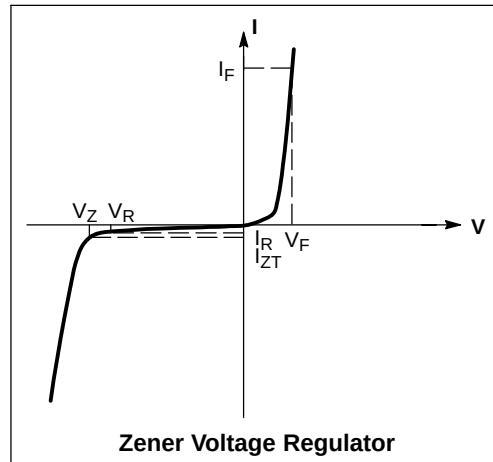


# MM3Z2V4T1 SERIES

## ELECTRICAL CHARACTERISTICS

| Symbol       | Parameter                                    |
|--------------|----------------------------------------------|
| $V_Z$        | Reverse Zener Voltage @ $I_{ZT}$             |
| $I_{ZT}$     | Reverse Current                              |
| $Z_{ZT}$     | Maximum Zener Impedance @ $I_{ZT}$           |
| $I_{ZK}$     | Reverse Current                              |
| $Z_{ZK}$     | Maximum Zener Impedance @ $I_{ZK}$           |
| $I_R$        | Reverse Leakage Current @ $V_R$              |
| $V_R$        | Reverse Voltage                              |
| $I_F$        | Forward Current                              |
| $V_F$        | Forward Voltage @ $I_F$                      |
| $\Theta V_Z$ | Maximum Temperature Coefficient of $V_Z$     |
| C            | Max. Capacitance @ $V_R = 0$ and $f = 1$ MHz |



## ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise noted, $V_F = 0.9$ V Max. @ $I_F = 10$ mA for all types)

| Device*      | Device Marking | Zener Voltage (Note 2) |       |      |                   | Zener Impedance                      |                                   |     | Leakage Current                 |       | ΘV <sub>Z</sub><br>(mV/k)<br>@ I <sub>ZT</sub> |      | C<br>@ V <sub>R</sub> = 0<br>f = 1 MHz |
|--------------|----------------|------------------------|-------|------|-------------------|--------------------------------------|-----------------------------------|-----|---------------------------------|-------|------------------------------------------------|------|----------------------------------------|
|              |                | V <sub>Z</sub> (Volts) |       |      | @ I <sub>ZT</sub> | Z <sub>ZT</sub><br>@ I <sub>ZT</sub> | Z <sub>ZK</sub> @ I <sub>ZK</sub> |     | I <sub>R</sub> @ V <sub>R</sub> |       |                                                |      |                                        |
|              |                | Min                    | Nom   | Max  | mA                | Ω                                    | Ω                                 | mA  | μA                              | Volts | Min                                            | Max  | pF                                     |
| MM3Z2V4T1, G | 00             | 2.2                    | 2.4   | 2.6  | 5                 | 100                                  | 1000                              | 0.5 | 50                              | 1.0   | −3.5                                           | 0    | 450                                    |
| MM3Z2V7T1, G | 01             | 2.5                    | 2.7   | 2.9  | 5                 | 100                                  | 1000                              | 0.5 | 20                              | 1.0   | −3.5                                           | 0    | 450                                    |
| MM3Z3V0T1, G | 02             | 2.8                    | 3.0   | 3.2  | 5                 | 100                                  | 1000                              | 0.5 | 10                              | 1.0   | −3.5                                           | 0    | 450                                    |
| MM3Z3V3T1, G | 05             | 3.1                    | 3.3   | 3.5  | 5                 | 95                                   | 1000                              | 0.5 | 5                               | 1.0   | −3.5                                           | 0    | 450                                    |
| MM3Z3V6T1, G | 06             | 3.4                    | 3.6   | 3.8  | 5                 | 90                                   | 1000                              | 0.5 | 5                               | 1.0   | −3.5                                           | 0    | 450                                    |
| MM3Z3V9T1, G | 07             | 3.7                    | 3.9   | 4.1  | 5                 | 90                                   | 1000                              | 0.5 | 3                               | 1.0   | −3.5                                           | −2.5 | 450                                    |
| MM3Z4V3T1, G | 08             | 4.0                    | 4.3   | 4.6  | 5                 | 90                                   | 1000                              | 0.5 | 3                               | 1.0   | −3.5                                           | 0    | 450                                    |
| MM3Z4V7T1, G | 09             | 4.4                    | 4.7   | 5.0  | 5                 | 80                                   | 800                               | 0.5 | 3                               | 2.0   | −3.5                                           | 0.2  | 260                                    |
| MM3Z5V1T1, G | 0A             | 4.8                    | 5.1   | 5.4  | 5                 | 60                                   | 500                               | 0.5 | 2                               | 2.0   | −2.7                                           | 1.2  | 225                                    |
| MM3Z5V6T1, G | 0C             | 5.2                    | 5.6   | 6.0  | 5                 | 40                                   | 200                               | 0.5 | 1                               | 2.0   | −2.0                                           | 2.5  | 200                                    |
| MM3Z6V2T1, G | 0E             | 5.8                    | 6.2   | 6.6  | 5                 | 10                                   | 100                               | 0.5 | 3                               | 4.0   | 0.4                                            | 3.7  | 185                                    |
| MM3Z6V8T1, G | 0F             | 6.4                    | 6.8   | 7.2  | 5                 | 15                                   | 160                               | 0.5 | 2                               | 4.0   | 1.2                                            | 4.5  | 155                                    |
| MM3Z7V5T1, G | 0G             | 7.0                    | 7.5   | 7.9  | 5                 | 15                                   | 160                               | 0.5 | 1                               | 5.0   | 2.5                                            | 5.3  | 140                                    |
| MM3Z8V2T1, G | 0H             | 7.7                    | 8.2   | 8.7  | 5                 | 15                                   | 160                               | 0.5 | 0.7                             | 5.0   | 3.2                                            | 6.2  | 135                                    |
| MM3Z9V1T1, G | 0K             | 8.5                    | 9.1   | 9.6  | 5                 | 15                                   | 160                               | 0.5 | 0.2                             | 7.0   | 3.8                                            | 7.0  | 130                                    |
| MM3Z10VT1, G | 0L             | 9.4                    | 10    | 10.6 | 5                 | 20                                   | 160                               | 0.5 | 0.1                             | 8.0   | 4.5                                            | 8.0  | 130                                    |
| MM3Z11VT1, G | 0M             | 10.4                   | 11    | 11.6 | 5                 | 20                                   | 160                               | 0.5 | 0.1                             | 8.0   | 5.4                                            | 9.0  | 130                                    |
| MM3Z12VT1, G | 0N             | 11.4                   | 12    | 12.7 | 5                 | 25                                   | 80                                | 0.5 | 0.1                             | 8.0   | 6.0                                            | 10   | 130                                    |
| MM3Z13VT1, G | 0P             | 12.4                   | 13.25 | 14.1 | 5                 | 30                                   | 80                                | 0.5 | 0.1                             | 8.0   | 7.0                                            | 11   | 120                                    |
| MM3Z15VT1, G | 0T             | 14.3                   | 15    | 15.8 | 5                 | 30                                   | 80                                | 0.5 | 0.05                            | 10.5  | 9.2                                            | 13   | 110                                    |
| MM3Z16VT1, G | 0U             | 15.3                   | 16.2  | 17.1 | 5                 | 40                                   | 80                                | 0.5 | 0.05                            | 11.2  | 10.4                                           | 14   | 105                                    |
| MM3Z18VT1, G | 0W             | 16.8                   | 18    | 19.1 | 5                 | 45                                   | 80                                | 0.5 | 0.05                            | 12.6  | 12.4                                           | 16   | 100                                    |
| MM3Z20VT1, G | 0Z             | 18.8                   | 20    | 21.2 | 5                 | 55                                   | 100                               | 0.5 | 0.05                            | 14.0  | 14.4                                           | 18   | 85                                     |
| MM3Z22VT1, G | 10             | 20.8                   | 22    | 23.3 | 5                 | 55                                   | 100                               | 0.5 | 0.05                            | 15.4  | 16.4                                           | 20   | 85                                     |
| MM3Z24VT1, G | 11             | 22.8                   | 24.2  | 25.6 | 5                 | 70                                   | 120                               | 0.5 | 0.05                            | 16.8  | 18.4                                           | 22   | 80                                     |
| MM3Z27VT1, G | 12             | 25.1                   | 27    | 28.9 | 2                 | 80                                   | 300                               | 0.5 | 0.05                            | 18.9  | 21.4                                           | 25.3 | 70                                     |
| MM3Z30VT1, G | 14             | 28                     | 30    | 32   | 2                 | 80                                   | 300                               | 0.5 | 0.05                            | 21.0  | 24.4                                           | 29.4 | 70                                     |
| MM3Z33VT1, G | 18             | 31                     | 33    | 35   | 2                 | 80                                   | 300                               | 0.5 | 0.05                            | 23.2  | 27.4                                           | 33.4 | 70                                     |
| MM3Z36VT1, G | 19             | 34                     | 36    | 38   | 2                 | 90                                   | 500                               | 0.5 | 0.05                            | 25.2  | 30.4                                           | 37.4 | 70                                     |
| MM3Z39VT1, G | 20             | 37                     | 39    | 41   | 2                 | 130                                  | 500                               | 0.5 | 0.05                            | 27.3  | 33.4                                           | 41.2 | 45                                     |
| MM3Z43VT1, G | 21             | 40                     | 43    | 46   | 2                 | 150                                  | 500                               | 0.5 | 0.05                            | 30.1  | 37.6                                           | 46.6 | 40                                     |
| MM3Z47VT1, G | 1A             | 44                     | 47    | 50   | 2                 | 170                                  | 500                               | 0.5 | 0.05                            | 32.9  | 42.0                                           | 51.8 | 40                                     |
| MM3Z51VT1, G | 1C             | 48                     | 51    | 54   | 2                 | 180                                  | 500                               | 0.5 | 0.05                            | 35.7  | 46.6                                           | 57.2 | 40                                     |
| MM3Z56VT1, G | 1D             | 52                     | 56    | 60   | 2                 | 200                                  | 500                               | 0.5 | 0.05                            | 39.2  | 52.2                                           | 63.8 | 40                                     |
| MM3Z62VT1    | 1E             | 58                     | 62    | 66   | 2                 | 215                                  | 500                               | 0.5 | 0.05                            | 43.4  | 58.8                                           | 71.6 | 35                                     |
| MM3Z68VT1, G | 1F             | 64                     | 68    | 72   | 2                 | 240                                  | 500                               | 0.5 | 0.05                            | 47.6  | 65.6                                           | 79.8 | 35                                     |
| MM3Z75VT1, G | 1G             | 70                     | 75    | 79   | 2                 | 255                                  | 500                               | 0.5 | 0.05                            | 52.5  | 73.4                                           | 88.6 | 35                                     |

\*The "G" suffix indicates Pb-Free package available.

2. Zener voltage is measured with a pulse test current  $I_Z$  at an ambient temperature of  $25^\circ\text{C}$ .

# MM3Z2V4T1 SERIES

## TYPICAL CHARACTERISTICS

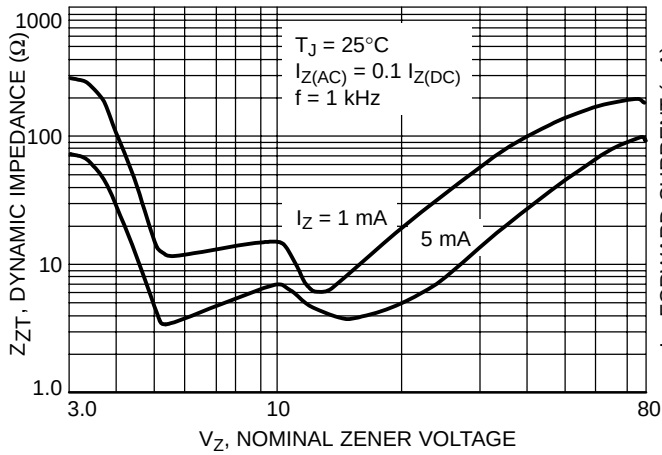


Figure 1. Effect of Zener Voltage on Zener Impedance

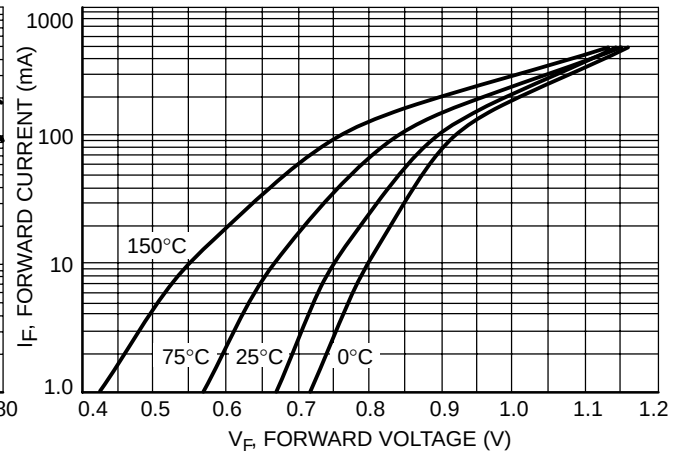


Figure 2. Typical Forward Voltage

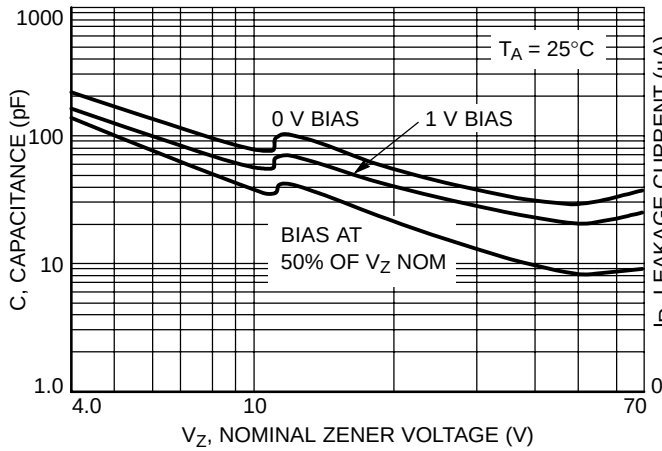


Figure 3. Typical Capacitance

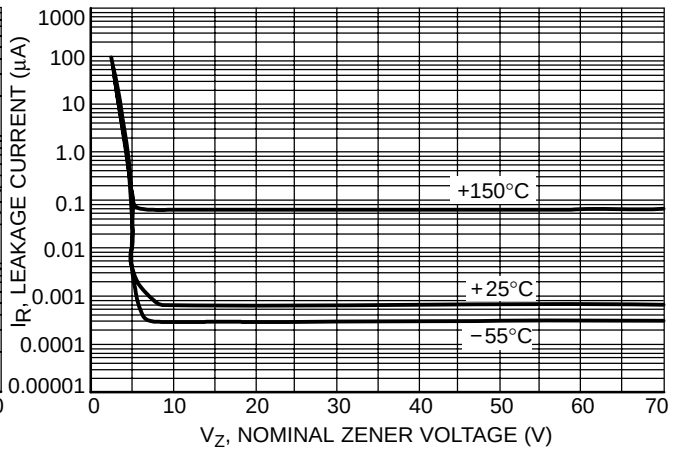


Figure 4. Typical Leakage Current

# MM3Z2V4T1 SERIES

## TYPICAL CHARACTERISTICS

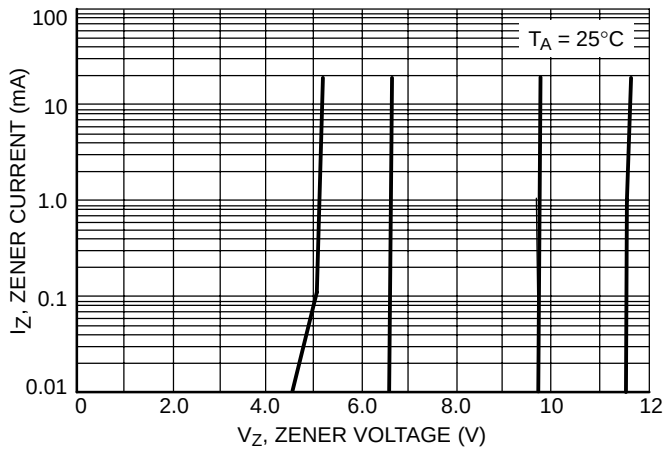


Figure 5. Zener Voltage versus Zener Current ( $V_Z$  Up to 12 V)

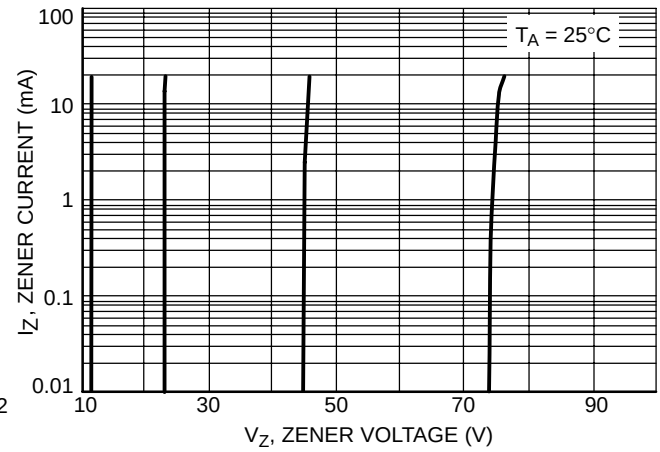


Figure 6. Zener Voltage versus Zener Current (12 V to 75 V)

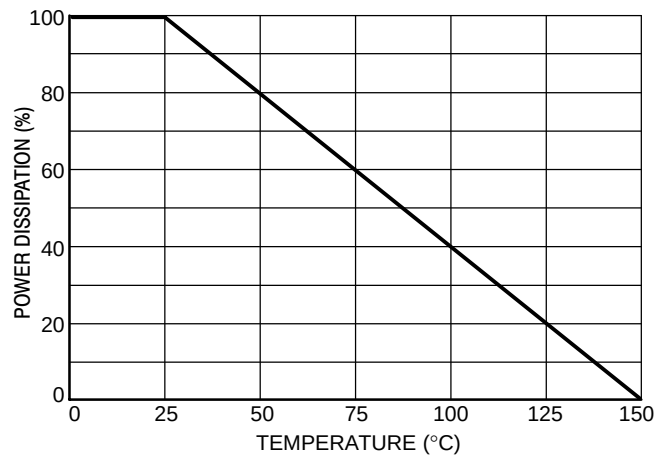
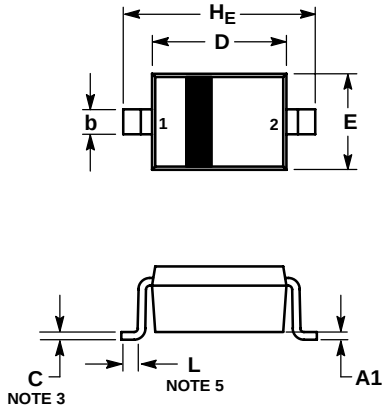


Figure 7. Steady State Power Derating

# MM3Z2V4T1 SERIES

## PACKAGE DIMENSIONS

SOD-323  
CASE 477-02  
ISSUE G



### NOTES:

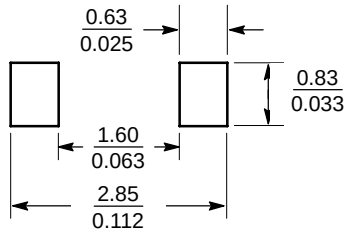
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. LEAD THICKNESS SPECIFIED PER L/F DRAWING WITH SOLDER PLATING.
4. DIMENSIONS A AND B DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.
5. DIMENSION L IS MEASURED FROM END OF RADIUS.

| DIM | MILLIMETERS |      |       | INCHES    |       |       |
|-----|-------------|------|-------|-----------|-------|-------|
|     | MIN         | NOM  | MAX   | MIN       | NOM   | MAX   |
| A   | 0.80        | 0.90 | 1.00  | 0.031     | 0.035 | 0.040 |
| A1  | 0.00        | 0.05 | 0.10  | 0.000     | 0.002 | 0.004 |
| A3  | 0.15 REF    |      |       | 0.006 REF |       |       |
| b   | 0.25        | 0.32 | 0.4   | 0.010     | 0.012 | 0.016 |
| C   | 0.089       | 0.12 | 0.177 | 0.003     | 0.005 | 0.007 |
| D   | 1.60        | 1.70 | 1.80  | 0.062     | 0.066 | 0.070 |
| E   | 1.15        | 1.25 | 1.35  | 0.045     | 0.049 | 0.053 |
| L   | 0.08        |      |       | 0.003     |       |       |
| HE  | 2.30        | 2.50 | 2.70  | 0.090     | 0.098 | 0.105 |

### STYLE 1:

- PIN 1. CATHODE  
2. ANODE

## SOLDERING FOOTPRINT\*



\*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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