

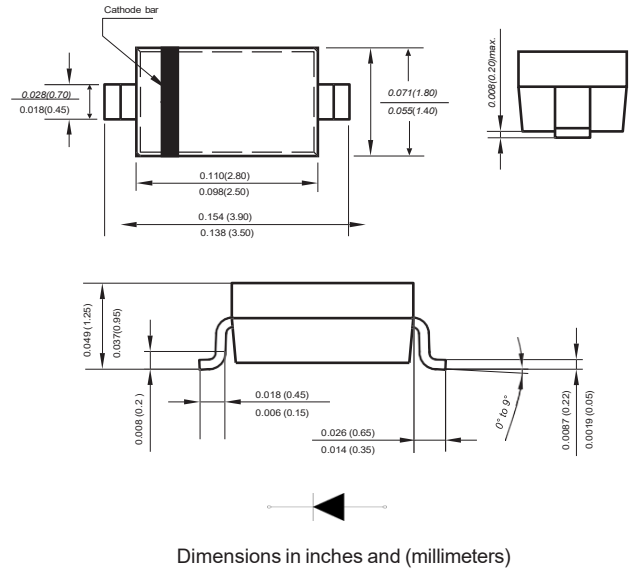
## SOD-123 Plastic-Encapsulate Diodes

### BZT52B2V0-BZT52B75 ZENER DIODE

### SOD-123

#### FEATURES

- Total power dissipation: Max. 500mW
- Wide zener reverse voltage range 2.0V to 75V.
- Small plastic package suitable for surface mounted design.
- Tolerance approximately  $\pm 2\%$



#### 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    | $R_{\theta JA}$ | 340        | $^\circ\text{C}/\text{W}$ |
| 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)               |
| BZT52B2V0 | 2WY     | 1.96                                  | 2       | 2.04    | 5               | 100                                   | 120             | 0.5               |
| BZT52B2V2 | 2WZ     | 2.16                                  | 2.2     | 2.24    | 5               | 100                                   | 120             | 0.7               |
| BZT52B2V4 | 2WX     | 2.35                                  | 2.4     | 2.45    | 5               | 100                                   | 120             | 1                 |
| BZT52B2V7 | 2W1     | 2.65                                  | 2.7     | 2.75    | 5               | 110                                   | 120             | 1                 |
| BZT52B3V0 | 2W2     | 2.94                                  | 3       | 3.06    | 5               | 120                                   | 50              | 1                 |
| BZT52B3V3 | 2W3     | 3.23                                  | 3.3     | 3.37    | 5               | 130                                   | 20              | 1                 |
| BZT52B3V6 | 2W4     | 3.53                                  | 3.6     | 3.67    | 5               | 130                                   | 10              | 1                 |
| BZT52B3V9 | 2W5     | 3.82                                  | 3.9     | 3.98    | 5               | 130                                   | 5               | 1                 |
| BZT52B4V3 | 2W6     | 4.21                                  | 4.3     | 4.39    | 5               | 130                                   | 5               | 1                 |
| BZT52B4V7 | 2W7     | 4.61                                  | 4.7     | 4.79    | 5               | 130                                   | 2               | 1                 |
| BZT52B5V1 | 2W8     | 5                                     | 5.1     | 5.20    | 5               | 130                                   | 2               | 1.5               |
| BZT52B5V6 | 2W9     | 5.49                                  | 5.6     | 5.71    | 5               | 80                                    | 1               | 2.5               |
| BZT52B6V2 | 2WA     | 6.08                                  | 6.2     | 6.32    | 5               | 50                                    | 1               | 3                 |
| BZT52B6V8 | 2WB     | 6.66                                  | 6.8     | 6.94    | 5               | 30                                    | 0.5             | 3.5               |
| BZT52B7V5 | 2WC     | 7.35                                  | 7.5     | 7.65    | 5               | 30                                    | 0.5             | 4                 |
| BZT52B8V2 | 2WD     | 8.04                                  | 8.2     | 8.36    | 5               | 30                                    | 0.5             | 5                 |
| BZT52B9V1 | 2WE     | 8.92                                  | 9.1     | 9.28    | 5               | 30                                    | 0.5             | 6                 |
| BZT52B10  | 2WF     | 9.8                                   | 10      | 10.2    | 5               | 30                                    | 0.1             | 7                 |
| BZT52B11  | 2WG     | 10.78                                 | 11      | 11.22   | 5               | 30                                    | 0.1             | 8                 |
| BZT52B12  | 2WH     | 11.76                                 | 12      | 12.24   | 5               | 35                                    | 0.1             | 9                 |
| BZT52B13  | 2WI     | 12.74                                 | 13      | 13.26   | 5               | 35                                    | 0.1             | 10                |
| BZT52B15  | 2WJ     | 14.7                                  | 15      | 15.3    | 5               | 40                                    | 0.1             | 11                |
| BZT52B16  | 2WK     | 15.68                                 | 16      | 16.32   | 5               | 40                                    | 0.1             | 12                |
| BZT52B18  | 2WL     | 17.64                                 | 18      | 18.36   | 5               | 45                                    | 0.1             | 13                |
| BZT52B20  | 2WM     | 19.6                                  | 20      | 20.4    | 5               | 50                                    | 0.1             | 15                |
| BZT52B22  | 2WN     | 21.56                                 | 22      | 22.44   | 5               | 55                                    | 0.1             | 17                |
| BZT52B24  | 2WO     | 23.52                                 | 24      | 24.48   | 5               | 60                                    | 0.1             | 19                |
| BZT52B27  | 2WP     | 26.46                                 | 27      | 27.54   | 5               | 70                                    | 0.1             | 21                |
| BZT52B30  | 2WQ     | 29.4                                  | 30      | 30.6    | 5               | 80                                    | 0.1             | 23                |
| BZT52B33  | 2WR     | 32.34                                 | 33      | 33.66   | 5               | 80                                    | 0.1             | 25                |
| BZT52B36  | 2WS     | 35.28                                 | 36      | 36.72   | 5               | 90                                    | 0.1             | 27                |
| BZT52B39  | 2WT     | 38.22                                 | 39      | 39.78   | 2.5             | 100                                   | 2               | 30                |
| BZT52B43  | 2WU     | 42.14                                 | 43      | 43.86   | 2.5             | 130                                   | 2               | 33                |
| BZT52B47  | 2WV     | 46.06                                 | 47      | 47.94   | 2.5             | 150                                   | 2               | 36                |
| BZT52B51  | 2WW     | 49.98                                 | 51      | 52.02   | 2.5             | 180                                   | 1               | 39                |
| BZT52B56  | 2X1     | 54.88                                 | 56      | 57.12   | 2.5             | 180                                   | 1               | 43                |
| BZT52B62  | 2X2     | 60.76                                 | 62      | 63.24   | 2.5             | 200                                   | 0.2             | 47                |
| BZT52B68  | 2X3     | 66.64                                 | 68      | 69.36   | 2.5             | 250                                   | 0.2             | 52                |
| BZT52B75  | 2X4     | 73.5                                  | 75      | 76.5    | 2.5             | 300                                   | 0.2             | 57                |

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

## Typical Characteristics

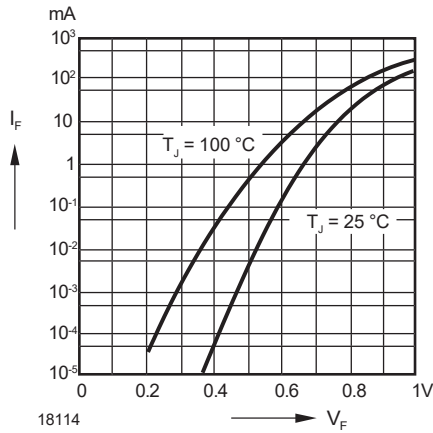


Fig. 1 - Forward characteristics

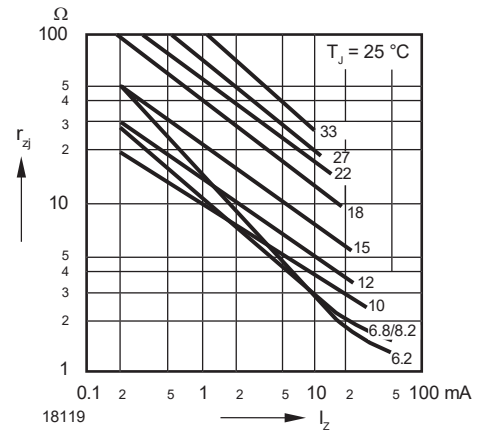


Fig. 4 - Dynamic Resistance vs. Zener Current

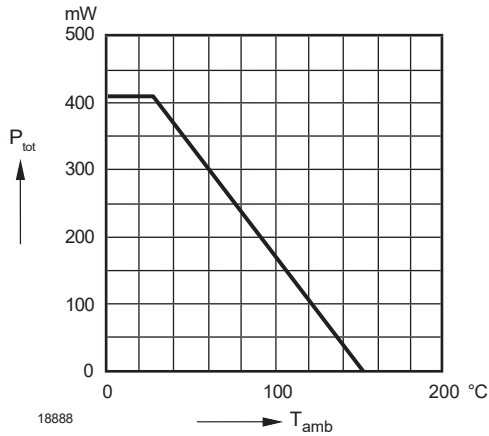


Fig. 2 - Admissible Power Dissipation vs. Ambient Temperature

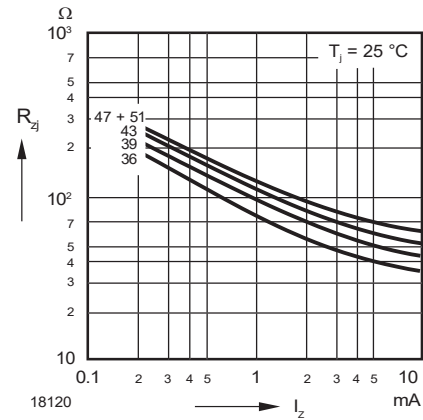


Fig. 5 - Dynamic Resistance vs. Zener Current

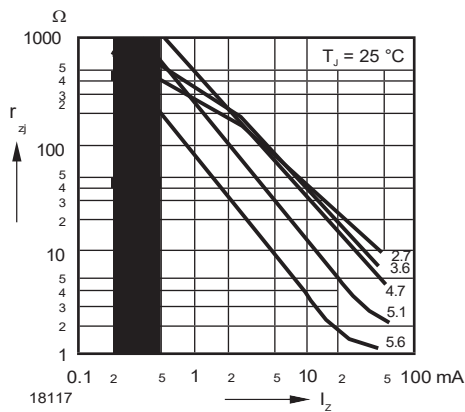


Fig. 3 - Dynamic Resistance vs. Zener Current

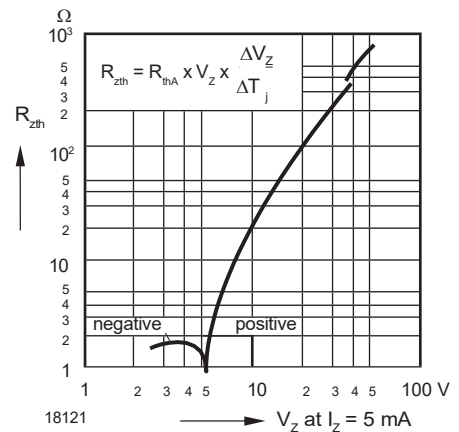


Fig. 6 - Thermal Differential Resistance vs. Zener Voltage

## Typical Characteristics

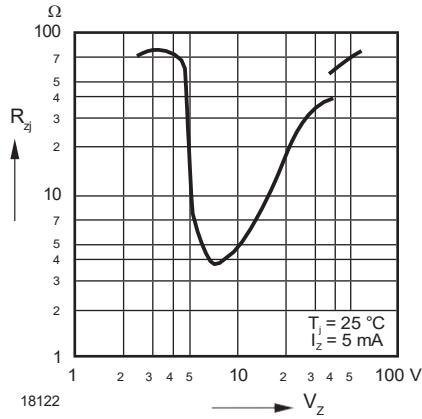


Fig. 7 - Dynamic Resistance vs. Zener Voltage

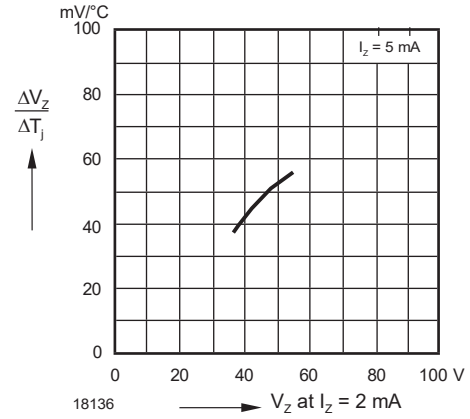


Fig. 10 - Temperature Dependence of Zener Voltage vs. Zener Voltage

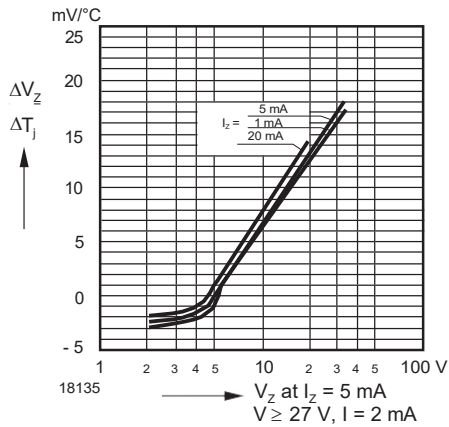


Fig. 8 - Temperature Dependence of Zener Voltage vs. Zener Voltage

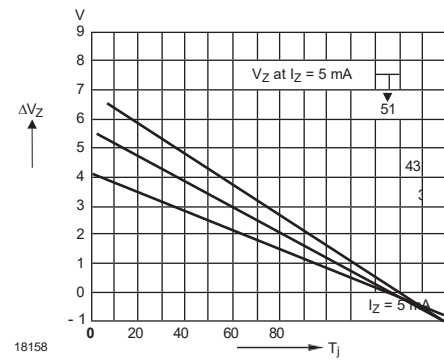


Fig. 11 - Change of Zener Voltage vs. Junction Temperature

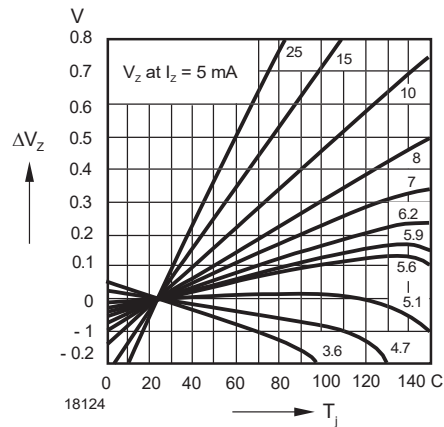


Fig. 9 - Change of Zener Voltage vs. Junction Temperature

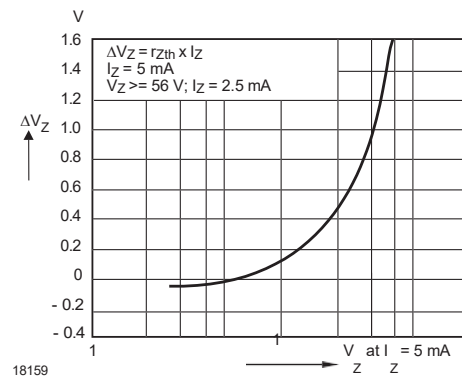


Fig. 12 - Change of Zener Voltage from Turn-on up to the Point of Thermal Equilibrium vs. Zener Voltage

## 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.