



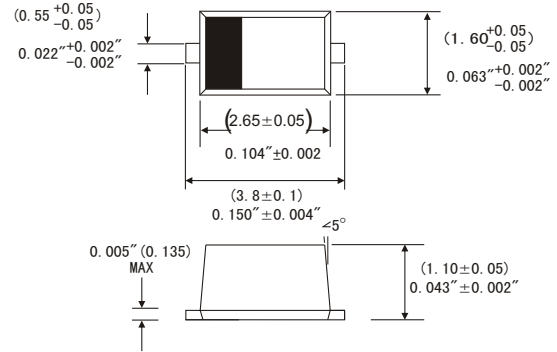
FEATURES

- Total power dissipation: max. 500 mW
- Small plastic package suitable for surface mounted design
- Tolerance approximately $\pm 5\%$
- High temperature soldering guaranteed: $260^{\circ}\text{C}/10$ seconds at terminals

MECHANICAL DATA

- Case: SOD-123 plastic case
- Weight: Approx. 0.01 gram

SOD-123



Dimensions in inches and (millimeters)

ABSOLUTE MAXIMUM RATINGS(LIMITING VALUES) ($T_A=25^{\circ}\text{C}$)

| | Symbols | Value | Units |
|---|-----------|-------------|--------------------|
| Zener current see table "Characteristics" | | | |
| Power dissipation | P_D | 500 | mW |
| Junction temperature | T_J | 150 | $^{\circ}\text{C}$ |
| Storage temperature range | T_{STG} | -55 to +150 | $^{\circ}\text{C}$ |

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$)

| | Symbols | Min | Typ | Max | Units |
|--|-----------------|-----|-----|-----|-----------------------------|
| Thermal resistance junction to ambient | $R_{\theta JA}$ | | | 340 | $^{\circ}\text{C}/\text{W}$ |
| Thermal resistance junction to Lead | $R_{\theta JL}$ | | | 150 | $^{\circ}\text{C}/\text{W}$ |
| Forward voltage at $I_F=100\text{mA}$ | V_F | | | 0.9 | V |



| Type | Marking Code | Zener Voltage range ^{1) 2)} | | | Dynamic resistance ³⁾ | | | Reverse leakage current | |
|-----------|--------------|--------------------------------------|-------------------------------------|---------------|--|-------|------|-------------------------|-------------------|
| | | V _{ZNOM} | I _{ZT} for V _{ZT} | | Γ _{ZK} and Γ _{ZK} at I _{ZK} | | | I _R | at V _R |
| | | V | mA | V | Ω | Ω | mA | μA | V |
| MM1Z5221B | A4 | 2.4 | 20 | 2.28...2.52 | 30 | 1,200 | 0.25 | 100 | 1 |
| MM1Z5222B | AB | 2.5 | 20 | 2.38...2.63 | 30 | 1,250 | 0.25 | 100 | 1 |
| MM1Z5223B | B4 | 2.7 | 20 | 2.57...2.84 | 30 | 1,300 | 0.25 | 75 | 1 |
| MM1Z5224B | AC | 2.8 | 20 | 2.66...2.94 | 30 | 1,400 | 0.25 | 75 | 1 |
| MM1Z5225B | C4 | 3.0 | 20 | 2.85...3.15 | 29 | 1,600 | 0.25 | 50 | 1 |
| MM1Z5226B | D4 | 3.3 | 20 | 3.14...3.47 | 28 | 1,600 | 0.25 | 25 | 1 |
| MM1Z5227B | E4 | 3.6 | 20 | 3.42...3.78 | 24 | 1,700 | 0.25 | 15 | 1 |
| MM1Z5228B | F4 | 3.9 | 20 | 3.71...4.1 | 23 | 1,900 | 0.25 | 10 | 1 |
| MM1Z5229B | H4 | 4.3 | 20 | 4.09...4.52 | 22 | 2,000 | 0.25 | 5 | 1 |
| MM1Z5230B | J4 | 4.7 | 20 | 4.47...4.94 | 19 | 1,900 | 0.25 | 5 | 2 |
| MM1Z5231B | K4 | 5.1 | 20 | 4.85...5.36 | 17 | 1,600 | 0.25 | 5 | 2 |
| MM1Z5232B | M4 | 5.6 | 20 | 5.32...5.88 | 11 | 1,600 | 0.25 | 5 | 3 |
| MM1Z5233B | AD | 6.0 | 20 | 5.7...6.3 | 7 | 1,600 | 0.25 | 5 | 3.5 |
| MM1Z5234B | N4 | 6.2 | 20 | 5.89...6.51 | 7 | 1,000 | 0.25 | 5 | 4 |
| MM1Z5235B | P4 | 6.8 | 20 | 6.46...7.14 | 5 | 750 | 0.25 | 3 | 5 |
| MM1Z5236B | R4 | 7.5 | 20 | 7.13...7.88 | 6 | 500 | 0.25 | 3 | 6 |
| MM1Z5237B | X4 | 8.2 | 20 | 7.79...8.61 | 8 | 500 | 0.25 | 3 | 6.5 |
| MM1Z5238B | AE | 8.7 | 20 | 8.27...9.14 | 8 | 600 | 0.25 | 3 | 6.5 |
| MM1Z5239B | Y4 | 9.1 | 20 | 8.65...9.56 | 10 | 600 | 0.25 | 3 | 7 |
| MM1Z5240B | Z4 | 10 | 20 | 9.5...10.5 | 17 | 600 | 0.25 | 3 | 8 |
| MM1Z5241B | A5 | 11 | 20 | 10.45...11.55 | 22 | 600 | 0.25 | 2 | 8.4 |
| MM1Z5242B | B5 | 12 | 20 | 11.4...12.6 | 30 | 600 | 0.25 | 1 | 9.1 |
| MM1Z5243B | C5 | 13 | 9.5 | 12.35...13.65 | 13 | 600 | 0.25 | 0.5 | 9.9 |
| MM1Z5245B | D5 | 15 | 8.5 | 14.25...15.75 | 16 | 600 | 0.25 | 0.1 | 11 |
| MM1Z5246B | E5 | 16 | 7.8 | 15.2...16.8 | 17 | 600 | 0.25 | 0.1 | 12 |
| MM1Z5247B | AH | 17 | 7.4 | 16.15...17.85 | 19 | 600 | 0.25 | 0.1 | 13 |
| MM1Z5248B | F5 | 18 | 7 | 17.1...18.9 | 21 | 600 | 0.25 | 0.1 | 14 |
| MM1Z5249B | K9 | 19 | 6.6 | 18.05...19.95 | 23 | 600 | 0.25 | 0.1 | 14 |
| MM1Z5250B | H5 | 20 | 6.2 | 19...21 | 25 | 600 | 0.25 | 0.1 | 15 |
| MM1Z5251B | J5 | 22 | 5.6 | 20.9...23.1 | 29 | 600 | 0.25 | 0.1 | 17 |
| MM1Z5252B | K5 | 24 | 5.2 | 22.8...25.2 | 33 | 600 | 0.25 | 0.1 | 18 |
| MM1Z5253B | M9 | 25 | 5 | 23.75...26.25 | 35 | 600 | 0.25 | 0.1 | 19 |
| MM1Z5254B | M5 | 27 | 4.6 | 25.65...28.35 | 41 | 600 | 0.25 | 0.1 | 21 |
| MM1Z5255B | AJ | 28 | 4.5 | 26.6...29.4 | 44 | 600 | 0.25 | 0.1 | 21 |
| MM1Z5256B | N5 | 30 | 4.2 | 28.5...31.5 | 49 | 600 | 0.25 | 0.1 | 23 |
| MM1Z5257B | P5 | 33 | 3.8 | 31.35...34.65 | 58 | 700 | 0.25 | 0.1 | 25 |
| MM1Z5258B | R5 | 36 | 3.4 | 34.2...37.8 | 70 | 700 | 0.25 | 0.1 | 27 |
| MM1Z5259B | X5 | 39 | 3.2 | 37.05...40.95 | 80 | 800 | 0.25 | 0.1 | 30 |
| MM1Z5260B | Y5 | 43 | 3 | 40.85...45.15 | 93 | 900 | 0.25 | 0.1 | 33 |
| MM1Z5261B | Z5 | 47 | 2.7 | 44.65...49.35 | 105 | 1,000 | 0.25 | 0.1 | 36 |
| MM1Z5262B | A6 | 51 | 2.5 | 48.45...53.55 | 125 | 1,100 | 0.25 | 0.1 | 39 |
| MM1Z5263B | B6 | 56 | 2.2 | 53.2...58.8 | 150 | 1,300 | 0.25 | 0.1 | 43 |
| MM1Z5264B | AK | 60 | 2.1 | 57...63 | 170 | 1,400 | 0.25 | 0.1 | 46 |
| MM1Z5265B | C6 | 62 | 2 | 58.9...65.1 | 185 | 1,400 | 0.25 | 0.1 | 47 |
| MM1Z5266B | D6 | 68 | 1.8 | 64.6...71.4 | 230 | 1,600 | 0.25 | 0.1 | 52 |
| MM1Z5267B | E6 | 75 | 1.7 | 71.25...78.75 | 270 | 1,700 | 0.25 | 0.1 | 56 |
| MM1Z5268B | F6 | 82 | 1.5 | 77.9...86.1 | 330 | 2,000 | 0.25 | 0.1 | 62 |

1) Vz is tested with pulses tp=20ms.

2) Nominal Zener voltage is measured with device junction in thermal equilibrium at TL=30°C ± 1°C.

3) Z_T and Z_K are measured by dividing the AC voltage drop across the device by the AC current applied. The specified limits are for I_{Z(AO)}=0.1 I_{Z(DC)} with AC frequency = 1 kHz.

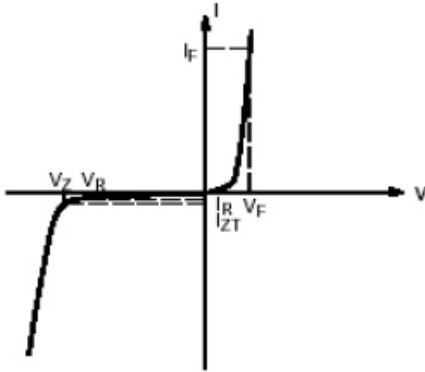


Figure 1. Zener Voltage Regulator

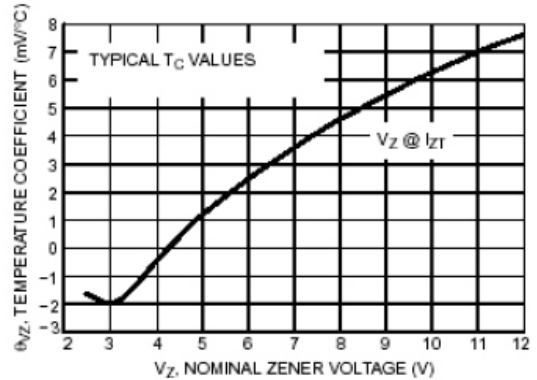


Figure 2 Temperature Coefficients
(Temperature Range -55°C to +150°C)

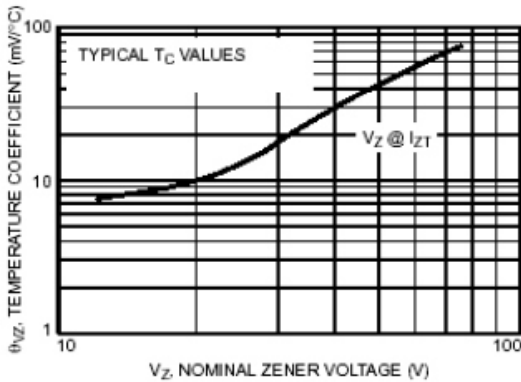


Figure 3, Temperature Coefficients
(Temperature Range -55°C to +150°C)

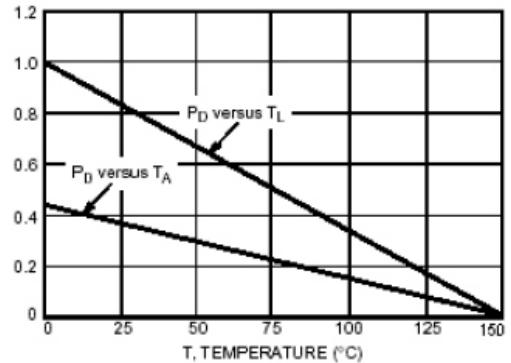


Figure 4. Steady State Power Derating

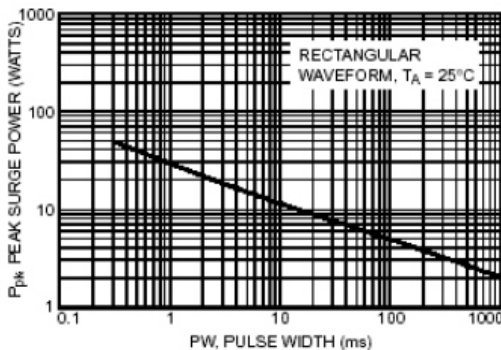


Figure 5. Maximum Nonrepetitive Surge Power

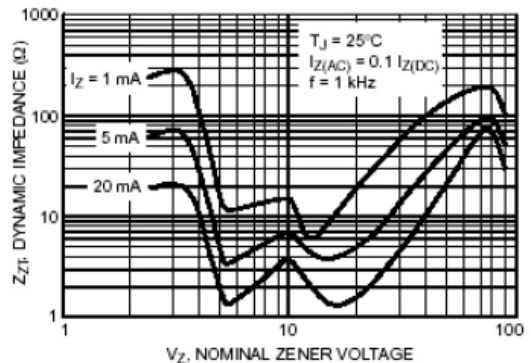
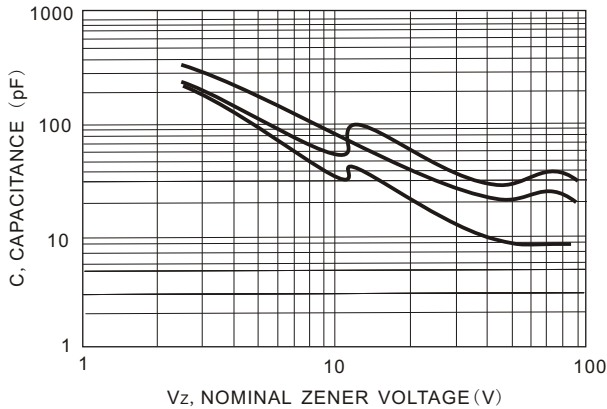
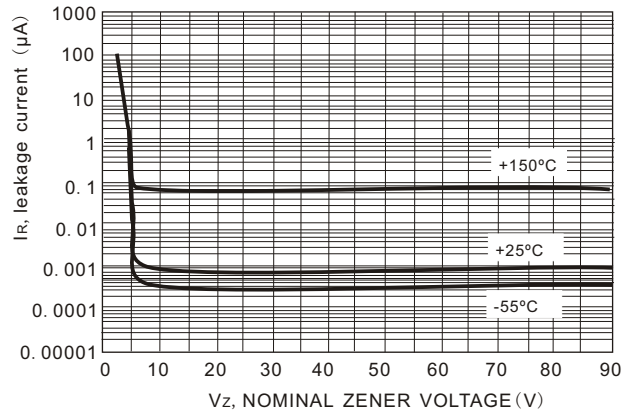


Figure 6. Effect of Zener Voltage on
Zener Impedance



V_Z, NOMINAL ZENER VOLTAGE (V)

Figure 7. Typical Capacitance



V_Z, NOMINAL ZENER VOLTAGE (V)

Figure 8. Typical Leakage Current

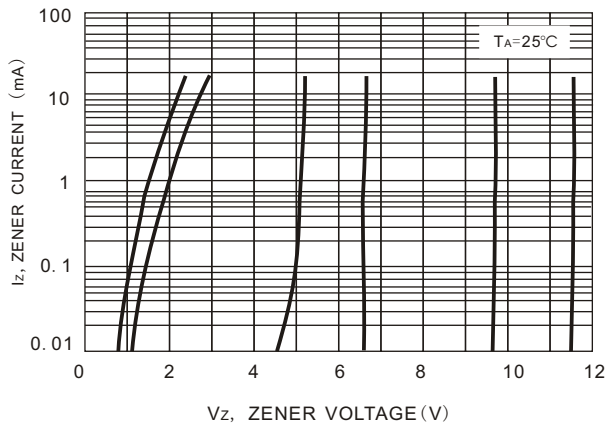


Figure 9. Zener Voltage versus Zener Current
(V_Z Up to 12V)

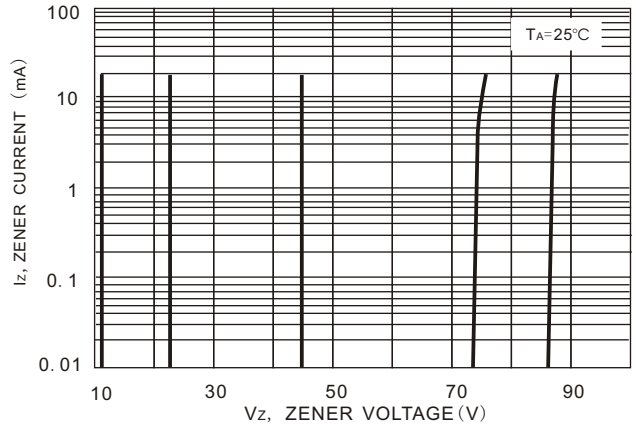


Figure 10. Zener Voltage versus Zener Current