

**Maximum Ratings** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

| Characteristic                                                                                               | Symbol           | Value | Unit |
|--------------------------------------------------------------------------------------------------------------|------------------|-------|------|
| Peak Pulse Power Dissipation<br>(Non-Repetitive Current Pulse Derated Above T <sub>A</sub> = +25°C) (Note 5) | P <sub>PK</sub>  | 1500  | W    |
| Peak Forward Surge Current,<br>8.3ms Single Half Sine-Wave Superimposed on Rated Load (Notes 5, 6, & 7)      | I <sub>FSM</sub> | 200   | A    |
| Steady State Power Dissipation @ T <sub>L</sub> = +75°C                                                      | PM(AV)           | 5.0   | W    |
| Instantaneous Forward Voltage @ I <sub>PP</sub> = 100A (Notes 5 & 7)                                         | V <sub>F</sub>   | 3.5   | V    |

**Thermal Characteristics**

| Characteristic              | Symbol           | Value       | Unit |
|-----------------------------|------------------|-------------|------|
| Operating Temperature Range | T <sub>J</sub>   | -55 to +150 | °C   |
| Storage Temperature Range   | T <sub>STG</sub> | -55 to +175 | °C   |

Notes: 5. Valid provided that terminals are kept at ambient temperature.  
6. Measured with 8.3ms single half sine-wave. Duty cycle = 4 pulses per minute maximum.  
7. Unidirectional units only.

**Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

| Part Number<br>Add C For<br>Bidirectional<br>(Note 8) | Reverse<br>Standoff<br>Voltage | Breakdown<br>Voltage<br>V <sub>BR</sub> @ I <sub>T</sub> (Note 9) |         | Test<br>Current     | Max. Reverse<br>Leakage @<br>V <sub>RWM</sub> (Note 11) | Max. Clamping<br>Voltage @ I <sub>PP</sub><br>(Note 10) | Max. Peak Pulse<br>Current | Marking Code |     |
|-------------------------------------------------------|--------------------------------|-------------------------------------------------------------------|---------|---------------------|---------------------------------------------------------|---------------------------------------------------------|----------------------------|--------------|-----|
|                                                       | V <sub>RWM</sub> (V)           | Min (V)                                                           | Max (V) | I <sub>T</sub> (mA) | I <sub>R</sub> (μA)                                     | V <sub>C</sub> (V)                                      | I <sub>PP</sub> (A)        | BI           | UNI |
| SMCJ5.0(C)AQ                                          | 5.0                            | 6.40                                                              | 7.07    | 10                  | 1000                                                    | 9.2                                                     | 163.0                      | BDE          | GDE |
| SMCJ6.0(C)AQ                                          | 6.0                            | 6.67                                                              | 7.37    | 10                  | 1000                                                    | 10.3                                                    | 145.6                      | BDG          | GDG |
| SMCJ6.5(C)AQ                                          | 6.5                            | 7.22                                                              | 7.98    | 10                  | 500                                                     | 11.2                                                    | 133.9                      | BDK          | GDK |
| SMCJ7.0(C)AQ                                          | 7.0                            | 7.78                                                              | 8.60    | 10                  | 200                                                     | 12.0                                                    | 125.0                      | BDM          | GDM |
| SMCJ7.5(C)AQ                                          | 7.5                            | 8.33                                                              | 9.21    | 1.0                 | 100                                                     | 12.9                                                    | 116.3                      | BDP          | GDP |
| SMCJ8.0(C)AQ                                          | 8.0                            | 8.89                                                              | 9.83    | 1.0                 | 50                                                      | 13.6                                                    | 110.3                      | BDR          | GDR |
| SMCJ8.5(C)AQ                                          | 8.5                            | 9.44                                                              | 10.4    | 1.0                 | 20                                                      | 14.4                                                    | 104.2                      | BDT          | GDT |
| SMCJ9.0(C)AQ                                          | 9.0                            | 10.00                                                             | 11.1    | 1.0                 | 10                                                      | 15.4                                                    | 97.4                       | BDV          | GDV |
| SMCJ10(C)AQ                                           | 10.0                           | 11.10                                                             | 12.3    | 1.0                 | 5.0                                                     | 17.0                                                    | 88.2                       | BDX          | GDX |
| SMCJ11(C)AQ                                           | 11.0                           | 12.20                                                             | 13.5    | 1.0                 | 5.0                                                     | 18.2                                                    | 82.4                       | BDZ          | GDZ |
| SMCJ12(C)AQ                                           | 12.0                           | 13.30                                                             | 14.7    | 1.0                 | 5.0                                                     | 19.9                                                    | 75.3                       | BEE          | GEE |
| SMCJ13(C)AQ                                           | 13.0                           | 14.40                                                             | 15.9    | 1.0                 | 5.0                                                     | 21.5                                                    | 69.7                       | BEG          | GEG |
| SMCJ14(C)AQ                                           | 14.0                           | 15.60                                                             | 17.2    | 1.0                 | 5.0                                                     | 23.2                                                    | 64.7                       | BEK          | GEK |
| SMCJ15(C)AQ                                           | 15.0                           | 16.70                                                             | 18.5    | 1.0                 | 5.0                                                     | 24.4                                                    | 61.5                       | BEM          | GEM |
| SMCJ16(C)AQ                                           | 16.0                           | 17.80                                                             | 19.7    | 1.0                 | 5.0                                                     | 26.0                                                    | 57.7                       | BEP          | GEP |
| SMCJ17(C)AQ                                           | 17.0                           | 18.90                                                             | 20.9    | 1.0                 | 5.0                                                     | 27.6                                                    | 53.3                       | BER          | GER |
| SMCJ18(C)AQ                                           | 18.0                           | 20.00                                                             | 22.1    | 1.0                 | 5.0                                                     | 29.2                                                    | 51.4                       | BET          | GET |
| SMCJ20(C)AQ                                           | 20.0                           | 22.20                                                             | 24.5    | 1.0                 | 5.0                                                     | 32.4                                                    | 46.3                       | BEV          | GEV |
| SMCJ22(C)AQ                                           | 22.0                           | 24.40                                                             | 27.0    | 1.0                 | 5.0                                                     | 35.5                                                    | 42.2                       | BEX          | GEX |
| SMCJ24(C)AQ                                           | 24.0                           | 26.70                                                             | 29.5    | 1.0                 | 5.0                                                     | 38.9                                                    | 38.6                       | BEZ          | GEZ |
| SMCJ26(C)AQ                                           | 26.0                           | 28.90                                                             | 31.9    | 1.0                 | 5.0                                                     | 42.1                                                    | 35.6                       | BFE          | GFE |
| SMCJ28(C)AQ                                           | 28.0                           | 31.10                                                             | 34.4    | 1.0                 | 5.0                                                     | 45.4                                                    | 33.0                       | BFG          | GFG |
| SMCJ30(C)AQ                                           | 30.0                           | 33.30                                                             | 36.8    | 1.0                 | 5.0                                                     | 48.4                                                    | 31.0                       | BFK          | GFK |
| SMCJ33(C)AQ                                           | 33.0                           | 36.70                                                             | 40.6    | 1.0                 | 5.0                                                     | 53.3                                                    | 28.1                       | BFM          | GFM |
| SMCJ36(C)AQ                                           | 36.0                           | 40.00                                                             | 44.2    | 1.0                 | 5.0                                                     | 58.1                                                    | 25.8                       | BFP          | GFP |
| SMCJ48(C)AQ                                           | 48.0                           | 53.30                                                             | 58.9    | 1.0                 | 5.0                                                     | 77.4                                                    | 19.4                       | BFX          | GFX |
| SMCJ51(C)AQ                                           | 51.0                           | 56.70                                                             | 62.7    | 1.0                 | 5.0                                                     | 82.4                                                    | 18.2                       | BFZ          | GFZ |
| SMCJ85(C)AQ                                           | 85.0                           | 94.40                                                             | 104     | 1.0                 | 5.0                                                     | 137.0                                                   | 10.4                       | BGV          | GGV |

Notes: 8. Suffix C denotes bidirectional device.  
9. V<sub>BR</sub> measured with I<sub>T</sub> current pulse = 10ms to 15ms.  
10. Per 10 × 1000μs waveform. See Figure 4.  
11. For bidirectional devices having V<sub>RWM</sub> of 10V and under, the I<sub>R</sub> is doubled.

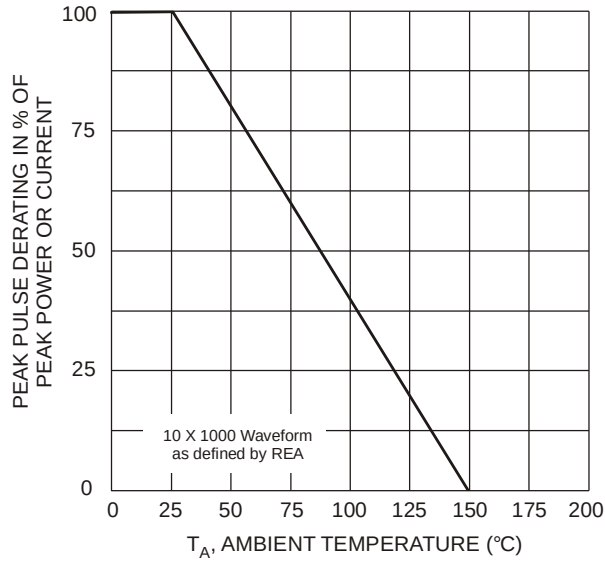


Fig. 1 Pulse Derating Curve

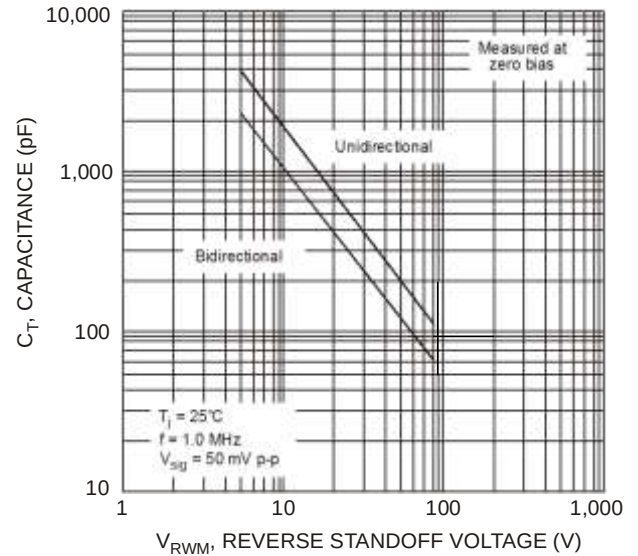


Fig. 2 Typical Total Capacitance

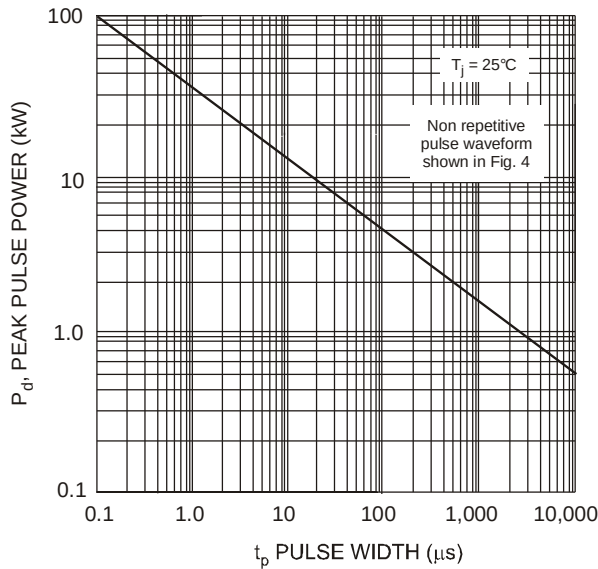


Fig. 3 Pulse Rating Curve

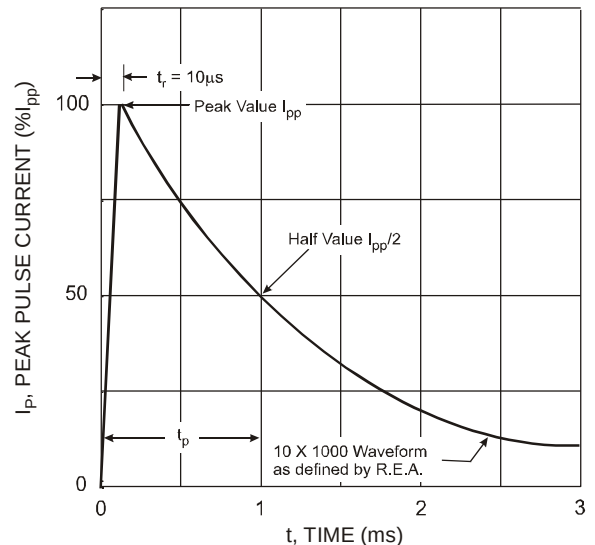


Fig. 4 Pulse Waveform

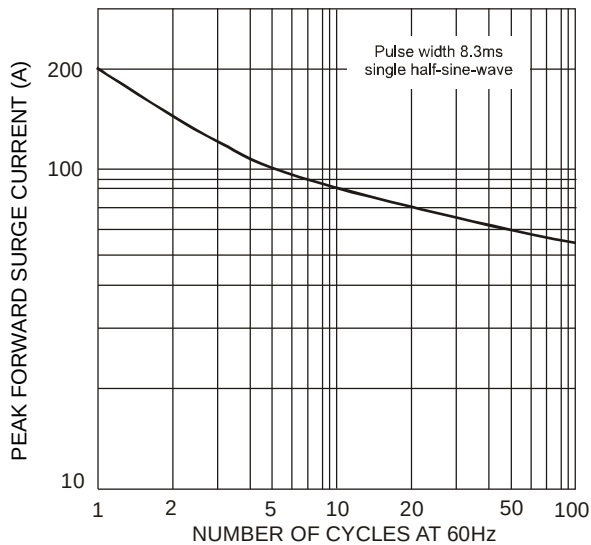


Fig. 5 Maximum Non-Repetitive Surge Current

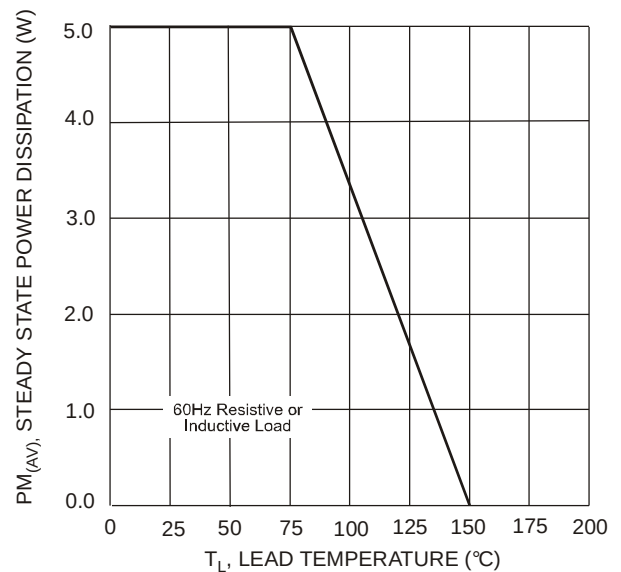
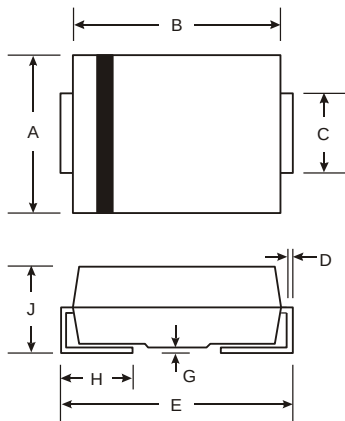


Fig. 6 Steady State Power Derating Curve

## Package Outline Dimensions

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

### SMC

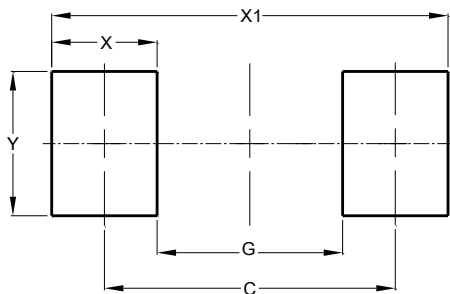


| SMC                  |      |      |
|----------------------|------|------|
| Dim                  | Min  | Max  |
| A                    | 5.59 | 6.22 |
| B                    | 6.60 | 7.11 |
| C                    | 2.75 | 3.18 |
| D                    | 0.15 | 0.31 |
| E                    | 7.75 | 8.13 |
| G                    | 0.10 | 0.20 |
| H                    | 0.76 | 1.52 |
| J                    | 2.00 | 2.50 |
| All Dimensions in mm |      |      |

## Suggested Pad Layout

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

### SMC



| Dimensions | Value (in mm) |
|------------|---------------|
| C          | 6.90          |
| G          | 4.40          |
| X          | 2.50          |
| X1         | 9.40          |
| Y          | 3.30          |

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