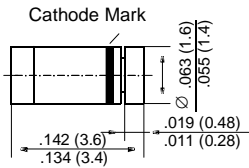


# ZMM5225 THRU ZMM5267

## ZENER DIODES

### Mini-MELF



Dimensions are in inches and (millimeters)

### FEATURES

- ◆ Silicon Planar Power Zener Diodes
- ◆ Standard Zener voltage tolerance is  $\pm 5\%$  with a "B" suffix. Other tolerances are available upon request.
- ◆ These diodes are also available in the DO-35 case with the type designation 1N5225 ... 1N5267, SOT-23 case with the type designation MMBZ5225 ... MMBZ5267 and SOD-123 case with type designation MMSZ5225 ... MMSZ5267.



### MECHANICAL DATA

**Case:** Mini-MELF Glass Case (SOD-80)

**Weight:** approx. 0.05 g

### MAXIMUM RATINGS

Ratings at 25°C ambient temperature unless otherwise specified.

|   | SYMBOL    | VALUE              | UNIT               |
|---|-----------|--------------------|--------------------|
| Zener Current (see Table "Characteristics")         |           |                    |                    |
| Power Dissipation at $T_{amb} = 75^{\circ}\text{C}$ | $P_{tot}$ | 500 <sup>(1)</sup> | mW                 |
| Maximum Junction Temperature                        | $T_j$     | 175                | $^{\circ}\text{C}$ |
| Storage Temperature Range                           | $T_s$     | - 65 to +150       | $^{\circ}\text{C}$ |

|   | SYMBOL          | MIN. | TYP. | MAX.               | UNIT                        |
|---|-----------------|------|------|--------------------|-----------------------------|
| Thermal Resistance<br>Junction to Ambient Air | $R_{\theta JA}$ | -    | -    | 300 <sup>(1)</sup> | $^{\circ}\text{C}/\text{W}$ |
| Forward Voltage<br>at $I_F = 200 \text{ mA}$  | $V_F$           | -    | -    | 1.1                | Volts                       |

#### NOTES

(1) Valid provided that electrodes are kept at ambient temperature.

# ZMM5225 THRU ZMM5267

## ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

| Type    | Nominal Zener Voltage <sup>(3)</sup><br>at I <sub>ZT</sub><br>V <sub>Z</sub> (V) | Test current<br>I <sub>ZT</sub> (mA) | Maximum Zener impedance <sup>(1)</sup>             |  | Typical Temperature Coefficient<br>$\alpha_{VZ}$ (%/K) | Maximum Reverse Leakage Current |                                    | Maximum regulator current <sup>(2)</sup><br>I <sub>ZM</sub> (mA) |
|---------|--|--------------------------------------|--|--|--|---------------------------------|------------------------------------|--|
|         |  |                                      | at I <sub>ZT</sub><br>Z <sub>ZT</sub> ( $\Omega$ ) | at I <sub>ZK</sub> =0.25mA<br>Z <sub>ZK</sub> ( $\Omega$ ) |  | I <sub>R</sub> ( $\mu$ A)       | Test Voltage<br>V <sub>R</sub> (V) |  |
| ZMM5225 | 3.0  | 20                                   | 29   | 1600   | -0.075   | 50                              | 1.0                                | 152  |
| ZMM5226 | 3.3  | 20                                   | 28   | 1600   | -0.070   | 25                              | 1.0                                | 138  |
| ZMM5227 | 3.6  | 20                                   | 24   | 1700   | -0.065   | 15                              | 1.0                                | 126  |
| ZMM5228 | 3.9  | 20                                   | 23   | 1900   | -0.060   | 10                              | 1.0                                | 115  |
| ZMM5229 | 4.3  | 20                                   | 22   | 2000   | -0.055   | 5.0                             | 1.0                                | 106  |
| ZMM5230 | 4.7  | 20                                   | 19   | 1900   | $\pm$ 0.030  | 5.0                             | 2.0                                | 97   |
| ZMM5231 | 5.1  | 20                                   | 17   | 1600   | $\pm$ 0.030  | 5.0                             | 2.0                                | 89   |
| ZMM5232 | 5.6  | 20                                   | 11   | 1600   | +0.038   | 5.0                             | 3.0                                | 81   |
| ZMM5233 | 6.0  | 20                                   | 7  | 1600   | +0.038   | 5.0                             | 3.5                                | 76   |
| ZMM5234 | 6.2  | 20                                   | 7  | 1000   | +0.045   | 5.0                             | 4.0                                | 73   |
| ZMM5235 | 6.8  | 20                                   | 5  | 750  | +0.050   | 3.0                             | 5.0                                | 67   |
| ZMM5236 | 7.5  | 20                                   | 6  | 500  | +0.058   | 3.0                             | 6.0                                | 61   |
| ZMM5237 | 8.2  | 20                                   | 8  | 500  | +0.062   | 3.0                             | 6.5                                | 55   |
| ZMM5238 | 8.7  | 20                                   | 8  | 600  | +0.065   | 3.0                             | 6.5                                | 52   |
| ZMM5239 | 9.1  | 20                                   | 10   | 600  | +0.068   | 3.0                             | 7.0                                | 50   |
| ZMM5240 | 10   | 20                                   | 17   | 600  | +0.075   | 3.0                             | 8.0                                | 45   |
| ZMM5241 | 11   | 20                                   | 22   | 600  | +0.076   | 2.0                             | 8.4                                | 41   |
| ZMM5242 | 12   | 20                                   | 30   | 600  | +0.077   | 1.0                             | 9.1                                | 38   |
| ZMM5243 | 13   | 9.5                                  | 13   | 600  | +0.079   | 0.5                             | 9.9                                | 35   |
| ZMM5244 | 14   | 9.0                                  | 15   | 600  | +0.082   | 0.1                             | 10                                 | 32   |
| ZMM5245 | 15   | 8.5                                  | 16   | 600  | +0.082   | 0.1                             | 11                                 | 30   |
| ZMM5246 | 16   | 7.8                                  | 17   | 600  | +0.083   | 0.1                             | 12                                 | 28   |
| ZMM5247 | 17   | 7.4                                  | 19   | 600  | +0.084   | 0.1                             | 13                                 | 27   |
| ZMM5248 | 18   | 7.0                                  | 21   | 600  | +0.085   | 0.1                             | 14                                 | 25   |
| ZMM5249 | 19   | 6.6                                  | 23   | 600  | +0.086   | 0.1                             | 14                                 | 24   |
| ZMM5250 | 20   | 6.2                                  | 25   | 600  | +0.086   | 0.1                             | 15                                 | 23   |
| ZMM5251 | 22   | 5.6                                  | 29   | 600  | +0.087   | 0.1                             | 17                                 | 21   |
| ZMM5252 | 24   | 5.2                                  | 33   | 600  | +0.087   | 0.1                             | 18                                 | 19.1   |
| ZMM5253 | 25   | 5.0                                  | 35   | 600  | +0.089   | 0.1                             | 19                                 | 18.2   |
| ZMM5254 | 27   | 4.6                                  | 41   | 600  | +0.090   | 0.1                             | 21                                 | 16.8   |
| ZMM5255 | 28   | 4.5                                  | 44   | 600  | +0.091   | 0.1                             | 21                                 | 16.2   |
| ZMM5256 | 30   | 4.2                                  | 49   | 600  | +0.091   | 0.1                             | 23                                 | 15.1   |
| ZMM5257 | 33   | 3.8                                  | 58   | 700  | +0.092   | 0.1                             | 25                                 | 13.8   |
| ZMM5258 | 36   | 3.4                                  | 70   | 700  | +0.093   | 0.1                             | 27                                 | 12.6   |
| ZMM5259 | 39   | 3.2                                  | 80   | 800  | +0.094   | 0.1                             | 30                                 | 11.6   |
| ZMM5260 | 43   | 3.0                                  | 93   | 900  | +0.095   | 0.1                             | 33                                 | 10.6   |
| ZMM5261 | 47   | 2.7                                  | 105  | 1000   | +0.095   | 0.1                             | 36                                 | 9.7  |
| ZMM5262 | 51   | 2.5                                  | 125  | 1100   | +0.096   | 0.1                             | 39                                 | 8.9  |
| ZMM5263 | 56   | 2.2                                  | 150  | 1300   | +0.096   | 0.1                             | 43                                 | -  |
| ZMM5264 | 60   | 2.1                                  | 170  | 1400   | +0.097   | 0.1                             | 46                                 | -  |
| ZMM5265 | 62   | 2.0                                  | 185  | 1400   | +0.097   | 0.1                             | 47                                 | -  |
| ZMM5266 | 68   | 1.8                                  | 230  | 1600   | +0.097   | 0.1                             | 52                                 | -  |
| ZMM5267 | 75   | 1.7                                  | 270  | 1700   | +0.098   | 0.1                             | 56                                 | -  |

### 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 insure a sharp knee on the breakdown curve and to eliminate unstable units

(2) Valid provided that electrodes are kept at ambient temperature

(3) Tested under thermal equilibrium and DC test conditions

# RATINGS AND CHARACTERISTIC CURVES ZMM5225 THRU ZMM5267

## Admissible power dissipation versus ambient temperature

Valid provided that electrodes are kept  
at ambient temperature

