

## Feature

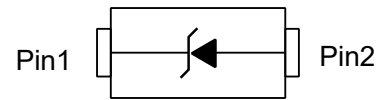
- Total power dissipation: Max. 500mW.
- Wide Zener reverse voltage range 2.0V to 75V.
- Small plastic package suitable for surface mounted design.
- Tolerance approximately  $\pm 5\%$



SOD-123(Top View)

## Mechanical Characteristics

- Case: SOD-123
- Terminals: Solderable per MIL-STD-750, Method 2026



Circuit Diagram

## Electrical characteristics ( $T_A=25^\circ\text{C}$ unless otherwise noted)

| Rating   | Symbol          | Value      | Units                     |
|--|-----------------|------------|---------------------------|
| Power Dissipation  | $P_d$           | 500        | mW                        |
| Forward Voltage @ $I_F=10\text{mA}$                          | $V_F$           | 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 | $^\circ\text{C}$          |

Notes:

- 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.

## Typical Characteristics

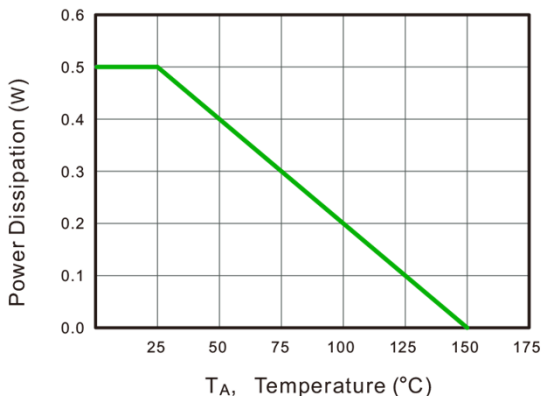


Fig.1 Maximum Continuous Power Derating

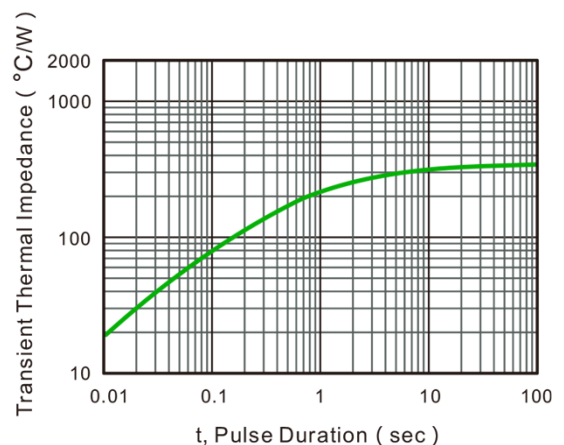


Fig.2 Typical Transient Thermal Impedance

# Zener Voltage Regulators

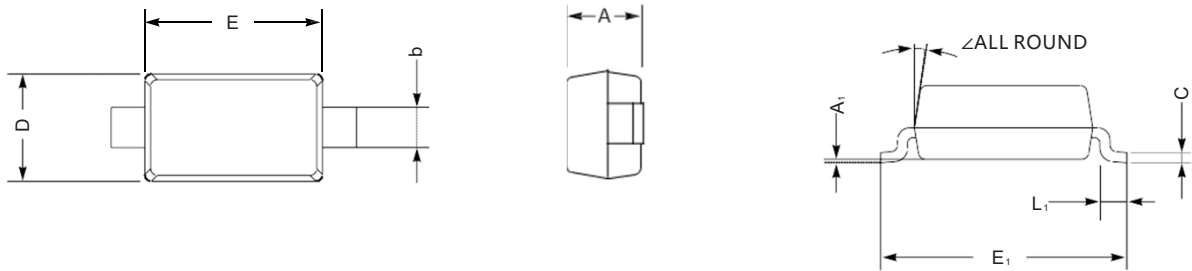
## Maximum Ratings and Thermal Characteristics ( $T_A=25^\circ\text{C}$ unless otherwise noted)

| Device   | Zener Voltage Range <sup>1)</sup> |        |        | $I_{ZT}$<br>(mA) | Dynamic Impedance | Reverse Current      |       |
|----------|-----------------------------------|--------|--------|------------------|-------------------|----------------------|-------|
|          | $V_Z(@I_{ZT})$                    |        |        |                  | $Z_{ZT}(@I_{ZT})$ | $I_r$                | $V_R$ |
|          | Min(V)                            | Nom(V) | Max(V) |                  | Max( $\Omega$ )   | Max( $\mu\text{A}$ ) | V     |
| PZ1D2V0H | 1.8                               | 2.0    | 2.15   | 5                | 100               | 120                  | 0.5   |
| PZ1D2V2H | 2.08                              | 2.2    | 2.33   | 5                | 100               | 120                  | 0.7   |
| PZ1D2V4H | 2.28                              | 2.4    | 2.56   | 5                | 100               | 120                  | 1     |
| PZ1D2V7H | 2.5                               | 2.7    | 2.9    | 5                | 110               | 120                  | 1     |
| PZ1D3V0H | 2.8                               | 3.0    | 3.2    | 5                | 120               | 50                   | 1     |
| PZ1D3V3H | 3.1                               | 3.3    | 3.5    | 5                | 130               | 20                   | 1     |
| PZ1D3V6H | 3.4                               | 3.6    | 3.8    | 5                | 130               | 10                   | 1     |
| PZ1D3V9H | 3.7                               | 3.9    | 4.1    | 5                | 130               | 5                    | 1     |
| PZ1D4V3H | 4                                 | 4.3    | 4.6    | 5                | 130               | 5                    | 1     |
| PZ1D4V7H | 4.4                               | 4.7    | 5      | 5                | 130               | 2                    | 1     |
| PZ1D5V1H | 4.8                               | 5.1    | 5.4    | 5                | 130               | 2                    | 1.5   |
| PZ1D5V6H | 5.2                               | 5.6    | 6      | 5                | 80                | 1                    | 2.5   |
| PZ1D6V2H | 5.8                               | 6.2    | 6.6    | 5                | 50                | 1                    | 3     |
| PZ1D6V8H | 6.4                               | 6.8    | 7.2    | 5                | 30                | 0.5                  | 3.5   |
| PZ1D7V5H | 7                                 | 7.5    | 7.9    | 5                | 30                | 0.5                  | 4     |
| PZ1D8V2H | 7.7                               | 8.2    | 8.7    | 5                | 30                | 0.5                  | 5     |
| PZ1D9V1H | 8.5                               | 9.1    | 9.6    | 5                | 30                | 0.5                  | 6     |
| PZ1D10VH | 9.4                               | 10     | 10.6   | 5                | 30                | 0.1                  | 7     |
| PZ1D11VH | 10.4                              | 11     | 11.6   | 5                | 30                | 0.1                  | 8     |
| PZ1D12VH | 11.4                              | 12     | 12.7   | 5                | 35                | 0.1                  | 9     |
| PZ1D13VH | 12.4                              | 13     | 14.1   | 5                | 35                | 0.1                  | 10    |
| PZ1D15VH | 13.8                              | 15     | 15.6   | 5                | 40                | 0.1                  | 11    |
| PZ1D16VH | 15.3                              | 16     | 17.1   | 5                | 40                | 0.1                  | 12    |
| PZ1D18VH | 16.8                              | 18     | 19.1   | 5                | 45                | 0.1                  | 13    |
| PZ1D20VH | 18.8                              | 20     | 21.2   | 5                | 50                | 0.1                  | 15    |
| PZ1D22VH | 20.8                              | 22     | 23.3   | 5                | 55                | 0.1                  | 17    |
| PZ1D24VH | 22.8                              | 24     | 25.6   | 5                | 60                | 0.1                  | 19    |
| PZ1D27VH | 25.1                              | 27     | 28.9   | 5                | 70                | 0.1                  | 21    |
| PZ1D30VH | 28                                | 30     | 32     | 5                | 80                | 0.1                  | 23    |
| PZ1D33VH | 31                                | 33     | 35     | 5                | 80                | 0.1                  | 25    |
| PZ1D36VH | 34                                | 36     | 38     | 5                | 90                | 0.1                  | 27    |
| PZ1D39VH | 37                                | 39     | 41     | 2.5              | 100               | 2                    | 30    |
| PZ1D43VH | 40                                | 43     | 46     | 2.5              | 130               | 2                    | 33    |
| PZ1D47VH | 44                                | 47     | 50     | 2.5              | 150               | 2                    | 36    |
| PZ1D51VH | 48                                | 51     | 54     | 2.5              | 180               | 1                    | 39    |
| PZ1D56VH | 52                                | 56     | 60     | 2.5              | 180               | 1                    | 43    |
| PZ1D62VH | 58                                | 62     | 66     | 2.5              | 200               | 0.2                  | 47    |
| PZ1D68VH | 64                                | 68     | 72     | 2.5              | 250               | 0.2                  | 52    |
| PZ1D75VH | 70                                | 75     | 79     | 2.5              | 300               | 0.2                  | 57    |

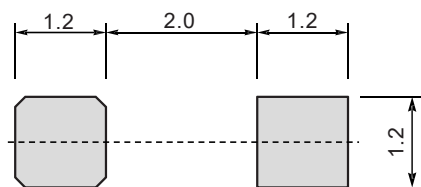
1)  $V_{ZT}$  is tested with pulses (20 ms)

# Zener Voltage Regulators

## Product Dimension (SOD-123)



| Dim            | Millimeters |      | Inches |       |
|----------------|-------------|------|--------|-------|
|                | Min         | Max  | Min    | Max   |
| A              | 0.90        | 1.30 | 0.035  | 0.051 |
| C              | 0.09        | 0.22 | 0.004  | 0.009 |
| D              | 1.50        | 1.80 | 0.059  | 0.071 |
| E              | 2.50        | 2.80 | 0.098  | 0.110 |
| E <sub>1</sub> | 3.60        | 3.90 | 0.142  | 0.154 |
| L <sub>1</sub> | 0.25        | 0.45 | 0.010  | 0.018 |
| b              | 0.50        | 0.70 | 0.020  | 0.028 |
| A <sub>1</sub> | -           | 0.20 | -      | 0.008 |
| ∠              | 9°          |      | 9°     |       |



Unit: mm

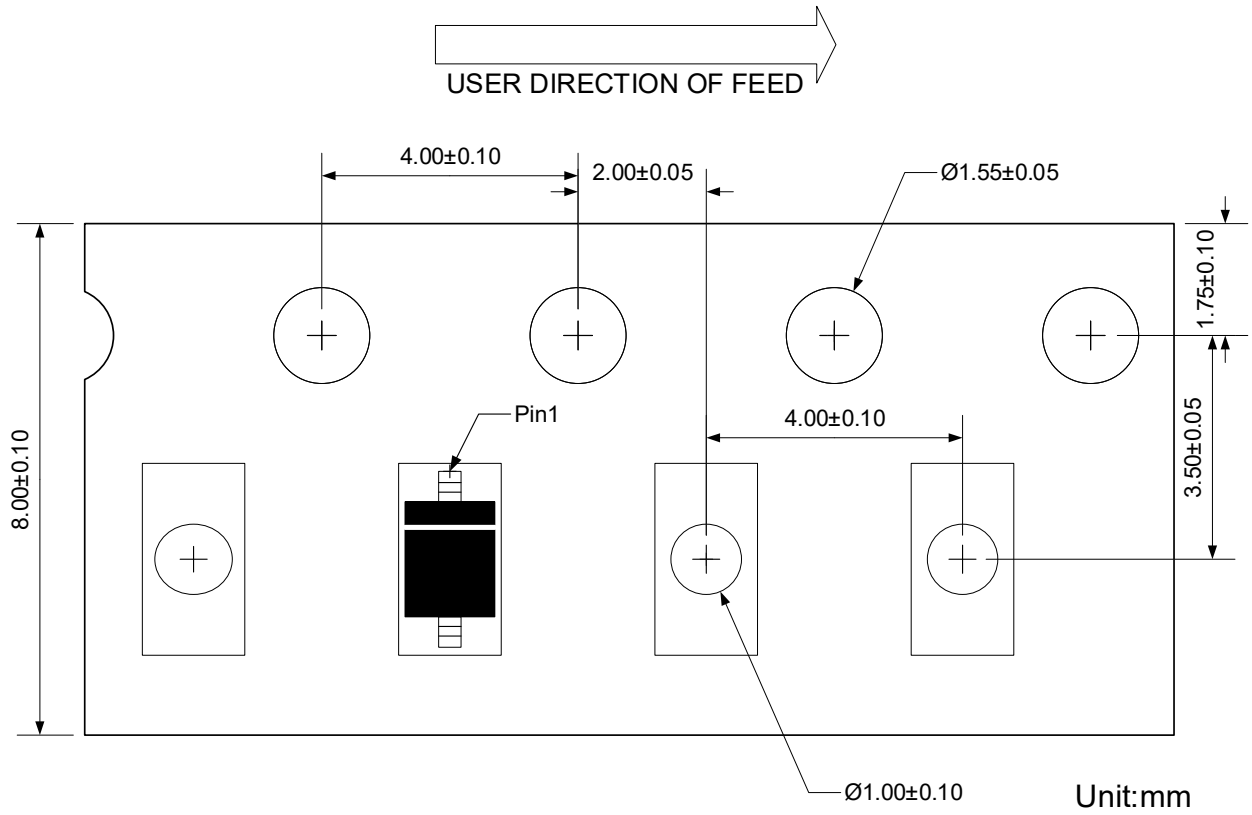
Suggested PCB Layout

## Ordering information


| Package           | Reel | Shipping           |
|-------------------|------|--------------------|
| SOD-123 (Pb-Free) | 7"   | 3000 / Tape & Reel |

# Zener Voltage Regulators

## Load with information




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