



Features

- Planar Die Construction
- 500mW Power Dissipation on Ceramic PCB
- General Purpose, Medium Current
- Ideally Suited for Automated Assembly Processes
- Available in Lead Free Version



SOD-123

Package Marking and Ordering Information

| Product ID | Pack | Marking | Qty(PCS) |
|-----------------------|---------|---------|----------|
| MMSZ4678- MMSZ4717 | SOD-123 | XX | 3000 |

XX=Device code, see table on page2 the marking code.

The marking bar indicates the cathode.



Absolute Maximum Ratings(Ta=25°C)

| Characteristic | Symbol | Value | Unit |
|---|-----------------|------------|------|
| Forward voltage @ $I_F = 10\text{mA}$ | V_F | 0.85 | V |
| Power Dissipation | P_D | 500 | mW |
| Thermal Resistance, Junction to Ambient Air | $R_{\theta JA}$ | 556 | °C/W |
| Junction Temperature | T_j | 150 | °C |
| Storage Temperature Range | T_{stg} | -55 ~ +150 | °C |

Notes: Device mounted on ceramic PCB;5.0mm×7.0mm with pad areas 35 mm²



Electrical Characteristics (Ta=25°C unless otherwise specified)

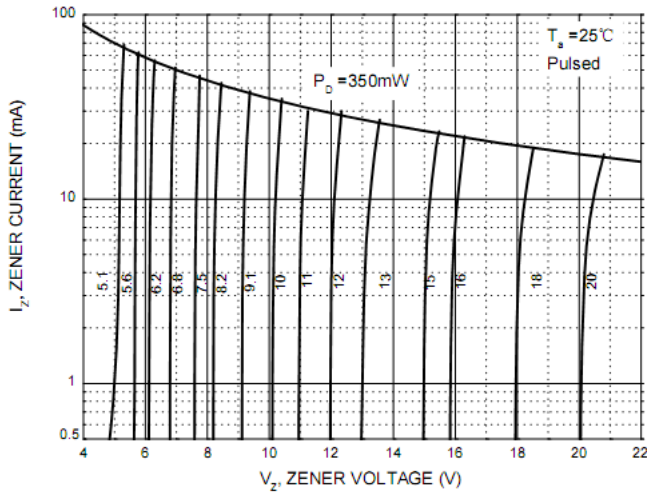
| Type Number | Type Code | Zener Voltage Range (Note 2) | | | | Maximum Zener Impedance (Note 3) | | | Maximum Reverse Current | | Typical Temperature Coefficient @I _{ZTC} | | Test Current I _{ZTC} |
|-------------|-----------|---------------------------------|--------|--------|-----------------|----------------------------------|----------------------------------|-----------------|-------------------------|----------------|---|------|-------------------------------|
| | | V _Z @I _{ZT} | | | I _{ZT} | Z _{ZT} @I _{ZT} | Z _{ZK} @I _{ZK} | I _{ZK} | I _R | V _R | mV/°C | | |
| | | Nom(V) | Min(V) | Max(V) | mA | Ω | | mA | μA | V | Min | Max | |
| MMSZ5221B | C1 | 2.4 | 2.35 | 2.45 | 5 | 100 | 600 | 1.0 | 50 | 1.0 | -3.5 | 0 | 5 |
| MMSZ5223B | C3 | 2.7 | 2.65 | 2.75 | 5 | 100 | 600 | 1.0 | 20 | 1.0 | -3.5 | 0 | 5 |
| MMSZ5225B | C5 | 3.0 | 2.94 | 3.06 | 5 | 95 | 600 | 1.0 | 10 | 1.0 | -3.5 | 0 | 5 |
| MMSZ5226B | G1 | 3.3 | 3.23 | 3.37 | 5 | 95 | 600 | 1.0 | 5 | 1.0 | -3.5 | 0 | 5 |
| MMSZ5227B | G2 | 3.6 | 3.53 | 3.67 | 5 | 90 | 600 | 1.0 | 5 | 1.0 | -3.5 | 0 | 5 |
| MMSZ5228B | G3 | 3.9 | 3.82 | 3.98 | 5 | 90 | 600 | 1.0 | 0.5 | 1.0 | -3.5 | 0 | 5 |
| MMSZ5229B | G4 | 4.3 | 4.21 | 4.39 | 5 | 90 | 600 | 1.0 | 0.5 | 1.0 | -3.5 | 0 | 5 |
| MMSZ5230B | G5 | 4.7 | 4.61 | 4.79 | 5 | 80 | 500 | 1.0 | 3 | 2.0 | -3.5 | 0.2 | 5 |
| MMSZ5231B | E1 | 5.1 | 5.00 | 5.20 | 5 | 60 | 480 | 1.0 | 2 | 2.0 | -2.7 | 1.2 | 5 |
| MMSZ5232B | E2 | 5.6 | 5.49 | 5.71 | 5 | 40 | 400 | 1.0 | 1 | 2.0 | 2.0 | 2.5 | 5 |
| MMSZ5234B | E4 | 6.2 | 6.08 | 6.32 | 5 | 9.5 | 150 | 1.0 | 3 | 4.0 | 0.4 | 3.7 | 5 |
| MMSZ5235B | E5 | 6.8 | 6.66 | 6.94 | 5 | 14.2 | 76 | 1.0 | 2 | 4.0 | 1.2 | 4.5 | 5 |
| MMSZ5236B | F1 | 7.5 | 7.35 | 7.65 | 5 | 14.2 | 76 | 1.0 | 1 | 5.0 | 2.5 | 5.3 | 5 |
| MMSZ5237B | F2 | 8.2 | 8.04 | 8.36 | 5 | 14.2 | 76 | 1.0 | 0.7 | 5.0 | 3.2 | 6.2 | 5 |
| MMSZ5239B | F4 | 9.1 | 8.92 | 9.28 | 5 | 14.2 | 95 | 1.0 | 0.5 | 7.0 | 3.8 | 7.0 | 5 |
| MMSZ5240B | F5 | 10 | 9.80 | 10.20 | 5 | 19 | 142.5 | 1.0 | 0.2 | 8.0 | 4.5 | 8.0 | 5 |
| MMSZ5241B | H1 | 11 | 10.78 | 11.22 | 5 | 19 | 142.5 | 1.0 | 0.1 | 8.0 | 5.4 | 9.0 | 5 |
| MMSZ5242B | H2 | 12 | 11.76 | 12.24 | 5 | 23.7 | 150 | 1.0 | 0.1 | 8.0 | 6.0 | 10.0 | 5 |
| MMSZ5243B | H3 | 13 | 12.74 | 13.30 | 5 | 28.5 | 190 | 1.0 | 0.1 | 8.0 | 7.0 | 11.0 | 5 |
| MMSZ5245B | H5 | 15 | 14.70 | 15.30 | 5 | 28.5 | 190 | 1.0 | 0.1 | 11.0 | 9.2 | 13.0 | 5 |
| MMSZ5246B | J1 | 16 | 15.68 | 16.30 | 5 | 38 | 190 | 1.0 | 0.1 | 11.0 | 10.4 | 14.0 | 5 |
| MMSZ5248B | J3 | 18 | 17.60 | 18.40 | 5 | 42.7 | 213 | 1.0 | 0.1 | 13.0 | 12.4 | 16.0 | 5 |
| MMSZ5250B | J5 | 20 | 19.60 | 20.40 | 5 | 52.2 | 213 | 1.0 | 0.1 | 14.0 | 14.4 | 18.0 | 5 |
| MMSZ5251B | K1 | 22 | 21.56 | 22.44 | 5 | 52.2 | 237 | 1.0 | 0.1 | 15.0 | 16.4 | 20.0 | 5 |
| MMSZ5252B | K2 | 24 | 23.52 | 24.50 | 5 | 66.5 | 250 | 1.0 | 0.1 | 17.0 | 18.4 | 22.0 | 5 |
| MMSZ5254B | K4 | 27 | 26.46 | 27.54 | 2 | 75 | 295 | 0.5 | 0.1 | 19.0 | 21.4 | 25.3 | 2 |
| MMSZ5256B | M1 | 30 | 29.40 | 30.60 | 2 | 75 | 295 | 0.5 | 0.1 | 21.0 | 24.4 | 29.4 | 2 |
| MMSZ5257B | M2 | 33 | 32.34 | 33.66 | 2 | 75 | 320 | 0.5 | 0.1 | 23.0 | 27.4 | 33.4 | 2 |
| MMSZ5258B | M3 | 36 | 35.28 | 36.72 | 2 | 85 | 345 | 0.5 | 0.1 | 25.0 | 30.4 | 37.4 | 2 |
| MMSZ5259B | M4 | 39 | 38.22 | 39.78 | 2 | 125 | 345 | 0.5 | 0.1 | 27.0 | 33.4 | 41.2 | 2 |
| MMSZ5260B | M5 | 43 | 42.14 | 43.86 | 2 | 145 | 370 | 0.5 | 0.1 | 30.0 | 37.6 | 46.6 | 2 |

- Notes: 1. Device mounted on ceramic PCB:7.6mm x 9.4mm x 0.87mm with pad areas 25mm²
 2. Short duration test pulse used to minimize self-heating effect
 3. f = 1kHz

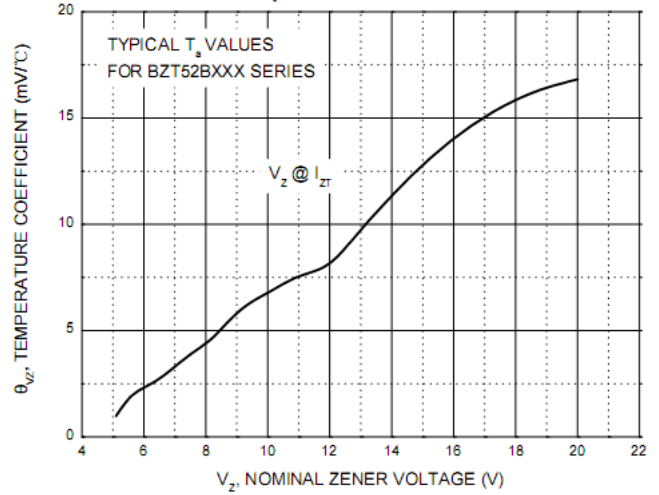


Typical Characteristics

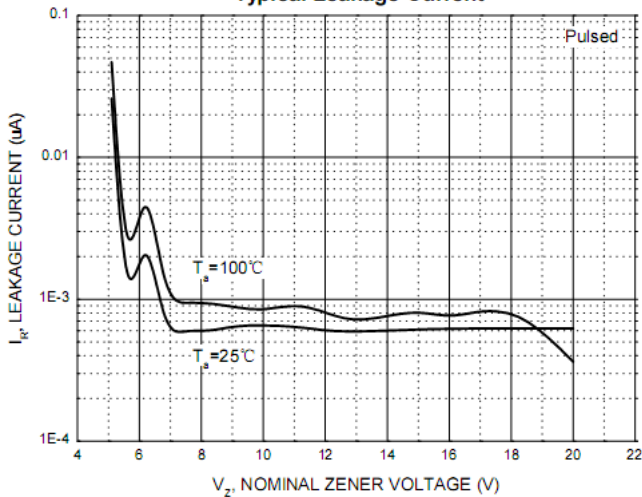
Zener Characteristics (V_z 5.1V to 20 V)



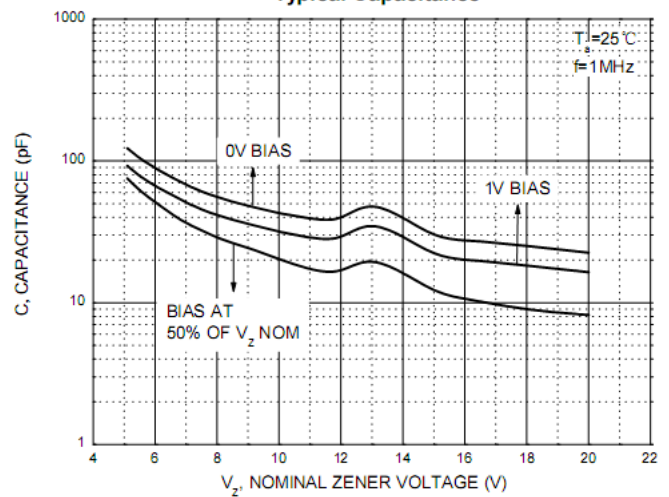
Temperature Coefficients



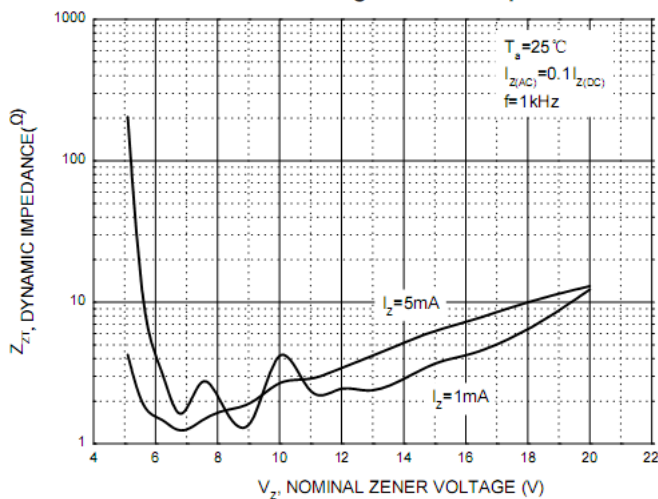
Typical Leakage Current



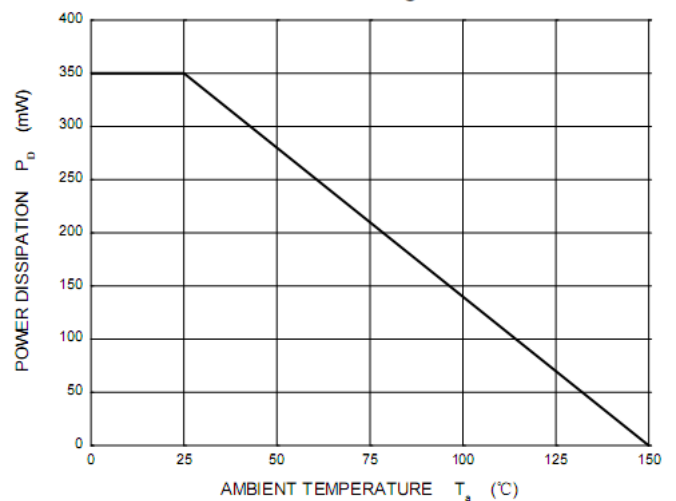
Typical Capacitance



Effect of Zener Voltage on Zener Impedance

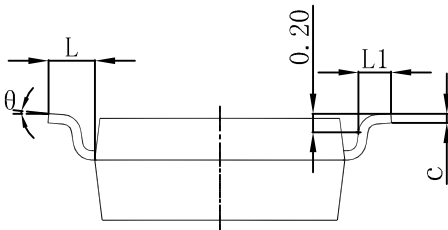
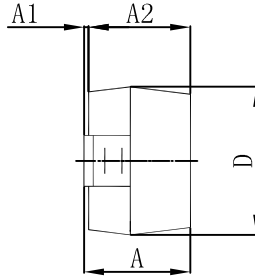
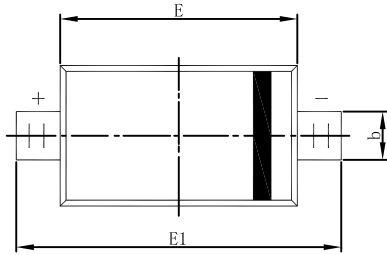


Power Derating Curve

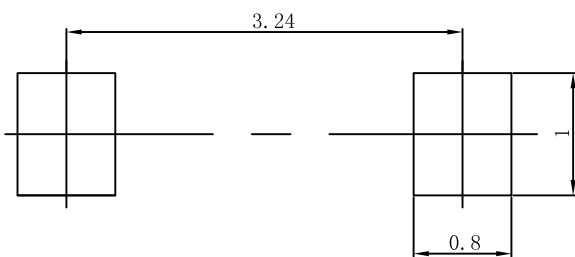




SOD-123 Package Outline Dimensions



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|---------------------------|-------|----------------------|-------|
| | Min | Max | Min | Max |
| A | 1.050 | 1.250 | 0.041 | 0.049 |
| A1 | 0.000 | 0.100 | 0.000 | 0.004 |
| A2 | 1.050 | 1.150 | 0.041 | 0.045 |
| b | 0.450 | 0.650 | 0.018 | 0.026 |
| c | 0.080 | 0.150 | 0.003 | 0.006 |
| D | 1.500 | 1.700 | 0.059 | 0.067 |
| E | 2.600 | 2.800 | 0.102 | 0.110 |
| E1 | 3.550 | 3.850 | 0.140 | 0.152 |
| L | 0.500 REF | | 0.020 REF | |
| L1 | 0.250 | 0.450 | 0.010 | 0.018 |
| θ | 0° | 8° | 0° | 8° |



- Note:**
1. Controlling dimension: in millimeters.
 2. General tolerance: $\pm 0.05\text{mm}$.
 3. The pad layout is for reference purposes only.



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