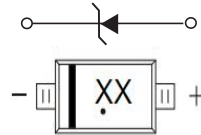


**SOD-323**



## FEATURE

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

## Maximum Ratings(Ta=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<sub>a</sub>=25℃ unless otherwise specified

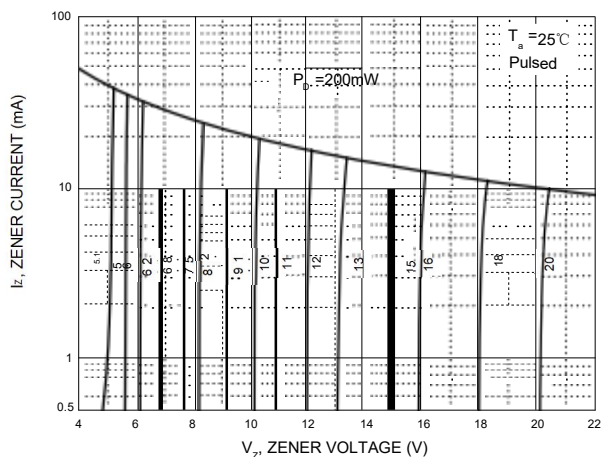
| Part Number | Marking | Zener Voltage Range             |        |        |                 | Zener Impedance                  |                                  |                 | Reverse Current |                | Temperature Coefficient |      | Test Current     |
|-------------|---------|---------------------------------|--------|--------|-----------------|----------------------------------|----------------------------------|-----------------|-----------------|----------------|-------------------------|------|------------------|
|             |         | 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> | @I <sub>ZTC</sub> mV/°C |      | I <sub>ZTC</sub> |
|             |         | Nom(V)                          | Min(V) | Max(V) | mA              | Ω                                |                                  | mA              | μA              | V              | Min                     | Max  | mA               |
| 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                |

- 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.

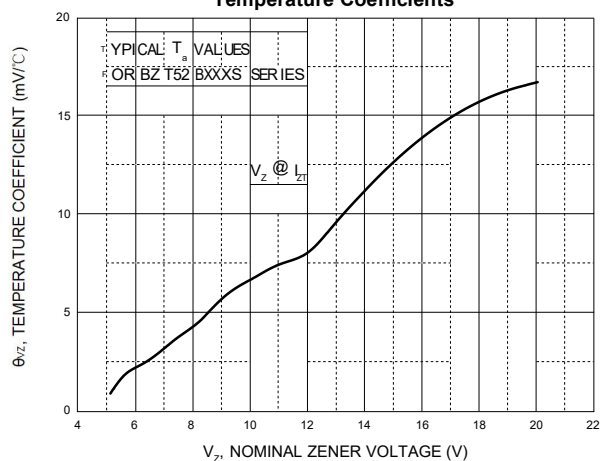
## Typical Characteristics

Notes: Our company currently provide 5.1 V - 20 V products only

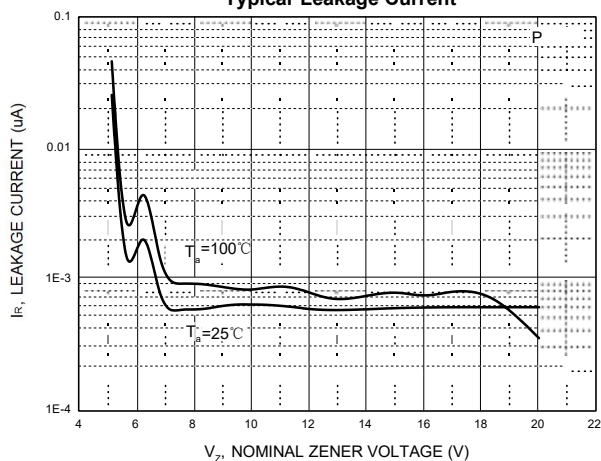
**Zener Characteristics ( $V_z$  5.1V to 20 V)**



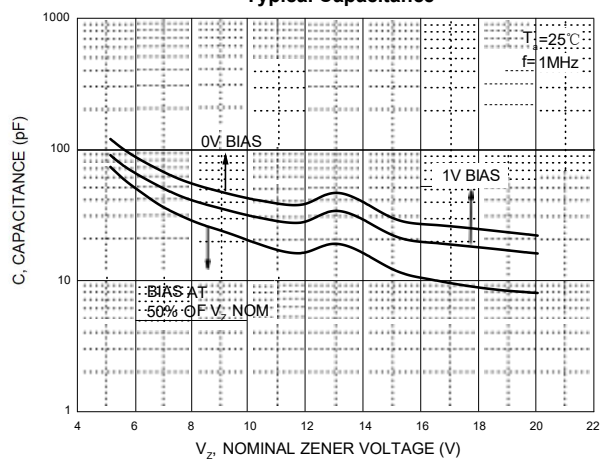
**Temperature Coefficients**



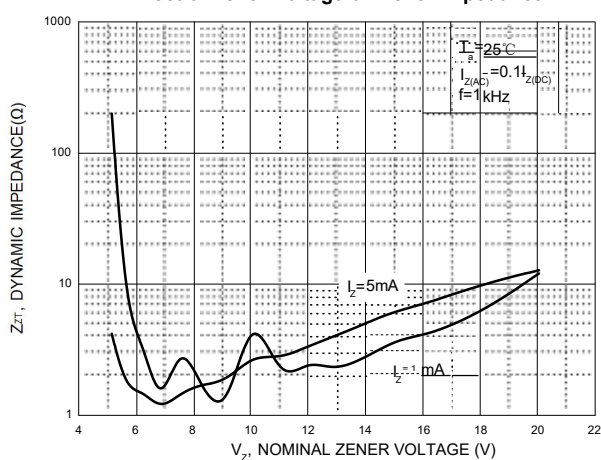
**Typical Leakage Current**



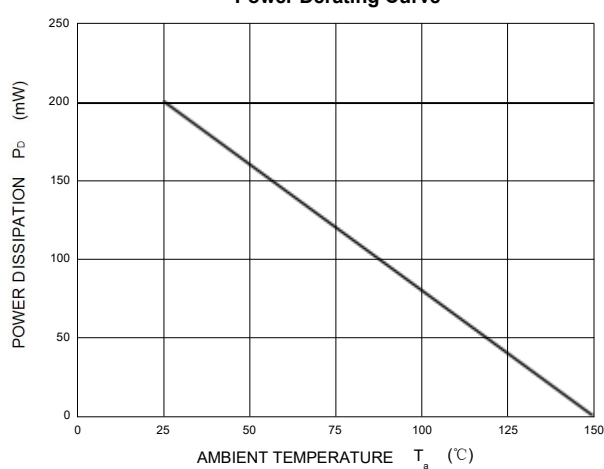
**Typical Capacitance**



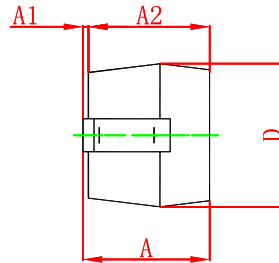
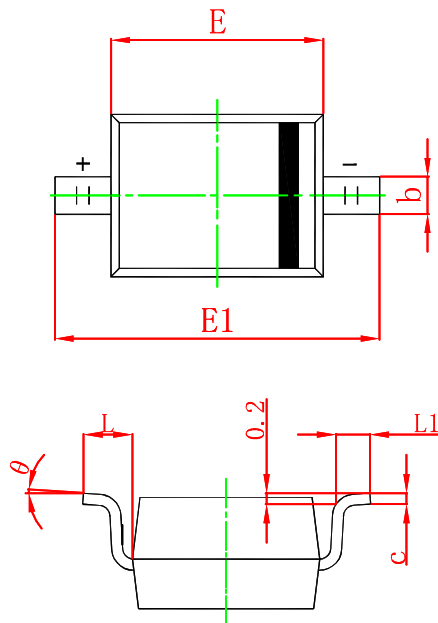
**Effect of Zener Voltage on Zener Impedance**



**Power Derating Curve**

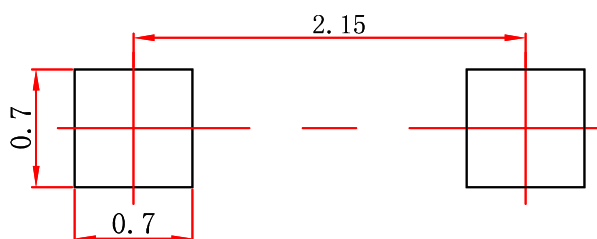


## SOD-323 Package Outline Dimensions



| 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.