

BZT52B2V4 THRU BZT52B51

SURFACE MOUNT ZENER DIODES

SOD-123 SURFACE MOUNT SILICON ZENER DIODES

● Features

- Low Zener Impedance
- Power Dissipation of 500mW
- High Stability and High Reliability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260°C

● Applications

Zener diode is generally used as reference voltage sources in regulated power supplies or as protective diode in overvoltage protection circuits.

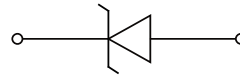
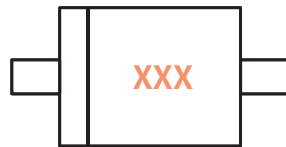
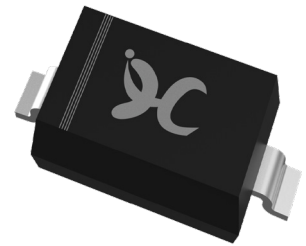
● Mechanical Data

- Case: SOD-123
Molding compound meets UL 94V-0 flammability rating, RoHS-compliant, halogen-free
- Terminals: Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity: Cathode line denotes the cathode end

● Function Diagram

Zener Diode
2.4 to 43 Volts
Power Dissipation
500 Milliwatts

SOD-123

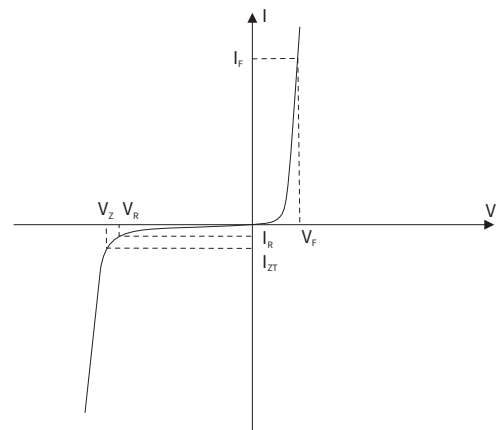


● Maximum Ratings (Ta=25°C Unless otherwise specified)

| PARAMETER | SYMBOL | UNIT | VALUE |
|-------------------------------------|-----------------|-------|------------|
| Power Dissipation | P_D | mW | 500 |
| Forward Voltage @ $I_F=10\text{mA}$ | V_F | V | 0.9 |
| Storage Temperature | T_{stg} | °C | -55 ~ +150 |
| Junction Temperature | T_J | °C | -55 ~ +150 |
| Typical Thermal Resistance | $R_{\theta JA}$ | °C /W | 357 |

● Electrical Parameter

| SYMBOL | PARAMETER |
|----------|------------------------------------|
| V_Z | Reverse zener voltage @ I_{ZT} |
| I_{ZT} | Reverse current |
| Z_{ZT} | Maximum Zener Impedance @ I_{ZT} |
| I_{ZK} | Reverse Current |
| Z_{ZK} | Maximum Zener Impedance @ I_{ZK} |
| I_R | Reverse leakage current @ V_R |
| V_R | Reverse voltage |
| I_F | Forward current |
| V_F | Forward voltage @ I_F |



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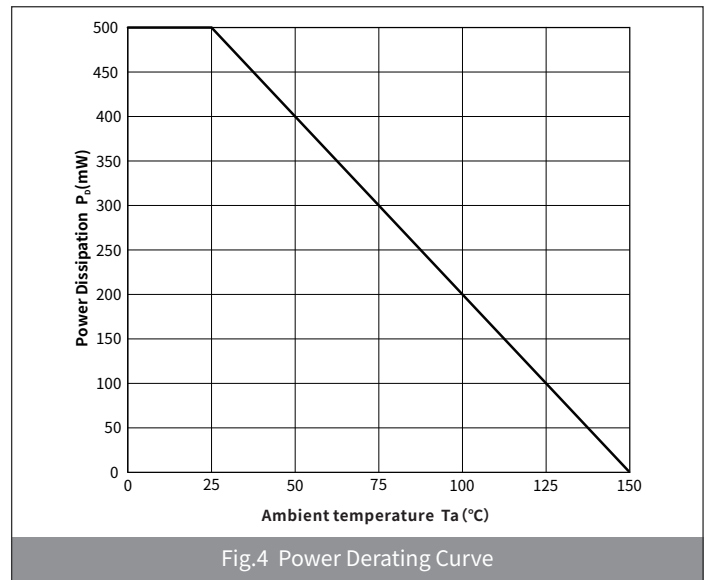
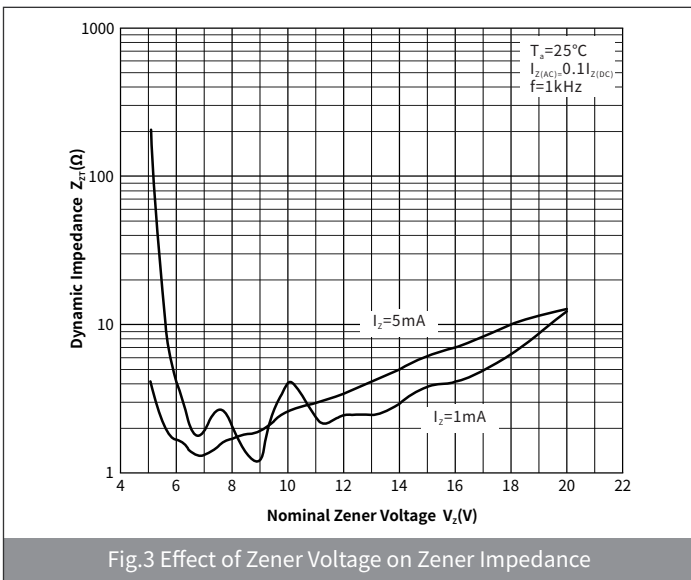
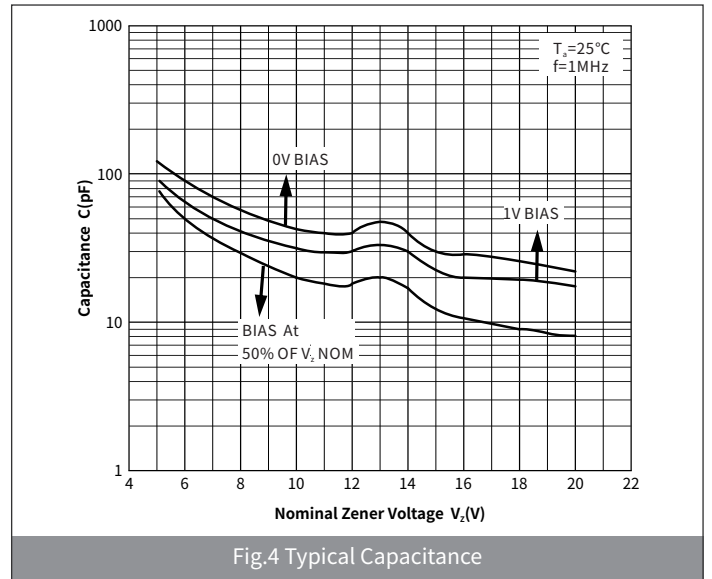
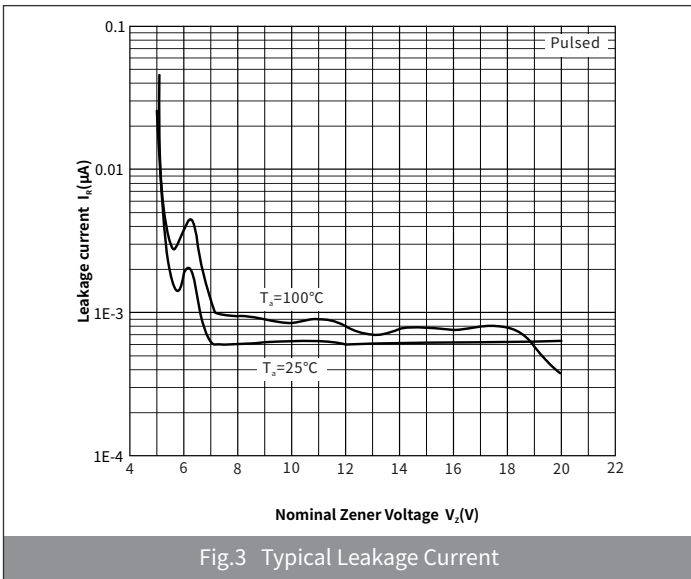
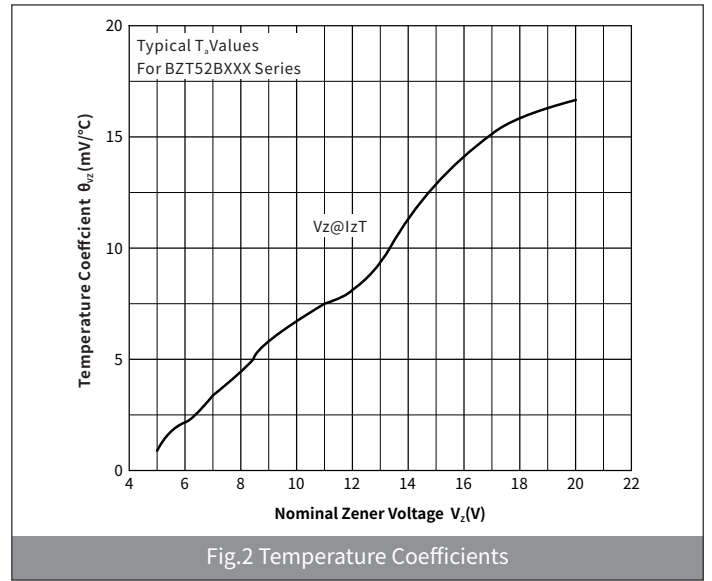
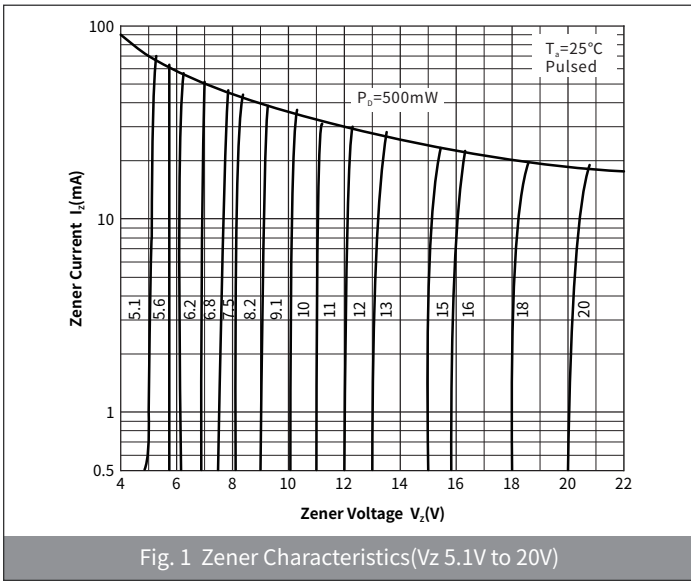
● Electrical Characteristics (Ta=25°C Unless otherwise noted)

| Type Number | Marking | Nominal Zener Voltage | | | Zener Impedance | | | Leakage Current | | Typical Temperature coefficient @ I _{ZTC} (mV/°C) | | Admissible Zener Current | |
|-------------|---------|-----------------------|------|-------|-----------------|----------------------------------|----------------------------------|---------------------|--------------------------------|--|------|--------------------------|------|
| | | V _Z (V) | | | I _{ZT} | Z _{ZT} @I _{ZT} | Z _{ZK} @I _{ZK} | I _{ZK} | I _R @V _R | | Min. | | Max. |
| | | Min. | Nom. | Max. | (mA) | (Ω) | (mA) | I _R (μA) | V _R (V) | I _{ZM} (mA) | | | |
| BZT52B2V4 | 2WX | 2.35 | 2.4 | 2.45 | 5 | 100 | 600 | 1.0 | 50 | 1.0 | -3.5 | 0 | 5 |
| BZT52B2V7 | 2W1 | 2.65 | 2.7 | 2.75 | 5 | 100 | 600 | 1.0 | 20 | 1.0 | -3.5 | 0 | 5 |
| BZT52B3V0 | 2W2 | 2.94 | 3.0 | 3.06 | 5 | 95 | 600 | 1.0 | 10 | 1.0 | -3.5 | 0 | 5 |
| BZT52B3V3 | 2W3 | 3.23 | 3.3 | 3.37 | 5 | 95 | 600 | 1.0 | 5 | 1.0 | -3.5 | 0 | 5 |
| BZT52B3V6 | 2W4 | 3.53 | 3.6 | 3.67 | 5 | 90 | 600 | 1.0 | 5 | 1.0 | -3.5 | 0 | 5 |
| BZT52B3V9 | 2W5 | 3.82 | 3.9 | 3.98 | 5 | 90 | 600 | 1.0 | 3 | 1.0 | -3.5 | 0 | 5 |
| BZT52B4V3 | 2W6 | 4.21 | 4.3 | 4.39 | 5 | 90 | 600 | 1.0 | 3 | 1.0 | -3.5 | 0 | 5 |
| BZT52B4V7 | 2W7 | 4.61 | 4.7 | 4.79 | 5 | 80 | 500 | 1.0 | 3 | 2.0 | -3.5 | 0.2 | 5 |
| BZT52B5V1 | 2W8 | 5.00 | 5.1 | 5.20 | 5 | 60 | 480 | 1.0 | 2 | 2.0 | -2.7 | 1.2 | 5 |
| BZT52B5V6 | 2W9 | 5.49 | 5.6 | 5.71 | 5 | 40 | 400 | 1.0 | 1 | 2.0 | -2.0 | 2.5 | 5 |
| BZT52B6V2 | 2WA | 6.08 | 6.2 | 6.32 | 5 | 10 | 150 | 1.0 | 3 | 4.0 | 0.4 | 3.7 | 5 |
| BZT52B6V8 | 2WB | 6.66 | 6.8 | 6.94 | 5 | 15 | 80 | 1.0 | 2 | 4.0 | 1.2 | 4.5 | 5 |
| BZT52B7V5 | 2WC | 7.35 | 7.5 | 7.65 | 5 | 15 | 80 | 1.0 | 1 | 5.0 | 2.5 | 5.3 | 5 |
| BZT52B8V2 | 2WD | 8.04 | 8.2 | 8.36 | 5 | 15 | 80 | 1.0 | 0.7 | 5.0 | 3.2 | 6.2 | 5 |
| BZT52B9V1 | 2WE | 8.92 | 9.1 | 9.28 | 5 | 15 | 100 | 1.0 | 0.5 | 6.0 | 3.8 | 7.0 | 5 |
| BZT52B10 | 2WF | 9.80 | 10 | 10.20 | 5 | 20 | 150 | 1.0 | 0.2 | 7.0 | 4.5 | 8.0 | 5 |
| BZT52B11 | 2WG | 10.78 | 11 | 11.22 | 5 | 20 | 150 | 1.0 | 0.1 | 8.0 | 5.4 | 9.0 | 5 |
| BZT52B12 | 2WH | 11.76 | 12 | 12.24 | 5 | 25 | 150 | 1.0 | 0.1 | 8.0 | 6.0 | 10.0 | 5 |
| BZT52B13 | 2WI | 12.74 | 13 | 13.26 | 5 | 30 | 170 | 1.0 | 0.1 | 8.0 | 7.0 | 11.0 | 5 |
| BZT52B15 | 2WJ | 14.70 | 15 | 15.30 | 5 | 30 | 200 | 1.0 | 0.1 | 10.5 | 9.2 | 13.0 | 5 |
| BZT52B16 | 2WK | 15.68 | 16 | 16.32 | 5 | 40 | 200 | 1.0 | 0.1 | 11.2 | 10.4 | 14.0 | 5 |
| BZT52B18 | 2WL | 17.64 | 18 | 18.36 | 5 | 45 | 225 | 1.0 | 0.1 | 12.6 | 12.4 | 16.0 | 5 |
| BZT52B20 | 2WM | 19.60 | 20 | 20.40 | 5 | 55 | 225 | 1.0 | 0.1 | 14.0 | 14.4 | 18.0 | 5 |
| BZT52B22 | 2WN | 21.56 | 22 | 22.44 | 5 | 55 | 250 | 1.0 | 0.1 | 15.4 | 16.4 | 20.0 | 5 |
| BZT52B24 | 2WO | 23.52 | 24 | 24.48 | 5 | 70 | 250 | 1.0 | 0.1 | 16.8 | 18.4 | 22.0 | 5 |
| BZT52B27 | 2WP | 26.46 | 27 | 27.54 | 2 | 80 | 300 | 0.5 | 0.1 | 18.9 | 21.4 | 25.3 | 2 |
| BZT52B30 | 2WQ | 29.40 | 30 | 30.60 | 2 | 80 | 300 | 0.5 | 0.1 | 21.0 | 24.4 | 29.4 | 2 |
| BZT52B33 | 2WR | 32.34 | 33 | 33.66 | 2 | 80 | 325 | 0.5 | 0.1 | 23.1 | 27.4 | 33.4 | 2 |
| BZT52B36 | 2WS | 35.28 | 36 | 36.72 | 2 | 90 | 350 | 0.5 | 0.1 | 25.2 | 30.4 | 37.4 | 2 |
| BZT52B39 | 2WT | 38.22 | 39 | 39.78 | 2 | 130 | 350 | 0.5 | 0.1 | 27.3 | 33.4 | 41.2 | 2 |
| BZT52B43 | 2WU | 41.16 | 43 | 42.84 | 2 | 130 | 350 | 0.5 | 0.1 | 29.4 | 36.4 | 45.2 | 2 |
| BZT52B47 | 2WV | 46.06 | 47 | 47.94 | 100 | 2 | 750 | 1.0 | 0.1 | 35 | 10.0 | 12 | 5 |
| BZT52B51 | 2WW | 49.98 | 51 | 52.02 | 100 | 2 | 750 | 1.0 | 0.1 | 38 | 10.0 | 12 | 5 |

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● Ratings And Characteristics Curves (Ta=25°C Unless otherwise specified)



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● Ordering Information

| PACKAGE | PACKAGE CODE | UNIT WEIGHT(g) | REEL(pcs) | BOX(pcs) | CARTON(pcs) | DELIVERY MODE |
|---------|--------------|----------------|-----------|----------|-------------|---------------|
| SOD-123 | R1 | 0.012 | 3000 | 45000 | 180000 | 7" |

● Package Outline Dimensions (SOD-123)

| Symbol | Dimensions | | | |
|----------|-------------|------|--------|-------|
| | Millimeters | | Inches | |
| | Min. | Max. | Min. | Max. |
| A | 3.55 | 3.85 | 0.140 | 0.152 |
| B | 2.55 | 2.85 | 0.100 | 0.112 |
| C | 1.40 | 1.80 | 0.055 | 0.071 |
| D | 0.95 | 1.35 | 0.140 | 0.152 |
| E | 0.51 | 0.71 | 0.037 | 0.053 |
| F | - | 0.15 | - | 0.006 |
| G | 0.15 | 0.45 | 0.006 | 0.008 |
| H | 0.08 | 0.25 | 0.003 | 0.010 |
| θ | - | 8° | - | 8° |

● Suggested Pad Layout

| Symbol | Dimensions | | | |
|--------|-------------|------|--------|-------|
| | Millimeters | | Inches | |
| | Min. | Max. | Min. | Max. |
| J | 0.91 | - | 0.036 | - |
| K | - | 2.36 | - | 0.092 |
| M | 1.22 | - | 0.048 | - |

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