

## 500mW Mini MELF Zener Diodes

Unit : inch (mm)

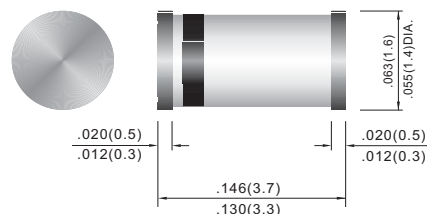
### Features

- Planar Die construction
- 500mW Power Dissipation
- Ideally Suited for Automated Assembly Processes
- $V_Z$ -tolerance  $\pm 5\%$
- Weight 0.03g

**Pb Free Product**

### Applications

Voltage stabilization



### Maximum Ratings

$T_j = 25^\circ\text{C}$

| Item                      | Test Conditions                   | Type | Symbol           | Value       | Unit             |
|---------------------------|-----------------------------------|------|------------------|-------------|------------------|
| Power dissipation         | $T_{\text{amb}}=25^\circ\text{C}$ |      | $P_{\text{TOT}}$ | 500         | mW               |
| Z-current                 |                                   |      | $I_Z$            | $P_V/V_Z$   | mA               |
| Junction temperature      |                                   |      | $T_j$            | -65 to +175 | $^\circ\text{C}$ |
| Storage temperature range |                                   |      | $T_{\text{stg}}$ | -65 to +175 | $^\circ\text{C}$ |

### Maximum Thermal Resistance

$T_j = 25^\circ\text{C}$

| Parameter        | Test Conditions                                 | Symbol            | Value | Unit |
|------------------|-------------------------------------------------|-------------------|-------|------|
| Junction ambient | $l=9.5\text{mm (3/8")}$ , $T_L=\text{constant}$ | $R_{\text{thJA}}$ | 300   | K/W  |

### Electrical Characteristics

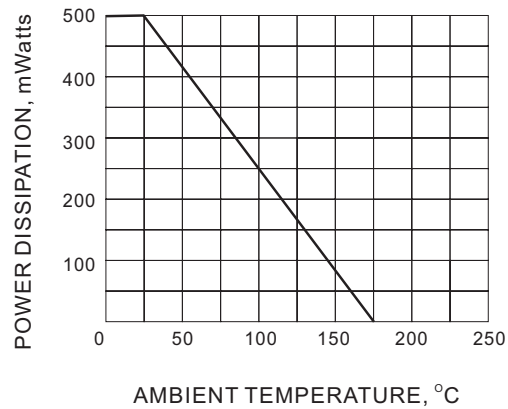
$T_j = 25^\circ\text{C}$

| Parameter       | Test Conditions    | Type | Symbol | Min | Typ | Max | Unit |
|-----------------|--------------------|------|--------|-----|-----|-----|------|
| Forward voltage | $I_F=200\text{mA}$ |      | $V_F$  |     |     | 1.1 | V    |

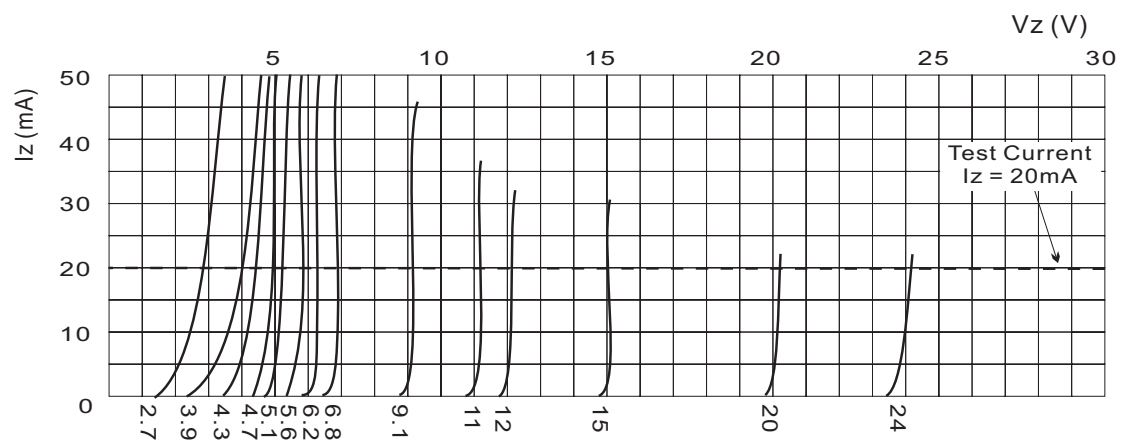
| Part No. | Nominal Zener Voltage            |        |        | Max. Zener Impedance              |      |                                   |      | Max Reverse Leakage Current     |      | TK <sub>VZ</sub> | Marking Code |
|----------|----------------------------------|--------|--------|-----------------------------------|------|-----------------------------------|------|---------------------------------|------|------------------|--------------|
|          | V <sub>Z</sub> @ I <sub>ZT</sub> |        |        | Z <sub>ZT</sub> @ I <sub>ZT</sub> |      | Z <sub>ZK</sub> @ I <sub>ZK</sub> |      | I <sub>R</sub> @ V <sub>R</sub> |      |                  |              |
|          | Nom. V                           | Min. V | Max. V | Ω                                 | mA   | Ω                                 | mA   | μA                              | V    |                  |              |
| ZMM5221B | 2.4                              | 2.28   | 2.52   | 30                                | 20.0 | 1200                              | 0.25 | 100                             | 1.0  | < −0.085         | 5221         |
| ZMM5222B | 2.5                              | 2.38   | 2.63   | 30                                | 20.0 | 1250                              | 0.25 | 100                             | 1.0  | < −0.085         | 5222         |
| ZMM5223B | 2.7                              | 2.57   | 2.84   | 30                                | 20.0 | 1300                              | 0.25 | 75                              | 1.0  | < −0.080         | 5223         |
| ZMM5224B | 2.8                              | 2.66   | 2.94   | 30                                | 20.0 | 1400                              | 0.25 | 75                              | 1.0  | < −0.080         | 5224         |
| ZMM5225B | 3.0                              | 2.85   | 3.15   | 29                                | 20.0 | 1600                              | 0.25 | 50                              | 1.0  | < −0.075         | 5225         |
| ZMM5226B | 3.3                              | 3.14   | 3.47   | 28                                | 20.0 | 1600                              | 0.25 | 25                              | 1.0  | < −0.070         | 5226         |
| ZMM5227B | 3.6                              | 3.42   | 3.78   | 24                                | 20.0 | 1700                              | 0.25 | 15                              | 1.0  | < −0.065         | 5227         |
| ZMM5228B | 3.9                              | 3.71   | 4.10   | 23                                | 20.0 | 1900                              | 0.25 | 10                              | 1.0  | < −0.060         | 5228         |
| ZMM5229B | 4.3                              | 4.09   | 4.52   | 22                                | 20.0 | 2000                              | 0.25 | 5.0                             | 1.0  | < +0.055         | 5229         |
| ZMM5230B | 4.7                              | 4.47   | 4.94   | 19                                | 20.0 | 1900                              | 0.25 | 5.0                             | 2.0  | < +0.030         | 5230         |
| ZMM5231B | 5.1                              | 4.85   | 5.36   | 17                                | 20.0 | 1600                              | 0.25 | 5.0                             | 2.0  | < +0.030         | 5231         |
| ZMM5232B | 5.6                              | 5.32   | 5.88   | 11                                | 20.0 | 1600                              | 0.25 | 5.0                             | 3.0  | < +0.038         | 5232         |
| ZMM5233B | 6.0                              | 5.70   | 6.30   | 7                                 | 20.0 | 1600                              | 0.25 | 5.0                             | 3.5  | < +0.038         | 5233         |
| ZMM5234B | 6.2                              | 5.89   | 6.51   | 7                                 | 20.0 | 1000                              | 0.25 | 5.0                             | 4.0  | < +0.045         | 5234         |
| ZMM5235B | 6.8                              | 6.46   | 7.14   | 5                                 | 20.0 | 750                               | 0.25 | 3.0                             | 5.0  | < +0.050         | 5235         |
| ZMM5236B | 7.5                              | 7.13   | 7.88   | 6                                 | 20.0 | 500                               | 0.25 | 3.0                             | 6.0  | < +0.058         | 5236         |
| ZMM5237B | 8.2                              | 7.79   | 8.61   | 8                                 | 20.0 | 500                               | 0.25 | 3.0                             | 6.5  | < +0.062         | 5237         |
| ZMM5238B | 8.7                              | 8.27   | 9.14   | 8                                 | 20.0 | 600                               | 0.25 | 3.0                             | 6.5  | < +0.065         | 5238         |
| ZMM5239B | 9.1                              | 8.65   | 9.56   | 10                                | 20.0 | 600                               | 0.25 | 3.0                             | 7.0  | < +0.068         | 5239         |
| ZMM5240B | 10.0                             | 9.50   | 10.50  | 17                                | 20.0 | 600                               | 0.25 | 3.0                             | 8.0  | < +0.075         | 5240         |
| ZMM5241B | 11.0                             | 10.45  | 11.55  | 22                                | 20.0 | 600                               | 0.25 | 2.0                             | 8.4  | < +0.076         | 5241         |
| ZMM5242B | 12.0                             | 11.40  | 12.60  | 30                                | 20.0 | 600                               | 0.25 | 1.0                             | 9.1  | < +0.077         | 5242         |
| ZMM5243B | 13.0                             | 12.35  | 13.65  | 13                                | 9.5  | 600                               | 0.25 | 0.5                             | 9.9  | < +0.079         | 5243         |
| ZMM5244B | 14.0                             | 13.30  | 14.70  | 15                                | 9.0  | 600                               | 0.25 | 0.1                             | 10.0 | < +0.082         | 5244         |
| ZMM5245B | 15.0                             | 14.25  | 15.75  | 16                                | 8.5  | 600                               | 0.25 | 0.1                             | 11.0 | < +0.082         | 5245         |
| ZMM5246B | 16.0                             | 15.20  | 16.80  | 17                                | 7.8  | 600                               | 0.25 | 0.1                             | 12.0 | < +0.083         | 5246         |
| ZMM5247B | 17.0                             | 16.15  | 17.85  | 19                                | 7.4  | 600                               | 0.25 | 0.1                             | 13.0 | < +0.084         | 5247         |
| ZMM5248B | 18.0                             | 17.10  | 18.90  | 21                                | 7.0  | 600                               | 0.25 | 0.1                             | 14.0 | < +0.085         | 5248         |
| ZMM5249B | 19.0                             | 18.05  | 19.95  | 23                                | 6.6  | 600                               | 0.25 | 0.1                             | 14.0 | < +0.086         | 5249         |
| ZMM5250B | 20.0                             | 19.00  | 21.00  | 25                                | 6.2  | 600                               | 0.25 | 0.1                             | 15.0 | < +0.086         | 5250         |
| ZMM5251B | 22.0                             | 20.90  | 23.10  | 29                                | 5.6  | 600                               | 0.25 | 0.1                             | 17.0 | < +0.087         | 5251         |
| ZMM5252B | 24.0                             | 22.80  | 25.20  | 33                                | 5.2  | 600                               | 0.25 | 0.1                             | 18.0 | < +0.088         | 5252         |
| ZMM5253B | 25.0                             | 23.75  | 26.25  | 35                                | 5.0  | 600                               | 0.25 | 0.1                             | 19.0 | < +0.089         | 5253         |
| ZMM5254B | 27.0                             | 25.65  | 28.35  | 41                                | 4.6  | 600                               | 0.25 | 0.1                             | 21.0 | < +0.090         | 5254         |
| ZMM5255B | 28.0                             | 26.60  | 29.40  | 44                                | 4.5  | 600                               | 0.25 | 0.1                             | 21.0 | < +0.091         | 5255         |
| ZMM5256B | 30.0                             | 28.50  | 31.50  | 49                                | 4.2  | 600                               | 0.25 | 0.1                             | 23.0 | < +0.091         | 5256         |
| ZMM5257B | 33.0                             | 31.35  | 34.65  | 58                                | 3.8  | 700                               | 0.25 | 0.1                             | 25.0 | < +0.092         | 5257         |
| ZMM5258B | 36.0                             | 34.20  | 37.80  | 70                                | 3.4  | 700                               | 0.25 | 0.1                             | 27.0 | < +0.093         | 5258         |
| ZMM5259B | 39.0                             | 37.05  | 40.95  | 80                                | 3.2  | 800                               | 0.25 | 0.1                             | 30.0 | < +0.094         | 5259         |
| ZMM5260B | 43.0                             | 40.85  | 45.15  | 93                                | 3.0  | 900                               | 0.25 | 0.1                             | 33.0 | < +0.095         | 5260         |
| ZMM5261B | 47.0                             | 44.65  | 49.35  | 150                               | 2.7  | 1000                              | 0.25 | 0.1                             | 36.0 | < +0.095         | 5261         |
| ZMM5262B | 51.0                             | 48.45  | 53.55  | 125                               | 2.5  | 1100                              | 0.25 | 0.1                             | 39.0 | < +0.096         | 5262         |
| ZMM5263B | 56.0                             | 53.20  | 58.80  | 150                               | 2.2  | 1300                              | 0.25 | 0.1                             | 43.0 | < +0.096         | 5263         |
| ZMM5264B | 60.0                             | 57.00  | 63.00  | 170                               | 2.1  | 1400                              | 0.25 | 0.1                             | 46.0 | < +0.097         | 5264         |
| ZMM5265B | 62.0                             | 58.90  | 65.10  | 185                               | 2.0  | 1400                              | 0.25 | 0.1                             | 47.0 | < +0.097         | 5265         |
| ZMM5266B | 68.0                             | 64.60  | 71.40  | 230                               | 1.8  | 1600                              | 0.25 | 0.1                             | 52.0 | < +0.097         | 5266         |
| ZMM5267B | 75.0                             | 71.25  | 78.75  | 270                               | 1.7  | 1700                              | 0.25 | 0.1                             | 56.0 | < +0.098         | 5267         |

1) Based on dc-measurement at thermal equilibrium; lead length = 9.5mm (3/8"); thermal resistance of heat sink = 30K/W

## RATING AND CHARACTERISTIC CURVES



**FIG. 1 POWER DERATING CURVE**



### Fig.2 BREAKDOWN CHARACTERISTICS