

Surface Mount Zener Diodes

FEATURES

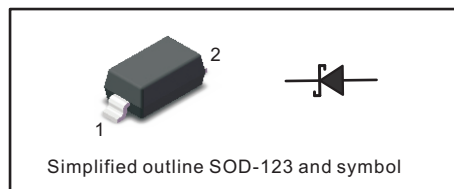
- Total power dissipation: Max. 500mW.
- Wide zener reverse voltage range 2.0 V to 39V.
- Small plastic package suitable for surface mounted design.

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_D | 500 | mW |
| Forward Voltage at $I_F = 10$ mA | V_F | 0.9 | V |
| Typical thermal resistance junction to ambient ⁽¹⁾ | $R_{\theta JA}$ | 305 | °C/W |
| Operating and Storage Temperature Range | T_j, T_{stg} | -55 ~ +150 | °C |

(1) Thermal resistance from junction to ambient at P.C.B. mounted with 7.6mm X 9.4mm X 0.87mm copper areas pads.

Fig.1 Maximum Continuous Power Derating

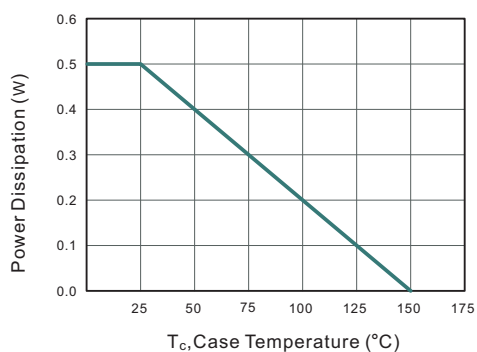
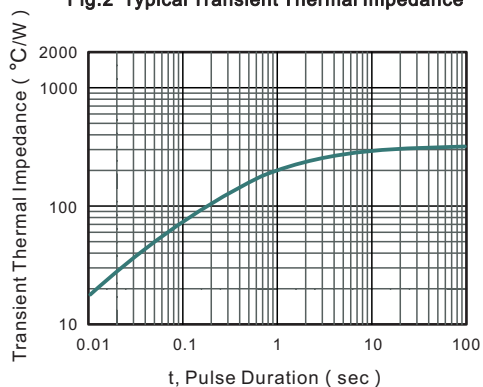


Fig.2 Typical Transient Thermal Impedance





Characteristics at Ta = 25°C

| Type | Marking | Zener Voltage Range (2) | | | | Maximum Zener (3) Impedance | | | Reverse Current (2) | | Typical temperature coefficient @I _{ZTC} mV/°C | | Test current I _{ZTC} mA |
|-----------|---------|--|-----------|-----------|-----------------|----------------------------------|----------------------------------|-----------------|---------------------|-----------------|---|------|----------------------------------|
| | | V _{ZT} (at I _{ZT}) | | | I _{ZT} | Z _{ZT} @I _{ZT} | Z _{ZK} @I _{ZK} | I _{ZK} | I _R | @V _R | MIN | MAX | |
| | | Min (V) | Nom (V) | Max (V) | (mA) | (Ω) | (mA) | μA | V | | | | |
| BZT52C2V0 | WY | 1.91 | 2.0 | 2.09 | 5 | 100 | 600 | 1 | 150 | 1.0 | -3.5 | 0 | 5 |
| BZT52C2V4 | WX | 2.2 | 2.4 | 2.6 | 5 | 100 | 600 | 1 | 50 | 1.0 | -3.5 | 0 | 5 |
| BZT52C2V7 | W1 | 2.5 | 2.7 | 2.9 | 5 | 100 | 600 | 1 | 20 | 1.0 | -3.5 | 0 | 5 |
| BZT52C3V0 | W2 | 2.8 | 3.0 | 3.2 | 5 | 95 | 600 | 1 | 10 | 1.0 | -3.5 | 0 | 5 |
| BZT52C3V3 | W3 | 3.1 | 3.3 | 3.5 | 5 | 95 | 600 | 1 | 5.0 | 1.0 | -3.5 | 0 | 5 |
| BZT52C3V6 | W4 | 3.4 | 3.6 | 3.8 | 5 | 90 | 600 | 1 | 5.0 | 1.0 | -3.5 | 0 | 5 |
| BZT52C3V9 | W5 | 3.7 | 3.9 | 4.1 | 5 | 90 | 600 | 1 | 3.0 | 1.0 | -3.5 | 0 | 5 |
| BZT52C4V3 | W6 | 4.0 | 4.3 | 4.6 | 5 | 90 | 600 | 1 | 3.0 | 1.0 | -3.5 | 0 | 5 |
| BZT52C4V7 | W7 | 4.4 | 4.7 | 5.0 | 5 | 80 | 500 | 1 | 3.0 | 2.0 | -3.5 | 0.2 | 5 |
| BZT52C5V1 | W8 | 4.8 | 5.1 | 5.4 | 5 | 60 | 480 | 1 | 2.0 | 2.0 | -2.7 | 1.2 | 5 |
| BZT52C5V6 | W9 | 5.2 | 5.6 | 6.0 | 5 | 40 | 400 | 1 | 1.0 | 2.0 | -2 | 2.5 | 5 |
| BZT52C6V2 | WA | 5.8 | 6.2 | 6.6 | 5 | 10 | 150 | 1 | 3.0 | 4.0 | 0.4 | 3.7 | 5 |
| BZT52C6V8 | WB | 6.4 | 6.8 | 7.2 | 5 | 15 | 80 | 1 | 2.0 | 4.0 | 1.2 | 4.5 | 5 |
| BZT52C7V5 | WC | 7.0 | 7.5 | 7.9 | 5 | 15 | 80 | 1 | 1.0 | 5.0 | 2.5 | 5.3 | 5 |
| BZT52C8V2 | WD | 7.7 | 8.2 | 8.7 | 5 | 15 | 80 | 1 | 0.7 | 5.0 | 3.2 | 6.2 | 5 |
| BZT52C9V1 | WE | 8.5 | 9.1 | 9.6 | 5 | 15 | 100 | 1 | 0.5 | 6.0 | 3.8 | 7.0 | 5 |
| BZT52C10 | WF | 9.4 | 10 | 10.6 | 5 | 20 | 150 | 1 | 0.2 | 7.0 | 4.5 | 8.0 | 5 |
| BZT52C11 | WG | 10.4 | 11 | 11.6 | 5 | 20 | 150 | 1 | 0.1 | 8.0 | 5.4 | 9.0 | 5 |
| BZT52C12 | WH | 11.4 | 12 | 12.7 | 5 | 25 | 150 | 1 | 0.1 | 8.0 | 6.0 | 10.0 | 5 |
| BZT52C13 | WI | 12.4 | 13 | 14.1 | 5 | 30 | 170 | 1 | 0.1 | 8.0 | 7.0 | 11.0 | 5 |
| BZT52C15 | WJ | 13.8 | 15 | 15.6 | 5 | 30 | 200 | 1 | 0.1 | 10.5 | 9.2 | 13.0 | 5 |
| BZT52C16 | WK | 15.3 | 16 | 17.1 | 5 | 40 | 200 | 1 | 0.1 | 11.2 | 10.4 | 14.0 | 5 |
| BZT52C18 | WL | 16.8 | 18 | 19.1 | 5 | 45 | 225 | 1 | 0.1 | 12.6 | 12.4 | 16.0 | 5 |
| BZT52C20 | WM | 18.8 | 20 | 21.2 | 5 | 55 | 225 | 11 | 0.1 | 14.0 | 14.4 | 18.0 | 5 |
| BZT52C22 | WN | 20.8 | 22 | 23.3 | 5 | 55 | 250 | 1 | 0.1 | 15.4 | 16.4 | 20.0 | 5 |
| BZT52C24 | WO | 22.8 | 24 | 25.6 | 5 | 70 | 250 | 1 | 0.1 | 16.8 | 18.4 | 22.0 | 5 |
| BZT52C27 | WP | 25.1 | 27 | 28.9 | 2 | 80 | 300 | 0.5 | 0.1 | 18.9 | 21.4 | 25.3 | 2 |
| BZT52C30 | WQ | 28.0 | 30 | 32.0 | 2 | 80 | 300 | 0.5 | 0.1 | 21.0 | 24.4 | 29.4 | 2 |
| BZT52C33 | WR | 31.0 | 33 | 35.0 | 2 | 80 | 325 | 0.5 | 0.1 | 23.1 | 27.4 | 33.4 | 2 |
| BZT52C36 | WS | 34.0 | 36 | 38.0 | 2 | 90 | 350 | 0.5 | 0.1 | 25.2 | 30.4 | 37.4 | 2 |
| BZT52C39 | WT | 37.0 | 39 | 41.0 | 2 | 130 | 350 | 0.5 | 0.1 | 27.3 | 33.4 | 41.2 | 2 |

NOTES: (1) f=1KHz

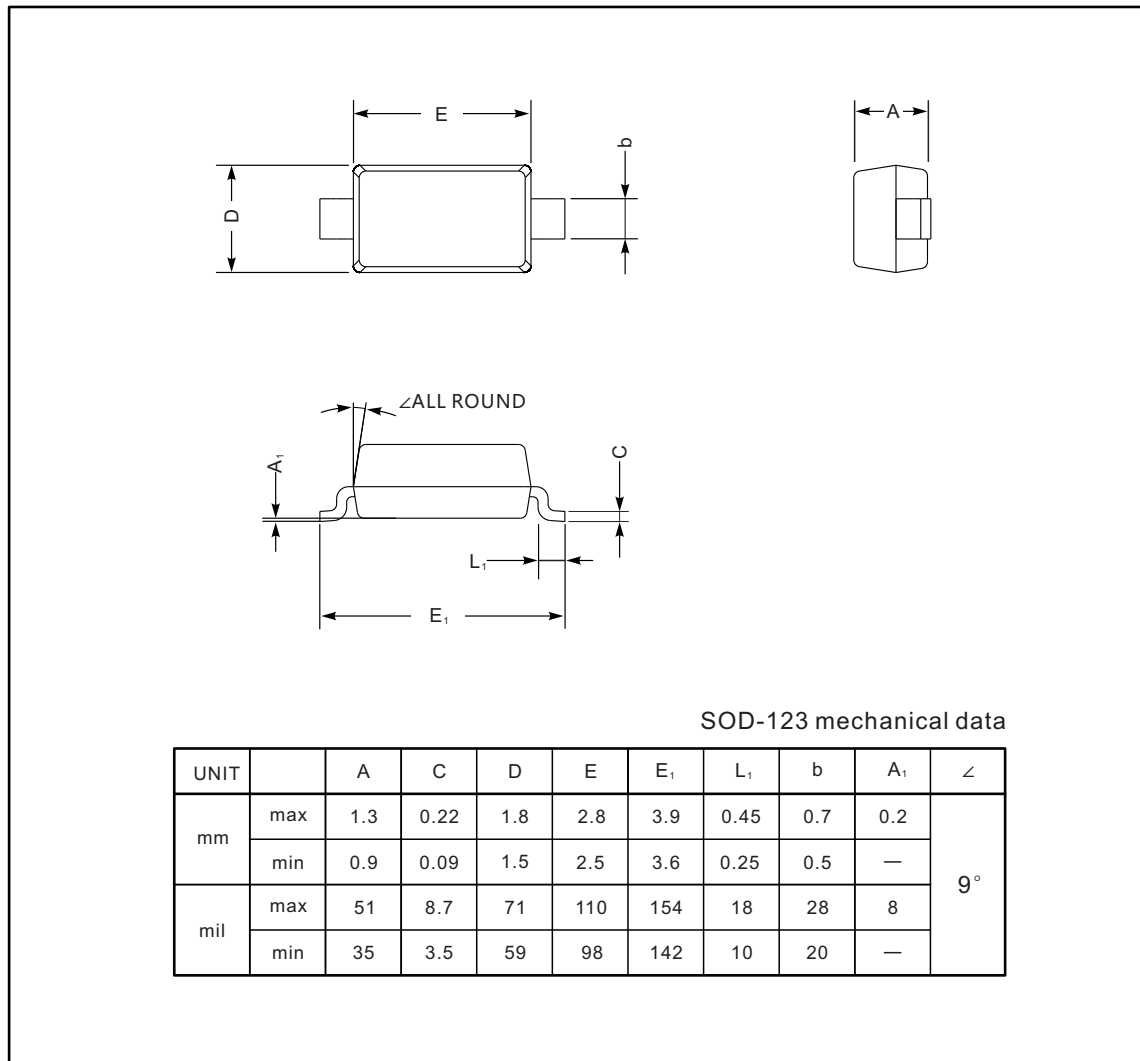
(2) Short duration test pulse used to minimize self-heating effect.



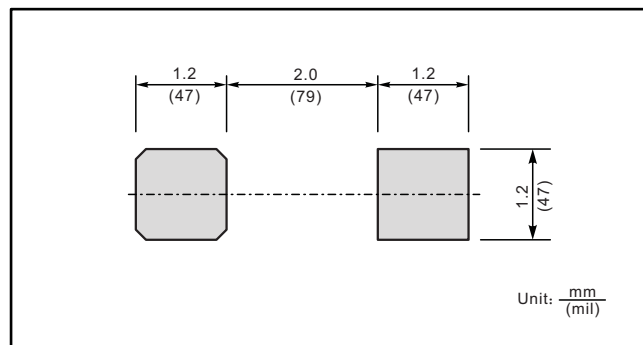
PACKAGE OUTLINE

Plastic surface mounted package; 2 leads

SOD-123



The recommended mounting pad size



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