



Silicon Planar Zener Diodes

**FEATURES**

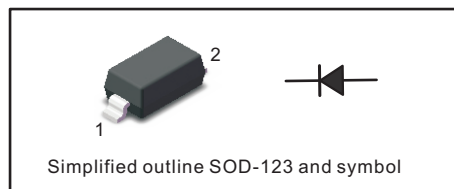
- Total power dissipation: Max. 500mW.
- Wide zener reverse voltage range 2.0V to 75V.
- Small plastic package suitable for surface mounted design.
- Tolerance approximately  $\pm 2\%$

**MECHANICAL DATA**

- Case: SOD-123
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 16mg/0.00056oz

**PINNING**

| PIN | DESCRIPTION |
|-----|-------------|
| 1   | Cathode     |
| 2   | Anode       |

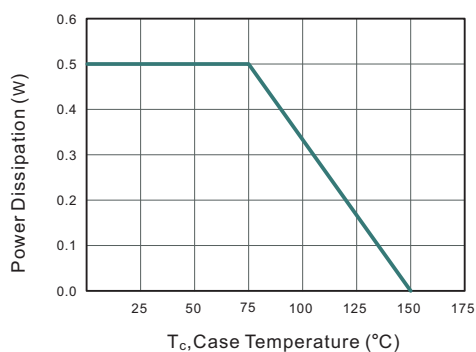


**Absolute Maximum Ratings And Characteristics ( Ta = 25 °C )**

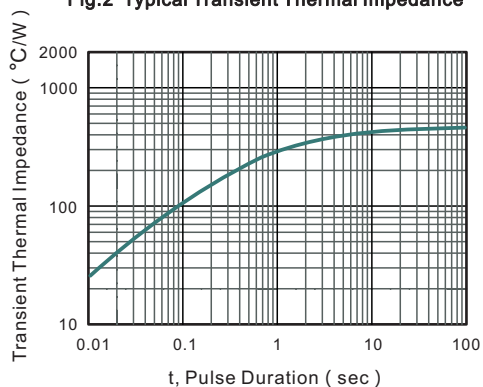
| Parameter   | Symbol          | Value      | Unit                        |
|---|-----------------|------------|-----------------------------|
| Power Dissipation   | $P_{tot}$       | 500        | mW                          |
| Forward Voltage at $I_F = 10 \text{ mA}$                      | $V_F$           | 0.9        | V                           |
| Typical thermal resistance junction to ambient <sup>(1)</sup> | $R_{\theta JA}$ | 340        | $^{\circ}\text{C}/\text{W}$ |
| Operating and Storage Temperature Range                       | $T_j, T_{stg}$  | -55 ~ +150 | $^{\circ}\text{C}$          |

(1) Thermal resistance from junction to ambient at P.C.B. mounted with 2.0" X 2.0" (5 X 5 cm) copper areas pads.

**Fig.1 Maximum Continuous Power Derating**



**Fig.2 Typical Transient Thermal Impedance**





Characteristics at Ta = 25°C

| Type     | Marking | Zener Voltage Range <sup>(1)</sup>    |         |         | I <sub>ZT</sub><br>(mA) | Dynamic Impedance<br>Z <sub>ZT</sub> (at I <sub>ZT</sub> )<br>Max (Ω) | Reverse Current            |                          |
|----------|---------|---------------------------------------|---------|---------|-------------------------|---|----------------------------|--------------------------|
|          |         | V <sub>ZT</sub> (at I <sub>ZT</sub> ) |         |         |                         |   | I <sub>R</sub><br>Max (μA) | at V <sub>R</sub><br>(V) |
|          |         | Min (V)                               | Nom (V) | Max (V) |                         |   |                            |                          |
| MM1Z2V0B | 4A      | 1.96                                  | 2       | 2.04    | 5                       | 100   | 120                        | 0.5                      |
| MM1Z2V2B | 4B      | 2.16                                  | 2.2     | 2.24    | 5                       | 100   | 120                        | 0.7                      |
| MM1Z2V4B | 4C      | 2.35                                  | 2.4     | 2.45    | 5                       | 100   | 120                        | 1                        |
| MM1Z2V7B | 4D      | 2.65                                  | 2.7     | 2.75    | 5                       | 110   | 120                        | 1                        |
| MM1Z3V0B | 4E      | 2.94                                  | 3       | 3.06    | 5                       | 120   | 50                         | 1                        |
| MM1Z3V3B | 4F      | 3.23                                  | 3.3     | 3.37    | 5                       | 130   | 20                         | 1                        |
| MM1Z3V6B | 4H      | 3.53                                  | 3.6     | 3.67    | 5                       | 130   | 10                         | 1                        |
| MM1Z3V9B | 4J      | 3.82                                  | 3.9     | 3.98    | 5                       | 130   | 5                          | 1                        |
| MM1Z4V3B | 4K      | 4.21                                  | 4.3     | 4.39    | 5                       | 130   | 5                          | 1                        |
| MM1Z4V7B | 4M      | 4.61                                  | 4.7     | 4.79    | 5                       | 130   | 2                          | 1                        |
| MM1Z5V1B | 4N      | 5                                     | 5.1     | 5.20    | 5                       | 130   | 2                          | 1.5                      |
| MM1Z5V6B | 4P      | 5.49                                  | 5.6     | 5.71    | 5                       | 80  | 1                          | 2.5                      |
| MM1Z6V2B | 4R      | 6.08                                  | 6.2     | 6.32    | 5                       | 50  | 1                          | 3                        |
| MM1Z6V8B | 4X      | 6.66                                  | 6.8     | 6.94    | 5                       | 30  | 0.5                        | 3.5                      |
| MM1Z7V5B | 4Y      | 7.35                                  | 7.5     | 7.65    | 5                       | 30  | 0.5                        | 4                        |
| MM1Z8V2B | 4Z      | 8.04                                  | 8.2     | 8.36    | 5                       | 30  | 0.5                        | 5                        |
| MM1Z9V1B | 5A      | 8.92                                  | 9.1     | 9.28    | 5                       | 30  | 0.5                        | 6                        |
| MM1Z10B  | 5B      | 9.8                                   | 10      | 10.2    | 5                       | 30  | 0.1                        | 7                        |
| MM1Z11B  | 5C      | 10.78                                 | 11      | 11.22   | 5                       | 30  | 0.1                        | 8                        |
| MM1Z12B  | 5D      | 11.76                                 | 12      | 12.24   | 5                       | 35  | 0.1                        | 9                        |
| MM1Z13B  | 5E      | 12.74                                 | 13      | 13.26   | 5                       | 35  | 0.1                        | 10                       |
| MM1Z15B  | 5F      | 14.7                                  | 15      | 15.3    | 5                       | 40  | 0.1                        | 11                       |
| MM1Z16B  | 5H      | 15.68                                 | 16      | 16.32   | 5                       | 40  | 0.1                        | 12                       |
| MM1Z18B  | 5J      | 17.64                                 | 18      | 18.36   | 5                       | 45  | 0.1                        | 13                       |
| MM1Z20B  | 5K      | 19.6                                  | 20      | 20.4    | 5                       | 50  | 0.1                        | 15                       |
| MM1Z22B  | 5M      | 21.56                                 | 22      | 22.44   | 5                       | 55  | 0.1                        | 17                       |
| MM1Z24B  | 5N      | 23.52                                 | 24      | 24.48   | 5                       | 60  | 0.1                        | 19                       |
| MM1Z27B  | 5P      | 26.46                                 | 27      | 27.54   | 5                       | 70  | 0.1                        | 21                       |
| MM1Z30B  | 5R      | 29.4                                  | 30      | 30.6    | 5                       | 80  | 0.1                        | 23                       |
| MM1Z33B  | 5X      | 32.34                                 | 33      | 33.66   | 5                       | 80  | 0.1                        | 25                       |
| MM1Z36B  | 5Y      | 35.28                                 | 36      | 36.72   | 5                       | 90  | 0.1                        | 27                       |
| MM1Z39B  | 5Z      | 38.22                                 | 39      | 39.78   | 2.5                     | 100   | 2                          | 30                       |
| MM1Z43B  | 6A      | 42.14                                 | 43      | 43.86   | 2.5                     | 130   | 2                          | 33                       |
| MM1Z47B  | 6B      | 46.06                                 | 47      | 47.94   | 2.5                     | 150   | 2                          | 36                       |
| MM1Z51B  | 6C      | 49.98                                 | 51      | 52.02   | 2.5                     | 180   | 1                          | 39                       |
| MM1Z56B  | 6D      | 54.88                                 | 56      | 57.12   | 2.5                     | 180   | 1                          | 43                       |
| MM1Z62B  | 6E      | 60.76                                 | 62      | 63.24   | 2.5                     | 200   | 0.2                        | 47                       |
| MM1Z68B  | 6F      | 66.64                                 | 68      | 69.36   | 2.5                     | 250   | 0.2                        | 52                       |
| MM1Z75B  | 6H      | 73.5                                  | 75      | 76.5    | 2.5                     | 300   | 0.2                        | 57                       |

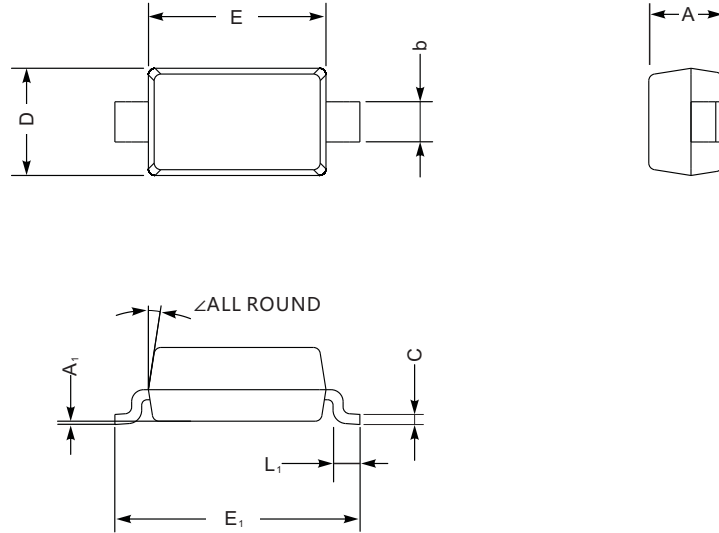
(1) V<sub>ZT</sub> is tested with pulses (20 ms)



**PACKAGE OUTLINE**

Plastic surface mounted package; 2 leads

SOD-123



SOD-123 mechanical data

| UNIT |     | A   | C    | D   | E   | E <sub>1</sub> | L <sub>1</sub> | b   | A <sub>1</sub> | ∠  |
|------|-----|-----|------|-----|-----|----------------|----------------|-----|----------------|----|
| mm   | max | 1.3 | 0.22 | 1.8 | 2.8 | 3.9            | 0.45           | 0.7 | 0.2            | 9° |
|      | min | 0.9 | 0.09 | 1.5 | 2.5 | 3.6            | 0.25           | 0.5 | —              |    |
| mil  | max | 51  | 8.7  | 71  | 110 | 154            | 18             | 28  | 8              |    |
|      | min | 35  | 3.5  | 59  | 98  | 142            | 10             | 20  | —              |    |

**The recommended mounting pad size**

