



Silicon Planar Zener Diodes

**FEATURES**

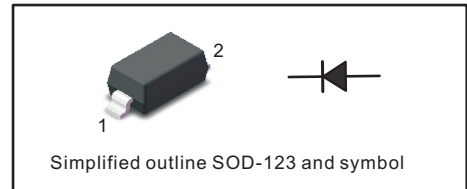
- Total power dissipation: Max. 500mW.
- Wide zener reverse voltage range 2.0V to 75V.
- Small plastic package suitable for surface mounted design.
- Tolerance approximately  $\pm 2\%$

**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       |

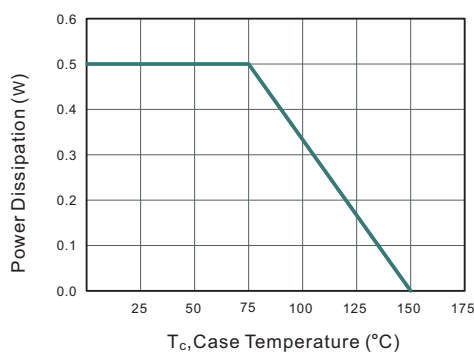


**Absolute Maximum Ratings And Characteristics ( Ta = 25 °C )**

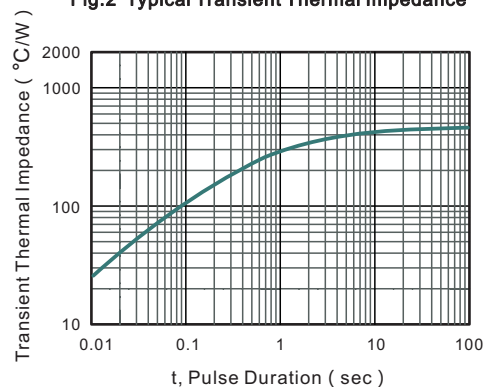
| Parameter   | Symbol          | Value      | Unit                        |
|---|-----------------|------------|-----------------------------|
| Power Dissipation   | $P_{tot}$       | 500        | mW                          |
| Forward Voltage at $I_F = 10 \text{ mA}$                      | $V_F$           | 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>  | at V <sub>R</sub> |
|          |         | Min ( V )                              | Nom ( V ) | Max ( V ) |                         |  | Max ( μA )      | ( 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**



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