



## Silicon Planar Zener Diodes

### FEATURES

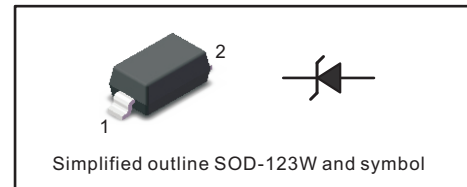
- Total power dissipation: Max. 500mW.
- Wide zener reverse voltage range 2.0V to 75V.
- Small plastic package suitable for surface mounted design.
- Tolerance approximately  $\pm 2\%$

### MECHANICAL DATA

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

### PINNING

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



Simplified outline SOD-123W 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.



Characteristics at Ta = 25°C

| Type      | Marking | Zener Voltage Range <sup>(1)</sup>     |           |           | I <sub>ZT</sub> | Dynamic Impedance                      | Reverse Current |                   |
|-----------|---------|----------------------------------------|-----------|-----------|-----------------|----------------------------------------|-----------------|-------------------|
|           |         | V <sub>ZT</sub> ( at 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 )        |
| MM1Z2V0BW | A4      | 1.96                                   | 2         | 2.04      | 5               | 100                                    | 120             | 0.5               |
| MM1Z2V2BW | B4      | 2.16                                   | 2.2       | 2.24      | 5               | 100                                    | 120             | 0.7               |
| MM1Z2V4BW | C4      | 2.35                                   | 2.4       | 2.45      | 5               | 100                                    | 120             | 1                 |
| MM1Z2V7BW | D4      | 2.65                                   | 2.7       | 2.75      | 5               | 110                                    | 120             | 1                 |
| MM1Z3V0BW | E4      | 2.94                                   | 3         | 3.06      | 5               | 120                                    | 50              | 1                 |
| MM1Z3V3BW | F4      | 3.23                                   | 3.3       | 3.37      | 5               | 130                                    | 20              | 1                 |
| MM1Z3V6BW | H4      | 3.53                                   | 3.6       | 3.67      | 5               | 130                                    | 10              | 1                 |
| MM1Z3V9BW | J4      | 3.82                                   | 3.9       | 3.98      | 5               | 130                                    | 5               | 1                 |
| MM1Z4V3BW | K4      | 4.21                                   | 4.3       | 4.39      | 5               | 130                                    | 5               | 1                 |
| MM1Z4V7BW | M4      | 4.61                                   | 4.7       | 4.79      | 5               | 130                                    | 2               | 1                 |
| MM1Z5V1BW | N4      | 5                                      | 5.1       | 5.20      | 5               | 130                                    | 2               | 1.5               |
| MM1Z5V6BW | P4      | 5.49                                   | 5.6       | 5.71      | 5               | 80                                     | 1               | 2.5               |
| MM1Z6V2BW | R4      | 6.08                                   | 6.2       | 6.32      | 5               | 50                                     | 1               | 3                 |
| MM1Z6V8BW | X4      | 6.66                                   | 6.8       | 6.94      | 5               | 30                                     | 0.5             | 3.5               |
| MM1Z7V5BW | Y4      | 7.35                                   | 7.5       | 7.65      | 5               | 30                                     | 0.5             | 4                 |
| MM1Z8V2BW | Z4      | 8.04                                   | 8.2       | 8.36      | 5               | 30                                     | 0.5             | 5                 |
| MM1Z9V1BW | A5      | 8.92                                   | 9.1       | 9.28      | 5               | 30                                     | 0.5             | 6                 |
| MM1Z10BW  | B5      | 9.8                                    | 10        | 10.2      | 5               | 30                                     | 0.1             | 7                 |
| MM1Z11BW  | C5      | 10.78                                  | 11        | 11.22     | 5               | 30                                     | 0.1             | 8                 |
| MM1Z12BW  | D5      | 11.76                                  | 12        | 12.24     | 5               | 35                                     | 0.1             | 9                 |
| MM1Z13BW  | E5      | 12.74                                  | 13        | 13.26     | 5               | 35                                     | 0.1             | 10                |
| MM1Z15BW  | F5      | 14.7                                   | 15        | 15.3      | 5               | 40                                     | 0.1             | 11                |
| MM1Z16BW  | H5      | 15.68                                  | 16        | 16.32     | 5               | 40                                     | 0.1             | 12                |
| MM1Z18BW  | J5      | 17.64                                  | 18        | 18.36     | 5               | 45                                     | 0.1             | 13                |
| MM1Z20BW  | K5      | 19.6                                   | 20        | 20.4      | 5               | 50                                     | 0.1             | 15                |
| MM1Z22BW  | M5      | 21.56                                  | 22        | 22.44     | 5               | 55                                     | 0.1             | 17                |
| MM1Z24BW  | N5      | 23.52                                  | 24        | 24.48     | 5               | 60                                     | 0.1             | 19                |
| MM1Z27BW  | P5      | 26.46                                  | 27        | 27.54     | 5               | 70                                     | 0.1             | 21                |
| MM1Z30BW  | R5      | 29.4                                   | 30        | 30.6      | 5               | 80                                     | 0.1             | 23                |
| MM1Z33BW  | X5      | 32.34                                  | 33        | 33.66     | 5               | 80                                     | 0.1             | 25                |
| MM1Z36BW  | Y5      | 35.28                                  | 36        | 36.72     | 5               | 90                                     | 0.1             | 27                |
| MM1Z39BW  | Z5      | 38.22                                  | 39        | 39.78     | 2.5             | 100                                    | 2               | 30                |
| MM1Z43BW  | A6      | 42.14                                  | 43        | 43.86     | 2.5             | 130                                    | 2               | 33                |
| MM1Z47BW  | B6      | 46.06                                  | 47        | 47.94     | 2.5             | 150                                    | 2               | 36                |
| MM1Z51BW  | C6      | 49.98                                  | 51        | 52.02     | 2.5             | 180                                    | 1               | 39                |
| MM1Z56BW  | D6      | 54.88                                  | 56        | 57.12     | 2.5             | 180                                    | 1               | 43                |
| MM1Z62BW  | E6      | 60.76                                  | 62        | 63.24     | 2.5             | 200                                    | 0.2             | 47                |
| MM1Z68BW  | F6      | 66.64                                  | 68        | 69.36     | 2.5             | 250                                    | 0.2             | 52                |
| MM1Z75BW  | H6      | 73.5                                   | 75        | 76.5      | 2.5             | 300                                    | 0.2             | 57                |

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



Fig.1 Maximum Continuous Power Derating

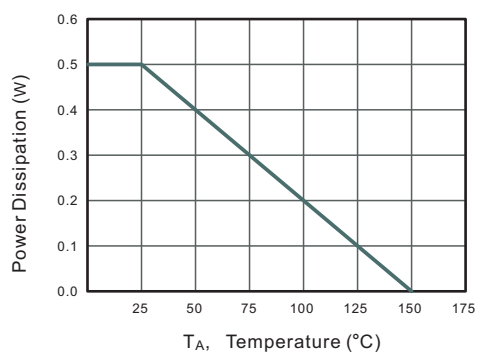


Fig.2 Typical Transient Thermal Impedance

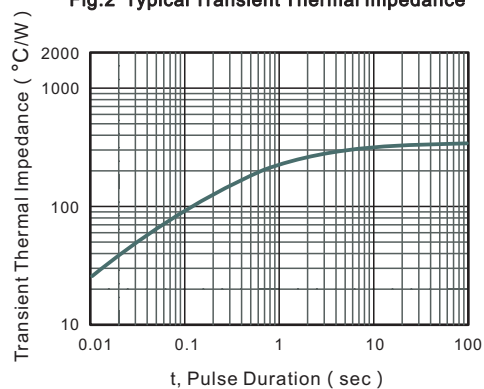


Fig.3 Zener voltage vs zener current

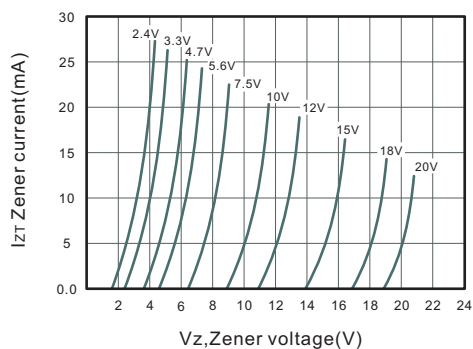


Fig.4 Zener voltage vs zener current

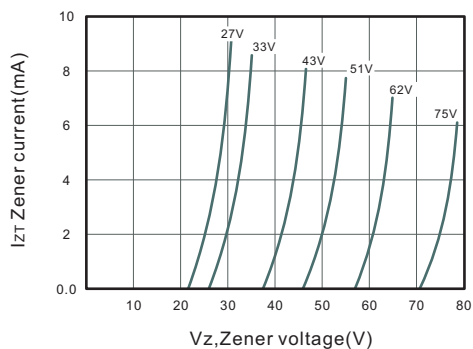
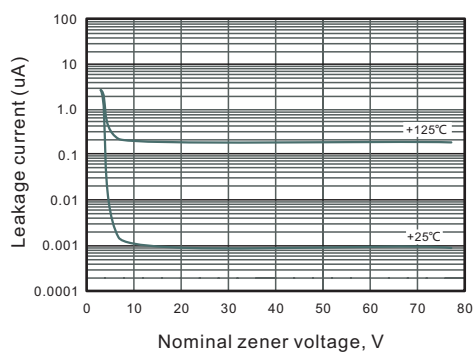


Fig.5 Typical leakage current

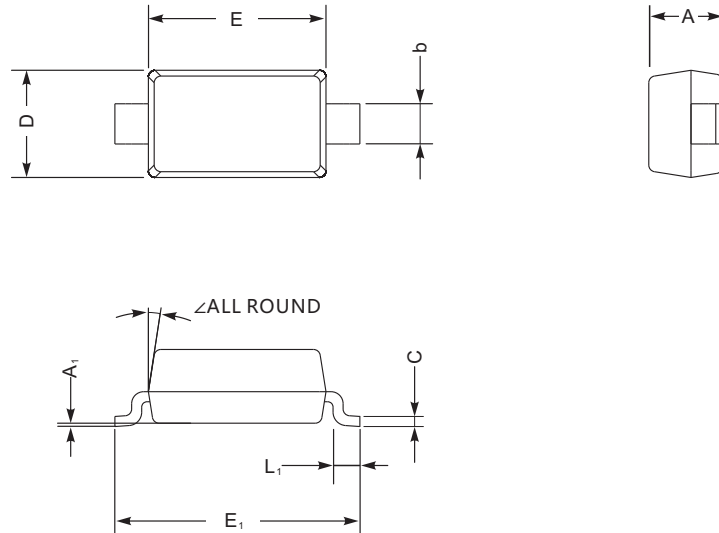




## PACKAGE OUTLINE

Plastic surface mounted package; 2 leads

SOD-123W



SOD-123W 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

