



## 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  $\pm 5\%$

### 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       |



Simplified outline SOD-123 and symbol

### Absolute Maximum Ratings And Characteristics ( $T_a = 25^\circ\text{C}$ )

| Parameter                                                     | Symbol                | Value      | Unit               |
|---------------------------------------------------------------|-----------------------|------------|--------------------|
| Power Dissipation                                             | $P_{\text{tot}}$      | 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        | $^\circ\text{C/W}$ |
| Operating and Storage Temperature Range                       | $T_j, T_{\text{stg}}$ | -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

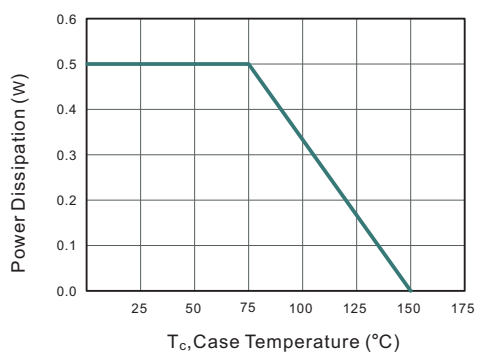
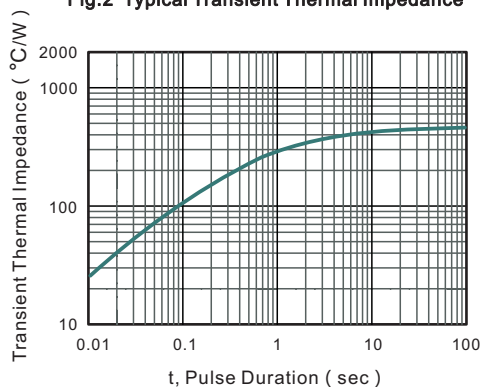


Fig.2 Typical Transient Thermal Impedance





Characteristics at Ta = 25°C

| Type    | Marking | Zener Voltage Range <sup>(1)</sup>     |           |           |                 | Dynamic Impedance                      | Reverse Current |                   |
|---------|---------|----------------------------------------|-----------|-----------|-----------------|----------------------------------------|-----------------|-------------------|
|         |         | V <sub>ZT</sub> ( at I <sub>ZT</sub> ) |           |           | I <sub>ZT</sub> | Z <sub>ZT</sub> ( at I <sub>ZT</sub> ) | I <sub>R</sub>  | at V <sub>R</sub> |
|         |         | Min ( V )                              | Nom ( V ) | Max ( V ) | (mA)            | Max (Ω)                                | Max ( μA )      | ( V )             |
| MM1Z2V0 | 4A      | 1.8                                    | 2.0       | 2.15      | 5               | 100                                    | 120             | 0.5               |
| MM1Z2V2 | 4B      | 2.08                                   | 2.2       | 2.33      | 5               | 100                                    | 120             | 0.7               |
| MM1Z2V4 | 4C      | 2.28                                   | 2.4       | 2.56      | 5               | 100                                    | 120             | 1                 |
| MM1Z2V7 | 4D      | 2.5                                    | 2.7       | 2.9       | 5               | 110                                    | 120             | 1                 |
| MM1Z3V0 | 4E      | 2.8                                    | 3.0       | 3.2       | 5               | 120                                    | 50              | 1                 |
| MM1Z3V3 | 4F      | 3.1                                    | 3.3       | 3.5       | 5               | 130                                    | 20              | 1                 |
| MM1Z3V6 | 4H      | 3.4                                    | 3.6       | 3.8       | 5               | 130                                    | 10              | 1                 |
| MM1Z3V9 | 4J      | 3.7                                    | 3.9       | 4.1       | 5               | 130                                    | 5               | 1                 |
| MM1Z4V3 | 4K      | 4                                      | 4.3       | 4.6       | 5               | 130                                    | 5               | 1                 |
| MM1Z4V7 | 4M      | 4.4                                    | 4.7       | 5         | 5               | 130                                    | 2               | 1                 |
| MM1Z5V1 | 4N      | 4.8                                    | 5.1       | 5.4       | 5               | 130                                    | 2               | 1.5               |
| MM1Z5V6 | 4P      | 5.2                                    | 5.6       | 6         | 5               | 80                                     | 1               | 2.5               |
| MM1Z6V2 | 4R      | 5.8                                    | 6.2       | 6.6       | 5               | 50                                     | 1               | 3                 |
| MM1Z6V8 | 4X      | 6.4                                    | 6.8       | 7.2       | 5               | 30                                     | 0.5             | 3.5               |
| MM1Z7V5 | 4Y      | 7                                      | 7.5       | 7.9       | 5               | 30                                     | 0.5             | 4                 |
| MM1Z8V2 | 4Z      | 7.7                                    | 8.2       | 8.7       | 5               | 30                                     | 0.5             | 5                 |
| MM1Z9V1 | 5A      | 8.5                                    | 9.1       | 9.6       | 5               | 30                                     | 0.5             | 6                 |
| MM1Z10V | 5B      | 9.4                                    | 10        | 10.6      | 5               | 30                                     | 0.1             | 7                 |
| MM1Z11V | 5C      | 10.4                                   | 11        | 11.6      | 5               | 30                                     | 0.1             | 8                 |
| MM1Z12V | 5D      | 11.4                                   | 12        | 12.7      | 5               | 35                                     | 0.1             | 9                 |
| MM1Z13V | 5E      | 12.4                                   | 13        | 14.1      | 5               | 35                                     | 0.1             | 10                |
| MM1Z15V | 5F      | 13.8                                   | 15        | 15.6      | 5               | 40                                     | 0.1             | 11                |
| MM1Z16V | 5H      | 15.3                                   | 16        | 17.1      | 5               | 40                                     | 0.1             | 12                |
| MM1Z18V | 5J      | 16.8                                   | 18        | 19.1      | 5               | 45                                     | 0.1             | 13                |
| MM1Z20V | 5K      | 18.8                                   | 20        | 21.2      | 5               | 50                                     | 0.1             | 15                |
| MM1Z22V | 5M      | 20.8                                   | 22        | 23.3      | 5               | 55                                     | 0.1             | 17                |
| MM1Z24V | 5N      | 22.8                                   | 24        | 25.6      | 5               | 60                                     | 0.1             | 19                |
| MM1Z27V | 5P      | 25.1                                   | 27        | 28.9      | 5               | 70                                     | 0.1             | 21                |
| MM1Z30V | 5R      | 28                                     | 30        | 32        | 5               | 80                                     | 0.1             | 23                |
| MM1Z33V | 5X      | 31                                     | 33        | 35        | 5               | 80                                     | 0.1             | 25                |
| MM1Z36V | 5Y      | 34                                     | 36        | 38        | 5               | 90                                     | 0.1             | 27                |
| MM1Z39V | 5Z      | 37                                     | 39        | 41        | 2.5             | 100                                    | 2               | 30                |
| MM1Z43V | 6A      | 40                                     | 43        | 46        | 2.5             | 130                                    | 2               | 33                |
| MM1Z47V | 6B      | 44                                     | 47        | 50        | 2.5             | 150                                    | 2               | 36                |
| MM1Z51V | 6C      | 48                                     | 51        | 54        | 2.5             | 180                                    | 1               | 39                |
| MM1Z56V | 6D      | 52                                     | 56        | 60        | 2.5             | 180                                    | 1               | 43                |
| MM1Z62V | 6E      | 58                                     | 62        | 66        | 2.5             | 200                                    | 0.2             | 47                |
| MM1Z68V | 6F      | 64                                     | 68        | 72        | 2.5             | 250                                    | 0.2             | 52                |
| MM1Z75V | 6H      | 70                                     | 75        | 79        | 2.5             | 300                                    | 0.2             | 57                |

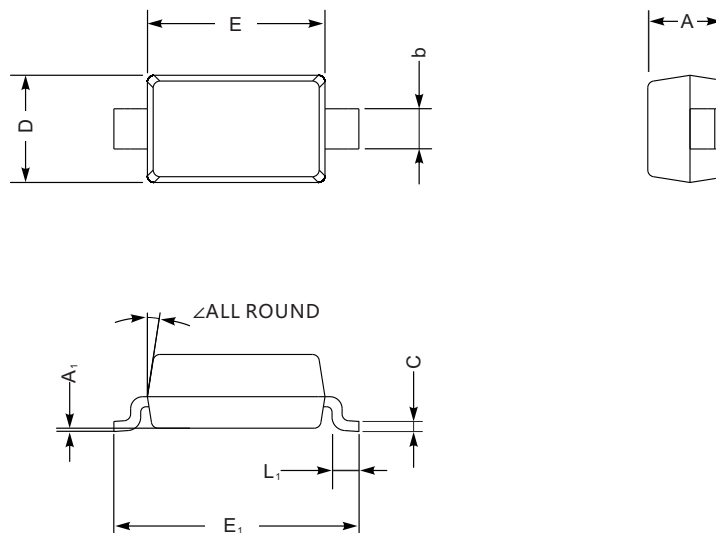
( 1 ) V<sub>ZT</sub> is tested with pulses (20 ms)



## PACKAGE OUTLINE

Plastic surface mounted package; 2 leads

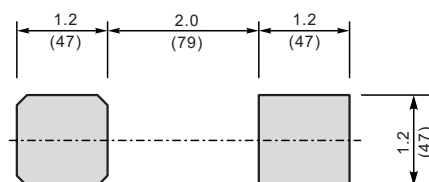
SOD-123



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



Unit:  $\frac{\text{mm}}{(\text{mil})}$