



1N/ZMM5221B - 1N/ZMM5267B

SILICON PLANAR ZENER DIODE

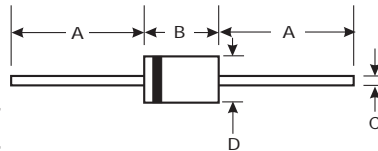
Features

- 500 mW Power Dissipation
- 2.4V - 75V Nominal Zener Voltages
- Standard V_Z Tolerance is 5%
- Glass Package for High Reliability

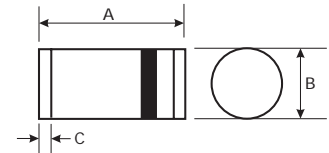
Mechanical Data

- Case: DO-35 and MiniMELF, Glass
- Terminals: Solderable per MIL-STD-202, Method 208
- Polarity: Cathode Band
- Marking: DO-35 Type Number
- Approx. Weight: DO-35 0.13 grams
MiniMELF 0.05 grams

(1N Types)



(ZM Types)



| DO-35 | | |
|----------------------|-------|------|
| Dim | Min | Max |
| A | 25.40 | — |
| B | — | 4.00 |
| C | — | 0.60 |
| D | — | 2.00 |
| All Dimensions in mm | | |

| MiniMELF | | |
|----------------------|------|------|
| Dim | Min | Max |
| A | 3.30 | 3.70 |
| B | 1.30 | 1.60 |
| C | 0.28 | 0.50 |
| All Dimensions in mm | | |

Maximum Ratings and Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

| Characteristic | Symbol | Value | Unit |
|--|-----------------|-------------|-----------------------------|
| Zener Current (see Table page 2) | I_Z | P_d/V_Z | mA |
| Power Dissipation Derate Above 25°C | P_d | 500* 4 | mW mW / $^\circ\text{C}$ |
| Thermal Resistance - Junction to Ambient Air | $R_{\theta JA}$ | 375* | K/W |
| Forward Voltage @ $I_F = 200\text{ mA}$ | V_F | 1.1 | V |
| Operating and Storage Temperature Range | T_j, T_{STG} | -65 to +175 | $^\circ\text{C}$ |

* Valid provided that leads at a distance of 10mm from case or electrodes of the MiniMELF case are kept at 25°C .

Electrical Characteristics (cont.) @ T_A = 25°C unless otherwise specified

| Type Number | Nominal Zener Voltage (2) | Test Current | Maximum Zener Impedance (1) | | Typical Temperature Coefficient | Maximum Reverse Leakage Current | |
|-------------|----------------------------------|--------------|-----------------------------|-----------------------------------|---------------------------------|--|-----------------|
| | V _Z @ I _{ZT} | | I _{ZT} | Z _{ZT} @ I _{ZT} | | Z _{ZK} @ I _{ZK} = 0.25mA | ΔV _Z |
| | V | mA | Ω | Ω | %/K | μA | V |
| 1N/ZMM5221B | 2.4 | 20 | 30 | 1200 | -0.085 | 100 | 1.0 |
| 1N/ZMM5222B | 2.5 | 20 | 30 | 1250 | -0.085 | 100 | 1.0 |
| 1N/ZMM5223B | 2.8 | 20 | 30 | 1300 | -0.080 | 75 | 1.0 |
| 1N/ZMM5224B | 2.8 | 20 | 30 | 1400 | -0.080 | 75 | 1.0 |
| 1N/ZMM5225B | 3.0 | 20 | 29 | 1600 | -0.075 | 50 | 1.0 |
| 1N/ZMM5226B | 3.3 | 20 | 28 | 1600 | -0.070 | 25 | 1.0 |
| 1N/ZMM5227B | 3.6 | 20 | 24 | 1700 | -0.065 | 15 | 1.0 |
| 1N/ZMM5228B | 3.9 | 20 | 23 | 1900 | -0.060 | 10 | 1.0 |
| 1N/ZMM5229B | 4.3 | 20 | 22 | 2000 | -0.055 | 5.0 | 1.0 |
| 1N/ZMM5230B | 4.7 | 20 | 19 | 1900 | +0.030 | 5.0 | 2.0 |
| 1N/ZMM5231B | 5.1 | 20 | 17 | 1600 | +0.030 | 5.0 | 2.0 |
| 1N/ZMM5232B | 5.6 | 20 | 11 | 1600 | +0.038 | 5.0 | 3.0 |
| 1N/ZMM5233B | 6.0 | 20 | 7.0 | 1600 | +0.038 | 5.0 | 3.5 |
| 1N/ZMM5234B | 6.2 | 20 | 7.0 | 1000 | +0.045 | 5.0 | 4.0 |
| 1N/ZMM5235B | 6.8 | 20 | 5.0 | 750 | +0.050 | 3.0 | 5.0 |
| 1N/ZMM5236B | 7.5 | 20 | 6.0 | 500 | +0.058 | 3.0 | 6.0 |
| 1N/ZMM5237B | 8.2 | 20 | 8.0 | 500 | +0.062 | 3.0 | 6.5 |
| 1N/ZMM5238B | 8.7 | 20 | 8.0 | 600 | +0.065 | 3.0 | 6.5 |
| 1N/ZMM5239B | 9.1 | 20 | 10 | 600 | +0.068 | 3.0 | 7.0 |
| 1N/ZMM5240B | 10 | 20 | 17 | 600 | +0.075 | 3.0 | 8.0 |
| 1N/ZMM5241B | 11 | 20 | 22 | 600 | +0.076 | 2.0 | 8.4 |
| 1N/ZMM5242B | 12 | 20 | 30 | 600 | +0.077 | 1.0 | 9.1 |
| 1N/ZMM5243B | 13 | 9.5 | 13 | 600 | +0.079 | 0.5 | 9.9 |
| 1N/ZMM5244B | 14 | 9.0 | 15 | 600 | +0.082 | 0.1 | 10 |
| 1N/ZMM5245B | 15 | 8.5 | 16 | 600 | +0.082 | 0.1 | 11 |
| 1N/ZMM5246B | 16 | 7.8 | 17 | 600 | +0.083 | 0.1 | 12 |
| 1N/ZMM5247B | 17 | 7.4 | 19 | 600 | +0.084 | 0.1 | 13 |
| 1N/ZMM5248B | 18 | 7.0 | 21 | 600 | +0.085 | 0.1 | 14 |
| 1N/ZMM5249B | 19 | 6.6 | 23 | 600 | +0.086 | 0.1 | 14 |
| 1N/ZMM5250B | 20 | 6.2 | 25 | 600 | +0.086 | 0.1 | 15 |
| 1N/ZMM5251B | 22 | 5.6 | 29 | 600 | +0.087 | 0.1 | 17 |
| 1N/ZMM5252B | 24 | 5.2 | 33 | 600 | +0.087 | 0.1 | 18 |
| 1N/ZMM5253B | 25 | 5.0 | 35 | 600 | +0.089 | 0.1 | 19 |
| 1N/ZMM5254B | 27 | 4.6 | 41 | 600 | +0.090 | 0.1 | 21 |
| 1N/ZMM5255B | 28 | 4.5 | 44 | 600 | +0.091 | 0.1 | 21 |
| 1N/ZMM5256B | 30 | 4.2 | 49 | 600 | +0.091 | 0.1 | 23 |
| 1N/ZMM5257B | 33 | 3.8 | 58 | 700 | +0.092 | 0.1 | 25 |
| 1N/ZMM5258B | 36 | 3.4 | 70 | 700 | +0.093 | 0.1 | 27 |
| 1N/ZMM5259B | 39 | 3.2 | 80 | 800 | +0.094 | 0.1 | 30 |
| 1N/ZMM5260B | 43 | 3.0 | 93 | 900 | +0.095 | 0.1 | 33 |
| 1N/ZMM5261B | 47 | 2.7 | 105 | 1000 | +0.095 | 0.1 | 36 |
| 1N/ZMM5262B | 51 | 2.5 | 125 | 1100 | +0.096 | 0.1 | 39 |
| 1N/ZMM5263B | 56 | 2.2 | 150 | 1300 | +0.096 | 0.1 | 43 |
| 1N/ZMM5264B | 60 | 2.1 | 170 | 1400 | +0.097 | 0.1 | 46 |
| 1N/ZMM5265B | 62 | 2.0 | 185 | 1400 | +0.097 | 0.1 | 47 |
| 1N/ZMM5266B | 68 | 1.8 | 230 | 1600 | +0.097 | 0.1 | 52 |
| 1N/ZMM5267B | 75 | 1.7 | 270 | 1700 | +0.098 | 0.1 | 56 |

- Notes:
1. The Zener impedance is derived from the 60 Hz ac voltage which results when an ac current having an rms value equal to 10% of the Zener current (I_{ZT} or I_{ZK}) is superimposed on I_{ZT} or I_{ZK}. Zener impedance is measured at two points to insure a sharp knee on the breakdown curve and to eliminate unstable units.
 2. Measured under thermal equilibrium and dc (I_{ZT}) test conditions.