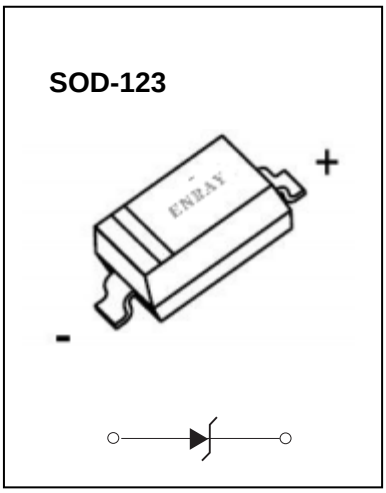
# BZT52C2V4-BZT52C43 ZENER DIODE




**FEATURES:**

- Planar Die Construction
- 500mW Power Dissipation on Ceramic PCB
- General Purpose, Medium Current
- Ideally Suited for Automated Assembly Processes
- Available in Lead Free Version

**Maximum Ratings($T_a$=25℃ unless otherwise specified)**

| Characteristic | Symbol | Value | Unit |
|---|---|---|---|
| Forward Voltage (Note 2) @ $I_F$ = 10mA | $V_F$ | 0.9 | V |
| Power Dissipation(Note 1) | $P_D$ | 500 | mW |
| Thermal Resistance from Junction to Ambient(Note 1) | $R_{\theta JA}$ | 250 | ℃/W |
| Operation Junction and Storage Temperature Range | $T_J$,$T_{STG}$ | -55~+150 | ℃ |

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## ELECTRICAL CHARACTERISTICS

**$T_a$=25℃ unless otherwise specified**

| Type Number | Type Code | Zener Voltage Range (Note 2) | | | | Maximum Zener Impedance (Note 3) | | | Maximum Reverse Current (Note 2) | | Typical Temperature Coefficent @$I_{ZTC}$ | | Test Current $I_{ZTC}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $V_Z$@$I_{ZT}$ | | | $I_{ZT}$ | $Z_{ZT}$@$I_{ZT}$ | $Z_{ZK}$@$I_{ZK}$ | $I_{ZK}$ | $I_R$ | $V_R$ | mV/°C | | |
| | | Nom(V) | Min(V) | Max(V) | mA | Ω | | mA | uA | V | Min | Max | mA |
| BZT52C2V4 | WX | 2.4 | 2.20 | 2.60 | 5 | 100 | 600 | 1.0 | 50 | 1.0 | -3.5 | 0 | 5 |
| BZT52C2V7 | W1 | 2.7 | 2.5 | 2.9 | 5 | 100 | 600 | 1.0 | 20 | 1.0 | -3.5 | 0 | 5 |
| BZT52C3V0 | W2 | 3.0 | 2.8 | 3.2 | 5 | 95 | 600 | 1.0 | 10 | 1.0 | -3.5 | 0 | 5 |
| BZT52C3V3 | W3 | 3.3 | 3.1 | 3.5 | 5 | 95 | 600 | 1.0 | 5 | 1.0 | -3.5 | 0 | 5 |
| BZT52C3V6 | W4 | 3.6 | 3.4 | 3.8 | 5 | 90 | 600 | 1.0 | 5 | 1.0 | -3.5 | 0 | 5 |
| BZT52C3V9 | W5 | 3.9 | 3.7 | 4.1 | 5 | 90 | 600 | 1.0 | 3 | 1.0 | -3.5 | 0 | 5 |
| BZT52C4V3 | W6 | 4.3 | 4.0 | 4.6 | 5 | 90 | 600 | 1.0 | 3 | 1.0 | -3.5 | 0 | 5 |
| BZT52C4V7 | W7 | 4.7 | 4.4 | 5.0 | 5 | 80 | 500 | 1.0 | 3 | 2.0 | -3.5 | 0.2 | 5 |
| BZT52C5V1 | W8 | 5.1 | 4.8 | 5.4 | 5 | 60 | 480 | 1.0 | 2 | 2.0 | -2.7 | 1.2 | 5 |
| BZT52C5V6 | W9 | 5.6 | 5.2 | 6.0 | 5 | 40 | 400 | 1.0 | 1 | 2.0 | -2.0 | 2.5 | 5 |
| BZT52C6V2 | WA | 6.2 | 5.8 | 6.6 | 5 | 10 | 150 | 1.0 | 3 | 4.0 | 0.4 | 3.7 | 5 |
| BZT52C6V8 | WB | 6.8 | 6.4 | 7.2 | 5 | 15 | 80 | 1.0 | 2 | 4.0 | 1.2 | 4.5 | 5 |
| BZT52C7V5 | WC | 7.5 | 7.0 | 7.9 | 5 | 15 | 80 | 1.0 | 1 | 5.0 | 2.5 | 5.3 | 5 |
| BZT52C8V2 | WD | 8.2 | 7.7 | 8.7 | 5 | 15 | 80 | 1.0 | 0.7 | 5.0 | 3.2 | 6.2 | 5 |
| BZT52C9V1 | WE | 9.1 | 8.5 | 9.6 | 5 | 15 | 100 | 1.0 | 0.5 | 6.0 | 3.8 | 7.0 | 5 |
| BZT52C10 | WF | 10 | 9.4 | 10.6 | 5 | 20 | 150 | 1.0 | 0.2 | 7.0 | 4.5 | 8.0 | 5 |
| BZT52C11 | WG | 11 | 10.4 | 11.6 | 5 | 20 | 150 | 1.0 | 0.1 | 8.0 | 5.4 | 9.0 | 5 |
| BZT52C12 | WH | 12 | 11.4 | 12.7 | 5 | 25 | 150 | 1.0 | 0.1 | 8.0 | 6.0 | 10.0 | 5 |
| BZT52C13 | WI | 13 | 12.4 | 14.1 | 5 | 30 | 170 | 1.0 | 0.1 | 8.0 | 7.0 | 11.0 | 5 |
| BZT52C15 | WJ | 15 | 13.8 | 15.6 | 5 | 30 | 200 | 1.0 | 0.1 | 10.5 | 9.2 | 13.0 | 5 |
| BZT52C16 | WK | 16 | 15.3 | 17.1 | 5 | 40 | 200 | 1.0 | 0.1 | 11.2 | 10.4 | 14.0 | 5 |
| BZT52C18 | WL | 18 | 16.8 | 19.1 | 5 | 45 | 225 | 1.0 | 0.1 | 12.6 | 12.4 | 16.0 | 5 |
| BZT52C20 | WM | 20 | 18.8 | 21.2 | 5 | 55 | 225 | 1.0 | 0.1 | 14.0 | 14.4 | 18.0 | 5 |
| BZT52C22 | WN | 22 | 20.8 | 23.3 | 5 | 55 | 250 | 1.0 | 0.1 | 15.4 | 16.4 | 20.0 | 5 |
| BZT52C24 | WO | 24 | 22.8 | 25.6 | 5 | 70 | 250 | 1.0 | 0.1 | 16.8 | 18.4 | 22.0 | 5 |
| BZT52C27 | WP | 27 | 25.1 | 28.9 | 2 | 80 | 300 | 0.5 | 0.1 | 18.9 | 21.4 | 25.3 | 2 |
| BZT52C30 | WQ | 30 | 28.0 | 32.0 | 2 | 80 | 300 | 0.5 | 0.1 | 21.0 | 24.4 | 29.4 | 2 |
| BZT52C33 | WR | 33 | 31.0 | 35.0 | 2 | 80 | 325 | 0.5 | 0.1 | 23.1 | 27.4 | 33.4 | 2 |
| BZT52C36 | WS | 36 | 34.0 | 38.0 | 2 | 90 | 350 | 0.5 | 0.1 | 25.2 | 30.4 | 37.4 | 2 |
| BZT52C39 | WT | 39 | 37.0 | 41.0 | 2 | 130 | 350 | 0.5 | 0.1 | 27.3 | 33.4 | 41.2 | 2 |
| BZT52C43 | WU | 43 | 40.0 | 46.0 | 5 | 100 | 700 | 1.0 | 0.1 | 32 | 10.0 | 12.0 | 5 |

Notes: 1.The value of RθJA is measured with the device mounted on 1 in 2 FR-4 board with 2oz. Copper, in a still air environment with Ta=25 ℃.

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

3. f=1kHz

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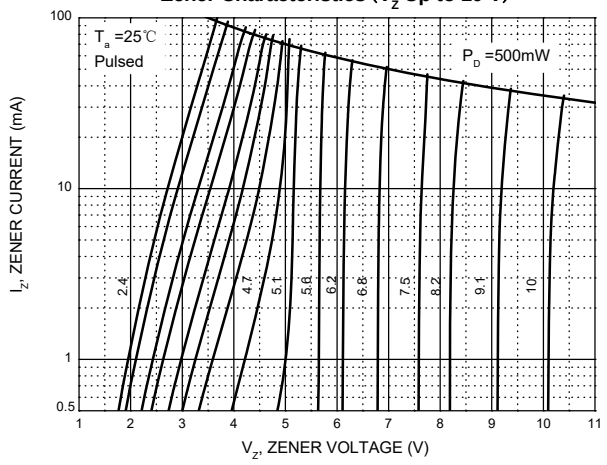
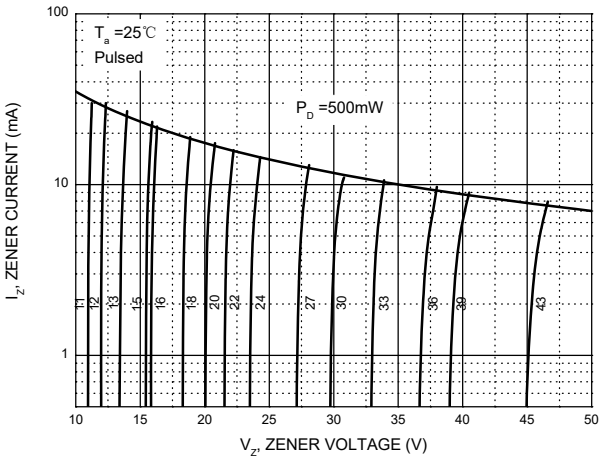
## Typical Characteristics

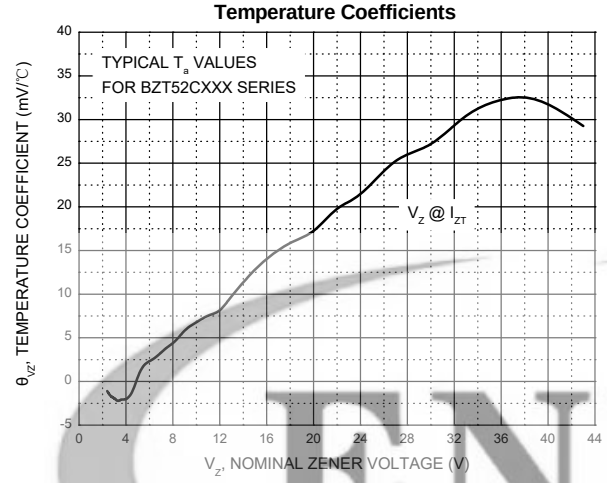
**Zener Characteristics ($V_Z$ Up to 10 V)**



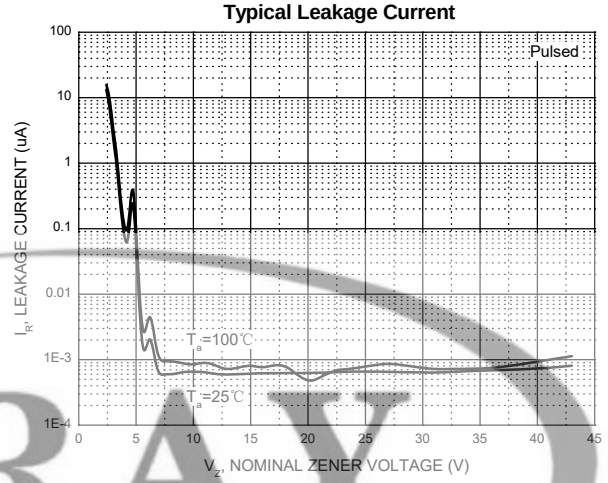

**Zener Characteristics (11 V to 43 V)**



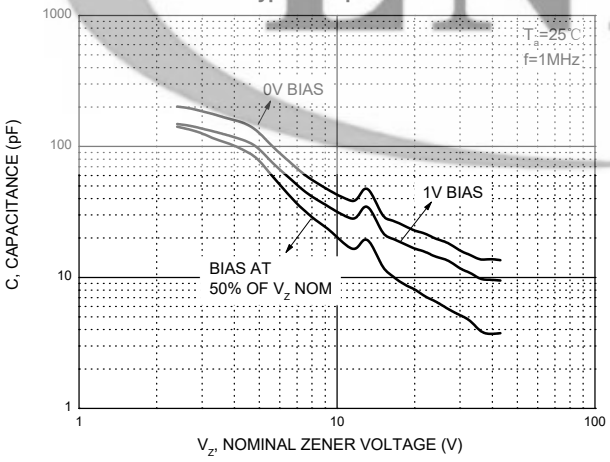

**Temperature Coefficients**



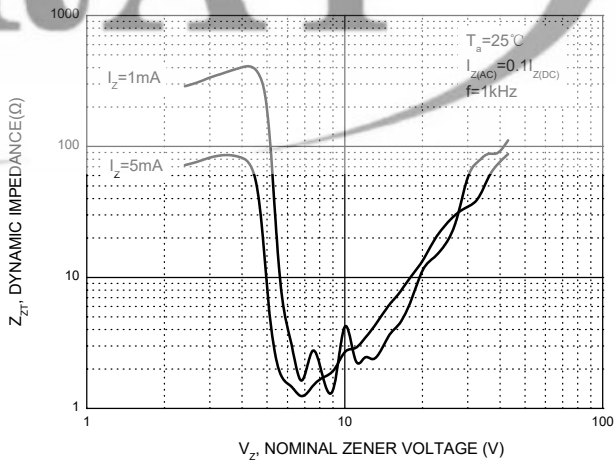

**Typical Leakage Current**



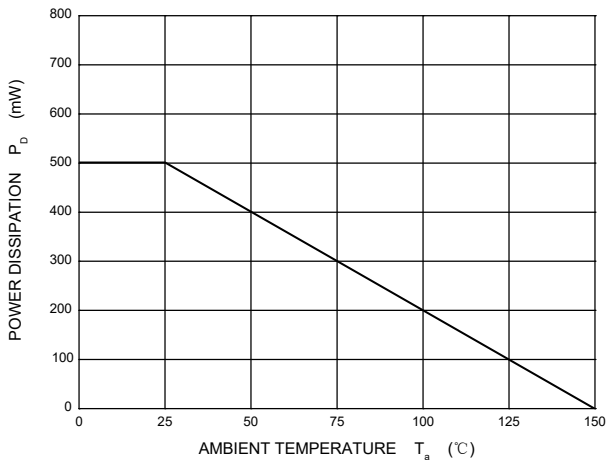

**Typical Capacitance**




**Effect of Zener Voltage on Zener Impedance**




**Power Derating Curve**

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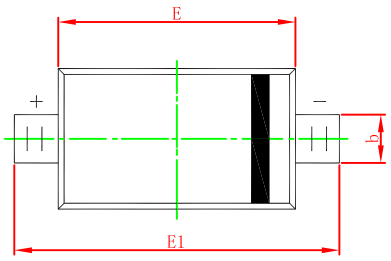
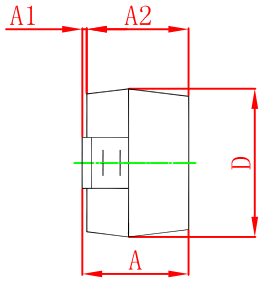
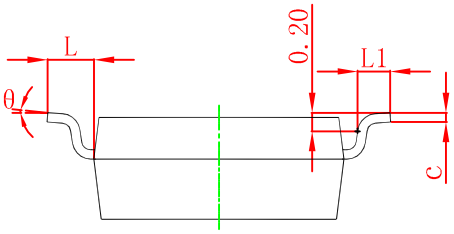
## SOD-123 Package Outline Dimensions




| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|---|---|---|---|---|
| | Min | Max | Min | Max |
| A | 1.050 | 1.250 | 0.041 | 0.049 |
| A1 | 0.000 | 0.100 | 0.000 | 0.004 |
| A2 | 1.050 | 1.150 | 0.041 | 0.045 |
| b | 0.450 | 0.650 | 0.018 | 0.026 |
| c | 0.080 | 0.150 | 0.003 | 0.006 |
| D | 1.500 | 1.700 | 0.059 | 0.067 |
| E | 2.600 | 2.800 | 0.102 | 0.110 |
| E1 | 3.550 | 3.850 | 0.140 | 0.152 |
| L | 0.500 REF | | 0.020 REF | |
| L1 | 0.250 | 0.450 | 0.010 | 0.018 |
| θ | 0° | 8° | 0° | 8° |

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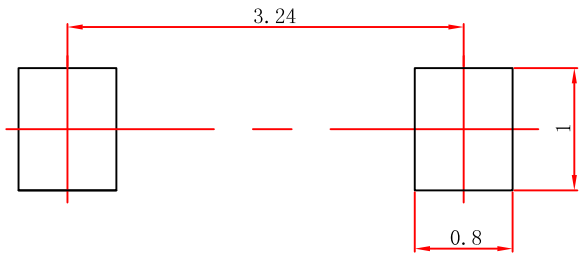
## SOD-123 Suggested Pad Layout




**Note:**
1.Controlling dimension:in millimeters.
2.General tolerance:±0.05mm.
3.The pad layout is for reference purposes only.