

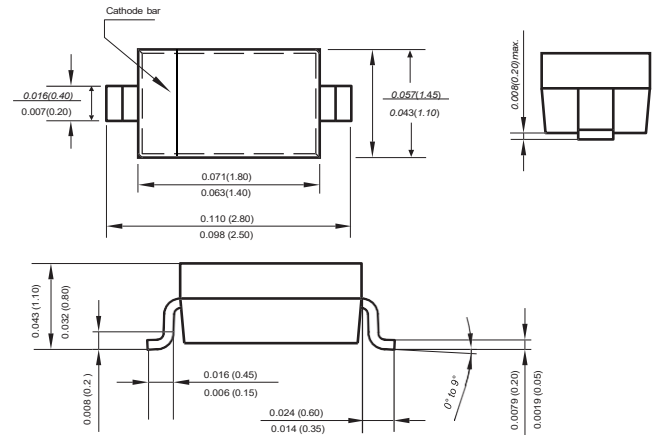
## SOD-323 Plastic-Encapsulate Diodes

### BZT52C2V0S-BZT52C75S ZENER DIODE

### SOD-323

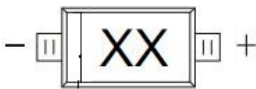
#### FEATURES

- Planar die construction.
- Total power dissipation: Max. 300mW Wide
- zener reverse voltage range 2.0V to 75V.
- General purpose, medium current .
- Small plastic package suitable for surface mounted design.
- Tolerance approximately  $\pm 5\%$



Dimensions in inches and (millimeters)

#### Marking



XX= Device code, see table on page 2 the marking code

The marking bar indicates the cathode

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

| Characteristic                                              | Symbol          | Value      | Unit               |
|-------------------------------------------------------------|-----------------|------------|--------------------|
| Forward Voltage at $I_F = 10\text{mA}$ (Note 2)             | $V_F$           | 0.9        | V                  |
| Power Dissipation(Note 1)                                   | $P_d$           | 200        | mW                 |
| Typical thermal resistance from junction to ambient(Note 1) | $R_{\theta JA}$ | 417        | $^\circ\text{C/W}$ |
| Junction Temperature                                        | $T_J$           | 150        | $^\circ\text{C}$   |
| Storage Temperature Range                                   | $T_{stg}$       | -55 ~ +150 | $^\circ\text{C}$   |

Notes: 1. Thermal resistance from junction to ambient at P.C.B. mounted with 2.0" X 2.0" (5 X 5 cm) copper areas pads.

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

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

## ELECTRICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

| Type       | Marking | Zener Voltage Range <sup>(1)</sup>    |         |         |                 | Dynamic Impedance                     | Reverse Current |                   |
|------------|---------|---------------------------------------|---------|---------|-----------------|---------------------------------------|-----------------|-------------------|
|            |         | V <sub>ZT</sub> (at I <sub>ZT</sub> ) |         |         | I <sub>ZT</sub> | Z <sub>ZT</sub> (at I <sub>ZT</sub> ) | I <sub>R</sub>  | at V <sub>R</sub> |
|            |         | Min (V)                               | Nom (V) | Max (V) | (mA)            | Max (Ω)                               | Max (μA)        | (V)               |
| BZT52C2V0S | WY      | 1.8                                   | 2       | 2.15    | 5               | 100                                   | 120             | 0.5               |
| BZT52C2V2S | WZ      | 2.08                                  | 2.2     | 2.33    | 5               | 100                                   | 120             | 0.7               |
| BZT52C2V4S | WX      | 2.28                                  | 2.4     | 2.56    | 5               | 100                                   | 120             | 1                 |
| BZT52C2V7S | W1      | 2.5                                   | 2.7     | 2.9     | 5               | 110                                   | 120             | 1                 |
| BZT52C3V0S | W2      | 2.8                                   | 3       | 3.2     | 5               | 120                                   | 50              | 1                 |
| BZT52C3V3S | W3      | 3.1                                   | 3.3     | 3.5     | 5               | 130                                   | 20              | 1                 |
| BZT52C3V6S | W4      | 3.4                                   | 3.6     | 3.8     | 5               | 130                                   | 10              | 1                 |
| BZT52C3V9S | W5      | 3.7                                   | 3.9     | 4.1     | 5               | 130                                   | 5               | 1                 |
| BZT52C4V3S | W6      | 4                                     | 4.3     | 4.6     | 5               | 130                                   | 5               | 1                 |
| BZT52C4V7S | W7      | 4.4                                   | 4.7     | 5       | 5               | 130                                   | 2               | 1                 |
| BZT52C5V1S | W8      | 4.8                                   | 5.1     | 5.4     | 5               | 130                                   | 2               | 1.5               |
| BZT52C5V6S | W9      | 5.2                                   | 5.6     | 6       | 5               | 80                                    | 1               | 2.5               |
| BZT52C6V2S | WA      | 5.8                                   | 6.2     | 6.6     | 5               | 50                                    | 1               | 3                 |
| BZT52C6V8S | WB      | 6.4                                   | 6.8     | 7.2     | 5               | 30                                    | 0.5             | 3.5               |
| BZT52C7V5S | WC      | 7                                     | 7.5     | 7.9     | 5               | 30                                    | 0.5             | 4                 |
| BZT52C8V2S | WD      | 7.7                                   | 8.2     | 8.7     | 5               | 30                                    | 0.5             | 5                 |
| BZT52C9V1S | WE      | 8.5                                   | 9.1     | 9.6     | 5               | 30                                    | 0.5             | 6                 |
| BZT52C10S  | WF      | 9.4                                   | 10      | 10.6    | 5               | 30                                    | 0.1             | 7                 |
| BZT52C11S  | WG      | 10.4                                  | 11      | 11.6    | 5               | 30                                    | 0.1             | 8                 |
| BZT52C12S  | WH      | 11.4                                  | 12      | 12.7    | 5               | 35                                    | 0.1             | 9                 |
| BZT52C13S  | WI      | 12.4                                  | 13      | 14.1    | 5               | 35                                    | 0.1             | 10                |
| BZT52C15S  | WJ      | 13.8                                  | 15      | 15.6    | 5               | 40                                    | 0.1             | 11                |
| BZT52C16S  | WK      | 15.3                                  | 16      | 17.1    | 5               | 40                                    | 0.1             | 12                |
| BZT52C18S  | WL      | 16.8                                  | 18      | 19.1    | 5               | 45                                    | 0.1             | 13                |
| BZT52C20S  | WM      | 18.8                                  | 20      | 21.2    | 5               | 50                                    | 0.1             | 15                |
| BZT52C22S  | WN      | 20.8                                  | 22      | 23.3    | 5               | 55                                    | 0.1             | 17                |
| BZT52C24S  | WO      | 22.8                                  | 24      | 25.6    | 5               | 60                                    | 0.1             | 19                |
| BZT52C27S  | WP      | 25.1                                  | 27      | 28.9    | 2               | 70                                    | 0.1             | 21                |
| BZT52C30S  | WQ      | 28                                    | 30      | 32      | 2               | 80                                    | 0.1             | 23                |
| BZT52C33S  | WR      | 31                                    | 33      | 35      | 2               | 80                                    | 0.1             | 25                |
| BZT52C36S  | WS      | 34                                    | 36      | 38      | 2               | 90                                    | 0.1             | 27                |
| BZT52C39S  | WT      | 37                                    | 39      | 41      | 2               | 100                                   | 0.1             | 30                |
| BZT52C43S  | WU      | 40                                    | 43      | 46      | 2               | 130                                   | 0.1             | 33                |
| BZT52C47S  | WV      | 44                                    | 47      | 50      | 2               | 150                                   | 0.1             | 36                |
| BZT52C51S  | WW      | 48                                    | 51      | 54      | 2               | 180                                   | 0.1             | 39                |
| BZT52C56S  | XW      | 52                                    | 56      | 60      | 2               | 200                                   | 0.1             | 43                |
| BZT52C62S  | 6E      | 58                                    | 62      | 66      | 2               | 215                                   | 0.1             | 47                |
| BZT52C68S  | 6F      | 64                                    | 68      | 72      | 2               | 240                                   | 0.1             | 52                |
| BZT52C75S  | 6H      | 70                                    | 75      | 79      | 2               | 265                                   | 0.1             | 56                |

(1) V<sub>ZT</sub> is tested with pulses (20 ms)

## Typical Characteristics



Fig. 1 - Forward characteristics



Fig. 2 - Admissible Power Dissipation vs. Ambient Temperature



Fig. 3 - Dynamic Resistance vs. Zener Current

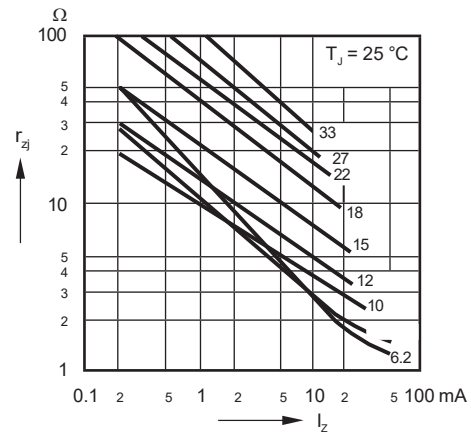


Fig. 4 - Dynamic Resistance vs. Zener Current



Fig. 5 - Dynamic Resistance vs. Zener Current

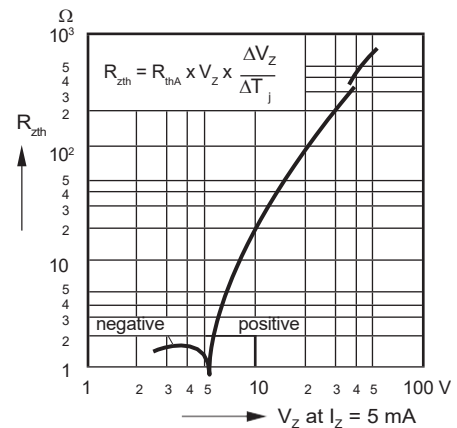


Fig. 6 - Thermal Differential Resistance vs. Zener Voltage

## Typical Characteristics



Fig. 7 - Dynamic Resistance vs. Zener Voltage



Fig. 8 - Temperature Dependence of Zener Voltage vs. Zener Voltage

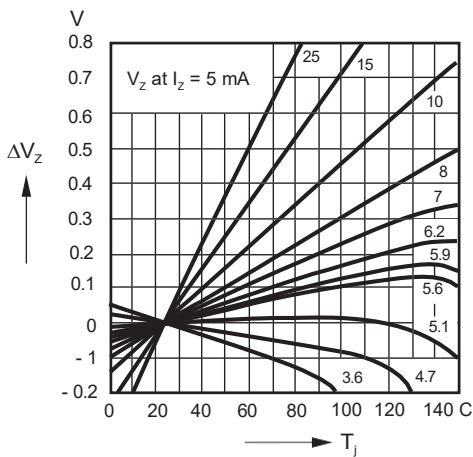


Fig. 9 - Change of Zener Voltage vs. Junction Temperature



Fig. 10 - Change of Zener Voltage vs. Junction Temperature

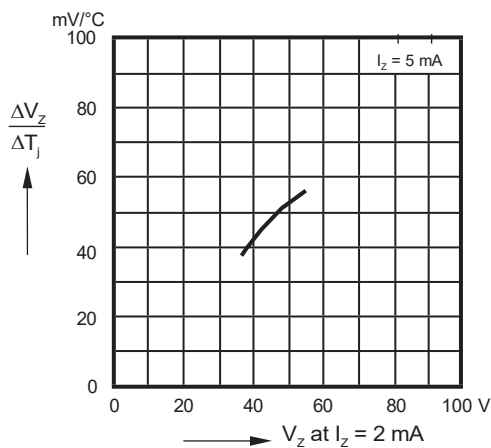


Fig. 11 - Temperature Dependence of Zener Voltage vs. Zener Voltage

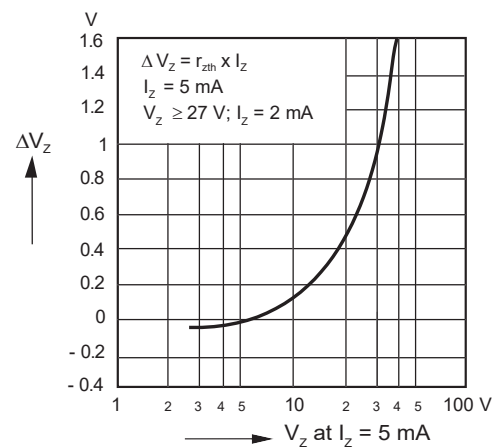


Fig. 12 - Change of Zener Voltage from Turn-on up to the Point of Thermal Equilibrium vs. Zener Voltage

## Typical Characteristics



Fig. 13 - Change of Zener Voltage from Turn-on up to the Point of Thermal Equilibrium vs. Zener Voltage

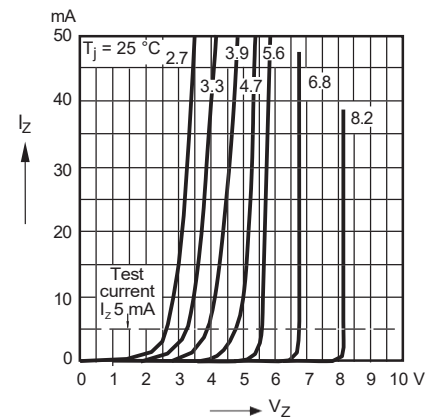


Fig. 14 - Breakdown Characteristics



Fig. 15 - Breakdown Characteristics



Fig. 16 - Breakdown Characteristics

The curve above is for reference only.