



ZMM5221B~ZMM5266B

SURFACE MOUNT ZENER DIODES

VOLTAGE 2.4 to 68 Volt **POWER** 500 mWatt

MINI-MELF / LL34 Unit : inch(mm)

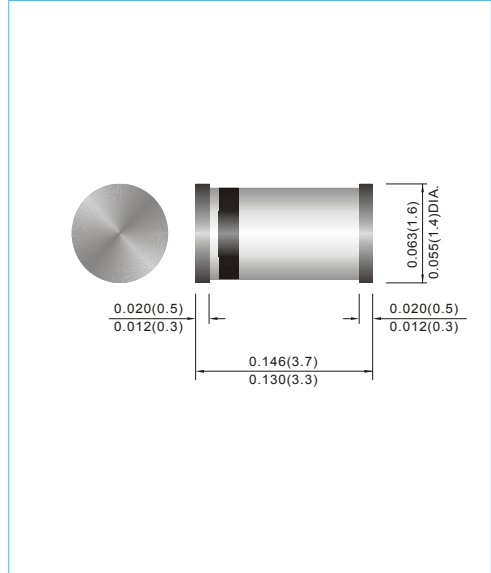
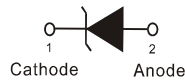
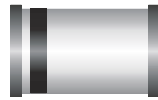
FEATURES

- Planar Die construction
- 500mW Power Dissipation
- Ideally Suited for Automated Assembly Processes
- Lead free in compliance with EU RoHS 2.0

MECHANICAL DATA

- Case: Molded Glass MINI-MELF
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 0.001 ounces, 0.03 grams
- Packing information

T/R - 2.5K per 7" plastic Reel



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

| Parameter | Symbol | Value | Units |
|---|-----------|-------------|------------------|
| Power Dissipation at $T_A = 25^\circ\text{C}$ | P_{TOT} | 500 | mW |
| Operating Junction Temperature Range | T_J | -65 to +175 | $^\circ\text{C}$ |
| Storage Temperature Range | T_{STG} | -65 to +175 | $^\circ\text{C}$ |

Valid provided that leads at a distance of 10mm from case are kept at ambient temperature.

| Parameter | Symbol | Min. | Typ. | Max. | Units |
|--|-----------------|------|------|------|----------------------------|
| Thermal Resistance Junction to Ambient Air | $R_{\theta JA}$ | -- | -- | 0.3 | $^\circ\text{C}/\text{mW}$ |
| Forward Voltage at $I_F = 200\text{mA}$ | V_F | -- | -- | 1.1 | V |

Valid provided that leads at a distance of 10mm from case are kept at ambient temperature.



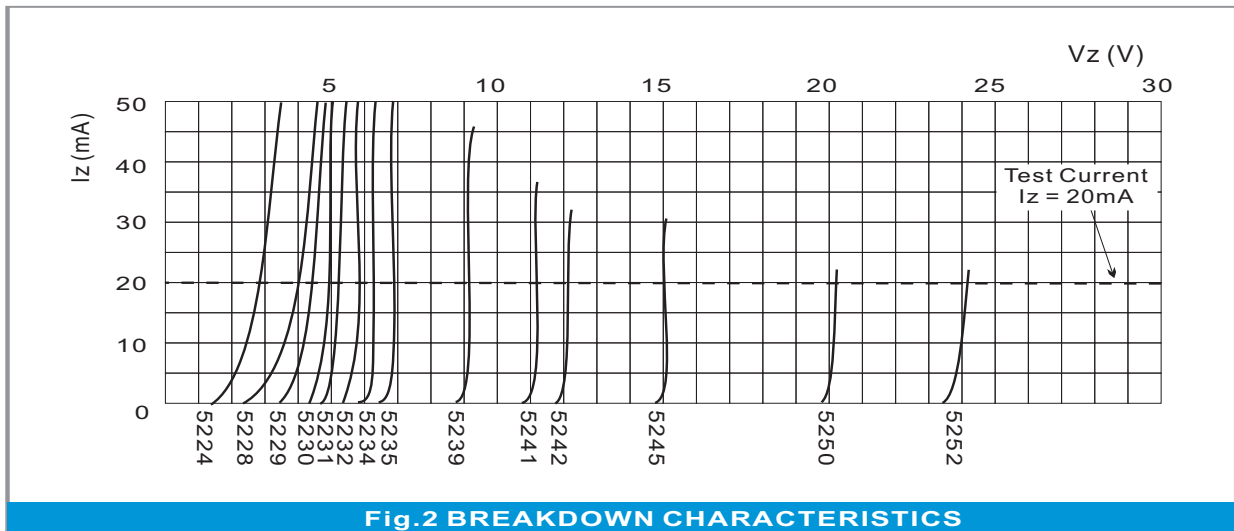
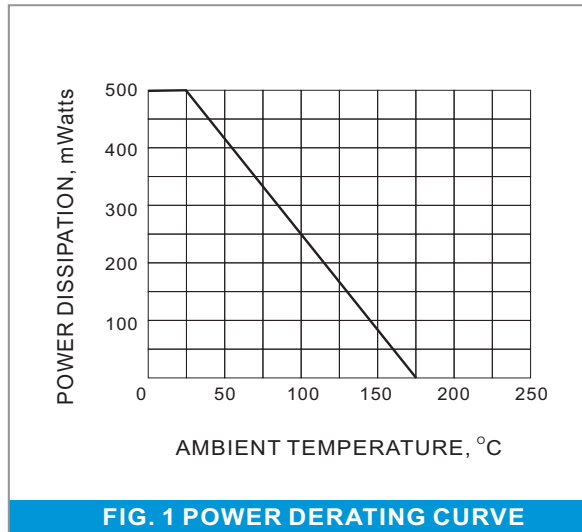
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| Part Number | Nominal Zener Voltage | | | Max. Zener Impedance | | | | Max Reverse Leakage Current | | Marking code |
|-------------|-----------------------|--------|--------|----------------------|-----|-----------|------|-----------------------------|-----|--------------|
| | Vz @ IzT | | | Zzt @ IzT | | Zzk @ Izk | | Ir @ VR | | |
| | Nom. V | Min. V | Max. V | Ω | mA | Ω | mA | uA | V | |
| ZMM5221B | 2.4 | 2.28 | 2.52 | 30 | 20 | 1200 | 0.25 | 100 | 1 | 5221 |
| ZMM5222B | 2.5 | 2.38 | 2.63 | 30 | 20 | 1250 | 0.25 | 100 | 1 | 5222 |
| ZMM5223B | 2.7 | 2.57 | 2.84 | 30 | 20 | 1300 | 0.25 | 75 | 1 | 5223 |
| ZMM5224B | 2.8 | 2.66 | 2.94 | 30 | 20 | 1400 | 0.25 | 75 | 1 | 5224 |
| ZMM5225B | 3 | 2.85 | 3.15 | 29 | 20 | 1600 | 0.25 | 50 | 1 | 5225 |
| ZMM5226B | 3.3 | 3.14 | 3.47 | 28 | 20 | 1600 | 0.25 | 25 | 1 | 5226 |
| ZMM5227B | 3.6 | 3.42 | 3.78 | 24 | 20 | 1700 | 0.25 | 15 | 1 | 5227 |
| ZMM5228B | 3.9 | 3.71 | 4.1 | 23 | 20 | 1900 | 0.25 | 10 | 1 | 5228 |
| ZMM5229B | 4.3 | 4.09 | 4.52 | 22 | 20 | 2000 | 0.25 | 5 | 1 | 5229 |
| ZMM5230B | 4.7 | 4.47 | 4.94 | 19 | 20 | 1900 | 0.25 | 5 | 2 | 5230 |
| ZMM5231B | 5.1 | 4.85 | 5.36 | 17 | 20 | 1600 | 0.25 | 5 | 2 | 5231 |
| ZMM5232B | 5.6 | 5.32 | 5.88 | 11 | 20 | 1600 | 0.25 | 5 | 3 | 5232 |
| ZMM5233B | 6.0 | 5.7 | 6.3 | 7 | 20 | 1600 | 0.25 | 5 | 3.5 | 5233 |
| ZMM5234B | 6.2 | 5.89 | 6.51 | 7 | 20 | 1000 | 0.25 | 5 | 4 | 5234 |
| ZMM5235B | 6.8 | 6.46 | 7.14 | 5 | 20 | 750 | 0.25 | 3 | 5 | 5235 |
| ZMM5236B | 7.5 | 7.13 | 7.88 | 6 | 20 | 500 | 0.25 | 3 | 6 | 5236 |
| ZMM5237B | 8.2 | 7.79 | 8.61 | 8 | 20 | 500 | 0.25 | 3 | 6.5 | 5237 |
| ZMM5238B | 8.7 | 8.27 | 9.14 | 8 | 20 | 600 | 0.25 | 3 | 6.5 | 5238 |
| ZMM5239B | 9.1 | 8.65 | 9.56 | 10 | 20 | 600 | 0.25 | 3 | 7 | 5239 |
| ZMM5240B | 10 | 9.5 | 10.5 | 17 | 20 | 600 | 0.25 | 3 | 8 | 5240 |
| ZMM5241B | 11 | 10.45 | 11.55 | 22 | 20 | 600 | 0.25 | 2 | 8.4 | 5241 |
| ZMM5242B | 12 | 11.4 | 12.6 | 30 | 20 | 600 | 0.25 | 1 | 9.1 | 5242 |
| ZMM5243B | 13 | 12.35 | 13.65 | 13 | 9.5 | 600 | 0.25 | 0.5 | 9.9 | 5243 |
| ZMM5244B | 14 | 13.3 | 14.7 | 15 | 9 | 600 | 0.25 | 0.1 | 10 | 5244 |
| ZMM5245B | 15 | 14.25 | 15.75 | 16 | 8.5 | 600 | 0.25 | 0.1 | 11 | 5245 |
| ZMM5246B | 16 | 15.2 | 16.8 | 17 | 7.8 | 600 | 0.25 | 0.1 | 12 | 5246 |
| ZMM5247B | 17 | 16.15 | 17.85 | 19 | 7.4 | 600 | 0.25 | 0.1 | 13 | 5247 |
| ZMM5248B | 18 | 17.1 | 18.9 | 21 | 7 | 600 | 0.25 | 0.1 | 14 | 5248 |
| ZMM5249B | 19 | 18.05 | 19.95 | 23 | 6.6 | 600 | 0.25 | 0.1 | 14 | 5249 |
| ZMM5250B | 20 | 19 | 21 | 25 | 6.2 | 600 | 0.25 | 0.1 | 15 | 5250 |
| ZMM5251B | 22 | 20.9 | 23.1 | 29 | 5.6 | 600 | 0.25 | 0.1 | 17 | 5251 |
| ZMM5252B | 24 | 22.8 | 25.2 | 33 | 5.2 | 600 | 0.25 | 0.1 | 18 | 5252 |
| ZMM5253B | 25 | 23.75 | 26.25 | 35 | 5 | 600 | 0.25 | 0.1 | 19 | 5253 |
| ZMM5254B | 27 | 25.65 | 28.35 | 41 | 4.6 | 600 | 0.25 | 0.1 | 21 | 5254 |
| ZMM5255B | 28 | 26.6 | 29.4 | 44 | 4.5 | 600 | 0.25 | 0.1 | 21 | 5255 |
| ZMM5256B | 30 | 28.5 | 31.5 | 49 | 4.2 | 600 | 0.25 | 0.1 | 23 | 5256 |
| ZMM5257B | 33 | 31.35 | 34.65 | 58 | 3.8 | 700 | 0.25 | 0.1 | 25 | 5257 |
| ZMM5258B | 36 | 34.2 | 37.8 | 70 | 3.4 | 700 | 0.25 | 0.1 | 27 | 5258 |
| ZMM5259B | 39 | 37.05 | 40.95 | 80 | 3.2 | 800 | 0.25 | 0.1 | 30 | 5259 |
| ZMM5260B | 43 | 40.85 | 45.15 | 93 | 3 | 900 | 0.25 | 0.1 | 33 | 5260 |
| ZMM5261B | 47 | 44.65 | 49.35 | 150 | 2.7 | 1000 | 0.25 | 0.1 | 36 | 5261 |
| ZMM5262B | 51 | 48.45 | 53.55 | 125 | 2.5 | 1100 | 0.25 | 0.1 | 39 | 5262 |
| ZMM5263B | 56 | 53.2 | 58.8 | 150 | 2.2 | 1300 | 0.25 | 0.1 | 43 | 5263 |
| ZMM5264B | 60 | 57 | 63 | 170 | 2.1 | 1400 | 0.25 | 0.1 | 46 | 5264 |
| ZMM5265B | 62 | 58.9 | 65.1 | 185 | 2 | 1400 | 0.25 | 0.1 | 47 | 5265 |
| ZMM5266B | 68 | 64.6 | 71.4 | 230 | 1.8 | 1600 | 0.25 | 0.1 | 52 | 5266 |



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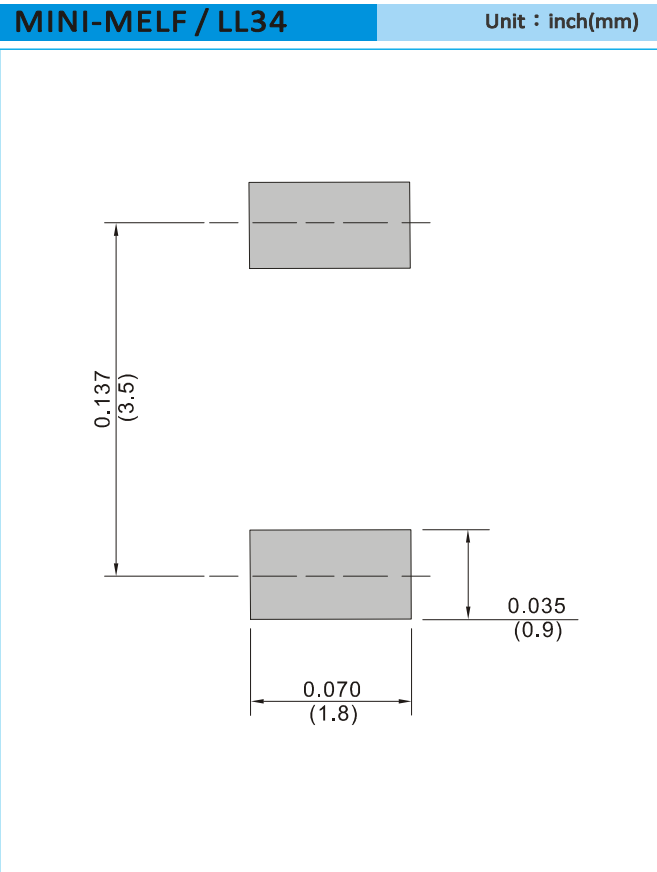
RATING AND CHARACTERISTIC CURVES





ZMM5221B~ZMM5266B

MOUNTING PAD LAYOUT



ORDER INFORMATION

- Packing information
T/R - 10K per 13" plastic Reel
T/R - 2.5K per 7" plastic Reel



ZMM5221B~ZMM5266B

Part No_packing code_Version

ZMM5221B_R1_10001

ZMM5221B_R2_10001

For example :

RB500V-40_R2_00001



| Packing Code XX | | | | Version Code XXXXX | | |
|--------------------------------------|----------------------|----------------------------------|----------------------|---------------------------|----------------------|---------------------------------------|
| Packing type | 1 st Code | Packing size code | 2 nd Code | HF or RoHS | 1 st Code | 2 nd ~5 th Code |
| Tape and Ammunition Box (T/B) | A | N/A | 0 | HF | 0 | serial number |
| Tape and Reel (T/R) | R | 7" | 1 | RoHS | 1 | serial number |
| Bulk Packing (B/P) | B | 13" | 2 | | | |
| Tube Packing (T/P) | T | 26mm | X | | | |
| Tape and Reel (Right Oriented) (TRR) | S | 52mm | Y | | | |
| Tape and Reel (Left Oriented) (TRL) | L | PANASERT T/B CATHODE UP (PBCU) | U | | | |
| FORMING | F | PANASERT T/B CATHODE DOWN (PBCD) | D | | | |



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