

ZMM2.4 - ZMM75

V_Z : 2.4 to 75V

P_D : 500mW

FEATURES :

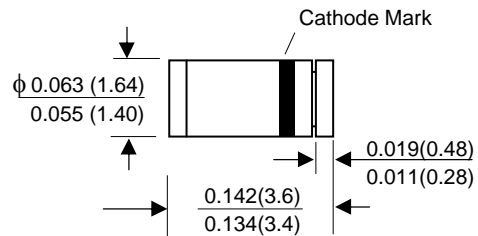
- * Silicon planar zener diodes
- * In MiniMELF case especially for automatic insertion
- * Standard zener voltage tolerance is $\pm 5\%$
- * Other zener voltages are available upon request.
- * These diodes are also available in DO-35 case with the type designation ZPD2.7 ... ZPD75
- * **Pb / RoHS Free**

MECHANICAL DATA :

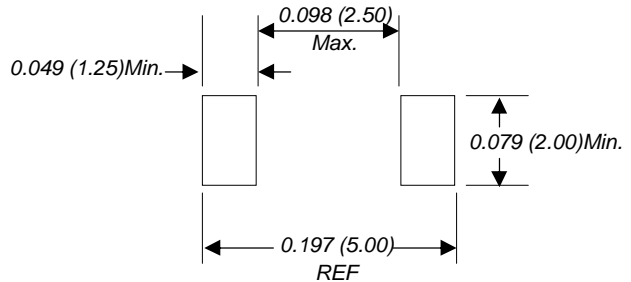
- * Case : MiniMELF Glass Case (SOD-80C)
- * Weight : 0.05 gram (approximately)

ZENER DIODES

MiniMELF (SOD-80C)



Mounting Pad Layout



Dimensions in inches and (millimeters)

Maximum Ratings and Thermal Characteristics

Rating at 25 °C ambient temperature unless otherwise specified

| Parameter | Symbol | Value | Unit |
|--|-----------------|--------------------|---------------------------|
| Zener Current see Table "Characteristics" | | | |
| Maximum Forward Voltage at $I_F = 200$ mA. | V_F | 1.25 | V |
| Power Dissipation at $T_{flange} = 75^\circ\text{C}$ | P_D | 500 ⁽¹⁾ | mW |
| Thermal Resistance Junction to Ambient Air | $R_{\theta JA}$ | 300 ⁽¹⁾ | $^\circ\text{C}/\text{W}$ |
| Junction temperature | T_J | 175 | $^\circ\text{C}$ |
| Storage temperature range | T_S | -65 to + 150 | $^\circ\text{C}$ |

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

ELECTRICAL CHARACTERISTICS

Rating at 25 °C ambient temperature unless otherwise specified

| Type | Zener Voltage | | Dynamic Resistance | | Maximum Reverse Leakage Current | | Temp. coefficient of Zener Voltage | | Admissible Zener Current |
|--------|--------------------------|------------------|-----------------------------|-----------------------------|---------------------------------|----------|------------------------------------|------|--------------------------|
| | $V_Z @ I_{ZT}$ | | at $I_Z=5mA$ $f = 1 kHz$ | at $I_Z=1mA$ $f = 1 kHz$ | I_R | at V_R | $\alpha_{VZ}(10^{-4} / ^\circ C)$ | | I_Z |
| | Nom ¹⁾ (V) | I_{ZT} (mA) | $r_{zj} (\Omega)$ | $r_{zj} (\Omega)$ | (μA) | (V) | min. | max. | (mA) |
| 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 ⁽³⁾ | < 1000 ⁽⁴⁾ | 0.1 | 42 | +10 (typ.) | | 7.1 |
| ZMM62 | 62 | 2.5 | < 150 ⁽³⁾ | < 1000 ⁽⁴⁾ | 0.1 | 47 | + 10 (typ.) | | 6.4 |
| ZMM68 | 68 | 2.5 | < 200 ⁽³⁾ | < 1000 ⁽⁴⁾ | 0.1 | 51 | + 10 (typ.) | | 5.8 |
| ZMM75 | 75 | 2.5 | < 250 ⁽³⁾ | <1500 ⁽⁴⁾ | 0.1 | 55 | + 10 (typ.) | | 5.3 |

Notes:

- (1) Tested with pulses $t_p = 5 ms$
- (2) Valid Provided that leads are kept at ambient temperature.
- (3) at $I_Z = 2.5mA$
- (4) at $I_Z = 0.5mA$