

Features

- Surface Mount Package
- ESD Protected up to 16KV (HBM)
- Halogen Free. "Green" Device (Note 1)
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

**350 mW
Zener Diode
2.4 to 39 Volts**

Maximum Ratings

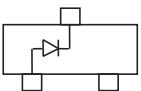
- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Maximum Thermal Resistance: 357°C/W Junction to Ambient

| Parameter | Symbol | Rating | Conditions |
|----------------------------|-----------|--------|------------|
| Power Dissipation | P_D | 350mW | Note 2 |
| Peak Forward Surge Current | I_{FSM} | 4.0A | Note 3 |
| Maximum Forward Voltage | V_F | 0.9V | $I_F=10mA$ |

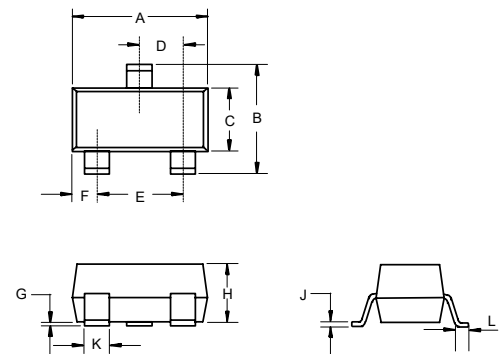
Note: 1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

2. Mounted on FR4 PC Board With Our Suggested Solder Pad Layout
3. Measured on 8.3ms, Single Half Sine-wave or Equivalent Square Wave, Duty Cycle=4 Pulses Per Minute Maximum.

Internal Structure

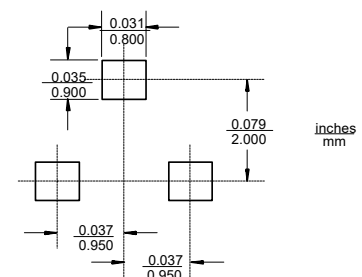


SOT-23



| DIM | INCHES | | MM | | NOTE |
|-----|--------|-------|------|------|------|
| | MIN | MAX | MIN | MAX | |
| A | 0.110 | 0.120 | 2.80 | 3.04 | |
| B | 0.083 | 0.104 | 2.10 | 2.64 | |
| C | 0.047 | 0.055 | 1.20 | 1.40 | |
| D | 0.034 | 0.041 | 0.85 | 1.05 | |
| E | 0.067 | 0.083 | 1.70 | 2.10 | |
| F | 0.018 | 0.024 | 0.45 | 0.60 | |
| G | 0.0004 | 0.006 | 0.01 | 0.15 | |
| H | 0.035 | 0.043 | 0.90 | 1.10 | |
| J | 0.003 | 0.007 | 0.08 | 0.18 | |
| K | 0.012 | 0.020 | 0.30 | 0.51 | |
| L | 0.007 | 0.020 | 0.20 | 0.50 | |

Suggested Solder Pad Layout



Electrical Characteristics @ 25°C Unless Otherwise Specified

| MCC Part Number | Nominal Zener Voltage ^(4,5) | | Maximum Zener Impedance ⁽⁶⁾ | | | Maximum Reverse Leakage Current | | Zener Voltage Temperature Coefficient | Marking Code |
|--------------------|--|----------|--|-------------------|----------|------------------------------------|-------|---|--------------|
| | $V_Z @ I_{ZT}$ | I_{ZT} | $Z_{ZT} @ I_{ZT}$ | $Z_{ZK} @ I_{ZK}$ | I_{ZK} | I_R | V_R | | |
| | V | mA | Ω | Ω | mA | μA | V | %/°C | |
| MMBZ5221B | 2.4 | 20 | 30 | 1200 | 0.25 | 100 | 1.0 | -0.085 | KC1 |
| MMBZ5222B | 2.5 | 20 | 30 | 1250 | 0.25 | 100 | 1.0 | -0.085 | KC2 |
| MMBZ5223B | 2.7 | 20 | 30 | 1300 | 0.25 | 75 | 1.0 | -0.080 | KC3 |
| MMBZ5225B | 3.0 | 20 | 29 | 1600 | 0.25 | 50 | 1.0 | -0.075 | KC5 |
| MMBZ5226B | 3.3 | 20 | 28 | 1600 | 0.25 | 25 | 1.0 | -0.070 | KG1 |
| MMBZ5227B | 3.6 | 20 | 24 | 1700 | 0.25 | 15 | 1.0 | -0.065 | KG2 |
| MMBZ5228B | 3.9 | 20 | 23 | 1900 | 0.25 | 10 | 1.0 | -0.060 | KG3 |
| MMBZ5229B | 4.3 | 20 | 22 | 2000 | 0.25 | 5.0 | 1.0 | ± 0.055 | KG4 |
| MMBZ5230B | 4.7 | 20 | 19 | 1900 | 0.25 | 5.0 | 2.0 | ± 0.030 | KG5 |
| MMBZ5231B | 5.1 | 20 | 17 | 1600 | 0.25 | 5.0 | 2.0 | ± 0.030 | KE1 |
| MMBZ5232B | 5.6 | 20 | 11 | 1600 | 0.25 | 5.0 | 3.0 | +0.038 | KE2 |
| MMBZ5233B | 6.0 | 20 | 7.0 | 1600 | 0.25 | 5.0 | 3.5 | +0.040 | KE3 |
| MMBZ5234B | 6.2 | 20 | 7.0 | 1000 | 0.25 | 5.0 | 4.0 | +0.045 | KE4 |
| MMBZ5235B | 6.8 | 20 | 5.0 | 750 | 0.25 | 3.0 | 5.0 | +0.050 | KE5 |
| MMBZ5236B | 7.5 | 20 | 6.0 | 500 | 0.25 | 3.0 | 6.0 | +0.058 | KF1 |
| MMBZ5237B | 8.2 | 20 | 8.0 | 500 | 0.25 | 3.0 | 6.5 | +0.062 | KF2 |
| MMBZ5238B | 8.7 | 20 | 8.0 | 600 | 0.25 | 3.0 | 6.5 | +0.065 | KF3 |
| MMBZ5239B | 9.1 | 20 | 10 | 600 | 0.25 | 3.0 | 7.0 | +0.068 | KF4 |
| MMBZ5240B | 10 | 20 | 17 | 600 | 0.25 | 3.0 | 8.0 | +0.075 | KF5 |
| MMBZ5241B | 11 | 20 | 22 | 600 | 0.25 | 2.0 | 8.4 | +0.076 | KH1 |
| MMBZ5242B | 12 | 20 | 30 | 600 | 0.25 | 1.0 | 9.1 | +0.077 | KH2 |
| MMBZ5243B | 13 | 9.5 | 13 | 600 | 0.25 | 0.5 | 9.9 | +0.079 | KH3 |
| MMBZ5244B | 14 | 9.0 | 15 | 600 | 0.25 | 0.1 | 10 | +0.081 | KH4 |
| MMBZ5245B | 15 | 8.5 | 16 | 600 | 0.25 | 0.1 | 11 | +0.082 | KH5 |
| MMBZ5246B | 16 | 7.8 | 17 | 600 | 0.25 | 0.1 | 12 | +0.083 | KJ1 |
| MMBZ5248B | 18 | 7.0 | 21 | 600 | 0.25 | 0.1 | 14 | +0.085 | KJ3 |
| MMBZ5250B | 20 | 6.2 | 25 | 600 | 0.25 | 0.1 | 15 | +0.086 | KJ5 |
| MMBZ5251B | 22 | 5.6 | 29 | 600 | 0.25 | 0.1 | 17 | +0.087 | KK1 |
| MMBZ5252B | 24 | 5.2 | 33 | 600 | 0.25 | 0.1 | 18 | +0.088 | KK2 |
| MMBZ5254B | 27 | 5.0 | 41 | 600 | 0.25 | 0.1 | 21 | +0.090 | KK4 |
| MMBZ5255B | 28 | 4.5 | 44 | 600 | 0.25 | 0.1 | 21 | +0.091 | KK5 |
| MMBZ5256B | 30 | 4.2 | 49 | 600 | 0.25 | 0.1 | 23 | +0.091 | KM1 |
| MMBZ5257B | 33 | 3.8 | 58 | 700 | 0.25 | 0.1 | 25 | +0.092 | KM2 |
| MMBZ5258B | 36 | 3.4 | 70 | 700 | 0.25 | 0.1 | 27 | +0.093 | KM3 |
| MMBZ5259B | 39 | 3.2 | 80 | 800 | 0.25 | 0.1 | 30 | +0.094 | KM4 |

Note:

4. Tolerance and Type Number Designation. The Type Numbers Listed Have a Standard Tolerance on The Nominal Zener Voltage of $\pm 5\%$.
5. Zener Voltage (V_Z) Measurement. Guarantess The Zener Voltage When Measured at 90 Seconds While Maintaining The Lead Temperature (T_L) at 25°C from The Diode Body.
6. Zener Impedance (Z_Z) Derivation. The Zener Impedance is Derived from The 60 Cycle AC Voltage, Which Results When an AC Current Having an rms Value Equal to 10% of The DC Zener Current (I_{ZT} or I_{ZK}) is superimposed on I_{ZT} or I_{ZK} .

Curve Characteristics

Fig. 1 - Power Derating Curve

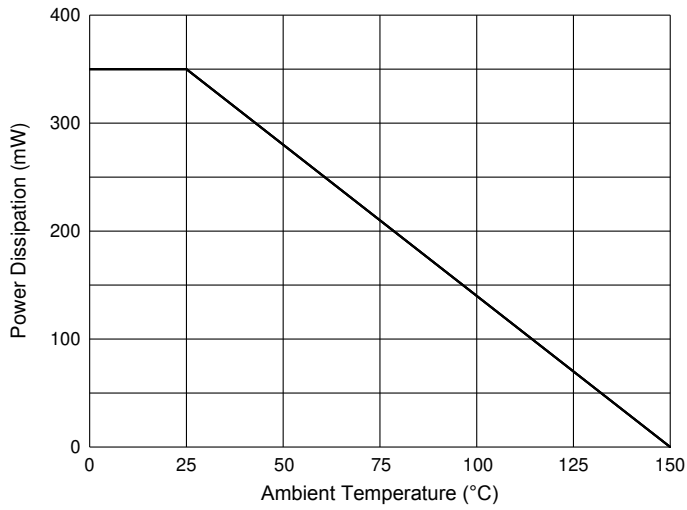


Fig. 2 - Typical Zener Breakdown Characteristics

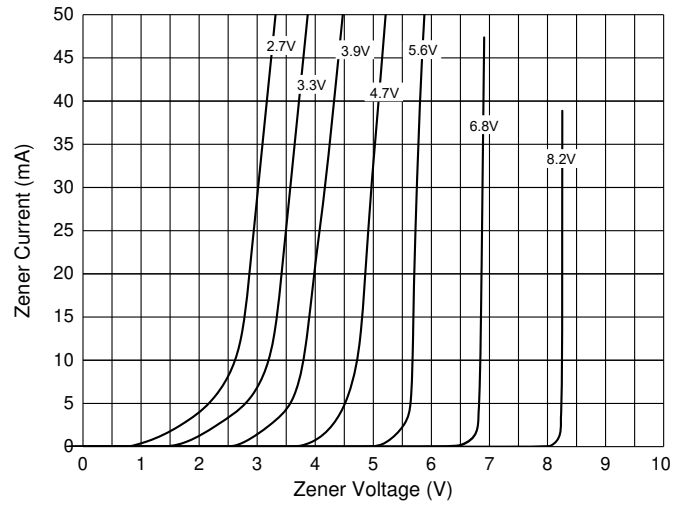
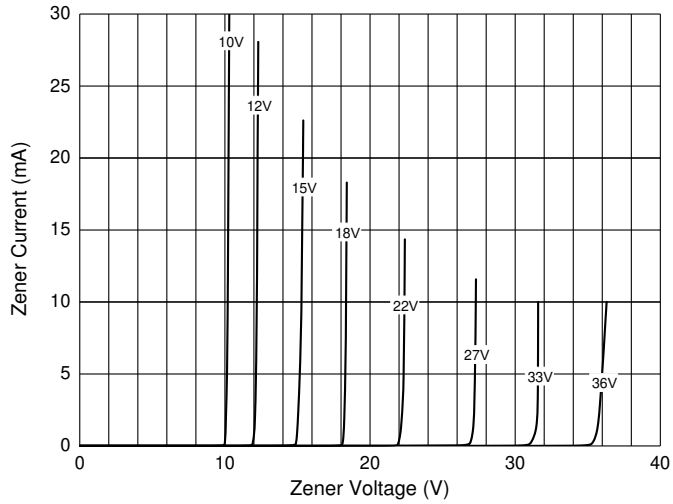


Fig. 3 - Typical Zener Breakdown Characteristics



Ordering Information

| Device | Packing |
|----------------|----------------------|
| Part Number-TP | Tape&Reel:3Kpcs/Reel |

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