | 153  | 187  | 1.0 | 138  | 5.0 | 2.5  | 244  | 0.108 |
| P6KE170A | STU65B7 | 162  | 179  | 1.0 | 145  | 5.0 | 2.6  | 234  | 0.108 |
| P6KE180  | STU60B8 | 162  | 198  | 1.0 | 146  | 5.0 | 2.3  | 258  | 0.108 |
| P6KE180A | STU65B8 | 171  | 189  | 1.0 | 154  | 5.0 | 2.4  | 246  | 0.108 |
| P6KE200  | STU60D0 | 180  | 220  | 1.0 | 162  | 5.0 | 2.1  | 287  | 0.108 |
| P6KE200A | STU65D0 | 190  | 210  | 1.0 | 171  | 5.0 | 2.2  | 274  | 0.108 |
| P6KE220  | STU60D2 | 198  | 242  | 1.0 | 175  | 5.0 | 1.75 | 344  | 0.108 |
| P6KE220A | STU65D2 | 209  | 231  | 1.0 | 185  | 5.0 | 1.83 | 328  | 0.108 |
| P6KE250  | STU60D5 | 225  | 275  | 1.0 | 202  | 5.0 | 1.67 | 360  | 0.110 |
| P6KE250A | STU65D5 | 237  | 263  | 1.0 | 214  | 5.0 | 1.75 | 344  | 0.110 |
| P6KE300  | STU60E0 | 270  | 330  | 1.0 | 243  | 5.0 | 1.40 | 430  | 0.110 |
| P6KE300A | STU65E0 | 285  | 315  | 1.0 | 256  | 5.0 | 1.45 | 414  | 0.110 |
| P6KE320  | STU60E2 | 288  | 352  | 1.0 | 259  | 5.0 | 1.31 | 460  | 0.110 |
| P6KE320A | STU65E2 | 303  | 337  | 1.0 | 272  | 5.0 | 1.35 | 445  | 0.110 |
| P6KE350  | STU60E5 | 315  | 385  | 1.0 | 284  | 5.0 | 1.20 | 504  | 0.110 |
| P6KE350A | STU65E5 | 332  | 368  | 1.0 | 300  | 5.0 | 1.25 | 482  | 0.110 |
| P6KE400  | STU60G0 | 360  | 440  | 1.0 | 324  | 5.0 | 1.05 | 574  | 0.110 |
| P6KE400A | STU65G0 | 380  | 420  | 1.0 | 342  | 5.0 | 1.10 | 548  | 0.110 |
| P6KE440  | STU60G4 | 396  | 484  | 1.0 | 356  | 5.0 | 0.95 | 631  | 0.110 |
| P6KE440A | STU65G4 | 418  | 462  | 1.0 | 376  | 5.0 | 1.00 | 602  | 0.110 |

### Notes:

- (1)  $V_{BR}$  measured after  $I_t$  applied for 300  $\mu$ s.,  $I_t$  = square wave pulse or equivalent
- (2)  $V_F = 3.5 V_{max.}$ ,  $I_F = 50$  A ( 6.8 V to 91 V )  
 $V_F = 5.0 V_{max.}$ ,  $I_F = 50$  A (100 V to 440 V) per 1/2 square or equivalent sine wave  
PW = 8.3 ms, duty cycle = 4 pulses per minute maximum
- (3) For bidirectional use suffix "C" or "CA" (Axial Lead) / replace the third digit of type from "U" to "B" (SMD)
- (4) "6KE" for Axial lead / "STU" or "STB" for SMD will be omitted on marking of the diode
- (5) For bidirectional types having  $V_R$  of 10 V and under, the  $I_R$  limit is doubled
- (6) For case type D2A (Axial Lead), we can support until the end of 2008.



# Transient Voltage Suppressor Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.       | Breakdown Voltage @ $I_t$<br>( Note 1 ) |       | Working Peak<br>Reverse<br>Voltage | Maximum<br>Reverse Leakage<br>@ $V_{RWM}$ | Maximum<br>Reverse<br>Current | Maximum<br>Clamping<br>Voltage @ $I_{RSM}$ | Maximum<br>Temperature<br>Coefficient<br>of $V_{BR}$ |
|----------------|-----------------------------------------|-------|------------------------------------|-------------------------------------------|-------------------------------|--------------------------------------------|------------------------------------------------------|
|                | $V_{BR}$ (V)                            | $I_t$ | $V_{RWM}$                          | $I_R$                                     | $I_{RSM}$                     | $V_{RSM}$                                  | (% / °C)                                             |
| Unidirectional | Min.                                    | Max.  | (mA)                               | (V)                                       | (mA)                          | (A)                                        | (V)                                                  |

## P6SMB Series, 600W, Case Type: SMB



|           |      |      |     |      |      |      |      |       |
|-----------|------|------|-----|------|------|------|------|-------|
| P6SMB6.8A | 6.45 | 7.14 | 10  | 5.80 | 1000 | 57.0 | 10.5 | 0.057 |
| P6SMB7.5A | 7.13 | 7.88 | 10  | 6.40 | 500  | 53.0 | 11.3 | 0.061 |
| P6SMB8.2A | 7.79 | 8.61 | 10  | 7.02 | 200  | 50.0 | 12.1 | 0.065 |
| P6SMB9.1A | 8.65 | 9.55 | 1.0 | 7.78 | 50   | 45.0 | 13.4 | 0.068 |
| P6SMB10A  | 9.50 | 10.5 | 1.0 | 8.55 | 10   | 41.0 | 14.5 | 0.073 |
| P6SMB11A  | 10.5 | 11.6 | 1.0 | 9.40 | 5.0  | 38.0 | 15.6 | 0.075 |
| P6SMB12A  | 11.4 | 12.6 | 1.0 | 10.2 | 5.0  | 36.0 | 16.7 | 0.078 |
| P6SMB13A  | 12.4 | 13.7 | 1.0 | 11.1 | 5.0  | 33.0 | 18.2 | 0.081 |
| P6SMB15A  | 14.3 | 15.8 | 1.0 | 12.8 | 5.0  | 28.0 | 21.2 | 0.084 |
| P6SMB16A  | 15.2 | 16.8 | 1.0 | 13.6 | 5.0  | 27.0 | 22.5 | 0.086 |
| P6SMB18A  | 17.1 | 18.9 | 1.0 | 15.3 | 5.0  | 24.0 | 25.2 | 0.088 |
| P6SMB20A  | 19.0 | 21.0 | 1.0 | 17.1 | 5.0  | 22.0 | 27.7 | 0.090 |
| P6SMB22A  | 20.9 | 23.1 | 1.0 | 18.8 | 5.0  | 20.0 | 30.6 | 0.092 |
| P6SMB24A  | 22.8 | 25.2 | 1.0 | 20.5 | 5.0  | 18.0 | 33.2 | 0.094 |
| P6SMB27A  | 25.7 | 28.4 | 1.0 | 23.1 | 5.0  | 16.0 | 37.5 | 0.096 |
| P6SMB30A  | 28.5 | 31.5 | 1.0 | 25.6 | 5.0  | 14.4 | 41.4 | 0.097 |
| P6SMB33A  | 31.4 | 34.7 | 1.0 | 28.2 | 5.0  | 13.2 | 45.7 | 0.098 |
| P6SMB36A  | 34.2 | 37.8 | 1.0 | 30.8 | 5.0  | 12.0 | 49.9 | 0.099 |
| P6SMB39A  | 37.1 | 41.0 | 1.0 | 33.3 | 5.0  | 11.2 | 53.9 | 0.100 |
| P6SMB43A  | 40.9 | 45.2 | 1.0 | 36.8 | 5.0  | 10.1 | 59.3 | 0.101 |
| P6SMB47A  | 44.7 | 49.4 | 1.0 | 40.2 | 5.0  | 9.3  | 64.8 | 0.101 |
| P6SMB51A  | 48.5 | 53.6 | 1.0 | 43.6 | 5.0  | 8.6  | 70.1 | 0.102 |
| P6SMB56A  | 53.2 | 58.8 | 1.0 | 47.8 | 5.0  | 7.8  | 77.0 | 0.103 |
| P6SMB62A  | 58.9 | 65.1 | 1.0 | 53.0 | 5.0  | 7.1  | 85.0 | 0.104 |
| P6SMB68A  | 64.6 | 71.4 | 1.0 | 58.1 | 5.0  | 6.5  | 92.0 | 0.104 |
| P6SMB75A  | 71.3 | 78.8 | 1.0 | 64.1 | 5.0  | 5.8  | 103  | 0.105 |
| P6SMB82A  | 77.9 | 86.1 | 1.0 | 70.1 | 5.0  | 5.3  | 113  | 0.105 |
| P6SMB91A  | 86.5 | 95.5 | 1.0 | 77.8 | 5.0  | 4.8  | 125  | 0.106 |
| P6SMB100A | 95.0 | 105  | 1.0 | 85.5 | 5.0  | 4.4  | 137  | 0.106 |
| P6SMB110A | 105  | 116  | 1.0 | 94.0 | 5.0  | 4.0  | 152  | 0.107 |
| P6SMB120A | 114  | 126  | 1.0 | 102  | 5.0  | 3.6  | 165  | 0.107 |
| P6SMB130A | 124  | 137  | 1.0 | 111  | 5.0  | 3.3  | 179  | 0.107 |
| P6SMB150A | 143  | 158  | 1.0 | 128  | 5.0  | 2.9  | 207  | 0.108 |
| P6SMB160A | 152  | 168  | 1.0 | 136  | 5.0  | 2.7  | 219  | 0.108 |
| P6SMB170A | 162  | 179  | 1.0 | 145  | 5.0  | 2.6  | 234  | 0.108 |
| P6SMB180A | 171  | 189  | 1.0 | 154  | 5.0  | 2.4  | 246  | 0.108 |
| P6SMB200A | 190  | 210  | 1.0 | 171  | 5.0  | 2.2  | 274  | 0.108 |
| P6SMB220A | 209  | 231  | 1.0 | 185  | 5.0  | 1.83 | 328  | 0.108 |
| P6SMB250A | 237  | 263  | 1.0 | 214  | 5.0  | 1.75 | 344  | 0.110 |
| P6SMB300A | 285  | 315  | 1.0 | 256  | 5.0  | 1.45 | 414  | 0.110 |
| P6SMB350A | 332  | 368  | 1.0 | 300  | 5.0  | 1.25 | 482  | 0.110 |
| P6SMB400A | 380  | 420  | 1.0 | 342  | 5.0  | 1.10 | 548  | 0.110 |
| P6SMB440A | 418  | 462  | 1.0 | 376  | 5.0  | 1.00 | 602  | 0.110 |
| P6SMB480A | 456  | 504  | 1.0 | 408  | 5.0  | 0.91 | 658  | 0.110 |
| P6SMB510A | 485  | 535  | 1.0 | 434  | 5.0  | 0.86 | 698  | 0.110 |
| P6SMB540A | 513  | 567  | 1.0 | 459  | 5.0  | 0.81 | 740  | 0.110 |

### Notes:

- ( 1 )  $V_{BR}$  measured after  $I_t$  applied for 300  $\mu s$ .,  $I_t$  = square wave pulse or equivalent
- ( 2 )  $V_F$  = 3.5  $V_{max}$ .,  $I_F$  = 50 A ( 6.8 V to 91 V )  
 $V_F$  = 5.0  $V_{max}$ .,  $I_F$  = 50 A (100 V to 540 V) per 1/2 square or equivalent sine wave  
PW = 8.3 ms, duty cycle = 4 pulses per minute maximum
- ( 3 ) For bidirectional use suffix "CA" .Bidirectional types having  $V_R$  of 10 V and under, the  $I_R$  limit is doubled
- ( 4 ) "P6SMB" will be omitted in marking on the diode



# Transient Voltage Suppressor Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.       | Breakdown Voltage @ $I_T^{(1)}$ |      |       | Reverse Stand-off Voltage | Maximum Reverse Leakage @ $V_{WM}$ | Maximum Peak Pulse Surge Current | Maximum Clamping Voltage @ $I_{PPM}$ |
|----------------|---------------------------------|------|-------|---------------------------|------------------------------------|----------------------------------|--------------------------------------|
|                | $V_{BR}$ (V)                    |      | $I_T$ |                           |                                    |                                  |                                      |
| Unidirectional | Min.                            | Max. | (mA)  | (V)                       | ( $\mu A$ )                        | (A)                              | (V)                                  |

## SMBJ Series, 600W, Case Type: SMB



|          |      |      |     |     |     |      |      |
|----------|------|------|-----|-----|-----|------|------|
| SMBJ5.0  | 6.40 | 7.82 | 10  | 5.0 | 800 | 62.5 | 9.6  |
| SMBJ5.0A | 6.40 | 7.07 | 10  | 5.0 | 800 | 65.2 | 9.2  |
| SMBJ6.0  | 6.67 | 8.15 | 10  | 6.0 | 800 | 52.6 | 11.4 |
| SMBJ6.0A | 6.67 | 7.37 | 10  | 6.0 | 800 | 58.3 | 10.3 |
| SMBJ6.5  | 7.22 | 8.82 | 10  | 6.5 | 500 | 48.7 | 12.3 |
| SMBJ6.5A | 7.22 | 7.98 | 10  | 6.5 | 500 | 53.6 | 11.2 |
| SMBJ7.0  | 7.78 | 9.51 | 10  | 7.0 | 200 | 45.1 | 13.3 |
| SMBJ7.0A | 7.78 | 8.6  | 10  | 7.0 | 200 | 50.0 | 12.0 |
| SMBJ7.5  | 8.33 | 10.2 | 1.0 | 7.5 | 100 | 42.0 | 14.3 |
| SMBJ7.5A | 8.33 | 9.21 | 1.0 | 7.5 | 100 | 46.5 | 12.9 |
| SMBJ8.0  | 8.89 | 10.9 | 1.0 | 8.0 | 50  | 40.0 | 15.0 |
| SMBJ8.0A | 8.89 | 9.83 | 1.0 | 8.0 | 50  | 44.1 | 13.6 |
| SMBJ8.5  | 9.44 | 11.5 | 1.0 | 8.5 | 20  | 37.7 | 15.9 |
| SMBJ8.5A | 9.44 | 10.4 | 1.0 | 8.5 | 20  | 41.7 | 14.4 |
| SMBJ9.0  | 10.0 | 12.2 | 1.0 | 9.0 | 10  | 35.5 | 16.9 |
| SMBJ9.0A | 10.0 | 11.1 | 1.0 | 9.0 | 10  | 39.0 | 15.4 |
| SMBJ10   | 11.1 | 13.6 | 1.0 | 10  | 5.0 | 31.9 | 18.8 |
| SMBJ10A  | 11.1 | 12.3 | 1.0 | 10  | 5.0 | 35.3 | 17.0 |
| SMBJ11   | 12.2 | 14.9 | 1.0 | 11  | 5.0 | 29.9 | 20.1 |
| SMBJ11A  | 12.2 | 13.5 | 1.0 | 11  | 5.0 | 33.0 | 18.2 |
| SMBJ12   | 13.3 | 16.3 | 1.0 | 12  | 5.0 | 27.3 | 22.0 |
| SMBJ12A  | 13.3 | 14.7 | 1.0 | 12  | 5.0 | 30.2 | 19.9 |
| SMBJ13   | 14.4 | 17.6 | 1.0 | 13  | 5.0 | 25.2 | 23.8 |
| SMBJ13A  | 14.4 | 15.9 | 1.0 | 13  | 5.0 | 27.9 | 21.5 |
| SMBJ14   | 15.6 | 19.1 | 1.0 | 14  | 5.0 | 23.3 | 25.8 |
| SMBJ14A  | 15.6 | 17.2 | 1.0 | 14  | 5.0 | 25.8 | 23.2 |
| SMBJ15   | 16.7 | 20.4 | 1.0 | 15  | 5.0 | 22.3 | 26.9 |
| SMBJ15A  | 16.7 | 18.5 | 1.0 | 15  | 5.0 | 24.0 | 24.4 |
| SMBJ16   | 17.8 | 21.8 | 1.0 | 16  | 5.0 | 20.8 | 28.8 |
| SMBJ16A  | 17.8 | 19.7 | 1.0 | 16  | 5.0 | 23.1 | 26.0 |
| SMBJ17   | 18.9 | 23.1 | 1.0 | 17  | 5.0 | 19.7 | 30.5 |
| SMBJ17A  | 18.9 | 20.9 | 1.0 | 17  | 5.0 | 21.7 | 27.6 |
| SMBJ18   | 20.0 | 24.4 | 1.0 | 18  | 5.0 | 18.6 | 32.2 |
| SMBJ18A  | 20.0 | 22.1 | 1.0 | 18  | 5.0 | 20.5 | 29.2 |
| SMBJ20   | 22.2 | 27.1 | 1.0 | 20  | 5.0 | 16.7 | 35.8 |
| SMBJ20A  | 22.2 | 24.5 | 1.0 | 20  | 5.0 | 18.5 | 32.4 |
| SMBJ22   | 24.4 | 29.8 | 1.0 | 22  | 5.0 | 15.2 | 39.4 |
| SMBJ22A  | 24.4 | 26.9 | 1.0 | 22  | 5.0 | 16.9 | 35.5 |
| SMBJ24   | 26.7 | 32.6 | 1.0 | 24  | 5.0 | 14.0 | 43.0 |
| SMBJ24A  | 26.7 | 29.5 | 1.0 | 24  | 5.0 | 15.4 | 38.9 |
| SMBJ26   | 28.9 | 35.3 | 1.0 | 26  | 5.0 | 12.4 | 46.6 |
| SMBJ26A  | 28.9 | 31.9 | 1.0 | 26  | 5.0 | 14.2 | 42.1 |
| SMBJ28   | 31.1 | 38   | 1.0 | 28  | 5.0 | 12.0 | 50.0 |
| SMBJ28A  | 31.1 | 34.4 | 1.0 | 28  | 5.0 | 13.2 | 45.4 |
| SMBJ30   | 33.3 | 40.7 | 1.0 | 30  | 5.0 | 11.2 | 53.5 |
| SMBJ30A  | 33.3 | 36.8 | 1.0 | 30  | 5.0 | 12.4 | 48.4 |
| SMBJ33   | 36.7 | 44.9 | 1.0 | 33  | 5.0 | 10.2 | 59.0 |
| SMBJ33A  | 36.7 | 40.6 | 1.0 | 33  | 5.0 | 11.3 | 53.3 |
| SMBJ36   | 40.0 | 48.9 | 1.0 | 36  | 5.0 | 9.3  | 64.3 |
| SMBJ36A  | 40.0 | 44.2 | 1.0 | 36  | 5.0 | 10.3 | 58.1 |



# Transient Voltage Suppressor Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.       | Breakdown Voltage @ $I_T^{(1)}$ |      |       | Reverse Stand-off Voltage | Maximum Reverse Leakage @ $V_{WM}$ | Maximum Peak Pulse Surge Current | Maximum Clamping Voltage @ $I_{PPM}$ |
|----------------|---------------------------------|------|-------|---------------------------|------------------------------------|----------------------------------|--------------------------------------|
|                | $V_{BR}$ (V)                    |      | $I_T$ |                           |                                    |                                  |                                      |
| Unidirectional | Min.                            | Max. | (mA)  | (V)                       | ( $\mu A$ )                        | (A)                              | (V)                                  |

## SMBJ Series, 600W, Case Type: SMB



|          |      |      |     |     |     |     |      |
|----------|------|------|-----|-----|-----|-----|------|
| SMBJ40   | 44.4 | 54.3 | 1.0 | 40  | 5.0 | 8.4 | 71.4 |
| SMBJ40A  | 44.4 | 49.1 | 1.0 | 40  | 5.0 | 9.3 | 64.5 |
| SMBJ43   | 47.8 | 58.4 | 1.0 | 43  | 5.0 | 7.8 | 76.7 |
| SMBJ43A  | 47.8 | 52.8 | 1.0 | 43  | 5.0 | 8.6 | 69.4 |
| SMBJ45   | 50.0 | 61.1 | 1.0 | 45  | 5.0 | 7.5 | 80.3 |
| SMBJ45A  | 50.0 | 55.3 | 1.0 | 45  | 5.0 | 8.3 | 72.7 |
| SMBJ48   | 53.3 | 65.1 | 1.0 | 48  | 5.0 | 7.0 | 85.5 |
| SMBJ48A  | 53.3 | 58.9 | 1.0 | 48  | 5.0 | 7.7 | 77.4 |
| SMBJ51   | 56.7 | 69.3 | 1.0 | 51  | 5.0 | 6.6 | 91.1 |
| SMBJ51A  | 56.7 | 62.7 | 1.0 | 51  | 5.0 | 7.3 | 82.4 |
| SMBJ54   | 60.0 | 73.3 | 1.0 | 54  | 5.0 | 6.2 | 96.3 |
| SMBJ54A  | 60.0 | 66.3 | 1.0 | 54  | 5.0 | 6.9 | 87.1 |
| SMBJ58   | 64.4 | 78.7 | 1.0 | 58  | 5.0 | 5.8 | 103  |
| SMBJ58A  | 64.4 | 71.2 | 1.0 | 58  | 5.0 | 6.4 | 93.6 |
| SMBJ60   | 66.7 | 81.5 | 1.0 | 60  | 5.0 | 5.6 | 107  |
| SMBJ60A  | 66.7 | 73.7 | 1.0 | 60  | 5.0 | 6.2 | 96.8 |
| SMBJ64   | 71.1 | 86.9 | 1.0 | 64  | 5.0 | 5.3 | 114  |
| SMBJ64A  | 71.1 | 78.6 | 1.0 | 64  | 5.0 | 5.8 | 103  |
| SMBJ70   | 77.8 | 95.1 | 1.0 | 70  | 5.0 | 4.8 | 125  |
| SMBJ70A  | 77.8 | 86.0 | 1.0 | 70  | 5.0 | 5.3 | 113  |
| SMBJ75   | 83.3 | 102  | 1.0 | 75  | 5.0 | 4.5 | 134  |
| SMBJ75A  | 83.3 | 92.1 | 1.0 | 75  | 5.0 | 4.9 | 121  |
| SMBJ78   | 86.7 | 106  | 1.0 | 78  | 5.0 | 4.3 | 139  |
| SMBJ78A  | 86.7 | 95.8 | 1.0 | 78  | 5.0 | 4.7 | 126  |
| SMBJ85   | 94.4 | 115  | 1.0 | 85  | 5.0 | 3.9 | 151  |
| SMBJ85A  | 94.4 | 104  | 1.0 | 85  | 5.0 | 4.4 | 137  |
| SMBJ90   | 100  | 122  | 1.0 | 90  | 5.0 | 3.8 | 160  |
| SMBJ90A  | 100  | 111  | 1.0 | 90  | 5.0 | 4.1 | 146  |
| SMBJ100  | 111  | 136  | 1.0 | 100 | 5.0 | 3.4 | 179  |
| SMBJ100A | 111  | 123  | 1.0 | 100 | 5.0 | 3.7 | 162  |
| SMBJ110  | 122  | 149  | 1.0 | 110 | 5.0 | 3.0 | 196  |
| SMBJ110A | 122  | 135  | 1.0 | 110 | 5.0 | 3.4 | 177  |
| SMBJ120  | 133  | 163  | 1.0 | 120 | 5.0 | 2.8 | 214  |
| SMBJ120A | 133  | 147  | 1.0 | 120 | 5.0 | 3.1 | 193  |
| SMBJ130  | 144  | 176  | 1.0 | 130 | 5.0 | 2.6 | 231  |
| SMBJ130A | 144  | 159  | 1.0 | 130 | 5.0 | 2.9 | 209  |
| SMBJ150  | 167  | 204  | 1.0 | 150 | 5.0 | 2.2 | 268  |
| SMBJ150A | 167  | 185  | 1.0 | 150 | 5.0 | 2.5 | 243  |
| SMBJ160  | 178  | 218  | 1.0 | 160 | 5.0 | 2.1 | 287  |
| SMBJ160A | 178  | 197  | 1.0 | 160 | 5.0 | 2.3 | 259  |
| SMBJ170  | 189  | 231  | 1.0 | 170 | 5.0 | 2.0 | 304  |
| SMBJ170A | 189  | 209  | 1.0 | 170 | 5.0 | 2.2 | 275  |
| SMBJ188  | 209  | 255  | 1.0 | 188 | 5.0 | 1.7 | 344  |
| SMBJ188A | 209  | 231  | 1.0 | 188 | 5.0 | 2.0 | 328  |

- Notes: (1) Pulse test :  $t_p \leq 50ms$   
(2) For bidirectional use suffix "C" or "CA"  
(3) For bidirectional types with  $V_{WM}$  of 10 Volts and less, the  $I_R$  limit is doubled  
(4) For the bidirectional SMBJ5.0CA, the maximum  $V_{BR}$  is 7.25V  
(5) "SMBJ" will be omitted on marking of the diode



## Transient Voltage Suppressor Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.       | Breakdown Voltage @ $I_t$<br>( Note 1 ) |       | Working Peak<br>Reverse<br>Voltage | Maximum<br>Reverse Leakage<br>@ $V_{RWM}$ | Maximum<br>Reverse<br>Current | Maximum<br>Clamping<br>Voltage @ $I_{RSM}$ | Maximum<br>Temperature<br>Coefficient<br>of $V_{BR}$ |
|----------------|-----------------------------------------|-------|------------------------------------|-------------------------------------------|-------------------------------|--------------------------------------------|------------------------------------------------------|
|                | $V_{BR}$ (V)                            | $I_t$ | $V_{RWM}$                          | $I_R$                                     | $I_{RSM}$                     | $V_{RSM}$                                  |                                                      |
| Bi-directional | Min.                                    | (mA)  | (V)                                | ( $\mu$ A)                                | (A)                           | (V)                                        | (% / °C)                                             |

### EPS5 Series, 1000W, Case Type: M1A



|       |      |     |    |    |      |      |       |
|-------|------|-----|----|----|------|------|-------|
| EPS5  | 6.0  | 1.0 | 5  | 50 | 10.0 | 9.5  | 0.030 |
| EPS8  | 9.0  | 1.0 | 8  | 2  | 10.0 | 13.7 | 0.040 |
| EPS12 | 13.8 | 1.0 | 12 | 1  | 10.0 | 21.6 | 0.050 |
| EPS15 | 16.7 | 1.0 | 15 | 1  | 10.0 | 26.0 | 0.055 |
| EPS17 | 19.0 | 1.0 | 17 | 1  | 10.0 | 29.2 | 0.060 |
| EPS24 | 28.4 | 1.0 | 24 | 1  | 10.0 | 43.2 | 0.070 |
| EPS28 | 31.0 | 1.0 | 28 | 1  | 10.0 | 47.8 | 0.075 |
| EPS33 | 36.8 | 1.0 | 33 | 1  | 10.0 | 56.7 | 0.080 |
| EPS48 | 54.0 | 1.0 | 48 | 1  | 10.0 | 84.3 | 0.090 |

## Transient Voltage Suppressor Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.       | Breakdown Voltage @ $I_t$<br>( Note 1 ) |       | Working Peak<br>Reverse<br>Voltage | Maximum<br>Reverse Leakage<br>@ $V_{RWM}$ | Maximum<br>Reverse<br>Current | Maximum<br>Clamping<br>Voltage @ $I_{RSM}$ | Maximum<br>Temperature<br>Coefficient<br>of $V_{BR}$ |
|----------------|-----------------------------------------|-------|------------------------------------|-------------------------------------------|-------------------------------|--------------------------------------------|------------------------------------------------------|
|                | $V_{BR}$ (V)                            | $I_t$ | $V_{RWM}$                          | $I_R$                                     | $I_{RSM}$                     | $V_{RSM}$                                  |                                                      |
| Unidirectional | Min.                                    | (mA)  | (V)                                | ( $\mu$ A)                                | (A)                           | (V)                                        | (% / °C)                                             |

### 1N5610 - 1N5613, 1500W, Case Type: DO-201



|        |      |     |      |   |     |      |       |
|--------|------|-----|------|---|-----|------|-------|
| 1N5610 | 33.0 | 1.0 | 30.5 | 5 | 32  | 47.6 | 0.093 |
| 1N5611 | 43.7 | 1.0 | 40.3 | 5 | 24  | 63.5 | 0.094 |
| 1N5612 | 54.0 | 1.0 | 49.0 | 5 | 19  | 78.5 | 0.096 |
| 1N5613 | 191  | 1.0 | 175  | 5 | 5.7 | 265  | 0.100 |



# Transient Voltage Suppressor Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.       |     | Breakdown Voltage @ $I_t$<br>( Note 1 ) |       | Working Peak Reverse Voltage | Maximum Reverse Leakage @ $V_{RWM}$ | Maximum Reverse Current | Maximum Clamping Voltage @ $I_{RSM}$ | Maximum Temperature Coefficient of $V_{BR}$ |
|----------------|-----|-----------------------------------------|-------|------------------------------|-------------------------------------|-------------------------|--------------------------------------|---------------------------------------------|
| Unidirectional |     | $V_{BR}$ (V)                            | $I_t$ | $V_{RWM}$                    | $I_R$                               | $I_{RSM}$               | $V_{RSM}$                            |                                             |
| Axial Lead     | SMD | Min.                                    | Max.  | (mA)                         | (V)                                 | ( $\mu A$ )             | (A)                                  | (V)                                         |
|                |     |                                         |       |                              |                                     |                         |                                      | (% / °C)                                    |

## 1N6267/STUN Series, 1,500 W, Case Type: DO-201/SMC



|         |         |      |      |     |      |      |      |      |       |
|---------|---------|------|------|-----|------|------|------|------|-------|
| 1N6267  | STUN06I | 6.12 | 7.48 | 10  | 5.50 | 1000 | 139  | 10.8 | 0.057 |
| 1N6267A | STUN56I | 6.45 | 7.14 | 10  | 5.80 | 1000 | 143  | 10.5 | 0.057 |
| 1N6268  | STUN07F | 6.75 | 8.25 | 10  | 6.05 | 500  | 128  | 11.7 | 0.061 |
| 1N6268A | STUN57F | 7.13 | 7.88 | 10  | 6.40 | 500  | 132  | 11.3 | 0.061 |
| 1N6269  | STUN08C | 7.38 | 9.02 | 10  | 6.63 | 200  | 120  | 12.5 | 0.065 |
| 1N6269A | STUN58C | 7.79 | 8.61 | 10  | 7.02 | 200  | 124  | 12.1 | 0.065 |
| 1N6270  | STUN09B | 8.19 | 10.0 | 1.0 | 7.37 | 50   | 109  | 13.8 | 0.068 |
| 1N6270A | STUN59B | 8.65 | 9.55 | 1.0 | 7.78 | 50   | 112  | 13.4 | 0.068 |
| 1N6271  | STUN010 | 9.00 | 11.0 | 1.0 | 8.10 | 10   | 100  | 15.0 | 0.073 |
| 1N6271A | STUN510 | 9.50 | 10.5 | 1.0 | 8.55 | 10   | 103  | 14.5 | 0.073 |
| 1N6272  | STUN011 | 9.90 | 12.1 | 1.0 | 8.92 | 5.0  | 93.0 | 16.2 | 0.075 |
| 1N6272A | STUN511 | 10.5 | 11.6 | 1.0 | 9.40 | 5.0  | 96.0 | 15.6 | 0.075 |
| 1N6273  | STUN012 | 10.8 | 13.2 | 1.0 | 9.72 | 5.0  | 87.0 | 17.3 | 0.078 |
| 1N6273A | STUN512 | 11.4 | 12.6 | 1.0 | 10.2 | 5.0  | 90.0 | 16.7 | 0.078 |
| 1N6274  | STUN013 | 11.7 | 14.3 | 1.0 | 10.5 | 5.0  | 79.0 | 19.0 | 0.081 |
| 1N6274A | STUN513 | 12.4 | 13.7 | 1.0 | 11.1 | 5.0  | 82.0 | 18.2 | 0.081 |
| 1N6275  | STUN015 | 13.5 | 16.3 | 1.0 | 12.1 | 5.0  | 68.0 | 22.0 | 0.084 |
| 1N6275A | STUN515 | 14.3 | 15.8 | 1.0 | 12.8 | 5.0  | 71.0 | 21.2 | 0.084 |
| 1N6276  | STUN016 | 14.4 | 17.6 | 1.0 | 12.9 | 5.0  | 64.0 | 23.5 | 0.086 |
| 1N6276A | STUN516 | 15.2 | 16.8 | 1.0 | 13.6 | 5.0  | 67.0 | 22.5 | 0.086 |
| 1N6277  | STUN018 | 16.2 | 19.8 | 1.0 | 14.5 | 5.0  | 56.5 | 26.5 | 0.088 |
| 1N6277A | STUN518 | 17.1 | 18.9 | 1.0 | 15.3 | 5.0  | 59.5 | 25.2 | 0.088 |
| 1N6278  | STUN020 | 18.0 | 22.0 | 1.0 | 16.2 | 5.0  | 51.5 | 29.1 | 0.090 |
| 1N6278A | STUN520 | 19.0 | 21.0 | 1.0 | 17.1 | 5.0  | 54.0 | 27.7 | 0.090 |
| 1N6279  | STUN022 | 19.8 | 24.2 | 1.0 | 17.8 | 5.0  | 47.0 | 31.9 | 0.092 |
| 1N6279A | STUN522 | 20.9 | 23.1 | 1.0 | 18.8 | 5.0  | 49.0 | 30.6 | 0.092 |
| 1N6280  | STUN024 | 21.6 | 26.4 | 1.0 | 19.4 | 5.0  | 43.0 | 34.7 | 0.094 |
| 1N6280A | STUN524 | 22.8 | 25.2 | 1.0 | 20.5 | 5.0  | 45.0 | 33.2 | 0.094 |
| 1N6281  | STUN027 | 24.3 | 29.7 | 1.0 | 21.8 | 5.0  | 38.5 | 39.1 | 0.096 |
| 1N6281A | STUN527 | 25.7 | 28.4 | 1.0 | 23.1 | 5.0  | 40.0 | 37.5 | 0.096 |
| 1N6282  | STUN030 | 27.0 | 33.0 | 1.0 | 24.3 | 5.0  | 34.5 | 43.5 | 0.097 |
| 1N6282A | STUN530 | 28.5 | 31.5 | 1.0 | 25.6 | 5.0  | 36.0 | 41.4 | 0.097 |
| 1N6283  | STUN033 | 29.7 | 36.3 | 1.0 | 26.8 | 5.0  | 31.5 | 47.7 | 0.098 |
| 1N6283A | STUN533 | 31.4 | 34.7 | 1.0 | 28.2 | 5.0  | 33.0 | 45.7 | 0.098 |
| 1N6284  | STUN036 | 32.4 | 39.6 | 1.0 | 29.1 | 5.0  | 29.0 | 52.0 | 0.099 |
| 1N6284A | STUN536 | 34.2 | 37.8 | 1.0 | 30.8 | 5.0  | 30.0 | 49.9 | 0.099 |
| 1N6285  | STUN039 | 35.1 | 42.9 | 1.0 | 31.6 | 5.0  | 26.5 | 56.4 | 0.100 |
| 1N6285A | STUN539 | 37.1 | 41.0 | 1.0 | 33.3 | 5.0  | 28.0 | 53.9 | 0.100 |
| 1N6286  | STUN043 | 38.7 | 47.3 | 1.0 | 34.8 | 5.0  | 24.0 | 61.9 | 0.101 |
| 1N6286A | STUN543 | 40.9 | 45.2 | 1.0 | 36.8 | 5.0  | 25.3 | 59.3 | 0.101 |
| 1N6287  | STUN047 | 42.3 | 51.7 | 1.0 | 38.1 | 5.0  | 22.2 | 67.8 | 0.101 |
| 1N6287A | STUN547 | 44.7 | 49.4 | 1.0 | 40.2 | 5.0  | 23.2 | 64.8 | 0.101 |



# Transient Voltage Suppressor Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.       |     | Breakdown Voltage @ $I_t$ ( Note 1 ) |       | Working Peak Reverse Voltage | Maximum Reverse Leakage @ $V_{RWM}$ | Maximum Reverse Current | Maximum Clamping Voltage @ $I_{RSM}$ | Maximum Temperature Coefficient of $V_{BR}$ |
|----------------|-----|--------------------------------------|-------|------------------------------|-------------------------------------|-------------------------|--------------------------------------|---------------------------------------------|
| Unidirectional |     | $V_{BR}$ (V)                         | $I_t$ | $V_{RWM}$                    | $I_R$                               | $I_{RSM}$               | $V_{RSM}$                            |                                             |
| Axial Lead     | SMD | Min.                                 | Max.  | (mA)                         | (V)                                 | ( $\mu A$ )             | (A)                                  | (V)                                         |

## 1N6267/STUN Series, 1,500 W, Case Type: DO-201/SMC



|         |         |      |      |     |      |     |      |      |       |
|---------|---------|------|------|-----|------|-----|------|------|-------|
| 1N6288  | STUN051 | 45.9 | 56.1 | 1.0 | 41.3 | 5.0 | 20.4 | 73.5 | 0.102 |
| 1N6288A | STUN551 | 48.5 | 53.6 | 1.0 | 43.6 | 5.0 | 21.4 | 70.1 | 0.102 |
| 1N6289  | STUN056 | 50.4 | 61.6 | 1.0 | 45.4 | 5.0 | 18.6 | 80.5 | 0.103 |
| 1N6289A | STUN556 | 53.2 | 58.8 | 1.0 | 47.8 | 5.0 | 19.5 | 77.0 | 0.103 |
| 1N6290  | STUN062 | 55.8 | 68.2 | 1.0 | 50.2 | 5.0 | 16.9 | 89.0 | 0.104 |
| 1N6290A | STUN562 | 58.9 | 65.1 | 1.0 | 53.0 | 5.0 | 17.7 | 85.0 | 0.104 |
| 1N6291  | STUN068 | 61.2 | 74.8 | 1.0 | 55.1 | 5.0 | 15.3 | 98.0 | 0.104 |
| 1N6291A | STUN568 | 64.6 | 71.4 | 1.0 | 58.1 | 5.0 | 16.3 | 92.0 | 0.104 |
| 1N6292  | STUN075 | 67.5 | 82.5 | 1.0 | 60.7 | 5.0 | 13.9 | 108  | 0.105 |
| 1N6292A | STUN575 | 71.3 | 78.8 | 1.0 | 64.1 | 5.0 | 14.6 | 103  | 0.105 |
| 1N6293  | STUN082 | 73.8 | 90.2 | 1.0 | 66.4 | 5.0 | 12.7 | 118  | 0.105 |
| 1N6293A | STUN582 | 77.9 | 86.1 | 1.0 | 70.1 | 5.0 | 13.3 | 113  | 0.105 |
| 1N6294  | STUN091 | 81.9 | 100  | 1.0 | 73.7 | 5.0 | 11.4 | 131  | 0.106 |
| 1N6294A | STUN591 | 86.5 | 95.5 | 1.0 | 77.8 | 5.0 | 12.0 | 125  | 0.106 |
| 1N6295  | STUN0B0 | 90.0 | 110  | 1.0 | 81.0 | 5.0 | 10.4 | 144  | 0.106 |
| 1N6295A | STUN5B0 | 95.0 | 105  | 1.0 | 85.5 | 5.0 | 11.0 | 137  | 0.106 |
| 1N6296  | STUN0B1 | 99.0 | 121  | 1.0 | 89.2 | 5.0 | 9.5  | 158  | 0.107 |
| 1N6296A | STUN5B1 | 105  | 116  | 1.0 | 94.0 | 5.0 | 9.9  | 152  | 0.107 |
| 1N6297  | STUN0B2 | 108  | 132  | 1.0 | 97.2 | 5.0 | 8.7  | 173  | 0.107 |
| 1N6297A | STUN5B2 | 114  | 126  | 1.0 | 102  | 5.0 | 9.1  | 165  | 0.107 |
| 1N6298  | STUN0B3 | 117  | 143  | 1.0 | 105  | 5.0 | 8.0  | 187  | 0.107 |
| 1N6298A | STUN5B3 | 124  | 137  | 1.0 | 111  | 5.0 | 8.4  | 179  | 0.107 |
| 1N6299  | STUN0B5 | 135  | 165  | 1.0 | 121  | 5.0 | 7.0  | 215  | 0.108 |
| 1N6299A | STUN5B5 | 143  | 158  | 1.0 | 128  | 5.0 | 7.2  | 207  | 0.108 |
| 1N6300  | STUN0B6 | 144  | 176  | 1.0 | 130  | 5.0 | 6.5  | 230  | 0.108 |
| 1N6300A | STUN5B6 | 152  | 168  | 1.0 | 136  | 5.0 | 6.8  | 219  | 0.108 |
| 1N6301  | STUN0B7 | 153  | 187  | 1.0 | 138  | 5.0 | 6.2  | 244  | 0.108 |
| 1N6301A | STUN5B7 | 162  | 179  | 1.0 | 145  | 5.0 | 6.4  | 234  | 0.108 |
| 1N6302  | STUN0B8 | 162  | 198  | 1.0 | 146  | 5.0 | 5.8  | 258  | 0.108 |
| 1N6302A | STUN5B8 | 171  | 189  | 1.0 | 154  | 5.0 | 6.1  | 246  | 0.108 |
| 1N6303  | STUN0D0 | 180  | 220  | 1.0 | 162  | 5.0 | 5.2  | 287  | 0.108 |
| 1N6303A | STUN5D0 | 190  | 210  | 1.0 | 171  | 5.0 | 5.5  | 274  | 0.108 |

### Notes:

- (1)  $V_{BR}$  measured after  $I_t$  applied for 300  $\mu s.$ ,  $I_t$  = square wave pulse or equivalent
- (2)  $V_F = 3.5 V_{max.}$ ,  $I_F = 100 A$  (6.8 V to 91 V)  
 $V_F = 5.0 V_{max.}$ ,  $I_F = 100 A$  (100 V to 200 V) per 1/2 square or equivalent sine wave  
 $PW = 8.3 ms$ , duty cycle = 4 pulses per minute maximum
- (3) For bidirectional use suffix "C" or "CA" (Axial Lead) / replace the third letter of type from "U" to "B" (SMD)
- (4) "STU" or "STB" will be omitted on marking of the diode.
- (5) Add suffix "L" (Axial Lead) for case type DO-201AD
- (6) For bidirectional types have  $V_R$  of 10 V and under, the  $I_R$  limit is doubled.



# Transient Voltage Suppressor Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.       |     | Breakdown Voltage @ $I_t$<br>( Note 1 ) |      |       | Working Peak Reverse Voltage | Maximum Reverse Leakage @ $V_{RWM}$ | Maximum Reverse Current | Maximum Clamping Voltage @ $I_{RSM}$ | Maximum Temperature Coefficient of $V_{BR}$ |
|----------------|-----|-----------------------------------------|------|-------|------------------------------|-------------------------------------|-------------------------|--------------------------------------|---------------------------------------------|
| Unidirectional |     | $V_{BR}$ (V)                            |      | $I_t$ | $V_{RWM}$                    | $I_R$                               | $I_{RSM}$               | $V_{RSM}$                            |                                             |
| Axial Lead     | SMD | Min.                                    | Max. | (mA)  | (V)                          | ( $\mu A$ )                         | (A)                     | (V)                                  | (% / °C)                                    |

## 1.5KE/STUK Series, 1,500 W, Case Type: DO-201/SMC



|           |         |      |      |     |      |      |      |      |       |
|-----------|---------|------|------|-----|------|------|------|------|-------|
| 1.5KE6.8  | STUK06I | 6.12 | 7.48 | 10  | 5.50 | 1000 | 139  | 10.8 | 0.057 |
| 1.5KE6.8A | STUK56I | 6.45 | 7.14 | 10  | 5.80 | 1000 | 143  | 10.5 | 0.057 |
| 1.5KE7.5  | STUK07F | 6.75 | 8.25 | 10  | 6.05 | 500  | 128  | 11.7 | 0.061 |
| 1.5KE7.5A | STUK57F | 7.13 | 7.88 | 10  | 6.40 | 500  | 132  | 11.3 | 0.061 |
| 1.5KE8.2  | STUK08C | 7.38 | 9.02 | 10  | 6.63 | 200  | 120  | 12.5 | 0.065 |
| 1.5KE8.2A | STUK58C | 7.79 | 8.61 | 10  | 7.02 | 200  | 124  | 12.1 | 0.065 |
| 1.5KE9.1  | STUK09B | 8.19 | 10.0 | 1.0 | 7.37 | 50   | 109  | 13.8 | 0.068 |
| 1.5KE9.1A | STUK59B | 8.65 | 9.55 | 1.0 | 7.78 | 50   | 112  | 13.4 | 0.068 |
| 1.5KE10   | STUK010 | 9.00 | 11.0 | 1.0 | 8.10 | 10   | 100  | 15.0 | 0.073 |
| 1.5KE10A  | STUK510 | 9.50 | 10.5 | 1.0 | 8.55 | 10   | 103  | 14.5 | 0.073 |
| 1.5KE11   | STUK011 | 9.90 | 12.1 | 1.0 | 8.92 | 5.0  | 93.0 | 16.2 | 0.075 |
| 1.5KE11A  | STUK511 | 10.5 | 11.6 | 1.0 | 9.40 | 5.0  | 96.0 | 15.6 | 0.075 |
| 1.5KE12   | STUK012 | 10.8 | 13.2 | 1.0 | 9.72 | 5.0  | 87.0 | 17.3 | 0.078 |
| 1.5KE12A  | STUK512 | 11.4 | 12.6 | 1.0 | 10.2 | 5.0  | 90.0 | 16.7 | 0.078 |
| 1.5KE13   | STUK013 | 11.7 | 14.3 | 1.0 | 10.5 | 5.0  | 79.0 | 19.0 | 0.081 |
| 1.5KE13A  | STUK513 | 12.4 | 13.7 | 1.0 | 11.1 | 5.0  | 82.0 | 18.2 | 0.081 |
| 1.5KE15   | STUK015 | 13.5 | 16.5 | 1.0 | 12.1 | 5.0  | 68.0 | 22.0 | 0.084 |
| 1.5KE15A  | STUK515 | 14.3 | 15.8 | 1.0 | 12.8 | 5.0  | 71.0 | 21.2 | 0.084 |
| 1.5KE16   | STUK016 | 14.4 | 17.6 | 1.0 | 12.9 | 5.0  | 64.0 | 23.5 | 0.086 |
| 1.5KE16A  | STUK516 | 15.2 | 16.8 | 1.0 | 13.6 | 5.0  | 67.0 | 22.5 | 0.086 |
| 1.5KE18   | STUK018 | 16.2 | 19.8 | 1.0 | 14.5 | 5.0  | 56.5 | 26.5 | 0.088 |
| 1.5KE18A  | STUK518 | 17.1 | 18.9 | 1.0 | 15.3 | 5.0  | 59.5 | 25.2 | 0.088 |
| 1.5KE20   | STUK020 | 18.0 | 22.0 | 1.0 | 16.2 | 5.0  | 51.5 | 29.1 | 0.090 |
| 1.5KE20A  | STUK520 | 19.0 | 21.0 | 1.0 | 17.1 | 5.0  | 54.0 | 27.7 | 0.090 |
| 1.5KE22   | STUK022 | 19.8 | 24.2 | 1.0 | 17.8 | 5.0  | 47.0 | 31.9 | 0.092 |
| 1.5KE22A  | STUK522 | 20.9 | 23.1 | 1.0 | 18.8 | 5.0  | 49.0 | 30.6 | 0.092 |
| 1.5KE24   | STUK024 | 21.6 | 26.4 | 1.0 | 19.4 | 5.0  | 43.0 | 34.7 | 0.094 |
| 1.5KE24A  | STUK524 | 22.8 | 25.2 | 1.0 | 20.5 | 5.0  | 45.0 | 33.2 | 0.094 |
| 1.5KE27   | STUK027 | 24.3 | 29.7 | 1.0 | 21.8 | 5.0  | 38.5 | 39.1 | 0.096 |
| 1.5KE27A  | STUK527 | 25.7 | 28.4 | 1.0 | 23.1 | 5.0  | 40.0 | 37.5 | 0.096 |
| 1.5KE30   | STUK030 | 27.0 | 33.0 | 1.0 | 24.3 | 5.0  | 34.5 | 43.5 | 0.097 |
| 1.5KE30A  | STUK530 | 28.5 | 31.5 | 1.0 | 25.6 | 5.0  | 36.0 | 41.4 | 0.097 |
| 1.5KE33   | STUK033 | 29.7 | 36.3 | 1.0 | 26.8 | 5.0  | 31.5 | 47.7 | 0.098 |
| 1.5KE33A  | STUK533 | 31.4 | 34.7 | 1.0 | 28.2 | 5.0  | 33.0 | 45.7 | 0.098 |
| 1.5KE36   | STUK036 | 32.4 | 39.6 | 1.0 | 29.1 | 5.0  | 29.0 | 52.0 | 0.099 |
| 1.5KE36A  | STUK536 | 34.2 | 37.8 | 1.0 | 30.8 | 5.0  | 30.0 | 49.9 | 0.099 |
| 1.5KE39   | STUK039 | 35.1 | 42.9 | 1.0 | 31.6 | 5.0  | 26.5 | 56.4 | 0.100 |
| 1.5KE39A  | STUK539 | 37.1 | 41.0 | 1.0 | 33.3 | 5.0  | 28.0 | 53.9 | 0.100 |
| 1.5KE43   | STUK043 | 38.7 | 47.3 | 1.0 | 34.8 | 5.0  | 24.0 | 61.9 | 0.101 |
| 1.5KE43A  | STUK543 | 40.9 | 45.2 | 1.0 | 36.8 | 5.0  | 25.3 | 59.3 | 0.101 |
| 1.5KE47   | STUK047 | 42.3 | 51.7 | 1.0 | 38.1 | 5.0  | 22.2 | 67.8 | 0.101 |
| 1.5KE47A  | STUK547 | 44.7 | 49.4 | 1.0 | 40.2 | 5.0  | 23.2 | 64.8 | 0.101 |
| 1.5KE51   | STUK051 | 45.9 | 56.1 | 1.0 | 41.3 | 5.0  | 20.4 | 73.5 | 0.102 |
| 1.5KE51A  | STUK551 | 48.5 | 53.6 | 1.0 | 43.6 | 5.0  | 21.4 | 70.1 | 0.102 |
| 1.5KE56   | STUK056 | 50.4 | 61.6 | 1.0 | 45.4 | 5.0  | 18.6 | 80.5 | 0.103 |
| 1.5KE56A  | STUK556 | 53.2 | 58.8 | 1.0 | 47.8 | 5.0  | 19.5 | 77.0 | 0.103 |
| 1.5KE62   | STUK062 | 55.8 | 68.2 | 1.0 | 50.2 | 5.0  | 16.9 | 89.0 | 0.104 |
| 1.5KE62A  | STUK562 | 58.9 | 65.1 | 1.0 | 53.0 | 5.0  | 17.7 | 85.0 | 0.104 |



# Transient Voltage Suppressor Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.       |     | Breakdown Voltage @ $I_t$ (Note 1) |      |       | Working Peak Reverse Voltage | Maximum Reverse Leakage @ $V_{RWM}$ | Maximum Reverse Current | Maximum Clamping Voltage @ $I_{RSM}$ | Maximum Temperature Coefficient of $V_{BR}$ |
|----------------|-----|------------------------------------|------|-------|------------------------------|-------------------------------------|-------------------------|--------------------------------------|---------------------------------------------|
| Unidirectional |     | $V_{BR}$ (V)                       |      | $I_t$ | $V_{RWM}$                    | $I_R$                               | $I_{RSM}$               | $V_{RSM}$                            | of $V_{BR}$                                 |
| Axial Lead     | SMD | Min.                               | Max. | (mA)  | (V)                          | ( $\mu$ A)                          | (A)                     | (V)                                  | (% / °C)                                    |

## 1.5KE/STUK Series, 1,500 W, Case Type: DO-201/SMC



|           |         |      |      |     |      |     |      |      |       |
|-----------|---------|------|------|-----|------|-----|------|------|-------|
| 1.5KE68   | STUK068 | 61.2 | 74.8 | 1.0 | 55.1 | 5.0 | 15.3 | 98.0 | 0.104 |
| 1.5KE68A  | STUK568 | 64.6 | 71.4 | 1.0 | 58.1 | 5.0 | 16.3 | 92.0 | 0.104 |
| 1.5KE75   | STUK075 | 67.5 | 82.5 | 1.0 | 60.7 | 5.0 | 13.9 | 108  | 0.105 |
| 1.5KE75A  | STUK575 | 71.3 | 78.8 | 1.0 | 64.1 | 5.0 | 14.6 | 103  | 0.105 |
| 1.5KE82   | STUK082 | 73.8 | 90.2 | 1.0 | 66.4 | 5.0 | 12.7 | 118  | 0.105 |
| 1.5KE82A  | STUK582 | 77.9 | 86.1 | 1.0 | 70.1 | 5.0 | 13.3 | 113  | 0.105 |
| 1.5KE91   | STUK091 | 81.9 | 100  | 1.0 | 73.7 | 5.0 | 11.4 | 131  | 0.106 |
| 1.5KE91A  | STUK591 | 86.5 | 95.5 | 1.0 | 77.8 | 5.0 | 12.0 | 125  | 0.106 |
| 1.5KE100  | STUK0B0 | 90.0 | 110  | 1.0 | 81.0 | 5.0 | 10.4 | 144  | 0.106 |
| 1.5KE100A | STUK5B0 | 95.0 | 105  | 1.0 | 85.5 | 5.0 | 11.0 | 137  | 0.106 |
| 1.5KE110  | STUK0B1 | 99.0 | 121  | 1.0 | 89.2 | 5.0 | 9.5  | 158  | 0.107 |
| 1.5KE110A | STUK5B1 | 105  | 116  | 1.0 | 94.0 | 5.0 | 9.9  | 152  | 0.107 |
| 1.5KE120  | STUK0B2 | 108  | 132  | 1.0 | 97.2 | 5.0 | 8.7  | 173  | 0.107 |
| 1.5KE120A | STUK5B2 | 114  | 126  | 1.0 | 102  | 5.0 | 9.1  | 165  | 0.107 |
| 1.5KE130  | STUK0B3 | 117  | 143  | 1.0 | 105  | 5.0 | 8.0  | 187  | 0.107 |
| 1.5KE130A | STUK5B3 | 124  | 137  | 1.0 | 111  | 5.0 | 8.4  | 179  | 0.107 |
| 1.5KE150  | STUK0B5 | 135  | 165  | 1.0 | 121  | 5.0 | 7.0  | 215  | 0.108 |
| 1.5KE150A | STUK5B5 | 143  | 158  | 1.0 | 128  | 5.0 | 7.2  | 207  | 0.108 |
| 1.5KE160  | STUK0B6 | 144  | 176  | 1.0 | 130  | 5.0 | 6.5  | 230  | 0.108 |
| 1.5KE160A | STUK5B6 | 152  | 168  | 1.0 | 136  | 5.0 | 6.8  | 219  | 0.108 |
| 1.5KE170  | STUK0B7 | 153  | 187  | 1.0 | 138  | 5.0 | 6.2  | 244  | 0.108 |
| 1.5KE170A | STUK5B7 | 162  | 179  | 1.0 | 145  | 5.0 | 6.4  | 234  | 0.108 |
| 1.5KE180  | STUK0B8 | 162  | 198  | 1.0 | 146  | 5.0 | 5.8  | 258  | 0.108 |
| 1.5KE180A | STUK5B8 | 171  | 189  | 1.0 | 154  | 5.0 | 6.1  | 246  | 0.108 |
| 1.5KE200  | STUK0D0 | 180  | 220  | 1.0 | 162  | 5.0 | 5.2  | 287  | 0.108 |
| 1.5KE200A | STUK5D0 | 190  | 210  | 1.0 | 171  | 5.0 | 5.5  | 274  | 0.108 |
| 1.5KE220  | STUK0D2 | 198  | 242  | 1.0 | 175  | 5.0 | 4.3  | 344  | 0.108 |
| 1.5KE220A | STUK5D2 | 209  | 231  | 1.0 | 185  | 5.0 | 4.6  | 328  | 0.108 |
| 1.5KE250  | STUK0D5 | 225  | 275  | 1.0 | 202  | 5.0 | 4.2  | 360  | 0.110 |
| 1.5KE250A | STUK5D5 | 237  | 263  | 1.0 | 214  | 5.0 | 4.4  | 344  | 0.110 |
| 1.5KE300  | STUK0E0 | 270  | 330  | 1.0 | 243  | 5.0 | 3.5  | 430  | 0.110 |
| 1.5KE300A | STUK5E0 | 285  | 315  | 1.0 | 256  | 5.0 | 3.6  | 414  | 0.110 |
| 1.5KE350  | STUK0E5 | 315  | 385  | 1.0 | 284  | 5.0 | 3.0  | 504  | 0.110 |
| 1.5KE350A | STUK5E5 | 332  | 368  | 1.0 | 300  | 5.0 | 3.1  | 482  | 0.110 |
| 1.5KE400  | STUK0G0 | 360  | 440  | 1.0 | 324  | 5.0 | 2.6  | 574  | 0.110 |
| 1.5KE400A | STUK5G0 | 380  | 420  | 1.0 | 342  | 5.0 | 2.7  | 548  | 0.110 |
| 1.5KE440  | STUK0G4 | 396  | 484  | 1.0 | 356  | 5.0 | 2.4  | 631  | 0.110 |
| 1.5KE440A | STUK5G4 | 418  | 462  | 1.0 | 376  | 5.0 | 2.5  | 602  | 0.110 |

### Notes:

- (1)  $V_{BR}$  measured after  $I_t$  applied for 300  $\mu$ s.,  $I_t$  = square wave pulse or equivalent
- (2)  $V_F = 3.5 V_{max}$ ,  $I_F = 100$  A (6.8 V to 91 V)  
 $V_F = 5.0 V_{max}$ ,  $I_F = 100$  A (100 V to 440 V) per 1/2 square or equivalent sine wave  
 $PW = 8.3$  ms, duty cycle = 4 pulses per minute maximum
- (3) For bidirectional use suffix "C" or "CA" (Axial Lead) / replace the third letter of type from "U" to "B" (SMD)
- (4) "1.5" for axial lead / "STU" or "STB" for SMD will be omitted on marking of the diode.
- (5) Use suffix "L" (Axial Lead) for case type DO-201AD
- (6) For bidirectional types have  $V_R$  of 10 V and under, the  $I_R$  limit is doubled



# Transient Voltage Suppressor Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.       | Breakdown Voltage @ $I_T^{(1)}$ |       | Working Peak Reverse Voltage | Maximum Reverse Leakage @ $V_{WM}$ | Maximum Peak Pulse Surge Current | Maximum Clamping Voltage @ $I_{PPM}$ |
|----------------|---------------------------------|-------|------------------------------|------------------------------------|----------------------------------|--------------------------------------|
|                | $V_{BR}$ (V)                    | $I_T$ | $V_{WM}$                     | $I_R^{(3)}$                        | $I_{PPM}$                        | $V_C$                                |
| Unidirectional | Min.                            | Max.  | (mA)                         | (V)                                | ( $\mu$ A)                       | (A)                                  |

## SMCJ Series, 1,500W, Case Type: SMC



|          |      |      |     |     |      |       |      |
|----------|------|------|-----|-----|------|-------|------|
| SMCJ5.0  | 6.40 | 7.82 | 10  | 5.0 | 1000 | 156.3 | 9.6  |
| SMCJ5.0A | 6.40 | 7.07 | 10  | 5.0 | 1000 | 163.0 | 9.2  |
| SMCJ6.0  | 6.67 | 8.15 | 10  | 6.0 | 1000 | 131.6 | 11.4 |
| SMCJ6.0A | 6.67 | 7.37 | 10  | 6.0 | 1000 | 145.6 | 10.3 |
| SMCJ6.5  | 7.22 | 8.82 | 10  | 6.5 | 500  | 122.0 | 12.3 |
| SMCJ6.5A | 7.22 | 7.98 | 10  | 6.5 | 500  | 133.9 | 11.2 |
| SMCJ7.0  | 7.78 | 9.51 | 10  | 7.0 | 200  | 112.8 | 13.3 |
| SMCJ7.0A | 7.78 | 8.6  | 10  | 7.0 | 200  | 125.0 | 12.0 |
| SMCJ7.5  | 8.33 | 10.2 | 1.0 | 7.5 | 100  | 104.9 | 14.3 |
| SMCJ7.5A | 8.33 | 9.21 | 1.0 | 7.5 | 100  | 116.3 | 12.9 |
| SMCJ8.0  | 8.89 | 10.9 | 1.0 | 8.0 | 50   | 100.0 | 15.0 |
| SMCJ8.0A | 8.89 | 9.83 | 1.0 | 8.0 | 50   | 110.3 | 13.6 |
| SMCJ8.5  | 9.44 | 11.5 | 1.0 | 8.5 | 20   | 94.3  | 15.9 |
| SMCJ8.5A | 9.44 | 10.4 | 1.0 | 8.5 | 20   | 104.2 | 14.4 |
| SMCJ9.0  | 10.0 | 12.2 | 1.0 | 9.0 | 10   | 88.8  | 16.9 |
| SMCJ9.0A | 10.0 | 11.1 | 1.0 | 9.0 | 10   | 97.4  | 15.4 |
| SMCJ10   | 11.1 | 13.6 | 1.0 | 10  | 5.0  | 79.8  | 18.8 |
| SMCJ10A  | 11.1 | 12.3 | 1.0 | 10  | 5.0  | 88.2  | 17.0 |
| SMCJ11   | 12.2 | 14.9 | 1.0 | 11  | 5.0  | 74.6  | 20.1 |
| SMCJ11A  | 12.2 | 13.5 | 1.0 | 11  | 5.0  | 82.4  | 18.2 |
| SMCJ12   | 13.3 | 16.3 | 1.0 | 12  | 5.0  | 68.2  | 22.0 |
| SMCJ12A  | 13.3 | 14.7 | 1.0 | 12  | 5.0  | 75.4  | 19.9 |
| SMCJ13   | 14.4 | 17.6 | 1.0 | 13  | 1.0  | 63.0  | 23.8 |
| SMCJ13A  | 14.4 | 15.9 | 1.0 | 13  | 1.0  | 69.8  | 21.5 |
| SMCJ14   | 15.6 | 19.1 | 1.0 | 14  | 1.0  | 58.1  | 25.8 |
| SMCJ14A  | 15.6 | 17.2 | 1.0 | 14  | 1.0  | 64.7  | 23.2 |
| SMCJ15   | 16.7 | 20.4 | 1.0 | 15  | 1.0  | 55.8  | 26.9 |
| SMCJ15A  | 16.7 | 18.5 | 1.0 | 15  | 1.0  | 61.5  | 24.4 |
| SMCJ16   | 17.8 | 21.8 | 1.0 | 16  | 1.0  | 52.1  | 28.8 |
| SMCJ16A  | 17.8 | 19.7 | 1.0 | 16  | 1.0  | 57.7  | 26.0 |
| SMCJ17   | 18.9 | 23.1 | 1.0 | 17  | 1.0  | 49.2  | 30.5 |
| SMCJ17A  | 18.9 | 20.9 | 1.0 | 17  | 1.0  | 54.3  | 27.6 |
| SMCJ18   | 20.0 | 24.4 | 1.0 | 18  | 1.0  | 46.6  | 32.2 |
| SMCJ18A  | 20.0 | 22.1 | 1.0 | 18  | 1.0  | 51.4  | 29.2 |
| SMCJ20   | 22.2 | 27.1 | 1.0 | 20  | 1.0  | 41.9  | 35.8 |
| SMCJ20A  | 22.2 | 24.5 | 1.0 | 20  | 1.0  | 46.3  | 32.4 |
| SMCJ22   | 24.4 | 29.8 | 1.0 | 22  | 1.0  | 38.1  | 39.4 |
| SMCJ22A  | 24.4 | 26.9 | 1.0 | 22  | 1.0  | 42.3  | 35.5 |
| SMCJ24   | 26.7 | 32.6 | 1.0 | 24  | 1.0  | 34.9  | 43.0 |
| SMCJ24A  | 26.7 | 29.5 | 1.0 | 24  | 1.0  | 38.6  | 38.9 |
| SMCJ26   | 28.9 | 35.3 | 1.0 | 26  | 1.0  | 32.2  | 46.6 |
| SMCJ26A  | 28.9 | 31.9 | 1.0 | 26  | 1.0  | 35.6  | 42.1 |
| SMCJ28   | 31.1 | 38.0 | 1.0 | 28  | 1.0  | 30.0  | 50.0 |
| SMCJ28A  | 31.1 | 34.4 | 1.0 | 28  | 1.0  | 33.0  | 45.4 |
| SMCJ30   | 33.3 | 40.7 | 1.0 | 30  | 1.0  | 28.0  | 53.5 |
| SMCJ30A  | 33.3 | 36.8 | 1.0 | 30  | 1.0  | 31.0  | 48.4 |
| SMCJ33   | 36.7 | 44.9 | 1.0 | 33  | 1.0  | 25.4  | 59.0 |
| SMCJ33A  | 36.7 | 40.6 | 1.0 | 33  | 1.0  | 28.1  | 53.3 |
| SMCJ36   | 40.0 | 48.9 | 1.0 | 36  | 1.0  | 23.3  | 64.3 |
| SMCJ36A  | 40.0 | 44.2 | 1.0 | 36  | 1.0  | 25.8  | 58.1 |
| SMCJ40   | 44.4 | 54.3 | 1.0 | 40  | 1.0  | 21.0  | 71.4 |
| SMCJ40A  | 44.4 | 49.1 | 1.0 | 40  | 1.0  | 23.3  | 64.5 |
| SMCJ43   | 47.8 | 58.4 | 1.0 | 43  | 1.0  | 19.6  | 76.7 |
| SMCJ43A  | 47.8 | 52.8 | 1.0 | 43  | 1.0  | 21.6  | 69.4 |
| SMCJ45   | 50.0 | 61.1 | 1.0 | 45  | 1.0  | 18.7  | 80.3 |



# Transient Voltage Suppressor Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.       | Breakdown Voltage @ $I_T^{(1)}$ |       | Working Peak Reverse Voltage | Maximum Reverse Leakage @ $V_{WM}$ | Maximum Peak Pulse Surge Current | Maximum Clamping Voltage @ $I_{PPM}$ |
|----------------|---------------------------------|-------|------------------------------|------------------------------------|----------------------------------|--------------------------------------|
|                | $V_{BR}$ (V)                    | $I_T$ | $V_{WM}$                     | $I_R^{(3)}$                        | $I_{PPM}$                        | $V_C$                                |
| Unidirectional | Min.                            | Max.  | (mA)                         | (V)                                | ( $\mu A$ )                      | (A)                                  |

## SMCJ Series, 1,500W, Case Type: SMC



|          |      |      |     |     |     |      |      |
|----------|------|------|-----|-----|-----|------|------|
| SMCJ45A  | 50.0 | 55.3 | 1.0 | 45  | 1.0 | 20.6 | 72.7 |
| SMCJ48   | 53.3 | 65.1 | 1.0 | 48  | 1.0 | 17.5 | 85.5 |
| SMCJ48A  | 53.3 | 58.9 | 1.0 | 48  | 1.0 | 19.4 | 77.4 |
| SMCJ51   | 56.7 | 69.3 | 1.0 | 51  | 1.0 | 16.5 | 91.1 |
| SMCJ51A  | 56.7 | 62.7 | 1.0 | 51  | 1.0 | 18.2 | 82.4 |
| SMCJ54   | 60.0 | 73.3 | 1.0 | 54  | 1.0 | 15.6 | 96.3 |
| SMCJ54A  | 60.0 | 66.3 | 1.0 | 54  | 1.0 | 17.2 | 87.1 |
| SMCJ58   | 64.4 | 78.7 | 1.0 | 58  | 1.0 | 14.6 | 103  |
| SMCJ58A  | 64.4 | 71.2 | 1.0 | 58  | 1.0 | 16.0 | 93.6 |
| SMCJ60   | 66.7 | 81.5 | 1.0 | 60  | 1.0 | 14.0 | 107  |
| SMCJ60A  | 66.7 | 73.7 | 1.0 | 60  | 1.0 | 15.5 | 96   |
| SMCJ64   | 71.1 | 86.4 | 1.0 | 64  | 1.0 | 13.2 | 114  |
| SMCJ64A  | 71.1 | 78.6 | 1.0 | 64  | 1.0 | 14.6 | 103  |
| SMCJ70   | 77.8 | 95.1 | 1.0 | 70  | 1.0 | 12.0 | 125  |
| SMCJ70A  | 77.8 | 86   | 1.0 | 70  | 1.0 | 13.3 | 113  |
| SMCJ75   | 83.3 | 102  | 1.0 | 75  | 1.0 | 11.2 | 134  |
| SMCJ75A  | 83.3 | 92.1 | 1.0 | 75  | 1.0 | 12.4 | 121  |
| SMCJ78   | 86.7 | 106  | 1.0 | 78  | 1.0 | 10.8 | 139  |
| SMCJ78A  | 86.7 | 95.8 | 1.0 | 78  | 1.0 | 11.9 | 126  |
| SMCJ85   | 94.4 | 115  | 1.0 | 85  | 1.0 | 9.9  | 151  |
| SMCJ85A  | 94.4 | 104  | 1.0 | 85  | 1.0 | 10.9 | 137  |
| SMCJ90   | 100  | 122  | 1.0 | 90  | 1.0 | 9.4  | 160  |
| SMCJ90A  | 100  | 111  | 1.0 | 90  | 1.0 | 10.3 | 146  |
| SMCJ100  | 111  | 136  | 1.0 | 100 | 1.0 | 8.4  | 179  |
| SMCJ100A | 111  | 123  | 1.0 | 100 | 1.0 | 9.3  | 162  |
| SMCJ110  | 122  | 149  | 1.0 | 110 | 1.0 | 7.7  | 196  |
| SMCJ110A | 122  | 135  | 1.0 | 110 | 1.0 | 8.5  | 177  |
| SMCJ120  | 133  | 163  | 1.0 | 120 | 1.0 | 7.0  | 214  |
| SMCJ120A | 133  | 147  | 1.0 | 120 | 1.0 | 7.8  | 193  |
| SMCJ130  | 144  | 176  | 1.0 | 130 | 1.0 | 6.5  | 231  |
| SMCJ130A | 144  | 159  | 1.0 | 130 | 1.0 | 7.2  | 209  |
| SMCJ150  | 167  | 204  | 1.0 | 150 | 1.0 | 5.6  | 268  |
| SMCJ150A | 167  | 185  | 1.0 | 150 | 1.0 | 6.2  | 243  |
| SMCJ160  | 178  | 218  | 1.0 | 160 | 1.0 | 5.2  | 287  |
| SMCJ160A | 178  | 197  | 1.0 | 160 | 1.0 | 5.8  | 259  |
| SMCJ170  | 189  | 231  | 1.0 | 170 | 1.0 | 4.90 | 304  |
| SMCJ170A | 189  | 209  | 1.0 | 170 | 1.0 | 5.50 | 275  |
| SMCJ188  | 209  | 255  | 1.0 | 188 | 1.0 | 4.40 | 344  |
| SMCJ188A | 209  | 231  | 1.0 | 188 | 1.0 | 4.60 | 328  |
| SMCJ200A | 224  | 247  | 1.0 | 200 | 1.0 | 4.6  | 324  |
| SMCJ220A | 246  | 272  | 1.0 | 220 | 1.0 | 4.2  | 356  |
| SMCJ250A | 279  | 309  | 1.0 | 250 | 1.0 | 3.7  | 405  |
| SMCJ300A | 335  | 371  | 1.0 | 300 | 1.0 | 3.1  | 486  |
| SMCJ350A | 391  | 432  | 1.0 | 350 | 1.0 | 2.6  | 567  |
| SMCJ400A | 447  | 494  | 1.0 | 400 | 1.0 | 2.3  | 648  |
| SMCJ440A | 492  | 543  | 1.0 | 440 | 1.0 | 2.1  | 713  |

### Notes :

- (1) Pulse test :  $t_p \leq 50ms$
- (2) For bidirectional use suffix "C" or "CA"
- (3) For bidirectional types have  $V_{WM}$  of 10 V and less , the  $I_R$  limit is doubled
- (4) For the bidirectional SMCJ5.0CA, the maximum  $V_{BR}$  is 7.25V
- (5) "SMCJ" will be omitted on marking of the diode
- (6) For part without A , the  $V_{BR}$  is  $\pm 10\%$  and  $V_C$  is  $\pm 5\%$  higher than with A parts.



# Transient Voltage Suppressor Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.       | Breakdown Voltage @ $I_T$ |       | Working Peak Reverse Voltage | Maximum Reverse Leakage @ $V_{WM}$ | Maximum Peak Pulse Surge Current | Maximum Clamping Voltage @ $I_{PPM}$ |
|----------------|---------------------------|-------|------------------------------|------------------------------------|----------------------------------|--------------------------------------|
|                | $V_{BR}$ (V)              | $I_T$ | $V_{WM}$                     | $I_R$                              | $I_{PPM}$                        | $V_C$                                |
| Unidirectional | Min.                      | Max.  | (mA)                         | (V)                                | ( $\mu$ A)                       | (A)                                  |

## 3.0SMCJ Series, 3,000W, Case Type: SMC



|            |      |      |     |    |      |       |      |
|------------|------|------|-----|----|------|-------|------|
| 3.0SMCJ11  | 12.2 | 15.4 | 1.0 | 11 | 1000 | 149.2 | 20.1 |
| 3.0SMCJ11A | 12.2 | 14.0 | 1.0 | 11 | 1000 | 184.8 | 18.2 |
| 3.0SMCJ12  | 13.3 | 16.9 | 1.0 | 12 | 1000 | 136.4 | 22.0 |
| 3.0SMCJ12A | 13.3 | 15.3 | 1.0 | 12 | 1000 | 150.6 | 19.9 |
| 3.0SMCJ13  | 14.4 | 18.2 | 1.0 | 13 | 500  | 126.0 | 23.8 |
| 3.0SMCJ13A | 14.4 | 16.5 | 1.0 | 13 | 500  | 139.4 | 21.5 |
| 3.0SMCJ14  | 15.6 | 19.8 | 1.0 | 14 | 200  | 116.2 | 25.8 |
| 3.0SMCJ14A | 15.6 | 17.9 | 1.0 | 14 | 200  | 129.4 | 23.2 |
| 3.0SMCJ15  | 16.7 | 21.1 | 1.0 | 15 | 100  | 111.6 | 26.9 |
| 3.0SMCJ15A | 16.7 | 19.2 | 1.0 | 15 | 100  | 123.0 | 24.4 |
| 3.0SMCJ16  | 17.8 | 22.6 | 1.0 | 16 | 50   | 104.2 | 28.8 |
| 3.0SMCJ16A | 17.8 | 20.5 | 1.0 | 16 | 50   | 115.4 | 26.0 |
| 3.0SMCJ17  | 18.9 | 23.9 | 1.0 | 17 | 20   | 98.4  | 30.5 |
| 3.0SMCJ17A | 18.9 | 21.7 | 1.0 | 17 | 20   | 106.6 | 27.6 |
| 3.0SMCJ18  | 20.0 | 25.3 | 1.0 | 18 | 10   | 93.2  | 32.2 |
| 3.0SMCJ18A | 20.0 | 23.3 | 1.0 | 18 | 10   | 102.8 | 29.2 |
| 3.0SMCJ20  | 22.2 | 28.1 | 1.0 | 20 | 10   | 83.8  | 35.8 |
| 3.0SMCJ20A | 22.2 | 25.5 | 1.0 | 20 | 10   | 92.6  | 32.4 |
| 3.0SMCJ22  | 24.4 | 30.9 | 1.0 | 22 | 5    | 76.2  | 39.4 |
| 3.0SMCJ22A | 24.4 | 28.0 | 1.0 | 22 | 5    | 84.4  | 35.5 |
| 3.0SMCJ24  | 26.7 | 33.8 | 1.0 | 24 | 5    | 69.8  | 43.0 |
| 3.0SMCJ24A | 26.7 | 30.7 | 1.0 | 24 | 5    | 77.2  | 38.9 |
| 3.0SMCJ26  | 28.9 | 36.6 | 1.0 | 26 | 5    | 64.4  | 46.6 |
| 3.0SMCJ26A | 28.9 | 33.2 | 1.0 | 26 | 5    | 71.2  | 42.1 |
| 3.0SMCJ28  | 31.1 | 39.4 | 1.0 | 28 | 5    | 60.0  | 50.0 |
| 3.0SMCJ28A | 31.1 | 35.8 | 1.0 | 28 | 5    | 66.0  | 45.4 |
| 3.0SMCJ30  | 33.3 | 42.2 | 1.0 | 30 | 5    | 56.0  | 53.5 |
| 3.0SMCJ30A | 33.3 | 38.3 | 1.0 | 30 | 5    | 62.0  | 48.4 |
| 3.0SMCJ33  | 36.7 | 46.5 | 1.0 | 33 | 5    | 50.4  | 59.0 |
| 3.0SMCJ33A | 36.7 | 42.2 | 1.0 | 33 | 5    | 56.2  | 53.3 |
| 3.0SMCJ36  | 40.0 | 50.7 | 1.0 | 36 | 5    | 46.6  | 64.3 |
| 3.0SMCJ36A | 40.0 | 46.0 | 1.0 | 36 | 5    | 51.6  | 58.1 |
| 3.0SMCJ40  | 44.4 | 56.3 | 1.0 | 40 | 5    | 42.0  | 71.4 |
| 3.0SMCJ40A | 44.4 | 51.1 | 1.0 | 40 | 5    | 46.4  | 64.5 |
| 3.0SMCJ43  | 47.8 | 60.5 | 1.0 | 43 | 5    | 39.2  | 76.7 |
| 3.0SMCJ43A | 47.8 | 54.9 | 1.0 | 43 | 5    | 43.2  | 69.4 |
| 3.0SMCJ45  | 50.0 | 63.3 | 1.0 | 45 | 5    | 37.4  | 80.3 |
| 3.0SMCJ45A | 50.0 | 57.5 | 1.0 | 45 | 5    | 41.2  | 72.7 |
| 3.0SMCJ48  | 53.3 | 67.5 | 1.0 | 48 | 5    | 35.0  | 85.5 |
| 3.0SMCJ48A | 53.3 | 61.3 | 1.0 | 48 | 5    | 38.8  | 77.4 |
| 3.0SMCJ51  | 56.7 | 71.8 | 1.0 | 51 | 5    | 37.0  | 91.1 |
| 3.0SMCJ51A | 56.7 | 65.2 | 1.0 | 51 | 5    | 36.4  | 82.4 |
| 3.0SMCJ54  | 60.0 | 76.0 | 1.0 | 54 | 5    | 31.2  | 96.3 |
| 3.0SMCJ54A | 60.0 | 69.0 | 1.0 | 54 | 5    | 34.4  | 87.1 |



# Transient Voltage Suppressor Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.       | Breakdown Voltage @ $I_T$ |       | Working Peak Reverse Voltage | Maximum Reverse Leakage @ $V_{WM}$ | Maximum Peak Pulse Surge Current | Maximum Clamping Voltage @ $I_{PPM}$ |
|----------------|---------------------------|-------|------------------------------|------------------------------------|----------------------------------|--------------------------------------|
|                | $V_{BR}$ (V)              | $I_T$ | $V_{WM}$                     | $I_R$                              | $I_{PPM}$                        | $V_C$                                |
| Unidirectional | Min.                      | Max.  | (mA)                         | (V)                                | ( $\mu$ A)                       | (A)                                  |
|                |                           |       | (V)                          | ( $\mu$ A)                         | (A)                              | (V)                                  |

## 3.0SMCJ Series, 3,000W, Case Type: SMC



|             |      |       |     |     |   |      |      |
|-------------|------|-------|-----|-----|---|------|------|
| 3.0SMCJ58   | 64.4 | 81.6  | 1.0 | 58  | 5 | 39.2 | 103  |
| 3.0SMCJ58A  | 64.4 | 74.1  | 1.0 | 58  | 5 | 32.0 | 93.6 |
| 3.0SMCJ60   | 66.7 | 84.5  | 1.0 | 60  | 5 | 28.0 | 107  |
| 3.0SMCJ60A  | 66.7 | 76.7  | 1.0 | 60  | 5 | 31.0 | 96   |
| 3.0SMCJ64   | 71.1 | 90.1  | 1.0 | 64  | 5 | 26.4 | 114  |
| 3.0SMCJ64A  | 71.1 | 81.8  | 1.0 | 64  | 5 | 29.2 | 103  |
| 3.0SMCJ70   | 77.8 | 98.6  | 1.0 | 70  | 5 | 24.0 | 125  |
| 3.0SMCJ70A  | 77.8 | 89.5  | 1.0 | 70  | 5 | 26.6 | 113  |
| 3.0SMCJ75   | 83.3 | 105.7 | 1.0 | 75  | 5 | 22.4 | 134  |
| 3.0SMCJ75A  | 83.3 | 95.8  | 1.0 | 75  | 5 | 24.8 | 121  |
| 3.0SMCJ78   | 86.7 | 109.8 | 1.0 | 78  | 5 | 21.6 | 139  |
| 3.0SMCJ78A  | 86.7 | 99.7  | 1.0 | 78  | 5 | 22.8 | 126  |
| 3.0SMCJ85   | 94.4 | 119.2 | 1.0 | 85  | 5 | 19.8 | 151  |
| 3.0SMCJ85A  | 94.4 | 108.2 | 1.0 | 85  | 5 | 20.8 | 137  |
| 3.0SMCJ90   | 100  | 126.5 | 1.0 | 90  | 5 | 18.8 | 160  |
| 3.0SMCJ90A  | 100  | 115.5 | 1.0 | 90  | 5 | 20.6 | 146  |
| 3.0SMCJ100  | 111  | 141.0 | 1.0 | 100 | 5 | 16.6 | 179  |
| 3.0SMCJ100A | 111  | 128.0 | 1.0 | 100 | 5 | 18.6 | 162  |
| 3.0SMCJ110  | 122  | 154.5 | 1.0 | 110 | 5 | 15.4 | 196  |
| 3.0SMCJ110A | 122  | 140.5 | 1.0 | 110 | 5 | 16.8 | 177  |
| 3.0SMCJ120  | 133  | 169.0 | 1.0 | 120 | 5 | 14.0 | 214  |
| 3.0SMCJ120A | 133  | 153.0 | 1.0 | 120 | 5 | 15.6 | 193  |
| 3.0SMCJ130  | 144  | 182.5 | 1.0 | 130 | 5 | 13.0 | 231  |
| 3.0SMCJ130A | 144  | 165.5 | 1.0 | 130 | 5 | 14.4 | 209  |
| 3.0SMCJ150  | 167  | 211.5 | 1.0 | 150 | 5 | 11.2 | 268  |
| 3.0SMCJ150A | 167  | 192.5 | 1.0 | 150 | 5 | 12.4 | 243  |
| 3.0SMCJ160  | 178  | 226.0 | 1.0 | 160 | 5 | 10.4 | 287  |
| 3.0SMCJ160A | 178  | 205.0 | 1.0 | 160 | 5 | 11.6 | 259  |
| 3.0SMCJ170  | 189  | 239.5 | 1.0 | 170 | 5 | 9.8  | 304  |
| 3.0SMCJ170A | 189  | 217.5 | 1.0 | 170 | 5 | 11.0 | 275  |
| 3.0SMCJ180  | 198  | 253.8 | 1.0 | 180 | 5 | 9.3  | 322  |
| 3.0SMCJ180A | 198  | 230.4 | 1.0 | 180 | 5 | 10.3 | 292  |
| 3.0SMCJ190  | 209  | 267.9 | 1.0 | 190 | 5 | 8.8  | 340  |
| 3.0SMCJ190A | 209  | 243.2 | 1.0 | 190 | 5 | 9.7  | 308  |
| 3.0SMCJ200  | 220  | 282.0 | 1.0 | 200 | 5 | 8.4  | 358  |
| 3.0SMCJ200A | 220  | 256.0 | 1.0 | 200 | 5 | 9.3  | 324  |
| 3.0SMCJ210  | 231  | 296.1 | 1.0 | 210 | 5 | 7.8  | 376  |
| 3.0SMCJ210A | 231  | 268.8 | 1.0 | 210 | 5 | 8.8  | 340  |
| 3.0SMCJ220  | 242  | 310.2 | 1.0 | 220 | 5 | 7.6  | 394  |
| 3.0SMCJ220A | 242  | 281.6 | 1.0 | 220 | 5 | 8.4  | 356  |

### Notes:

- (1) For bidirectional use suffix "C" or "CA"
- (2) "SMCJ" will be omitted on marking of the diode.



# Transient Voltage Suppressor Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.       | Breakdown Voltage @ It<br>( Note 1 ) |      | Working Peak<br>Reverse<br>Voltage | Maximum<br>Reverse Leakage<br>@ VRWM | Maximum<br>Reverse<br>Current | Maximum<br>Clamping<br>Voltage @ IRSM | Maximum<br>Temperature<br>Coefficient<br>of VBR |
|----------------|--------------------------------------|------|------------------------------------|--------------------------------------|-------------------------------|---------------------------------------|-------------------------------------------------|
|                | VBR (V)                              |      | It                                 | VRWM                                 | IR                            | IRSM                                  | VRSM                                            |
| Unidirectional | Min.                                 | Max. | (mA)                               | (V)                                  | (μA)                          | (A)                                   | (V)                                             |
|                |                                      |      |                                    |                                      |                               |                                       | (% / °C)                                        |

## 3KE Series, 3,000 W, Case Type: DO-201



|        |      |      |     |      |      |      |      |       |
|--------|------|------|-----|------|------|------|------|-------|
| 3KE13  | 11.7 | 14.3 | 10  | 10.5 | 1000 | 158  | 19.0 | 0.081 |
| 3KE13A | 12.4 | 13.7 | 10  | 11.1 | 1000 | 164  | 18.2 | 0.081 |
| 3KE15  | 13.5 | 16.5 | 10  | 12.1 | 500  | 136  | 22.0 | 0.084 |
| 3KE15A | 14.3 | 15.8 | 10  | 12.8 | 500  | 142  | 21.2 | 0.084 |
| 3KE16  | 14.4 | 17.6 | 10  | 12.9 | 200  | 128  | 23.5 | 0.086 |
| 3KE16A | 15.2 | 16.8 | 10  | 13.6 | 200  | 134  | 22.5 | 0.086 |
| 3KE18  | 16.2 | 19.8 | 1.0 | 14.5 | 50   | 113  | 26.5 | 0.088 |
| 3KE18A | 17.1 | 18.9 | 1.0 | 15.3 | 50   | 119  | 25.2 | 0.088 |
| 3KE20  | 18.0 | 22.0 | 1.0 | 16.2 | 10   | 103  | 29.1 | 0.090 |
| 3KE20A | 19.0 | 21.0 | 1.0 | 17.1 | 10   | 108  | 27.7 | 0.090 |
| 3KE22  | 19.8 | 24.2 | 1.0 | 17.8 | 5.0  | 94   | 31.9 | 0.092 |
| 3KE22A | 20.9 | 23.1 | 1.0 | 18.8 | 5.0  | 98   | 30.6 | 0.092 |
| 3KE24  | 21.6 | 26.4 | 1.0 | 19.4 | 5.0  | 86   | 34.7 | 0.094 |
| 3KE24A | 22.8 | 25.2 | 1.0 | 20.5 | 5.0  | 90   | 33.2 | 0.094 |
| 3KE27  | 24.3 | 29.7 | 1.0 | 21.8 | 5.0  | 77   | 39.1 | 0.096 |
| 3KE27A | 25.7 | 28.4 | 1.0 | 23.1 | 5.0  | 80   | 37.5 | 0.096 |
| 3KE30  | 27.0 | 33.0 | 1.0 | 24.3 | 5.0  | 69   | 43.5 | 0.097 |
| 3KE30A | 28.5 | 31.5 | 1.0 | 25.6 | 5.0  | 72   | 41.4 | 0.097 |
| 3KE33  | 29.7 | 36.3 | 1.0 | 26.8 | 5.0  | 63   | 47.7 | 0.098 |
| 3KE33A | 31.4 | 34.7 | 1.0 | 28.2 | 5.0  | 66   | 45.7 | 0.098 |
| 3KE36  | 32.4 | 39.6 | 1.0 | 29.1 | 5.0  | 58   | 52.0 | 0.099 |
| 3KE36A | 34.2 | 37.8 | 1.0 | 30.8 | 5.0  | 60   | 49.9 | 0.099 |
| 3KE39  | 35.1 | 42.9 | 1.0 | 31.6 | 5.0  | 53   | 56.4 | 0.100 |
| 3KE39A | 37.1 | 41.0 | 1.0 | 33.3 | 5.0  | 56   | 53.9 | 0.100 |
| 3KE43  | 38.7 | 47.3 | 1.0 | 34.8 | 5.0  | 48   | 61.9 | 0.101 |
| 3KE43A | 40.9 | 45.2 | 1.0 | 36.8 | 5.0  | 51   | 59.3 | 0.101 |
| 3KE47  | 42.3 | 51.7 | 1.0 | 38.1 | 5.0  | 44   | 67.8 | 0.101 |
| 3KE47A | 44.7 | 49.4 | 1.0 | 40.2 | 5.0  | 46   | 64.8 | 0.101 |
| 3KE51  | 45.9 | 56.1 | 1.0 | 41.3 | 5.0  | 41   | 73.5 | 0.102 |
| 3KE51A | 48.5 | 53.6 | 1.0 | 43.6 | 5.0  | 43   | 70.1 | 0.102 |
| 3KE56  | 50.4 | 61.6 | 1.0 | 45.4 | 5.0  | 37   | 80.5 | 0.103 |
| 3KE56A | 53.2 | 58.8 | 1.0 | 47.8 | 5.0  | 39   | 77.0 | 0.103 |
| 3KE62  | 55.8 | 68.2 | 1.0 | 50.2 | 5.0  | 34   | 89.0 | 0.104 |
| 3KE62A | 58.9 | 65.1 | 1.0 | 53.0 | 5.0  | 35.4 | 85.0 | 0.104 |
| 3KE68  | 61.2 | 74.8 | 1.0 | 55.1 | 5.0  | 30.6 | 98.0 | 0.104 |
| 3KE68A | 64.6 | 71.4 | 1.0 | 58.1 | 5.0  | 32.6 | 92.0 | 0.104 |
| 3KE75  | 67.5 | 82.5 | 1.0 | 60.7 | 5.0  | 27.8 | 108  | 0.105 |
| 3KE75A | 71.3 | 78.8 | 1.0 | 64.1 | 5.0  | 29.2 | 103  | 0.105 |
| 3KE82  | 73.8 | 90.2 | 1.0 | 66.4 | 5.0  | 25.4 | 118  | 0.105 |
| 3KE82A | 77.9 | 86.1 | 1.0 | 70.1 | 5.0  | 26.6 | 113  | 0.105 |
| 3KE91  | 81.9 | 100  | 1.0 | 73.7 | 5.0  | 22.8 | 131  | 0.106 |



# Transient Voltage Suppressor Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.       | Breakdown Voltage @ It<br>( Note 1 ) |      | Working Peak<br>Reverse<br>Voltage | Maximum<br>Reverse Leakage<br>@ VRWM | Maximum<br>Reverse<br>Current | Maximum<br>Clamping<br>Voltage @ IRSM | Maximum<br>Temperature<br>Coefficient<br>of VBR |
|----------------|--------------------------------------|------|------------------------------------|--------------------------------------|-------------------------------|---------------------------------------|-------------------------------------------------|
|                | VBR (V)                              | It   | VRWM                               | IR                                   | IRSM                          | VRSM                                  |                                                 |
| Unidirectional | Min.                                 | Max. | (mA)                               | (V)                                  | (μA)                          | (A)                                   | (V)                                             |
|                |                                      |      |                                    |                                      |                               |                                       | (% / °C)                                        |

## 3KE Series, 3,000 W, Case Type: DO-201



|         |      |      |     |      |     |      |     |       |
|---------|------|------|-----|------|-----|------|-----|-------|
| 3KE91A  | 86.5 | 95.5 | 1.0 | 77.8 | 5.0 | 24.0 | 125 | 0.106 |
| 3KE100  | 90.0 | 110  | 1.0 | 81.0 | 5.0 | 20.8 | 144 | 0.106 |
| 3KE100A | 95.0 | 105  | 1.0 | 85.5 | 5.0 | 22.0 | 137 | 0.106 |
| 3KE110  | 99.0 | 121  | 1.0 | 89.2 | 5.0 | 19.0 | 158 | 0.107 |
| 3KE110A | 105  | 116  | 1.0 | 94.0 | 5.0 | 19.8 | 152 | 0.107 |
| 3KE120  | 108  | 132  | 1.0 | 97.2 | 5.0 | 17.4 | 173 | 0.107 |
| 3KE120A | 114  | 126  | 1.0 | 102  | 5.0 | 18.2 | 165 | 0.107 |
| 3KE130  | 117  | 143  | 1.0 | 105  | 5.0 | 16.0 | 187 | 0.107 |
| 3KE130A | 124  | 137  | 1.0 | 111  | 5.0 | 16.8 | 179 | 0.107 |
| 3KE150  | 135  | 165  | 1.0 | 121  | 5.0 | 14.0 | 215 | 0.108 |
| 3KE150A | 143  | 158  | 1.0 | 128  | 5.0 | 14.4 | 207 | 0.108 |
| 3KE160  | 144  | 176  | 1.0 | 130  | 5.0 | 13.0 | 230 | 0.108 |
| 3KE160A | 152  | 168  | 1.0 | 136  | 5.0 | 13.6 | 219 | 0.108 |
| 3KE170  | 153  | 187  | 1.0 | 138  | 5.0 | 12.4 | 244 | 0.108 |
| 3KE170A | 162  | 179  | 1.0 | 145  | 5.0 | 12.8 | 234 | 0.108 |
| 3KE180  | 162  | 198  | 1.0 | 146  | 5.0 | 11.6 | 258 | 0.108 |
| 3KE180A | 171  | 189  | 1.0 | 154  | 5.0 | 12.2 | 246 | 0.108 |
| 3KE200  | 180  | 220  | 1.0 | 162  | 5.0 | 10.4 | 287 | 0.108 |
| 3KE200A | 190  | 210  | 1.0 | 171  | 5.0 | 11.0 | 274 | 0.108 |
| 3KE220  | 198  | 242  | 1.0 | 175  | 5.0 | 8.6  | 344 | 0.108 |
| 3KE220A | 209  | 231  | 1.0 | 185  | 5.0 | 9.2  | 328 | 0.108 |
| 3KE250  | 225  | 275  | 1.0 | 202  | 5.0 | 10   | 360 | 0.110 |
| 3KE250A | 237  | 263  | 1.0 | 214  | 5.0 | 10   | 344 | 0.110 |
| 3KE300  | 270  | 330  | 1.0 | 243  | 5.0 | 10   | 430 | 0.110 |
| 3KE300A | 285  | 315  | 1.0 | 256  | 5.0 | 10   | 414 | 0.110 |
| 3KE350  | 315  | 385  | 1.0 | 284  | 5.0 | 8.0  | 504 | 0.110 |
| 3KE350A | 332  | 368  | 1.0 | 300  | 5.0 | 8.0  | 482 | 0.110 |
| 3KE400  | 360  | 440  | 1.0 | 324  | 5.0 | 8.0  | 574 | 0.110 |
| 3KE400A | 380  | 420  | 1.0 | 342  | 5.0 | 8.0  | 548 | 0.110 |
| 3KE440  | 396  | 484  | 1.0 | 356  | 5.0 | 4.8  | 631 | 0.110 |
| 3KE440A | 418  | 462  | 1.0 | 376  | 5.0 | 5.0  | 602 | 0.110 |

### Notes:

- (1)  $V_{BR}$  measured after  $I_t$  applied for 300  $\mu$ s.,  $I_t$  = square wave pulse or equivalent
- (2)  $V_F = 5.0$  Vmax.,  $I_F = 100$  A per 1/2 square or equivalent sine wave  
PW = 8.3 ms, duty cycle = 4 pulses per minute maximum
- (3) For bidirectional use suffix "C" or "CA"
- (4) For bidirectional types having  $V_R$  of 20 V and under, the  $I_R$  limit is doubled



# Transient Voltage Suppressor Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.       | Breakdown Voltage @ $I_T$<br>( Note 1 ) |      | $I_T$ | Reverse<br>Stand off<br>Voltage<br>$V_{RM}$ | Maximum<br>Reverse Leakage<br>@ $V_{RM}$<br>$I_R$ | Maximum<br>Peak Pulse<br>Current (Note2)<br>$I_{PPM}$ | Maximum<br>Clamping<br>Voltage @ $I_{PPM}$<br>$V_C$ | Maximum<br>Temperature<br>Coefficient<br>of $V_{BR}$<br>(%/°C) |
|----------------|-----------------------------------------|------|-------|---------------------------------------------|---------------------------------------------------|-------------------------------------------------------|-----------------------------------------------------|----------------------------------------------------------------|
|                | Min.                                    | Max. |       |                                             |                                                   |                                                       |                                                     |                                                                |
| Unidirectional |                                         |      | (mA)  | (V)                                         | ( $\mu$ A)                                        | (A)                                                   | (V)                                                 |                                                                |

## 5KP Series, 5,000W, Case Type: D6



|         |      |      |     |     |      |     |      |       |
|---------|------|------|-----|-----|------|-----|------|-------|
| 5KP5.0  | 6.40 | 7.30 | 50  | 5.0 | 5000 | 520 | 9.60 | 0.057 |
| 5KP5.0A | 6.40 | 7.00 | 50  | 5.0 | 5000 | 543 | 9.20 | 0.057 |
| 5KP6.0  | 6.67 | 8.15 | 50  | 6.0 | 5000 | 439 | 11.4 | 0.061 |
| 5KP6.0A | 6.67 | 7.37 | 50  | 6.0 | 5000 | 485 | 10.3 | 0.061 |
| 5KP6.5  | 7.22 | 8.82 | 50  | 6.5 | 2000 | 407 | 12.3 | 0.065 |
| 5KP6.5A | 7.22 | 7.98 | 50  | 6.5 | 2000 | 447 | 11.2 | 0.065 |
| 5KP7.0  | 7.78 | 9.51 | 5.0 | 7.0 | 1000 | 378 | 13.3 | 0.068 |
| 5KP7.0A | 7.78 | 8.60 | 5.0 | 7.0 | 1000 | 417 | 12.0 | 0.068 |
| 5KP7.5  | 8.33 | 10.2 | 5.0 | 7.5 | 250  | 350 | 14.3 | 0.073 |
| 5KP7.5A | 8.33 | 9.21 | 5.0 | 7.5 | 250  | 388 | 12.9 | 0.073 |
| 5KP8.0  | 8.89 | 10.9 | 5.0 | 8.0 | 150  | 333 | 15.0 | 0.075 |
| 5KP8.0A | 8.89 | 9.83 | 5.0 | 8.0 | 150  | 367 | 13.6 | 0.075 |
| 5KP8.5  | 9.44 | 11.5 | 5.0 | 8.5 | 50   | 314 | 15.9 | 0.078 |
| 5KP8.5A | 9.44 | 10.4 | 5.0 | 8.5 | 50   | 347 | 14.4 | 0.078 |
| 5KP9.0  | 10.0 | 12.2 | 5.0 | 9.0 | 20   | 295 | 16.9 | 0.081 |
| 5KP9.0A | 10.0 | 11.1 | 5.0 | 9.0 | 20   | 325 | 15.4 | 0.081 |
| 5KP10   | 11.1 | 13.6 | 5.0 | 10  | 15   | 266 | 18.8 | 0.084 |
| 5KP10A  | 11.1 | 12.3 | 5.0 | 10  | 15   | 294 | 17.0 | 0.084 |
| 5KP11   | 12.2 | 14.9 | 5.0 | 11  | 10   | 249 | 20.1 | 0.086 |
| 5KP11A  | 12.2 | 13.5 | 5.0 | 11  | 10   | 274 | 18.2 | 0.086 |
| 5KP12   | 13.3 | 16.3 | 5.0 | 12  | 10   | 227 | 22.0 | 0.088 |
| 5KP12A  | 13.3 | 14.7 | 5.0 | 12  | 10   | 251 | 19.9 | 0.088 |
| 5KP13   | 14.4 | 17.6 | 5.0 | 13  | 10   | 210 | 23.8 | 0.090 |
| 5KP13A  | 14.4 | 15.9 | 5.0 | 13  | 10   | 232 | 21.5 | 0.090 |
| 5KP14   | 15.6 | 19.1 | 5.0 | 14  | 10   | 194 | 25.8 | 0.092 |
| 5KP14A  | 15.6 | 17.2 | 5.0 | 14  | 10   | 215 | 23.2 | 0.092 |
| 5KP15   | 16.7 | 20.4 | 5.0 | 15  | 10   | 188 | 26.9 | 0.094 |
| 5KP15A  | 16.7 | 18.5 | 5.0 | 15  | 10   | 206 | 24.4 | 0.094 |
| 5KP16   | 17.8 | 21.8 | 5.0 | 16  | 10   | 176 | 28.8 | 0.096 |
| 5KP16A  | 17.8 | 19.7 | 5.0 | 16  | 10   | 192 | 26.0 | 0.096 |
| 5KP17   | 18.9 | 23.1 | 5.0 | 17  | 10   | 164 | 30.5 | 0.097 |
| 5KP17A  | 18.9 | 20.9 | 5.0 | 17  | 10   | 181 | 27.6 | 0.097 |
| 5KP18   | 20.0 | 24.4 | 5.0 | 18  | 10   | 155 | 32.2 | 0.098 |
| 5KP18A  | 20.0 | 22.1 | 5.0 | 18  | 10   | 172 | 29.2 | 0.098 |
| 5KP20   | 22.2 | 27.1 | 5.0 | 20  | 10   | 139 | 35.8 | 0.099 |
| 5KP20A  | 22.2 | 24.5 | 5.0 | 20  | 10   | 154 | 32.4 | 0.099 |
| 5KP22   | 24.4 | 29.8 | 5.0 | 22  | 10   | 127 | 39.4 | 0.100 |
| 5KP22A  | 24.4 | 26.9 | 5.0 | 22  | 10   | 141 | 35.5 | 0.100 |
| 5KP24   | 26.7 | 32.6 | 5.0 | 24  | 10   | 116 | 43.0 | 0.101 |
| 5KP24A  | 26.7 | 29.5 | 5.0 | 24  | 10   | 128 | 38.9 | 0.101 |
| 5KP26   | 28.9 | 35.3 | 5.0 | 26  | 10   | 107 | 46.6 | 0.101 |
| 5KP26A  | 28.9 | 31.9 | 5.0 | 26  | 10   | 119 | 42.1 | 0.101 |
| 5KP28   | 31.1 | 38.0 | 5.0 | 28  | 10   | 99  | 50.1 | 0.102 |
| 5KP28A  | 31.1 | 34.4 | 5.0 | 28  | 10   | 110 | 45.4 | 0.102 |
| 5KP30   | 33.3 | 40.7 | 5.0 | 30  | 10   | 93  | 53.5 | 0.103 |
| 5KP30A  | 33.3 | 36.8 | 5.0 | 30  | 10   | 103 | 48.4 | 0.103 |
| 5KP33   | 36.7 | 44.9 | 5.0 | 33  | 10   | 85  | 59.0 | 0.104 |
| 5KP33A  | 36.7 | 40.6 | 5.0 | 33  | 10   | 94  | 53.3 | 0.104 |



# Transient Voltage Suppressor Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.       | Breakdown Voltage @ $I_T$<br>( Note 1 ) |      | $I_T$ | Reverse<br>Stand off<br>Voltage<br>$V_{RM}$ | Maximum<br>Reverse Leakage<br>@ $V_{RM}$<br>$I_R$ | Maximum<br>Peak Pulse<br>Current (Note2)<br>$I_{PPM}$ | Maximum<br>Clamping<br>Voltage @ $I_{PPM}$<br>$V_C$ | Maximum<br>Temperature<br>Coefficient<br>of $V_{BR}$<br>(%/°C) |
|----------------|-----------------------------------------|------|-------|---------------------------------------------|---------------------------------------------------|-------------------------------------------------------|-----------------------------------------------------|----------------------------------------------------------------|
|                | Min.                                    | Max. |       |                                             |                                                   |                                                       |                                                     |                                                                |
| Unidirectional |                                         |      | (mA)  | (V)                                         | ( $\mu$ A)                                        | (A)                                                   | (V)                                                 |                                                                |

## 5KP Series, 5,000W, Case Type: D6



|         |      |      |     |     |    |    |      |       |
|---------|------|------|-----|-----|----|----|------|-------|
| 5KP36   | 40.0 | 48.9 | 5.0 | 36  | 10 | 78 | 64.3 | 0.104 |
| 5KP36A  | 40.0 | 44.2 | 5.0 | 36  | 10 | 86 | 58.1 | 0.104 |
| 5KP40   | 44.4 | 54.3 | 5.0 | 40  | 10 | 70 | 71.4 | 0.105 |
| 5KP40A  | 44.4 | 49.1 | 5.0 | 40  | 10 | 78 | 64.5 | 0.105 |
| 5KP43   | 47.8 | 58.4 | 5.0 | 43  | 10 | 65 | 76.7 | 0.105 |
| 5KP43A  | 47.8 | 52.8 | 5.0 | 43  | 10 | 72 | 69.4 | 0.105 |
| 5KP45   | 50.0 | 61.1 | 5.0 | 45  | 10 | 62 | 80.3 | 0.106 |
| 5KP45A  | 50.0 | 55.3 | 5.0 | 45  | 10 | 69 | 72.7 | 0.106 |
| 5KP48   | 53.3 | 65.2 | 5.0 | 48  | 10 | 58 | 85.5 | 0.106 |
| 5KP48A  | 53.3 | 58.9 | 5.0 | 48  | 10 | 65 | 77.4 | 0.106 |
| 5KP51   | 56.7 | 69.3 | 5.0 | 51  | 10 | 55 | 91.1 | 0.107 |
| 5KP51A  | 56.7 | 62.7 | 5.0 | 51  | 10 | 61 | 82.4 | 0.107 |
| 5KP54   | 60.0 | 73.3 | 5.0 | 54  | 10 | 52 | 96.3 | 0.107 |
| 5KP54A  | 60.0 | 66.3 | 5.0 | 54  | 10 | 57 | 87.1 | 0.107 |
| 5KP56   | 62.2 | 76.1 | 5.0 | 56  | 10 | 50 | 100  | 0.107 |
| 5KP56A  | 62.2 | 68.8 | 5.0 | 56  | 10 | 55 | 91   | 0.107 |
| 5KP58   | 64.4 | 78.7 | 5.0 | 58  | 10 | 49 | 103  | 0.107 |
| 5KP58A  | 64.4 | 71.2 | 5.0 | 58  | 10 | 53 | 94   | 0.107 |
| 5KP60   | 66.7 | 81.5 | 5.0 | 60  | 10 | 47 | 107  | 0.108 |
| 5KP60A  | 66.7 | 73.7 | 5.0 | 60  | 10 | 52 | 97   | 0.108 |
| 5KP64   | 71.1 | 96.9 | 5.0 | 64  | 10 | 44 | 114  | 0.108 |
| 5KP64A  | 71.1 | 78.6 | 5.0 | 64  | 10 | 49 | 103  | 0.108 |
| 5KP70   | 77.6 | 95.1 | 5.0 | 70  | 10 | 40 | 125  | 0.108 |
| 5KP70A  | 77.6 | 86.0 | 5.0 | 70  | 10 | 44 | 113  | 0.108 |
| 5KP75   | 83.3 | 102  | 5.0 | 75  | 10 | 37 | 134  | 0.108 |
| 5KP75A  | 83.3 | 92.1 | 5.0 | 75  | 10 | 41 | 121  | 0.108 |
| 5KP78   | 86.7 | 106  | 5.0 | 78  | 10 | 36 | 139  | 0.108 |
| 5KP78A  | 86.7 | 95.8 | 5.0 | 78  | 10 | 40 | 126  | 0.108 |
| 5KP85   | 94.4 | 115  | 5.0 | 85  | 10 | 33 | 151  | 0.108 |
| 5KP85A  | 94.4 | 104  | 5.0 | 85  | 10 | 36 | 137  | 0.110 |
| 5KP90   | 100  | 122  | 5.0 | 90  | 10 | 31 | 160  | 0.110 |
| 5KP90A  | 100  | 111  | 5.0 | 90  | 10 | 34 | 146  | 0.110 |
| 5KP100  | 111  | 136  | 5.0 | 100 | 10 | 28 | 179  | 0.110 |
| 5KP100A | 111  | 123  | 5.0 | 100 | 10 | 31 | 162  | 0.110 |
| 5KP110  | 122  | 149  | 5.0 | 110 | 10 | 26 | 196  | 0.112 |
| 5KP110A | 122  | 135  | 5.0 | 110 | 10 | 28 | 177  | 0.112 |
| 5KP120  | 133  | 163  | 5.0 | 120 | 10 | 24 | 211  | 0.112 |
| 5KP120A | 133  | 147  | 5.0 | 120 | 10 | 26 | 192  | 0.112 |
| 5KP150  | 167  | 204  | 5.0 | 150 | 10 | 19 | 263  | 0.112 |
| 5KP150A | 167  | 184  | 5.0 | 150 | 10 | 21 | 238  | 0.112 |
| 5KP160  | 178  | 217  | 5.0 | 160 | 10 | 18 | 281  | 0.114 |
| 5KP160A | 178  | 196  | 5.0 | 160 | 10 | 19 | 263  | 0.114 |
| 5KP180  | 200  | 244  | 5.0 | 180 | 10 | 16 | 316  | 0.114 |
| 5KP180A | 200  | 221  | 5.0 | 180 | 10 | 17 | 290  | 0.114 |

- Notes:** (1)  $V_{BR}$  measured after  $I_T$  applied for 300  $\mu$ s.,  $I_T$  = square wave pulse or equivalent  
(2) For bidirectional use suffix "C" or "CA"  
(3)  $V_F$  = 3.5 V max. for devices of  $V_R$  < 100 V, and  $V_F$  = 5 V max. for devices of  $V_R$  > 100 V  
(4) For bidirectional devices having  $V_R$  of 10 V and under, the  $I_R$  limit is doubled



# Transient Voltage Suppressor Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.       | Breakdown<br>Voltage @ I <sub>R</sub><br>(Note 1) |                | Stand - off<br>Reverse<br>Voltage | Maximum<br>Reverse Leakage<br>@ V <sub>RM</sub> | Maximum<br>Reverse<br>Current | Maximum<br>Clamping<br>Voltage @ I <sub>RSM</sub> | Maximum<br>Temperature<br>Coefficient |                         |
|----------------|---------------------------------------------------|----------------|-----------------------------------|-------------------------------------------------|-------------------------------|---------------------------------------------------|---------------------------------------|-------------------------|
|                | V <sub>BR</sub> (V)                               | I <sub>R</sub> | V <sub>RM</sub>                   | I <sub>R</sub>                                  | I <sub>RSM</sub>              | V <sub>RSM</sub>                                  | αT (Note 2)                           |                         |
| Unidirectional | Min.                                              | Max.           | (mA)                              | (V)                                             | (μA)                          | (A)                                               | (V)                                   | (10 <sup>-4</sup> / °C) |

## BZW50 Series, 5,000W, Case Type: D6



|                  |      |      |     |     |     |      |      |      |
|------------------|------|------|-----|-----|-----|------|------|------|
| <b>BZW50-10</b>  | 11.1 | 13.6 | 1.0 | 10  | 5.0 | 266  | 18.8 | 7.8  |
| <b>BZW50-12</b>  | 13.3 | 16.3 | 1.0 | 12  | 5.0 | 227  | 22.0 | 8.4  |
| <b>BZW50-15</b>  | 16.6 | 20.4 | 1.0 | 15  | 5.0 | 186  | 26.9 | 8.8  |
| <b>BZW50-18</b>  | 20.0 | 24.4 | 1.0 | 18  | 5.0 | 155  | 32.2 | 9.2  |
| <b>BZW50-22</b>  | 24.4 | 29.8 | 1.0 | 22  | 5.0 | 127  | 39.4 | 9.6  |
| <b>BZW50-27</b>  | 30.0 | 36.6 | 1.0 | 27  | 5.0 | 103  | 48.3 | 9.8  |
| <b>BZW50-33</b>  | 36.6 | 44.7 | 1.0 | 33  | 5.0 | 85   | 59.0 | 10   |
| <b>BZW50-39</b>  | 43.3 | 53.0 | 1.0 | 39  | 5.0 | 72   | 69.4 | 10.1 |
| <b>BZW50-47</b>  | 52.0 | 63.6 | 1.0 | 47  | 5.0 | 60.1 | 83.2 | 10.3 |
| <b>BZW50-56</b>  | 62.2 | 76.0 | 1.0 | 56  | 5.0 | 50   | 99.6 | 10.4 |
| <b>BZW50-68</b>  | 75.6 | 92.4 | 1.0 | 68  | 5.0 | 41   | 121  | 10.5 |
| <b>BZW50-82</b>  | 91.0 | 111  | 1.0 | 82  | 5.0 | 34   | 145  | 10.6 |
| <b>BZW50-100</b> | 111  | 136  | 1.0 | 100 | 5.0 | 28   | 179  | 10.7 |
| <b>BZW50-120</b> | 133  | 163  | 1.0 | 120 | 5.0 | 23   | 215  | 10.8 |
| <b>BZW50-150</b> | 166  | 204  | 1.0 | 150 | 5.0 | 19   | 269  | 10.8 |
| <b>BZW50-180</b> | 200  | 244  | 1.0 | 180 | 5.0 | 16   | 322  | 10.8 |

### Notes:

- (1) Pulse test :  $t_p < 50$  ms
- (2)  $\Delta V_{BR} = \alpha T \cdot V_{BR}$  (25 °C)
- (3) For bidirectional use suffix "B" (Axial Lead)



# Transient Voltage Suppressor Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.       | Breakdown Voltage @ $I_T$<br>( Note 1 ) |       | Reverse<br>Stand off<br>Voltage | Maximum<br>Reverse Leakage<br>@ $V_{RM}$ | Maximum<br>Peak Pulse<br>Current (Note2) | Maximum<br>Clamping<br>Voltage @ $I_{PPM}$ | Maximum<br>Temperature<br>Coefficient<br>of $V_{BR}$<br>(%/°C) |
|----------------|-----------------------------------------|-------|---------------------------------|------------------------------------------|------------------------------------------|--------------------------------------------|----------------------------------------------------------------|
|                | $V_{BR}$ (V)                            | $I_T$ | $V_{RM}$                        | $I_R$                                    | $I_{PPM}$                                | $V_C$                                      |                                                                |
| Unidirectional | Min.                                    | Max.  | (mA)                            | (V)                                      | ( $\mu$ A)                               | (A)                                        | (V)                                                            |

## S5KP Series, 5,000W, Case Type: D<sup>2</sup>PAK



|          |      |      |     |     |      |     |      |       |
|----------|------|------|-----|-----|------|-----|------|-------|
| S5KP5.0  | 6.40 | 7.30 | 50  | 5.0 | 5000 | 520 | 9.60 | 0.057 |
| S5KP5.0A | 6.40 | 7.00 | 50  | 5.0 | 5000 | 543 | 9.20 | 0.057 |
| S5KP6.0  | 6.67 | 8.15 | 50  | 6.0 | 5000 | 439 | 11.4 | 0.061 |
| S5KP6.0A | 6.67 | 7.37 | 50  | 6.0 | 5000 | 485 | 10.3 | 0.061 |
| S5KP6.5  | 7.22 | 8.82 | 50  | 6.5 | 2000 | 407 | 12.3 | 0.065 |
| S5KP6.5A | 7.22 | 7.98 | 50  | 6.5 | 2000 | 447 | 11.2 | 0.065 |
| S5KP7.0  | 7.78 | 9.51 | 5.0 | 7.0 | 1000 | 378 | 13.3 | 0.068 |
| S5KP7.0A | 7.78 | 8.60 | 5.0 | 7.0 | 1000 | 417 | 12.0 | 0.068 |
| S5KP7.5  | 8.33 | 10.2 | 5.0 | 7.5 | 250  | 350 | 14.3 | 0.073 |
| S5KP7.5A | 8.33 | 9.21 | 5.0 | 7.5 | 250  | 388 | 12.9 | 0.073 |
| S5KP8.0  | 8.89 | 10.9 | 5.0 | 8.0 | 150  | 333 | 15.0 | 0.075 |
| S5KP8.0A | 8.89 | 9.83 | 5.0 | 8.0 | 150  | 367 | 13.6 | 0.075 |
| S5KP8.5  | 9.44 | 11.5 | 5.0 | 8.5 | 50   | 314 | 15.9 | 0.078 |
| S5KP8.5A | 9.44 | 10.4 | 5.0 | 8.5 | 50   | 347 | 14.4 | 0.078 |
| S5KP9.0  | 10.0 | 12.2 | 5.0 | 9.0 | 20   | 295 | 16.9 | 0.081 |
| S5KP9.0A | 10.0 | 11.1 | 5.0 | 9.0 | 20   | 325 | 15.4 | 0.081 |
| S5KP10   | 11.1 | 13.6 | 5.0 | 10  | 15   | 266 | 18.8 | 0.084 |
| S5KP10A  | 11.1 | 12.3 | 5.0 | 10  | 15   | 294 | 17.0 | 0.084 |
| S5KP11   | 12.2 | 14.9 | 5.0 | 11  | 10   | 249 | 20.1 | 0.086 |
| S5KP11A  | 12.2 | 13.5 | 5.0 | 11  | 10   | 274 | 18.2 | 0.086 |
| S5KP12   | 13.3 | 16.3 | 5.0 | 12  | 10   | 227 | 22.0 | 0.088 |
| S5KP12A  | 13.3 | 14.7 | 5.0 | 12  | 10   | 251 | 19.9 | 0.088 |
| S5KP13   | 14.4 | 17.6 | 5.0 | 13  | 10   | 210 | 23.8 | 0.090 |
| S5KP13A  | 14.4 | 15.9 | 5.0 | 13  | 10   | 232 | 21.5 | 0.090 |
| S5KP14   | 15.6 | 19.1 | 5.0 | 14  | 10   | 194 | 25.8 | 0.092 |
| S5KP14A  | 15.6 | 17.2 | 5.0 | 14  | 10   | 215 | 23.2 | 0.092 |
| S5KP15   | 16.7 | 20.4 | 5.0 | 15  | 10   | 188 | 26.9 | 0.094 |
| S5KP15A  | 16.7 | 18.5 | 5.0 | 15  | 10   | 206 | 24.4 | 0.094 |
| S5KP16   | 17.8 | 21.8 | 5.0 | 16  | 10   | 176 | 28.8 | 0.096 |
| S5KP16A  | 17.8 | 19.7 | 5.0 | 16  | 10   | 192 | 26.0 | 0.096 |
| S5KP17   | 18.9 | 23.1 | 5.0 | 17  | 10   | 164 | 30.5 | 0.097 |
| S5KP17A  | 18.9 | 20.9 | 5.0 | 17  | 10   | 181 | 27.6 | 0.097 |
| S5KP18   | 20.0 | 24.4 | 5.0 | 18  | 10   | 155 | 32.2 | 0.098 |
| S5KP18A  | 20.0 | 22.1 | 5.0 | 18  | 10   | 172 | 29.2 | 0.098 |
| S5KP20   | 22.2 | 27.1 | 5.0 | 20  | 10   | 139 | 35.8 | 0.099 |
| S5KP20A  | 22.2 | 24.5 | 5.0 | 20  | 10   | 154 | 32.4 | 0.099 |
| S5KP22   | 24.4 | 29.8 | 5.0 | 22  | 10   | 127 | 39.4 | 0.100 |
| S5KP22A  | 24.4 | 26.9 | 5.0 | 22  | 10   | 141 | 35.5 | 0.100 |
| S5KP24   | 26.7 | 32.6 | 5.0 | 24  | 10   | 116 | 43.0 | 0.101 |
| S5KP24A  | 26.7 | 29.5 | 5.0 | 24  | 10   | 128 | 38.9 | 0.101 |
| S5KP26   | 28.9 | 35.3 | 5.0 | 26  | 10   | 107 | 46.6 | 0.101 |
| S5KP26A  | 28.9 | 31.9 | 5.0 | 26  | 10   | 119 | 42.1 | 0.101 |
| S5KP28   | 31.1 | 38.0 | 5.0 | 28  | 10   | 99  | 50.1 | 0.102 |
| S5KP28A  | 31.1 | 34.4 | 5.0 | 28  | 10   | 110 | 45.4 | 0.102 |
| S5KP30   | 33.3 | 40.7 | 5.0 | 30  | 10   | 93  | 53.5 | 0.103 |
| S5KP30A  | 33.3 | 36.8 | 5.0 | 30  | 10   | 103 | 48.4 | 0.103 |
| S5KP33   | 36.7 | 44.9 | 5.0 | 33  | 10   | 85  | 59.0 | 0.104 |
| S5KP33A  | 36.7 | 40.6 | 5.0 | 33  | 10   | 94  | 53.3 | 0.104 |
| S5KP36   | 40.0 | 48.9 | 5.0 | 36  | 10   | 78  | 64.3 | 0.104 |
| S5KP36A  | 40.0 | 44.2 | 5.0 | 36  | 10   | 86  | 58.1 | 0.104 |
| S5KP40   | 44.4 | 54.3 | 5.0 | 40  | 10   | 70  | 71.4 | 0.105 |
| S5KP40A  | 44.4 | 49.1 | 5.0 | 40  | 10   | 78  | 64.5 | 0.105 |



# Transient Voltage Suppressor Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.       | Breakdown Voltage @ $I_T$<br>( Note 1 ) |       | Reverse<br>Stand off<br>Voltage | Maximum<br>Reverse Leakage<br>@ $V_{RM}$ | Maximum<br>Peak Pulse<br>Current (Note2) | Maximum<br>Clamping<br>Voltage @ $I_{PPM}$ | Maximum<br>Temperature<br>Coefficient<br>of $V_{BR}$<br>(%/°C) |
|----------------|-----------------------------------------|-------|---------------------------------|------------------------------------------|------------------------------------------|--------------------------------------------|----------------------------------------------------------------|
|                | $V_{BR}$ (V)                            | $I_T$ | $V_{RM}$                        | $I_R$                                    | $I_{PPM}$                                | $V_C$                                      |                                                                |
| Unidirectional | Min.                                    | Max.  | (mA)                            | (V)                                      | ( $\mu$ A)                               | (A)                                        | (V)                                                            |

## S5KP Series, 5,000W, Case Type: D<sup>2</sup>PAK



|          |      |      |     |     |    |    |      |       |
|----------|------|------|-----|-----|----|----|------|-------|
| S5KP43   | 47.8 | 58.4 | 5.0 | 43  | 10 | 65 | 76.7 | 0.105 |
| S5KP43A  | 47.8 | 52.8 | 5.0 | 43  | 10 | 72 | 69.4 | 0.105 |
| S5KP45   | 50.0 | 61.1 | 5.0 | 45  | 10 | 62 | 80.3 | 0.106 |
| S5KP45A  | 50.0 | 55.3 | 5.0 | 45  | 10 | 69 | 72.7 | 0.106 |
| S5KP48   | 53.3 | 65.2 | 5.0 | 48  | 10 | 58 | 85.5 | 0.106 |
| S5KP48A  | 53.3 | 58.9 | 5.0 | 48  | 10 | 65 | 77.4 | 0.106 |
| S5KP51   | 56.7 | 69.3 | 5.0 | 51  | 10 | 55 | 91.1 | 0.107 |
| S5KP51A  | 56.7 | 62.7 | 5.0 | 51  | 10 | 61 | 82.4 | 0.107 |
| S5KP54   | 60.0 | 73.3 | 5.0 | 54  | 10 | 52 | 96.3 | 0.107 |
| S5KP54A  | 60.0 | 66.3 | 5.0 | 54  | 10 | 57 | 87.1 | 0.107 |
| S5KP56   | 62.2 | 76.1 | 5.0 | 56  | 10 | 50 | 100  | 0.107 |
| S5KP56A  | 62.2 | 68.8 | 5.0 | 56  | 10 | 55 | 91   | 0.107 |
| S5KP58   | 64.4 | 78.7 | 5.0 | 58  | 10 | 49 | 103  | 0.107 |
| S5KP58A  | 64.4 | 71.2 | 5.0 | 58  | 10 | 53 | 94   | 0.107 |
| S5KP60   | 66.7 | 81.5 | 5.0 | 60  | 10 | 47 | 107  | 0.108 |
| S5KP60A  | 66.7 | 73.7 | 5.0 | 60  | 10 | 52 | 97   | 0.108 |
| S5KP64   | 71.1 | 96.9 | 5.0 | 64  | 10 | 44 | 114  | 0.108 |
| S5KP64A  | 71.1 | 78.6 | 5.0 | 64  | 10 | 49 | 103  | 0.108 |
| S5KP70   | 77.6 | 95.1 | 5.0 | 70  | 10 | 40 | 125  | 0.108 |
| S5KP70A  | 77.6 | 86.0 | 5.0 | 70  | 10 | 44 | 113  | 0.108 |
| S5KP75   | 83.3 | 102  | 5.0 | 75  | 10 | 37 | 134  | 0.108 |
| S5KP75A  | 83.3 | 92.1 | 5.0 | 75  | 10 | 41 | 121  | 0.108 |
| S5KP78   | 86.7 | 106  | 5.0 | 78  | 10 | 36 | 139  | 0.108 |
| S5KP78A  | 86.7 | 95.8 | 5.0 | 78  | 10 | 40 | 126  | 0.108 |
| S5KP85   | 94.4 | 115  | 5.0 | 85  | 10 | 33 | 151  | 0.108 |
| S5KP85A  | 94.4 | 104  | 5.0 | 85  | 10 | 36 | 137  | 0.110 |
| S5KP90   | 100  | 122  | 5.0 | 90  | 10 | 31 | 160  | 0.110 |
| S5KP90A  | 100  | 111  | 5.0 | 90  | 10 | 34 | 146  | 0.110 |
| S5KP100  | 111  | 136  | 5.0 | 100 | 10 | 28 | 179  | 0.110 |
| S5KP100A | 111  | 123  | 5.0 | 100 | 10 | 31 | 162  | 0.110 |
| S5KP110  | 122  | 149  | 5.0 | 110 | 10 | 26 | 196  | 0.112 |
| S5KP110A | 122  | 135  | 5.0 | 110 | 10 | 28 | 177  | 0.112 |
| S5KP120  | 133  | 163  | 5.0 | 120 | 10 | 24 | 211  | 0.112 |
| S5KP120A | 133  | 147  | 5.0 | 120 | 10 | 26 | 192  | 0.112 |
| S5KP150  | 167  | 204  | 5.0 | 150 | 10 | 19 | 263  | 0.112 |
| S5KP150A | 167  | 184  | 5.0 | 150 | 10 | 21 | 238  | 0.112 |
| S5KP160  | 178  | 217  | 5.0 | 160 | 10 | 18 | 281  | 0.114 |
| S5KP160A | 178  | 196  | 5.0 | 160 | 10 | 19 | 263  | 0.114 |
| S5KP170  | 189  | 231  | 5.0 | 170 | 10 | 17 | 298  | 0.114 |
| S5KP170A | 189  | 209  | 5.0 | 170 | 10 | 18 | 278  | 0.114 |
| S5KP180  | 200  | 244  | 5.0 | 180 | 10 | 16 | 316  | 0.114 |
| S5KP180A | 200  | 221  | 5.0 | 180 | 10 | 17 | 290  | 0.114 |

### Notes:

- (1)  $V_{BR}$  measured after  $I_T$  applied for 300  $\mu$ s.,  $I_T$  = square wave pulse or equivalent
- (2) For bidirectional use suffix "C" or "CA"
- (3)  $V_F$  = 3.5 V max. for devices of  $V_R$  < 100 V, and  $V_F$  = 5 V max. for devices of  $V_R$  > 100 V
- (4) For bidirectional devices having  $V_R$  of 10 V and under, the  $I_R$  limit is doubled
- (5) "S KP " will be omitted on marking of the diode



# Transient Voltage Suppressor Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.       | Breakdown Voltage @ $I_T$ |      |       | Reverse Stand off Voltage | Maximum Reverse Leakage @ $V_{RWM}$ | Maximum Reverse Leakage @ $V_{RM}$ | Maximum Peak Pulse Current at 10/1000ms | Maximum Clamping Voltage @ $I_{PPM}$ |
|----------------|---------------------------|------|-------|---------------------------|-------------------------------------|------------------------------------|-----------------------------------------|--------------------------------------|
|                | $V_{BR}$ (V)              |      | $I_T$ | $V_{RWM}$                 | $I_R$                               | $I_R$ ( $T_C=175^\circ C$ )        | $I_{PPM}$                               | $V_C$                                |
| Unidirectional | Min.                      | Max. | (mA)  | (V)                       | (mA)                                | (mA)                               | (A)                                     | (V)                                  |

## SM8S Series, 6,600W, Case Type: D<sup>2</sup>PAK



|         |      |      |     |    |    |     |     |      |
|---------|------|------|-----|----|----|-----|-----|------|
| SM8S10  | 11.1 | 13.6 | 5.0 | 10 | 15 | 250 | 351 | 18.8 |
| SM8S10A | 11.1 | 12.3 | 5.0 | 10 | 15 | 250 | 388 | 17.0 |
| SM8S11  | 12.2 | 14.9 | 5.0 | 11 | 10 | 150 | 328 | 20.1 |
| SM8S11A | 12.2 | 13.5 | 5.0 | 11 | 10 | 150 | 363 | 18.2 |
| SM8S12  | 13.3 | 16.3 | 5.0 | 12 | 10 | 150 | 300 | 22.0 |
| SM8S12A | 13.3 | 14.7 | 5.0 | 12 | 10 | 150 | 332 | 19.9 |
| SM8S13  | 14.4 | 17.6 | 5.0 | 13 | 10 | 150 | 277 | 23.8 |
| SM8S13A | 14.4 | 15.9 | 5.0 | 13 | 10 | 150 | 307 | 21.5 |
| SM8S14  | 15.6 | 19.1 | 5.0 | 14 | 10 | 150 | 256 | 25.8 |
| SM8S14A | 15.6 | 17.2 | 5.0 | 14 | 10 | 150 | 284 | 23.2 |
| SM8S15  | 16.7 | 20.4 | 5.0 | 15 | 10 | 150 | 245 | 26.9 |
| SM8S15A | 16.7 | 18.5 | 5.0 | 15 | 10 | 150 | 270 | 24.4 |
| SM8S16  | 17.8 | 21.8 | 5.0 | 16 | 10 | 150 | 229 | 28.8 |
| SM8S16A | 17.8 | 19.7 | 5.0 | 16 | 10 | 150 | 254 | 26.0 |
| SM8S17  | 18.9 | 23.1 | 5.0 | 17 | 10 | 150 | 216 | 30.5 |
| SM8S17A | 18.9 | 20.9 | 5.0 | 17 | 10 | 150 | 239 | 27.6 |
| SM8S18  | 20.0 | 24.4 | 5.0 | 18 | 10 | 150 | 205 | 32.2 |
| SM8S18A | 20.0 | 22.1 | 5.0 | 18 | 10 | 150 | 226 | 29.2 |
| SM8S20  | 22.2 | 27.1 | 5.0 | 20 | 10 | 150 | 184 | 35.8 |
| SM8S20A | 22.2 | 24.5 | 5.0 | 20 | 10 | 150 | 204 | 32.4 |
| SM8S22  | 24.4 | 29.8 | 5.0 | 22 | 10 | 150 | 168 | 39.4 |
| SM8S22A | 24.4 | 26.9 | 5.0 | 22 | 10 | 150 | 168 | 35.5 |
| SM8S24  | 26.7 | 32.6 | 5.0 | 24 | 10 | 150 | 153 | 43.0 |
| SM8S24A | 26.7 | 29.5 | 5.0 | 24 | 10 | 150 | 170 | 38.9 |
| SM8S26  | 28.9 | 35.3 | 5.0 | 26 | 10 | 150 | 142 | 46.6 |
| SM8S26A | 28.9 | 31.9 | 5.0 | 26 | 10 | 150 | 157 | 42.1 |
| SM8S28  | 31.1 | 38.0 | 5.0 | 28 | 10 | 150 | 132 | 50.1 |
| SM8S28A | 31.1 | 34.4 | 5.0 | 28 | 10 | 150 | 145 | 45.4 |
| SM8S30  | 33.3 | 40.7 | 5.0 | 30 | 10 | 150 | 123 | 53.5 |
| SM8S30A | 33.3 | 36.8 | 5.0 | 30 | 10 | 150 | 136 | 48.4 |
| SM8S33  | 36.7 | 44.9 | 5.0 | 33 | 10 | 150 | 112 | 59.0 |
| SM8S33A | 36.7 | 40.6 | 5.0 | 33 | 10 | 150 | 124 | 53.3 |
| SM8S36  | 40.0 | 48.9 | 5.0 | 36 | 10 | 150 | 103 | 64.3 |
| SM8S36A | 40.0 | 44.2 | 5.0 | 36 | 10 | 150 | 114 | 58.1 |
| SM8S40  | 44.4 | 54.3 | 5.0 | 40 | 10 | 150 | 92  | 71.4 |
| SM8S40A | 44.4 | 49.1 | 5.0 | 40 | 10 | 150 | 102 | 64.5 |
| SM8S43  | 47.8 | 58.4 | 5.0 | 43 | 10 | 150 | 86  | 76.7 |
| SM8S43A | 47.8 | 52.8 | 5.0 | 43 | 10 | 150 | 95  | 69.4 |

### Notes:

- (1) For all types maximum  $V_F = 1.8V$  at  $I_F = 100A$  measured on 8.3ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum
- (2) "SM S " will be omitted on marking of the diode.
- (3) For bidirectional use suffix "C" or "CA"



# Transient Voltage Suppressor Diodes

The plastic material carries U/L recognition 94V-0.

| TYPE | Breakdown Voltage @ $I_T$<br>( Note 1 ) |      | Reverse<br>Stand off<br>Voltage | Maximum<br>Reverse Leakage<br>@ $V_{RM}$ | Maximum<br>Peak Pulse<br>Current (Note2) | Maximum<br>Clamping<br>Voltage @ $I_{PPM}$ | Maximum<br>Temperature<br>Coefficient<br>of $V_{BR}$<br>(%/°C) |
|------|-----------------------------------------|------|---------------------------------|------------------------------------------|------------------------------------------|--------------------------------------------|----------------------------------------------------------------|
|      | $V_{BR}$ (V)                            |      | $V_{RM}$                        | $I_R$                                    | $I_{PPM}$                                | $V_C$                                      |                                                                |
|      | Min.                                    | Max. | (mA)                            | (V)                                      | ( $\mu$ A)                               | (A)                                        |                                                                |

## 10KP Series, 10,000 W, Case Type: D6



|         |      |      |   |    |       |     |      |       |
|---------|------|------|---|----|-------|-----|------|-------|
| 10KP11  | 12.2 | 14.9 | 5 | 11 | 10000 | 498 | 20.1 | 0.086 |
| 10KP11A | 12.2 | 13.5 | 5 | 11 | 10000 | 549 | 18.2 | 0.086 |
| 10KP12  | 13.3 | 16.3 | 5 | 12 | 10000 | 455 | 22.0 | 0.088 |
| 10KP12A | 13.3 | 14.7 | 5 | 12 | 10000 | 503 | 19.9 | 0.088 |
| 10KP13  | 14.4 | 17.6 | 5 | 13 | 4000  | 420 | 23.8 | 0.090 |
| 10KP13A | 14.4 | 15.9 | 5 | 13 | 4000  | 465 | 21.5 | 0.090 |
| 10KP14  | 15.6 | 19.1 | 5 | 14 | 2000  | 388 | 25.8 | 0.092 |
| 10KP14A | 15.6 | 17.2 | 5 | 14 | 2000  | 431 | 23.2 | 0.092 |
| 10KP15  | 16.7 | 20.4 | 5 | 15 | 500   | 372 | 26.9 | 0.094 |
| 10KP15A | 16.7 | 18.5 | 5 | 15 | 500   | 410 | 24.4 | 0.094 |
| 10KP16  | 17.8 | 21.8 | 5 | 16 | 300   | 347 | 28.8 | 0.096 |
| 10KP16A | 17.8 | 19.7 | 5 | 16 | 300   | 385 | 26.0 | 0.096 |
| 10KP17  | 18.9 | 23.1 | 5 | 17 | 100   | 328 | 30.5 | 0.097 |
| 10KP17A | 18.9 | 20.9 | 5 | 17 | 100   | 362 | 27.6 | 0.097 |
| 10KP18  | 20.0 | 24.4 | 5 | 18 | 40    | 311 | 32.2 | 0.098 |
| 10KP18A | 20.0 | 22.1 | 5 | 18 | 40    | 342 | 29.2 | 0.098 |
| 10KP20  | 22.2 | 27.1 | 5 | 20 | 30    | 279 | 35.8 | 0.099 |
| 10KP20A | 22.2 | 24.5 | 5 | 20 | 30    | 309 | 32.4 | 0.099 |
| 10KP22  | 24.4 | 29.8 | 5 | 22 | 20    | 254 | 39.4 | 0.100 |
| 10KP22A | 24.4 | 26.9 | 5 | 22 | 20    | 282 | 35.5 | 0.100 |
| 10KP24  | 26.7 | 32.6 | 5 | 24 | 20    | 233 | 43.0 | 0.101 |
| 10KP24A | 26.7 | 29.5 | 5 | 24 | 20    | 257 | 38.9 | 0.101 |
| 10KP26  | 28.9 | 35.3 | 5 | 26 | 20    | 215 | 46.6 | 0.101 |
| 10KP26A | 28.9 | 31.9 | 5 | 26 | 20    | 238 | 42.1 | 0.101 |
| 10KP28  | 31.1 | 38.0 | 5 | 28 | 20    | 200 | 50.1 | 0.102 |
| 10KP28A | 31.1 | 34.4 | 5 | 28 | 20    | 220 | 45.4 | 0.102 |
| 10KP30  | 33.3 | 40.7 | 5 | 30 | 20    | 187 | 53.5 | 0.103 |
| 10KP30A | 33.3 | 36.8 | 5 | 30 | 20    | 207 | 48.4 | 0.103 |
| 10KP33  | 36.7 | 44.9 | 5 | 33 | 20    | 169 | 59.0 | 0.104 |
| 10KP33A | 36.7 | 40.6 | 5 | 33 | 20    | 188 | 53.3 | 0.104 |
| 10KP36  | 40.0 | 48.9 | 5 | 36 | 20    | 156 | 64.3 | 0.104 |
| 10KP36A | 40.0 | 44.2 | 5 | 36 | 20    | 172 | 58.1 | 0.104 |
| 10KP40  | 44.4 | 54.3 | 5 | 40 | 20    | 140 | 71.4 | 0.105 |
| 10KP40A | 44.4 | 49.1 | 5 | 40 | 20    | 155 | 64.5 | 0.105 |
| 10KP43  | 47.8 | 58.4 | 5 | 43 | 20    | 130 | 76.7 | 0.105 |
| 10KP43A | 47.8 | 52.8 | 5 | 43 | 20    | 144 | 69.4 | 0.105 |
| 10KP45  | 50.0 | 61.1 | 5 | 45 | 20    | 125 | 80.3 | 0.106 |
| 10KP45A | 50.0 | 55.3 | 5 | 45 | 20    | 138 | 72.7 | 0.106 |
| 10KP48  | 53.3 | 65.2 | 5 | 48 | 20    | 117 | 85.5 | 0.106 |
| 10KP48A | 53.3 | 58.9 | 5 | 48 | 20    | 129 | 77.4 | 0.106 |
| 10KP51  | 56.7 | 69.3 | 5 | 51 | 20    | 110 | 91.1 | 0.107 |
| 10KP51A | 56.7 | 62.7 | 5 | 51 | 20    | 121 | 82.4 | 0.107 |



# Transient Voltage Suppressor Diodes

The plastic material carries U/L recognition 94V-0.

| TYPE | Breakdown Voltage @ $I_T$<br>( Note 1 ) |      | Reverse<br>Stand off<br>Voltage | Maximum<br>Reverse Leakage<br>@ $V_{RM}$ | Maximum<br>Peak Pulse<br>Current (Note2) | Maximum<br>Clamping<br>Voltage @ $I_{PPM}$ | Maximum<br>Temperature<br>Coefficient<br>of $V_{BR}$<br>(%/°C) |
|------|-----------------------------------------|------|---------------------------------|------------------------------------------|------------------------------------------|--------------------------------------------|----------------------------------------------------------------|
|      | $V_{BR}$ (V)                            |      | $V_{RM}$                        | $I_R$                                    | $I_{PPM}$                                | $V_C$                                      |                                                                |
|      | Min.                                    | Max. | (mA)                            | (V)                                      | ( $\mu$ A)                               | (A)                                        |                                                                |

## 10KP Series, 10,000 W, Case Type: D6



|          |      |      |   |     |    |     |      |       |
|----------|------|------|---|-----|----|-----|------|-------|
| 10KP54   | 60.0 | 73.3 | 5 | 54  | 20 | 104 | 96.3 | 0.107 |
| 10KP54A  | 60.0 | 66.3 | 5 | 54  | 20 | 115 | 87.1 | 0.107 |
| 10KP56   | 62.2 | 76.1 | 5 | 56  | 20 | 100 | 100  | 0.107 |
| 10KP56A  | 62.2 | 68.8 | 5 | 56  | 20 | 110 | 91   | 0.107 |
| 10KP58   | 64.4 | 78.7 | 5 | 58  | 20 | 97  | 103  | 0.107 |
| 10KP58A  | 64.4 | 71.2 | 5 | 58  | 20 | 106 | 94   | 0.107 |
| 10KP60   | 66.7 | 81.5 | 5 | 60  | 20 | 93  | 107  | 0.108 |
| 10KP60A  | 66.7 | 73.7 | 5 | 60  | 20 | 103 | 97   | 0.108 |
| 10KP64   | 71.1 | 96.9 | 5 | 64  | 20 | 88  | 114  | 0.108 |
| 10KP64A  | 71.1 | 78.6 | 5 | 64  | 20 | 97  | 103  | 0.108 |
| 10KP70   | 77.6 | 95.1 | 5 | 70  | 20 | 80  | 125  | 0.108 |
| 10KP70A  | 77.6 | 86.0 | 5 | 70  | 20 | 88  | 113  | 0.108 |
| 10KP75   | 83.3 | 102  | 5 | 75  | 20 | 75  | 134  | 0.108 |
| 10KP75A  | 83.3 | 92.1 | 5 | 75  | 20 | 83  | 121  | 0.108 |
| 10KP78   | 86.7 | 106  | 5 | 78  | 20 | 72  | 139  | 0.108 |
| 10KP78A  | 86.7 | 95.8 | 5 | 78  | 20 | 79  | 126  | 0.108 |
| 10KP85   | 94.4 | 115  | 5 | 85  | 20 | 66  | 151  | 0.108 |
| 10KP85A  | 94.4 | 104  | 5 | 85  | 20 | 73  | 137  | 0.110 |
| 10KP90   | 100  | 122  | 5 | 90  | 20 | 63  | 160  | 0.110 |
| 10KP90A  | 100  | 111  | 5 | 90  | 20 | 68  | 146  | 0.110 |
| 10KP100  | 111  | 136  | 5 | 100 | 20 | 56  | 179  | 0.110 |
| 10KP100A | 111  | 123  | 5 | 100 | 20 | 62  | 162  | 0.110 |
| 10KP110  | 122  | 149  | 5 | 110 | 20 | 51  | 196  | 0.112 |
| 10KP110A | 122  | 135  | 5 | 110 | 20 | 56  | 177  | 0.112 |
| 10KP120  | 133  | 163  | 5 | 120 | 20 | 47  | 211  | 0.112 |
| 10KP120A | 133  | 147  | 5 | 120 | 20 | 52  | 192  | 0.112 |
| 10KP150  | 167  | 204  | 5 | 150 | 20 | 38  | 263  | 0.112 |
| 10KP150A | 167  | 184  | 5 | 150 | 20 | 42  | 238  | 0.112 |
| 10KP160  | 178  | 217  | 5 | 160 | 20 | 36  | 281  | 0.114 |
| 10KP160A | 178  | 196  | 5 | 160 | 20 | 38  | 263  | 0.114 |
| 10KP170  | 189  | 231  | 5 | 170 | 20 | 34  | 298  | 0.114 |
| 10KP170A | 189  | 209  | 5 | 170 | 20 | 36  | 274  | 0.114 |
| 10KP180  | 200  | 244  | 5 | 180 | 20 | 32  | 316  | 0.114 |
| 10KP180A | 200  | 221  | 5 | 180 | 20 | 34  | 290  | 0.114 |

### Notes:

- (1)  $V_{BR}$  measured after  $I_T$  applied for 300  $\mu$ s.,  $I_T$  = square wave pulse or equivalent.
- (2)  $V_F$  = 3.5 Volts max. for devices of  $V_R$  < 100 V, and  $V_F$  = 5 Volts max. for devices of  $V_R$  > 100 V.
- (3) For Bi-directional devices having  $V_R$  of 20 Volts and under the  $I_R$  limit is doubled.



# Transient Voltage Suppressor Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.         |                 | Reverse Stand Off Voltage | Breakdown Voltage @ $I_T$ |       | Maximum Reverse Leakage @ $V_R$ | Maximum Clamping Voltage @ $I_{PP}$ | Maximum Peak Pulse Current | Max. Voltage Temperature Variation |
|------------------|-----------------|---------------------------|---------------------------|-------|---------------------------------|-------------------------------------|----------------------------|------------------------------------|
| (Unidirectional) | (Bidirectional) | $V_R$                     | $V_{BR}$ (V)              | $I_T$ | $I_R$                           | $V_C$                               | $I_{PP}$                   | of $V_{BR}$                        |
|                  |                 | (V)                       | Min.                      | (mA)  | ( $\mu A$ )                     | (V)                                 | (A)                        | (mV/°C)                            |

## 15KP Series, 15,000 W, Case Type: D6



|         |          |    |      |     |       |      |     |     |
|---------|----------|----|------|-----|-------|------|-----|-----|
| 15KP17  | 15KP17C  | 17 | 18.9 | 50  | 5,000 | 32.2 | 464 | 19  |
| 15KP17A | 15KP17CA | 17 | 18.9 | 50  | 5,000 | 29.3 | 512 | 17  |
| 15KP18  | 15KP18C  | 18 | 20.0 | 50  | 5,000 | 34.2 | 439 | 20  |
| 15KP18A | 15KP18CA | 18 | 20.0 | 50  | 5,000 | 30.9 | 485 | 18  |
| 15KP20  | 15KP20C  | 20 | 22.2 | 20  | 1,500 | 37.9 | 396 | 24  |
| 15KP20A | 15KP20CA | 20 | 22.2 | 20  | 1,500 | 34.3 | 437 | 21  |
| 15KP22  | 15KP22C  | 22 | 24.4 | 10  | 500   | 41.1 | 365 | 27  |
| 15KP22A | 15KP22CA | 22 | 24.4 | 10  | 500   | 37.1 | 404 | 24  |
| 15KP24  | 15KP24C  | 24 | 26.7 | 5.0 | 150   | 45.0 | 333 | 30  |
| 15KP24A | 15KP24CA | 24 | 26.7 | 5.0 | 150   | 40.7 | 369 | 27  |
| 15KP26  | 15KP26C  | 26 | 28.9 | 5.0 | 50    | 48.7 | 308 | 32  |
| 15KP26A | 15KP26CA | 26 | 28.9 | 5.0 | 50    | 44.0 | 341 | 29  |
| 15KP28  | 15KP28C  | 28 | 31.1 | 5.0 | 25    | 52.4 | 286 | 35  |
| 15KP28A | 15KP28CA | 28 | 31.1 | 5.0 | 25    | 47.5 | 316 | 31  |
| 15KP30  | 15KP30C  | 30 | 33.3 | 5.0 | 15    | 56.2 | 267 | 37  |
| 15KP30A | 15KP30CA | 30 | 33.3 | 5.0 | 15    | 50.7 | 296 | 33  |
| 15KP33  | 15KP33C  | 33 | 36.7 | 5.0 | 10    | 60.6 | 248 | 42  |
| 15KP33A | 15KP33CA | 33 | 36.7 | 5.0 | 10    | 54.8 | 274 | 38  |
| 15KP36  | 15KP36C  | 36 | 40.0 | 5.0 | 10    | 66.0 | 227 | 46  |
| 15KP36A | 15KP36CA | 36 | 40.0 | 5.0 | 10    | 59.7 | 251 | 41  |
| 15KP40  | 15KP40C  | 40 | 44.4 | 5.0 | 10    | 72.8 | 206 | 51  |
| 15KP40A | 15KP40CA | 40 | 44.4 | 5.0 | 10    | 65.8 | 228 | 46  |
| 15KP43  | 15KP43C  | 43 | 47.8 | 5.0 | 10    | 77.1 | 195 | 55  |
| 15KP43A | 15KP43CA | 43 | 47.8 | 5.0 | 10    | 69.7 | 215 | 50  |
| 15KP45  | 15KP45C  | 45 | 50.0 | 5.0 | 10    | 80.7 | 186 | 57  |
| 15KP45A | 15KP45CA | 45 | 50.0 | 5.0 | 10    | 73.0 | 205 | 52  |
| 15KP48  | 15KP48C  | 48 | 53.3 | 5.0 | 10    | 85.9 | 175 | 62  |
| 15KP48A | 15KP48CA | 48 | 53.3 | 5.0 | 10    | 77.7 | 193 | 56  |
| 15KP51  | 15KP51C  | 51 | 56.7 | 5.0 | 10    | 91.5 | 164 | 66  |
| 15KP51A | 15KP51CA | 51 | 56.7 | 5.0 | 10    | 82.5 | 181 | 60  |
| 15KP54  | 15KP54C  | 54 | 60.0 | 5.0 | 10    | 96.8 | 155 | 70  |
| 15KP54A | 15KP54CA | 54 | 60.0 | 5.0 | 10    | 87.5 | 171 | 63  |
| 15KP58  | 15KP58C  | 58 | 64.4 | 5.0 | 10    | 104  | 144 | 76  |
| 15KP58A | 15KP58CA | 58 | 64.4 | 5.0 | 10    | 94   | 160 | 68  |
| 15KP60  | 15KP60C  | 60 | 66.7 | 5.0 | 10    | 107  | 140 | 78  |
| 15KP60A | 15KP60CA | 60 | 66.7 | 5.0 | 10    | 97.3 | 154 | 70  |
| 15KP64  | 15KP64C  | 64 | 71.1 | 5.0 | 10    | 115  | 130 | 84  |
| 15KP64A | 15KP64CA | 64 | 71.1 | 5.0 | 10    | 104  | 144 | 76  |
| 15KP70  | 15KP70C  | 70 | 77.8 | 5.0 | 10    | 126  | 119 | 92  |
| 15KP70A | 15KP70CA | 70 | 77.8 | 5.0 | 10    | 114  | 132 | 83  |
| 15KP75  | 15KP75C  | 75 | 83.3 | 5.0 | 10    | 135  | 111 | 100 |
| 15KP75A | 15KP75CA | 75 | 83.3 | 5.0 | 10    | 122  | 123 | 89  |



# Transient Voltage Suppressor Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.         |                 | Reverse Stand Off Voltage | Breakdown Voltage @ $I_T$ |               | Maximum Reverse Leakage @ $V_R$ | Maximum Clamping Voltage @ $I_{PP}$ | Maximum Peak Pulse Current | Max. Voltage Temperature Variation of $V_{BR}$ |
|------------------|-----------------|---------------------------|---------------------------|---------------|---------------------------------|-------------------------------------|----------------------------|------------------------------------------------|
| (Unidirectional) | (Bidirectional) | $V_R$<br>(V)              | $V_{BR}$ (V)<br>Min.      | $I_T$<br>(mA) | $I_R$<br>( $\mu A$ )            | $V_C$<br>(V)                        | $I_{PP}$<br>(A)            | (mV/°C)                                        |

## 15KP Series, 15,000 W, Case Type: D6



|          |           |     |      |     |    |     |     |     |
|----------|-----------|-----|------|-----|----|-----|-----|-----|
| 15KP78   | 15KP78C   | 78  | 86.7 | 5.0 | 10 | 140 | 107 | 104 |
| 15KP78A  | 15KP78CA  | 78  | 86.7 | 5.0 | 10 | 126 | 119 | 93  |
| 15KP85   | 15KP85C   | 85  | 94.4 | 5.0 | 10 | 152 | 99  | 113 |
| 15KP85A  | 15KP85CA  | 85  | 94.4 | 5.0 | 10 | 137 | 109 | 102 |
| 15KP90   | 15KP90C   | 90  | 100  | 5.0 | 10 | 160 | 94  | 120 |
| 15KP90A  | 15KP90CA  | 90  | 100  | 5.0 | 10 | 146 | 103 | 110 |
| 15KP100  | 15KP100C  | 100 | 111  | 5.0 | 10 | 179 | 84  | 134 |
| 15KP100A | 15KP100CA | 100 | 111  | 5.0 | 10 | 162 | 93  | 123 |
| 15KP110  | 15KP110C  | 110 | 122  | 5.0 | 10 | 196 | 77  | 147 |
| 15KP110A | 15KP110CA | 110 | 122  | 5.0 | 10 | 178 | 84  | 133 |
| 15KP120  | 15KP120C  | 120 | 133  | 5.0 | 10 | 214 | 70  | 161 |
| 15KP120A | 15KP120CA | 120 | 133  | 5.0 | 10 | 193 | 78  | 146 |
| 15KP130  | 15KP130C  | 130 | 144  | 5.0 | 10 | 231 | 65  | 174 |
| 15KP130A | 15KP130CA | 130 | 144  | 5.0 | 10 | 209 | 72  | 158 |
| 15KP150  | 15KP150C  | 150 | 167  | 5.0 | 10 | 268 | 56  | 202 |
| 15KP150A | 15KP150CA | 150 | 167  | 5.0 | 10 | 243 | 62  | 184 |
| 15KP160  | 15KP160C  | 160 | 178  | 5.0 | 10 | 287 | 52  | 216 |
| 15KP160A | 15KP160CA | 160 | 178  | 5.0 | 10 | 259 | 58  | 196 |
| 15KP170  | 15KP170C  | 170 | 189  | 5.0 | 10 | 304 | 49  | 229 |
| 15KP170A | 15KP170CA | 170 | 189  | 5.0 | 10 | 275 | 55  | 208 |
| 15KP180  | 15KP180C  | 180 | 200  | 5.0 | 10 | 321 | 47  | 242 |
| 15KP180A | 15KP180CA | 180 | 200  | 5.0 | 10 | 287 | 52  | 220 |
| 15KP200  | 15KP200C  | 200 | 222  | 5.0 | 10 | 356 | 42  | 296 |
| 15KP200A | 15KP200CA | 200 | 222  | 5.0 | 10 | 325 | 46  | 274 |
| 15KP220  | 15KP220C  | 220 | 245  | 5.0 | 10 | 393 | 38  | 297 |
| 15KP220A | 15KP220CA | 220 | 245  | 5.0 | 10 | 347 | 43  | 273 |
| 15KP240  | 15KP240C  | 240 | 267  | 5.0 | 10 | 428 | 35  | 324 |
| 15KP240A | 15KP240CA | 240 | 267  | 5.0 | 10 | 387 | 39  | 300 |

### Note:

Suffix "A" denotes 5% tolerance device , no suffix denotes a 10% tolerance device



# Transient Voltage Suppressor Diodes

The plastic material carries U/L recognition 94V-0.

| Part Number<br>(Uni-directional) | Part Number<br>(Bi-directional) | Reverse Stand Off Voltage | Breakdown Voltage @ $I_T$ |      |       | Maximum Reverse Leakage @ $V_R$ | Maximum Clamping Voltage @ $I_{PP}$ | Maximum Peak Pulse Current | Max. Voltage Temperature Variation |
|----------------------------------|---------------------------------|---------------------------|---------------------------|------|-------|---------------------------------|-------------------------------------|----------------------------|------------------------------------|
|                                  |                                 | $V_{WM}$                  | $V_{BR}$ (V)              |      | $I_T$ | $I_R$                           | $V_C$                               | $I_{PP}$                   | of $V_{BR}$                        |
|                                  |                                 | (V)                       | Min.                      | Max. | (mA)  | ( $\mu$ A)                      | (V)                                 | (A)                        | (mV/°C)                            |

## R15KP Series, 15,000 W, Case Type: 5R



|          |           |    |      |      |     |       |      |     |     |
|----------|-----------|----|------|------|-----|-------|------|-----|-----|
| R15KP17  | R15KP17C  | 17 | 18.9 | 23.1 | 50  | 5,000 | 32.2 | 464 | 19  |
| R15KP17A | R15KP17CA | 17 | 18.9 | 20.9 | 50  | 5,000 | 29.3 | 512 | 17  |
| R15KP18  | R15KP18C  | 18 | 20.0 | 24.4 | 50  | 5,000 | 34.2 | 439 | 20  |
| R15KP18A | R15KP18CA | 18 | 20.0 | 22.1 | 50  | 5,000 | 30.9 | 485 | 18  |
| R15KP20  | R15KP20C  | 20 | 22.2 | 27.1 | 20  | 1,500 | 37.9 | 396 | 24  |
| R15KP20A | R15KP20CA | 20 | 22.2 | 24.5 | 20  | 1,500 | 34.3 | 437 | 21  |
| R15KP22  | R15KP22C  | 22 | 24.4 | 29.8 | 10  | 500   | 41.1 | 365 | 27  |
| R15KP22A | R15KP22CA | 22 | 24.4 | 26.9 | 10  | 500   | 37.1 | 404 | 24  |
| R15KP24  | R15KP24C  | 24 | 26.7 | 32.6 | 5.0 | 150   | 45.0 | 333 | 30  |
| R15KP24A | R15KP24CA | 24 | 26.7 | 29.5 | 5.0 | 150   | 40.7 | 369 | 27  |
| R15KP26  | R15KP26C  | 26 | 28.9 | 35.3 | 5.0 | 50    | 48.7 | 308 | 32  |
| R15KP26A | R15KP26CA | 26 | 28.9 | 31.9 | 5.0 | 50    | 44.0 | 341 | 29  |
| R15KP28  | R15KP28C  | 28 | 31.1 | 38.0 | 5.0 | 25    | 52.4 | 286 | 35  |
| R15KP28A | R15KP28CA | 28 | 31.1 | 34.4 | 5.0 | 25    | 47.5 | 316 | 31  |
| R15KP30  | R15KP30C  | 30 | 33.3 | 40.7 | 5.0 | 15    | 56.2 | 267 | 37  |
| R15KP30A | R15KP30CA | 30 | 33.3 | 36.8 | 5.0 | 15    | 50.7 | 296 | 33  |
| R15KP33  | R15KP33C  | 33 | 36.7 | 44.9 | 5.0 | 10    | 60.6 | 248 | 42  |
| R15KP33A | R15KP33CA | 33 | 36.7 | 40.6 | 5.0 | 10    | 54.8 | 274 | 38  |
| R15KP36  | R15KP36C  | 36 | 40.0 | 48.9 | 5.0 | 10    | 66.0 | 227 | 46  |
| R15KP36A | R15KP36CA | 36 | 40.0 | 44.2 | 5.0 | 10    | 59.7 | 251 | 41  |
| R15KP40  | R15KP40C  | 40 | 44.4 | 54.3 | 5.0 | 10    | 72.8 | 206 | 51  |
| R15KP40A | R15KP40CA | 40 | 44.4 | 49.1 | 5.0 | 10    | 65.8 | 228 | 46  |
| R15KP43  | R15KP43C  | 43 | 47.8 | 58.4 | 5.0 | 10    | 77.1 | 195 | 55  |
| R15KP43A | R15KP43CA | 43 | 47.8 | 52.8 | 5.0 | 10    | 69.7 | 215 | 50  |
| R15KP45  | R15KP45C  | 45 | 50.0 | 61.1 | 5.0 | 10    | 80.7 | 186 | 57  |
| R15KP45A | R15KP45CA | 45 | 50.0 | 55.3 | 5.0 | 10    | 73.0 | 205 | 52  |
| R15KP48  | R15KP48C  | 48 | 53.3 | 65.1 | 5.0 | 10    | 85.9 | 175 | 62  |
| R15KP48A | R15KP48CA | 48 | 53.3 | 58.9 | 5.0 | 10    | 77.7 | 193 | 56  |
| R15KP51  | R15KP51C  | 51 | 56.7 | 69.3 | 5.0 | 10    | 91.5 | 164 | 66  |
| R15KP51A | R15KP51CA | 51 | 56.7 | 62.7 | 5.0 | 10    | 82.5 | 181 | 60  |
| R15KP54  | R15KP54C  | 54 | 60.0 | 73.3 | 5.0 | 10    | 96.8 | 155 | 70  |
| R15KP54A | R15KP54CA | 54 | 60.0 | 66.3 | 5.0 | 10    | 87.5 | 171 | 63  |
| R15KP58  | R15KP58C  | 58 | 64.4 | 78.7 | 5.0 | 10    | 104  | 144 | 76  |
| R15KP58A | R15KP58CA | 58 | 64.4 | 71.2 | 5.0 | 10    | 94   | 160 | 68  |
| R15KP60  | R15KP60C  | 60 | 66.7 | 81.5 | 5.0 | 10    | 107  | 140 | 78  |
| R15KP60A | R15KP60CA | 60 | 66.7 | 73.7 | 5.0 | 10    | 97.3 | 154 | 70  |
| R15KP64  | R15KP64C  | 64 | 71.1 | 86.9 | 5.0 | 10    | 115  | 130 | 84  |
| R15KP64A | R15KP64CA | 64 | 71.1 | 78.6 | 5.0 | 10    | 104  | 144 | 76  |
| R15KP70  | R15KP70C  | 70 | 77.8 | 95.1 | 5.0 | 10    | 126  | 119 | 92  |
| R15KP70A | R15KP70CA | 70 | 77.8 | 86.0 | 5.0 | 10    | 114  | 132 | 83  |
| R15KP75  | R15KP75C  | 75 | 83.3 | 102  | 5.0 | 10    | 135  | 111 | 100 |
| R15KP75A | R15KP75CA | 75 | 83.3 | 92.1 | 5.0 | 10    | 122  | 123 | 89  |



# Transient Voltage Suppressor Diodes

The plastic material carries U/L recognition 94V-0.

| Part Number<br>(Uni-directional) | Part Number<br>(Bi-directional) | Reverse Stand Off Voltage | Breakdown Voltage @ $I_T$ |      |       | Maximum Reverse Leakage @ $V_R$ | Maximum Clamping Voltage @ $I_{PP}$ | Maximum Peak Pulse Current | Max. Voltage Temperature Variation |
|----------------------------------|---------------------------------|---------------------------|---------------------------|------|-------|---------------------------------|-------------------------------------|----------------------------|------------------------------------|
|                                  |                                 | $V_{WM}$                  | $V_{BR}$ (V)              |      | $I_T$ | $I_R$                           | $V_C$                               | $I_{PP}$                   | of $V_{BR}$                        |
|                                  |                                 | (V)                       | Min.                      | Max. | (mA)  | ( $\mu$ A)                      | (V)                                 | (A)                        | (mV/°C)                            |

## R15KP Series, 15,000 W, Case Type: 5R



|           |            |     |      |      |     |    |     |     |     |
|-----------|------------|-----|------|------|-----|----|-----|-----|-----|
| R15KP78   | R15KP78C   | 78  | 86.7 | 106  | 5.0 | 10 | 140 | 107 | 104 |
| R15KP78A  | R15KP78CA  | 78  | 86.7 | 95.8 | 5.0 | 10 | 126 | 119 | 93  |
| R15KP85   | R15KP85C   | 85  | 94.4 | 115  | 5.0 | 10 | 152 | 99  | 113 |
| R15KP85A  | R15KP85CA  | 85  | 94.4 | 104  | 5.0 | 10 | 137 | 109 | 102 |
| R15KP90   | R15KP90C   | 90  | 100  | 122  | 5.0 | 10 | 160 | 94  | 120 |
| R15KP90A  | R15KP90CA  | 90  | 100  | 111  | 5.0 | 10 | 146 | 103 | 110 |
| R15KP100  | R15KP100C  | 100 | 111  | 136  | 5.0 | 10 | 179 | 84  | 134 |
| R15KP100A | R15KP100CA | 100 | 111  | 123  | 5.0 | 10 | 162 | 93  | 123 |
| R15KP110  | R15KP110C  | 110 | 122  | 149  | 5.0 | 10 | 196 | 77  | 147 |
| R15KP110A | R15KP110CA | 110 | 122  | 135  | 5.0 | 10 | 178 | 84  | 133 |
| R15KP120  | R15KP120C  | 120 | 133  | 163  | 5.0 | 10 | 214 | 70  | 161 |
| R15KP120A | R15KP120CA | 120 | 133  | 147  | 5.0 | 10 | 193 | 78  | 146 |
| R15KP130  | R15KP130C  | 130 | 144  | 176  | 5.0 | 10 | 231 | 65  | 174 |
| R15KP130A | R15KP130CA | 130 | 144  | 159  | 5.0 | 10 | 209 | 72  | 158 |
| R15KP150  | R15KP150C  | 150 | 167  | 204  | 5.0 | 10 | 268 | 56  | 202 |
| R15KP150A | R15KP150CA | 150 | 167  | 185  | 5.0 | 10 | 243 | 62  | 184 |
| R15KP160  | R15KP160C  | 160 | 178  | 218  | 5.0 | 10 | 287 | 52  | 216 |
| R15KP160A | R15KP160CA | 160 | 178  | 197  | 5.0 | 10 | 259 | 58  | 196 |
| R15KP170  | R15KP170C  | 170 | 189  | 231  | 5.0 | 10 | 304 | 49  | 229 |
| R15KP170A | R15KP170CA | 170 | 189  | 209  | 5.0 | 10 | 275 | 55  | 208 |
| R15KP180  | R15KP180C  | 180 | 200  | 244  | 5.0 | 10 | 321 | 47  | 242 |
| R15KP180A | R15KP180CA | 180 | 200  | 221  | 5.0 | 10 | 287 | 52  | 220 |
| R15KP200  | R15KP200C  | 200 | 222  | 271  | 5.0 | 10 | 356 | 42  | 296 |
| R15KP200A | R15KP200CA | 200 | 222  | 245  | 5.0 | 10 | 325 | 46  | 274 |
| R15KP220  | R15KP220C  | 220 | 245  | 299  | 5.0 | 10 | 393 | 38  | 297 |
| R15KP220A | R15KP220CA | 220 | 245  | 271  | 5.0 | 10 | 347 | 43  | 273 |
| R15KP240  | R15KP240C  | 240 | 267  | 326  | 5.0 | 10 | 428 | 35  | 324 |
| R15KP240A | R15KP240CA | 240 | 267  | 295  | 5.0 | 10 | 387 | 39  | 300 |

### Note:

Suffix "A" denotes 5% tolerance device , no suffix denotes a 10% tolerance device



# Transient Voltage Suppressor Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.         |                 | Reverse Stand Off Voltage | Breakdown Voltage @ $I_{(BR)}$ |      |                    | Maximum Reverse Leakage @ $V_{WM}$ | Maximum Clamping Voltage @ $I_{PP}$ | Maximum Peak Pulse Current | Max. Voltage Temperature Variation |
|------------------|-----------------|---------------------------|--------------------------------|------|--------------------|------------------------------------|-------------------------------------|----------------------------|------------------------------------|
| (Unidirectional) | (Bidirectional) | $V_{WM}$<br>(V)           | $V_{BR}$ (V)<br>Min.           | Max. | $I_{(BR)}$<br>(mA) | $I_R$<br>( $\mu A$ )               | $V_C$<br>(V)                        | $I_{PP}$<br>(A)            | of $V_{BR}$<br>(mV/°C)             |

## 30KP Series, 30,000 W, Case Type: D6



|         |          |    |      |      |    |       |      |     |     |
|---------|----------|----|------|------|----|-------|------|-----|-----|
| 30KP22  | 30KP22C  | 22 | 24.4 | 29.8 | 50 | 10000 | 41.1 | 730 | 27  |
| 30KP22A | 30KP22CA | 22 | 24.4 | 26.9 | 50 | 10000 | 37.1 | 808 | 24  |
| 30KP24  | 30KP24C  | 24 | 26.7 | 32.6 | 50 | 10000 | 45.0 | 666 | 30  |
| 30KP24A | 30KP24CA | 24 | 26.7 | 29.5 | 50 | 10000 | 40.7 | 738 | 27  |
| 30KP26  | 30KP26C  | 26 | 28.9 | 35.3 | 50 | 10000 | 48.7 | 616 | 32  |
| 30KP26A | 30KP26CA | 26 | 28.9 | 31.9 | 50 | 10000 | 44.0 | 682 | 29  |
| 30KP28  | 30KP28C  | 28 | 31.1 | 38.0 | 50 | 8000  | 52.4 | 572 | 35  |
| 30KP28A | 30KP28CA | 28 | 31.1 | 34.4 | 50 | 8000  | 47.5 | 632 | 31  |
| 30KP30  | 30KP30C  | 30 | 33.3 | 40.7 | 50 | 8000  | 56.2 | 534 | 37  |
| 30KP30A | 30KP30CA | 30 | 33.3 | 36.9 | 50 | 8000  | 50.7 | 592 | 33  |
| 30KP33  | 30KP33C  | 33 | 36.7 | 44.9 | 50 | 5000  | 64.6 | 496 | 42  |
| 30KP33A | 30KP33CA | 33 | 36.7 | 40.6 | 50 | 5000  | 58.6 | 548 | 38  |
| 30KP36  | 30KP36C  | 36 | 40.0 | 48.9 | 50 | 5000  | 68.2 | 454 | 46  |
| 30KP36A | 30KP36CA | 36 | 40.0 | 44.2 | 50 | 5000  | 61.8 | 502 | 41  |
| 30KP40  | 30KP40C  | 40 | 44.4 | 54.3 | 20 | 1500  | 75.8 | 412 | 51  |
| 30KP40A | 30KP40CA | 40 | 44.4 | 49.1 | 20 | 1500  | 68.6 | 456 | 46  |
| 30KP43  | 30KP43C  | 43 | 47.8 | 58.4 | 10 | 500   | 79.0 | 380 | 55  |
| 30KP43A | 30KP43CA | 43 | 47.8 | 52.8 | 10 | 500   | 71.0 | 430 | 50  |
| 30KP45  | 30KP45C  | 45 | 50.0 | 61.1 | 5  | 150   | 80.7 | 372 | 57  |
| 30KP45A | 30KP45CA | 45 | 50.0 | 55.3 | 5  | 150   | 73.0 | 410 | 52  |
| 30KP48  | 30KP48C  | 48 | 53.3 | 65.1 | 5  | 150   | 85.9 | 350 | 62  |
| 30KP48A | 30KP48CA | 48 | 53.3 | 58.9 | 5  | 150   | 77.7 | 386 | 56  |
| 30KP51  | 30KP51C  | 51 | 56.7 | 69.3 | 5  | 50    | 91.5 | 328 | 66  |
| 30KP51A | 30KP51CA | 51 | 56.7 | 62.7 | 5  | 50    | 82.8 | 362 | 60  |
| 30KP54  | 30KP54C  | 54 | 60.0 | 73.3 | 5  | 25    | 96.8 | 310 | 70  |
| 30KP54A | 30KP54CA | 54 | 60.0 | 66.3 | 5  | 25    | 87.5 | 342 | 63  |
| 30KP58  | 30KP58C  | 58 | 64.4 | 78.7 | 5  | 15    | 104  | 288 | 76  |
| 30KP58A | 30KP58CA | 58 | 64.4 | 71.2 | 5  | 15    | 94   | 320 | 68  |
| 30KP60  | 30KP60C  | 60 | 66.7 | 81.5 | 5  | 15    | 107  | 280 | 78  |
| 30KP60A | 30KP60CA | 60 | 66.7 | 73.7 | 5  | 15    | 97.3 | 304 | 71  |
| 30KP64  | 30KP64C  | 64 | 71.1 | 86.9 | 5  | 10    | 115  | 260 | 84  |
| 30KP64A | 30KP64CA | 64 | 71.1 | 78.6 | 5  | 10    | 104  | 288 | 76  |
| 30KP70  | 30KP70C  | 70 | 77.8 | 95.1 | 5  | 10    | 126  | 238 | 92  |
| 30KP70A | 30KP70CA | 70 | 77.8 | 86.0 | 5  | 10    | 114  | 264 | 83  |
| 30KP75  | 30KP75C  | 75 | 83.3 | 102  | 5  | 10    | 135  | 222 | 100 |
| 30KP75A | 30KP75CA | 75 | 83.3 | 92.1 | 5  | 10    | 122  | 246 | 89  |
| 30KP78  | 30KP78C  | 78 | 86.7 | 106  | 5  | 10    | 140  | 214 | 104 |
| 30KP78A | 30KP78CA | 78 | 86.7 | 95.8 | 5  | 10    | 126  | 238 | 93  |
| 30KP85  | 30KP85C  | 85 | 94.4 | 115  | 5  | 10    | 152  | 198 | 113 |
| 30KP85A | 30KP85CA | 85 | 94.4 | 104  | 5  | 10    | 137  | 218 | 102 |
| 30KP90  | 30KP90C  | 90 | 100  | 122  | 5  | 10    | 160  | 188 | 120 |
| 30KP90A | 30KP90CA | 90 | 100  | 111  | 5  | 10    | 146  | 206 | 109 |



# Transient Voltage Suppressor Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.         |                 | Reverse Stand Off Voltage | Breakdown Voltage @ $I_{(BR)}$ |      |                    | Maximum Reverse Leakage @ $V_{WM}$ | Maximum Clamping Voltage @ $I_{PP}$ | Maximum Peak Pulse Current | Max. Voltage Temperature Variation |
|------------------|-----------------|---------------------------|--------------------------------|------|--------------------|------------------------------------|-------------------------------------|----------------------------|------------------------------------|
| (Unidirectional) | (Bidirectional) | $V_{WM}$<br>(V)           | $V_{BR}$ (V)<br>Min.           | Max. | $I_{(BR)}$<br>(mA) | $I_R$<br>( $\mu A$ )               | $V_C$<br>(V)                        | $I_{PP}$<br>(A)            | of $V_{BR}$<br>(mV/°C)             |

## 30KP Series, 30,000 W, Case Type: D6



|          |           |     |     |     |   |    |     |     |     |
|----------|-----------|-----|-----|-----|---|----|-----|-----|-----|
| 30KP100  | 30KP100C  | 100 | 111 | 136 | 5 | 10 | 179 | 168 | 134 |
| 30KP100A | 30KP100CA | 100 | 111 | 123 | 5 | 10 | 162 | 186 | 121 |
| 30KP110  | 30KP110C  | 110 | 122 | 149 | 5 | 10 | 196 | 154 | 147 |
| 30KP110A | 30KP110CA | 110 | 122 | 135 | 5 | 10 | 178 | 168 | 133 |
| 30KP120  | 30KP120C  | 120 | 133 | 163 | 5 | 10 | 214 | 140 | 161 |
| 30KP120A | 30KP120CA | 120 | 133 | 147 | 5 | 10 | 193 | 156 | 145 |
| 30KP130  | 30KP130C  | 130 | 144 | 176 | 5 | 10 | 231 | 130 | 174 |
| 30KP130A | 30KP130CA | 130 | 144 | 159 | 5 | 10 | 209 | 142 | 157 |
| 30KP150  | 30KP150C  | 150 | 167 | 204 | 5 | 10 | 268 | 112 | 202 |
| 30KP150A | 30KP150CA | 150 | 167 | 185 | 5 | 10 | 243 | 124 | 183 |
| 30KP160  | 30KP160C  | 160 | 178 | 218 | 5 | 10 | 287 | 104 | 216 |
| 30KP160A | 30KP160CA | 160 | 178 | 197 | 5 | 10 | 259 | 116 | 195 |
| 30KP170  | 30KP170C  | 170 | 189 | 231 | 5 | 10 | 304 | 98  | 229 |
| 30KP170A | 30KP170CA | 170 | 189 | 209 | 5 | 10 | 275 | 110 | 207 |
| 30KP180  | 30KP180C  | 180 | 200 | 244 | 5 | 10 | 321 | 94  | 242 |
| 30KP180A | 30KP180CA | 180 | 200 | 221 | 5 | 10 | 291 | 104 | 219 |
| 30KP200  | 30KP200C  | 200 | 222 | 271 | 5 | 10 | 356 | 84  | 269 |
| 30KP200A | 30KP200CA | 200 | 222 | 245 | 5 | 10 | 322 | 94  | 243 |
| 30KP220  | 30KP220C  | 220 | 245 | 299 | 5 | 10 | 393 | 76  | 297 |
| 30KP220A | 30KP220CA | 220 | 245 | 271 | 5 | 10 | 356 | 84  | 269 |
| 30KP250A | 30KP250CA | 250 | 278 | 308 | 5 | 10 | 403 | 74  | 306 |
| 30KP260A | 30KP260CA | 260 | 289 | 320 | 5 | 10 | 419 | 71  | 318 |
| 30KP280A | 30KP280CA | 280 | 311 | 345 | 5 | 10 | 451 | 66  | 344 |
| 30KP300A | 30KP300CA | 300 | 333 | 369 | 5 | 10 | 483 | 62  | 368 |
| 30KP350A | 30KP350CA | 350 | 389 | 431 | 5 | 10 | 564 | 53  | 430 |
| 30KP400A | 30KP400CA | 400 | 444 | 492 | 5 | 10 | 644 | 46  | 490 |

### Note:

Suffix "A" denotes 5% tolerance device , no suffix denotes a 10% tolerance device



# Transient Voltage Suppressor Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.         |                 | Reverse Stand Off Voltage | Breakdown Voltage @ $I_{(BR)}$ |      |            | Maximum Reverse Leakage @ $V_{WM}$ | Maximum Clamping Voltage @ $I_{PP}$ | Maximum Peak Pulse Current |
|------------------|-----------------|---------------------------|--------------------------------|------|------------|------------------------------------|-------------------------------------|----------------------------|
| (Unidirectional) | (Bidirectional) | $V_{WM}$                  | $V_{BR}$ (V)                   |      | $I_{(BR)}$ | $I_R$                              | $V_C$                               | $I_{PP}$                   |
|                  |                 | (V)                       | Min.                           | Max. | (mA)       | ( $\mu A$ )                        | (V)                                 | (A)                        |

## 50KP Series, 50,000 W, Case Type: D6



|          |           |     |      |      |    |       |      |     |
|----------|-----------|-----|------|------|----|-------|------|-----|
| 50KP36   | 50KP36C   | 36  | 40.0 | 48.9 | 50 | 10000 | 68.2 | 733 |
| 50KP36A  | 50KP36CA  | 36  | 40.0 | 44.2 | 50 | 10000 | 61.8 | 809 |
| 50KP40   | 50KP40C   | 40  | 44.4 | 54.3 | 20 | 10000 | 75.8 | 659 |
| 50KP40A  | 50KP40CA  | 40  | 44.4 | 49.1 | 20 | 10000 | 68.6 | 728 |
| 50KP43   | 50KP43C   | 43  | 47.8 | 58.4 | 10 | 10000 | 79.0 | 632 |
| 50KP43A  | 50KP43CA  | 43  | 47.8 | 52.8 | 10 | 10000 | 71.0 | 704 |
| 50KP45   | 50KP45C   | 45  | 50.0 | 61.1 | 5  | 8000  | 80.7 | 619 |
| 50KP45A  | 50KP45CA  | 45  | 50.0 | 55.3 | 5  | 8000  | 73.0 | 684 |
| 50KP48   | 50KP48C   | 48  | 53.3 | 65.1 | 5  | 8000  | 85.9 | 582 |
| 50KP48A  | 50KP48CA  | 48  | 53.3 | 58.9 | 5  | 8000  | 77.7 | 643 |
| 50KP51   | 50KP51C   | 51  | 56.7 | 69.3 | 5  | 5000  | 91.5 | 546 |
| 50KP51A  | 50KP51CA  | 51  | 56.7 | 62.7 | 5  | 5000  | 82.8 | 603 |
| 50KP54   | 50KP54C   | 54  | 60.0 | 73.3 | 5  | 5000  | 96.8 | 516 |
| 50KP54A  | 50KP54CA  | 54  | 60.0 | 66.3 | 5  | 5000  | 87.5 | 571 |
| 50KP58   | 50KP58C   | 58  | 64.4 | 78.7 | 5  | 1500  | 104  | 480 |
| 50KP58A  | 50KP58CA  | 58  | 64.4 | 71.2 | 5  | 1500  | 94   | 531 |
| 50KP60   | 50KP60C   | 60  | 66.7 | 81.5 | 5  | 500   | 107  | 467 |
| 50KP60A  | 50KP60CA  | 60  | 66.7 | 73.7 | 5  | 500   | 97.3 | 513 |
| 50KP64   | 50KP64C   | 64  | 71.1 | 86.9 | 5  | 150   | 115  | 434 |
| 50KP64A  | 50KP64CA  | 64  | 71.1 | 78.6 | 5  | 150   | 104  | 480 |
| 50KP70   | 50KP70C   | 70  | 77.8 | 95.1 | 5  | 150   | 126  | 396 |
| 50KP70A  | 50KP70CA  | 70  | 77.8 | 86.0 | 5  | 150   | 114  | 438 |
| 50KP75   | 50KP75C   | 75  | 83.3 | 102  | 5  | 50    | 135  | 370 |
| 50KP75A  | 50KP75CA  | 75  | 83.3 | 92.1 | 5  | 50    | 122  | 409 |
| 50KP78   | 50KP78C   | 78  | 86.7 | 106  | 5  | 25    | 140  | 357 |
| 50KP78A  | 50KP78CA  | 78  | 86.7 | 95.8 | 5  | 25    | 126  | 396 |
| 50KP85   | 50KP85C   | 85  | 94.4 | 115  | 5  | 15    | 152  | 328 |
| 50KP85A  | 50KP85CA  | 85  | 94.4 | 104  | 5  | 15    | 137  | 364 |
| 50KP90   | 50KP90C   | 90  | 100  | 122  | 5  | 15    | 160  | 312 |
| 50KP90A  | 50KP90CA  | 90  | 100  | 111  | 5  | 15    | 146  | 342 |
| 50KP100  | 50KP100C  | 100 | 111  | 136  | 5  | 10    | 179  | 279 |
| 50KP100A | 50KP100CA | 100 | 111  | 123  | 5  | 10    | 162  | 308 |



# Transient Voltage Suppressor Diodes

The plastic material carries U/L recognition 94V-0.

| Type No.         |                 | Reverse Stand Off Voltage | Breakdown Voltage @ $I_{(BR)}$ |      | Maximum Reverse Leakage @ $V_{WM}$ | Maximum Clamping Voltage @ $I_{PP}$ | Maximum Peak Pulse Current |
|------------------|-----------------|---------------------------|--------------------------------|------|------------------------------------|-------------------------------------|----------------------------|
| (Unidirectional) | (Bidirectional) | $V_{WM}$                  | $V_{BR}$ (V)                   |      | $I_R$                              | $V_C$                               | $I_{PP}$                   |
|                  |                 | (V)                       | Min.                           | Max. | ( $\mu A$ )                        | (V)                                 | (A)                        |

## 50KP Series, 50,000 W, Case Type: D6



|          |           |     |     |     |   |    |     |     |
|----------|-----------|-----|-----|-----|---|----|-----|-----|
| 50KP110  | 50KP110C  | 110 | 122 | 149 | 5 | 10 | 196 | 255 |
| 50KP110A | 50KP110CA | 110 | 122 | 135 | 5 | 10 | 178 | 280 |
| 50KP120  | 50KP120C  | 120 | 133 | 163 | 5 | 10 | 214 | 233 |
| 50KP120A | 50KP120CA | 120 | 133 | 147 | 5 | 10 | 193 | 259 |
| 50KP130  | 50KP130C  | 130 | 144 | 176 | 5 | 10 | 231 | 216 |
| 50KP130A | 50KP130CA | 130 | 144 | 159 | 5 | 10 | 209 | 239 |
| 50KP150  | 50KP150C  | 150 | 167 | 204 | 5 | 10 | 268 | 186 |
| 50KP150A | 50KP150CA | 150 | 167 | 185 | 5 | 10 | 243 | 205 |
| 50KP160  | 50KP160C  | 160 | 178 | 218 | 5 | 10 | 287 | 174 |
| 50KP160A | 50KP160CA | 160 | 178 | 197 | 5 | 10 | 259 | 193 |
| 50KP170  | 50KP170C  | 170 | 189 | 231 | 5 | 10 | 304 | 164 |
| 50KP170A | 50KP170CA | 170 | 189 | 209 | 5 | 10 | 275 | 181 |
| 50KP180  | 50KP180C  | 180 | 200 | 244 | 5 | 10 | 321 | 155 |
| 50KP180A | 50KP180CA | 180 | 200 | 221 | 5 | 10 | 291 | 171 |
| 50KP200  | 50KP200C  | 200 | 222 | 271 | 5 | 10 | 356 | 140 |
| 50KP200A | 50KP200CA | 200 | 222 | 245 | 5 | 10 | 322 | 155 |
| 50KP220  | 50KP220C  | 220 | 245 | 299 | 5 | 10 | 393 | 127 |
| 50KP220A | 50KP220CA | 220 | 245 | 271 | 5 | 10 | 356 | 140 |
| 50KP250A | 50KP250CA | 250 | 278 | 308 | 5 | 10 | 403 | 124 |
| 50KP260A | 50KP260CA | 260 | 289 | 320 | 5 | 10 | 419 | 119 |
| 50KP280A | 50KP280CA | 280 | 311 | 345 | 5 | 10 | 451 | 110 |
| 50KP300A | 50KP300CA | 300 | 333 | 369 | 5 | 10 | 483 | 103 |
| 50KP350A | 50KP350CA | 350 | 389 | 431 | 5 | 10 | 564 | 88  |
| 50KP400A | 50KP400CA | 400 | 444 | 492 | 5 | 10 | 644 | 77  |

**Note:** (1) For bidirectional type having  $V_{WM}$  of 60 volts and less, the  $I_P$  limit is double.



# Low Capacitance Transient Voltage Suppressor Diodes

The plastic material carries U/L recognition 94V-O.

| Type No. | Breakdown Voltage<br>@ $I_t$ |       | Reverse<br>Stand-off<br>Voltage | Max.<br>Reverse<br>Leakage<br>@ $V_{RWM}$ | Max.<br>Clamping<br>Voltage<br>@ $I_{RSM} = 5A$ | Max.<br>Reverse<br>Current | Max.<br>Junction<br>Capacitance<br>@ 0 Volt | Working<br>Inverse<br>Blocking<br>Voltage | Max. Inverse<br>Blocking<br>Current<br>@ $V_{WIB}$ | Peak<br>Inverse<br>Blocking<br>Voltage |
|----------|------------------------------|-------|---------------------------------|-------------------------------------------|-------------------------------------------------|----------------------------|---------------------------------------------|-------------------------------------------|----------------------------------------------------|----------------------------------------|
|          | $V_{BR}$ (V)                 | $I_t$ | $V_{RWM}$                       | $I_R$                                     | $V_{RSM}$                                       | $I_{RSM}$                  |                                             | $V_{WIB}$                                 | $I_{IB}$                                           | $V_{PIB}$                              |
|          | Min.                         | (mA)  | (V)                             | ( $\mu A$ )                               | (V)                                             | (A)                        | pF                                          | (V)                                       | mA                                                 | (V)                                    |

## SAC Series, 500 W, Case Type: DO-41



|               |      |     |     |     |      |      |    |     |     |     |
|---------------|------|-----|-----|-----|------|------|----|-----|-----|-----|
| <b>SAC5.0</b> | 7.6  | 1.0 | 5.0 | 300 | 10.0 | 44   | 50 | 75  | 1.0 | 100 |
| <b>SAC6.0</b> | 7.9  | 1.0 | 6.0 | 300 | 11.2 | 41   | 50 | 75  | 1.0 | 100 |
| <b>SAC7.0</b> | 8.3  | 1.0 | 7.0 | 300 | 12.6 | 38   | 50 | 75  | 1.0 | 100 |
| <b>SAC8.0</b> | 8.9  | 1.0 | 8.0 | 100 | 13.4 | 36   | 50 | 75  | 1.0 | 100 |
| <b>SAC8.5</b> | 9.4  | 1.0 | 8.5 | 50  | 14.0 | 34   | 50 | 75  | 1.0 | 100 |
| <b>SAC10</b>  | 11.1 | 1.0 | 10  | 5.0 | 16.3 | 29   | 50 | 75  | 1.0 | 100 |
| <b>SAC12</b>  | 13.3 | 1.0 | 12  | 5.0 | 19.0 | 25   | 50 | 75  | 1.0 | 100 |
| <b>SAC15</b>  | 16.7 | 1.0 | 15  | 5.0 | 23.6 | 20   | 50 | 75  | 1.0 | 100 |
| <b>SAC18</b>  | 20.0 | 1.0 | 18  | 5.0 | 28.8 | 15   | 50 | 75  | 1.0 | 100 |
| <b>SAC22</b>  | 24.4 | 1.0 | 22  | 5.0 | 35.4 | 14   | 50 | 75  | 1.0 | 100 |
| <b>SAC26</b>  | 28.9 | 1.0 | 26  | 5.0 | 42.3 | 11.1 | 50 | 75  | 1.0 | 100 |
| <b>SAC30</b>  | 33.3 | 1.0 | 30  | 5.0 | 48.6 | 10   | 50 | 75  | 1.0 | 100 |
| <b>SAC36</b>  | 40.0 | 1.0 | 36  | 5.0 | 60.0 | 8.6  | 50 | 75  | 1.0 | 100 |
| <b>SAC45</b>  | 50.0 | 1.0 | 45  | 5.0 | 77.0 | 6.8  | 50 | 150 | 1.0 | 200 |
| <b>SAC50</b>  | 55.5 | 1.0 | 50  | 5.0 | 88.0 | 5.8  | 50 | 150 | 1.0 | 200 |



# Low Capacitance Transient Voltage Suppressor Diodes

The plastic material carries U/L recognition 94V-0.

| Type No. | Breakdown Voltage <sup>(1)</sup> @ I <sub>T</sub> |      | Reverse Stand-off Voltage | Maximum Reverse Leakage @ V <sub>RWM</sub> | Maximum Peak Pulse Surge Current | Maximum Clamping Voltage @ I <sub>PPM</sub> | Maximum Junction Capacitance @ 0 Volt |
|----------|---------------------------------------------------|------|---------------------------|--------------------------------------------|----------------------------------|---------------------------------------------|---------------------------------------|
|          | V <sub>BR</sub> (V)                               |      | V <sub>RWM</sub>          | I <sub>R</sub>                             | I <sub>PPM</sub>                 | V <sub>C</sub>                              |                                       |
|          | Min.                                              | Max. | (mA)                      | (V)                                        | (μA)                             | (A)                                         | (V)                                   |

## SMBJ-LC Series, 600 W, Case Type: SMB



|             |       |       |     |     |     |      |      |    |
|-------------|-------|-------|-----|-----|-----|------|------|----|
| SMBJ-LC5.0  | 7.20  | 8.62  | 10  | 5.0 | 800 | 62.5 | 9.6  | 80 |
| SMBJ-LC5.0A | 7.20  | 7.87  | 10  | 5.0 | 800 | 65.2 | 9.2  | 80 |
| SMBJ-LC6.0  | 7.47  | 8.95  | 10  | 6.0 | 800 | 52.6 | 11.4 | 80 |
| SMBJ-LC6.0A | 7.47  | 8.17  | 10  | 6.0 | 800 | 58.3 | 10.3 | 80 |
| SMBJ-LC6.5  | 8.02  | 9.62  | 10  | 6.5 | 500 | 48.7 | 12.3 | 80 |
| SMBJ-LC6.5A | 8.02  | 8.78  | 10  | 6.5 | 500 | 53.6 | 11.2 | 80 |
| SMBJ-LC7.0  | 8.58  | 10.31 | 10  | 7.0 | 200 | 45.1 | 13.3 | 80 |
| SMBJ-LC7.0A | 8.58  | 9.40  | 10  | 7.0 | 200 | 50.0 | 12.0 | 80 |
| SMBJ-LC7.5  | 9.13  | 11.00 | 1.0 | 7.5 | 100 | 42.0 | 14.3 | 80 |
| SMBJ-LC7.5A | 9.13  | 10.01 | 1.0 | 7.5 | 100 | 46.5 | 12.9 | 80 |
| SMBJ-LC8.0  | 9.69  | 11.70 | 1.0 | 8.0 | 50  | 40.0 | 15.0 | 80 |
| SMBJ-LC8.0A | 9.69  | 10.63 | 1.0 | 8.0 | 50  | 44.1 | 13.6 | 80 |
| SMBJ-LC8.5  | 10.24 | 12.3  | 1.0 | 8.5 | 10  | 37.7 | 15.9 | 80 |
| SMBJ-LC8.5A | 10.24 | 11.2  | 1.0 | 8.5 | 10  | 41.7 | 14.4 | 80 |
| SMBJ-LC9.0  | 10.8  | 13.0  | 1.0 | 9.0 | 5.0 | 35.5 | 16.9 | 80 |
| SMBJ-LC9.0A | 10.8  | 11.9  | 1.0 | 9.0 | 5.0 | 39.0 | 15.4 | 80 |
| SMBJ-LC10   | 11.9  | 14.4  | 1.0 | 10  | 1.0 | 31.9 | 18.8 | 80 |
| SMBJ-LC10A  | 11.9  | 13.1  | 1.0 | 10  | 1.0 | 35.3 | 17.0 | 80 |
| SMBJ-LC11   | 13.0  | 15.7  | 1.0 | 11  | 1.0 | 29.9 | 20.1 | 80 |
| SMBJ-LC11A  | 13.0  | 14.3  | 1.0 | 11  | 1.0 | 33.0 | 18.2 | 80 |
| SMBJ-LC12   | 14.1  | 17.1  | 1.0 | 12  | 1.0 | 27.3 | 22.0 | 80 |
| SMBJ-LC12A  | 14.1  | 15.5  | 1.0 | 12  | 1.0 | 30.2 | 19.9 | 80 |
| SMBJ-LC13   | 15.2  | 18.4  | 1.0 | 13  | 1.0 | 25.2 | 23.8 | 80 |
| SMBJ-LC13A  | 15.2  | 16.7  | 1.0 | 13  | 1.0 | 27.9 | 21.5 | 80 |
| SMBJ-LC14   | 16.4  | 19.9  | 1.0 | 14  | 1.0 | 23.3 | 25.8 | 80 |
| SMBJ-LC14A  | 16.4  | 18.0  | 1.0 | 14  | 1.0 | 25.8 | 23.2 | 80 |
| SMBJ-LC15   | 17.5  | 21.2  | 1.0 | 15  | 1.0 | 22.3 | 26.9 | 80 |
| SMBJ-LC15A  | 17.5  | 19.3  | 1.0 | 15  | 1.0 | 24.0 | 24.4 | 80 |
| SMBJ-LC16   | 18.6  | 22.6  | 1.0 | 16  | 1.0 | 20.8 | 28.8 | 80 |
| SMBJ-LC16A  | 18.6  | 20.5  | 1.0 | 16  | 1.0 | 23.1 | 26.0 | 80 |
| SMBJ-LC17   | 19.7  | 23.9  | 1.0 | 17  | 1.0 | 19.7 | 30.5 | 80 |
| SMBJ-LC17A  | 19.7  | 21.7  | 1.0 | 17  | 1.0 | 21.7 | 27.6 | 80 |
| SMBJ-LC18   | 20.8  | 25.2  | 1.0 | 18  | 1.0 | 18.6 | 32.2 | 80 |
| SMBJ-LC18A  | 20.8  | 22.9  | 1.0 | 18  | 1.0 | 20.5 | 29.2 | 80 |
| SMBJ-LC20   | 23.0  | 27.9  | 1.0 | 20  | 1.0 | 16.7 | 35.8 | 80 |
| SMBJ-LC20A  | 23.0  | 25.3  | 1.0 | 20  | 1.0 | 18.5 | 32.4 | 80 |
| SMBJ-LC22   | 25.2  | 30.6  | 1.0 | 22  | 1.0 | 15.2 | 39.4 | 80 |
| SMBJ-LC22A  | 25.2  | 27.7  | 1.0 | 22  | 1.0 | 16.9 | 35.5 | 80 |
| SMBJ-LC24   | 27.5  | 33.4  | 1.0 | 24  | 1.0 | 14.0 | 43.0 | 80 |
| SMBJ-LC24A  | 27.5  | 30.3  | 1.0 | 24  | 1.0 | 15.4 | 38.9 | 80 |
| SMBJ-LC26   | 29.7  | 36.1  | 1.0 | 26  | 1.0 | 12.4 | 46.6 | 80 |
| SMBJ-LC26A  | 29.7  | 32.7  | 1.0 | 26  | 1.0 | 14.2 | 42.1 | 80 |
| SMBJ-LC28   | 31.9  | 38.8  | 1.0 | 28  | 1.0 | 12.0 | 50.0 | 80 |
| SMBJ-LC28A  | 31.9  | 35.2  | 1.0 | 28  | 1.0 | 13.2 | 45.4 | 80 |
| SMBJ-LC30   | 34.1  | 41.5  | 1.0 | 30  | 1.0 | 11.2 | 53.5 | 80 |
| SMBJ-LC30A  | 34.1  | 37.6  | 1.0 | 30  | 1.0 | 12.4 | 48.4 | 80 |
| SMBJ-LC33   | 37.5  | 45.7  | 1.0 | 33  | 1.0 | 10.2 | 59.0 | 80 |
| SMBJ-LC33A  | 37.5  | 41.4  | 1.0 | 33  | 1.0 | 11.3 | 53.3 | 80 |



# Low Capacitance Transient Voltage Suppressor Diodes

The plastic material carries U/L recognition 94V-0.

| Type No. | Breakdown Voltage <sup>(1)</sup> @ I <sub>T</sub> |      | Reverse Stand-off Voltage | Maximum Reverse Leakage @ V <sub>RWM</sub> | Maximum Peak Pulse Surge Current | Maximum Clamping Voltage @ I <sub>PPM</sub> | Maximum Junction Capacitance @ 0 Volt |
|----------|---------------------------------------------------|------|---------------------------|--------------------------------------------|----------------------------------|---------------------------------------------|---------------------------------------|
|          | V <sub>BR</sub> (V)                               |      | V <sub>RWM</sub>          | I <sub>R</sub>                             | I <sub>PPM</sub>                 | V <sub>C</sub>                              | @ 0 Volt                              |
|          | Min.                                              | Max. | (mA)                      | (V)                                        | (μA)                             | (A)                                         | pF                                    |

## SMBJ-LC Series, 600 W, Case Type: SMB



|             |       |       |     |     |     |      |      |    |
|-------------|-------|-------|-----|-----|-----|------|------|----|
| SMBJ-LC36   | 40.8  | 49.7  | 1.0 | 36  | 1.0 | 9.3  | 64.3 | 80 |
| SMBJ-LC36A  | 40.8  | 45.0  | 1.0 | 36  | 1.0 | 10.3 | 58.1 | 80 |
| SMBJ-LC40   | 45.2  | 55.1  | 1.0 | 40  | 1.0 | 8.4  | 71.4 | 80 |
| SMBJ-LC40A  | 45.2  | 49.9  | 1.0 | 40  | 1.0 | 9.3  | 64.5 | 80 |
| SMBJ-LC43   | 48.6  | 59.2  | 1.0 | 43  | 1.0 | 7.8  | 76.7 | 80 |
| SMBJ-LC43A  | 48.6  | 53.6  | 1.0 | 43  | 1.0 | 8.6  | 69.4 | 80 |
| SMBJ-LC45   | 50.8  | 61.9  | 1.0 | 45  | 1.0 | 7.5  | 80.3 | 80 |
| SMBJ-LC45A  | 50.8  | 56.1  | 1.0 | 45  | 1.0 | 8.3  | 72.7 | 80 |
| SMBJ-LC48   | 54.1  | 65.9  | 1.0 | 48  | 1.0 | 7.0  | 85.5 | 80 |
| SMBJ-LC48A  | 54.1  | 59.7  | 1.0 | 48  | 1.0 | 7.7  | 77.4 | 80 |
| SMBJ-LC51   | 57.5  | 70.1  | 1.0 | 51  | 1.0 | 6.6  | 91.1 | 80 |
| SMBJ-LC51A  | 57.5  | 63.5  | 1.0 | 51  | 1.0 | 7.3  | 82.4 | 80 |
| SMBJ-LC54   | 60.8  | 74.1  | 1.0 | 54  | 1.0 | 6.2  | 96.3 | 80 |
| SMBJ-LC54A  | 60.8  | 67.1  | 1.0 | 54  | 1.0 | 6.9  | 87.1 | 80 |
| SMBJ-LC58   | 65.2  | 79.5  | 1.0 | 58  | 1.0 | 5.8  | 103  | 80 |
| SMBJ-LC58A  | 65.2  | 72.0  | 1.0 | 58  | 1.0 | 6.4  | 93.6 | 80 |
| SMBJ-LC60   | 67.5  | 82.3  | 1.0 | 60  | 1.0 | 5.6  | 107  | 80 |
| SMBJ-LC60A  | 67.5  | 74.5  | 1.0 | 60  | 1.0 | 6.2  | 96.8 | 80 |
| SMBJ-LC64   | 71.9  | 87.7  | 1.0 | 64  | 1.0 | 5.3  | 114  | 80 |
| SMBJ-LC64A  | 71.9  | 79.4  | 1.0 | 64  | 1.0 | 5.8  | 103  | 80 |
| SMBJ-LC70   | 78.6  | 95.9  | 1.0 | 70  | 1.0 | 4.8  | 125  | 80 |
| SMBJ-LC70A  | 78.6  | 86.8  | 1.0 | 70  | 1.0 | 5.3  | 113  | 80 |
| SMBJ-LC75   | 84.1  | 102.8 | 1.0 | 75  | 1.0 | 4.5  | 134  | 80 |
| SMBJ-LC75A  | 84.1  | 92.9  | 1.0 | 75  | 1.0 | 4.9  | 121  | 80 |
| SMBJ-LC78   | 87.5  | 106.8 | 1.0 | 78  | 1.0 | 4.3  | 139  | 80 |
| SMBJ-LC78A  | 87.5  | 96.6  | 1.0 | 78  | 1.0 | 4.7  | 126  | 80 |
| SMBJ-LC85   | 95.2  | 115.8 | 1.0 | 85  | 1.0 | 3.9  | 151  | 80 |
| SMBJ-LC85A  | 95.2  | 104.8 | 1.0 | 85  | 1.0 | 4.4  | 137  | 80 |
| SMBJ-LC90   | 100.8 | 122.8 | 1.0 | 90  | 1.0 | 3.8  | 160  | 80 |
| SMBJ-LC90A  | 100.8 | 111.8 | 1.0 | 90  | 1.0 | 4.1  | 146  | 80 |
| SMBJ-LC100  | 111.8 | 136.8 | 1.0 | 100 | 1.0 | 3.4  | 179  | 80 |
| SMBJ-LC100A | 111.8 | 123.8 | 1.0 | 100 | 1.0 | 3.7  | 162  | 80 |
| SMBJ-LC110  | 122.8 | 149.8 | 1.0 | 110 | 1.0 | 3.0  | 196  | 80 |
| SMBJ-LC110A | 122.8 | 135.8 | 1.0 | 110 | 1.0 | 3.4  | 177  | 80 |
| SMBJ-LC120  | 133.8 | 163.8 | 1.0 | 120 | 1.0 | 2.8  | 214  | 80 |
| SMBJ-LC120A | 133.8 | 147.8 | 1.0 | 120 | 1.0 | 3.1  | 193  | 80 |
| SMBJ-LC130  | 144.8 | 176.8 | 1.0 | 130 | 1.0 | 2.6  | 231  | 80 |
| SMBJ-LC130A | 144.8 | 159.8 | 1.0 | 130 | 1.0 | 2.9  | 209  | 80 |
| SMBJ-LC150  | 167.8 | 204.8 | 1.0 | 150 | 1.0 | 2.2  | 268  | 80 |
| SMBJ-LC150A | 167.8 | 185.8 | 1.0 | 150 | 1.0 | 2.5  | 243  | 80 |
| SMBJ-LC160  | 178.8 | 218.8 | 1.0 | 160 | 1.0 | 2.1  | 287  | 80 |
| SMBJ-LC160A | 178.8 | 197.8 | 1.0 | 160 | 1.0 | 2.3  | 259  | 80 |
| SMBJ-LC170  | 189.8 | 231.8 | 1.0 | 170 | 1.0 | 2.0  | 304  | 80 |
| SMBJ-LC170A | 189.8 | 209.8 | 1.0 | 170 | 1.0 | 2.2  | 275  | 80 |
| SMBJ-LC188  | 209.8 | 255.8 | 1.0 | 188 | 1.0 | 1.7  | 344  | 80 |
| SMBJ-LC188A | 209.8 | 231.8 | 1.0 | 188 | 1.0 | 2.0  | 328  | 80 |

Notes: (1) Pulse test :  $t_p \leq 50\text{ms}$ .

(2) "SMBJ-L" will be omitted in marking on the diode.



# Low Capacitance Transient Voltage Suppressor Diodes

The plastic material carries U/L recognition 94V-O.

| Type No. | Breakdown Voltage<br>@ It |      | Reverse<br>Stand-off<br>Voltage | Max.<br>Reverse<br>Leakage<br>@ VRWM | Max.<br>Clamping<br>Voltage<br>@ IRSM | Max.<br>Reverse<br>Current | Max.<br>Junction<br>Capacitance<br>@ 0 Volt | Working<br>Inverse<br>Blocking<br>Voltage | Max. Inverse<br>Blocking<br>Current<br>@ VWIB | Peak<br>Inverse<br>Blocking<br>Voltage |
|----------|---------------------------|------|---------------------------------|--------------------------------------|---------------------------------------|----------------------------|---------------------------------------------|-------------------------------------------|-----------------------------------------------|----------------------------------------|
|          | VBR (V)                   |      | VRWM                            | IR                                   | VRSM                                  | IRSM                       | pF                                          | VWIB                                      | IIB                                           | VPIB                                   |
|          | Min.                      | Max. | (mA)                            | (V)                                  | (μA)                                  | (V)                        |                                             |                                           |                                               |                                        |

## LCE Series, 1500 W, Case Type: DO-201



|         |       |       |     |     |      |      |     |     |    |     |     |
|---------|-------|-------|-----|-----|------|------|-----|-----|----|-----|-----|
| LCE6.5  | 8.02  | 9.62  | 10  | 6.5 | 1000 | 14.3 | 100 | 100 | 75 | 1.0 | 100 |
| LCE6.5A | 8.02  | 8.78  | 10  | 6.5 | 1000 | 13.2 | 100 | 100 | 75 | 1.0 | 100 |
| LCE7.0  | 8.58  | 10.31 | 10  | 7.0 | 500  | 15.3 | 100 | 100 | 75 | 1.0 | 100 |
| LCE7.0A | 8.58  | 9.40  | 10  | 7.0 | 500  | 14.0 | 100 | 100 | 75 | 1.0 | 100 |
| LCE7.5  | 9.13  | 11.00 | 10  | 7.5 | 250  | 16.3 | 100 | 100 | 75 | 1.0 | 100 |
| LCE7.5A | 9.13  | 10.01 | 10  | 7.5 | 250  | 14.9 | 100 | 100 | 75 | 1.0 | 100 |
| LCE8.0  | 9.69  | 11.70 | 10  | 8.0 | 100  | 17.0 | 100 | 100 | 75 | 1.0 | 100 |
| LCE8.0A | 9.69  | 10.63 | 10  | 8.0 | 100  | 15.6 | 100 | 100 | 75 | 1.0 | 100 |
| LCE8.5  | 10.24 | 12.3  | 1.0 | 8.5 | 50   | 17.9 | 94  | 100 | 75 | 1.0 | 100 |
| LCE8.5A | 10.24 | 11.2  | 1.0 | 8.5 | 50   | 16.4 | 100 | 100 | 75 | 1.0 | 100 |
| LCE9.0  | 10.8  | 13.0  | 1.0 | 9.0 | 10.0 | 18.9 | 89  | 100 | 75 | 1.0 | 100 |
| LCE9.0A | 10.8  | 11.9  | 1.0 | 9.0 | 10.0 | 17.4 | 97  | 100 | 75 | 1.0 | 100 |
| LCE10   | 11.9  | 14.4  | 1.0 | 10  | 5.0  | 20.8 | 80  | 100 | 75 | 1.0 | 100 |
| LCE10A  | 11.9  | 13.1  | 1.0 | 10  | 5.0  | 19.0 | 88  | 100 | 75 | 1.0 | 100 |
| LCE11   | 13.0  | 15.7  | 1.0 | 11  | 5.0  | 22.1 | 74  | 100 | 75 | 1.0 | 100 |
| LCE11A  | 13.0  | 14.3  | 1.0 | 11  | 5.0  | 20.2 | 82  | 100 | 75 | 1.0 | 100 |
| LCE12   | 14.1  | 17.1  | 1.0 | 12  | 5.0  | 24.0 | 68  | 100 | 75 | 1.0 | 100 |
| LCE12A  | 14.1  | 15.5  | 1.0 | 12  | 5.0  | 21.9 | 75  | 100 | 75 | 1.0 | 100 |
| LCE13   | 15.2  | 18.4  | 1.0 | 13  | 5.0  | 25.8 | 63  | 100 | 75 | 1.0 | 100 |
| LCE13A  | 15.2  | 16.7  | 1.0 | 13  | 5.0  | 23.5 | 70  | 100 | 75 | 1.0 | 100 |
| LCE14   | 16.4  | 19.9  | 1.0 | 14  | 5.0  | 27.8 | 58  | 100 | 75 | 1.0 | 100 |
| LCE14A  | 16.4  | 18.0  | 1.0 | 14  | 5.0  | 25.2 | 65  | 100 | 75 | 1.0 | 100 |
| LCE15   | 17.5  | 21.2  | 1.0 | 15  | 5.0  | 28.9 | 56  | 100 | 75 | 1.0 | 100 |
| LCE15A  | 17.5  | 19.3  | 1.0 | 15  | 5.0  | 26.4 | 61  | 100 | 75 | 1.0 | 100 |
| LCE16   | 18.6  | 22.6  | 1.0 | 16  | 5.0  | 30.8 | 52  | 100 | 75 | 1.0 | 100 |
| LCE16A  | 18.6  | 20.5  | 1.0 | 16  | 5.0  | 28.0 | 57  | 100 | 75 | 1.0 | 100 |
| LCE17   | 19.7  | 23.9  | 1.0 | 17  | 5.0  | 32.5 | 49  | 100 | 75 | 1.0 | 100 |
| LCE17A  | 19.7  | 21.7  | 1.0 | 17  | 5.0  | 29.6 | 54  | 100 | 75 | 1.0 | 100 |
| LCE18   | 20.8  | 25.2  | 1.0 | 18  | 5.0  | 34.2 | 46  | 100 | 75 | 1.0 | 100 |
| LCE18A  | 20.8  | 22.9  | 1.0 | 18  | 5.0  | 31.2 | 51  | 100 | 75 | 1.0 | 100 |
| LCE20   | 23.0  | 27.9  | 1.0 | 20  | 5.0  | 37.8 | 42  | 100 | 75 | 1.0 | 100 |
| LCE20A  | 23.0  | 25.3  | 1.0 | 20  | 5.0  | 34.4 | 46  | 100 | 75 | 1.0 | 100 |
| LCE22   | 25.2  | 30.6  | 1.0 | 22  | 5.0  | 41.4 | 38  | 100 | 75 | 1.0 | 100 |
| LCE22A  | 25.2  | 27.7  | 1.0 | 22  | 5.0  | 37.5 | 42  | 100 | 75 | 1.0 | 100 |
| LCE24   | 27.5  | 33.4  | 1.0 | 24  | 5.0  | 45.0 | 35  | 100 | 75 | 1.0 | 100 |
| LCE24A  | 27.5  | 30.3  | 1.0 | 24  | 5.0  | 40.9 | 39  | 100 | 75 | 1.0 | 100 |
| LCE26   | 29.7  | 36.1  | 1.0 | 26  | 5.0  | 48.6 | 32  | 100 | 75 | 1.0 | 100 |
| LCE26A  | 29.7  | 32.7  | 1.0 | 26  | 5.0  | 44.1 | 36  | 100 | 75 | 1.0 | 100 |
| LCE28   | 31.9  | 38.8  | 1.0 | 28  | 5.0  | 52.1 | 30  | 100 | 75 | 1.0 | 100 |
| LCE28A  | 31.9  | 35.2  | 1.0 | 28  | 5.0  | 47.5 | 33  | 100 | 75 | 1.0 | 100 |



# Low Capacitance Transient Voltage Suppressor Diodes

The plastic material carries U/L recognition 94V-O.

| Type No. | Breakdown Voltage<br>@ It |      | Reverse<br>Stand-off<br>Voltage | Max.<br>Reverse<br>Leakage<br>@ VRWM | Max.<br>Clamping<br>Voltage<br>@ IRSM | Max.<br>Reverse<br>Current | Max.<br>Junction<br>Capacitance<br>@ 0 Volt | Working<br>Inverse<br>Blocking<br>Voltage | Max. Inverse<br>Blocking<br>Current<br>@ VWIB | Peak<br>Inverse<br>Blocking<br>Voltage |
|----------|---------------------------|------|---------------------------------|--------------------------------------|---------------------------------------|----------------------------|---------------------------------------------|-------------------------------------------|-----------------------------------------------|----------------------------------------|
|          | VBR (V)                   |      | VRWM                            | IR                                   | VRSM                                  | IRSM                       | pF                                          | VWIB                                      | IIB                                           | VPIB                                   |
|          | Min.                      | Max. | (mA)                            | (V)                                  | (μA)                                  | (V)                        |                                             |                                           |                                               |                                        |

## LCE Series, 1500 W, Case Type: DO-201



|        |       |       |     |    |     |       |      |     |     |     |     |
|--------|-------|-------|-----|----|-----|-------|------|-----|-----|-----|-----|
| LCE30  | 34.1  | 41.5  | 1.0 | 30 | 5.0 | 55.5  | 28   | 100 | 75  | 1.0 | 100 |
| LCE30A | 34.1  | 37.6  | 1.0 | 30 | 5.0 | 50.4  | 31   | 100 | 75  | 1.0 | 100 |
| LCE33  | 37.5  | 45.7  | 1.0 | 33 | 5.0 | 61.0  | 25.4 | 100 | 75  | 1.0 | 100 |
| LCE33A | 37.5  | 41.4  | 1.0 | 33 | 5.0 | 55.3  | 28.1 | 100 | 75  | 1.0 | 100 |
| LCE36  | 40.8  | 49.7  | 1.0 | 36 | 5.0 | 66.3  | 23.3 | 100 | 75  | 1.0 | 100 |
| LCE36A | 40.8  | 45.0  | 1.0 | 36 | 5.0 | 60.1  | 25.8 | 100 | 75  | 1.0 | 100 |
| LCE40  | 45.2  | 55.1  | 1.0 | 40 | 5.0 | 73.4  | 21   | 100 | 75  | 1.0 | 100 |
| LCE40A | 45.2  | 49.9  | 1.0 | 40 | 5.0 | 66.5  | 23.3 | 100 | 75  | 1.0 | 100 |
| LCE43  | 48.6  | 59.2  | 1.0 | 43 | 5.0 | 78.7  | 19.5 | 100 | 150 | 1.0 | 200 |
| LCE43A | 48.6  | 53.6  | 1.0 | 43 | 5.0 | 71.4  | 21.6 | 100 | 150 | 1.0 | 200 |
| LCE45  | 50.8  | 61.9  | 1.0 | 45 | 5.0 | 82.3  | 18.7 | 100 | 150 | 1.0 | 200 |
| LCE45A | 50.8  | 56.1  | 1.0 | 45 | 5.0 | 74.7  | 20.6 | 100 | 150 | 1.0 | 200 |
| LCE48  | 54.1  | 65.9  | 1.0 | 48 | 5.0 | 87.5  | 17.5 | 100 | 150 | 1.0 | 200 |
| LCE48A | 54.1  | 59.7  | 1.0 | 48 | 5.0 | 79.4  | 19.4 | 100 | 150 | 1.0 | 200 |
| LCE51  | 57.5  | 70.1  | 1.0 | 51 | 5.0 | 93.1  | 16.5 | 100 | 150 | 1.0 | 200 |
| LCE51A | 57.5  | 63.5  | 1.0 | 51 | 5.0 | 84.4  | 18.2 | 100 | 150 | 1.0 | 200 |
| LCE54  | 60.8  | 74.1  | 1.0 | 54 | 5.0 | 98.3  | 15.6 | 100 | 150 | 1.0 | 200 |
| LCE54A | 60.8  | 67.1  | 1.0 | 54 | 5.0 | 89.1  | 17.2 | 100 | 150 | 1.0 | 200 |
| LCE58  | 65.2  | 79.5  | 1.0 | 58 | 5.0 | 105.0 | 14.6 | 100 | 150 | 1.0 | 200 |
| LCE58A | 65.2  | 72.0  | 1.0 | 58 | 5.0 | 95.6  | 16   | 100 | 150 | 1.0 | 200 |
| LCE60  | 67.5  | 82.3  | 1.0 | 60 | 5.0 | 109.0 | 14   | 90  | 150 | 1.0 | 200 |
| LCE60A | 67.5  | 74.5  | 1.0 | 60 | 5.0 | 98.8  | 15.5 | 90  | 150 | 1.0 | 200 |
| LCE64  | 71.9  | 87.7  | 1.0 | 64 | 5.0 | 116.0 | 13.2 | 90  | 150 | 1.0 | 200 |
| LCE64A | 71.9  | 79.4  | 1.0 | 64 | 5.0 | 105.0 | 14.6 | 90  | 150 | 1.0 | 200 |
| LCE70  | 78.6  | 95.9  | 1.0 | 70 | 5.0 | 127.0 | 12.0 | 90  | 150 | 1.0 | 200 |
| LCE70A | 78.6  | 86.8  | 1.0 | 70 | 5.0 | 115.0 | 13.3 | 90  | 150 | 1.0 | 200 |
| LCE75  | 84.1  | 102.8 | 1.0 | 75 | 5.0 | 136.0 | 11.2 | 90  | 150 | 1.0 | 200 |
| LCE75A | 84.1  | 92.9  | 1.0 | 75 | 5.0 | 123.0 | 12.4 | 90  | 150 | 1.0 | 200 |
| LCE80  | 95.2  | 115.8 | 1.0 | 80 | 5.0 | 144.0 | 10.6 | 90  | 150 | 1.0 | 200 |
| LCE80A | 95.2  | 104.8 | 1.0 | 80 | 5.0 | 131.0 | 11.6 | 90  | 150 | 1.0 | 200 |
| LCE90  | 100.8 | 122.8 | 1.0 | 90 | 5.0 | 162.0 | 9.4  | 90  | 300 | 1.0 | 200 |
| LCE90A | 100.8 | 111.8 | 1.0 | 90 | 5.0 | 148.0 | 10.3 | 90  | 300 | 1.0 | 200 |



# Low Capacitance Transient Voltage Suppressor Diodes

The plastic material carries U/L recognition 94V-O.

| Type Number | Reverse Stand-off Voltage | Breakdown Voltage @ $I_{BR}$ |      |          | Maximum Reverse Leakage @ $V_{WM}$ | Maximum Clamping Voltage @ $I_{PP}$ | Maximum Peak Pulse Current @ 10/1000 | Maximum Junction Capacitance @ 0 Volt | Working Inverse Blocking Voltage | Inverse Blocking Leakage Current | Peak Inverse Blocking Voltage |
|-------------|---------------------------|------------------------------|------|----------|------------------------------------|-------------------------------------|--------------------------------------|---------------------------------------|----------------------------------|----------------------------------|-------------------------------|
|             | $V_{WM}$                  | $V_{BR}$ (V)                 |      | $I_{BR}$ | $I_D$                              | $V_C$                               | $I_{PP}$                             | pF                                    | $V_{WIB}$ (V)                    | $I_{IB}$ mA                      | $V_{PIB}$ (V)                 |
|             | (V)                       | Min.                         | Max. | (mA)     | ( $\mu$ A)                         | (V)                                 | (A)                                  |                                       |                                  |                                  |                               |

## SMCJLCE Series, 1500 W, Case Type: SMC



|             |     |      |      |     |      |      |      |     |    |     |     |
|-------------|-----|------|------|-----|------|------|------|-----|----|-----|-----|
| SMCJLCE6.5  | 6.5 | 7.22 | 8.82 | 10  | 1000 | 12.3 | 100  | 75  | 75 | 1.0 | 100 |
| SMCJLCE6.5A | 6.5 | 7.22 | 7.98 | 10  | 1000 | 11.2 | 100  | 75  | 75 | 1.0 | 100 |
| SMCJLCE7.0  | 7.0 | 7.78 | 9.51 | 10  | 500  | 13.3 | 100  | 75  | 75 | 1.0 | 100 |
| SMCJLCE7.0A | 7.0 | 7.78 | 8.60 | 10  | 500  | 12.0 | 100  | 75  | 75 | 1.0 | 100 |
| SMCJLCE7.5  | 7.5 | 8.33 | 10.2 | 10  | 250  | 14.3 | 100  | 100 | 75 | 1.0 | 100 |
| SMCJLCE7.5A | 7.5 | 8.33 | 9.21 | 10  | 250  | 12.9 | 100  | 100 | 75 | 1.0 | 100 |
| SMCJLCE8.0  | 8.0 | 8.89 | 10.9 | 10  | 100  | 15.0 | 100  | 100 | 75 | 1.0 | 100 |
| SMCJLCE8.0A | 8.0 | 8.89 | 9.83 | 1.0 | 100  | 13.6 | 100  | 100 | 75 | 1.0 | 100 |
| SMCJLCE8.5  | 8.5 | 9.44 | 11.5 | 1.0 | 50   | 15.9 | 94   | 100 | 75 | 1.0 | 100 |
| SMCJLCE8.5A | 8.5 | 9.44 | 10.4 | 1.0 | 50   | 14.4 | 100  | 100 | 75 | 1.0 | 100 |
| SMCJLCE9.0  | 9.0 | 10.0 | 12.2 | 1.0 | 10   | 16.9 | 89   | 100 | 75 | 1.0 | 100 |
| SMCJLCE9.0A | 9.0 | 10.0 | 11.1 | 1.0 | 10   | 15.4 | 97   | 100 | 75 | 1.0 | 100 |
| SMCJLCE10   | 10  | 11.1 | 13.6 | 1.0 | 5.0  | 18.8 | 80   | 100 | 75 | 1.0 | 100 |
| SMCJLCE10A  | 10  | 11.1 | 12.3 | 1.0 | 5.0  | 17.0 | 88   | 100 | 75 | 1.0 | 100 |
| SMCJLCE11   | 11  | 12.2 | 14.9 | 1.0 | 5.0  | 20.1 | 74   | 100 | 75 | 1.0 | 100 |
| SMCJLCE11A  | 11  | 12.2 | 13.5 | 1.0 | 5.0  | 18.2 | 82   | 100 | 75 | 1.0 | 100 |
| SMCJLCE12   | 12  | 13.3 | 16.3 | 1.0 | 5.0  | 22.0 | 68   | 100 | 75 | 1.0 | 100 |
| SMCJLCE12A  | 12  | 13.3 | 14.7 | 1.0 | 5.0  | 19.9 | 75   | 100 | 75 | 1.0 | 100 |
| SMCJLCE13   | 13  | 14.4 | 17.6 | 1.0 | 5.0  | 23.8 | 63   | 100 | 75 | 1.0 | 100 |
| SMCJLCE13A  | 13  | 14.4 | 15.9 | 1.0 | 5.0  | 21.5 | 70   | 100 | 75 | 1.0 | 100 |
| SMCJLCE14   | 14  | 15.6 | 19.1 | 1.0 | 5.0  | 25.8 | 58   | 100 | 75 | 1.0 | 100 |
| SMCJLCE14A  | 14  | 15.6 | 17.2 | 1.0 | 5.0  | 23.2 | 65   | 100 | 75 | 1.0 | 100 |
| SMCJLCE15   | 15  | 16.7 | 20.4 | 1.0 | 5.0  | 26.9 | 56   | 100 | 75 | 1.0 | 100 |
| SMCJLCE15A  | 15  | 16.7 | 18.5 | 1.0 | 5.0  | 24.4 | 61   | 100 | 75 | 1.0 | 100 |
| SMCJLCE16   | 16  | 17.8 | 21.8 | 1.0 | 5.0  | 28.8 | 52   | 100 | 75 | 1.0 | 100 |
| SMCJLCE16A  | 16  | 17.8 | 19.7 | 1.0 | 5.0  | 26.0 | 57   | 100 | 75 | 1.0 | 100 |
| SMCJLCE17   | 17  | 18.9 | 23.1 | 1.0 | 5.0  | 30.5 | 49   | 100 | 75 | 1.0 | 100 |
| SMCJLCE17A  | 17  | 18.9 | 20.9 | 1.0 | 5.0  | 27.6 | 54   | 100 | 75 | 1.0 | 100 |
| SMCJLCE18   | 18  | 20.0 | 24.4 | 1.0 | 5.0  | 32.2 | 46   | 100 | 75 | 1.0 | 100 |
| SMCJLCE18A  | 18  | 20.0 | 22.1 | 1.0 | 5.0  | 29.2 | 51   | 100 | 75 | 1.0 | 100 |
| SMCJLCE20   | 20  | 22.2 | 27.1 | 1.0 | 5.0  | 35.8 | 42   | 100 | 75 | 1.0 | 100 |
| SMCJLCE20A  | 20  | 22.2 | 24.5 | 1.0 | 5.0  | 32.4 | 46   | 100 | 75 | 1.0 | 100 |
| SMCJLCE22   | 22  | 24.4 | 29.8 | 1.0 | 5.0  | 39.4 | 38   | 100 | 75 | 1.0 | 100 |
| SMCJLCE22A  | 22  | 24.4 | 26.9 | 1.0 | 5.0  | 35.5 | 42   | 100 | 75 | 1.0 | 100 |
| SMCJLCE24   | 24  | 26.7 | 32.6 | 1.0 | 5.0  | 43.0 | 35   | 100 | 75 | 1.0 | 100 |
| SMCJLCE24A  | 24  | 26.7 | 29.5 | 1.0 | 5.0  | 38.9 | 39   | 100 | 75 | 1.0 | 100 |
| SMCJLCE26   | 26  | 28.9 | 35.3 | 1.0 | 5.0  | 46.6 | 32   | 100 | 75 | 1.0 | 100 |
| SMCJLCE26A  | 26  | 28.9 | 31.9 | 1.0 | 5.0  | 42.1 | 36   | 100 | 75 | 1.0 | 100 |
| SMCJLCE28   | 28  | 31.1 | 38.0 | 1.0 | 5.0  | 50.1 | 30   | 100 | 75 | 1.0 | 100 |
| SMCJLCE28A  | 28  | 31.1 | 34.4 | 1.0 | 5.0  | 45.5 | 33   | 100 | 75 | 1.0 | 100 |
| SMCJLCE30   | 30  | 33.3 | 40.7 | 1.0 | 5.0  | 53.5 | 28   | 100 | 75 | 1.0 | 100 |
| SMCJLCE30A  | 30  | 33.3 | 36.8 | 1.0 | 5.0  | 48.4 | 31   | 100 | 75 | 1.0 | 100 |
| SMCJLCE33   | 33  | 36.7 | 44.9 | 1.0 | 5.0  | 59.0 | 25.4 | 100 | 75 | 1.0 | 100 |
| SMCJLCE33A  | 33  | 36.7 | 40.6 | 1.0 | 5.0  | 53.3 | 28.1 | 100 | 75 | 1.0 | 100 |



# Low Capacitance Transient Voltage Suppressor Diodes

The plastic material carries U/L recognition 94V-O.

| Type Number | Reverse Stand-off Voltage | Breakdown Voltage @ $I_{BR}$ |      |          | Maximum Reverse Leakage @ $V_{WM}$ | Maximum Clamping Voltage @ $I_{PP}$ | Maximum Peak Pulse Current @ 10/1000 | Maximum Junction Capacitance @ 0 Volt | Working Inverse Blocking Voltage | Inverse Blocking Leakage Current | Peak Inverse Blocking Voltage |
|-------------|---------------------------|------------------------------|------|----------|------------------------------------|-------------------------------------|--------------------------------------|---------------------------------------|----------------------------------|----------------------------------|-------------------------------|
|             | $V_{WM}$                  | $V_{BR}$ (V)                 |      | $I_{BR}$ | $I_D$                              | $V_C$                               | $I_{PP}$                             | pF                                    | $V_{WIB}$                        | $I_{IB}$                         | $V_{PIB}$                     |
|             | (V)                       | Min.                         | Max. | (mA)     | ( $\mu$ A)                         | (V)                                 | (A)                                  |                                       | (V)                              | mA                               | (V)                           |

## SMCJLCE Series, 1500 W, Case Type: SMC



|             |     |      |      |     |     |      |      |     |     |     |     |
|-------------|-----|------|------|-----|-----|------|------|-----|-----|-----|-----|
| SMCJLCE36   | 36  | 40.0 | 48.9 | 1.0 | 5.0 | 64.3 | 23.3 | 100 | 75  | 1.0 | 100 |
| SMCJLCE36A  | 36  | 40.0 | 44.2 | 1.0 | 5.0 | 58.1 | 25.8 | 100 | 75  | 1.0 | 100 |
| SMCJLCE40   | 40  | 44.4 | 54.3 | 1.0 | 5.0 | 71.4 | 21.0 | 100 | 75  | 1.0 | 100 |
| SMCJLCE40A  | 40  | 44.4 | 49.1 | 1.0 | 5.0 | 64.5 | 23.3 | 100 | 75  | 1.0 | 100 |
| SMCJLCE43   | 43  | 47.8 | 58.4 | 1.0 | 5.0 | 76.7 | 19.5 | 100 | 150 | 1.0 | 200 |
| SMCJLCE43A  | 43  | 47.8 | 52.8 | 1.0 | 5.0 | 69.4 | 21.6 | 100 | 150 | 1.0 | 200 |
| SMCJLCE45   | 45  | 50.0 | 61.1 | 1.0 | 5.0 | 80.3 | 18.7 | 100 | 150 | 1.0 | 200 |
| SMCJLCE45A  | 45  | 50.0 | 55.3 | 1.0 | 5.0 | 72.7 | 20.6 | 100 | 150 | 1.0 | 200 |
| SMCJLCE48   | 48  | 53.3 | 65.1 | 1.0 | 5.0 | 85.5 | 17.5 | 100 | 150 | 1.0 | 200 |
| SMCJLCE48A  | 48  | 53.3 | 58.9 | 1.0 | 5.0 | 77.4 | 19.4 | 100 | 150 | 1.0 | 200 |
| SMCJLCE51   | 51  | 56.7 | 69.3 | 1.0 | 5.0 | 91.1 | 16.5 | 100 | 150 | 1.0 | 200 |
| SMCJLCE51A  | 51  | 56.7 | 62.7 | 1.0 | 5.0 | 82.4 | 18.2 | 100 | 150 | 1.0 | 200 |
| SMCJLCE54   | 54  | 60.0 | 73.3 | 1.0 | 5.0 | 96.3 | 15.6 | 100 | 150 | 1.0 | 200 |
| SMCJLCE54A  | 54  | 60.0 | 66.3 | 1.0 | 5.0 | 87.1 | 17.2 | 100 | 150 | 1.0 | 200 |
| SMCJLCE58   | 58  | 64.4 | 78.7 | 1.0 | 5.0 | 103  | 14.6 | 100 | 150 | 1.0 | 200 |
| SMCJLCE58A  | 58  | 64.4 | 71.2 | 1.0 | 5.0 | 93.6 | 16.0 | 100 | 150 | 1.0 | 200 |
| SMCJLCE60   | 60  | 66.7 | 81.5 | 1.0 | 5.0 | 107  | 14.0 | 90  | 150 | 1.0 | 200 |
| SMCJLCE60A  | 60  | 66.7 | 73.7 | 1.0 | 5.0 | 96.8 | 15.5 | 90  | 150 | 1.0 | 200 |
| SMCJLCE64   | 64  | 71.1 | 86.9 | 1.0 | 5.0 | 114  | 13.2 | 90  | 150 | 1.0 | 200 |
| SMCJLCE64A  | 64  | 71.1 | 78.6 | 1.0 | 5.0 | 103  | 14.6 | 90  | 150 | 1.0 | 200 |
| SMCJLCE70   | 70  | 77.8 | 95.1 | 1.0 | 5.0 | 125  | 12.0 | 90  | 150 | 1.0 | 200 |
| SMCJLCE70A  | 70  | 77.8 | 86.0 | 1.0 | 5.0 | 113  | 13.3 | 90  | 150 | 1.0 | 200 |
| SMCJLCE75   | 75  | 83.3 | 102  | 1.0 | 5.0 | 134  | 11.2 | 90  | 150 | 1.0 | 200 |
| SMCJLCE75A  | 75  | 83.3 | 92.1 | 1.0 | 5.0 | 121  | 12.4 | 90  | 150 | 1.0 | 200 |
| SMCJLCE80   | 80  | 88.7 | 108  | 1.0 | 5.0 | 142  | 10.6 | 90  | 150 | 1.0 | 200 |
| SMCJLCE80A  | 80  | 88.7 | 98.0 | 1.0 | 5.0 | 129  | 11.6 | 90  | 150 | 1.0 | 200 |
| SMCJLCE90   | 90  | 100  | 122  | 1.0 | 5.0 | 160  | 9.4  | 90  | 300 | 1.0 | 200 |
| SMCJLCE90A  | 90  | 100  | 111  | 1.0 | 5.0 | 146  | 10.3 | 90  | 300 | 1.0 | 200 |
| SMCJLCE100  | 100 | 111  | 136  | 1.0 | 5.0 | 179  | 8.4  | 90  | 300 | 1.0 | 200 |
| SMCJLCE100A | 100 | 111  | 123  | 1.0 | 5.0 | 162  | 9.3  | 90  | 300 | 1.0 | 200 |
| SMCJLCE110  | 110 | 122  | 149  | 1.0 | 5.0 | 196  | 7.7  | 90  | 300 | 1.0 | 400 |
| SMCJLCE110A | 110 | 122  | 135  | 1.0 | 5.0 | 178  | 8.4  | 90  | 300 | 1.0 | 400 |
| SMCJLCE120  | 120 | 133  | 163  | 1.0 | 5.0 | 214  | 7.0  | 90  | 300 | 1.0 | 400 |
| SMCJLCE120A | 120 | 133  | 147  | 1.0 | 5.0 | 193  | 7.8  | 90  | 300 | 1.0 | 400 |
| SMCJLCE130  | 130 | 144  | 176  | 1.0 | 5.0 | 231  | 6.5  | 90  | 300 | 1.0 | 400 |
| SMCJLCE130A | 130 | 144  | 159  | 1.0 | 5.0 | 209  | 7.2  | 90  | 300 | 1.0 | 400 |
| SMCJLCE150  | 150 | 167  | 204  | 1.0 | 5.0 | 268  | 5.6  | 90  | 300 | 1.0 | 400 |
| SMCJLCE150A | 150 | 167  | 185  | 1.0 | 5.0 | 243  | 6.2  | 90  | 300 | 1.0 | 400 |
| SMCJLCE160  | 160 | 178  | 218  | 1.0 | 5.0 | 287  | 5.2  | 90  | 300 | 1.0 | 400 |
| SMCJLCE160A | 160 | 178  | 197  | 1.0 | 5.0 | 259  | 5.8  | 90  | 300 | 1.0 | 400 |
| SMCJLCE170  | 170 | 189  | 231  | 1.0 | 5.0 | 304  | 4.9  | 90  | 300 | 1.0 | 400 |
| SMCJLCE170A | 170 | 189  | 209  | 1.0 | 5.0 | 275  | 5.4  | 90  | 300 | 1.0 | 400 |



# Low Capacitance Transient Voltage Suppressor Diodes

The plastic material carries U/L recognition 94V-0.

| Type No. | Breakdown Voltage<br>@ $I_{BR}$ |          | Reverse<br>Stand-off<br>Voltage | Maximum<br>Clamping<br>Voltage @ $I_{PP}$ | Peak Pulse<br>Current | Maximum<br>Standby<br>Current @ $V_{WM}$ | Maximum<br>Junction<br>Capacitance<br>@ 0 Volt |
|----------|---------------------------------|----------|---------------------------------|-------------------------------------------|-----------------------|------------------------------------------|------------------------------------------------|
|          | $V_{BR}$ (V)                    | $I_{BR}$ | $V_{WM}$                        | $V_C$                                     | $I_{PP}$              | $I_D$                                    | @ 0 Volt                                       |
|          | Min.                            | Max.     | (mA)                            | (V)                                       | (A)                   | ( $\mu A$ )                              | pF                                             |

## SMLJ-LCxx Series, 3000 W, Case Type: SMC



|             |       |       |     |     |      |       |      |     |
|-------------|-------|-------|-----|-----|------|-------|------|-----|
| SMLJ-LC5.0  | 7.40  | 8.30  | 10  | 5.0 | 9.6  | 312.5 | 1000 | 100 |
| SMLJ-LC5.0A | 7.40  | 8.00  | 10  | 5.0 | 9.2  | 326.0 | 1000 | 100 |
| SMLJ-LC6.0  | 7.67  | 9.15  | 10  | 6.0 | 11.4 | 263.2 | 1000 | 100 |
| SMLJ-LC6.0A | 7.67  | 8.37  | 10  | 6.0 | 10.3 | 291.3 | 1000 | 100 |
| SMLJ-LC6.5  | 8.22  | 9.82  | 10  | 6.5 | 12.3 | 243.9 | 500  | 100 |
| SMLJ-LC6.5A | 8.22  | 8.98  | 10  | 6.5 | 11.2 | 267.9 | 500  | 100 |
| SMLJ-LC7.0  | 8.78  | 10.51 | 10  | 7.0 | 13.3 | 225.6 | 200  | 100 |
| SMLJ-LC7.0A | 8.78  | 9.60  | 10  | 7.0 | 12.0 | 250.0 | 200  | 100 |
| SMLJ-LC7.5  | 9.33  | 11.2  | 1.0 | 7.5 | 14.3 | 209.8 | 100  | 100 |
| SMLJ-LC7.5A | 9.33  | 10.21 | 1.0 | 7.5 | 12.9 | 232.6 | 100  | 100 |
| SMLJ-LC8.0  | 9.89  | 11.9  | 1.0 | 8.0 | 15.0 | 200.0 | 50   | 100 |
| SMLJ-LC8.0A | 9.89  | 10.83 | 1.0 | 8.0 | 13.6 | 220.6 | 50   | 100 |
| SMLJ-LC8.5  | 10.44 | 12.5  | 1.0 | 8.5 | 15.9 | 188.6 | 25   | 100 |
| SMLJ-LC8.5A | 10.44 | 11.4  | 1.0 | 8.5 | 14.4 | 208.4 | 25   | 100 |
| SMLJ-LC9.0  | 11.0  | 13.2  | 1.0 | 9.0 | 16.9 | 177.4 | 10   | 100 |
| SMLJ-LC9.0A | 11.0  | 12.1  | 1.0 | 9.0 | 15.4 | 194.8 | 10   | 100 |
| SMLJ-LC10   | 12.1  | 14.6  | 1.0 | 10  | 18.8 | 159.6 | 5    | 100 |
| SMLJ-LC10A  | 12.1  | 13.3  | 1.0 | 10  | 17.0 | 176.4 | 5    | 100 |
| SMLJ-LC11   | 13.2  | 15.9  | 1.0 | 11  | 20.1 | 149.2 | 5    | 100 |
| SMLJ-LC11A  | 13.2  | 14.5  | 1.0 | 11  | 18.2 | 164.8 | 5    | 100 |
| SMLJ-LC12   | 14.3  | 17.3  | 1.0 | 12  | 22.0 | 136.4 | 5    | 100 |
| SMLJ-LC12A  | 14.3  | 15.7  | 1.0 | 12  | 19.9 | 150.6 | 5    | 100 |
| SMLJ-LC13   | 15.4  | 18.6  | 1.0 | 13  | 23.8 | 126.0 | 5    | 100 |
| SMLJ-LC13A  | 15.4  | 16.9  | 1.0 | 13  | 21.5 | 139.4 | 5    | 100 |
| SMLJ-LC14   | 16.6  | 20.1  | 1.0 | 14  | 25.8 | 116.2 | 2    | 100 |
| SMLJ-LC14A  | 16.6  | 18.2  | 1.0 | 14  | 23.2 | 129.4 | 2    | 100 |
| SMLJ-LC15   | 17.7  | 21.4  | 1.0 | 15  | 26.9 | 111.6 | 2    | 100 |
| SMLJ-LC15A  | 17.7  | 19.5  | 1.0 | 15  | 24.4 | 123.0 | 2    | 100 |
| SMLJ-LC16   | 18.8  | 22.8  | 1.0 | 16  | 28.8 | 104.2 | 2    | 100 |
| SMLJ-LC16A  | 18.8  | 20.7  | 1.0 | 16  | 26.0 | 115.4 | 2    | 100 |
| SMLJ-LC17   | 19.9  | 24.1  | 1.0 | 17  | 30.5 | 98.4  | 2    | 100 |
| SMLJ-LC17A  | 19.9  | 21.9  | 1.0 | 17  | 27.6 | 106.6 | 2    | 100 |
| SMLJ-LC18   | 21.0  | 25.4  | 1.0 | 18  | 32.2 | 93.2  | 2    | 100 |
| SMLJ-LC18A  | 21.0  | 23.1  | 1.0 | 18  | 29.2 | 102.8 | 2    | 100 |
| SMLJ-LC20   | 23.2  | 28.1  | 1.0 | 20  | 35.8 | 83.8  | 2    | 100 |
| SMLJ-LC20A  | 23.2  | 25.5  | 1.0 | 20  | 32.4 | 92.6  | 2    | 100 |
| SMLJ-LC22   | 25.4  | 30.8  | 1.0 | 22  | 39.4 | 76.2  | 2    | 100 |
| SMLJ-LC22A  | 25.4  | 27.9  | 1.0 | 22  | 35.5 | 84.4  | 2    | 100 |
| SMLJ-LC24   | 27.7  | 33.6  | 1.0 | 24  | 43.0 | 69.8  | 2    | 100 |
| SMLJ-LC24A  | 27.7  | 30.5  | 1.0 | 24  | 38.9 | 77.2  | 2    | 100 |
| SMLJ-LC26   | 29.9  | 36.3  | 1.0 | 26  | 46.6 | 64.4  | 2    | 100 |
| SMLJ-LC26A  | 29.9  | 32.9  | 1.0 | 26  | 42.1 | 71.2  | 2    | 100 |
| SMLJ-LC28   | 32.1  | 39.0  | 1.0 | 28  | 50.0 | 60.0  | 2    | 100 |
| SMLJ-LC28A  | 32.1  | 35.4  | 1.0 | 28  | 45.4 | 66.0  | 2    | 100 |
| SMLJ-LC30   | 34.3  | 41.7  | 1.0 | 30  | 53.5 | 56.0  | 2    | 100 |
| SMLJ-LC30A  | 34.3  | 37.8  | 1.0 | 30  | 48.4 | 62.0  | 2    | 100 |
| SMLJ-LC33   | 37.7  | 45.9  | 1.0 | 33  | 59.0 | 50.4  | 2    | 100 |
| SMLJ-LC33A  | 37.7  | 41.6  | 1.0 | 33  | 53.3 | 56.2  | 2    | 100 |



# Low Capacitance Transient Voltage Suppressor Diodes

The plastic material carries U/L recognition 94V-0.

| Type No. | Breakdown Voltage<br>@ $I_{(BR)}$ |            | Reverse<br>Stand-off<br>Voltage | Maximum<br>Clamping<br>Voltage @ $I_{PP}$ | Peak Pulse<br>Current | Maximum<br>Standby<br>Current @ $V_{WM}$ | Maximum<br>Junction<br>Capacitance<br>@ 0 Volt |
|----------|-----------------------------------|------------|---------------------------------|-------------------------------------------|-----------------------|------------------------------------------|------------------------------------------------|
|          | $V_{BR}$ (V)                      | $I_{(BR)}$ | $V_{WM}$                        | $V_C$                                     | $I_{PP}$              | $I_D$                                    | @ 0 Volt                                       |
|          | Min.                              | Max.       | (mA)                            | (V)                                       | (A)                   | ( $\mu A$ )                              | pF                                             |

## SMLJ-LCxx Series, 3000 W, Case Type: SMC



|             |      |       |     |     |      |      |   |     |
|-------------|------|-------|-----|-----|------|------|---|-----|
| SMLJ-LC36   | 41.0 | 49.9  | 1.0 | 36  | 64.3 | 46.6 | 2 | 100 |
| SMLJ-LC36A  | 41.0 | 45.2  | 1.0 | 36  | 58.1 | 51.6 | 2 | 100 |
| SMLJ-LC40   | 45.4 | 55.3  | 1.0 | 40  | 71.4 | 42.0 | 2 | 100 |
| SMLJ-LC40A  | 45.4 | 50.1  | 1.0 | 40  | 64.5 | 46.4 | 2 | 100 |
| SMLJ-LC43   | 48.8 | 59.4  | 1.0 | 43  | 76.7 | 39.2 | 2 | 100 |
| SMLJ-LC43A  | 48.8 | 53.8  | 1.0 | 43  | 69.4 | 43.2 | 2 | 100 |
| SMLJ-LC45   | 51.0 | 62.1  | 1.0 | 45  | 80.3 | 37.4 | 2 | 100 |
| SMLJ-LC45A  | 51.0 | 56.3  | 1.0 | 45  | 72.7 | 41.2 | 2 | 100 |
| SMLJ-LC48   | 54.3 | 66.1  | 1.0 | 48  | 85.5 | 35.0 | 2 | 100 |
| SMLJ-LC48A  | 54.3 | 59.9  | 1.0 | 48  | 77.4 | 38.8 | 2 | 100 |
| SMLJ-LC51   | 57.7 | 70.3  | 1.0 | 51  | 91.1 | 37.0 | 2 | 100 |
| SMLJ-LC51A  | 57.7 | 63.7  | 1.0 | 51  | 82.4 | 36.4 | 2 | 100 |
| SMLJ-LC54   | 61.0 | 74.3  | 1.0 | 54  | 96.3 | 31.2 | 2 | 100 |
| SMLJ-LC54A  | 61.0 | 67.3  | 1.0 | 54  | 87.1 | 34.4 | 2 | 100 |
| SMLJ-LC58   | 65.4 | 79.7  | 1.0 | 58  | 103  | 39.2 | 2 | 100 |
| SMLJ-LC58A  | 65.4 | 72.2  | 1.0 | 58  | 93.6 | 32.0 | 2 | 100 |
| SMLJ-LC60   | 67.7 | 82.5  | 1.0 | 60  | 107  | 28.0 | 2 | 90  |
| SMLJ-LC60A  | 67.7 | 74.7  | 1.0 | 60  | 96.8 | 31.0 | 2 | 90  |
| SMLJ-LC64   | 72.1 | 87.9  | 1.0 | 64  | 114  | 26.4 | 2 | 90  |
| SMLJ-LC64A  | 72.1 | 79.6  | 1.0 | 64  | 103  | 29.2 | 2 | 90  |
| SMLJ-LC70   | 78.8 | 96.1  | 1.0 | 70  | 125  | 24.0 | 2 | 90  |
| SMLJ-LC70A  | 78.8 | 87.0  | 1.0 | 70  | 113  | 26.6 | 2 | 90  |
| SMLJ-LC75   | 84.3 | 103.0 | 1.0 | 75  | 134  | 22.4 | 2 | 90  |
| SMLJ-LC75A  | 84.3 | 93.1  | 1.0 | 75  | 121  | 24.8 | 2 | 90  |
| SMLJ-LC78   | 87.7 | 107.0 | 1.0 | 78  | 139  | 21.6 | 2 | 90  |
| SMLJ-LC78A  | 87.7 | 96.8  | 1.0 | 78  | 126  | 22.8 | 2 | 90  |
| SMLJ-LC85   | 95.4 | 116   | 1.0 | 85  | 151  | 19.8 | 2 | 90  |
| SMLJ-LC85A  | 95.4 | 105   | 1.0 | 85  | 137  | 20.8 | 2 | 90  |
| SMLJ-LC90   | 101  | 123   | 1.0 | 90  | 160  | 18.8 | 2 | 90  |
| SMLJ-LC90A  | 101  | 112   | 1.0 | 90  | 146  | 20.6 | 2 | 90  |
| SMLJ-LC100  | 112  | 137   | 1.0 | 100 | 179  | 16.8 | 2 | 90  |
| SMLJ-LC100A | 112  | 124   | 1.0 | 100 | 162  | 18.6 | 2 | 90  |
| SMLJ-LC110  | 123  | 150   | 1.0 | 110 | 196  | 15.4 | 2 | 90  |
| SMLJ-LC110A | 123  | 136   | 1.0 | 110 | 177  | 16.8 | 2 | 90  |
| SMLJ-LC120  | 134  | 164   | 1.0 | 120 | 214  | 14.0 | 2 | 90  |
| SMLJ-LC120A | 134  | 148   | 1.0 | 120 | 193  | 15.6 | 2 | 90  |
| SMLJ-LC130  | 145  | 177   | 1.0 | 130 | 231  | 13.0 | 2 | 90  |
| SMLJ-LC130A | 145  | 160   | 1.0 | 130 | 209  | 14.4 | 2 | 90  |
| SMLJ-LC150  | 168  | 205   | 1.0 | 150 | 268  | 11.2 | 2 | 90  |
| SMLJ-LC150A | 168  | 186   | 1.0 | 150 | 243  | 12.4 | 2 | 90  |
| SMLJ-LC160  | 179  | 219   | 1.0 | 160 | 287  | 10.4 | 2 | 90  |
| SMLJ-LC160A | 179  | 198   | 1.0 | 160 | 259  | 11.6 | 2 | 90  |
| SMLJ-LC170  | 190  | 232   | 1.0 | 170 | 304  | 9.8  | 2 | 90  |
| SMLJ-LC170A | 190  | 210   | 1.0 | 170 | 275  | 11.0 | 2 | 90  |

Notes: (1) Pulse test :  $t_p \leq 50ms$ .

(2) "SMLJ-L" will be omitted in marking on the diode.



# Ultra Low Capacitance Transient Voltage Suppressor Diodes

The plastic material carries U/L recognition 94V-O.

| Type No. | Breakdown Voltage<br>@ It |      |      | Reverse<br>Stand-off<br>Voltage | Max.<br>Reverse<br>Leakage<br>@ VRWM | Max.<br>Clamping<br>Voltage<br>@ IRSM | Max.<br>Reverse<br>Current | Max.<br>Junction<br>Capacitance<br>@ 0 Volt | Working<br>Inverse<br>Blocking<br>Voltage | Max. Inverse<br>Blocking<br>Current<br>@ VWIB | Peak<br>Inverse<br>Blocking<br>Voltage |
|----------|---------------------------|------|------|---------------------------------|--------------------------------------|---------------------------------------|----------------------------|---------------------------------------------|-------------------------------------------|-----------------------------------------------|----------------------------------------|
|          | VBR (V)                   |      | It   | VRWM                            | IR                                   | VRSM                                  | IRSM                       |                                             | VWIB                                      | IIB                                           | VPIB                                   |
|          | Min.                      | Max. | (mA) | (V)                             | (μA)                                 | (V)                                   | (A)                        | pF                                          | (V)                                       | mA                                            | (V)                                    |

## ULCE Series, 1500 W, Case Type: DO-201



|          |       |       |     |     |      |      |     |    |    |     |     |
|----------|-------|-------|-----|-----|------|------|-----|----|----|-----|-----|
| ULCE6.5  | 8.82  | 10.42 | 10  | 6.5 | 1000 | 16.3 | 100 | 35 | 75 | 1.0 | 100 |
| ULCE6.5A | 8.82  | 9.58  | 10  | 6.5 | 1000 | 15.2 | 100 | 35 | 75 | 1.0 | 100 |
| ULCE7.0  | 9.38  | 11.11 | 10  | 7.0 | 500  | 17.3 | 100 | 35 | 75 | 1.0 | 100 |
| ULCE7.0A | 9.38  | 10.20 | 10  | 7.0 | 500  | 16.0 | 100 | 35 | 75 | 1.0 | 100 |
| ULCE7.5  | 9.93  | 11.80 | 10  | 7.5 | 250  | 18.3 | 100 | 35 | 75 | 1.0 | 100 |
| ULCE7.5A | 9.93  | 10.81 | 10  | 7.5 | 250  | 16.9 | 100 | 35 | 75 | 1.0 | 100 |
| ULCE8.0  | 10.49 | 12.50 | 10  | 8.0 | 100  | 19.0 | 100 | 35 | 75 | 1.0 | 100 |
| ULCE8.0A | 10.49 | 11.43 | 10  | 8.0 | 100  | 17.6 | 100 | 35 | 75 | 1.0 | 100 |
| ULCE8.5  | 11.04 | 13.1  | 1.0 | 8.5 | 50   | 19.9 | 94  | 35 | 75 | 1.0 | 100 |
| ULCE8.5A | 11.04 | 12.0  | 1.0 | 8.5 | 50   | 18.4 | 100 | 35 | 75 | 1.0 | 100 |
| ULCE9.0  | 11.6  | 13.8  | 1.0 | 9.0 | 10.0 | 20.9 | 89  | 35 | 75 | 1.0 | 100 |
| ULCE9.0A | 11.6  | 12.7  | 1.0 | 9.0 | 10.0 | 19.4 | 97  | 35 | 75 | 1.0 | 100 |
| ULCE10   | 12.7  | 15.2  | 1.0 | 10  | 5.0  | 22.8 | 80  | 35 | 75 | 1.0 | 100 |
| ULCE10A  | 12.7  | 13.9  | 1.0 | 10  | 5.0  | 21.0 | 88  | 35 | 75 | 1.0 | 100 |
| ULCE11   | 13.8  | 16.5  | 1.0 | 11  | 5.0  | 24.1 | 74  | 35 | 75 | 1.0 | 100 |
| ULCE11A  | 13.8  | 15.1  | 1.0 | 11  | 5.0  | 22.2 | 82  | 35 | 75 | 1.0 | 100 |
| ULCE12   | 14.9  | 17.9  | 1.0 | 12  | 5.0  | 26.0 | 68  | 35 | 75 | 1.0 | 100 |
| ULCE12A  | 14.9  | 16.3  | 1.0 | 12  | 5.0  | 23.9 | 75  | 35 | 75 | 1.0 | 100 |
| ULCE13   | 16.0  | 19.2  | 1.0 | 13  | 5.0  | 27.8 | 63  | 35 | 75 | 1.0 | 100 |
| ULCE13A  | 16.0  | 17.5  | 1.0 | 13  | 5.0  | 25.5 | 70  | 35 | 75 | 1.0 | 100 |
| ULCE14   | 17.2  | 20.7  | 1.0 | 14  | 5.0  | 29.8 | 58  | 35 | 75 | 1.0 | 100 |
| ULCE14A  | 17.2  | 18.8  | 1.0 | 14  | 5.0  | 27.2 | 65  | 35 | 75 | 1.0 | 100 |
| ULCE15   | 18.3  | 22.0  | 1.0 | 15  | 5.0  | 30.9 | 56  | 35 | 75 | 1.0 | 100 |
| ULCE15A  | 18.3  | 20.1  | 1.0 | 15  | 5.0  | 28.4 | 61  | 35 | 75 | 1.0 | 100 |
| ULCE16   | 19.4  | 23.4  | 1.0 | 16  | 5.0  | 32.8 | 52  | 35 | 75 | 1.0 | 100 |
| ULCE16A  | 19.4  | 21.3  | 1.0 | 16  | 5.0  | 30.0 | 57  | 35 | 75 | 1.0 | 100 |
| ULCE17   | 20.5  | 24.7  | 1.0 | 17  | 5.0  | 34.5 | 49  | 35 | 75 | 1.0 | 100 |
| ULCE17A  | 20.5  | 22.5  | 1.0 | 17  | 5.0  | 31.6 | 54  | 35 | 75 | 1.0 | 100 |
| ULCE18   | 21.6  | 26.0  | 1.0 | 18  | 5.0  | 36.2 | 46  | 35 | 75 | 1.0 | 100 |
| ULCE18A  | 21.6  | 23.7  | 1.0 | 18  | 5.0  | 33.2 | 51  | 35 | 75 | 1.0 | 100 |
| ULCE20   | 23.8  | 28.7  | 1.0 | 20  | 5.0  | 39.8 | 42  | 35 | 75 | 1.0 | 100 |
| ULCE20A  | 23.8  | 26.1  | 1.0 | 20  | 5.0  | 36.4 | 46  | 35 | 75 | 1.0 | 100 |
| ULCE22   | 26.0  | 31.4  | 1.0 | 22  | 5.0  | 43.4 | 38  | 35 | 75 | 1.0 | 100 |
| ULCE22A  | 26.0  | 28.5  | 1.0 | 22  | 5.0  | 39.5 | 42  | 35 | 75 | 1.0 | 100 |
| ULCE24   | 28.3  | 34.2  | 1.0 | 24  | 5.0  | 47.0 | 35  | 35 | 75 | 1.0 | 100 |
| ULCE24A  | 28.3  | 31.1  | 1.0 | 24  | 5.0  | 42.9 | 39  | 35 | 75 | 1.0 | 100 |
| ULCE26   | 30.5  | 36.9  | 1.0 | 26  | 5.0  | 50.6 | 32  | 35 | 75 | 1.0 | 100 |
| ULCE26A  | 30.5  | 33.5  | 1.0 | 26  | 5.0  | 46.1 | 36  | 35 | 75 | 1.0 | 100 |



# Ultra Low Capacitance Transient Voltage Suppressor Diodes

The plastic material carries U/L recognition 94V-O.

| Type No. | Breakdown Voltage<br>@ $I_t$ |       | Reverse<br>Stand-off<br>Voltage | Max.<br>Reverse<br>Leakage<br>@ $V_{RWM}$ | Max.<br>Clamping<br>Voltage<br>@ $I_{RSM}$ | Max.<br>Reverse<br>Current | Max.<br>Junction<br>Capacitance<br>@ 0 Volt | Working<br>Inverse<br>Blocking<br>Voltage | Max. Inverse<br>Blocking<br>Current<br>@ $V_{WIB}$ | Peak<br>Inverse<br>Blocking<br>Voltage |
|----------|------------------------------|-------|---------------------------------|-------------------------------------------|--------------------------------------------|----------------------------|---------------------------------------------|-------------------------------------------|----------------------------------------------------|----------------------------------------|
|          | $V_{BR}$ (V)                 | $I_t$ | $V_{RWM}$                       | $I_R$                                     | $V_{RSM}$                                  | $I_{RSM}$                  | pF                                          | $V_{WIB}$                                 | $I_{IB}$                                           | $V_{PIB}$                              |
|          | Min.                         | Max.  | (mA)                            | (V)                                       | ( $\mu$ A)                                 | (V)                        |                                             | (V)                                       | mA                                                 | (V)                                    |

## ULCE Series, 1500 W, Case Type: DO-201



|         |       |       |     |    |     |       |      |    |     |     |     |
|---------|-------|-------|-----|----|-----|-------|------|----|-----|-----|-----|
| ULCE28  | 32.7  | 39.6  | 1.0 | 28 | 5.0 | 54.1  | 30   | 35 | 75  | 1.0 | 100 |
| ULCE28A | 32.7  | 36.0  | 1.0 | 28 | 5.0 | 49.5  | 33   | 35 | 75  | 1.0 | 100 |
| ULCE30  | 34.9  | 42.3  | 1.0 | 30 | 5.0 | 57.5  | 28   | 35 | 75  | 1.0 | 100 |
| ULCE30A | 34.9  | 38.4  | 1.0 | 30 | 5.0 | 52.4  | 31   | 35 | 75  | 1.0 | 100 |
| ULCE33  | 38.3  | 46.5  | 1.0 | 33 | 5.0 | 63.0  | 25.4 | 35 | 75  | 1.0 | 100 |
| ULCE33A | 38.3  | 42.2  | 1.0 | 33 | 5.0 | 57.3  | 28.1 | 35 | 75  | 1.0 | 100 |
| ULCE36  | 41.6  | 50.5  | 1.0 | 36 | 5.0 | 68.3  | 23.3 | 35 | 75  | 1.0 | 100 |
| ULCE36A | 41.6  | 45.8  | 1.0 | 36 | 5.0 | 62.1  | 25.8 | 35 | 75  | 1.0 | 100 |
| ULCE40  | 46.0  | 55.9  | 1.0 | 40 | 5.0 | 75.4  | 21   | 35 | 75  | 1.0 | 100 |
| ULCE40A | 46.0  | 50.7  | 1.0 | 40 | 5.0 | 68.5  | 23.3 | 35 | 75  | 1.0 | 100 |
| ULCE43  | 49.4  | 60.0  | 1.0 | 43 | 5.0 | 80.7  | 19.5 | 35 | 150 | 1.0 | 200 |
| ULCE43A | 49.4  | 54.4  | 1.0 | 43 | 5.0 | 73.4  | 21.6 | 35 | 150 | 1.0 | 200 |
| ULCE45  | 51.6  | 62.7  | 1.0 | 45 | 5.0 | 84.3  | 18.7 | 35 | 150 | 1.0 | 200 |
| ULCE45A | 51.6  | 56.9  | 1.0 | 45 | 5.0 | 76.7  | 20.6 | 35 | 150 | 1.0 | 200 |
| ULCE48  | 54.9  | 66.7  | 1.0 | 48 | 5.0 | 89.5  | 17.5 | 35 | 150 | 1.0 | 200 |
| ULCE48A | 54.9  | 60.5  | 1.0 | 48 | 5.0 | 81.4  | 19.4 | 35 | 150 | 1.0 | 200 |
| ULCE51  | 58.3  | 70.9  | 1.0 | 51 | 5.0 | 95.1  | 16.5 | 35 | 150 | 1.0 | 200 |
| ULCE51A | 58.3  | 64.3  | 1.0 | 51 | 5.0 | 86.4  | 18.2 | 35 | 150 | 1.0 | 200 |
| ULCE54  | 61.6  | 74.9  | 1.0 | 54 | 5.0 | 100.3 | 15.6 | 35 | 150 | 1.0 | 200 |
| ULCE54A | 61.6  | 67.9  | 1.0 | 54 | 5.0 | 91.1  | 17.2 | 35 | 150 | 1.0 | 200 |
| ULCE58  | 66.0  | 80.3  | 1.0 | 58 | 5.0 | 107.0 | 14.6 | 35 | 150 | 1.0 | 200 |
| ULCE58A | 66.0  | 72.8  | 1.0 | 58 | 5.0 | 97.6  | 16   | 35 | 150 | 1.0 | 200 |
| ULCE60  | 68.3  | 83.1  | 1.0 | 60 | 5.0 | 111.0 | 14   | 35 | 150 | 1.0 | 200 |
| ULCE60A | 68.3  | 75.3  | 1.0 | 60 | 5.0 | 100.8 | 15.5 | 35 | 150 | 1.0 | 200 |
| ULCE64  | 72.7  | 88.5  | 1.0 | 64 | 5.0 | 118.0 | 13.2 | 35 | 150 | 1.0 | 200 |
| ULCE64A | 72.7  | 80.2  | 1.0 | 64 | 5.0 | 107.0 | 14.6 | 35 | 150 | 1.0 | 200 |
| ULCE70  | 79.4  | 96.7  | 1.0 | 70 | 5.0 | 129.0 | 12.0 | 35 | 150 | 1.0 | 200 |
| ULCE70A | 79.4  | 87.6  | 1.0 | 70 | 5.0 | 117.0 | 13.3 | 35 | 150 | 1.0 | 200 |
| ULCE75  | 84.9  | 103.6 | 1.0 | 75 | 5.0 | 138.0 | 11.2 | 35 | 150 | 1.0 | 200 |
| ULCE75A | 84.9  | 93.7  | 1.0 | 75 | 5.0 | 125.0 | 12.4 | 35 | 150 | 1.0 | 200 |
| ULCE80  | 90.3  | 109.6 | 1.0 | 80 | 5.0 | 146.0 | 10.6 | 35 | 150 | 1.0 | 200 |
| ULCE80A | 90.3  | 99.6  | 1.0 | 80 | 5.0 | 133.0 | 11.6 | 35 | 150 | 1.0 | 200 |
| ULCE90  | 101.6 | 123.6 | 1.0 | 90 | 5.0 | 164.0 | 9.4  | 35 | 300 | 1.0 | 200 |
| ULCE90A | 101.6 | 112.6 | 1.0 | 90 | 5.0 | 150.0 | 10.3 | 35 | 300 | 1.0 | 200 |



# Automotive Transient Suppressor Diodes

The plastic material carries U/L recognition 94V-0.

| Type No. | Breakdown Voltage @ $I_R$<br>( Note 1 )<br>at $T_c = 25^\circ\text{C}$ |      | Working Peak<br>Reverse<br>Voltage | Maximum Average<br>Forward Rectified<br>Current | Maximum<br>Reverse<br>Current | Maximum<br>Reverse Leakage<br>@ $V_{RWM}$ | Typical<br>Temperature<br>Coefficient<br>of $V_{BR}$ |
|----------|------------------------------------------------------------------------|------|------------------------------------|-------------------------------------------------|-------------------------------|-------------------------------------------|------------------------------------------------------|
|          | $V_{BR}$ (V)                                                           |      | $V_{RWM}$                          | $I_{F(AV)}$ @ $T_c$                             | $I_{RSM}$                     | $I_R$                                     | of $V_{BR}$<br>(% / $^\circ\text{C}$ )               |
|          | Min.                                                                   | Max. | (mA)                               | (V)                                             | (A)                           | ( $^\circ\text{C}$ )                      |                                                      |

## MR2535 Series, Case Type: MR



|        |    |    |     |    |    |     |      |      |       |
|--------|----|----|-----|----|----|-----|------|------|-------|
| MR2535 | 24 | 32 | 100 | 20 | 35 | 150 | 110  | 200  | 0.096 |
| MR2540 | 24 | 32 | 100 | 20 | 50 | 150 | 150  | 200  | 0.096 |
| MR3230 | 38 | 42 | 100 | 30 | 32 | 150 | 77.0 | 1000 | -     |

## MR2535L Series, Case Type: D6



|         |    |    |     |    |    |     |     |     |       |
|---------|----|----|-----|----|----|-----|-----|-----|-------|
| MR2535L | 24 | 32 | 100 | 20 | 35 | 150 | 110 | 200 | 0.096 |
| MR2540L | 24 | 32 | 100 | 20 | 50 | 150 | 150 | 200 | 0.096 |

\* For wire leads use suffix "AL" for Case Type : MR-L

### Note :

(1) Pulse set : Pulse Width  $\leq 300\mu\text{s}$ , Duty Cycle  $\leq 2\%$



# Automotive Transient Suppressor Diodes

The plastic material carries U/L recognition 94V-0.

| Type No. | Breakdown Voltage @ It<br>(Note 1) |      | Working Peak<br>Reverse<br>Voltage | Maximum<br>Reverse<br>Leakage<br>@ $V_{RWM}$ | Maximum<br>Reverse<br>Leakage<br>@ $V_{RWM}$ ,<br>$T_j=150^{\circ}\text{C}$ | Maximum<br>Peak Pulse<br>Surge<br>Current | Maximum<br>Clamping<br>Voltage<br>@ $I_{PPM}$ |
|----------|------------------------------------|------|------------------------------------|----------------------------------------------|-----------------------------------------------------------------------------|-------------------------------------------|-----------------------------------------------|
|          | $V_{BR}$ (V)                       |      | $V_{RWM}$                          | $I_R$                                        | $I_D$                                                                       | $I_{PPM}(2)$                              | $V_{RSM}$                                     |
|          | Min.                               | Max. | (V)                                | ( $\mu\text{A}$ )                            | ( $\mu\text{A}$ )                                                           | (A)                                       | (V)                                           |

## TPSMC6.8 Series, 1500 W, Case Type: SMC



|           |      |      |     |      |      |       |      |      |
|-----------|------|------|-----|------|------|-------|------|------|
| TPSMC6.8  | 6.12 | 7.48 | 10  | 5.50 | 1000 | 10000 | 139  | 10.8 |
| TPSMC6.8A | 6.45 | 7.14 | 10  | 5.80 | 1000 | 10000 | 143  | 10.5 |
| TPSMC7.5  | 6.75 | 8.25 | 10  | 6.05 | 500  | 5000  | 128  | 11.7 |
| TPSMC7.5A | 7.13 | 7.88 | 10  | 6.40 | 500  | 2000  | 132  | 11.3 |
| TPSMC8.2  | 7.38 | 9.02 | 10  | 6.63 | 200  | 2000  | 120  | 12.5 |
| TPSMC8.2A | 7.79 | 8.61 | 10  | 7.02 | 200  | 500   | 124  | 12.1 |
| TPSMC9.1  | 8.19 | 10.0 | 1.0 | 7.37 | 50   | 500   | 109  | 13.8 |
| TPSMC9.1A | 8.65 | 9.55 | 1.0 | 7.78 | 50   | 200   | 112  | 13.4 |
| TPSMC10   | 9.00 | 11.0 | 1.0 | 8.10 | 20   | 200   | 100  | 15.0 |
| TPSMC10A  | 9.50 | 10.5 | 1.0 | 8.55 | 20   | 50    | 103  | 14.5 |
| TPSMC11   | 9.90 | 12.1 | 1.0 | 8.92 | 5.0  | 50    | 92.6 | 16.2 |
| TPSMC11A  | 10.5 | 11.6 | 1.0 | 9.40 | 5.0  | 10    | 96.2 | 15.6 |
| TPSMC12   | 10.8 | 13.2 | 1.0 | 9.72 | 2.0  | 10    | 86.7 | 17.3 |
| TPSMC12A  | 11.4 | 12.6 | 1.0 | 10.2 | 2.0  | 10    | 89.8 | 16.7 |
| TPSMC13   | 11.7 | 14.3 | 1.0 | 10.5 | 2.0  | 10    | 78.9 | 19.0 |
| TPSMC13A  | 12.4 | 13.7 | 1.0 | 11.1 | 2.0  | 10    | 82.4 | 18.2 |
| TPSMC15   | 13.5 | 16.5 | 1.0 | 12.1 | 1.0  | 10    | 68.2 | 22.0 |
| TPSMC15A  | 14.3 | 15.8 | 1.0 | 12.8 | 1.0  | 10    | 70.8 | 21.2 |
| TPSMC16   | 14.4 | 17.6 | 1.0 | 12.9 | 1.0  | 10    | 63.8 | 23.5 |
| TPSMC16A  | 15.2 | 16.8 | 1.0 | 13.6 | 1.0  | 10    | 66.7 | 22.5 |
| TPSMC18   | 16.2 | 19.8 | 1.0 | 14.5 | 1.0  | 10    | 56.6 | 26.5 |
| TPSMC18A  | 17.1 | 18.9 | 1.0 | 15.3 | 1.0  | 10    | 59.5 | 25.2 |
| TPSMC20   | 18.0 | 22.0 | 1.0 | 16.2 | 1.0  | 10    | 51.5 | 29.1 |
| TPSMC20A  | 19.0 | 21.0 | 1.0 | 17.1 | 1.0  | 10    | 54.2 | 27.7 |
| TPSMC22   | 19.8 | 24.2 | 1.0 | 17.8 | 1.0  | 10    | 47.0 | 31.9 |
| TPSMC22A  | 20.9 | 23.1 | 1.0 | 18.8 | 1.0  | 10    | 49.0 | 30.6 |
| TPSMC24   | 21.6 | 26.4 | 1.0 | 19.4 | 1.0  | 10    | 43.2 | 34.7 |
| TPSMC24A  | 22.8 | 25.2 | 1.0 | 20.5 | 1.0  | 10    | 45.2 | 33.2 |
| TPSMC27   | 24.3 | 29.7 | 1.0 | 21.8 | 1.0  | 10    | 38.4 | 39.1 |
| TPSMC27A  | 25.7 | 28.4 | 1.0 | 23.1 | 1.0  | 10    | 40.0 | 37.5 |
| TPSMC30   | 27.0 | 33.0 | 1.0 | 24.3 | 1.0  | 10    | 34.5 | 43.5 |
| TPSMC30A  | 28.5 | 31.5 | 1.0 | 25.6 | 1.0  | 10    | 36.2 | 41.4 |
| TPSMC33   | 29.7 | 36.3 | 1.0 | 26.8 | 1.0  | 10    | 31.4 | 47.7 |
| TPSMC33A  | 31.4 | 34.7 | 1.0 | 28.2 | 1.0  | 10    | 32.8 | 45.7 |
| TPSMC36   | 32.4 | 39.6 | 1.0 | 29.1 | 1.0  | 10    | 28.8 | 52.0 |
| TPSMC36A  | 34.2 | 37.8 | 1.0 | 30.8 | 1.0  | 10    | 30.1 | 49.9 |
| TPSMC39   | 35.1 | 42.9 | 1.0 | 31.6 | 1.0  | 10    | 26.6 | 56.4 |
| TPSMC39A  | 37.1 | 41.0 | 1.0 | 33.3 | 1.0  | 10    | 27.8 | 53.9 |
| TPSMC43   | 38.7 | 47.3 | 1.0 | 34.8 | 1.0  | 10    | 24.2 | 61.9 |
| TPSMC43A  | 40.9 | 45.2 | 1.0 | 36.8 | 1.0  | 10    | 25.3 | 59.3 |

### Notes :

- (1)  $V_{BR}$  measured after  $I_t$  applied for 300  $\mu\text{s}$ .,  $I_t$  = square wave pulse or equivalent
- (2) "PSMC" will be omitted on marking of the diode



# Silicon Bridge Rectifiers

The plastic material carries U/L recognition 94V-0.

| Type No. | Max. Average Forward Rectified Current |      | Input Voltage Recommended | Max. Repetitive Peak Reverse Voltage | Max. Peak Forward Surge Current | Max. Forward Voltage Drop at Ta = 25°C |      | Max. Reverse Current at Ta = 25°C |
|----------|----------------------------------------|------|---------------------------|--------------------------------------|---------------------------------|----------------------------------------|------|-----------------------------------|
|          | IF(AV)                                 | @ Tc |                           |                                      |                                 | VF                                     | @ IF |                                   |
|          | (A)                                    | (°C) |                           |                                      |                                 | (V)                                    | (V)  |                                   |

## KBP200 Series, 2 A, Case Type: KBP



|        |     |    |     |      |    |     |     |    |
|--------|-----|----|-----|------|----|-----|-----|----|
| KBP200 | 2.0 | 50 | 20  | 50   | 60 | 1.0 | 1.0 | 10 |
| KBP201 | 2.0 | 50 | 40  | 100  | 60 | 1.0 | 1.0 | 10 |
| KBP202 | 2.0 | 50 | 80  | 200  | 60 | 1.0 | 1.0 | 10 |
| KBP204 | 2.0 | 50 | 125 | 400  | 60 | 1.0 | 1.0 | 10 |
| KBP206 | 2.0 | 50 | 250 | 600  | 60 | 1.0 | 1.0 | 10 |
| KBP208 | 2.0 | 50 | 380 | 800  | 60 | 1.0 | 1.0 | 10 |
| KBP210 | 2.0 | 50 | 440 | 1000 | 60 | 1.0 | 1.0 | 10 |

## KBL400 Series, 4 A, Case Type: KBL



|        |     |    |     |      |     |     |     |    |
|--------|-----|----|-----|------|-----|-----|-----|----|
| KBL400 | 4.0 | 50 | 20  | 50   | 200 | 1.1 | 4.0 | 10 |
| KBL401 | 4.0 | 50 | 40  | 100  | 200 | 1.1 | 4.0 | 10 |
| KBL402 | 4.0 | 50 | 80  | 200  | 200 | 1.1 | 4.0 | 10 |
| KBL404 | 4.0 | 50 | 125 | 400  | 200 | 1.1 | 4.0 | 10 |
| KBL406 | 4.0 | 50 | 250 | 600  | 200 | 1.1 | 4.0 | 10 |
| KBL408 | 4.0 | 50 | 380 | 800  | 200 | 1.1 | 4.0 | 10 |
| KBL410 | 4.0 | 50 | 440 | 1000 | 200 | 1.1 | 4.0 | 10 |

## KBU4A-M Series, 4 A, Case Type: KBU



|       |     |    |   |      |     |     |     |     |
|-------|-----|----|---|------|-----|-----|-----|-----|
| KBU4A | 4.0 | 30 | - | 50   | 200 | 1.0 | 4.0 | 5.0 |
| KBU4B | 4.0 | 30 | - | 100  | 200 | 1.0 | 4.0 | 5.0 |
| KBU4D | 4.0 | 30 | - | 200  | 200 | 1.0 | 4.0 | 5.0 |
| KBU4G | 4.0 | 30 | - | 400  | 200 | 1.0 | 4.0 | 5.0 |
| KBU4J | 4.0 | 30 | - | 600  | 200 | 1.0 | 4.0 | 5.0 |
| KBU4K | 4.0 | 30 | - | 800  | 200 | 1.0 | 4.0 | 5.0 |
| KBU4M | 4.0 | 30 | - | 1000 | 200 | 1.0 | 4.0 | 5.0 |

## KBU6A-M Series, 6 A, Case Type: KBU



|       |     |     |   |      |     |     |     |     |
|-------|-----|-----|---|------|-----|-----|-----|-----|
| KBU6A | 6.0 | 100 | - | 50   | 250 | 1.0 | 6.0 | 5.0 |
| KBU6B | 6.0 | 100 | - | 100  | 250 | 1.0 | 6.0 | 5.0 |
| KBU6D | 6.0 | 100 | - | 200  | 250 | 1.0 | 6.0 | 5.0 |
| KBU6G | 6.0 | 100 | - | 400  | 250 | 1.0 | 6.0 | 5.0 |
| KBU6J | 6.0 | 100 | - | 600  | 250 | 1.0 | 6.0 | 5.0 |
| KBU6K | 6.0 | 100 | - | 800  | 250 | 1.0 | 6.0 | 5.0 |
| KBU6M | 6.0 | 100 | - | 1000 | 250 | 1.0 | 6.0 | 5.0 |



# Silicon Bridge Rectifiers

The plastic material carries U/L recognition 94V-0.

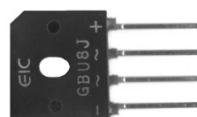
| Type No. | Max. Average Forward Rectified Current |   |      | Input Voltage Recommended | Max. Repetitive Peak Reverse Voltage | Max. Peak Forward Surge Current | Max. Forward Voltage Drop at Ta = 25°C |   |     | Max. Reverse Current at Ta = 25°C |
|----------|----------------------------------------|---|------|---------------------------|--------------------------------------|---------------------------------|----------------------------------------|---|-----|-----------------------------------|
|          | IF(AV)                                 | @ | Tc   |                           |                                      |                                 | VF                                     | @ | IF  |                                   |
|          | (A)                                    |   | (°C) |                           |                                      |                                 | (V)                                    |   | (A) |                                   |
|          |                                        |   |      | (V)                       | (V)                                  | (A)                             | (V)                                    |   | (A) | (μA)                              |

## KBU8A-M Series, 8 A, Case Type: KBU



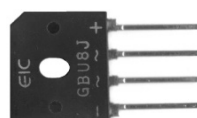
|       |     |    |   |      |     |     |     |    |
|-------|-----|----|---|------|-----|-----|-----|----|
| KBU8A | 8.0 | 65 | - | 50   | 250 | 1.0 | 8.0 | 10 |
| KBU8B | 8.0 | 65 | - | 100  | 250 | 1.0 | 8.0 | 10 |
| KBU8D | 8.0 | 65 | - | 200  | 250 | 1.0 | 8.0 | 10 |
| KBU8G | 8.0 | 65 | - | 400  | 250 | 1.0 | 8.0 | 10 |
| KBU8J | 8.0 | 65 | - | 600  | 250 | 1.0 | 8.0 | 10 |
| KBU8K | 8.0 | 65 | - | 800  | 250 | 1.0 | 8.0 | 10 |
| KBU8M | 8.0 | 65 | - | 1000 | 250 | 1.0 | 8.0 | 10 |

## GBU4A-M Series, 4 A, Case Type: GBU



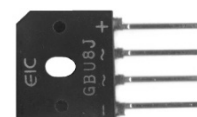
|       |     |     |   |      |    |     |     |     |
|-------|-----|-----|---|------|----|-----|-----|-----|
| GBU4A | 4.0 | 100 | - | 50   | 80 | 1.0 | 4.0 | 5.0 |
| GBU4B | 4.0 | 100 | - | 100  | 80 | 1.0 | 4.0 | 5.0 |
| GBU4D | 4.0 | 100 | - | 200  | 80 | 1.0 | 4.0 | 5.0 |
| GBU4G | 4.0 | 100 | - | 400  | 80 | 1.0 | 4.0 | 5.0 |
| GBU4J | 4.0 | 100 | - | 600  | 80 | 1.0 | 4.0 | 5.0 |
| GBU4K | 4.0 | 100 | - | 800  | 80 | 1.0 | 4.0 | 5.0 |
| GBU4M | 4.0 | 100 | - | 1000 | 80 | 1.0 | 4.0 | 5.0 |

## GBU6A-M Series, 6 A, Case Type: GBU



|       |     |    |   |      |     |     |     |     |
|-------|-----|----|---|------|-----|-----|-----|-----|
| GBU6A | 6.0 | 90 | - | 50   | 175 | 1.0 | 6.0 | 5.0 |
| GBU6B | 6.0 | 90 | - | 100  | 175 | 1.0 | 6.0 | 5.0 |
| GBU6D | 6.0 | 90 | - | 200  | 175 | 1.0 | 6.0 | 5.0 |
| GBU6G | 6.0 | 90 | - | 400  | 175 | 1.0 | 6.0 | 5.0 |
| GBU6J | 6.0 | 90 | - | 600  | 175 | 1.0 | 6.0 | 5.0 |
| GBU6K | 6.0 | 90 | - | 800  | 175 | 1.0 | 6.0 | 5.0 |
| GBU6M | 6.0 | 90 | - | 1000 | 175 | 1.0 | 6.0 | 5.0 |

## GBU8A-M Series, 8 A, Case Type: GBU



|       |     |     |   |      |     |     |     |     |
|-------|-----|-----|---|------|-----|-----|-----|-----|
| GBU8A | 8.0 | 100 | - | 50   | 200 | 1.0 | 8.0 | 5.0 |
| GBU8B | 8.0 | 100 | - | 100  | 200 | 1.0 | 8.0 | 5.0 |
| GBU8D | 8.0 | 100 | - | 200  | 200 | 1.0 | 8.0 | 5.0 |
| GBU8G | 8.0 | 100 | - | 400  | 200 | 1.0 | 8.0 | 5.0 |
| GBU8J | 8.0 | 100 | - | 600  | 200 | 1.0 | 8.0 | 5.0 |
| GBU8K | 8.0 | 100 | - | 800  | 200 | 1.0 | 8.0 | 5.0 |
| GBU8M | 8.0 | 100 | - | 1000 | 200 | 1.0 | 8.0 | 5.0 |



# Silicon Bridge Rectifiers

The plastic material carries U/L recognition 94V-0.

| Type No. |     | Max. Average Forward Rectified Current |      | Input Voltage Recommended | Max. Repetitive Peak Reverse Voltage | Max. Peak Forward Surge Current | Max. Forward Voltage Drop at Ta = 25°C |      | Max. Reverse Current at Ta = 25°C |
|----------|-----|----------------------------------------|------|---------------------------|--------------------------------------|---------------------------------|----------------------------------------|------|-----------------------------------|
|          |     | IF(AV)                                 | @ Tc |                           | VRRM                                 | IFSM                            | VF                                     | @ IF | IR                                |
| DIP      | SIP | (A)                                    | (°C) | (V)                       | (V)                                  | (A)                             | (V)                                    | (A)  | (μA)                              |

## RBV400 Series, 4 A, Case Type: RBV4

|  |        |     |    |   |      |    |      |     |    |
|--|--------|-----|----|---|------|----|------|-----|----|
|  | RBV401 | 4.0 | 50 | - | 100  | 80 | 1.05 | 2.0 | 10 |
|  | RBV402 | 4.0 | 50 | - | 200  | 80 | 1.05 | 2.0 | 10 |
|  | RBV404 | 4.0 | 50 | - | 400  | 80 | 1.10 | 2.0 | 10 |
|  | RBV406 | 4.0 | 50 | - | 600  | 80 | 1.10 | 2.0 | 10 |
|  | RBV408 | 4.0 | 50 | - | 800  | 80 | 1.10 | 2.0 | 10 |
|  | RBV410 | 4.0 | 50 | - | 1000 | 80 | 1.10 | 2.0 | 10 |

## D3SB10 Series, 4 A, Case Type: RBV4

|  |        |     |     |   |     |     |      |     |    |
|--|--------|-----|-----|---|-----|-----|------|-----|----|
|  | D3SB10 | 4.0 | 25  | - | 100 | 120 | 1.05 | 2.0 | 10 |
|  | D3SB20 | 4.0 | 25  | - | 200 | 120 | 1.05 | 2.0 | 10 |
|  | D3SB40 | 4.0 | 25  | - | 400 | 120 | 1.10 | 2.0 | 10 |
|  | D3SB60 | 4.0 | 25  | - | 600 | 120 | 1.10 | 2.0 | 10 |
|  | D3SB80 | 4.0 | 25  | - | 800 | 120 | 1.10 | 2.0 | 10 |
|  | D4SB80 | 4.0 | 108 | - | 800 | 150 | 0.95 | 2.0 | 10 |

## D3SBA10 Series, 4 A, Case Type: RBV4

|  |          |     |    |   |      |    |      |     |    |
|--|----------|-----|----|---|------|----|------|-----|----|
|  | D3SBA10  | 4.0 | 25 | - | 100  | 80 | 1.05 | 2.0 | 10 |
|  | D3SBA20  | 4.0 | 25 | - | 200  | 80 | 1.05 | 2.0 | 10 |
|  | D3SBA40  | 4.0 | 25 | - | 400  | 80 | 1.05 | 2.0 | 10 |
|  | D3SBA60  | 4.0 | 25 | - | 600  | 80 | 1.05 | 2.0 | 10 |
|  | D3SBA80  | 4.0 | 25 | - | 800  | 80 | 1.05 | 2.0 | 10 |
|  | D3SBA100 | 4.0 | 25 | - | 1000 | 80 | 1.05 | 2.0 | 10 |

## D5SBA10 Series, 6 A, Case Type: RBV25

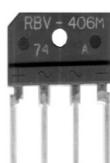
|  |         |     |    |   |     |     |      |     |    |
|--|---------|-----|----|---|-----|-----|------|-----|----|
|  | D5SBA10 | 6.0 | 25 | - | 100 | 120 | 1.05 | 3.0 | 10 |
|  | D5SBA20 | 6.0 | 25 | - | 200 | 120 | 1.05 | 3.0 | 10 |
|  | D5SBA40 | 6.0 | 25 | - | 400 | 120 | 1.10 | 3.0 | 10 |
|  | D5SBA60 | 6.0 | 25 | - | 600 | 120 | 1.10 | 3.0 | 10 |

## BR600/RBV600 Series, 6 A, Case Type: BR6/RBV25

|       |        |     |    |     |      |     |     |     |    |
|-------|--------|-----|----|-----|------|-----|-----|-----|----|
| BR600 | RBV600 | 6.0 | 50 | 20  | 50   | 200 | 1.0 | 3.0 | 10 |
| BR601 | RBV601 | 6.0 | 50 | 40  | 100  | 200 | 1.0 | 3.0 | 10 |
| BR602 | RBV602 | 6.0 | 50 | 80  | 200  | 200 | 1.0 | 3.0 | 10 |
| BR604 | RBV604 | 6.0 | 50 | 125 | 400  | 200 | 1.0 | 3.0 | 10 |
| BR606 | RBV606 | 6.0 | 50 | 250 | 600  | 200 | 1.0 | 3.0 | 10 |
| BR608 | RBV608 | 6.0 | 50 | 380 | 800  | 200 | 1.0 | 3.0 | 10 |
| BR610 | RBV610 | 6.0 | 50 | 440 | 1000 | 200 | 1.0 | 3.0 | 10 |



BR6



RBV4



RBV25



# Silicon Bridge Rectifiers

The plastic material carries U/L recognition 94V-0.

| Type No. |     | Max. Average Forward Rectified Current |      | Input Voltage Recommended | Max. Repetitive Peak Reverse Voltage | Max. Peak Forward Surge Current | Max. Forward Voltage Drop at Ta = 25°C |      | Max. Reverse Current at Ta = 25°C |
|----------|-----|----------------------------------------|------|---------------------------|--------------------------------------|---------------------------------|----------------------------------------|------|-----------------------------------|
|          |     | IF(AV)                                 | @ Tc |                           | VRRM                                 | IFSM                            | VF                                     | @ IF | IR                                |
| DIP      | SIP | (A)                                    | (°C) | (V)                       | (V)                                  | (A)                             | (V)                                    | (A)  | (μA)                              |

## RBV600D Series, 6 A, Case Type: RBV25

|  |         |     |    |     |      |     |     |     |    |
|--|---------|-----|----|-----|------|-----|-----|-----|----|
|  | RBV600D | 6.0 | 50 | 20  | 50   | 300 | 1.0 | 6.0 | 10 |
|  | RBV601D | 6.0 | 50 | 40  | 100  | 300 | 1.0 | 6.0 | 10 |
|  | RBV602D | 6.0 | 50 | 80  | 200  | 300 | 1.0 | 6.0 | 10 |
|  | RBV604D | 6.0 | 50 | 125 | 400  | 300 | 1.0 | 6.0 | 10 |
|  | RBV606D | 6.0 | 50 | 250 | 600  | 300 | 1.0 | 6.0 | 10 |
|  | RBV608D | 6.0 | 50 | 380 | 800  | 300 | 1.0 | 6.0 | 10 |
|  | RBV610D | 6.0 | 50 | 440 | 1000 | 300 | 1.0 | 6.0 | 10 |

## BR800/RBV800 Series, 8 A, Case Type: BR10/RBV25

|       |        |     |    |     |      |     |     |     |    |
|-------|--------|-----|----|-----|------|-----|-----|-----|----|
| BR800 | RBV800 | 8.0 | 50 | 20  | 50   | 300 | 1.0 | 4.0 | 10 |
| BR801 | RBV801 | 8.0 | 50 | 40  | 100  | 300 | 1.0 | 4.0 | 10 |
| BR802 | RBV802 | 8.0 | 50 | 80  | 200  | 300 | 1.0 | 4.0 | 10 |
| BR804 | RBV804 | 8.0 | 50 | 125 | 400  | 300 | 1.0 | 4.0 | 10 |
| BR806 | RBV806 | 8.0 | 50 | 250 | 600  | 300 | 1.0 | 4.0 | 10 |
| BR808 | RBV808 | 8.0 | 50 | 380 | 800  | 300 | 1.0 | 4.0 | 10 |
| BR810 | RBV810 | 8.0 | 50 | 440 | 1000 | 300 | 1.0 | 4.0 | 10 |

## RBV800D Series, 8 A, Case Type: RBV25

|  |         |     |    |     |      |     |     |     |    |
|--|---------|-----|----|-----|------|-----|-----|-----|----|
|  | RBV800D | 8.0 | 50 | 20  | 50   | 300 | 1.0 | 8.0 | 10 |
|  | RBV801D | 8.0 | 50 | 40  | 100  | 300 | 1.0 | 8.0 | 10 |
|  | RBV802D | 8.0 | 50 | 80  | 200  | 300 | 1.0 | 8.0 | 10 |
|  | RBV804D | 8.0 | 50 | 125 | 400  | 300 | 1.0 | 8.0 | 10 |
|  | RBV806D | 8.0 | 50 | 250 | 600  | 300 | 1.0 | 8.0 | 10 |
|  | RBV808D | 8.0 | 50 | 380 | 800  | 300 | 1.0 | 8.0 | 10 |
|  | RBV810D | 8.0 | 50 | 440 | 1000 | 300 | 1.0 | 8.0 | 10 |

## BR1000/RBV1000 Series, 10 A, Case Type: BR10/RBV25

|        |         |    |    |     |      |     |     |     |    |
|--------|---------|----|----|-----|------|-----|-----|-----|----|
| BR1000 | RBV1000 | 10 | 55 | 20  | 50   | 300 | 1.0 | 5.0 | 10 |
| BR1001 | RBV1001 | 10 | 55 | 40  | 100  | 300 | 1.0 | 5.0 | 10 |
| BR1002 | RBV1002 | 10 | 55 | 80  | 200  | 300 | 1.0 | 5.0 | 10 |
| BR1004 | RBV1004 | 10 | 55 | 125 | 400  | 300 | 1.0 | 5.0 | 10 |
| BR1006 | RBV1006 | 10 | 55 | 250 | 600  | 300 | 1.0 | 5.0 | 10 |
| BR1008 | RBV1008 | 10 | 55 | 380 | 800  | 300 | 1.0 | 5.0 | 10 |
| BR1010 | RBV1010 | 10 | 55 | 440 | 1000 | 300 | 1.0 | 5.0 | 10 |



BR6



RBV25



# Silicon Bridge Rectifiers

The plastic material carries U/L recognition 94V-0.

| Type No. |     | Max. Average Forward Rectified Current |      | Input Voltage Recommended | Max. Repetitive Peak Reverse Voltage | Max. Peak Forward Surge Current | Max. Forward Voltage Drop at Ta = 25°C |      | Max. Reverse Current at Ta = 25°C |
|----------|-----|----------------------------------------|------|---------------------------|--------------------------------------|---------------------------------|----------------------------------------|------|-----------------------------------|
|          |     | IF(AV)                                 | @ Tc |                           | VRRM                                 | IFSM                            | VF                                     | @ IF | IR                                |
| DIP      | SIP | (A)                                    | (°C) | (V)                       | (V)                                  | (A)                             | (V)                                    | (A)  | (μA)                              |

## RBV1000D Series, 10 A, Case Type: RBV25

|  |          |    |    |     |      |     |     |    |    |
|--|----------|----|----|-----|------|-----|-----|----|----|
|  | RBV1000D | 10 | 55 | 20  | 50   | 300 | 1.1 | 10 | 10 |
|  | RBV1001D | 10 | 55 | 40  | 100  | 300 | 1.1 | 10 | 10 |
|  | RBV1002D | 10 | 55 | 80  | 200  | 300 | 1.1 | 10 | 10 |
|  | RBV1004D | 10 | 55 | 125 | 400  | 300 | 1.1 | 10 | 10 |
|  | RBV1006D | 10 | 55 | 250 | 600  | 300 | 1.1 | 10 | 10 |
|  | RBV1008D | 10 | 55 | 380 | 800  | 300 | 1.1 | 10 | 10 |
|  | RBV1010D | 10 | 55 | 440 | 1000 | 300 | 1.1 | 10 | 10 |

## KBPC1000 Series, 10 A, Case Type: BR50M

|          |  |    |    |   |      |     |     |     |    |
|----------|--|----|----|---|------|-----|-----|-----|----|
| KBPC1000 |  | 10 | 55 | - | 50   | 200 | 1.2 | 5.0 | 10 |
| KBPC1001 |  | 10 | 55 | - | 100  | 200 | 1.2 | 5.0 | 10 |
| KBPC1002 |  | 10 | 55 | - | 200  | 200 | 1.2 | 5.0 | 10 |
| KBPC1004 |  | 10 | 55 | - | 400  | 200 | 1.2 | 5.0 | 10 |
| KBPC1006 |  | 10 | 55 | - | 600  | 200 | 1.2 | 5.0 | 10 |
| KBPC1008 |  | 10 | 55 | - | 800  | 200 | 1.2 | 5.0 | 10 |
| KBPC1010 |  | 10 | 55 | - | 1000 | 200 | 1.2 | 5.0 | 10 |

## BR1500/RBV1500 Series, 15 A, Case Type: BR50/RBV25

|        |         |    |    |     |      |     |     |     |    |
|--------|---------|----|----|-----|------|-----|-----|-----|----|
| BR1500 | RBV1500 | 15 | 55 | 20  | 50   | 300 | 1.1 | 7.5 | 10 |
| BR1501 | RBV1501 | 15 | 55 | 40  | 100  | 300 | 1.1 | 7.5 | 10 |
| BR1502 | RBV1502 | 15 | 55 | 80  | 200  | 300 | 1.1 | 7.5 | 10 |
| BR1504 | RBV1504 | 15 | 55 | 125 | 400  | 300 | 1.1 | 7.5 | 10 |
| BR1506 | RBV1506 | 15 | 55 | 250 | 600  | 300 | 1.1 | 7.5 | 10 |
| BR1508 | RBV1508 | 15 | 55 | 380 | 800  | 300 | 1.1 | 7.5 | 10 |
| BR1510 | RBV1510 | 15 | 55 | 440 | 1000 | 300 | 1.1 | 7.5 | 10 |

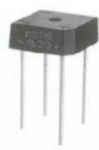
\* For wire leads use suffix "W" for Case Type : BR50W

## RBV1500D Series, 15 A, Case Type: RBV25

|  |          |    |    |     |      |     |     |    |    |
|--|----------|----|----|-----|------|-----|-----|----|----|
|  | RBV1500D | 15 | 55 | 20  | 50   | 300 | 1.1 | 15 | 10 |
|  | RBV1501D | 15 | 55 | 40  | 100  | 300 | 1.1 | 15 | 10 |
|  | RBV1502D | 15 | 55 | 80  | 200  | 300 | 1.1 | 15 | 10 |
|  | RBV1504D | 15 | 55 | 125 | 400  | 300 | 1.1 | 15 | 10 |
|  | RBV1506D | 15 | 55 | 250 | 600  | 300 | 1.1 | 15 | 10 |
|  | RBV1508D | 15 | 55 | 380 | 800  | 300 | 1.1 | 15 | 10 |
|  | RBV1510D | 15 | 55 | 440 | 1000 | 300 | 1.1 | 15 | 10 |



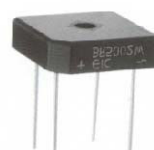
RBV25



BR10



BR50



BR50W



BR50M



# Silicon Bridge Rectifiers

The plastic material carries U/L recognition 94V-0.

| Type No. |     | Max. Average Forward Rectified Current |      | Input Voltage Recommended | Max. Repetitive Peak Reverse Voltage | Max. Peak Forward Surge Current | Max. Forward Voltage Drop at Ta = 25°C |      | Max. Reverse Current at Ta = 25°C |
|----------|-----|----------------------------------------|------|---------------------------|--------------------------------------|---------------------------------|----------------------------------------|------|-----------------------------------|
|          |     | IF(AV)                                 | @ Tc |                           | VRRM                                 | IFSM                            | VF                                     | @ IF | IR                                |
| DIP      | SIP | (A)                                    | (°C) | (V)                       | (V)                                  | (A)                             | (V)                                    | (A)  | (μA)                              |

## KBPC1500 Series, 15 A, Case Type: BR50M

|          |  |    |    |   |      |     |     |     |    |
|----------|--|----|----|---|------|-----|-----|-----|----|
| KBPC1500 |  | 15 | 55 | - | 50   | 300 | 1.2 | 7.5 | 10 |
| KBPC1501 |  | 15 | 55 | - | 100  | 300 | 1.2 | 7.5 | 10 |
| KBPC1502 |  | 15 | 55 | - | 200  | 300 | 1.2 | 7.5 | 10 |
| KBPC1504 |  | 15 | 55 | - | 400  | 300 | 1.2 | 7.5 | 10 |
| KBPC1506 |  | 15 | 55 | - | 600  | 300 | 1.2 | 7.5 | 10 |
| KBPC1508 |  | 15 | 55 | - | 800  | 300 | 1.2 | 7.5 | 10 |
| KBPC1510 |  | 15 | 55 | - | 1000 | 300 | 1.2 | 7.5 | 10 |

## S15VB20 Series, 15 A, Case Type: BR50

|         |  |    |    |   |     |     |      |     |    |
|---------|--|----|----|---|-----|-----|------|-----|----|
| S15VB20 |  | 15 | 83 | - | 200 | 200 | 1.05 | 7.5 | 10 |
| S15VB60 |  | 15 | 83 | - | 600 | 200 | 1.05 | 7.5 | 10 |

## D20XB20 Series, 20 A, Case Type: RBV25

|  |          |    |    |   |      |     |     |    |    |
|--|----------|----|----|---|------|-----|-----|----|----|
|  | D20XB20  | 20 | 87 | - | 200  | 240 | 1.1 | 10 | 10 |
|  | D20XB60  | 20 | 87 | - | 600  | 240 | 1.1 | 10 | 10 |
|  | D20XB80  | 20 | 87 | - | 800  | 240 | 1.1 | 10 | 10 |
|  | D20XB100 | 20 | 87 | - | 1000 | 240 | 1.1 | 10 | 10 |

## BR2500/RBV2500 Series, 25 A, Case Type: BR50/RBV25

|        |         |    |    |     |      |     |     |      |    |
|--------|---------|----|----|-----|------|-----|-----|------|----|
| BR2500 | RBV2500 | 25 | 55 | 20  | 50   | 300 | 1.1 | 12.5 | 10 |
| BR2501 | RBV2501 | 25 | 55 | 40  | 100  | 300 | 1.1 | 12.5 | 10 |
| BR2502 | RBV2502 | 25 | 55 | 80  | 200  | 300 | 1.1 | 12.5 | 10 |
| BR2504 | RBV2504 | 25 | 55 | 125 | 400  | 300 | 1.1 | 12.5 | 10 |
| BR2506 | RBV2506 | 25 | 55 | 250 | 600  | 300 | 1.1 | 12.5 | 10 |
| BR2508 | RBV2508 | 25 | 55 | 380 | 800  | 300 | 1.1 | 12.5 | 10 |
| BR2510 | RBV2510 | 25 | 55 | 440 | 1000 | 300 | 1.1 | 12.5 | 10 |

\* For wire leads use suffix "W" for Case Type : BR50W

## D25XB20 Series, 25 A, Case Type: RBV25

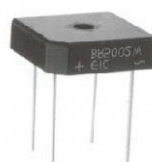
|  |         |    |    |   |     |     |      |      |    |
|--|---------|----|----|---|-----|-----|------|------|----|
|  | D25XB20 | 25 | 98 | - | 200 | 350 | 1.05 | 12.5 | 10 |
|  | D25XB60 | 25 | 98 | - | 600 | 350 | 1.05 | 12.5 | 10 |



RBV25



BR50



BR50W



BR50M



# Silicon Bridge Rectifiers

The plastic material carries U/L recognition 94V-0.

| Type No. |     | Max. Average Forward Rectified Current |      | Input Voltage Recommended | Max. Repetitive Peak Reverse Voltage | Max. Peak Forward Surge Current | Max. Forward Voltage Drop at Ta = 25°C |      | Max. Reverse Current at Ta = 25°C |
|----------|-----|----------------------------------------|------|---------------------------|--------------------------------------|---------------------------------|----------------------------------------|------|-----------------------------------|
|          |     | IF(AV)                                 | @ Tc |                           | VRRM                                 | IFSM                            | VF                                     | @ IF | IR                                |
| DIP      | SIP | (A)                                    | (°C) | (V)                       | (V)                                  | (A)                             | (V)                                    | (A)  | (μA)                              |

## GBJ2500 Series, 25 A, Case Type: RBV25

|  |         |    |     |   |      |     |     |      |    |
|--|---------|----|-----|---|------|-----|-----|------|----|
|  | GBJ2500 | 25 | 100 | - | 50   | 300 | 1.1 | 12.5 | 10 |
|  | GBJ2501 | 25 | 100 | - | 100  | 300 | 1.1 | 12.5 | 10 |
|  | GBJ2502 | 25 | 100 | - | 200  | 300 | 1.1 | 12.5 | 10 |
|  | GBJ2504 | 25 | 100 | - | 400  | 300 | 1.1 | 12.5 | 10 |
|  | GBJ2506 | 25 | 100 | - | 600  | 300 | 1.1 | 12.5 | 10 |
|  | GBJ2508 | 25 | 100 | - | 800  | 300 | 1.1 | 12.5 | 10 |
|  | GBJ2510 | 25 | 100 | - | 1000 | 300 | 1.1 | 12.5 | 10 |

## S25VB20 Series, 25 A, Case Type: BR50

|         |  |    |    |   |     |     |      |      |    |
|---------|--|----|----|---|-----|-----|------|------|----|
| S25VB20 |  | 25 | 85 | - | 200 | 400 | 1.05 | 12.5 | 10 |
| S25VB60 |  | 25 | 85 | - | 600 | 400 | 1.05 | 12.5 | 10 |

## RBV2500 Series, 25 A, Case Type: RBV25

|  |          |    |    |     |      |     |     |    |    |
|--|----------|----|----|-----|------|-----|-----|----|----|
|  | RBV2500D | 25 | 55 | 20  | 50   | 400 | 1.1 | 25 | 10 |
|  | RBV2501D | 25 | 55 | 40  | 100  | 400 | 1.1 | 25 | 10 |
|  | RBV2502D | 25 | 55 | 80  | 200  | 400 | 1.1 | 25 | 10 |
|  | RBV2504D | 25 | 55 | 125 | 400  | 400 | 1.1 | 25 | 10 |
|  | RBV2506D | 25 | 55 | 250 | 600  | 400 | 1.1 | 25 | 10 |
|  | RBV2508D | 25 | 55 | 380 | 800  | 400 | 1.1 | 25 | 10 |
|  | RBV2510D | 25 | 55 | 440 | 1000 | 400 | 1.1 | 25 | 10 |

## KBPC2500 Series, 25 A, Case Type: BR50M

|          |  |    |    |   |      |     |     |      |    |
|----------|--|----|----|---|------|-----|-----|------|----|
| KBPC2500 |  | 25 | 55 | - | 50   | 300 | 1.1 | 12.5 | 10 |
| KBPC2501 |  | 25 | 55 | - | 100  | 300 | 1.1 | 12.5 | 10 |
| KBPC2502 |  | 25 | 55 | - | 200  | 300 | 1.1 | 12.5 | 10 |
| KBPC2504 |  | 25 | 55 | - | 400  | 300 | 1.1 | 12.5 | 10 |
| KBPC2506 |  | 25 | 55 | - | 600  | 300 | 1.1 | 12.5 | 10 |
| KBPC2508 |  | 25 | 55 | - | 800  | 300 | 1.1 | 12.5 | 10 |
| KBPC2510 |  | 25 | 55 | - | 1000 | 300 | 1.1 | 12.5 | 10 |



RBV25



BR50



BR50W



BR50M



# Silicon Bridge Rectifiers

The plastic material carries U/L recognition 94V-0.

| Type No. |     | Max. Average Forward Rectified Current |      | Input Voltage Recommended | Max. Repetitive Peak Reverse Voltage | Max. Peak Forward Surge Current | Max. Forward Voltage Drop at Ta = 25°C |      | Max. Reverse Current at Ta = 25°C |
|----------|-----|----------------------------------------|------|---------------------------|--------------------------------------|---------------------------------|----------------------------------------|------|-----------------------------------|
|          |     | IF(AV)                                 | @ Tc |                           | VRRM                                 | IFSM                            | VF                                     | @ IF | IR                                |
| DIP      | SIP | (A)                                    | (°C) | (V)                       | (V)                                  | (A)                             | (V)                                    | (A)  | (μA)                              |

## KBPC3500 Series, 35 A, Case Type: BR50M

|          |  |    |    |   |      |     |     |      |    |
|----------|--|----|----|---|------|-----|-----|------|----|
| KBPC3500 |  | 35 | 55 | - | 50   | 400 | 1.1 | 17.5 | 10 |
| KBPC3501 |  | 35 | 55 | - | 100  | 400 | 1.1 | 17.5 | 10 |
| KBPC3502 |  | 35 | 55 | - | 200  | 400 | 1.1 | 17.5 | 10 |
| KBPC3504 |  | 35 | 55 | - | 400  | 400 | 1.1 | 17.5 | 10 |
| KBPC3506 |  | 35 | 55 | - | 600  | 400 | 1.1 | 17.5 | 10 |
| KBPC3508 |  | 35 | 55 | - | 800  | 400 | 1.1 | 17.5 | 10 |
| KBPC3510 |  | 35 | 55 | - | 1000 | 400 | 1.1 | 17.5 | 10 |

## BR3500/RBV3500 Series, 35 A, Case Type: BR50/RBV25

|        |         |    |    |     |      |     |     |      |    |
|--------|---------|----|----|-----|------|-----|-----|------|----|
| BR3500 | RBV3500 | 35 | 55 | 20  | 50   | 400 | 1.1 | 17.5 | 10 |
| BR3501 | RBV3501 | 35 | 55 | 40  | 100  | 400 | 1.1 | 17.5 | 10 |
| BR3502 | RBV3502 | 35 | 55 | 80  | 200  | 400 | 1.1 | 17.5 | 10 |
| BR3504 | RBV3504 | 35 | 55 | 125 | 400  | 400 | 1.1 | 17.5 | 10 |
| BR3506 | RBV3506 | 35 | 55 | 250 | 600  | 400 | 1.1 | 17.5 | 10 |
| BR3508 | RBV3508 | 35 | 55 | 380 | 800  | 400 | 1.1 | 17.5 | 10 |
| BR3510 | RBV3510 | 35 | 55 | 440 | 1000 | 400 | 1.1 | 17.5 | 10 |

\* For wire leads use suffix "W" for Case Type : BR50W

## BR5000/RBV5000 Series, 50 A, Case Type: BR50/RBV25

|        |         |    |    |     |      |     |     |    |    |
|--------|---------|----|----|-----|------|-----|-----|----|----|
| BR5000 | RBV5000 | 50 | 55 | 20  | 50   | 400 | 1.1 | 25 | 10 |
| BR5001 | RBV5001 | 50 | 55 | 40  | 100  | 400 | 1.1 | 25 | 10 |
| BR5002 | RBV5002 | 50 | 55 | 80  | 200  | 400 | 1.1 | 25 | 10 |
| BR5004 | RBV5004 | 50 | 55 | 125 | 400  | 400 | 1.1 | 25 | 10 |
| BR5006 | RBV5006 | 50 | 55 | 250 | 600  | 400 | 1.1 | 25 | 10 |
| BR5008 | RBV5008 | 50 | 55 | 380 | 800  | 400 | 1.1 | 25 | 10 |
| BR5010 | RBV5010 | 50 | 55 | 440 | 1000 | 400 | 1.1 | 25 | 10 |

\* For wire leads use suffix "W" for Case Type : BR50W

## KBPC5000 Series, 50 A, Case Type: BR50M

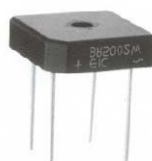
|          |  |    |    |   |      |     |     |    |    |
|----------|--|----|----|---|------|-----|-----|----|----|
| KBPC5000 |  | 50 | 55 | - | 50   | 400 | 1.1 | 25 | 10 |
| KBPC5001 |  | 50 | 55 | - | 100  | 400 | 1.1 | 25 | 10 |
| KBPC5002 |  | 50 | 55 | - | 200  | 400 | 1.1 | 25 | 10 |
| KBPC5004 |  | 50 | 55 | - | 400  | 400 | 1.1 | 25 | 10 |
| KBPC5006 |  | 50 | 55 | - | 600  | 400 | 1.1 | 25 | 10 |
| KBPC5008 |  | 50 | 55 | - | 800  | 400 | 1.1 | 25 | 10 |
| KBPC5010 |  | 50 | 55 | - | 1000 | 400 | 1.1 | 25 | 10 |



RBV25



BR50



BR50W



BR50M



# Glass Passivated Bridge Rectifiers

The plastic material carries U/L recognition 94V-0.

| Type No. | Max. Average Forward Rectified Current |                  | Input Voltage Recommended | Max. Repetitive Peak Reverse Voltage | Max. Peak Forward Surge Current | Max. Forward Voltage Drop at Ta = 25°C |                  | Max. Reverse Current at Ta = 25°C |
|----------|----------------------------------------|------------------|---------------------------|--------------------------------------|---------------------------------|----------------------------------------|------------------|-----------------------------------|
|          | I <sub>F(AV)</sub>                     | @ T <sub>C</sub> |                           |                                      |                                 | V <sub>F</sub>                         | @ I <sub>F</sub> |                                   |
|          | (A)                                    | (°C)             |                           |                                      |                                 | (V)                                    | (A)              |                                   |

## W005G Series, 1.5 A, Case Type: WOB



|       |     |    |   |      |    |     |     |   |
|-------|-----|----|---|------|----|-----|-----|---|
| W005G | 1.5 | 25 | - | 50   | 50 | 1.0 | 1.0 | 5 |
| W01G  | 1.5 | 25 | - | 100  | 50 | 1.0 | 1.0 | 5 |
| W02G  | 1.5 | 25 | - | 200  | 50 | 1.0 | 1.0 | 5 |
| W04G  | 1.5 | 25 | - | 400  | 50 | 1.0 | 1.0 | 5 |
| W06G  | 1.5 | 25 | - | 600  | 50 | 1.0 | 1.0 | 5 |
| W08G  | 1.5 | 25 | - | 800  | 50 | 1.0 | 1.0 | 5 |
| W10G  | 1.5 | 25 | - | 1000 | 50 | 1.0 | 1.0 | 5 |

## KBL400G Series, 4 A, Case Type: KBL



|         |     |         |   |      |     |     |     |    |
|---------|-----|---------|---|------|-----|-----|-----|----|
| KBL400G | 4.0 | 50 (Ta) | - | 50   | 150 | 1.1 | 4.0 | 10 |
| KBL401G | 4.0 | 50 (Ta) | - | 100  | 150 | 1.1 | 4.0 | 10 |
| KBL402G | 4.0 | 50 (Ta) | - | 200  | 150 | 1.1 | 4.0 | 10 |
| KBL404G | 4.0 | 50 (Ta) | - | 400  | 150 | 1.1 | 4.0 | 10 |
| KBL406G | 4.0 | 50 (Ta) | - | 600  | 150 | 1.1 | 4.0 | 10 |
| KBL408G | 4.0 | 50 (Ta) | - | 800  | 150 | 1.1 | 4.0 | 10 |
| KBL410G | 4.0 | 50 (Ta) | - | 1000 | 150 | 1.1 | 4.0 | 10 |

## GBPC6005 Series, 6 A, Case Type: BR6

|          |     |    |   |      |     |     |     |     |
|----------|-----|----|---|------|-----|-----|-----|-----|
| GBPC6005 | 6.0 | 50 | - | 50   | 175 | 1.0 | 3.0 | 5.0 |
| GBPC601  | 6.0 | 50 | - | 100  | 175 | 1.0 | 3.0 | 5.0 |
| GBPC602  | 6.0 | 50 | - | 200  | 175 | 1.0 | 3.0 | 5.0 |
| GBPC604  | 6.0 | 50 | - | 400  | 175 | 1.0 | 3.0 | 5.0 |
| GBPC606  | 6.0 | 50 | - | 600  | 175 | 1.0 | 3.0 | 5.0 |
| GBPC608  | 6.0 | 50 | - | 800  | 175 | 1.0 | 3.0 | 5.0 |
| GBPC610  | 6.0 | 50 | - | 1000 | 175 | 1.0 | 3.0 | 5.0 |

## GBPC15005 Series, 15 A, Case Type: BR50

|           |    |    |   |      |     |     |     |     |
|-----------|----|----|---|------|-----|-----|-----|-----|
| GBPC15005 | 15 | 50 | - | 50   | 300 | 1.1 | 7.5 | 5.0 |
| GBPC1501  | 15 | 50 | - | 100  | 300 | 1.1 | 7.5 | 5.0 |
| GBPC1502  | 15 | 50 | - | 200  | 300 | 1.1 | 7.5 | 5.0 |
| GBPC1504  | 15 | 50 | - | 400  | 300 | 1.1 | 7.5 | 5.0 |
| GBPC1506  | 15 | 50 | - | 600  | 300 | 1.1 | 7.5 | 5.0 |
| GBPC1508  | 15 | 50 | - | 800  | 300 | 1.1 | 7.5 | 5.0 |
| GBPC1510  | 15 | 50 | - | 1000 | 300 | 1.1 | 7.5 | 5.0 |



BR6



BR50



# Glass Passivated Bridge Rectifiers

The plastic material carries U/L recognition 94V-0.

| Type No. | Max. Average Forward Rectified Current |   |                | Input Voltage Recommended | Max. Repetitive Peak Reverse Voltage | Max. Peak Forward Surge Current | Max. Forward Voltage Drop at Ta = 25°C |   |                | Max. Reverse Current at Ta = 25°C |
|----------|----------------------------------------|---|----------------|---------------------------|--------------------------------------|---------------------------------|----------------------------------------|---|----------------|-----------------------------------|
|          | I <sub>F</sub> (AV)                    | @ | T <sub>c</sub> |                           |                                      |                                 | V <sub>F</sub>                         | @ | I <sub>F</sub> |                                   |
|          | (A)                                    |   | (°C)           |                           |                                      |                                 | (V)                                    |   | (A)            |                                   |
|          |                                        |   |                | (V)                       | (V)                                  | (A)                             | (V)                                    |   | (A)            | (μA)                              |

## GBPC25005 Series, 25 A, Case Type: BR50

|           |    |    |   |      |     |     |      |     |
|-----------|----|----|---|------|-----|-----|------|-----|
| GBPC25005 | 25 | 50 | - | 50   | 300 | 1.1 | 12.5 | 5.0 |
| GBPC2501  | 25 | 50 | - | 100  | 300 | 1.1 | 12.5 | 5.0 |
| GBPC2502  | 25 | 50 | - | 200  | 300 | 1.1 | 12.5 | 5.0 |
| GBPC2504  | 25 | 50 | - | 400  | 300 | 1.1 | 12.5 | 5.0 |
| GBPC2506  | 25 | 50 | - | 600  | 300 | 1.1 | 12.5 | 5.0 |
| GBPC2508  | 25 | 50 | - | 800  | 300 | 1.1 | 12.5 | 5.0 |
| GBPC2510  | 25 | 50 | - | 1000 | 300 | 1.1 | 12.5 | 5.0 |

## GBPC25005W Series, 25 A, Case Type: BR50W

|            |    |    |   |      |     |     |      |     |
|------------|----|----|---|------|-----|-----|------|-----|
| GBPC25005W | 25 | 50 | - | 50   | 300 | 1.1 | 12.5 | 5.0 |
| GBPC2501W  | 25 | 50 | - | 100  | 300 | 1.1 | 12.5 | 5.0 |
| GBPC2502W  | 25 | 50 | - | 200  | 300 | 1.1 | 12.5 | 5.0 |
| GBPC2504W  | 25 | 50 | - | 400  | 300 | 1.1 | 12.5 | 5.0 |
| GBPC2506W  | 25 | 50 | - | 600  | 300 | 1.1 | 12.5 | 5.0 |
| GBPC2508W  | 25 | 50 | - | 800  | 300 | 1.1 | 12.5 | 5.0 |
| GBPC2510W  | 25 | 50 | - | 1000 | 300 | 1.1 | 12.5 | 5.0 |

## GBPC35005 Series, 35 A, Case Type: BR50

|           |    |    |   |      |     |     |      |     |
|-----------|----|----|---|------|-----|-----|------|-----|
| GBPC35005 | 35 | 50 | - | 50   | 400 | 1.1 | 17.5 | 5.0 |
| GBPC3501  | 35 | 50 | - | 100  | 400 | 1.1 | 17.5 | 5.0 |
| GBPC3502  | 35 | 50 | - | 200  | 400 | 1.1 | 17.5 | 5.0 |
| GBPC3504  | 35 | 50 | - | 400  | 400 | 1.1 | 17.5 | 5.0 |
| GBPC3506  | 35 | 50 | - | 600  | 400 | 1.1 | 17.5 | 5.0 |
| GBPC3508  | 35 | 50 | - | 800  | 400 | 1.1 | 17.5 | 5.0 |
| GBPC3510  | 35 | 50 | - | 1000 | 400 | 1.1 | 17.5 | 5.0 |



BR50



BR50W



## Mini Bridge Rectifiers

The plastic material carries U/L recognition 94V-0.

| Type No. | Max. Average Forward Rectified Current |      | Input Voltage Recommended | Max. Repetitive Peak Reverse Voltage | Max. Peak Forward Surge Current | Max. Forward Voltage Drop at Ta = 25°C |      | Max. Reverse Current at Ta = 25°C |
|----------|----------------------------------------|------|---------------------------|--------------------------------------|---------------------------------|----------------------------------------|------|-----------------------------------|
|          | IF(AV)                                 | @ Tc |                           |                                      |                                 | VF                                     | @ IF |                                   |
|          | (A)                                    | (°C) | (V)                       | VRRM (V)                             | IFSM (A)                        | (V)                                    | (A)  | IR (μA)                           |

### MB1S Series, 0.5 A, Case Type: MBS



|       |     |    |   |      |    |     |     |     |
|-------|-----|----|---|------|----|-----|-----|-----|
| MB1S  | 0.5 | 30 | - | 100  | 35 | 1.0 | 0.4 | 5.0 |
| MB2S  | 0.5 | 30 | - | 200  | 35 | 1.0 | 0.4 | 5.0 |
| MB4S  | 0.5 | 30 | - | 400  | 35 | 1.0 | 0.4 | 5.0 |
| MB6S  | 0.5 | 30 | - | 600  | 35 | 1.0 | 0.4 | 5.0 |
| MB8S  | 0.5 | 30 | - | 800  | 35 | 1.0 | 0.4 | 5.0 |
| MB10S | 0.5 | 30 | - | 1000 | 35 | 1.0 | 0.4 | 5.0 |

### MB1M Series, 0.5 A, Case Type: MBM



|       |     |    |   |      |    |     |     |     |
|-------|-----|----|---|------|----|-----|-----|-----|
| MB1M  | 0.5 | 30 | - | 100  | 35 | 1.0 | 0.4 | 5.0 |
| MB2M  | 0.5 | 30 | - | 200  | 35 | 1.0 | 0.4 | 5.0 |
| MB4M  | 0.5 | 30 | - | 400  | 35 | 1.0 | 0.4 | 5.0 |
| MB6M  | 0.5 | 30 | - | 600  | 35 | 1.0 | 0.4 | 5.0 |
| MB8M  | 0.5 | 30 | - | 800  | 35 | 1.0 | 0.4 | 5.0 |
| MB10M | 0.5 | 30 | - | 1000 | 35 | 1.0 | 0.4 | 5.0 |

### S1ZB20 Series, 0.8 A, Case Type: MBS



|        |     |    |   |     |    |      |     |    |
|--------|-----|----|---|-----|----|------|-----|----|
| S1ZB20 | 0.8 | 30 | - | 200 | 30 | 1.05 | 0.4 | 10 |
| S1ZB60 | 0.8 | 30 | - | 600 | 30 | 1.05 | 0.4 | 10 |
| S1ZB80 | 0.8 | 30 | - | 800 | 30 | 1.05 | 0.4 | 10 |

### DB101 Series, 1 A, Case Type: DFM



|       |     |    |   |      |    |     |     |     |
|-------|-----|----|---|------|----|-----|-----|-----|
| DB101 | 1.0 | 40 | - | 50   | 40 | 1.1 | 1.0 | 5.0 |
| DB102 | 1.0 | 40 | - | 100  | 40 | 1.1 | 1.0 | 5.0 |
| DB103 | 1.0 | 40 | - | 200  | 40 | 1.1 | 1.0 | 5.0 |
| DB104 | 1.0 | 40 | - | 400  | 40 | 1.1 | 1.0 | 5.0 |
| DB105 | 1.0 | 40 | - | 600  | 40 | 1.1 | 1.0 | 5.0 |
| DB106 | 1.0 | 40 | - | 800  | 40 | 1.1 | 1.0 | 5.0 |
| DB107 | 1.0 | 40 | - | 1000 | 40 | 1.1 | 1.0 | 5.0 |

### DF005S Series, 1 A, Case Type: DFS



|        |     |    |   |      |    |     |     |    |
|--------|-----|----|---|------|----|-----|-----|----|
| DF005S | 1.0 | 40 | - | 50   | 30 | 1.1 | 1.0 | 10 |
| DF01S  | 1.0 | 40 | - | 100  | 30 | 1.1 | 1.0 | 10 |
| DF02S  | 1.0 | 40 | - | 200  | 30 | 1.1 | 1.0 | 10 |
| DF04S  | 1.0 | 40 | - | 400  | 30 | 1.1 | 1.0 | 10 |
| DF06S  | 1.0 | 40 | - | 600  | 30 | 1.1 | 1.0 | 10 |
| DF08S  | 1.0 | 40 | - | 800  | 30 | 1.1 | 1.0 | 10 |
| DF10S  | 1.0 | 40 | - | 1000 | 30 | 1.1 | 1.0 | 10 |



## Mini Bridge Rectifiers

The plastic material carries U/L recognition 94V-0.

| Type No. | Max. Average Forward Rectified Current |      | Input Voltage Recommended | Max. Repetitive Peak Reverse Voltage | Max. Peak Forward Surge Current | Max. Forward Voltage Drop at Ta = 25°C |      | Max. Reverse Current at Ta = 25°C |
|----------|----------------------------------------|------|---------------------------|--------------------------------------|---------------------------------|----------------------------------------|------|-----------------------------------|
|          | IF(AV)                                 | @ Tc |                           |                                      |                                 | VF                                     | @ IF |                                   |
|          | (A)                                    | (°C) | (V)                       | (V)                                  | (A)                             | (V)                                    | (A)  | (μA)                              |

### DF005M Series, 1 A, Case Type: DFM



|        |     |    |   |      |    |     |     |     |
|--------|-----|----|---|------|----|-----|-----|-----|
| DF005M | 1.0 | 40 | - | 50   | 30 | 1.1 | 1.0 | 5.0 |
| DF01M  | 1.0 | 40 | - | 100  | 30 | 1.1 | 1.0 | 5.0 |
| DF02M  | 1.0 | 40 | - | 200  | 30 | 1.1 | 1.0 | 5.0 |
| DF04M  | 1.0 | 40 | - | 400  | 30 | 1.1 | 1.0 | 5.0 |
| DF06M  | 1.0 | 40 | - | 600  | 30 | 1.1 | 1.0 | 5.0 |
| DF08M  | 1.0 | 40 | - | 800  | 30 | 1.1 | 1.0 | 5.0 |
| DF10M  | 1.0 | 40 | - | 1000 | 30 | 1.1 | 1.0 | 5.0 |

### DF15005S Series, 1.5 A, Case Type: DFS



|          |     |    |   |      |    |     |     |    |
|----------|-----|----|---|------|----|-----|-----|----|
| DF15005S | 1.5 | 40 | - | 50   | 50 | 1.1 | 1.5 | 10 |
| DF1501S  | 1.5 | 40 | - | 100  | 50 | 1.1 | 1.5 | 10 |
| DF1502S  | 1.5 | 40 | - | 200  | 50 | 1.1 | 1.5 | 10 |
| DF1504S  | 1.5 | 40 | - | 400  | 50 | 1.1 | 1.5 | 10 |
| DF1506S  | 1.5 | 40 | - | 600  | 50 | 1.1 | 1.5 | 10 |
| DF1508S  | 1.5 | 40 | - | 800  | 50 | 1.1 | 1.5 | 10 |
| DF1510S  | 1.5 | 40 | - | 1000 | 50 | 1.1 | 1.5 | 10 |

### DF15005M Series, 1.5 A, Case Type: DFM



|          |     |         |   |      |    |     |     |     |
|----------|-----|---------|---|------|----|-----|-----|-----|
| DF15005M | 1.5 | 40 (Ta) | - | 50   | 50 | 1.1 | 1.5 | 5.0 |
| DF1501M  | 1.5 | 40 (Ta) | - | 100  | 50 | 1.1 | 1.5 | 5.0 |
| DF1502M  | 1.5 | 40 (Ta) | - | 200  | 50 | 1.1 | 1.5 | 5.0 |
| DF1504M  | 1.5 | 40 (Ta) | - | 400  | 50 | 1.1 | 1.5 | 5.0 |
| DF1506M  | 1.5 | 40 (Ta) | - | 600  | 50 | 1.1 | 1.5 | 5.0 |
| DF1508M  | 1.5 | 40 (Ta) | - | 800  | 50 | 1.1 | 1.5 | 5.0 |
| DF1510M  | 1.5 | 40 (Ta) | - | 1000 | 50 | 1.1 | 1.5 | 5.0 |



# Avalanche Bridge Rectifiers

The plastic material carries U/L recognition 94V-0.

| Type No. | Max. Average Forward Rectified Current |      | Input Voltage Recommended | Max. Recurrent Peak Reverse Voltage | Avalanche Breakdown Voltage at 100 mA |      | Max. Forward Peak Surge Current | Max. Forward Voltage Drop at Ta = 25°C |         | Max. Reverse Current at Ta = 25°C |
|----------|----------------------------------------|------|---------------------------|-------------------------------------|---------------------------------------|------|---------------------------------|----------------------------------------|---------|-----------------------------------|
|          | IF(AV) @ Tc                            |      |                           |                                     | Min.                                  | Max. |                                 | IFSM                                   | VF @ IF |                                   |
|          | (A)                                    | (°C) | (V)                       | (V)                                 |                                       |      | (V)                             |                                        |         | (V)                               |

## AKBL400 Series, 4 A, Case Type: KBL



|         |     |    |     |      |      |      |     |     |     |    |
|---------|-----|----|-----|------|------|------|-----|-----|-----|----|
| AKBL400 | 4.0 | 50 | 20  | 50   | 100  | 550  | 200 | 1.1 | 4.0 | 10 |
| AKBL401 | 4.0 | 50 | 40  | 100  | 150  | 600  | 200 | 1.1 | 4.0 | 10 |
| AKBL402 | 4.0 | 50 | 80  | 200  | 250  | 700  | 200 | 1.1 | 4.0 | 10 |
| AKBL404 | 4.0 | 50 | 125 | 400  | 450  | 900  | 200 | 1.1 | 4.0 | 10 |
| AKBL406 | 4.0 | 50 | 250 | 600  | 700  | 1150 | 200 | 1.1 | 4.0 | 10 |
| AKBL408 | 4.0 | 50 | 380 | 800  | 900  | 1350 | 200 | 1.1 | 4.0 | 10 |
| AKBL410 | 4.0 | 50 | 440 | 1000 | 1100 | 1550 | 200 | 1.1 | 4.0 | 10 |

## ABR600 Series, 6 A, Case Type: BR6



|        |     |    |     |      |      |      |     |     |     |    |
|--------|-----|----|-----|------|------|------|-----|-----|-----|----|
| ABR600 | 6.0 | 50 | 20  | 50   | 100  | 550  | 200 | 1.0 | 3.0 | 10 |
| ABR601 | 6.0 | 50 | 40  | 100  | 150  | 600  | 200 | 1.0 | 3.0 | 10 |
| ABR602 | 6.0 | 50 | 80  | 200  | 250  | 700  | 200 | 1.0 | 3.0 | 10 |
| ABR604 | 6.0 | 50 | 125 | 400  | 450  | 900  | 200 | 1.0 | 3.0 | 10 |
| ABR606 | 6.0 | 50 | 250 | 600  | 700  | 1150 | 200 | 1.0 | 3.0 | 10 |
| ABR608 | 6.0 | 50 | 380 | 800  | 900  | 1350 | 200 | 1.0 | 3.0 | 10 |
| ABR610 | 6.0 | 50 | 440 | 1000 | 1100 | 1550 | 200 | 1.0 | 3.0 | 10 |

## ABR800 Series, 8 A, Case Type: BR10



|        |     |    |     |      |      |      |     |     |     |    |
|--------|-----|----|-----|------|------|------|-----|-----|-----|----|
| ABR800 | 8.0 | 50 | 20  | 50   | 100  | 550  | 300 | 1.0 | 4.0 | 10 |
| ABR801 | 8.0 | 50 | 40  | 100  | 150  | 600  | 300 | 1.0 | 4.0 | 10 |
| ABR802 | 8.0 | 50 | 80  | 200  | 250  | 700  | 300 | 1.0 | 4.0 | 10 |
| ABR804 | 8.0 | 50 | 125 | 400  | 450  | 900  | 300 | 1.0 | 4.0 | 10 |
| ABR806 | 8.0 | 50 | 250 | 600  | 700  | 1150 | 300 | 1.0 | 4.0 | 10 |
| ABR808 | 8.0 | 50 | 380 | 800  | 900  | 1350 | 300 | 1.0 | 4.0 | 10 |
| ABR810 | 8.0 | 50 | 440 | 1000 | 1100 | 1550 | 300 | 1.0 | 4.0 | 10 |

## ABR1000 Series, 10 A, Case Type: BR10



|         |    |    |     |      |      |      |     |     |     |    |
|---------|----|----|-----|------|------|------|-----|-----|-----|----|
| ABR1000 | 10 | 50 | 20  | 50   | 100  | 550  | 300 | 1.0 | 5.0 | 10 |
| ABR1001 | 10 | 50 | 40  | 100  | 150  | 600  | 300 | 1.0 | 5.0 | 10 |
| ABR1002 | 10 | 50 | 80  | 200  | 250  | 700  | 300 | 1.0 | 5.0 | 10 |
| ABR1004 | 10 | 50 | 125 | 400  | 450  | 900  | 300 | 1.0 | 5.0 | 10 |
| ABR1006 | 10 | 50 | 250 | 600  | 700  | 1150 | 300 | 1.0 | 5.0 | 10 |
| ABR1008 | 10 | 50 | 380 | 800  | 900  | 1350 | 300 | 1.0 | 5.0 | 10 |
| ABR1010 | 10 | 50 | 440 | 1000 | 1100 | 1550 | 300 | 1.0 | 5.0 | 10 |



# Avalanche Bridge Rectifiers

The plastic material carries U/L recognition 94V-0.

| Type No. | Max. Average Forward Rectified Current |      | Input Voltage Recommended | Max. Recurrent Peak Reverse Voltage | Avalanche Breakdown Voltage at 100 mA |      | Max. Forward Peak Surge Current | Max. Forward Voltage Drop at Ta = 25°C |         | Max. Reverse Current at Ta = 25°C |
|----------|----------------------------------------|------|---------------------------|-------------------------------------|---------------------------------------|------|---------------------------------|----------------------------------------|---------|-----------------------------------|
|          | IF(AV) @ Tc                            |      |                           |                                     | Min.                                  | Max. |                                 | IFSM                                   | VF @ IF |                                   |
|          | (A)                                    | (°C) | (V)                       | (V)                                 | (V)                                   | (V)  | (A)                             | (V)                                    | (A)     | (μA)                              |

## ABR1500 Series, 15 A, Case Type: BR50

|         |    |    |     |      |      |      |     |     |     |    |
|---------|----|----|-----|------|------|------|-----|-----|-----|----|
| ABR1500 | 15 | 55 | 20  | 50   | 100  | 550  | 300 | 1.1 | 7.5 | 10 |
| ABR1501 | 15 | 55 | 40  | 100  | 150  | 600  | 300 | 1.1 | 7.5 | 10 |
| ABR1502 | 15 | 55 | 80  | 200  | 250  | 700  | 300 | 1.1 | 7.5 | 10 |
| ABR1504 | 15 | 55 | 125 | 400  | 450  | 900  | 300 | 1.1 | 7.5 | 10 |
| ABR1506 | 15 | 55 | 250 | 600  | 700  | 1150 | 300 | 1.1 | 7.5 | 10 |
| ABR1508 | 15 | 55 | 380 | 800  | 900  | 1350 | 300 | 1.1 | 7.5 | 10 |
| ABR1510 | 15 | 55 | 440 | 1000 | 1100 | 1550 | 300 | 1.1 | 7.5 | 10 |

\* For wire leads use suffix "W" for Case Type : BR50W

## ABR2500 Series, 25 A, Case Type: BR50

|         |    |    |     |      |      |      |     |     |      |    |
|---------|----|----|-----|------|------|------|-----|-----|------|----|
| ABR2500 | 25 | 55 | 20  | 50   | 100  | 550  | 300 | 1.1 | 12.5 | 10 |
| ABR2501 | 25 | 55 | 40  | 100  | 150  | 600  | 300 | 1.1 | 12.5 | 10 |
| ABR2502 | 25 | 55 | 80  | 200  | 250  | 700  | 300 | 1.1 | 12.5 | 10 |
| ABR2504 | 25 | 55 | 125 | 400  | 450  | 900  | 300 | 1.1 | 12.5 | 10 |
| ABR2506 | 25 | 55 | 250 | 600  | 700  | 1150 | 300 | 1.1 | 12.5 | 10 |
| ABR2508 | 25 | 55 | 380 | 800  | 900  | 1350 | 300 | 1.1 | 12.5 | 10 |
| ABR2510 | 25 | 55 | 440 | 1000 | 1100 | 1550 | 300 | 1.1 | 12.5 | 10 |

\* For wire leads use suffix "W" for Case Type : BR50W

## ABR3500 Series, 35 A, Case Type: BR50

|         |    |    |     |      |      |      |     |     |      |    |
|---------|----|----|-----|------|------|------|-----|-----|------|----|
| ABR3500 | 35 | 55 | 20  | 50   | 100  | 550  | 300 | 1.1 | 17.5 | 10 |
| ABR3501 | 35 | 55 | 40  | 100  | 150  | 600  | 300 | 1.1 | 17.5 | 10 |
| ABR3502 | 35 | 55 | 80  | 200  | 250  | 700  | 300 | 1.1 | 17.5 | 10 |
| ABR3504 | 35 | 55 | 125 | 400  | 450  | 900  | 300 | 1.1 | 17.5 | 10 |
| ABR3506 | 35 | 55 | 250 | 600  | 700  | 1150 | 300 | 1.1 | 17.5 | 10 |
| ABR3508 | 35 | 55 | 380 | 800  | 900  | 1350 | 300 | 1.1 | 17.5 | 10 |
| ABR3510 | 35 | 55 | 440 | 1000 | 1100 | 1550 | 300 | 1.1 | 17.5 | 10 |

\* For wire leads use suffix "W" for Case Type : BR50W

## ABR5000 Series, 50 A, Case Type: BR50

|         |    |    |     |      |      |      |     |     |    |    |
|---------|----|----|-----|------|------|------|-----|-----|----|----|
| ABR5000 | 50 | 55 | 20  | 50   | 100  | 550  | 400 | 1.1 | 25 | 10 |
| ABR5001 | 50 | 55 | 40  | 100  | 150  | 600  | 400 | 1.1 | 25 | 10 |
| ABR5002 | 50 | 55 | 80  | 200  | 250  | 700  | 400 | 1.1 | 25 | 10 |
| ABR5004 | 50 | 55 | 125 | 400  | 450  | 900  | 400 | 1.1 | 25 | 10 |
| ABR5006 | 50 | 55 | 250 | 600  | 700  | 1150 | 400 | 1.1 | 25 | 10 |
| ABR5008 | 50 | 55 | 380 | 800  | 900  | 1350 | 400 | 1.1 | 25 | 10 |
| ABR5010 | 50 | 55 | 440 | 1000 | 1100 | 1550 | 400 | 1.1 | 25 | 10 |

\* For wire leads use suffix "W" for Case Type : BR50W



BR50



BR50W



# Fast Recovery Bridge Rectifiers

The plastic material carries U/L recognition 94V-0.

| Type No. | Maximum Average Forward Rectified Current |                  | Input Voltage Recommended | Max. Repetitive Peak Forward Voltage | Max. Peak Forward Surge Current | Max. Forward Voltage Drop at Ta = 25°C |                  | Max. Reverse Current at Ta = 25°C | Max. Reverse Recovery Time <sup>(1)</sup> |
|----------|-------------------------------------------|------------------|---------------------------|--------------------------------------|---------------------------------|----------------------------------------|------------------|-----------------------------------|-------------------------------------------|
|          | I <sub>F</sub> (AV)                       | @ T <sub>C</sub> |                           |                                      |                                 | V <sub>F</sub>                         | @ I <sub>F</sub> |                                   |                                           |
|          | (A)                                       | (°C)             | (V)                       | (V)                                  | (A)                             | (V)                                    | (A)              | (μA)                              | (ns)                                      |

## FKBL400 Series, 4 A, Case Type: KBL



|         |     |    |     |      |     |     |     |    |     |
|---------|-----|----|-----|------|-----|-----|-----|----|-----|
| FKBL400 | 4.0 | 50 | 20  | 50   | 150 | 1.4 | 4.0 | 10 | 150 |
| FKBL401 | 4.0 | 50 | 40  | 100  | 150 | 1.4 | 4.0 | 10 | 150 |
| FKBL402 | 4.0 | 50 | 80  | 200  | 150 | 1.4 | 4.0 | 10 | 150 |
| FKBL404 | 4.0 | 50 | 125 | 400  | 150 | 1.4 | 4.0 | 10 | 150 |
| FKBL406 | 4.0 | 50 | 250 | 600  | 150 | 1.4 | 4.0 | 10 | 250 |
| FKBL408 | 4.0 | 50 | 380 | 800  | 150 | 1.4 | 4.0 | 10 | 500 |
| FKBL410 | 4.0 | 50 | 440 | 1000 | 150 | 1.4 | 4.0 | 10 | 500 |

## FBR600 Series, 6 A, Case Type: BR6



|        |     |    |     |      |     |     |     |    |     |
|--------|-----|----|-----|------|-----|-----|-----|----|-----|
| FBR600 | 6.0 | 50 | 20  | 50   | 150 | 1.3 | 3.0 | 10 | 150 |
| FBR601 | 6.0 | 50 | 40  | 100  | 150 | 1.3 | 3.0 | 10 | 150 |
| FBR602 | 6.0 | 50 | 80  | 200  | 150 | 1.3 | 3.0 | 10 | 150 |
| FBR604 | 6.0 | 50 | 125 | 400  | 150 | 1.3 | 3.0 | 10 | 150 |
| FBR606 | 6.0 | 50 | 250 | 600  | 150 | 1.3 | 3.0 | 10 | 250 |
| FBR608 | 6.0 | 50 | 380 | 800  | 150 | 1.3 | 3.0 | 10 | 500 |
| FBR610 | 6.0 | 50 | 440 | 1000 | 150 | 1.3 | 3.0 | 10 | 500 |

## FKBP800 Series, 8 A, Case Type: BR10



|        |     |    |     |      |     |     |     |    |     |
|--------|-----|----|-----|------|-----|-----|-----|----|-----|
| FBR800 | 8.0 | 50 | 20  | 50   | 200 | 1.3 | 4.0 | 10 | 150 |
| FBR801 | 8.0 | 50 | 40  | 100  | 200 | 1.3 | 4.0 | 10 | 150 |
| FBR802 | 8.0 | 50 | 80  | 200  | 200 | 1.3 | 4.0 | 10 | 150 |
| FBR804 | 8.0 | 50 | 125 | 400  | 200 | 1.3 | 4.0 | 10 | 150 |
| FBR806 | 8.0 | 50 | 250 | 600  | 200 | 1.3 | 4.0 | 10 | 250 |
| FBR808 | 8.0 | 50 | 380 | 800  | 200 | 1.3 | 4.0 | 10 | 500 |
| FBR810 | 8.0 | 50 | 440 | 1000 | 200 | 1.3 | 4.0 | 10 | 500 |

## FBR1000 Series, 10 A, Case Type: BR10



|         |    |    |     |      |     |     |     |    |     |
|---------|----|----|-----|------|-----|-----|-----|----|-----|
| FBR1000 | 10 | 55 | 20  | 50   | 250 | 1.3 | 5.0 | 10 | 150 |
| FBR1001 | 10 | 55 | 40  | 100  | 250 | 1.3 | 5.0 | 10 | 150 |
| FBR1002 | 10 | 55 | 80  | 200  | 250 | 1.3 | 5.0 | 10 | 150 |
| FBR1004 | 10 | 55 | 125 | 400  | 250 | 1.3 | 5.0 | 10 | 150 |
| FBR1006 | 10 | 55 | 250 | 600  | 250 | 1.3 | 5.0 | 10 | 250 |
| FBR1008 | 10 | 55 | 380 | 800  | 250 | 1.3 | 5.0 | 10 | 500 |
| FBR1010 | 10 | 55 | 440 | 1000 | 250 | 1.3 | 5.0 | 10 | 500 |

Note : (1) Reverse Recovery test conditions : I<sub>F</sub> = 0.5 A, I<sub>R</sub> = 1 A, I<sub>rr</sub> = 0.25 A



# Fast Recovery Bridge Rectifiers

The plastic material carries U/L recognition 94V-0.

| Type No. | Maximum Average Forward Rectified Current |                  | Input Voltage Recommended | Max. Repetitive Peak Forward Voltage | Max. Peak Forward Surge Current | Max. Forward Voltage Drop at Ta = 25°C |                  | Max. Reverse Current at Ta = 25°C | Max. Reverse Recovery Time <sup>(1)</sup> |
|----------|-------------------------------------------|------------------|---------------------------|--------------------------------------|---------------------------------|----------------------------------------|------------------|-----------------------------------|-------------------------------------------|
|          | I <sub>F</sub> (AV)                       | @ T <sub>c</sub> |                           |                                      |                                 | V <sub>F</sub>                         | @ I <sub>F</sub> |                                   |                                           |
|          | (A)                                       | (°C)             |                           |                                      |                                 | (V)                                    | (A)              |                                   |                                           |
|          |                                           |                  | (V)                       | V <sub>RRM</sub><br>(V)              | I <sub>FSM</sub><br>(A)         |                                        |                  | I <sub>R</sub><br>(μA)            | T <sub>rr</sub><br>(ns)                   |

## FBR1500 Series, 15 A, Case Type: BR50

|         |    |    |     |      |     |     |     |    |     |
|---------|----|----|-----|------|-----|-----|-----|----|-----|
| FBR1500 | 15 | 55 | 20  | 50   | 300 | 1.3 | 7.5 | 10 | 150 |
| FBR1501 | 15 | 55 | 40  | 100  | 300 | 1.3 | 7.5 | 10 | 150 |
| FBR1502 | 15 | 55 | 80  | 200  | 300 | 1.3 | 7.5 | 10 | 150 |
| FBR1504 | 15 | 55 | 125 | 400  | 300 | 1.3 | 7.5 | 10 | 150 |
| FBR1506 | 15 | 55 | 250 | 600  | 300 | 1.3 | 7.5 | 10 | 250 |
| FBR1508 | 15 | 55 | 380 | 800  | 300 | 1.3 | 7.5 | 10 | 500 |
| FBR1510 | 15 | 55 | 440 | 1000 | 300 | 1.3 | 7.5 | 10 | 500 |

\* For wire leads use suffix "W" for Case Type : BR50W

## FBR2500 Series, 25 A, Case Type: BR50

|         |    |    |     |      |     |     |      |    |     |
|---------|----|----|-----|------|-----|-----|------|----|-----|
| FBR2500 | 25 | 55 | 20  | 50   | 300 | 1.3 | 12.5 | 10 | 150 |
| FBR2501 | 25 | 55 | 40  | 100  | 300 | 1.3 | 12.5 | 10 | 150 |
| FBR2502 | 25 | 55 | 80  | 200  | 300 | 1.3 | 12.5 | 10 | 150 |
| FBR2504 | 25 | 55 | 125 | 400  | 300 | 1.3 | 12.5 | 10 | 150 |
| FBR2506 | 25 | 55 | 250 | 600  | 300 | 1.3 | 12.5 | 10 | 250 |
| FBR2508 | 25 | 55 | 380 | 800  | 300 | 1.3 | 12.5 | 10 | 500 |
| FBR2510 | 25 | 55 | 440 | 1000 | 300 | 1.3 | 12.5 | 10 | 500 |

\* For wire leads use suffix "W" for Case Type : BR50W

## FBR3500 Series, 35 A, Case Type: BR50

|         |    |    |     |      |     |     |      |    |     |
|---------|----|----|-----|------|-----|-----|------|----|-----|
| FBR3500 | 35 | 55 | 20  | 50   | 400 | 1.3 | 17.5 | 10 | 150 |
| FBR3501 | 35 | 55 | 40  | 100  | 400 | 1.3 | 17.5 | 10 | 150 |
| FBR3502 | 35 | 55 | 80  | 200  | 400 | 1.3 | 17.5 | 10 | 150 |
| FBR3504 | 35 | 55 | 125 | 400  | 400 | 1.3 | 17.5 | 10 | 150 |
| FBR3506 | 35 | 55 | 250 | 600  | 400 | 1.3 | 17.5 | 10 | 250 |
| FBR3508 | 35 | 55 | 380 | 800  | 400 | 1.3 | 17.5 | 10 | 500 |
| FBR3510 | 35 | 55 | 440 | 1000 | 400 | 1.3 | 17.5 | 10 | 500 |

\* For wire leads use suffix "W" for Case Type : BR50W

## FBR5000 Series, 50 A, Case Type: BR50

|         |    |    |     |      |     |     |    |    |     |
|---------|----|----|-----|------|-----|-----|----|----|-----|
| FBR5000 | 50 | 55 | 20  | 50   | 400 | 1.3 | 25 | 10 | 150 |
| FBR5001 | 50 | 55 | 40  | 100  | 400 | 1.3 | 25 | 10 | 150 |
| FBR5002 | 50 | 55 | 80  | 200  | 400 | 1.3 | 25 | 10 | 150 |
| FBR5004 | 50 | 55 | 125 | 400  | 400 | 1.3 | 25 | 10 | 150 |
| FBR5006 | 50 | 55 | 250 | 600  | 400 | 1.3 | 25 | 10 | 250 |
| FBR5008 | 50 | 55 | 380 | 800  | 400 | 1.3 | 25 | 10 | 500 |
| FBR5010 | 50 | 55 | 440 | 1000 | 400 | 1.3 | 25 | 10 | 500 |

\* For wire leads use suffix "W" for Case Type : BR50W

Note : (1) Reverse Recovery test conditions : I<sub>F</sub> = 0.5 A, I<sub>R</sub> = 1 A, I<sub>rr</sub> = 0.25 A



BR50



BR50W



## Bi - Directional trigger - DIACS

The plastic material carries U/L recognition 94V-0.

| Type No. | Breakdown Voltage                         |         |         | Breakover Voltage Symmetry                      | Dynamic Breakback Voltage | Breakover Current                         | Peak Pulse Current for 10 $\mu$ s<br>120 PPS Ta < 40 °C |
|----------|-------------------------------------------|---------|---------|-------------------------------------------------|---------------------------|-------------------------------------------|---------------------------------------------------------|
|          | V <sub>(BR)1</sub> and V <sub>(BR)2</sub> |         |         | [ V <sub>(BR)1</sub> ] - [ V <sub>(BR)2</sub> ] | $\Delta V \pm$            | I <sub>(BR)1</sub> and I <sub>(BR)2</sub> | I <sub>TRM</sub>                                        |
|          | V(Min.)                                   | V(Typ.) | V(Max.) | V(Max)                                          | V(Min.)                   | $\mu$ A(Max.)                             | A(Max.)                                                 |

### D32P Series, Case Type: DO-41



|      |    |    |    |     |      |     |     |
|------|----|----|----|-----|------|-----|-----|
| D32P | 27 | 32 | 37 | 3.0 | 5.0  | 100 | 2.0 |
| D35P | 30 | 35 | 40 | 3.0 | 5.0  | 100 | 2.0 |
| D40P | 35 | 40 | 45 | 3.0 | 5.0  | 100 | 2.0 |
| D50P | 42 | 50 | 58 | 4.0 | 8.0  | 100 | 1.6 |
| D60P | 56 | 60 | 70 | 4.0 | 10.0 | 100 | 1.6 |

### DB3 & DB4, Case Type: DO-35



|     |    |    |    |     |     |     |     |
|-----|----|----|----|-----|-----|-----|-----|
| DB3 | 28 | 32 | 36 | 3.8 | 5.0 | 200 | 2.0 |
| DB4 | 35 | 40 | 45 | 3.8 | 5.0 | 200 | 2.0 |

## Thyristor - SIDAC

The plastic material carries U/L recognition 94V-0.

| Type No. | Repetitive Peak Off-State Voltage | Breakover Voltage ( 60 Hz Sine Wave) |                        | On-State RMS Current Conduction Angle of 360° | Peak Surge (Non-Repetitive) On-State Current One-cycle@ 60 Hz | Repetitive Peak Off-State Current @ 60Hz, V=V <sub>DRM</sub> | Dynamic Holding Current R=0.1 K $\Omega$ ,60Hz | Breakover Current 60 Hz Sine Wave |
|----------|-----------------------------------|--------------------------------------|------------------------|-----------------------------------------------|---------------------------------------------------------------|--------------------------------------------------------------|------------------------------------------------|-----------------------------------|
|          | V <sub>DRM</sub>                  | V <sub>BO</sub> (Min.)               | V <sub>BO</sub> (Max.) | I <sub>T</sub> (RMS)                          | I <sub>ISM</sub>                                              | I <sub>DRM</sub>                                             | I <sub>HO</sub>                                | I <sub>BO</sub>                   |
|          | (V)                               | (V)                                  | (V)                    | (A)                                           | (A)                                                           | ( $\mu$ A)                                                   | (mA)                                           | ( $\mu$ A)                        |

### ET013 Series, Case Type: DO-41



|       |           |     |     |     |    |    |     |     |
|-------|-----------|-----|-----|-----|----|----|-----|-----|
| ET013 | $\pm 90$  | 120 | 138 | 0.6 | 20 | 10 | 100 | 200 |
| ET015 | $\pm 115$ | 142 | 157 | 0.6 | 20 | 10 | 100 | 200 |
| ET020 | $\pm 170$ | 190 | 200 | 0.6 | 20 | 10 | 100 | 200 |

### G105 Series, Case Type: DO-41



|       |           |     |     |     |    |    |     |     |
|-------|-----------|-----|-----|-----|----|----|-----|-----|
| G105* | $\pm 90$  | 95  | 113 | 1.0 | 20 | 10 | 100 | 200 |
| G120* | $\pm 90$  | 110 | 125 | 1.0 | 20 | 10 | 100 | 200 |
| G130  | $\pm 90$  | 120 | 135 | 1.0 | 20 | 10 | 100 | 200 |
| G220* | $\pm 180$ | 205 | 230 | 1.0 | 20 | 10 | 100 | 200 |
| G240* | $\pm 180$ | 220 | 250 | 1.0 | 20 | 10 | 100 | 200 |
| G260  | $\pm 180$ | 240 | 270 | 1.0 | 20 | 10 | 100 | 200 |
| G270* | $\pm 180$ | 250 | 280 | 1.0 | 20 | 10 | 100 | 200 |

\* Also available in Axial D2A Case Types. Use suffix "C" to order(e.g. G105C, G120C,...).



## Packaging Information

| Case Type        | Packaging           | Quantity<br>per<br>Box.<br><br>(Pcs.) | Package size<br>[ mm. (inches) ] | Quantity<br>per<br>carton<br><br>(Pcs.) | Net<br>weight<br>per<br>carton<br><br>(Kgs.) | Gross<br>weight<br>per<br>carton<br><br>(Kgs.) | Carton size<br>[ mm. (inches) ]    |
|------------------|---------------------|---------------------------------------|----------------------------------|-----------------------------------------|----------------------------------------------|------------------------------------------------|------------------------------------|
| R-1              | BAG(200 Pcs)        | 6,000                                 | 72x255x135<br>(2.83x10.04x5.32)  | 30,000                                  | 7.42                                         | 8.35                                           | 260x370x150<br>(10.24x14.57x5.90)  |
|                  | TAPE & AMMO (26 mm) | 3,000                                 | 45x255x78<br>(1.77x10.04x3.07)   | 39,000                                  | 5.30                                         | 7.30                                           | 260x370x150<br>(10.24x14.57x5.90)  |
|                  | TAPE & AMMO(52 mm)  | 5,000                                 | 72x255x135<br>(2.83x10.04x5.32)  | 25,000                                  | 5.00                                         | 6.20                                           | 260x370x150<br>(10.24x14.57x5.90)  |
| M1A              | BAG(300 Pcs)        | 7,500                                 | 72x255x135<br>(2.83x10.04x5.32)  | 37,500                                  | 7.75                                         | 8.16                                           | 260x370x150<br>(10.24x14.57x5.90)  |
|                  | TAPE&AMMO (26 mm)   | 4,000                                 | 45x255x78<br>(1.77x10.04x3.07)   | 52,000                                  | 10.24                                        | 12.80                                          | 260x370x150<br>(10.24x14.57x5.90)  |
|                  | TAPE&AMMO (52 mm)   | 5,000                                 | 72x255x135<br>(2.83x10.04x5.32)  | 25,000                                  | 5.55                                         | 6.00                                           | 260x370x150<br>(10.24x14.57x5.90)  |
| DO-34<br>(Glass) | BULK                | 2,000                                 | 205x90x21<br>(8.07x3.54x0.82)    | 100,000                                 | 9.30                                         | 11.75                                          | 215x450x240<br>(8.46x17.71x9.45)   |
|                  | TAPE & REEL         | 10,000                                | φ 330x81<br>(φ 12.992x3.189)     | 40,000                                  | 3.72                                         | 6.45                                           | 340x340x330<br>(13.39x13.39x12.99) |
|                  | TAPE & AMMO (26 mm) | 5,000                                 | 45x255x78<br>(1.77x10.04x3.07)   | 65,000                                  | 5.30                                         | 6.30                                           | 260x370x150<br>(10.24x14.57x5.90)  |
|                  | TAPE & AMMO (52 mm) | 10,000                                | 72x255x135<br>(2.83x10.04x5.32)  | 50,000                                  | 4.65                                         | 6.05                                           | 260x370x150<br>(10.24x14.57x5.90)  |
|                  | BAG(500Pcs) & BULK  | 5,000                                 | 115x155x45<br>(4.53x6.10x1.78)   | 100,000                                 | 9.30                                         | 11.00                                          | 250x325x240<br>(9.84x12.80x9.45)   |
| DO-35<br>(Glass) | BULK                | 2,000                                 | 205x90x21<br>(8.07x3.54x0.82)    | 100,000                                 | 12.70                                        | 15.10                                          | 215x450x240<br>(8.46x17.71x9.45)   |
|                  | TAPE & REEL         | 10,000                                | φ 330x81<br>(φ 12.992x3.189)     | 40,000                                  | 5.08                                         | 7.80                                           | 340x340x325<br>(13.39x13.39x12.79) |
|                  | TAPE & AMMO (26 mm) | 5,000                                 | 45x255x78<br>(1.77x10.04x3.07)   | 65,000                                  | 6.20                                         | 8.00                                           | 260x370x150<br>(10.24x14.57x5.90)  |
|                  | TAPE & AMMO (52 mm) | 10,000                                | 72x255x135<br>(2.83x10.04x5.32)  | 50,000                                  | 6.35                                         | 7.75                                           | 260x370x150<br>(10.24x14.57x5.90)  |
|                  | BAG(500Pcs) & BULK  | 5,000                                 | 92x170x50<br>(3.62x6.69x1.97)    | 100,000                                 | 12.70                                        | 14.60                                          | 185x395x285<br>(7.28x15.55x11.22)  |
| DO-41<br>(Glass) | TAPE & REEL         | 5,000                                 | φ 330x81<br>(φ 12.992x3.189)     | 20,000                                  | 5.10                                         | 7.30                                           | 340x340x325<br>(13.39x13.39x12.79) |
|                  | TAPE & AMMO (26 mm) | 2,500                                 | 45x255x78<br>(1.77x10.04x3.07)   | 32,500                                  | 6.40                                         | 8.00                                           | 260x370x150<br>(10.24x14.57x5.90)  |
|                  | TAPE & AMMO (52 mm) | 5,000                                 | 72x255x135<br>(2.83x10.04x5.32)  | 25,000                                  | 6.38                                         | 7.45                                           | 260x370x150<br>(10.24x14.57x5.90)  |
|                  | BAG(250Pcs) & BULK  | 2,500                                 | 92x170x50<br>(4.62x6.69x1.97)    | 50,000                                  | 12.75                                        | 14.65                                          | 250x325x240<br>(9.84x12.80x9.45)   |



## Packaging Information

| Case Type | Packaging           | Quantity<br>per<br>Box.<br><br>(Pcs.) | Package size<br>[ mm. (inches) ] | Quantity<br>per<br>carton<br><br>(Pcs.) | Net<br>weight<br>per<br>carton<br><br>(Kgs.) | Gross<br>weight<br>per<br>carton<br><br>(Kgs.) | Carton size<br>[ mm. (inches) ]    |
|-----------|---------------------|---------------------------------------|----------------------------------|-----------------------------------------|----------------------------------------------|------------------------------------------------|------------------------------------|
| DO-41     | BAG(200Pcs)         | 5,000                                 | 72x255x135<br>(2.83x10.04x5.32)  | 25,000                                  | 8.38                                         | 9.30                                           | 260x370x150<br>(10.24x14.57x5.90)  |
|           | TAPE & REEL         | 5,000                                 | φ 330x81<br>(φ 12.992x3.189)     | 20,000                                  | 6.70                                         | 9.20                                           | 340x340x325<br>(13.39x13.39x12.78) |
|           | TAPE & AMMO (26 mm) | 2,000                                 | 45x255x78<br>(1.77x10.04x3.07)   | 26,000                                  | 5.90                                         | 7.00                                           | 260x370x150<br>(10.24x14.57x5.90)  |
|           | TAPE & AMMO (52 mm) | 4,000                                 | 72x255x135<br>(2.83x10.04x5.32)  | 20,000                                  | 6.70                                         | 7.70                                           | 260x370x150<br>(10.24x14.57x5.90)  |
|           | TAPE & AMMO 120     | 3,000                                 | 72x255x120<br>(2.83x10.04x4.72)  | 15,000                                  | 5.03                                         | 6.00                                           | 260x370x140<br>(10.24x14.57x5.51)  |
| DO-15     | BAG(100Pcs)         | 3,000                                 | 72x255x135<br>(2.83x10.04x5.32)  | 15,000                                  | 6.00                                         | 6.90                                           | 260x370x150<br>(10.24x14.57x5.90)  |
|           | TAPE & REEL         | 3,000                                 | φ 330x81<br>(φ 12.992x3.189)     | 12,000                                  | 4.86                                         | 6.97                                           | 340x340x325<br>(13.39x13.39x12.80) |
|           | TAPE & AMMO         | 3,000                                 | 72x255x135<br>(2.83x10.04x5.32)  | 15,000                                  | 6.00                                         | 7.00                                           | 260x370x150<br>(10.24x14.57x5.90)  |
|           | TAPE & AMMO 120     | 2,500                                 | 72x255x120<br>(2.83x10.04x4.72)  | 12,500                                  | 5.00                                         | 6.00                                           | 260x370x140<br>(10.24x14.57x5.51)  |
| D2        | BAG(100Pcs)         | 2,500                                 | 72x255x135<br>(2.83x10.04x5.32)  | 12,500                                  | 5.88                                         | 6.85                                           | 260x370x150<br>(10.24x14.57x5.90)  |
|           | TAPE & REEL         | 3,000                                 | φ 330x81<br>(φ 12.992x3.189)     | 12,000                                  | 5.64                                         | 7.75                                           | 340x340x325<br>(13.39x13.39x12.80) |
|           | TAPE & AMMO         | 2,000                                 | 72x255x135<br>(2.83x10.04x5.32)  | 10,000                                  | 4.70                                         | 5.65                                           | 260x370x150<br>(10.24x14.57x5.90)  |
|           | TAPE & AMMO 120     | 1,500                                 | 72x255x120<br>(2.83x10.04x4.72)  | 7,500                                   | 3.53                                         | 4.40                                           | 260x370x140<br>(10.24x14.57x5.51)  |
|           | TAPE & AMMO (26mm)  | 1,000                                 | 45x255x78<br>(1.77x10.04x3.07)   | 13,000                                  | 4.72                                         | 5.95                                           | 260x370x150<br>(10.24x14.57x5.90)  |
| D2A       | BAG (100Pcs)        | 2,500                                 | 72x255x135<br>(2.83x10.04x5.32)  | 12,500                                  | 7.98                                         | 8.95                                           | 260x370x150<br>(10.24x14.57x5.90)  |
|           | TAPE & REEL         | 3,000                                 | φ 330x81<br>(φ 12.992x3.189)     | 12,000                                  | 7.66                                         | 9.75                                           | 340x340x325<br>(13.39x13.39x12.80) |
|           | TAPE & AMMO(52 mm)  | 2,000                                 | 72x255x135<br>(2.83x10.04x5.32)  | 10,000                                  | 6.38                                         | 7.30                                           | 260x370x150<br>(10.24x14.57x5.90)  |
| DO-201    | BAG (50Pcs)         | 1,500                                 | 72x255x135<br>(2.83x10.04x5.32)  | 7,500                                   | 6.98                                         | 8.00                                           | 260x370x150<br>(10.24x14.57x5.90)  |
|           | TAPE & REEL         | 1,250                                 | φ 330x81<br>(φ 12.992x3.189)     | 5,000                                   | 4.65                                         | 6.70                                           | 340x340x325<br>(13.39x13.39x12.80) |
|           | TAPE & AMMO         | 1,000                                 | 72x255x135<br>(2.83x10.04x5.32)  | 5,000                                   | 4.65                                         | 5.60                                           | 260x370x150<br>(10.24x14.57x5.90)  |



## Packaging Information

| Case Type     | Packaging   | Quantity<br>per<br>Box.<br><br>(Pcs.) | Package size<br>[ mm. (inches) ] | Quantity<br>per<br>carton<br><br>(Pcs.) | Net<br>weight<br>per<br>carton<br><br>(Kgs.) | Gross<br>weight<br>per<br>carton<br><br>(Kgs.) | Carton size<br>[ mm. (inches) ]    |
|---------------|-------------|---------------------------------------|----------------------------------|-----------------------------------------|----------------------------------------------|------------------------------------------------|------------------------------------|
| DO-201AD      | BAG(50Pcs)  | 1,500                                 | 72x255x135<br>(2.83x10.04x5.32)  | 7,500                                   | 8.61                                         | 9.60                                           | 260x370x150<br>(10.24x14.57x5.90)  |
|               | TAPE & REEL | 1,250                                 | φ 330x81<br>(φ 12.992x3.189)     | 5,000                                   | 5.74                                         | 7.80                                           | 340x340x325<br>(13.39x13.39x12.80) |
|               | TAPE & AMMO | 1,000                                 | 72x255x135<br>(2.83x10.04x5.32)  | 5,000                                   | 5.74                                         | 6.70                                           | 260x370x150<br>(10.24x14.57x5.90)  |
| D6            | BAG(20Pcs)  | 600                                   | 72x255x135<br>(2.83x10.04x5.32)  | 3,000                                   | 6.70                                         | 7.11                                           | 260x370x150<br>(10.24x14.57x5.90)  |
|               | TAPE & REEL | 800                                   | φ 330x81<br>(φ 12.992x3.189)     | 3,200                                   | 6.56                                         | 8.45                                           | 340x340x325<br>(13.39x13.39x12.80) |
| MiniMELF      | REEL        | 3,000                                 | φ 178x14.4<br>(φ 7.008x0.567)    | 120,000                                 | 3.72                                         | 6.90                                           | 215x405x265<br>(8.46x15.95x10.43)  |
|               | REEL        | 10,000                                | φ 330x14.4<br>(φ 12.992x0.567)   | 50,000                                  | 1.55                                         | 3.67                                           | 340x340x100<br>(13.39x13.39x3.94)  |
| MELF          | REEL        | 5,000                                 | φ 330x14.4<br>(φ 12.992x0.567)   | 25,000                                  | 3.35                                         | 5.39                                           | 340x340x100<br>(13.39x13.39x3.94)  |
| SMA(DO-214AC) | REEL        | 5,000                                 | φ 330x18.4<br>(φ 12.992x0.724)   | 25,000                                  | 1.68                                         | 3.71                                           | 340x340x100<br>(13.39x13.39x3.94)  |
| SMB(DO-214AA) | REEL        | 3,000                                 | φ 330x18.4<br>(φ 12.992x0.724)   | 15,000                                  | 1.76                                         | 3.94                                           | 340x340x100<br>(13.39x13.39x3.94)  |
| SMC(DO-214AB) | REEL        | 2,500                                 | φ 330x22.4<br>(φ 12.992x0.882)   | 10,000                                  | 2.51                                         | 4.34                                           | 340x340x100<br>(13.39x13.39x3.94)  |
| DO-215AC      | REEL        | 3,000                                 | φ 330x18.4<br>(φ 12.992x0.724)   | 15,000                                  | 1.28                                         | 3.56                                           | 340x340x100<br>(13.39x13.39x3.94)  |
| DFS           | REEL        | 1,500                                 | φ 330x22.4<br>(φ 12.992x0.882)   | 7,500                                   | 2.85                                         | 4.45                                           | 340x340x100<br>(13.39x13.39x3.94)  |
| MBS           | REEL        | 3,000                                 | φ 330x22.4<br>(φ 12.992x0.882)   | 15,000                                  | 1.92                                         | 3.00                                           | 340x340x100<br>(13.39x13.39x3.94)  |



## Packaging Information

| Case Type       | Quantity<br>per<br>box<br>(Pcs.) | Box size<br>[ mm. (inches) ]                | Quantity<br>per<br>carton<br>(Pcs.) | Net<br>weight<br>per carton<br>(Kgs.) | Gross<br>weight<br>per carton<br>(Kgs.) | Carton size<br>[ mm. (inches) ]   |
|-----------------|----------------------------------|---------------------------------------------|-------------------------------------|---------------------------------------|-----------------------------------------|-----------------------------------|
| DFM             | 50                               | 440 Length<br>(17.4 Length)                 | Plastic Tubes                       |                                       |                                         |                                   |
| MBM             | 100                              | 70x250x135<br>(2.75x9.84x5.31)              | Plastic Tubes                       |                                       |                                         |                                   |
| WOB             | 500                              | 200x200x47<br>(7.87x7.87x1.85)              | 5,000                               | 6.26                                  | 8.00                                    | 215x405x265<br>(8.46x15.95x10.43) |
| KBP             | 100                              | 90x170x52<br>(3.54x6.69x1.97)               | 2,000                               | 6.52                                  | 8.80                                    | 185x395x285<br>(7.28x15.55x11.22) |
| KBU             | 100                              | 90x170x52<br>(3.54x6.69x1.97)               | 2,000                               | 16.00                                 | 18.28                                   | 185x395x285<br>(7.28x15.55x11.22) |
| KBL             | 100                              | 90x170x52<br>(3.54x6.69x1.97)               | 2,000                               | 10.58                                 | 12.86                                   | 185x395x285<br>(7.28x15.55x11.22) |
| GBU             | 160                              | 115x115x45<br>(4.53x6.10x1.77)              | 3,200                               | 11.51                                 | 13.30                                   | 250x325x240<br>(4.53x6.10x1.77)   |
| BR6             | 200                              | 160x210x38<br>(6.30x8.27x1.50)              | 2,000                               | 6.52                                  | 7.95                                    | 215x345x225<br>(8.46x13.58x8.86)  |
| BR10            | 200                              | 200x200x47<br>(7.87x7.87x1.85)              | 2,000                               | 11.45                                 | 13.20                                   | 215x405x265<br>(8.46x15.95x10.43) |
| BR50            | 50                               | 155x165x30<br>(6.10x6.50x1.18)              | 1,000                               | 16.55                                 | 18.65                                   | 180x330x345<br>(7.09x12.99x13.58) |
| BR50W           | 40                               | 155x165x30<br>(6.10x6.50x1.18)              | 800                                 | 12.52                                 | 14.60                                   | 180x330x345<br>(7.09x12.99x13.58) |
| BR50M           | 50                               | 155x165x30<br>(6.10x6.50x1.18)              | 900                                 | 27.60                                 | 29.30                                   | 180x330x345<br>(7.09x12.99x13.58) |
| RBV4            | 120                              | 115x155x45<br>(4.53x6.10x1.77)              | 2,400                               | 10.27                                 | 12.10                                   | 250x325x240<br>(9.84x12.80x9.45)  |
| RBV25 (6A)      | 100                              | 115x155x45<br>(4.53x6.10x1.77)              | 2,000                               | 15.60                                 | 17.40                                   | 250x325x240<br>(9.84x12.80x9.45)  |
| RBV25 (8A-10A)  | 100                              | 115x155x45<br>(4.53x6.10x1.77)              | 2,000                               | 15.94                                 | 17.75                                   | 250x325x240<br>(9.84x12.80x9.45)  |
| RBV25 (15A)     | 100                              | 115x155x45<br>(4.53x6.10x1.77)              | 2,000                               | 16.22                                 | 18.05                                   | 250x325x240<br>(9.84x12.80x9.45)  |
| RBV25 (25A-50A) | 100                              | 115x155x45<br>(4.53x6.10x1.77)              | 2,000                               | 16.31                                 | 18.15                                   | 250x325x240<br>(9.84x12.80x9.45)  |
| CELL 3A         | 10,000                           | Bottle $\phi$ 70x120<br>( $\phi$ 2.76x4.72) | 100,000                             | 9.20                                  | 10.00                                   | 260x370x150<br>(10.24x14.57x5.90) |
| CELL 5A         | 10,000                           | Bottle $\phi$ 70x120<br>( $\phi$ 2.76x4.72) | 100,000                             | 15.40                                 | 16.20                                   | 260x370x150<br>(10.24x14.57x5.90) |
| CELL 8A         | 5,000                            | Bottle $\phi$ 70x120<br>( $\phi$ 2.76x4.72) | 50,000                              | 9.75                                  | 10.55                                   | 260x370x150<br>(10.24x14.57x5.90) |
| CELL 18A        | 5,000                            | Bottle $\phi$ 70x120<br>( $\phi$ 2.76x4.72) | 50,000                              | 12.15                                 | 12.95                                   | 260x370x150<br>(10.24x14.57x5.90) |
| CELL 25A        | 5,000                            | Bottle $\phi$ 70x120<br>( $\phi$ 2.76x4.72) | 50,000                              | 12.55                                 | 13.35                                   | 260x370x150<br>(10.24x14.57x5.90) |



## Packaging Information

| Case Type     | Quantity<br>per<br>box<br>(Pcs.) | Box size<br>[ mm. (inches) ]       | Quantity<br>per<br>carton<br>(Pcs.) | Net<br>weight<br>per carton<br>(Kgs.) | Gross<br>weight<br>per carton<br>(Kgs.) | Carton size<br>[ mm. (inches) ]    |
|---------------|----------------------------------|------------------------------------|-------------------------------------|---------------------------------------|-----------------------------------------|------------------------------------|
| 5R            | 400                              | 115x115x45<br>(4.53x6.10x1.77)     | 8,000                               | 9.28                                  | 10.90                                   | 250x325x240<br>(9.84x12.80x9.45)   |
| BUTTON CASE   | 2,000                            | 72x255x120<br>(2.83x10.04x4.72)    | 10,000                              | 18.18                                 | 19.00                                   | 260x370x140<br>(10.24x14.57x5.51)  |
| MR            | 2,000                            | 72x255x120<br>(2.83x10.04x4.72)    | 10,000                              | 16.01                                 | 16.80                                   | 260x370x140<br>(10.24x14.57x5.51)  |
| AR-L          | 200                              | 305x84x41<br>(12.0x3.30x1.61)      | 6,000                               | 16.39                                 | 19.04                                   | 310x420x255<br>(12.20x16.54x10.04) |
| MR-L          | 200                              | 305x84x41<br>(12.0x3.30x1.61)      | 6,000                               | 15.31                                 | 17.83                                   | 310x420x255<br>(12.20x16.54x10.04) |
| D2PAK         | 50                               | Tube 32x520x6<br>(1.23x20.52x0.24) | 1,000                               | 1.44                                  | 2.30                                    | 140x540x85<br>(5.51x21.26x3.35)    |
| TO-220AB, AC  | 50                               | Tube 32x520x6<br>(1.23x20.52x0.24) | 1,000                               | 1.95                                  | 2.81                                    | 140x540x85<br>(5.51x21.26x3.35)    |
|               | 500                              | 160x210x38<br>(6.50x8.27x1.50)     | 5,000                               | 9.39                                  | 10.80                                   | 250x325x240<br>(9.84x12.80x9.45)   |
| ITO-220AB, AC | 50                               | Tube 32x520x6<br>(1.23x20.52x0.24) | 1,000                               | 1.75                                  | 2.60                                    | 140x540x85<br>(5.51x21.26x3.35)    |
|               | 500                              | 160x210x38<br>(6.50x8.27x1.50)     | 5,000                               | 8.75                                  | 10.15                                   | 250x325x240<br>(9.84x12.80x9.45)   |
| TO-247AD      | 120                              | 90x170x52<br>(3.54x6.69x1.97)      | 2,400                               | 15.08                                 | 17.35                                   | 185x395x285<br>(7.28x15.55x11.22)  |

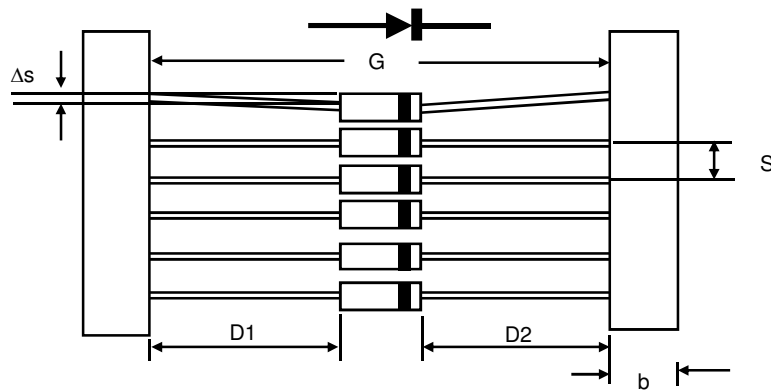
## NEW PACKAGING (SURFACE MOUNT DIODES)

| Package   | Tape Width | Package size |               | Reel Size |        | Quantity per box<br>(Pcs.) |
|-----------|------------|--------------|---------------|-----------|--------|----------------------------|
|           | (mm)       | (mm)         | (inch)        | (mm)      | (inch) |                            |
| SOT-23    | 8          | 4.0 ± 0.1    | 0.157 ± 0.004 | 178       | 7      | 3,000                      |
| SOD-123FL | 8          | 4.0 ± 0.1    | 0.157 ± 0.004 | 178       | 7      | 2,500                      |
| SOD-123   | 8          | 4.0 ± 0.1    | 0.157 ± 0.004 | 178       | 7      | 3,000                      |
| SOD-323   | 8          | 4.0 ± 0.1    | 0.157 ± 0.004 | 178       | 7      | 3,000                      |
| SOD-523   | 8          | 4.0 ± 0.1    | 0.157 ± 0.004 | 178       | 7      | 4,000                      |

## Packaging Information

### TYPE DIMENSIONS (AXIAL LEAD DIODES)

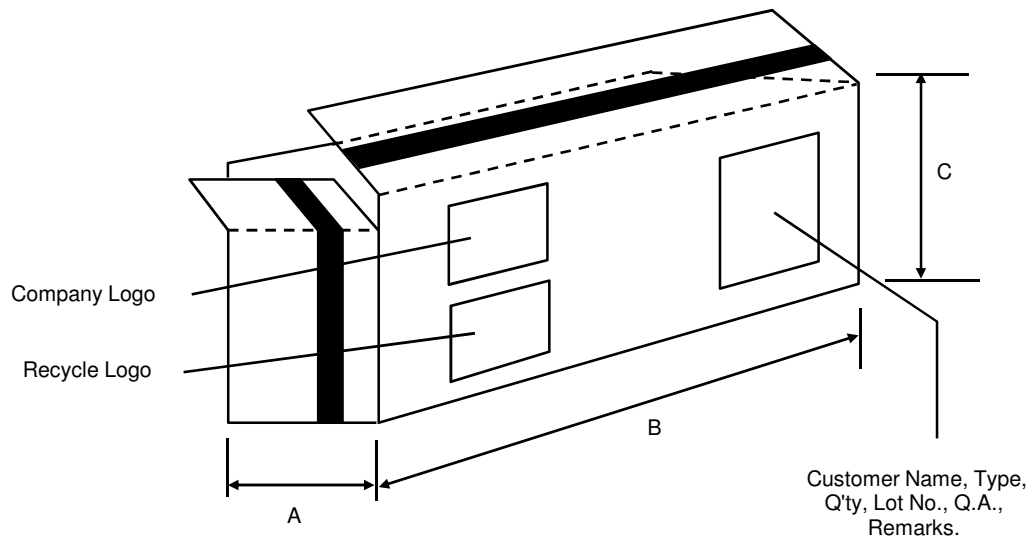
| CASE TYPE<br>(Outline)                                               | Type Dimensions                   |            |                                  |                                   |
|----------------------------------------------------------------------|-----------------------------------|------------|----------------------------------|-----------------------------------|
|                                                                      | S                                 | $\Delta s$ | b                                | G                                 |
| DO-34, DO-35,<br>DO-41 (Glass),<br>DO-41, DO-15<br>R-1, M1A, D2, D2A | $5 \pm 0.5$ (0.196 $\pm$ 0.0196)  | 1.2(0.047) | $6 \pm 1.05$ (0.236 $\pm$ 0.039) | $52 \pm 1.50$ (2.047 $\pm$ 0.059) |
| DO-34, DO-35,<br>DO-41 (Glass),<br>DO-41, DO-15<br>R-1, M1A, D2, D2A | $5 \pm 0.5$ (0.196 $\pm$ 0.0196)  | 1.2(0.047) | $6 \pm 1.05$ (0.236 $\pm$ 0.039) | $26 \pm 1.0$ (1.023 $\pm$ 0.039)  |
| DO-201,<br>DO-201AD, D6                                              | $10 \pm 0.5$ (0.393 $\pm$ 0.0196) | 1.2(0.047) | $6 \pm 1.05$ (0.236 $\pm$ 0.039) | $52 \pm 1.50$ (2.047 $\pm$ 0.059) |





## Packaging Information

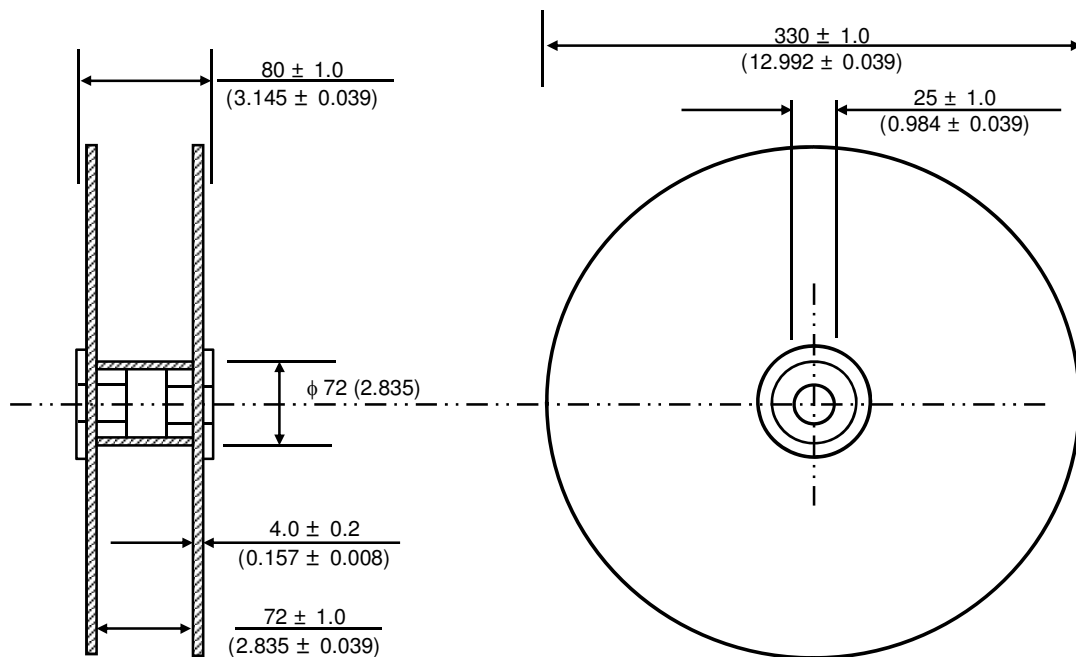
### AMMOPACK PACKAGING (AXIAL LEAD DIODES)



| Packaging       | Type Dimensions [ mm. (inches) ]   |                                      |                                     |
|-----------------|------------------------------------|--------------------------------------|-------------------------------------|
|                 | Dimension "A"                      | Dimension "B"                        | Dimension "C"                       |
| 26mm Horizontal | $45 \pm 2.0$ ( $1.771 \pm 0.079$ ) | $255 \pm 2.0$ ( $10.039 \pm 0.079$ ) | $78 \pm 2.0$ ( $3.070 \pm 0.079$ )  |
| 52mm Horizontal | $72 \pm 2.0$ ( $2.834 \pm 0.079$ ) | $255 \pm 2.0$ ( $10.039 \pm 0.079$ ) | $135 \pm 2.0$ ( $5.314 \pm 0.079$ ) |

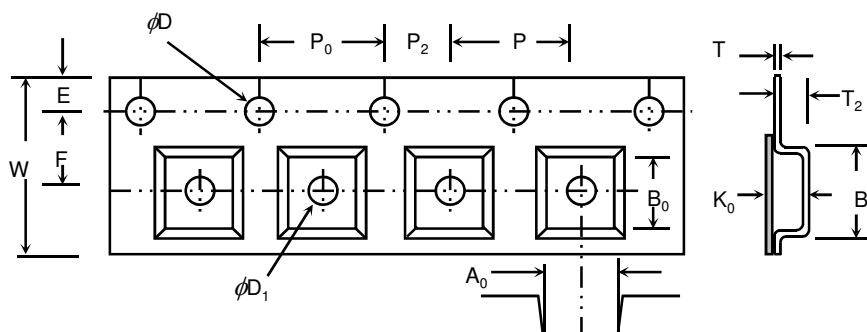
### REEL PACKAGING (AXIAL LEAD DIODES)

*DIMENSIONS IN mm. (inches)*



## Packaging Information

### SURFACE MOUNT TAPE AND REEL PACKAGING



DIMENSIONS IN mm. (inches)

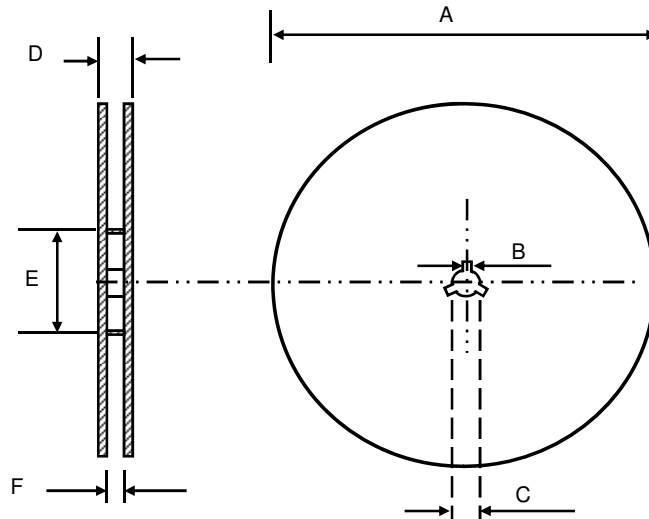
|                                                                 | Tape Size    | D                                      | E                                      | $P_0$                                 | T Max.                                 | $A_0, B_0, K_0$                        | $P_2$                                  |
|-----------------------------------------------------------------|--------------|----------------------------------------|----------------------------------------|---------------------------------------|----------------------------------------|----------------------------------------|----------------------------------------|
|                                                                 | 8, 12, 16mm. | $1.50 \pm 0.10$<br>(0.059 $\pm$ 0.004) | $1.75 \pm 0.1$<br>(0.069 $\pm$ 0.004)  | $4.00 \pm 0.1$<br>(0.157 $\pm$ 0.004) | 0.600<br>(0.024)                       | See Note 1                             | $2.00 \pm 0.05$<br>(0.079 $\pm$ 0.002) |
| Case Type                                                       | Tape Size    | W                                      | P                                      | $B_1$ Max.                            | F                                      | $T_2$ Max.                             | $D_1$                                  |
| MiniMELF,<br>SOD-123FL,<br>SOD-123, SOD-323,<br>SOD-523, SOT-23 | 8mm.         | $8.00 \pm 0.3$<br>(0.314 $\pm$ 0.012)  | $4.00 \pm 0.1$<br>(0.157 $\pm$ 0.004)  | 4.2(0.165)                            | $3.50 \pm 0.05$<br>(0.137 $\pm$ 0.002) | 2.4(0.094)                             | $1.00 \pm 0.10$<br>(0.039 $\pm$ 0.004) |
| MELF                                                            | 12mm.        | $12.00 \pm 0.3$<br>(0.472 $\pm$ 0.012) | $4.00 \pm 0.1$<br>(0.157 $\pm$ 0.004)  | 8.2(0.323)                            | $5.50 \pm 0.05$<br>(0.217 $\pm$ 0.002) | 4.5(0.177)                             | $1.50 \pm 0.25$<br>(0.059 $\pm$ 0.001) |
| SMA                                                             | 12mm.        | $12.00 \pm 0.3$<br>(0.472 $\pm$ 0.012) | $4.00 \pm 0.1$<br>(0.157 $\pm$ 0.004)  |                                       | $5.50 \pm 0.05$<br>(0.217 $\pm$ 0.002) | $2.54 \pm 0.10$<br>(0.100 $\pm$ 0.004) | $1.50 \pm 0.25$<br>(0.059 $\pm$ 0.001) |
| SMB                                                             | 12mm.        | $12.00 \pm 0.3$<br>(0.472 $\pm$ 0.012) | $8.00 \pm 0.1$<br>(0.315 $\pm$ 0.004)  |                                       | $5.50 \pm 0.05$<br>(0.217 $\pm$ 0.002) | $2.67 \pm 0.10$<br>(0.105 $\pm$ 0.004) | $1.50 \pm 0.25$<br>(0.059 $\pm$ 0.001) |
| SMC                                                             | 16mm.        | $16.00 \pm 0.3$<br>(0.629 $\pm$ 0.012) | $8.00 \pm 0.1$<br>(0.315 $\pm$ 0.004)  | 12.1(0.476)                           | $7.50 \pm 0.1$<br>(0.295 $\pm$ 0.004)  | $2.54 \pm 0.10$<br>(0.100 $\pm$ 0.004) | $1.50 \pm 0.25$<br>(0.059 $\pm$ 0.001) |
| MBS                                                             | 16mm.        | $16.00 \pm 0.3$<br>(0.629 $\pm$ 0.012) | $8.00 \pm 0.1$<br>(0.315 $\pm$ 0.004)  |                                       | $7.50 \pm 0.1$<br>(0.295 $\pm$ 0.004)  | $2.54 \pm 0.10$<br>(0.100 $\pm$ 0.004) | $1.50 \pm 0.25$<br>(0.059 $\pm$ 0.001) |
| DFS                                                             | 16mm.        | $16.00 \pm 0.3$<br>(0.629 $\pm$ 0.012) | $12.00 \pm 0.1$<br>(0.473 $\pm$ 0.004) |                                       | $7.50 \pm 0.1$<br>(0.295 $\pm$ 0.004)  | $3.8 \pm 0.10$<br>(0.150 $\pm$ 0.004)  | $1.50 \pm 0.25$<br>(0.059 $\pm$ 0.001) |

**Note:**

1.  $A_0$ ,  $B_0$ , and  $K_0$  are determined by the maximum dimensions of the component size. The clearance between the component and the cavity must be within 0.05 mm (0.002") min. to 0.5 mm (0.02") max. for 8mm tape and 12mm tape and 0.15mm(0.006") min. to 0.90 mm (0.035") max. for 16 mm. tape.

## Packaging Information

### REEL PACKAGING (SURFACE MOUNT DIODES)



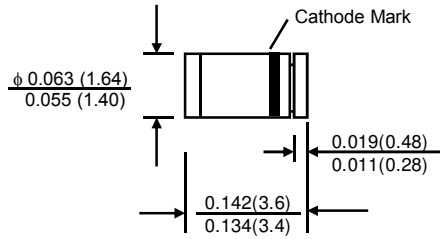
*DIMENSIONS IN mm. (inches)*

| Tape Size | A<br>max.                                         | B<br>max.      | C                            | D<br>max.       | E<br>min.     | F<br>max.       |
|-----------|---------------------------------------------------|----------------|------------------------------|-----------------|---------------|-----------------|
| 8 mm      | 178 ± 2.0 (7.0 ± 0.079)<br>330 ± 2.0 (13 ± 0.079) | 2.5<br>(0.098) | 13.0 ± 2.0<br>(0.51 ± 0.079) | 14.4<br>(0.567) | 100<br>(3.94) | 9.9<br>(0.389)  |
| 12 mm     | 330 ± 2.0 (13 ± 0.079)                            | 2.5<br>(0.098) | 13.0 ± 2.0<br>(0.51 ± 0.079) | 18.4<br>(0.724) | 100<br>(3.94) | 14.4<br>(0.567) |
| 16 mm     | 330 ± 2.0 (13 ± 0.079)                            | 2.5<br>(0.098) | 13.0 ± 2.0<br>(0.51 ± 0.079) | 22.4<br>(0.802) | 100<br>(3.94) | 18.4<br>(0.724) |

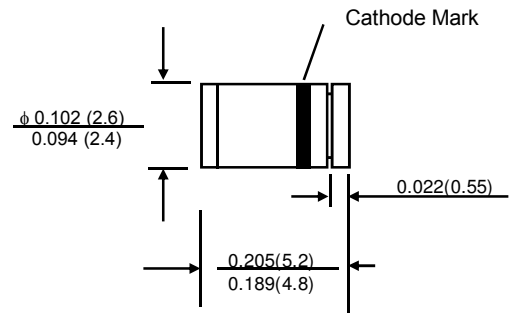
# Package Outline

Dimension in inches and (millimeters)

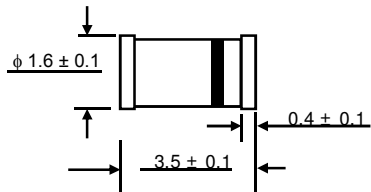
## Mini MELF(LL-34)



## MELF(LL-41)

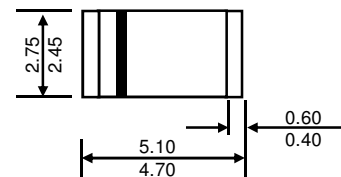


## Mini MELF (Plastic)



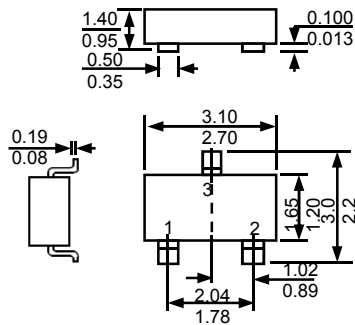
Dimensions in millimeters

## MELF (Plastic)



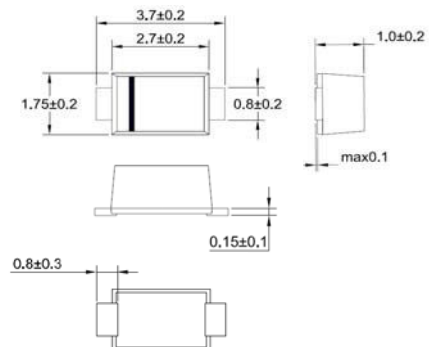
Dimensions in millimeters

## SOT-23



Dimensions in millimeters

## SOD-123FL

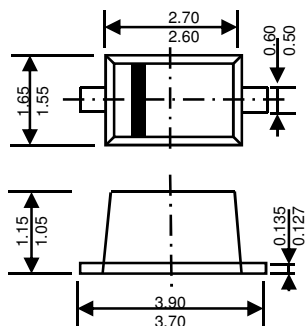


Dimensions in millimeters

## Package Outline

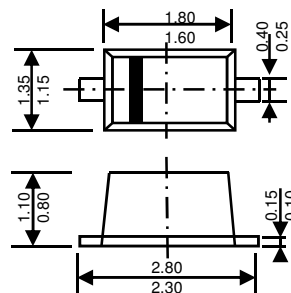
Dimension in inches and (millimeters)

### SOD-123



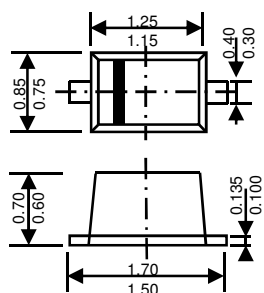
Dimensions in millimeters

### SOD-323



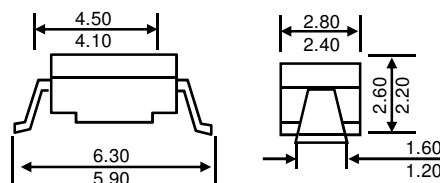
Dimensions in millimeters

### SOD-523



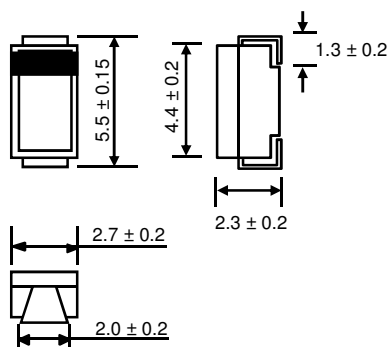
Dimensions in millimeters

### DO-215AC



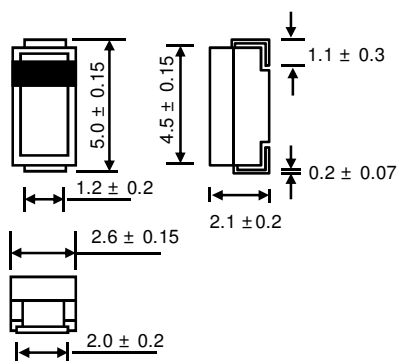
Dimensions in millimeters

### SMA



Dimensions in millimeters

### SMA(DO-214AC)

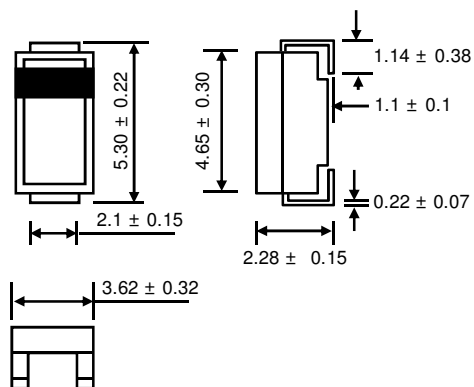


Dimensions in millimeters

# Package Outline

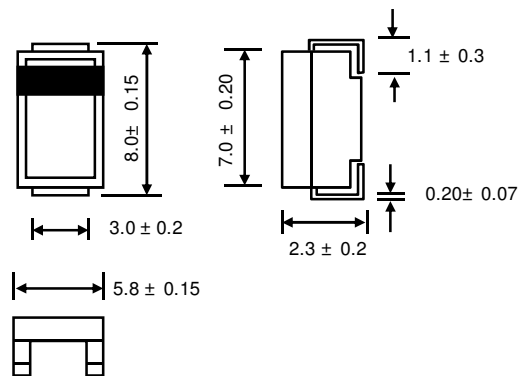
Dimension in inches and (millimeters)

## SMB(DO-214AA)



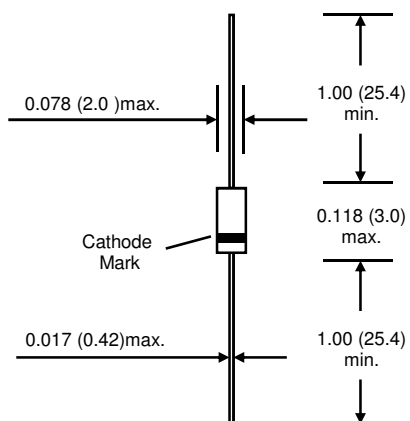
Dimensions in millimeters

## SMC(DO-214AB)

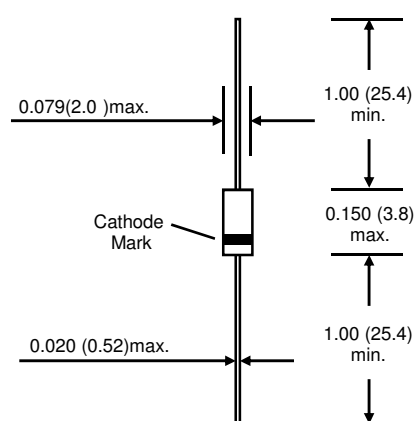


Dimensions in millimeters

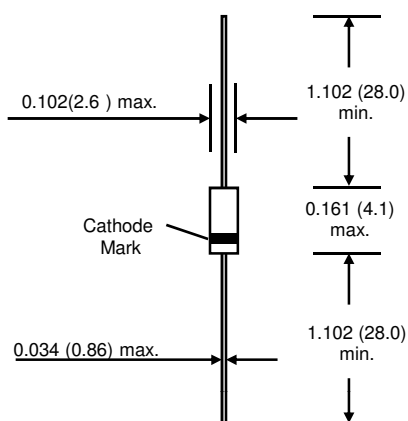
## DO-34



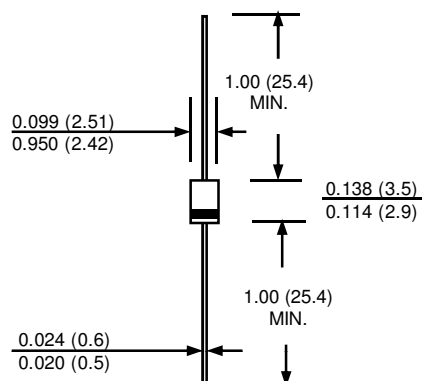
## DO-35



## DO-41(Glass)



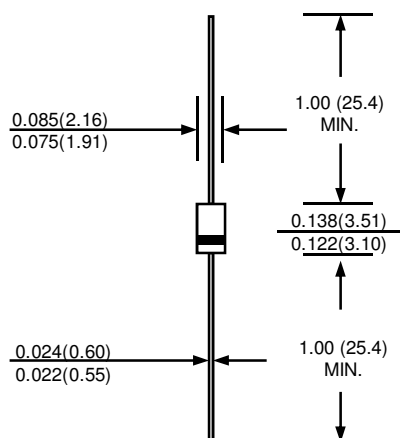
## R-1



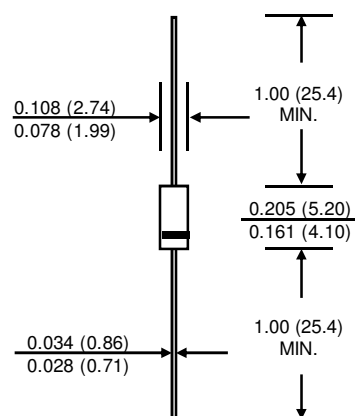
# Package Outline

Dimension in inches and (millimeters)

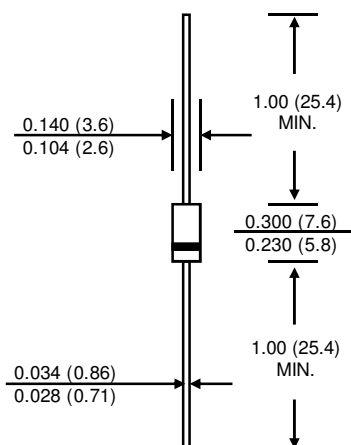
## M1A



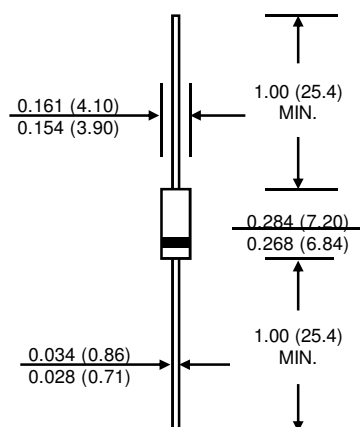
## DO-41



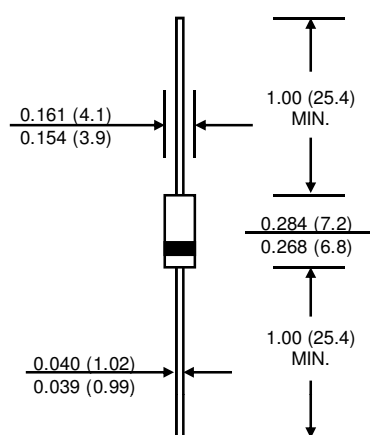
## DO-15



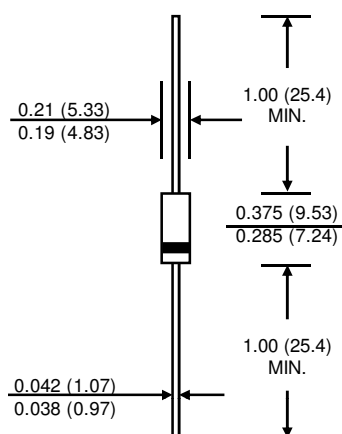
## D2



## D2A



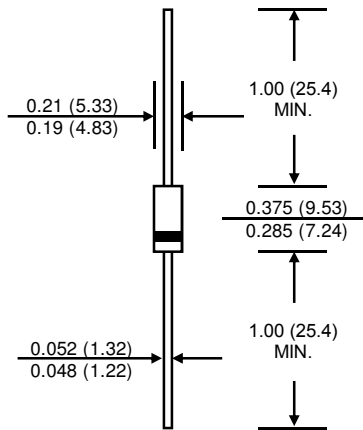
## DO-201



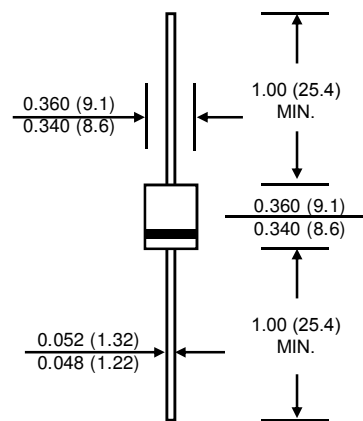
# Package Outline

Dimension in inches and (millimeters)

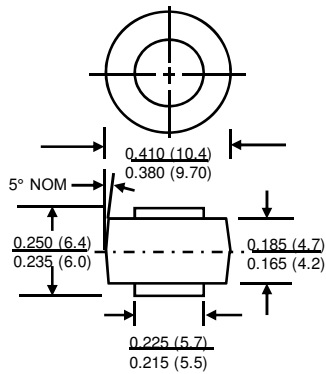
## DO-201AD



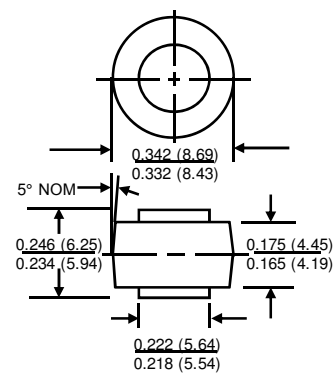
## D6



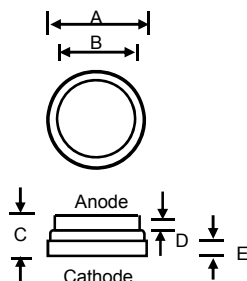
## BUTTON CASE (AR)



## MR

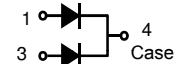
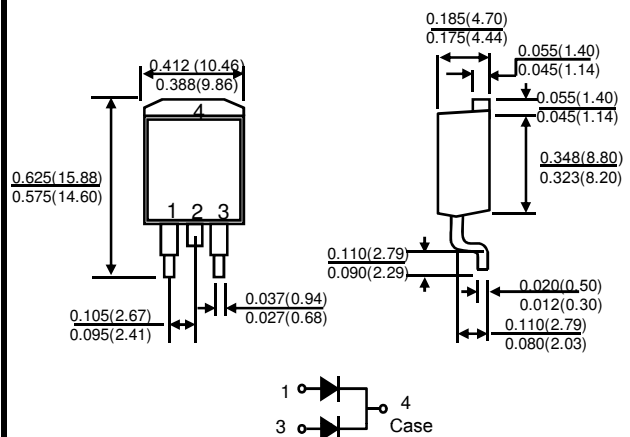


## CELL



| DIM. | MILLIMETER |      |      |      |      |
|------|------------|------|------|------|------|
|      | 3A         | 5A   | 8A   | 18A  | 25A  |
| A    | 3.94       | 4.82 | 5.47 | 6.20 | 6.20 |
| B    | 3.18       | 3.94 | 4.82 | 5.47 | 5.47 |
| C    | 1.30       | 1.40 | 1.27 | 1.30 | 1.30 |
| D    | 0.51       | 0.51 | 0.51 | 0.51 | 0.51 |
| E    | 0.38       | 0.38 | 0.38 | 0.38 | 0.38 |

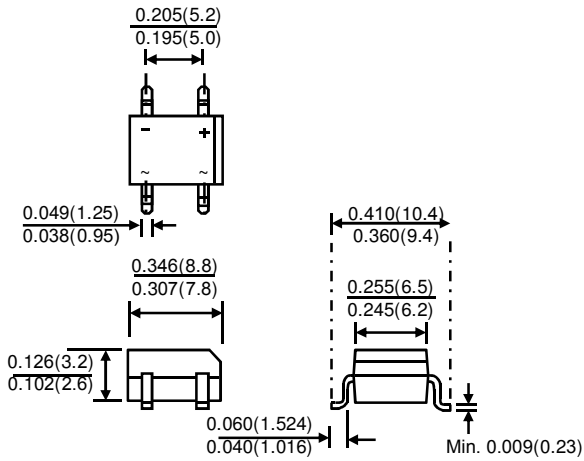
## D<sup>2</sup>PAK



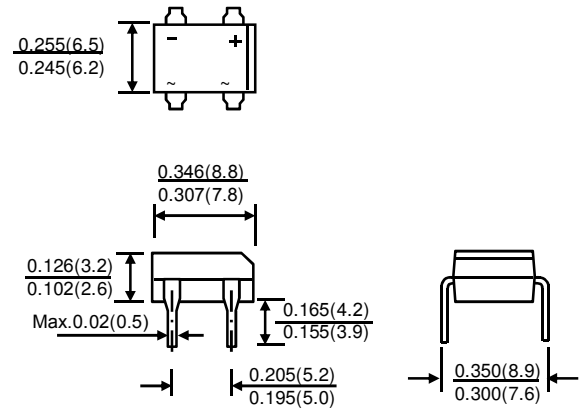
# Package Outline

Dimension in inches and (millimeters)

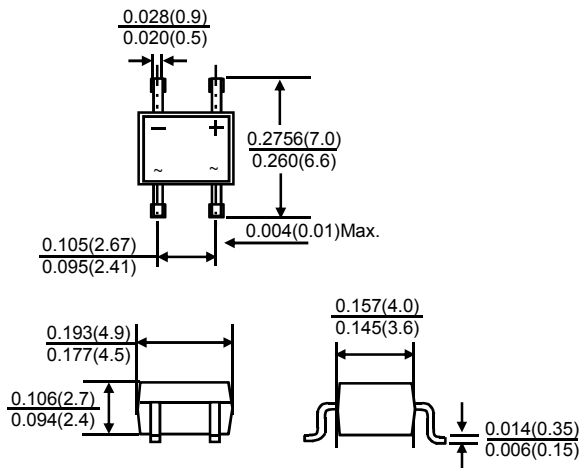
## DFS



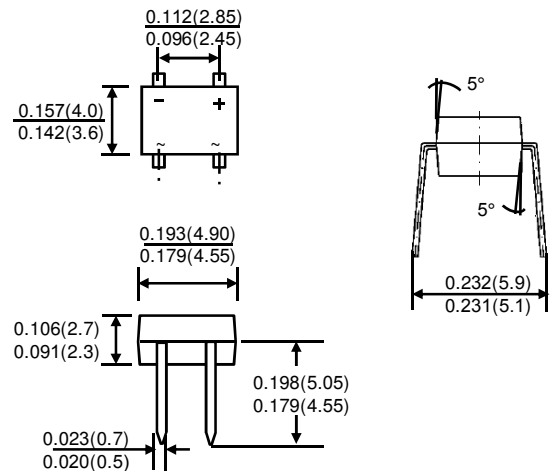
## DFM



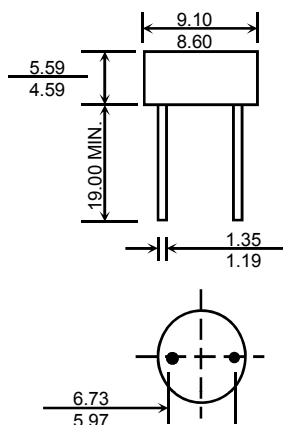
## MBS



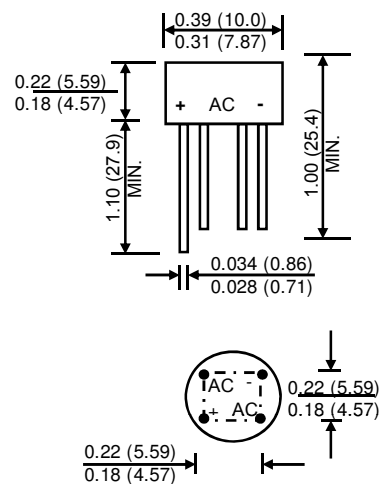
## MBM



## 5R



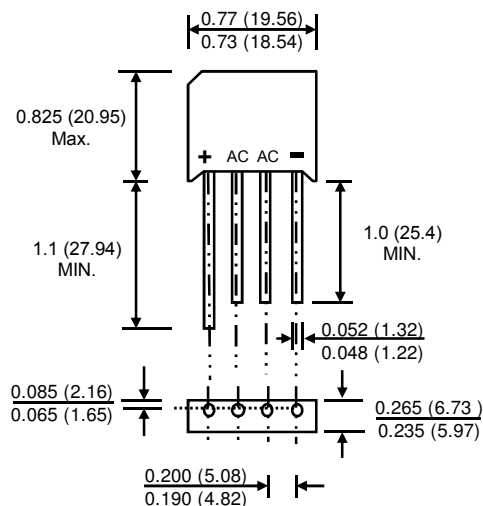
## WOB



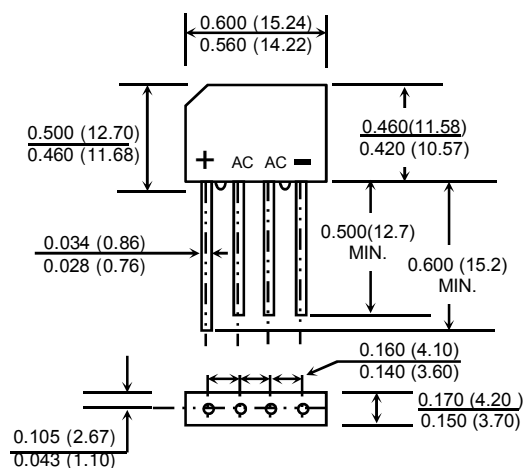
# Package Outline

Dimension in inches and (millimeters)

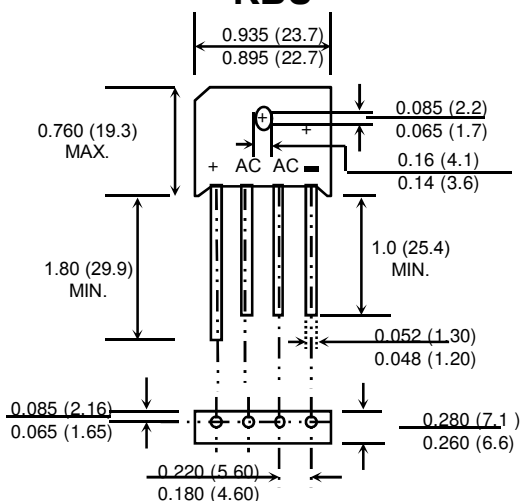
## KBL



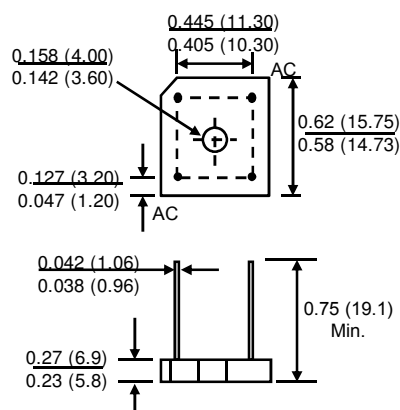
## KBP



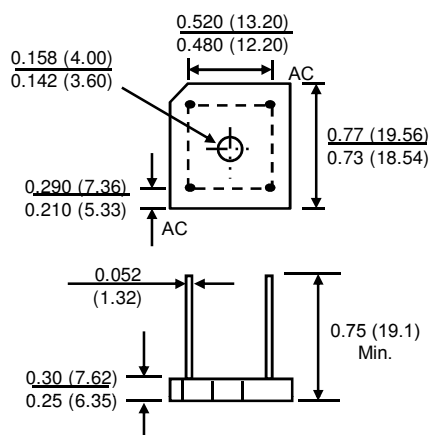
## KBU



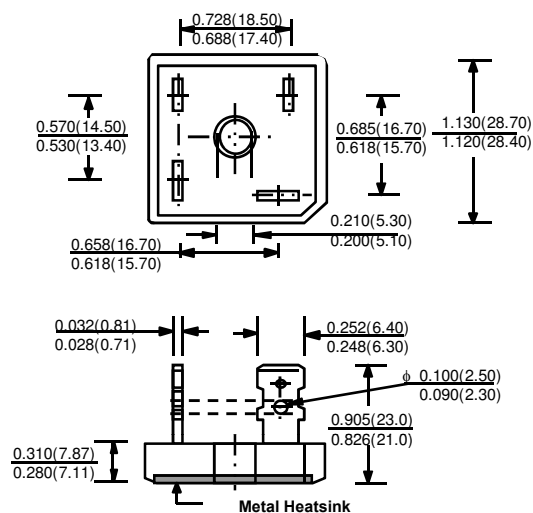
## BR6



## BR10

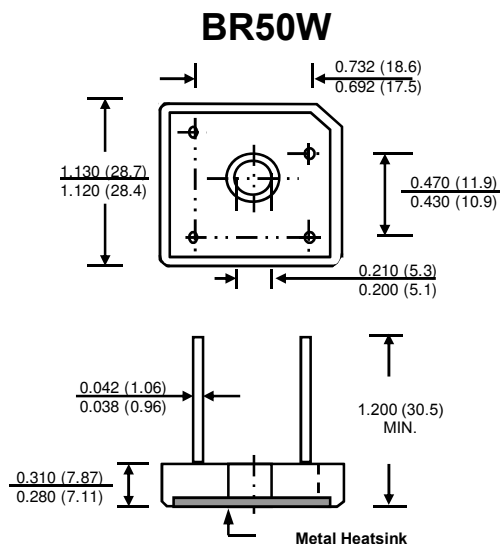
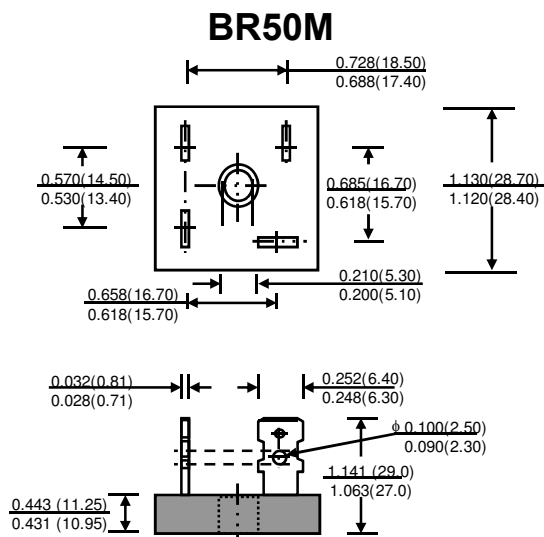


## BR50

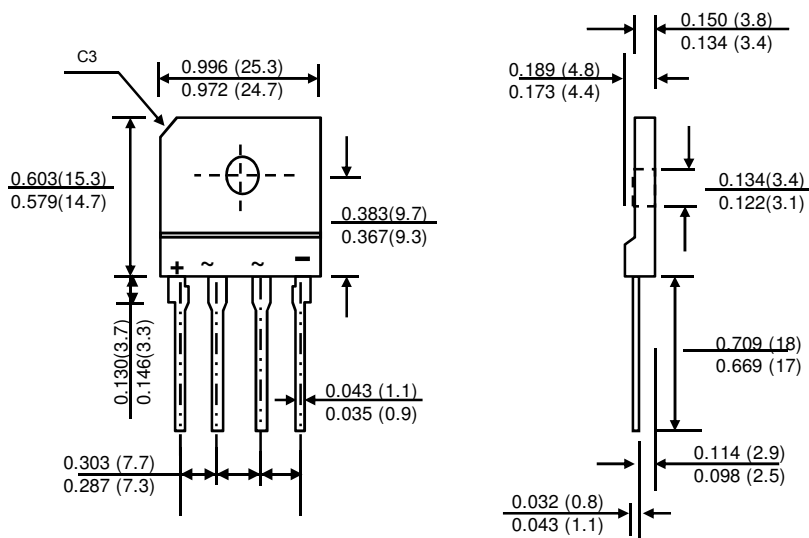


# Package Outline

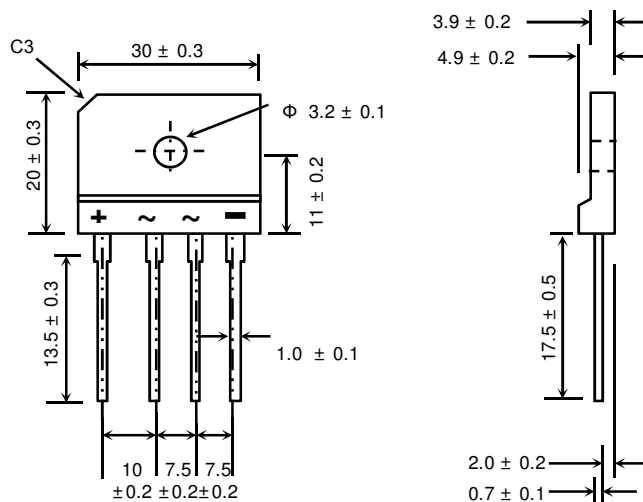
Dimension in inches and (millimeters)

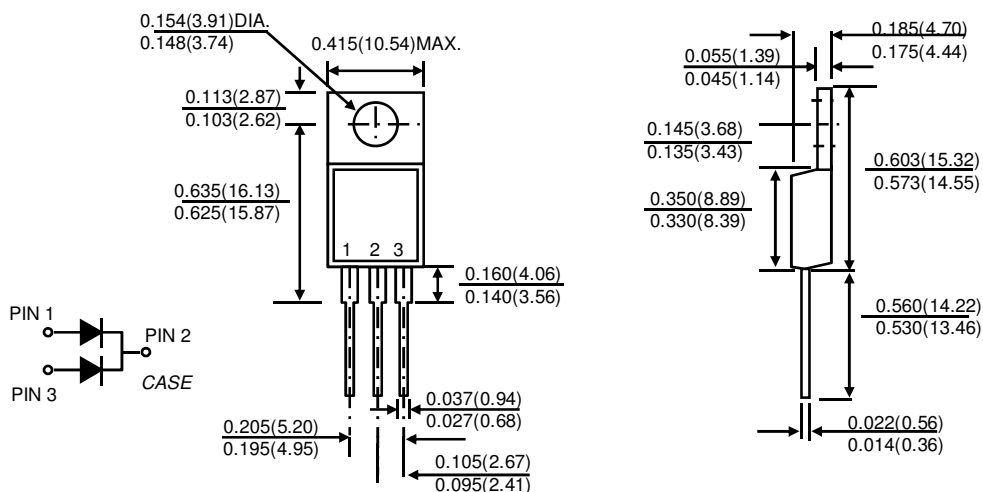
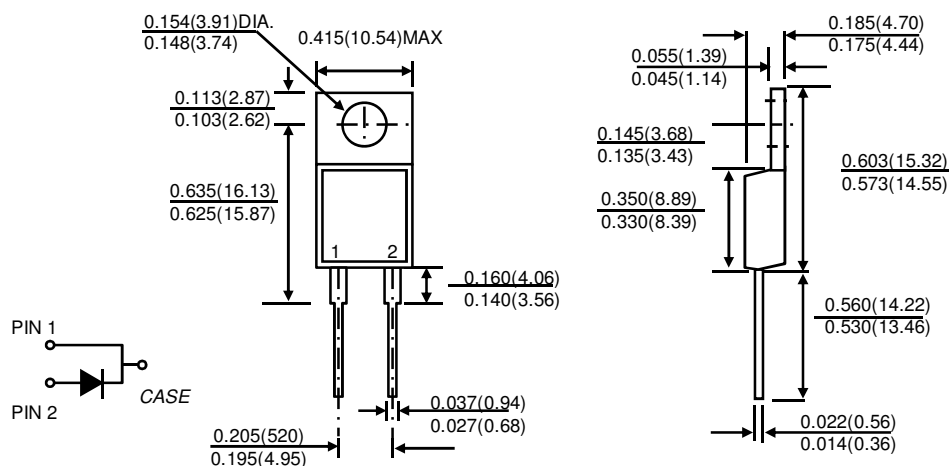
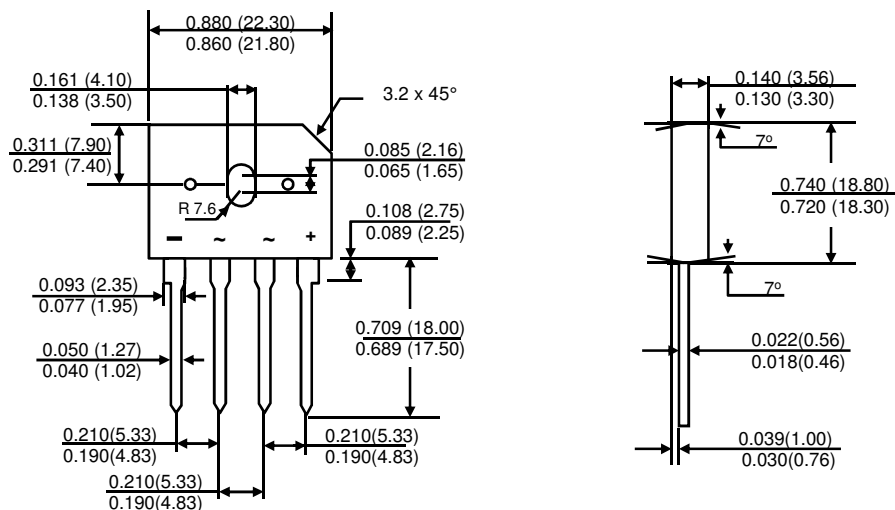


## RBV4



## RBV25

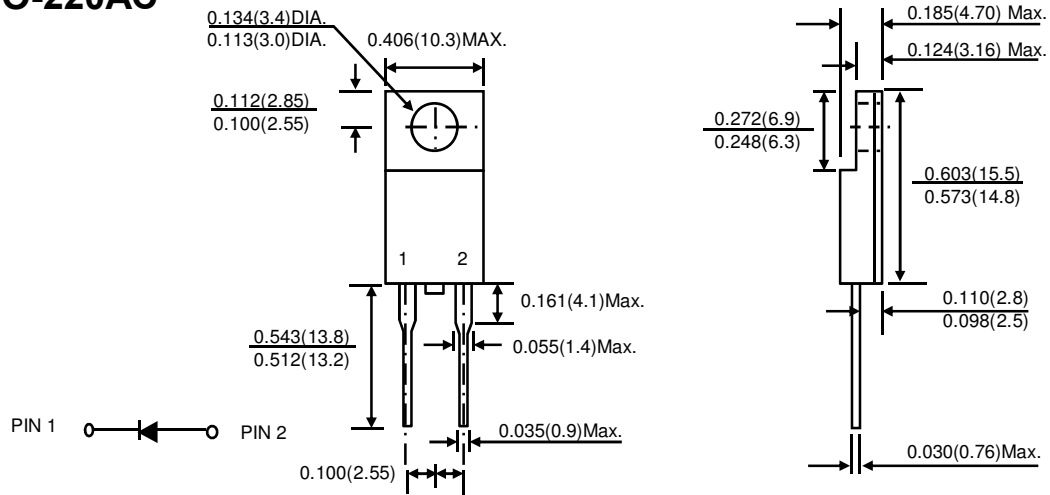




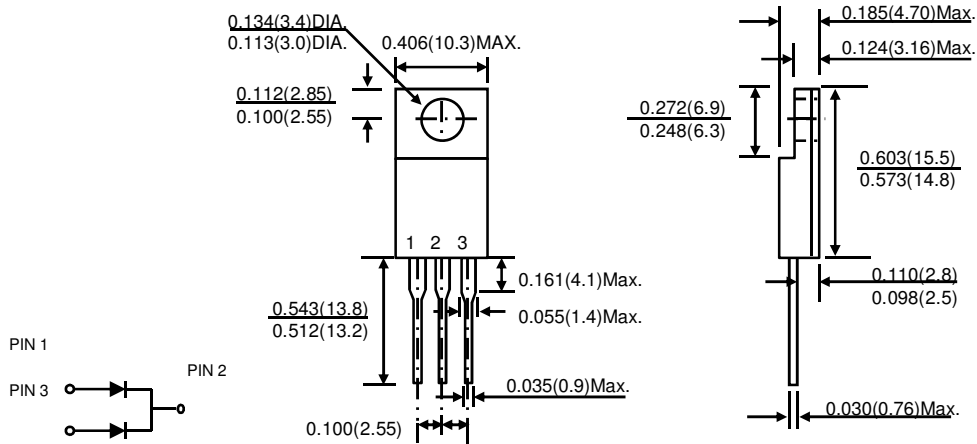
# Package Outline

Dimension in inches and (millimeters)

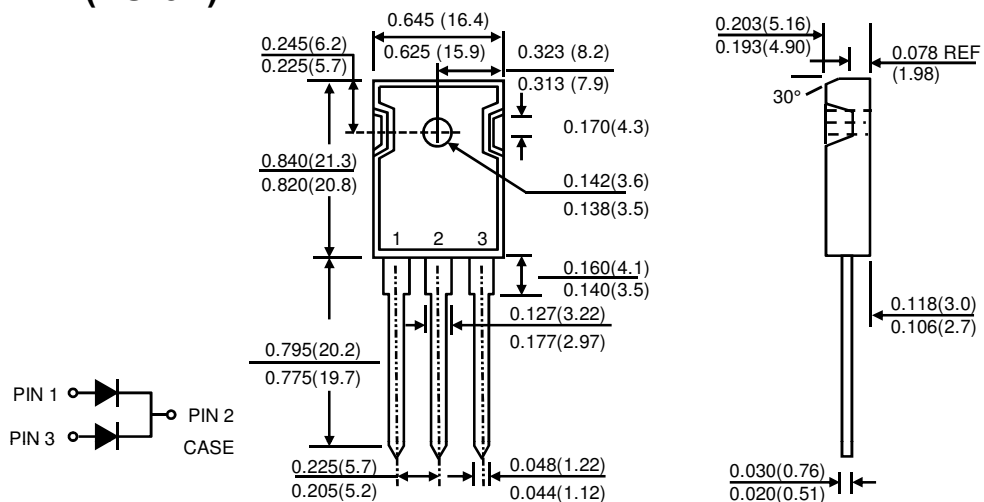
## ITO-220AC



## ITO-220AB



## TO-247AD (TO-3P)





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## REVISION HISTORY

### Document revision history

| Date        | Rivision | Detail                |
|-------------|----------|-----------------------|
| 15-Jan-2006 | 10       | Create Catalogue 2006 |
| 10-Feb-2008 | 11       | Create Catalogue 2008 |
| 7-Jan-2010  | 12       | Create Catalogue 2010 |
| 14-Jan-2011 | 13       | Create Catalogue 2011 |