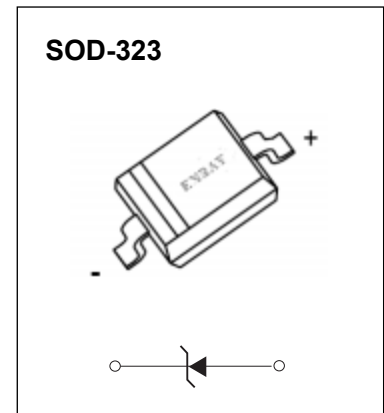


## BZT52C2V4S-BZT52C43S ZENER DIODE

### FEATURES

- Planar die construction
- 200mW power dissipation on ceramic PBC
- General purpose, medium current
- Ideally suited for automated assembly processes
- Available in lead free version



### Marking:



XX= Device code, see table on page2 the marking code

The marking bar indicates the cathode

### Maximum Ratings (T<sub>a</sub>=25°C unless otherwise specified )

| Characteristic                                   | Symbol                            | Value    | Unit |
|--------------------------------------------------|-----------------------------------|----------|------|
| Forward Voltage (Note 2) @ I <sub>F</sub> = 10mA | V <sub>F</sub>                    | 0.9      | V    |
| Power Dissipation(Note 1)                        | P <sub>D</sub>                    | 200      | mW   |
| Thermal Resistance from Junction to Ambient      | R <sub>θJA</sub>                  | 625      | °C/W |
| Operation Junction and Storage Temperature Range | T <sub>J</sub> , T <sub>stg</sub> | -55~+150 | °C   |

## ELECTRICAL CHARACTERISTICS

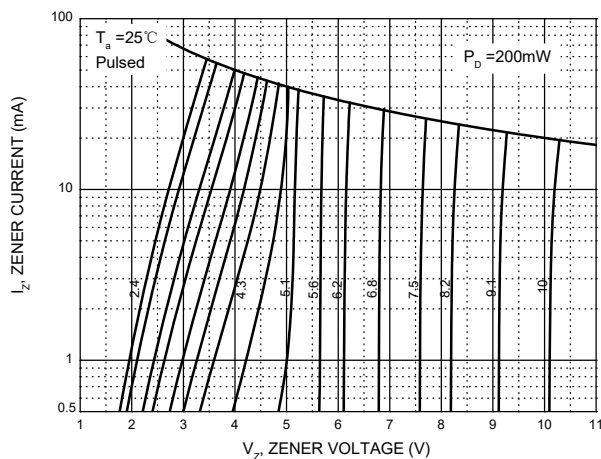
$T_a=25^{\circ}\text{C}$  unless otherwise specified

| TYPE       | Marking | Zener Voltage Range (Note 2) |        |        |          | Maximum Zener Impedance (Note 3) |                 |          | Maximum Reverse Current (Note 2) |       | Typical Temperature Coefficient @ $I_{ZTC}$ mV/°C |      | Test Current $I_{ZTC}$ |
|------------|---------|------------------------------|--------|--------|----------|----------------------------------|-----------------|----------|----------------------------------|-------|---------------------------------------------------|------|------------------------|
|            |         | $V_Z@I_{ZT}$                 |        |        | $I_{ZT}$ | $Z_{ZT}@I_{ZT}$                  | $Z_{ZK}@I_{ZK}$ | $I_{ZK}$ | $I_R$                            | $V_R$ |                                                   |      |                        |
|            |         | Nom(V)                       | Min(V) | Max(V) | (mA)     | $\Omega$                         | (mA)            | (mA)     | $\mu\text{A}$                    | V     | Min                                               | Max  | mA                     |
| BZT52C2V4S | WX      | 2.4                          | 2.20   | 2.60   | 5        | 100                              | 600             | 1.0      | 50                               | 1.0   | -3.5                                              | 0    | 5                      |
| BZT52C2V7S | W1      | 2.7                          | 2.5    | 2.9    | 5        | 100                              | 600             | 1.0      | 20                               | 1.0   | -3.5                                              | 0    | 5                      |
| BZT52C3V0S | W2      | 3.0                          | 2.8    | 3.2    | 5        | 95                               | 600             | 1.0      | 10                               | 1.0   | -3.5                                              | 0    | 5                      |
| BZT52C3V3S | W3      | 3.3                          | 3.1    | 3.5    | 5        | 95                               | 600             | 1.0      | 5                                | 1.0   | -3.5                                              | 0    | 5                      |
| BZT52C3V6S | W4      | 3.6                          | 3.4    | 3.8    | 5        | 90                               | 600             | 1.0      | 5                                | 1.0   | -3.5                                              | 0    | 5                      |
| BZT52C3V9S | W5      | 3.9                          | 3.7    | 4.1    | 5        | 90                               | 600             | 1.0      | 3                                | 1.0   | -3.5                                              | 0    | 5                      |
| BZT52C4V3S | W6      | 4.3                          | 4.0    | 4.6    | 5        | 90                               | 600             | 1.0      | 3                                | 1.0   | -3.5                                              | 0    | 5                      |
| BZT52C4V7S | W7      | 4.7                          | 4.4    | 5.0    | 5        | 80                               | 500             | 1.0      | 3                                | 2.0   | -3.5                                              | 0.2  | 5                      |
| BZT52C5V1S | W8      | 5.1                          | 4.8    | 5.4    | 5        | 60                               | 480             | 1.0      | 2                                | 2.0   | -2.7                                              | 1.2  | 5                      |
| BZT52C5V6S | W9      | 5.6                          | 5.2    | 6.0    | 5        | 40                               | 400             | 1.0      | 1                                | 2.0   | -2                                                | 2.5  | 5                      |
| BZT52C6V2S | WA      | 6.2                          | 5.8    | 6.6    | 5        | 10                               | 150             | 1.0      | 3                                | 4.0   | 0.4                                               | 3.7  | 5                      |
| BZT52C6V8S | WB      | 6.8                          | 6.4    | 7.2    | 5        | 15                               | 80              | 1.0      | 2                                | 4.0   | 1.2                                               | 4.5  | 5                      |
| BZT52C7V5S | WC      | 7.5                          | 7.0    | 7.9    | 5        | 15                               | 80              | 1.0      | 1                                | 5.0   | 2.5                                               | 5.3  | 5                      |
| BZT52C8V2S | WD      | 8.2                          | 7.7    | 8.7    | 5        | 15                               | 80              | 1.0      | 0.7                              | 5.0   | 3.2                                               | 6.2  | 5                      |
| BZT52C9V1S | WE      | 9.1                          | 8.5    | 9.6    | 5        | 15                               | 100             | 1.0      | 0.5                              | 6.0   | 3.8                                               | 7.0  | 5                      |
| BZT52C10S  | WF      | 10                           | 9.4    | 10.6   | 5        | 20                               | 150             | 1.0      | 0.2                              | 7.0   | 4.5                                               | 8.0  | 5                      |
| BZT52C11S  | WG      | 11                           | 10.4   | 11.6   | 5        | 20                               | 150             | 1.0      | 0.1                              | 8.0   | 5.4                                               | 9.0  | 5                      |
| BZT52C12S  | WH      | 12                           | 11.4   | 12.7   | 5        | 25                               | 150             | 1.0      | 0.1                              | 8.0   | 6.0                                               | 10.0 | 5                      |
| BZT52C13S  | WI      | 13                           | 12.4   | 14.1   | 5        | 30                               | 170             | 1.0      | 0.1                              | 8.0   | 7.0                                               | 11.0 | 5                      |
| BZT52C15S  | WJ      | 15                           | 13.8   | 15.6   | 5        | 30                               | 200             | 1.0      | 0.1                              | 10.5  | 9.2                                               | 13   | 5                      |
| BZT52C16S  | WK      | 16                           | 15.3   | 17.1   | 5        | 40                               | 200             | 1.0      | 0.1                              | 11.2  | 10.4                                              | 14   | 5                      |
| BZT52C18S  | WL      | 18                           | 16.8   | 19.1   | 5        | 45                               | 225             | 1.0      | 0.1                              | 12.6  | 12.4                                              | 16   | 5                      |
| BZT52C20S  | WM      | 20                           | 18.8   | 21.2   | 5        | 55                               | 225             | 1.0      | 0.1                              | 14.0  | 14.4                                              | 18.0 | 5                      |
| BZT52C22S  | WN      | 22                           | 20.8   | 23.3   | 5        | 55                               | 250             | 1.0      | 0.1                              | 15.4  | 16.4                                              | 20.0 | 5                      |
| BZT52C24S  | WO      | 24                           | 22.8   | 25.6   | 5        | 70                               | 250             | 1.0      | 0.1                              | 16.8  | 18.4                                              | 22.0 | 5                      |
| BZT52C27S  | WP      | 27                           | 25.1   | 28.9   | 2        | 80                               | 300             | 0.5      | 0.1                              | 18.9  | 21.4                                              | 25.3 | 2                      |
| BZT52C30S  | WQ      | 30                           | 28.0   | 32.0   | 2        | 80                               | 300             | 0.5      | 0.1                              | 21.0  | 24.4                                              | 29.4 | 2                      |
| BZT52C33S  | WR      | 33                           | 31.0   | 35.0   | 2        | 80                               | 325             | 0.5      | 0.1                              | 23.1  | 27.4                                              | 33.4 | 2                      |
| BZT52C36S  | WS      | 36                           | 34.0   | 38.0   | 2        | 90                               | 350             | 0.5      | 0.1                              | 25.2  | 30.4                                              | 37.4 | 2                      |
| BZT52C39S  | WT      | 39                           | 37.0   | 41.0   | 2        | 130                              | 350             | 0.5      | 0.1                              | 27.3  | 33.4                                              | 41.2 | 2                      |
| BZT52C43S  | WU      | 43                           | 40.0   | 46.0   | 2        | 100                              | 700             | 1        | 0.1                              | 32    | 10                                                | 12   | 5                      |

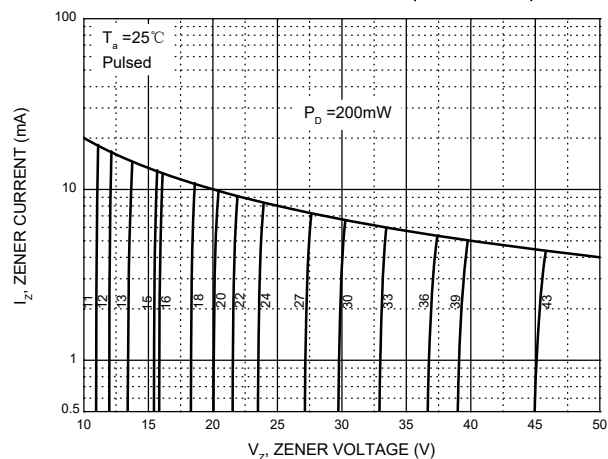
Notes: 1. Device mounted on ceramic PCB: 7.6mm x 9.4mm x 0.87mm with pad areas 25mm<sup>2</sup>.  
 2. Short duration test pulse used to minimize self-heating effect.  
 3. f = 1kHz.

## Typical Characteristics

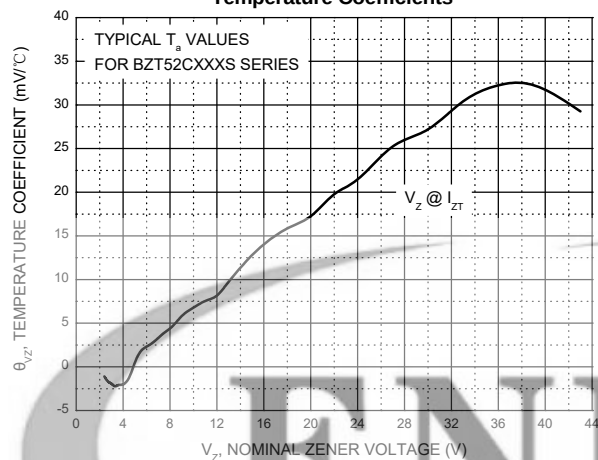
Zener Characteristics ( $V_z$  Up to 10 V)



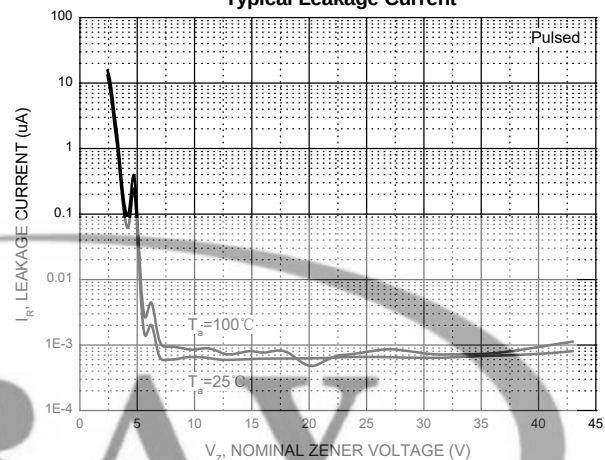
Zener Characteristics (11 V to 43 V)



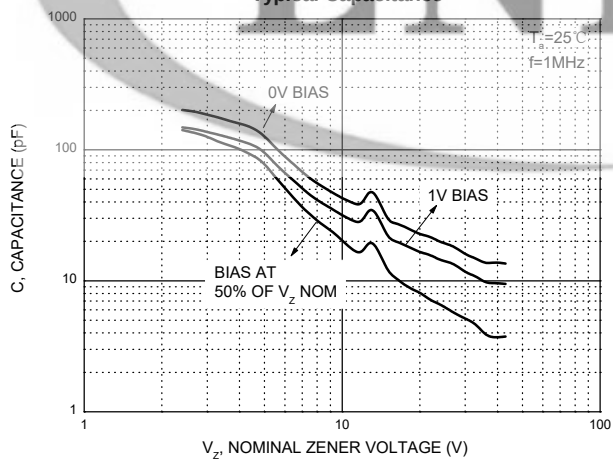
Temperature Coefficients



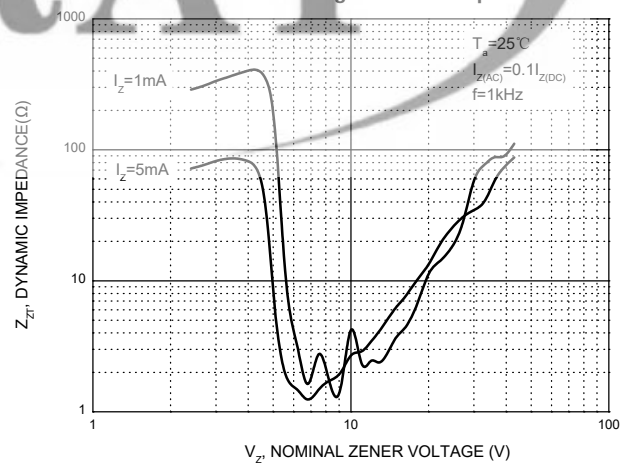
Typical Leakage Current



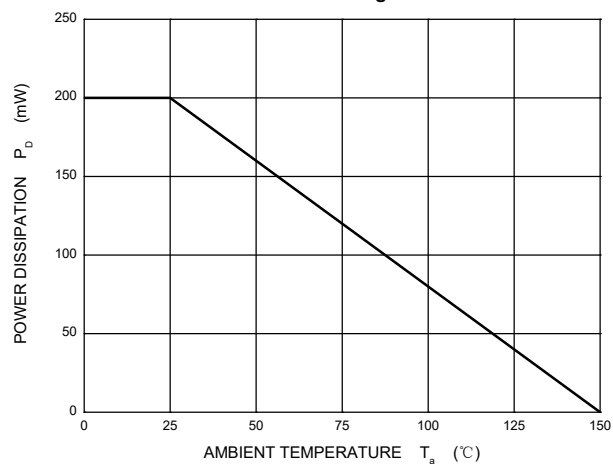
Typical Capacitance



Effect of Zener Voltage on Zener Impedance

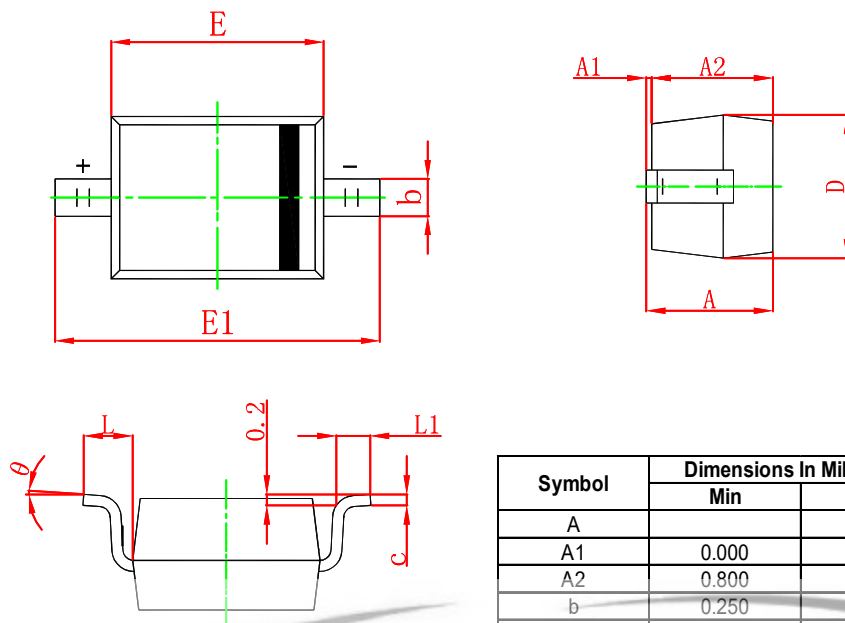


Power Derating Curve



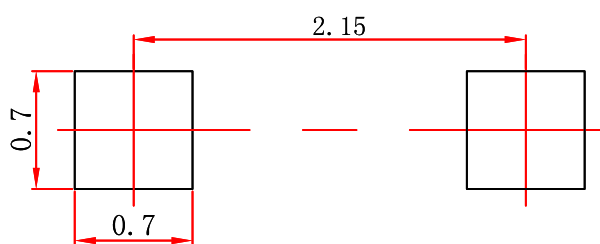
## PACKAGE OUTLINE AND PAD LAYOUT INFORMATION

### SOD-323 Package Outline Dimensions



| Symbol | Dimensions In Millimeters |       | Dimensions In Inches |       |
|--------|---------------------------|-------|----------------------|-------|
|        | Min                       | Max   | Min                  | Max   |
| A      |                           | 1.100 |                      | 0.043 |
| A1     | 0.000                     | 0.100 | 0.000                | 0.004 |
| A2     | 0.800                     | 1.000 | 0.031                | 0.039 |
| b      | 0.250                     | 0.350 | 0.010                | 0.014 |
| c      | 0.080                     | 0.150 | 0.003                | 0.006 |
| D      | 1.200                     | 1.400 | 0.047                | 0.055 |
| E      | 1.600                     | 1.800 | 0.063                | 0.071 |
| E1     | 2.500                     | 2.750 | 0.098                | 0.108 |
| L      | 0.475 REF                 |       | 0.019 REF            |       |
| L1     | 0.250                     | 0.400 | 0.010                | 0.016 |
| θ      | 0°                        | 8°    | 0°                   | 8°    |

### SOD-323 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.