

**FEATURES**

- Planar Die Construction
- General Purpose, Medium Current
- Ideally Suited for Automated Assembly Processes
- Available in Lead Free Version

**Maximum Ratings(Ta=25℃ 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   |

Notes: 1. Mounted on 1 in<sup>2</sup> FR-4 board with 2oz. Copper, in a still air environment with Ta=25 °C.  
2. Short duration test pulse used to minimize self-heating effect



## ZENER DIODE

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

| Type Number | Type Code | Zener Voltage Range (Note 2) |        |        |          | Maximum Zener Impedance (Note 3) |                 |          | Maximum Reverse Current |       | Typical Temperature Coefficient @ $I_{ZTC}$ |      | 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/ $^\circ\text{C}$                        |      |                        |
|             |           | Nom(V)                       | Min(V) | Max(V) | mA       | $\Omega$                         |                 | mA       | $\mu\text{A}$           | V     | Min   | Max  |                        |
| BZT52B2V4S  | 2WX       | 2.4                          | 2.35   | 2.45   | 5        | 100                              | 600             | 1.0      | 50                      | 1.0   | -3.5  | 0    | 5                      |
| BZT52B2V7S  | 2W1       | 2.7                          | 2.65   | 2.75   | 5        | 100                              | 600             | 1.0      | 20                      | 1.0   | -3.5  | 0    | 5                      |
| BZT52B3V0S  | 2W2       | 3.0                          | 2.94   | 3.06   | 5        | 95                               | 600             | 1.0      | 10                      | 1.0   | -3.5  | 0    | 5                      |
| BZT52B3V3S  | 2W3       | 3.3                          | 3.23   | 3.37   | 5        | 95                               | 600             | 1.0      | 5                       | 1.0   | -3.5  | 0    | 5                      |
| BZT52B3V6S  | 2W4       | 3.6                          | 3.53   | 3.67   | 5        | 90                               | 600             | 1.0      | 5                       | 1.0   | -3.5  | 0    | 5                      |
| BZT52B3V9S  | 2W5       | 3.9                          | 3.82   | 3.98   | 5        | 90                               | 600             | 1.0      | 3                       | 1.0   | -3.5  | 0    | 5                      |
| BZT52B4V3S  | 2W6       | 4.3                          | 4.21   | 4.39   | 5        | 90                               | 600             | 1.0      | 3                       | 1.0   | -3.5  | 0    | 5                      |
| BZT52B4V7S  | 2W7       | 4.7                          | 4.61   | 4.79   | 5        | 80                               | 500             | 1.0      | 3                       | 2.0   | -3.5  | 0.2  | 5                      |
| BZT52B5V1S  | 2W8       | 5.1                          | 5.00   | 5.20   | 5        | 60                               | 480             | 1.0      | 2                       | 2.0   | -2.7  | 1.2  | 5                      |
| BZT52B5V6S  | 2W9       | 5.6                          | 5.49   | 5.71   | 5        | 40                               | 400             | 1.0      | 1                       | 2.0   | -2.0  | 2.5  | 5                      |
| BZT52B6V2S  | 2WA       | 6.2                          | 6.08   | 6.32   | 5        | 10                               | 150             | 1.0      | 3                       | 4.0   | 0.4   | 3.7  | 5                      |
| BZT52B6V8S  | 2WB       | 6.8                          | 6.66   | 6.94   | 5        | 15                               | 80              | 1.0      | 2                       | 4.0   | 1.2   | 4.5  | 5                      |
| BZT52B7V5S  | 2WC       | 7.5                          | 7.35   | 7.65   | 5        | 15                               | 80              | 1.0      | 1                       | 5.0   | 2.5   | 5.3  | 5                      |
| BZT52B8V2S  | 2WD       | 8.2                          | 8.04   | 8.36   | 5        | 15                               | 80              | 1.0      | 0.7                     | 5.0   | 3.2   | 6.2  | 5                      |
| BZT52B9V1S  | 2WE       | 9.1                          | 8.92   | 9.28   | 5        | 15                               | 100             | 1.0      | 0.5                     | 6.0   | 3.8   | 7.0  | 5                      |
| BZT52B10S   | 2WF       | 10                           | 9.80   | 10.20  | 5        | 20                               | 150             | 1.0      | 0.2                     | 7.0   | 4.5   | 8.0  | 5                      |
| BZT52B11S   | 2WG       | 11                           | 10.78  | 11.22  | 5        | 20                               | 150             | 1.0      | 0.1                     | 8.0   | 5.4   | 9.0  | 5                      |
| BZT52B12S   | 2WH       | 12                           | 11.76  | 12.24  | 5        | 25                               | 150             | 1.0      | 0.1                     | 8.0   | 6.0   | 10.0 | 5                      |
| BZT52B13S   | 2WI       | 13                           | 12.74  | 13.26  | 5        | 30                               | 170             | 1.0      | 0.1                     | 8.0   | 7.0   | 11.0 | 5                      |
| BZT52B15S   | 2WJ       | 15                           | 14.70  | 15.30  | 5        | 30                               | 200             | 1.0      | 0.1                     | 10.5  | 9.2   | 13.0 | 5                      |
| BZT52B16S   | 2WK       | 16                           | 15.68  | 16.32  | 5        | 40                               | 200             | 1.0      | 0.1                     | 11.2  | 10.4  | 14.0 | 5                      |
| BZT52B18S   | 2WL       | 18                           | 17.64  | 18.36  | 5        | 45                               | 225             | 1.0      | 0.1                     | 12.6  | 12.4  | 16.0 | 5                      |
| BZT52B20S   | 2WM       | 20                           | 19.60  | 20.40  | 5        | 55                               | 225             | 1.0      | 0.1                     | 14.0  | 14.4  | 18.0 | 5                      |
| BZT52B22S   | 2WN       | 22                           | 21.56  | 22.44  | 5        | 55                               | 250             | 1.0      | 0.1                     | 15.4  | 16.4  | 20.0 | 5                      |
| BZT52B24S   | 2WO       | 24                           | 23.52  | 24.48  | 5        | 70                               | 250             | 1.0      | 0.1                     | 16.8  | 18.4  | 22.0 | 5                      |
| BZT52B27S   | 2WP       | 27                           | 26.46  | 27.54  | 2        | 80                               | 300             | 0.5      | 0.1                     | 18.9  | 21.4  | 25.3 | 2                      |
| BZT52B30S   | 2WQ       | 30                           | 29.40  | 30.60  | 2        | 80                               | 300             | 0.5      | 0.1                     | 21.0  | 24.4  | 29.4 | 2                      |
| BZT52B33S   | 2WR       | 33                           | 32.34  | 33.66  | 2        | 80                               | 325             | 0.5      | 0.1                     | 23.1  | 27.4  | 33.4 | 2                      |
| BZT52B36S   | 2WS       | 36                           | 35.28  | 36.72  | 2        | 90                               | 350             | 0.5      | 0.1                     | 25.2  | 30.4  | 37.4 | 2                      |
| BZT52B39S   | 2WT       | 39                           | 38.22  | 39.78  | 2        | 130                              | 350             | 0.5      | 0.1                     | 27.3  | 33.4  | 41.2 | 2                      |
| BZT52B43S   | 2WU       | 43                           | 41.16  | 43.84  | 2        | 130                              | 350             | 0.5      | 0.1                     | 29.4  | 36.4  | 45.2 | 2                      |

Notes: 1. Mounted on 1 in<sup>2</sup> FR-4 board with 2oz. Copper, in a still air environment with  $T_a=25^\circ\text{C}$ .

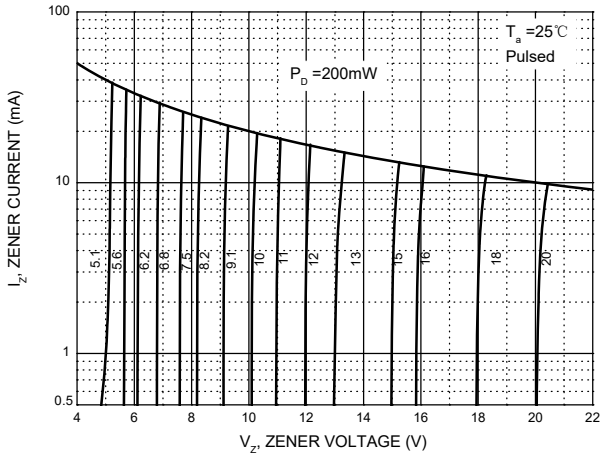
2. Short duration test pulse used to minimize self-heating effect

3.  $f = 1\text{kHz}$

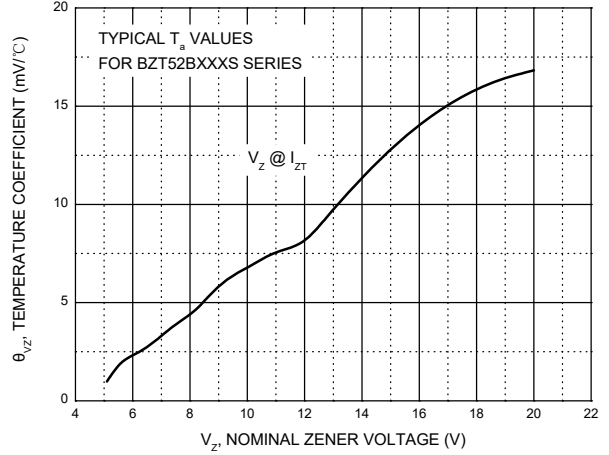


Typical Characteristics

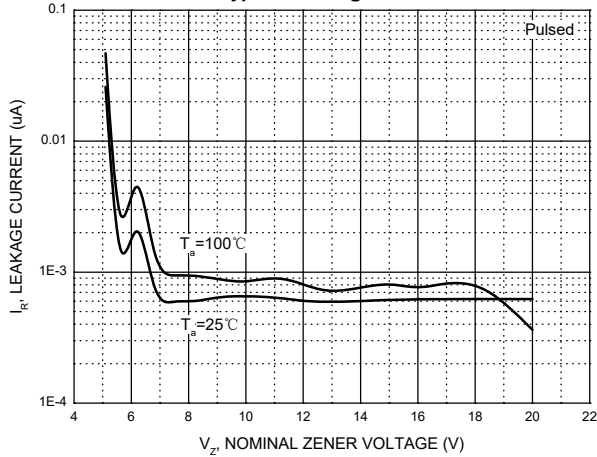
Zener Characteristics ( $V_z$  5.1V to 20 V)



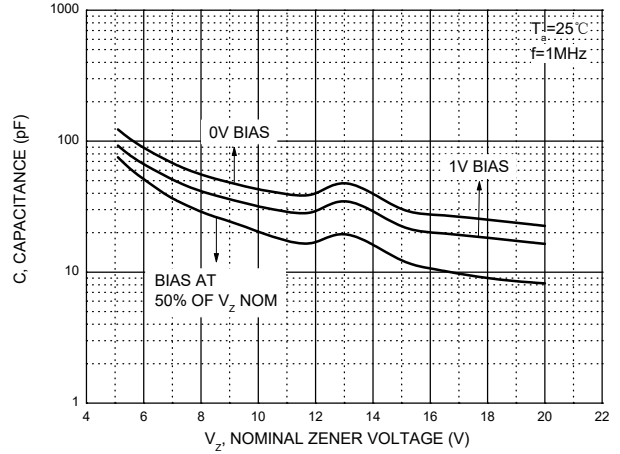
Temperature Coefficients



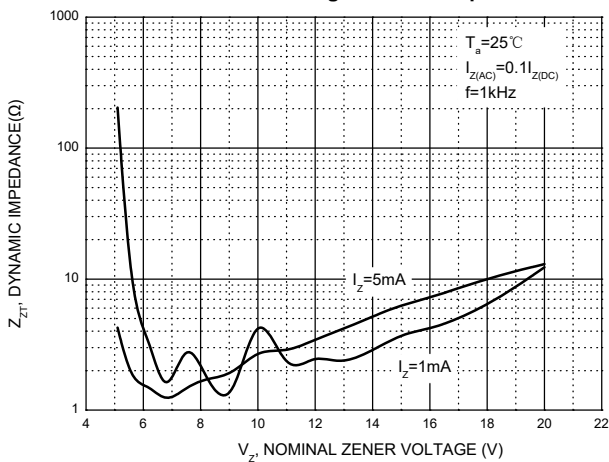
Typical Leakage Current



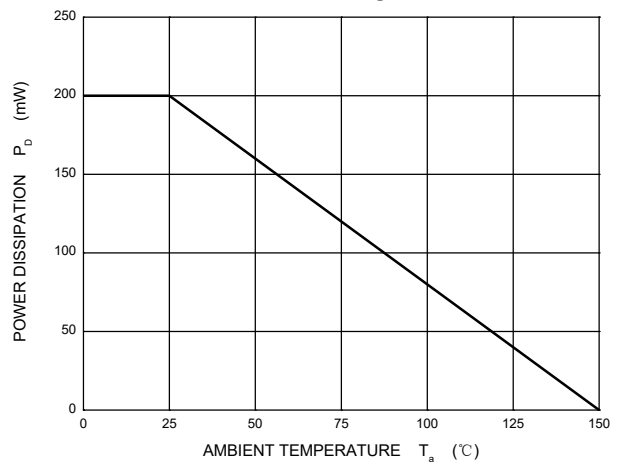
Typical Capacitance



Effect of Zener Voltage on Zener Impedance

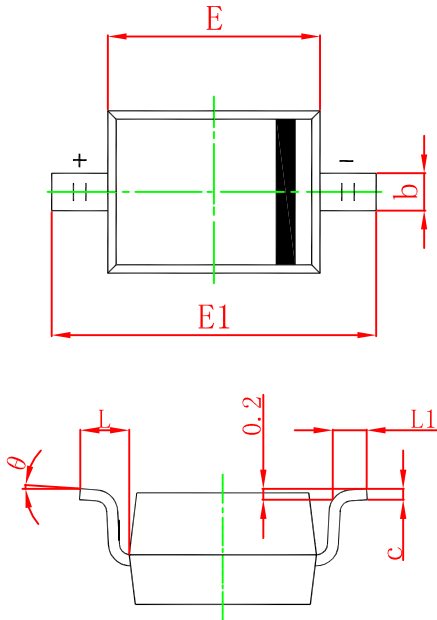


Power Derating Curve



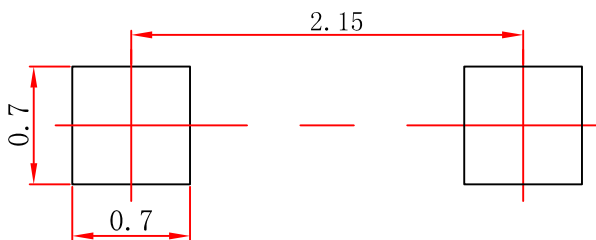


SOD-323 Package Outline Dimensions



| 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.

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