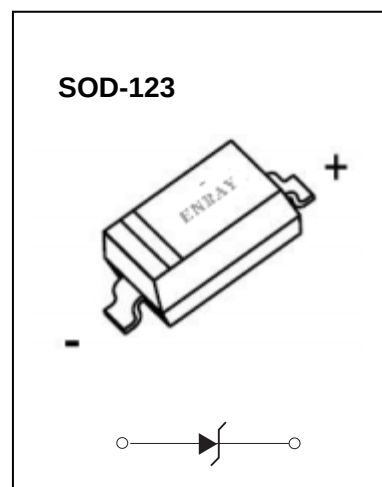


## BZT52C2V4-BZT52C43 ZENER DIODE

### 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( $T_a=25^{\circ}\text{C}$ unless otherwise specified)

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

## ELECTRICAL CHARACTERISTICS

T<sub>a</sub>=25°C unless otherwise specified

| Type Number | Type Code | Zener Voltage Range (Note 2)    |        |        |                 | Maximum Zener Impedance (Note 3) |                                  |                 | Maximum Reverse Current (Note 2) |                | Typical Temperature Coefficient @I <sub>ZTC</sub> mV/°C |      | Test Current I <sub>ZTC</sub> |
|-------------|-----------|---------------------------------|--------|--------|-----------------|----------------------------------|----------------------------------|-----------------|----------------------------------|----------------|---------------------------------------------------------|------|-------------------------------|
|             |           | V <sub>Z</sub> @I <sub>ZT</sub> |        |        | I <sub>ZT</sub> | Z <sub>ZT</sub> @I <sub>ZT</sub> | Z <sub>ZK</sub> @I <sub>ZK</sub> | I <sub>ZK</sub> | I <sub>R</sub>                   | V <sub>R</sub> |                                                         |      |                               |
|             |           | 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                             |

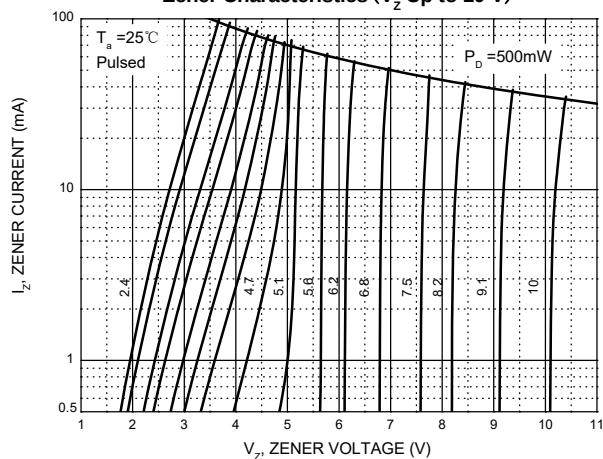
Notes: 1. The value of R<sub>θJA</sub> is measured with the device mounted on 1 in 2 FR-4 board with 2oz. Copper, in a still air environment with T<sub>a</sub>=25 °C.

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

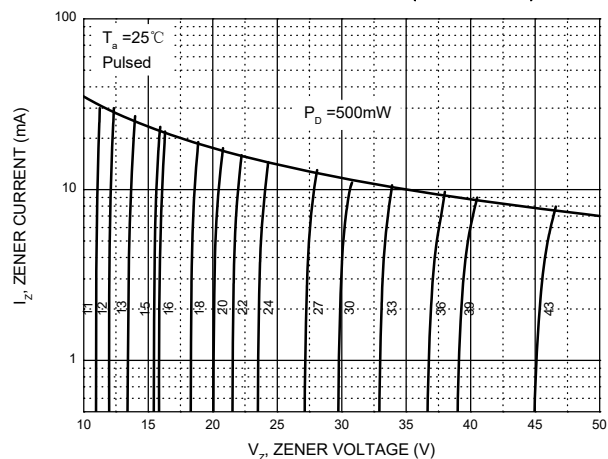
3. f=1kHz

## Typical Characteristics

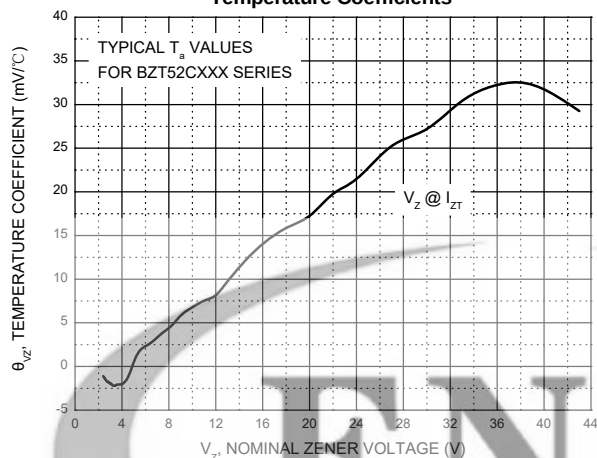
Zener Characteristics ( $V_z$  Up to 10 V)



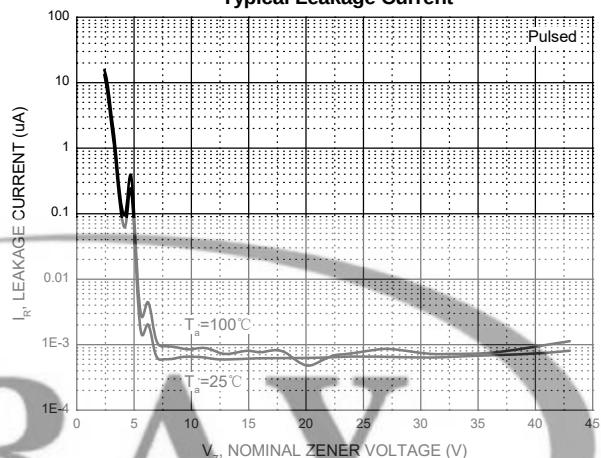
Zener Characteristics (11 V to 43 V)



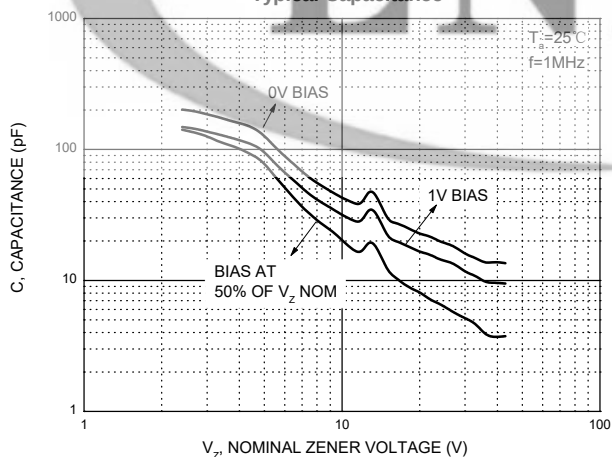
Temperature Coefficients



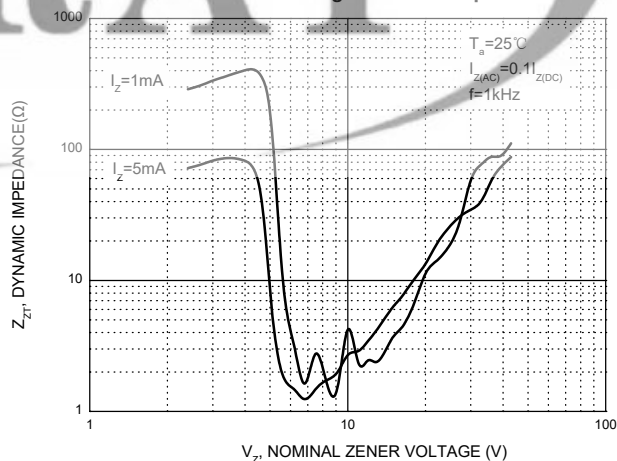
Typical Leakage Current



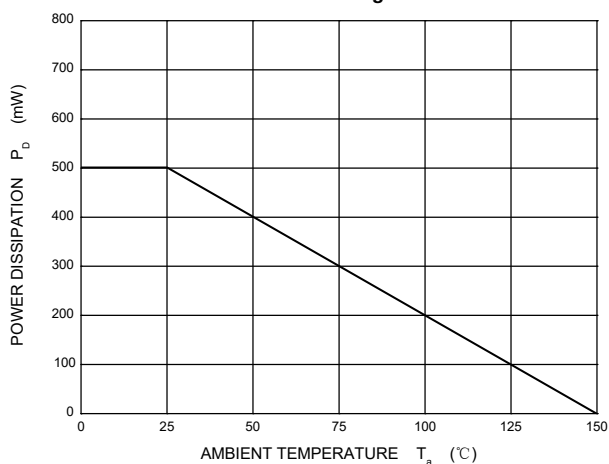
Typical Capacitance



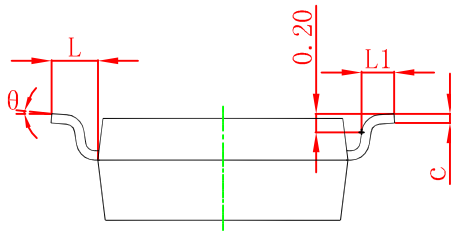
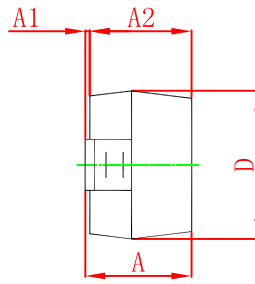
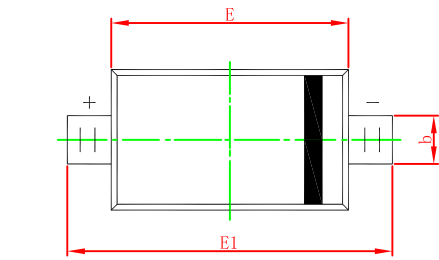
Effect of Zener Voltage on Zener Impedance



Power Derating Curve

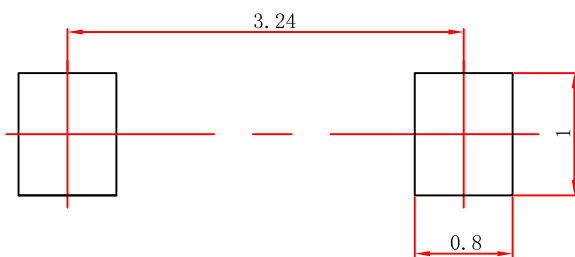


## SOD-123 Package Outline Dimensions



| 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°    |

## SOD-123 Suggested Pad Layout



### Note:

1. Controlling dimension: in millimeters.
2. General tolerance:  $\pm 0.05\text{mm}$ .
3. The pad layout is for reference purposes only.