

Surface Mount Zener Diodes

(Pb) Lead(Pb)-Free

Features:

- * 500mw Power Dissipation
- * General Purpose, Medium Current
- * Ideal for Surface Mountted Application

Mechanical Data:

- * Case : MINI-MELF Glass Case(SOD-80)
- * Weight : Approx 0.05 gram

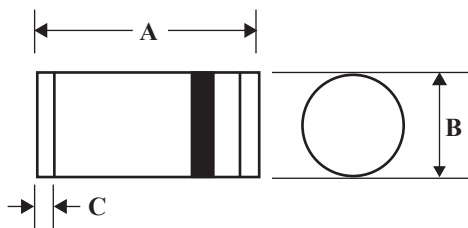
**SMALL SIGNAL
ZENER DIODES
0.5 WATTS**



MINI-MELF

MINI-MELF Outline Dimensions

Unit:mm



| MINI MELF | | |
|-----------|------|------|
| Dim | Min | Max |
| A | 3.30 | 3.70 |
| B | 1.30 | 1.60 |
| C | 0.28 | 0.50 |

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|------------------------|
| ZMM5221B thru ZMM5262B |
|------------------------|

Maximum Ratings and Electrical Characteristics (TA=25 °C Unless Otherwise Noted)

| Characteristics | Symbol | Value | Unit |
|---|---------------|------------|------|
| Power Dissipation TA=75 °C ⁽¹⁾ | PD | 500 | mW |
| Thermal Resistance Junction to Ambient Air ⁽¹⁾ | R θ JA | 300 | °C/W |
| Forward Voltage @ IF=200mA | VF | 1.1 | V |
| Operation and Storage Temperature Range | Tj,TSTG | -65 to+175 | °C |

NOTES:1.Valid Provided that Electrodes are Kept at Ambient Temperature.

ZMM5221B thru ZMM5262B
Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise noted, $V_F=1.1\text{ V Max.}$ @ $I_F=200\text{mA}$ for all types)

| Part Number | Zener Voltage(Note1) | | | Max ,Reverse Leakage Current | | Max, Zener Impedance | | Typical Temperature Coefficient | |
|-------------|----------------------|---------|---------|------------------------------|-------------------|----------------------|--------------|---------------------------------|------------------------|
| | Vz | | | @IzT | IR@VR | | ZzT@IzT | | Tc |
| | Nom (V) | Min (V) | Max (V) | (mA) | (μA) | (V) | (Ω) | (mA) | % / $^{\circ}\text{C}$ |
| ZMM5221B | 2.4 | 2.28 | 2.52 | 20 | 100 | 1.0 | 30 | 20 | -0.085 |
| ZMM5222B | 2.5 | 2.38 | 2.63 | 20 | 100 | 1.0 | 30 | 20 | -0.085 |
| ZMM5223B | 2.7 | 2.57 | 2.84 | 20 | 75 | 1.0 | 30 | 20 | -0.085 |
| ZMM5224B | 2.8 | 2.66 | 2.94 | 20 | 75 | 1.0 | 30 | 20 | -0.085 |
| ZMM5225B | 3.0 | 2.85 | 3.15 | 20 | 50 | 1.0 | 29 | 20 | -0.075 |
| ZMM5226B | 3.3 | 3.14 | 3.47 | 20 | 25 | 1.0 | 28 | 20 | -0.070 |
| ZMM5227B | 3.6 | 3.42 | 3.78 | 20 | 15 | 1.0 | 24 | 20 | -0.065 |
| ZMM5228B | 3.9 | 3.71 | 4.10 | 20 | 10 | 1.0 | 23 | 20 | -0.060 |
| ZMM5229B | 4.3 | 4.09 | 4.52 | 20 | 5.0 | 1.0 | 22 | 20 | -0.055 |
| ZMM5230B | 4.7 | 4.47 | 4.94 | 20 | 5.0 | 2.0 | 19 | 20 | ± 0.030 |
| ZMM5231B | 5.1 | 4.85 | 5.36 | 20 | 5.0 | 2.0 | 17 | 20 | ± 0.030 |
| ZMM5232B | 5.6 | 5.32 | 5.88 | 20 | 5.0 | 3.0 | 11 | 20 | +0.038 |
| ZMM5233B | 6.0 | 5.70 | 6.30 | 20 | 5.0 | 3.5 | 7.0 | 20 | +0.038 |
| ZMM5234B | 6.2 | 5.89 | 6.51 | 20 | 5.0 | 4.0 | 7.0 | 20 | +0.045 |
| ZMM5235B | 6.8 | 6.46 | 7.14 | 20 | 3.0 | 5.0 | 5.0 | 20 | +0.050 |
| ZMM5236B | 7.5 | 7.13 | 7.88 | 20 | 3.0 | 6.0 | 6.0 | 20 | +0.058 |
| ZMM5237B | 8.2 | 7.79 | 8.61 | 20 | 3.0 | 6.5 | 8.0 | 20 | +0.062 |
| ZMM5238B | 8.7 | 8.27 | 9.14 | 20 | 3.0 | 6.5 | 8.0 | 20 | +0.065 |
| ZMM5239B | 9.1 | 8.65 | 9.56 | 20 | 3.0 | 7.0 | 10 | 20 | +0.068 |
| ZMM5240B | 10 | 9.50 | 10.50 | 20 | 3.0 | 8.0 | 17 | 20 | +0.075 |
| ZMM5241B | 11 | 10.45 | 11.55 | 20 | 2.0 | 8.4 | 22 | 20 | +0.076 |
| ZMM5242B | 12 | 11.40 | 12.60 | 20 | 1.0 | 9.1 | 30 | 20 | +0.077 |
| ZMM5243B | 13 | 12.35 | 13.65 | 9.5 | 0.5 | 9.9 | 13 | 9.5 | +0.079 |
| ZMM5244B | 14 | 13.30 | 14.70 | 9.0 | 0.1 | 10 | 15 | 9.0 | +0.082 |
| ZMM5245B | 15 | 14.24 | 15.75 | 8.5 | 0.1 | 11 | 16 | 8.5 | +0.082 |
| ZMM5246B | 16 | 15.20 | 16.80 | 7.8 | 0.1 | 12 | 17 | 7.8 | +0.083 |
| ZMM5247B | 17 | 16.15 | 17.85 | 7.4 | 0.1 | 13 | 19 | 7.4 | +0.084 |
| ZMM5248B | 18 | 17.10 | 18.90 | 7.0 | 0.1 | 14 | 21 | 7.0 | +0.085 |
| ZMM5249B | 19 | 18.05 | 19.95 | 6.6 | 0.1 | 14 | 23 | 6.6 | +0.086 |
| ZMM5250B | 20 | 19.00 | 21.00 | 6.2 | 0.1 | 15 | 25 | 6.2 | +0.086 |
| ZMM5251B | 22 | 20.90 | 23.010 | 5.6 | 0.1 | 17 | 29 | 5.6 | +0.087 |
| ZMM5252B | 24 | 22.80 | 25.20 | 5.2 | 0.1 | 18 | 33 | 5.2 | +0.087 |
| ZMM5253B | 25 | 23.75 | 26.25 | 5.0 | 0.1 | 19 | 35 | 5.0 | +0.089 |
| ZMM5254B | 27 | 25.65 | 28.35 | 4.6 | 0.1 | 21 | 41 | 4.6 | +0.090 |
| ZMM5255B | 28 | 26.60 | 29.40 | 4.5 | 0.1 | 21 | 44 | 4.5 | +0.091 |
| ZMM5256B | 30 | 28.50 | 31.50 | 4.2 | 0.1 | 23 | 49 | 4.2 | +0.091 |
| ZMM5257B | 33 | 31.35 | 34.65 | 3.8 | 0.1 | 25 | 58 | 3.8 | +0.092 |
| ZMM5258B | 36 | 34.20 | 37.80 | 3.4 | 0.1 | 27 | 70 | 3.4 | +0.093 |
| ZMM5259B | 39 | 37.05 | 40.95 | 3.2 | 0.1 | 30 | 80 | 3.2 | +0.094 |
| ZMM5260B | 43 | 40.85 | 45.15 | 3.0 | 0.1 | 33 | 93 | 3.0 | +0.095 |
| ZMM5261B | 47 | 44.65 | 49.35 | 2.7 | 0.1 | 36 | 105 | 2.7 | +0.095 |
| ZMM5262B | 51 | 48.45 | 53.55 | 2.5 | 0.1 | 39 | 125 | 2.5 | +0.096 |

1. Zener voltage is measured with a pulse test current I_z at an ambient temperature of 25°C
2. Zenner Voltage Tolerance Suffix "B" For $\pm 5\%$

ZMM5221B thru ZMM5262B

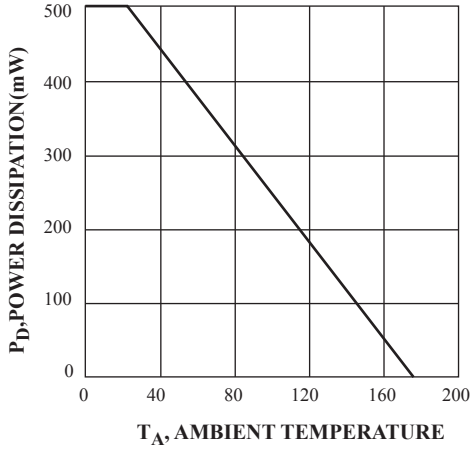


FIG 1, Power Dissipation vs Ambient Temperature

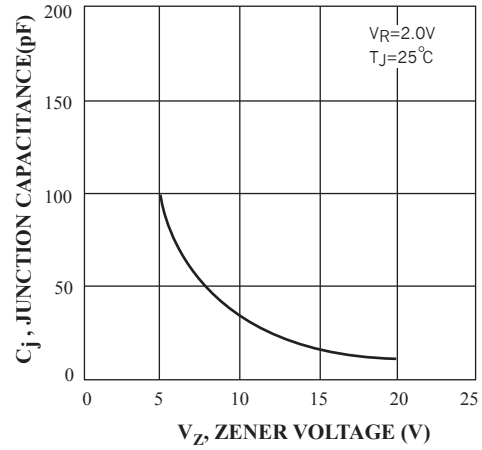


Fig 2., Junction Capacitance vs Zener Voltage

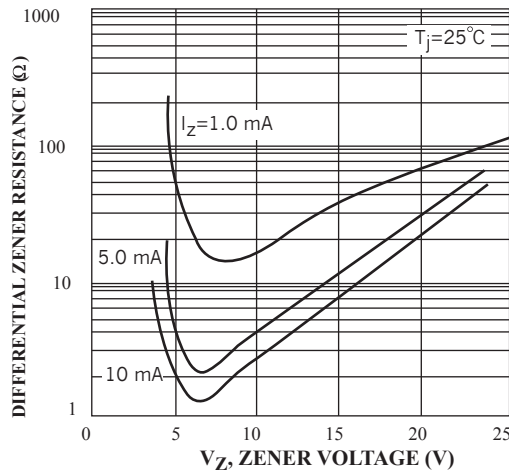


FIG 3, DIFFERENTIAL ZENER IMPEDANCE

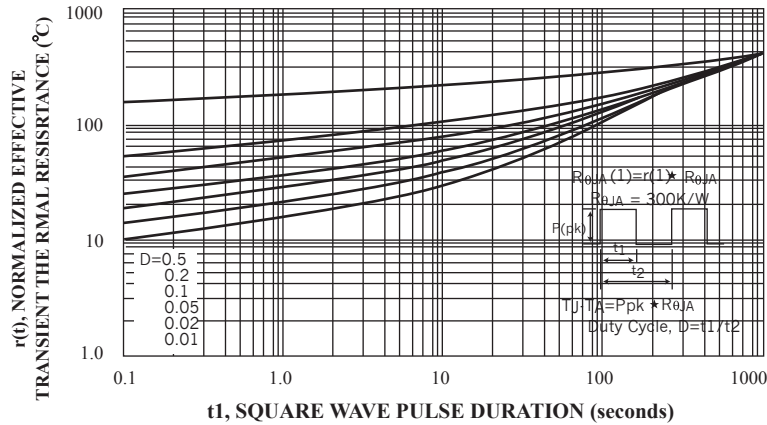


Fig 4, Typical Normalized Transient Thermal Impedance Curves