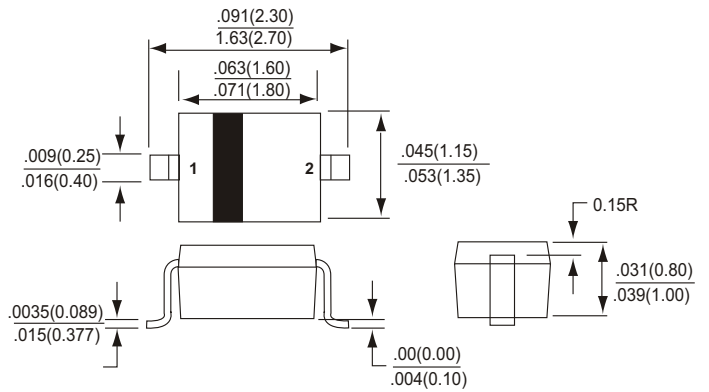


# MM3Z2V4 Series

## SURFACE MOUNT ZENER DIODES



SOD-323



PIN 1. CATHODE  
2. ANODE

### FEATURES

- 200mw Power Dissipation
- Ideal for Surface Mounted Application
- Zener Breakdown Voltage Range 2.4V to 75V

### MECHANICAL DATA

Case : SOD-323 Molded plastic  
Terminals : Solder Plated, solderable per MIL-STD-202, Method 208  
Polarity : Cathode Indicated by Polarity Band  
Marking : Marking Code (See Table on Page 3)  
Weigh : 0.004grams (approx)

### Maximum Ratings and Electrical Characteristics (at $T_A=25^\circ\text{C}$ unless otherwise noted)

| PARAMETER                                                                     | SYMBOL             | VALUE       | UNITS                       |
|-------------------------------------------------------------------------------|--------------------|-------------|-----------------------------|
| Total Power Dissipation on FR-5 Board <sup>(1)</sup> @ $T_A=25^\circ\text{C}$ | $P_D$              | 200         | mW                          |
| Thermal Resistance Junction to Ambient Air <sup>(1)</sup>                     | $R_{\theta JA}$    | 625         | $^\circ\text{C} / \text{W}$ |
| Forward Voltage @ $I_F=10\text{mA}$                                           | $V_F$              | 0.9         | V                           |
| Junction and Storage Temperature Range                                        | $T_J$<br>$T_{STG}$ | -65 to +150 | $^\circ\text{C}$            |

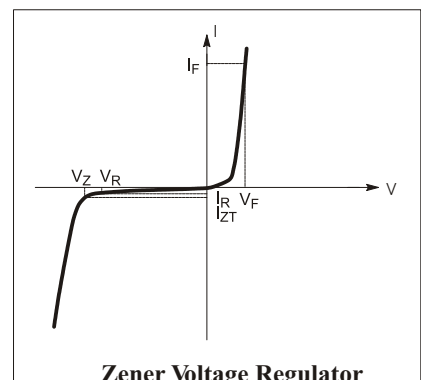
NOTE :

1. FR-4 Minimum Pad

### ELECTRICAL CHARACTERISTICS

(P in out 1- Anode, 2-No Connection, 3-Cathode)  
( $T_A=25^\circ\text{C}$  unless otherwise noted,  $V_F=0.9\text{V}$  Max. @  $I_F=10\text{mA}$ )

| SYMBOL       | PARAMETER                                      |
|--------------|------------------------------------------------|
| $V_Z$        | Reverse Zener Voltage @ $I_{ZT}$               |
| $I_{ZT}$     | Reverse Current                                |
| $Z_{ZT}$     | Maximum Zener Impedance @ $I_{ZT}$             |
| $I_R$        | 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 $f=1\text{MHz}$ |



### Device Marking

| LTEM           | MARKING                                          | EQUIVALENT CIRCUIT DIAGRAM |
|----------------|--------------------------------------------------|----------------------------|
| MM3Z2V4 Series | XX=Specific Device Code<br>(See Table on page 3) |                            |

# MM3Z2V4 Series

## SURFACE MOUNT ZENER DIODES

### ELECTRICAL CHARACTERISTICS

(T<sub>A</sub>=25°C unless otherwise noted, V<sub>F</sub>=0.90 V Max.@I<sub>F</sub>=10mA for all types)

| Device     | Device Marking | Zener Voltage (Note) |       |      |                  | Zener Impedance                   |                                  |     | Leakage Current                |       | $\theta$ Vz(mV/K)<br>@I <sub>ZT</sub> |      | C<br>@V <sub>R</sub> =0<br>f=1MHz |
|------------|----------------|----------------------|-------|------|------------------|-----------------------------------|----------------------------------|-----|--------------------------------|-------|---------------------------------------|------|-----------------------------------|
|            |                | V <sub>Z</sub> Volts |       |      | @I <sub>ZT</sub> | Z <sub>KT</sub> @ I <sub>ZT</sub> | Z <sub>ZK</sub> @ Z <sub>K</sub> |     | I <sub>R</sub> @V <sub>R</sub> |       |                                       |      |                                   |
|            |                | Min                  | Nom   | Max  | mA               | Ω                                 | Ω                                | mA  | A                              | Volts | Min                                   | Max  |                                   |
| MM3Z2V4T1  | 00             | 2.2                  | 2.4   | 2.6  | 5                | 100                               | 1000                             | 0.5 | 50                             | 1.0   | ±3.5                                  | 0    | 450                               |
| MM3Z2V7T1  | 01             | 2.5                  | 2.7   | 2.9  | 5                | 100                               | 1000                             | 0.5 | 20                             | 1.0   | ±3.5                                  | 0    | 450                               |
| MM3Z3V0T1  | 02             | 2.8                  | 3     | 3.2  | 5                | 100                               | 1000                             | 0.5 | 10                             | 1.0   | ±3.5                                  | 0    | 450                               |
| MM3Z3V3T1  | 05             | 3.1                  | 3.3   | 3.5  | 5                | 95                                | 1000                             | 0.5 | 5                              | 1.0   | ±3.5                                  | 0    | 450                               |
| MM3Z3V6T1  | 06             | 3.4                  | 3.6   | 3.8  | 5                | 90                                | 1000                             | 0.5 | 5                              | 1.0   | ±3.5                                  | 0    | 450                               |
| MM3Z3V9T1  | 07             | 3.7                  | 3.9   | 4.1  | 5                | 90                                | 1000                             | 0.5 | 3                              | 1.0   | ±3.5                                  | ±2.5 | 450                               |
| MM3Z4V3T1  | 08             | 4.0                  | 4.3   | 4.6  | 5                | 90                                | 1000                             | 0.5 | 3                              | 1.0   | ±3.5                                  | 0    | 450                               |
| MM3Z4V7T1  | 09             | 4.4                  | 4.7   | 5    | 5                | 80                                | 800                              | 0.5 | 3                              | 2.0   | ±3.5                                  | 0.2  | 260                               |
| MM3Z5V1T1  | 0A             | 4.8                  | 5.1   | 5.4  | 5                | 60                                | 500                              | 0.5 | 2                              | 2.0   | ±2.7                                  | 1.2  | 225                               |
| MM3Z5V6T1  | 0C             | 5.2                  | 5.6   | 6    | 5                | 40                                | 200                              | 0.5 | 1                              | 2.0   | ±2.0                                  | 2.5  | 200                               |
| MM3Z6V2T1  | 0E             | 5.8                  | 6.2   | 6.6  | 5                | 10                                | 100                              | 0.5 | 3                              | 4.0   | 0.4                                   | 3.7  | 185                               |
| MM3Z6V8T1  | 0F             | 6.4                  | 6.8   | 7.2  | 5                | 15                                | 160                              | 0.5 | 2                              | 4.0   | 1.2                                   | 4.5  | 155                               |
| MM3Z7V5T1  | 0G             | 7.0                  | 7.5   | 7.9  | 5                | 15                                | 160                              | 0.5 | 1                              | 5.0   | 2.5                                   | 5.3  | 140                               |
| MM3Z8V2T1  | 0H             | 7.7                  | 8.2   | 8.7  | 5                | 15                                | 160                              | 0.5 | 0.7                            | 5.0   | 3.2                                   | 6.2  | 135                               |
| MM3Z9V1T1  | 0K             | 8.5                  | 9.1   | 9.6  | 5                | 15                                | 160                              | 0.5 | 0.2                            | 7.0   | 3.8                                   | 7.0  | 130                               |
| MM3Z10VT1  | 0L             | 9.4                  | 10    | 10.6 | 5                | 20                                | 160                              | 0.5 | 0.1                            | 8.0   | 4.5                                   | 8.0  | 130                               |
| MM3Z 11VT1 | 0M             | 10.4                 | 11    | 11.6 | 5                | 20                                | 160                              | 0.5 | 0.1                            | 8.0   | 5.4                                   | 9.0  | 130                               |
| MM3Z 12VT1 | 0N             | 11.4                 | 12    | 12.7 | 5                | 25                                | 80                               | 0.5 | 0.1                            | 8.0   | 6.0                                   | 10.0 | 130                               |
| MM3Z 13VT1 | 0P             | 12.4                 | 13.25 | 14.1 | 5                | 30                                | 80                               | 0.5 | 0.1                            | 8.0   | 7.0                                   | 11.0 | 120                               |
| MM3Z 15VT1 | 0T             | 14.3                 | 15    | 15.8 | 5                | 30                                | 80                               | 0.5 | 0.05                           | 10.5  | 9.2                                   | 13.0 | 110                               |
| MM3Z 16VT1 | 0U             | 15.3                 | 16.2  | 17.1 | 5                | 40                                | 80                               | 0.5 | 0.05                           | 11.2  | 10.4                                  | 14.0 | 105                               |
| MM3Z 18VT1 | 0W             | 16.8                 | 18    | 19.1 | 5                | 45                                | 80                               | 0.5 | 0.05                           | 12.6  | 12.4                                  | 16.0 | 100                               |
| MM3Z 20VT1 | 0Z             | 18.8                 | 20    | 21.2 | 5                | 55                                | 100                              | 0.5 | 0.05                           | 14.0  | 14.4                                  | 18.0 | 85                                |
| MM3Z 22VT1 | 10             | 20.8                 | 22    | 23.3 | 5                | 55                                | 100                              | 0.5 | 0.05                           | 15.4  | 16.4                                  | 20.0 | 85                                |
| MM3Z 24VT1 | 11             | 22.8                 | 24.2  | 25.6 | 5                | 70                                | 120                              | 0.5 | 0.05                           | 16.8  | 18.4                                  | 22.0 | 80                                |
| MM3Z 27VT1 | 12             | 25.1                 | 27    | 28.9 | 2                | 80                                | 300                              | 0.5 | 0.05                           | 18.9  | 21.4                                  | 25.3 | 70                                |
| MM3Z 30VT1 | 14             | 28                   | 30    | 32   | 2                | 80                                | 300                              | 0.5 | 0.05                           | 21.0  | 24.4                                  | 29.4 | 70                                |
| MM3Z 33VT1 | 18             | 31                   | 33    | 35   | 2                | 80                                | 300                              | 0.5 | 0.05                           | 23.2  | 27.4                                  | 33.4 | 70                                |
| MM3Z 36VT1 | 19             | 34                   | 36    | 38   | 2                | 90                                | 500                              | 0.5 | 0.05                           | 25.2  | 30.4                                  | 37.4 | 70                                |
| MM3Z 39VT1 | 20             | 37                   | 39    | 41   | 2                | 130                               | 500                              | 0.5 | 0.05                           | 27.3  | 33.4                                  | 41.2 | 45                                |
| MM3Z 43VT1 | 21             | 40                   | 43    | 46   | 2                | 150                               | 500                              | 0.5 | 0.05                           | 30.1  | 37.6                                  | 46.6 | 40                                |
| MM3Z 47VT1 | 1A             | 44                   | 47    | 50   | 2                | 170                               | 500                              | 0.5 | 0.05                           | 32.9  | 42.0                                  | 51.8 | 40                                |
| MM3Z 51VT1 | 1C             | 48                   | 51    | 54   | 2                | 180                               | 500                              | 0.5 | 0.05                           | 35.7  | 46.6                                  | 57.2 | 40                                |
| MM3Z 56VT1 | 1D             | 52                   | 56    | 60   | 2                | 200                               | 500                              | 0.5 | 0.05                           | 39.2  | 52.2                                  | 63.8 | 40                                |
| MM3Z 62VT1 | 1E             | 58                   | 62    | 66   | 2                | 215                               | 500                              | 0.5 | 0.05                           | 43.4  | 58.8                                  | 71.6 | 35                                |
| MM3Z 68VT1 | 1F             | 64                   | 68    | 72   | 2                | 240                               | 500                              | 0.5 | 0.05                           | 47.6  | 65.6                                  | 79.8 | 35                                |
| MM3Z 75VT1 | 1G             | 70                   | 75    | 79   | 2                | 255                               | 500                              | 0.5 | 0.05                           | 52.5  | 73.4                                  | 88.6 | 35                                |

NOTE : Zener voltage is measured with a pulse test current I<sub>Z</sub> at an ambient temperature of 25°C