

Silicon Planar Zener Diodes

FEATURES

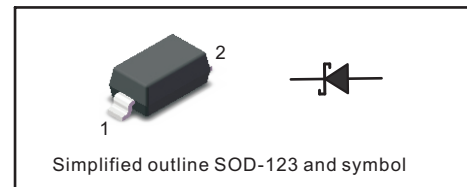
- Total power dissipation: Max. 500mW.
- Wide zener reverse voltage range 2.0V to 75V.
- Small plastic package suitable for surface mounted design.
- Tolerance approximately $\pm 5\%$

MECHANICAL DATA

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

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 $I_F = 10$ mA | V_F | 0.9 | V |
| Typical thermal resistance junction to ambient ⁽¹⁾ | $R_{\theta JA}$ | 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

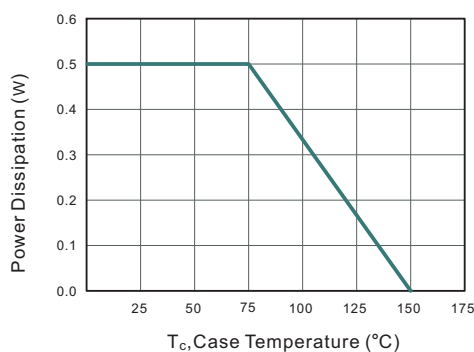
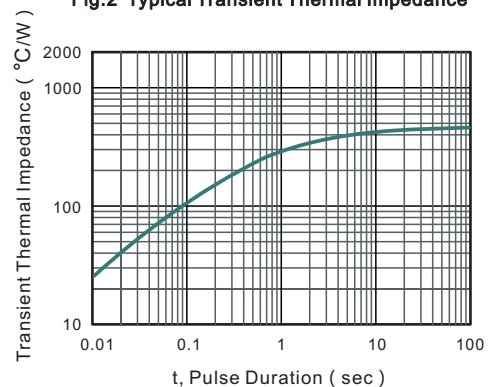


Fig.2 Typical Transient Thermal Impedance



Characteristics at Ta = 25°C

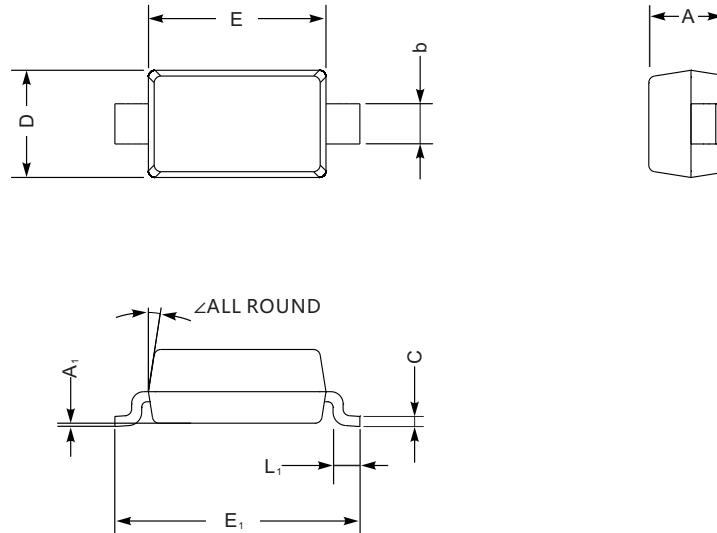
| Type | Marking | Zener Voltage Range ⁽¹⁾ | | | I _{ZT} (mA) | Dynamic Impedance Z _{ZT} (at I _{ZT}) Max (Ω) | Reverse Current | |
|-----------|---------|---------------------------------------|---------|---------|-------------------------|---|-----------------|-------------------|
| | | V _{ZT} (at I _{ZT}) | | | | | I _R | at V _R |
| | | Min (V) | Nom (V) | Max (V) | | | Max (μA) | (V) |
| BZT52C2V0 | W10 | 1.8 | 2.0 | 2.15 | 5 | 100 | 120 | 0.5 |
| BZT52C2V2 | W11 | 2.08 | 2.2 | 2.33 | 5 | 100 | 120 | 0.7 |
| BZT52C2V4 | WX | 2.28 | 2.4 | 2.56 | 5 | 100 | 120 | 1 |
| BZT52C2V7 | W1 | 2.5 | 2.7 | 2.9 | 5 | 110 | 120 | 1 |
| BZT52C3V0 | W2 | 2.8 | 3.0 | 3.2 | 5 | 120 | 50 | 1 |
| BZT52C3V3 | W3 | 3.1 | 3.3 | 3.5 | 5 | 130 | 20 | 1 |
| BZT52C3V6 | W4 | 3.4 | 3.6 | 3.8 | 5 | 130 | 10 | 1 |
| BZT52C3V9 | W5 | 3.7 | 3.9 | 4.1 | 5 | 130 | 5 | 1 |
| BZT52C4V3 | W6 | 4 | 4.3 | 4.6 | 5 | 130 | 5 | 1 |
| BZT52C4V7 | W7 | 4.4 | 4.7 | 5 | 5 | 130 | 2 | 1 |
| BZT52C5V1 | W8 | 4.8 | 5.1 | 5.4 | 5 | 130 | 2 | 1.5 |
| BZT52C5V6 | W9 | 5.2 | 5.6 | 6 | 5 | 80 | 1 | 2.5 |
| BZT52C6V2 | WA | 5.8 | 6.2 | 6.6 | 5 | 50 | 1 | 3 |
| BZT52C6V8 | WB | 6.4 | 6.8 | 7.2 | 5 | 30 | 0.5 | 3.5 |
| BZT52C7V5 | WC | 7 | 7.5 | 7.9 | 5 | 30 | 0.5 | 4 |
| BZT52C8V2 | WD | 7.7 | 8.2 | 8.7 | 5 | 30 | 0.5 | 5 |
| BZT52C9V1 | WE | 8.5 | 9.1 | 9.6 | 5 | 30 | 0.5 | 6 |
| BZT52C10 | WF | 9.4 | 10 | 10.6 | 5 | 30 | 0.1 | 7 |
| BZT52C11 | WG | 10.4 | 11 | 11.6 | 5 | 30 | 0.1 | 8 |
| BZT52C12 | WH | 11.4 | 12 | 12.7 | 5 | 35 | 0.1 | 9 |
| BZT52C13 | WI | 12.4 | 13 | 14.1 | 5 | 35 | 0.1 | 10 |
| BZT52C15 | WJ | 13.8 | 15 | 15.6 | 5 | 40 | 0.1 | 11 |
| BZT52C16 | WK | 15.3 | 16 | 17.1 | 5 | 40 | 0.1 | 12 |
| BZT52C18 | WL | 16.8 | 18 | 19.1 | 5 | 45 | 0.1 | 13 |
| BZT52C20 | WM | 18.8 | 20 | 21.2 | 5 | 50 | 0.1 | 15 |
| BZT52C22 | WN | 20.8 | 22 | 23.3 | 5 | 55 | 0.1 | 17 |
| BZT52C24 | WO | 22.8 | 24 | 25.6 | 5 | 60 | 0.1 | 19 |
| BZT52C27 | WP | 25.1 | 27 | 28.9 | 5 | 70 | 0.1 | 21 |
| BZT52C30 | WQ | 28 | 30 | 32 | 5 | 80 | 0.1 | 23 |
| BZT52C33 | WR | 31 | 33 | 35 | 5 | 80 | 0.1 | 25 |
| BZT52C36 | WS | 34 | 36 | 38 | 5 | 90 | 0.1 | 27 |
| BZT52C39 | WT | 37 | 39 | 41 | 2.5 | 100 | 2 | 30 |
| BZT52C43 | WU | 40 | 43 | 46 | 2.5 | 130 | 2 | 33 |
| BZT52C47 | WV | 44 | 47 | 50 | 2.5 | 150 | 2 | 36 |
| BZT52C51 | WW | 48 | 51 | 54 | 2.5 | 180 | 1 | 39 |
| BZT52C56 | WX1 | 52 | 56 | 60 | 2.5 | 180 | 1 | 43 |
| BZT52C62 | WY | 58 | 62 | 66 | 2.5 | 200 | 0.2 | 47 |
| BZT52C68 | WZ | 64 | 68 | 72 | 2.5 | 250 | 0.2 | 52 |
| BZT52C75 | WZ1 | 70 | 75 | 79 | 2.5 | 300 | 0.2 | 57 |

(1) Vzr is tested with pulses (20 ms)

PACKAGE OUTLINE

Plastic surface mounted package; 2 leads

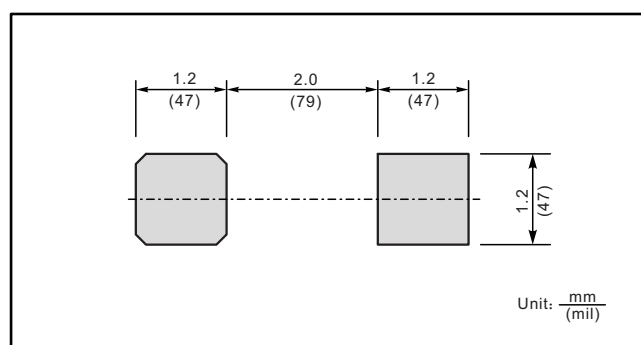
SOD-123



SOD-123 mechanical data

| UNIT | | A | C | D | E | E ₁ | L ₁ | b | A ₁ | ∠ |
|------|-----|-----|------|-----|-----|----------------|----------------|-----|----------------|----|
| 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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