



Surface Mount Zener Diodes

FEATURES

- Total power dissipation: Max. 500mW.
- Wide zener reverse voltage range 2.0 V to 75V.
- Small plastic package suitable for surface mounted design.

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 |



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

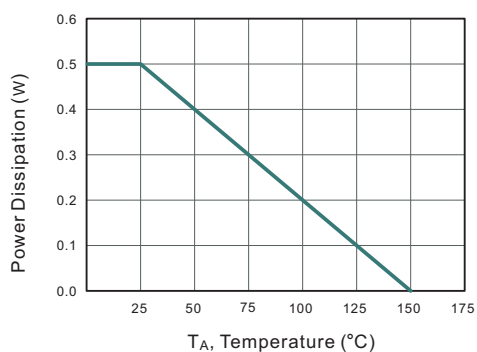
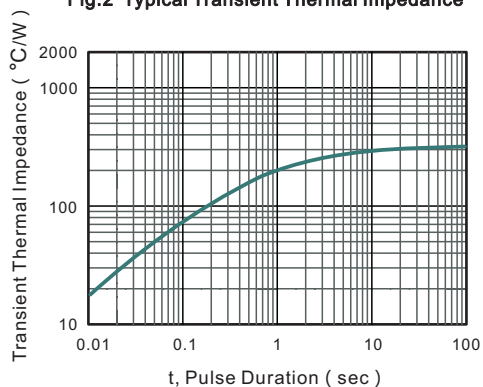


Fig.2 Typical Transient Thermal Impedance





Characteristics at Ta = 25°C

| Type | Marking | Zener Voltage Range (2) | | | | Maximum Zener (3) Impedance | | | | Reverse Current (2) | |
|------------|---------|--|-----------|-----------|-----------------|--------------------------------|-----------------|--------------------------------|-----------------|---------------------|-----------------|
| | | V _{ZT} (at I _{ZT}) | | | I _{ZT} | Z _{ZT@I_{ZT}} | I _{ZT} | Z _{ZK@I_{ZK}} | I _{ZK} | I _R | @V _R |
| | | Min (V) | Nom (V) | Max (V) | (mA) | (Ω) | (mA) | (Ω) | (mA) | μA | V |
| BZT52C2V0W | WY | 1.91 | 2.0 | 2.09 | 5 | 100 | 5 | 600 | 1 | 150 | 1.0 |
| BZT52C2V4W | WX | 2.2 | 2.4 | 2.6 | 5 | 100 | 5 | 600 | 1 | 50 | 1.0 |
| BZT52C2V7W | W1 | 2.5 | 2.7 | 2.9 | 5 | 100 | 5 | 600 | 1 | 20 | 1.0 |
| BZT52C3V0W | W2 | 2.8 | 3.0 | 3.2 | 5 | 95 | 5 | 600 | 1 | 10 | 1.0 |
| BZT52C3V3W | W3 | 3.1 | 3.3 | 3.5 | 5 | 95 | 5 | 600 | 1 | 5.0 | 1.0 |
| BZT52C3V6W | W4 | 3.4 | 3.6 | 3.8 | 5 | 90 | 5 | 600 | 1 | 5.0 | 1.0 |
| BZT52C3V9W | W5 | 3.7 | 3.9 | 4.1 | 5 | 90 | 5 | 600 | 1 | 3.0 | 1.0 |
| BZT52C4V3W | W6 | 4 | 4.3 | 4.6 | 5 | 90 | 5 | 600 | 1 | 3.0 | 1.0 |
| BZT52C4V7W | W7 | 4.4 | 4.7 | 5 | 5 | 80 | 5 | 500 | 1 | 3.0 | 2.0 |
| BZT52C5V1W | W8 | 4.8 | 5.1 | 5.4 | 5 | 60 | 5 | 480 | 1 | 2.0 | 2.0 |
| BZT52C5V6W | W9 | 5.2 | 5.6 | 6 | 5 | 40 | 5 | 400 | 1 | 1.0 | 2.0 |
| BZT52C6V2W | WA | 5.8 | 6.2 | 6.6 | 5 | 10 | 5 | 150 | 1 | 3.0 | 4.0 |
| BZT52C6V8W | WB | 6.4 | 6.8 | 7.2 | 5 | 15 | 5 | 80 | 1 | 2.0 | 4.0 |
| BZT52C7V5W | WC | 7 | 7.5 | 7.9 | 5 | 15 | 5 | 80 | 1 | 1.0 | 5.0 |
| BZT52C8V2W | WD | 7.7 | 8.2 | 8.7 | 5 | 15 | 5 | 80 | 1 | 0.7 | 5.0 |
| BZT52C9V1W | WE | 8.5 | 9.1 | 9.6 | 5 | 15 | 5 | 100 | 1 | 0.5 | 6.0 |
| BZT52C10W | WF | 9.4 | 10 | 10.6 | 5 | 20 | 5 | 150 | 1 | 0.2 | 7.0 |
| BZT52C11W | WG | 10.4 | 11 | 11.6 | 5 | 20 | 5 | 150 | 1 | 0.1 | 8.0 |
| BZT52C12W | WH | 11.4 | 12 | 12.7 | 5 | 25 | 5 | 150 | 1 | 0.1 | 8.0 |
| BZT52C13W | WI | 12.4 | 13 | 14.1 | 5 | 30 | 5 | 170 | 1 | 0.1 | 8.0 |
| BZT52C15W | WJ | 13.8 | 15 | 15.6 | 5 | 30 | 5 | 200 | 1 | 0.1 | 10.5 |
| BZT52C16W | WK | 15.3 | 16 | 17.1 | 5 | 40 | 5 | 200 | 1 | 0.1 | 11.2 |
| BZT52C18W | WL | 16.8 | 18 | 19.1 | 5 | 45 | 5 | 225 | 1 | 0.1 | 12.6 |
| BZT52C20W | WM | 18.8 | 20 | 21.2 | 5 | 55 | 5 | 225 | 1 | 0.1 | 14.0 |
| BZT52C22W | WN | 20.8 | 22 | 23.3 | 5 | 55 | 5 | 250 | 1 | 0.1 | 15.4 |
| BZT52C24W | WO | 22.8 | 24 | 25.6 | 5 | 70 | 5 | 250 | 1 | 0.1 | 16.8 |
| BZT52C27W | WP | 25.1 | 27 | 28.9 | 2 | 80 | 2 | 300 | 0.5 | 0.1 | 18.9 |
| BZT52C30W | WQ | 28 | 30 | 32 | 2 | 80 | 2 | 300 | 0.5 | 0.1 | 21.0 |
| BZT52C33W | WR | 31 | 33 | 35 | 2 | 80 | 2 | 325 | 0.5 | 0.1 | 23.1 |
| BZT52C36W | WS | 34 | 36 | 38 | 2 | 90 | 2 | 350 | 0.5 | 0.1 | 25.2 |
| BZT52C39W | WT | 37 | 39 | 41 | 2 | 130 | 2 | 350 | 0.5 | 0.1 | 27.3 |
| BZT52C43W | 6A | 40 | 43 | 46 | 2.5 | 130 | 2 | 500 | 1 | 2 | 33 |
| BZT52C47W | 6B | 44 | 47 | 50 | 2.5 | 150 | 2 | 500 | 1 | 2 | 36 |
| BZT52C51W | 6C | 48 | 51 | 54 | 2.5 | 180 | 2 | 500 | 1 | 1 | 37 |
| BZT52C56W | 6D | 52 | 56 | 60 | 2.5 | 180 | 2 | 500 | 1 | 1 | 43 |
| BZT52C62W | 6E | 58 | 62 | 66 | 2.5 | 200 | 2 | 500 | 1 | 0.2 | 47 |
| BZT52C68W | 6F | 64 | 68 | 72 | 2.5 | 250 | 2 | 500 | 1 | 0.2 | 52 |
| BZT52C75W | 6H | 70 | 75 | 79 | 2.5 | 300 | 2 | 500 | 1 | 0.2 | 57 |

NOTES: (1) f=1KHz

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

(3) V_{ZT} is tested with pulses 20ms.



PACKAGE OUTLINE

Plastic surface mounted package; 2 leads

SOD-123W



SOD-123W 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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