

SURFACE MOUNT ZENER DIODE

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

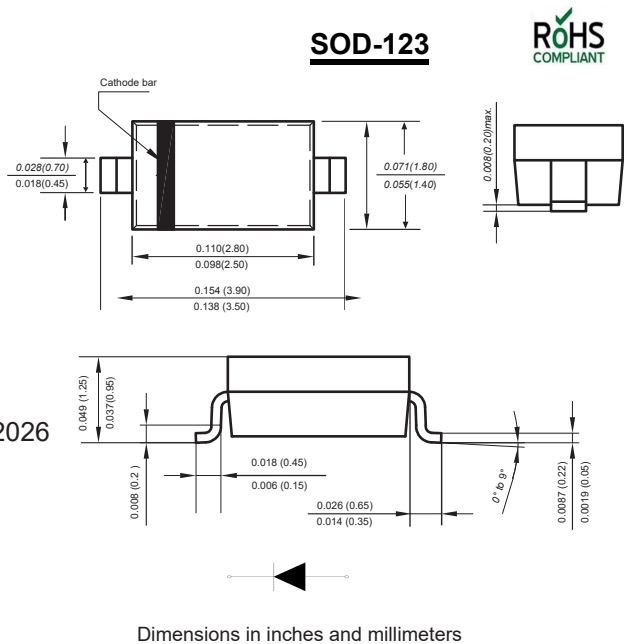
Case : JEDEC SOD-123 Molded plastic body

Terminals : Solder plated, solderable per MIL-STD-750, Method 2026

Polarity : Polarity symbol marking on body

Mounting Position : Any

Weight : 0.00056 ounce, 0.016 grams



Dimensions in inches and millimeters

Ordering Information

| Type No. | Marking | Package Code | |
|---|------------------|--------------|------|
| BZT52C2V0-BZT52C75 | See table 2 | SOD-123 | |
| MAXIMUM RATING @ Ta=25°C unless otherwise specified | | | |
| Parameter | Symbol | Value | Unit |
| Forward Voltage @ I _F =10mA | V _F | 0.9 | V |
| Power Dissipation | P _d | 500 | mW |
| Typical thermal resistance junction to ambient ⁽¹⁾ | R _{θJA} | 305 | °C/W |
| Junction temperature | T _j | 150 | °C |
| Storage temperature range | T _{stg} | -65-150 | °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.

ELECTRICAL CHARACTERISTICS CURVE

Fig.1 Maximum Continuous Power Derating

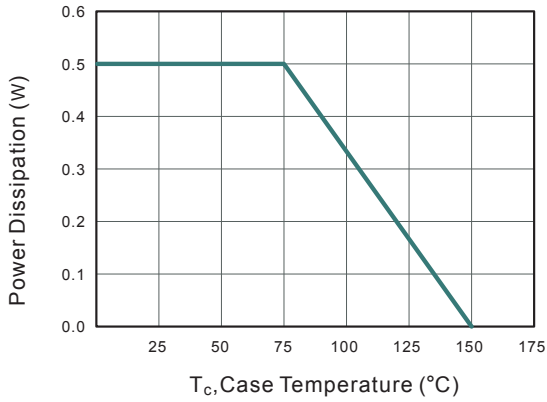


Fig.2 Typical Transient Thermal Impedance

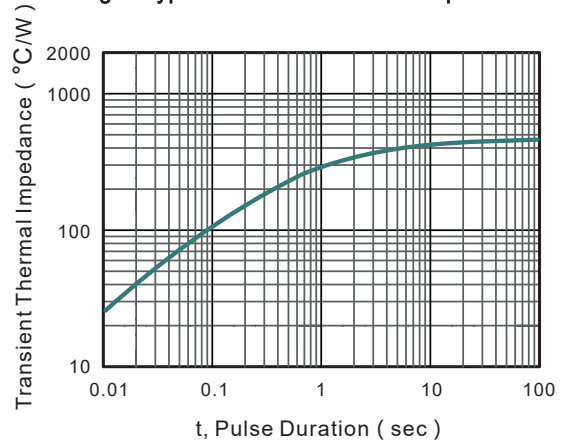
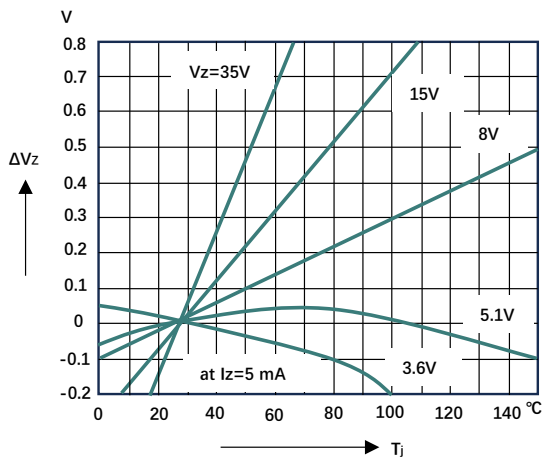


Fig.3 Change of Zener voltage versus junction temperature



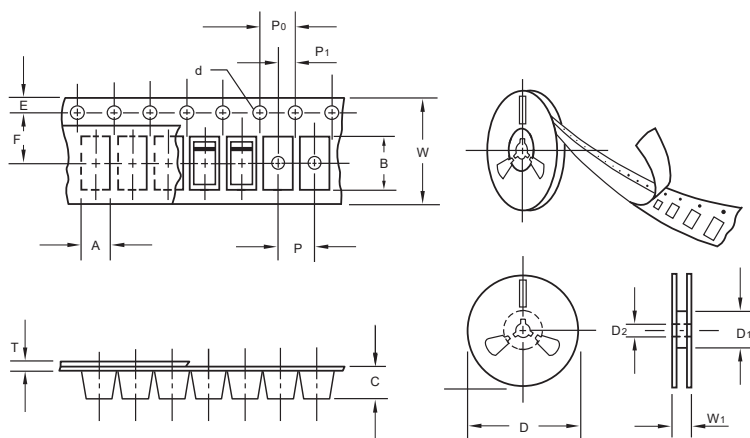
The curve above is for reference only.

ELECTRICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

| 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 | WY | 1.9 | 2.0 | 2.1 | 5 | 100 | 120 | 0.5 |
| BZT52C2V2 | WZ | 2.09 | 2.2 | 2.31 | 5 | 100 | 120 | 0.7 |
| BZT52C2V4 | WX | 2.28 | 2.4 | 2.52 | 5 | 100 | 120 | 1 |
| BZT52C2V7 | W1 | 2.57 | 2.7 | 2.84 | 5 | 110 | 120 | 1 |
| BZT52C3V0 | W2 | 2.85 | 3.0 | 3.15 | 5 | 120 | 50 | 1 |
| BZT52C3V3 | W3 | 3.14 | 3.3 | 3.47 | 5 | 130 | 20 | 1 |
| BZT52C3V6 | W4 | 3.42 | 3.6 | 3.78 | 5 | 130 | 10 | 1 |
| BZT52C3V9 | W5 | 3.71 | 3.9 | 4.11 | 5 | 130 | 5 | 1 |
| BZT52C4V3 | W6 | 4.11 | 4.3 | 4.52 | 5 | 130 | 5 | 1 |
| BZT52C4V7 | W7 | 4.47 | 4.7 | 4.94 | 5 | 130 | 2 | 1 |
| BZT52C5V1 | W8 | 4.85 | 5.1 | 5.36 | 5 | 130 | 2 | 1.5 |
| BZT52C5V6 | W9 | 5.32 | 5.6 | 5.88 | 5 | 80 | 1 | 2.5 |
| BZT52C6V2 | WA | 5.89 | 6.2 | 6.51 | 5 | 50 | 1 | 3 |
| BZT52C6V8 | WB | 6.46 | 6.8 | 7.14 | 5 | 30 | 0.5 | 3.5 |
| BZT52C7V5 | WC | 7.13 | 7.5 | 7.88 | 5 | 30 | 0.5 | 4 |
| BZT52C8V2 | WD | 7.79 | 8.2 | 8.61 | 5 | 30 | 0.5 | 5 |
| BZT52C9V1 | WE | 8.65 | 9.1 | 9.56 | 5 | 30 | 0.5 | 6 |
| BZT52C10 | WF | 9.5 | 10 | 10.5 | 5 | 30 | 0.1 | 7 |
| BZT52C11 | WG | 10.45 | 11 | 11.55 | 5 | 30 | 0.1 | 8 |
| BZT52C12 | WH | 11.4 | 12 | 12.6 | 5 | 35 | 0.1 | 9 |
| BZT52C13 | WI | 12.35 | 13 | 13.65 | 5 | 35 | 0.1 | 10 |
| BZT52C15 | WJ | 14.25 | 15 | 15.75 | 5 | 40 | 0.1 | 11 |
| BZT52C16 | WK | 15.2 | 16 | 16.8 | 5 | 40 | 0.1 | 12 |
| BZT52C18 | WL | 17.1 | 18 | 18.9 | 5 | 45 | 0.1 | 13 |
| BZT52C20 | WM | 19 | 20 | 21 | 5 | 50 | 0.1 | 15 |
| BZT52C22 | WN | 20.9 | 22 | 23.1 | 5 | 55 | 0.1 | 17 |
| BZT52C24 | WO | 22.8 | 24 | 25.2 | 5 | 60 | 0.1 | 19 |
| BZT52C27 | WP | 25.65 | 27 | 28.35 | 5 | 70 | 0.1 | 21 |
| BZT52C30 | WQ | 28.5 | 30 | 31.5 | 5 | 80 | 0.1 | 23 |
| BZT52C33 | WR | 31.35 | 33 | 34.65 | 5 | 80 | 0.1 | 25 |
| BZT52C36 | WS | 34.2 | 36 | 37.8 | 5 | 90 | 0.1 | 27 |
| BZT52C39 | WT | 37.05 | 39 | 40.95 | 2.5 | 100 | 2 | 30 |
| BZT52C43 | WU | 40.85 | 43 | 45.15 | 2.5 | 130 | 2 | 33 |
| BZT52C47 | WV | 44.65 | 47 | 49.35 | 2.5 | 150 | 2 | 36 |
| BZT52C51 | WW | 48.45 | 51 | 53.55 | 2.5 | 180 | 1 | 39 |
| BZT52C56 | XW | 53.2 | 56 | 58.8 | 2.5 | 180 | 1 | 43 |
| BZT52C62 | 6E | 58.9 | 62 | 65.1 | 2.5 | 200 | 0.2 | 47 |
| BZT52C68 | 6F | 64.6 | 68 | 71.4 | 2.5 | 250 | 0.2 | 52 |
| BZT52C75 | 6H | 71.25 | 75 | 78.75 | 2.5 | 300 | 0.2 | 57 |

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

Packing information



unit:mm

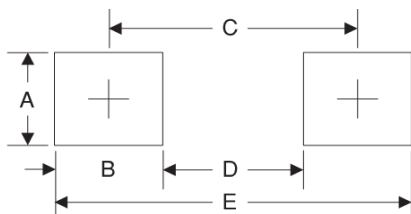
| Item | Symbol | Tolerance | SOD-123 |
|--------------------------|----------------|-----------|---------|
| Carrier width | A | 0.1 | 2.1 |
| Carrier length | B | 0.1 | 4.0 |
| Carrier depth | C | 0.1 | 1.60 |
| Sprocket hole | d | 0.05 | 1.55 |
| 7" Reel outside diameter | D | 2.0 | 178.00 |
| 7" Reel inner diameter | D ₁ | min | 50.0 |
| Feed hole diameter | D ₂ | 0.5 | 13.00 |
| Sprocket hole position | E | 0.1 | 1.75 |
| Punch hole position | F | 0.1 | 3.50 |
| Punch hole pitch | P | 0.1 | 4.00 |
| Sprocket hole pitch | P ₀ | 0.1 | 4.00 |
| Embossment center | P ₁ | 0.1 | 2.00 |
| Overall tape thickness | T | 0.1 | 0.25 |
| Tape width | W | 0.3 | 8.15 |
| Reel width | W ₁ | 1.0 | 10.5 |

Note: Devices are packed in accordance with EIA standard RS-481-A and specifications listed above.

Reel packing

| PACKAGE | REEL SIZE | REEL (pcs) | COMPONENT SPACING (m/m) | BOX (pcs) | INNER BOX (m/m) | REEL DIA, (m/m) | CARTON SIZE (m/m) | CARTON (pcs) | APPROX. GROSS WEIGHT (kg) |
|---------|-----------|------------|-------------------------|-----------|-----------------|-----------------|-------------------|--------------|---------------------------|
| SOD-123 | 7" | 3,000 | 4.0 | 45,000 | 210*208*203 | 178 | 430*430*235 | 180,000 | 9.0 |

Suggested Pad Layout



| Symbol | Unit (mm) | Unit (inch) |
|--------|-----------|-------------|
| A | 1.2 | 0.047 |
| B | 1.2 | 0.047 |
| C | 3.2 | 0.126 |
| D | 2.0 | 0.079 |
| E | 4.4 | 0.173 |

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