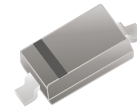


## BZT52C2V0-HF Thru. BZT52C75-HF

RoHS Device  
Halogen Free

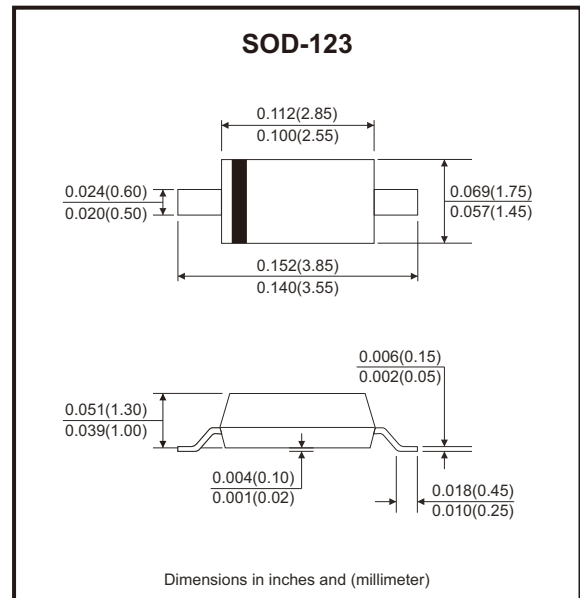


### Features

- Large selection of zener voltages: 2V~75V.
- Tight voltage tolerance:  $\pm 5\%$  for C-series.
- Ultra low-profile package well suited for automated assembly.
- MSL class 1 compatible.

### Mechanical data

- Case: Molded plastic, SOD-123



### Circuit Diagram



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

| Parameter                               | Symbol          | Value       | Unit               |
|---|-----------------|-------------|--------------------|
| Forward voltage @ $I_F=10\text{mA}$     | $V_F$           | 0.9         | V                  |
| Power dissipation (collector)           | $P_C$           | 500         | mW                 |
| Thermal resistance, junction to ambient | $R_{\theta JA}$ | 250         | $^\circ\text{C/W}$ |
| Thermal resistance, junction to case    | $R_{\theta JC}$ | 140         | $^\circ\text{C/W}$ |
| Junction temperature range              | $T_J$           | -55 to +150 | $^\circ\text{C}$   |
| Storage temperature range               | $T_{STG}$       | -65 to +150 | $^\circ\text{C}$   |

Note: 1. These ratings are limiting values above which the serviceability of the diodes may be impaired.

## Electrical Characteristics (TA=25°C unless otherwise noted)

| Part Number  | Zener Voltage                    |        |        |                 | Maximum Zener Impedance          |                                  |                 | Temperature Coefficient @ I <sub>ZT</sub><br>T <sub>c</sub> (mV/°C) |      | Maximum Reverse Current I <sub>R</sub> @ V <sub>R</sub> |      | Marking Code |
|--------------|----------------------------------|--------|--------|-----------------|----------------------------------|----------------------------------|-----------------|---|------|---|------|--------------|
|              | 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> | Min.  | Max. | μA  | (V)  |              |
|              | Min(V)                           | Typ(V) | Max(V) | (mA)            | (Ω)                              | (Ω)                              | (mA)            |   |      |   |      |              |
| BZT52C2V0-HF | 1.90                             | 2.0    | 2.10   | 5.0             | 100                              | 600                              | 1.0             | -3.5  | 0    | 150   | 1.0  | WY           |
| BZT52C2V2-HF | 2.09                             | 2.2    | 2.31   | 5.0             | 100                              | 600                              | 1.0             | -3.5  | 0    | 150   | 1.0  | 22•          |
| BZT52C2V4-HF | 2.20                             | 2.4    | 2.60   | 5.0             | 100                              | 600                              | 1.0             | -3.5  | 0    | 50  | 1.0  | WX           |
| BZT52C2V7-HF | 2.50                             | 2.7    | 2.90   | 5.0             | 100                              | 600                              | 1.0             | -3.5  | 0    | 20  | 1.0  | W1           |
| BZT52C3V0-HF | 2.80                             | 3.0    | 3.20   | 5.0             | 95                               | 600                              | 1.0             | -3.5  | 0    | 10  | 1.0  | W2           |
| BZT52C3V3-HF | 3.10                             | 3.3    | 3.50   | 5.0             | 95                               | 600                              | 1.0             | -3.5  | 0    | 5.0   | 1.0  | W3           |
| BZT52C3V6-HF | 3.40                             | 3.6    | 3.80   | 5.0             | 90                               | 600                              | 1.0             | -3.5  | 0    | 5.0   | 1.0  | W4           |
| BZT52C3V9-HF | 3.70                             | 3.9    | 4.10   | 5.0             | 90                               | 600                              | 1.0             | -3.5  | 0    | 3.0   | 1.0  | W5           |
| BZT52C4V3-HF | 4.00                             | 4.3    | 4.60   | 5.0             | 90                               | 600                              | 1.0             | -3.5  | 0    | 3.0   | 1.0  | W6           |
| BZT52C4V7-HF | 4.40                             | 4.7    | 5.00   | 5.0             | 80                               | 500                              | 1.0             | -3.5  | 0    | 3.0   | 2.0  | W7           |
| BZT52C5V1-HF | 4.80                             | 5.1    | 5.40   | 5.0             | 60                               | 480                              | 1.0             | -2.7  | 1.2  | 2.0   | 2.0  | W8           |
| BZT52C5V6-HF | 5.20                             | 5.6    | 6.00   | 5.0             | 40                               | 400                              | 1.0             | -2.0  | 2.5  | 1.0   | 2.0  | W9           |
| BZT52C6V2-HF | 5.80                             | 6.2    | 6.60   | 5.0             | 10                               | 150                              | 1.0             | 0.4   | 3.7  | 3.0   | 4.0  | WA           |
| BZT52C6V8-HF | 6.40                             | 6.8    | 7.14   | 5.0             | 15                               | 80                               | 1.0             | 1.2   | 4.5  | 2.0   | 4.0  | WB           |
| BZT52C7V5-HF | 7.00                             | 7.5    | 7.90   | 5.0             | 15                               | 80                               | 1.0             | 2.5   | 5.3  | 1.0   | 5.0  | WC           |
| BZT52C8V2-HF | 7.70                             | 8.2    | 8.70   | 5.0             | 15                               | 80                               | 1.0             | 3.2   | 6.2  | 0.7   | 5.0  | WD           |
| BZT52C9V1-HF | 8.50                             | 9.1    | 9.60   | 5.0             | 15                               | 100                              | 1.0             | 3.8   | 7.0  | 0.5   | 6.0  | WE           |
| BZT52C10-HF  | 9.40                             | 10     | 10.60  | 5.0             | 20                               | 150                              | 1.0             | 4.5   | 8.0  | 0.2   | 7.0  | WF           |
| BZT52C11-HF  | 10.40                            | 11     | 11.60  | 5.0             | 20                               | 150                              | 1.0             | 5.4   | 9.0  | 0.1   | 8.0  | WG           |
| BZT52C12-HF  | 11.40                            | 12     | 12.70  | 5.0             | 25                               | 150                              | 1.0             | 6.0   | 10.0 | 0.1   | 8.0  | WH           |
| BZT52C13-HF  | 12.40                            | 13     | 14.10  | 5.0             | 30                               | 170                              | 1.0             | 7.0   | 11.0 | 0.1   | 8.0  | WI           |
| BZT52C15-HF  | 13.80                            | 15     | 15.60  | 5.0             | 30                               | 200                              | 1.0             | 9.2   | 13.0 | 0.1   | 10.5 | WJ           |
| BZT52C16-HF  | 15.30                            | 16     | 17.10  | 5.0             | 40                               | 200                              | 1.0             | 10.4  | 14.0 | 0.1   | 11.2 | WK           |
| BZT52C18-HF  | 16.80                            | 18     | 19.10  | 5.0             | 45                               | 225                              | 1.0             | 12.4  | 16.0 | 0.1   | 12.6 | WL           |
| BZT52C20-HF  | 18.80                            | 20     | 21.20  | 5.0             | 55                               | 225                              | 1.0             | 14.4  | 18.0 | 0.1   | 14.0 | WM           |
| BZT52C22-HF  | 20.80                            | 22     | 23.30  | 5.0             | 55                               | 250                              | 1.0             | 16.4  | 20.0 | 0.1   | 15.4 | WN           |
| BZT52C24-HF  | 22.80                            | 24     | 25.60  | 5.0             | 70                               | 250                              | 1.0             | 18.4  | 22.0 | 0.1   | 16.8 | WO           |
| BZT52C27-HF  | 25.10                            | 27     | 28.90  | 2.0             | 80                               | 300                              | 0.5             | 21.4  | 25.3 | 0.1   | 18.9 | WP           |
| BZT52C30-HF  | 28.00                            | 30     | 32.00  | 2.0             | 80                               | 300                              | 0.5             | 24.4  | 29.4 | 0.1   | 21.0 | WQ           |
| BZT52C33-HF  | 31.00                            | 33     | 35.00  | 2.0             | 80                               | 325                              | 0.5             | 27.4  | 33.4 | 0.1   | 23.1 | WR           |

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## Electrical Characteristics (TA=25°C unless otherwise noted)

| Part Number | Zener Voltage                    |        |        | Maximum Zener Impedance |                                  |                                  | Temperature Coefficient @ I <sub>ZT</sub><br>T <sub>c</sub> (mV/°C) |      | Maximum Reverse Current I <sub>R</sub> @ V <sub>R</sub> |       | Marking Code |     |
|-------------|----------------------------------|--------|--------|-------------------------|----------------------------------|----------------------------------|---|------|---|-------|--------------|-----|
|             | 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>   | Min. | Max.  | (μA)  |              | (V) |
|             | Min(V)                           | Typ(V) | Max(V) | (mA)                    | (Ω)                              | (Ω)                              | (mA)  |      |   |       |              |     |
| BZT52C36-HF | 34.00                            | 36     | 38.00  | 2.0                     | 90                               | 350                              | 0.5   | 30.4 | 37.4  | 0.1   | 25.2         | WS  |
| BZT52C39-HF | 37.00                            | 39     | 41.00  | 2.0                     | 130                              | 350                              | 0.5   | 33.4 | 41.2  | 0.1   | 27.3         | WT  |
| BZT52C43-HF | 40.00                            | 43     | 46.00  | 2.0                     | 100                              | 700                              | 1.0   | 10.0 | 12.0  | 0.1   | 32.0         | WU  |
| BZT52C47-HF | 44.00                            | 47     | 50.00  | 2.0                     | 100                              | 750                              | 1.0   | 10.0 | 12.0  | 0.1   | 35.0         | WV  |
| BZT52C51-HF | 48.00                            | 51     | 54.00  | 2.0                     | 100                              | 750                              | 1.0   | 10.0 | 12.0  | 0.1   | 38.0         | WW  |
| BZT52C56-HF | 53.20                            | 56     | 58.80  | 2.0                     | 200                              | 400                              | 0.5   | 10.0 | 12.0  | 0.045 | 39.2         | WX• |
| BZT52C62-HF | 58.90                            | 62     | 65.10  | 2.0                     | 215                              | 423                              | 0.5   | 10.0 | 12.0  | 0.045 | 43.4         | 6E  |
| BZT52C68-HF | 64.60                            | 68     | 71.40  | 2.0                     | 240                              | 447                              | 0.5   | 10.0 | 12.0  | 0.045 | 47.6         | 6F  |
| BZT52C75-HF | 71.25                            | 75     | 78.75  | 2.0                     | 255                              | 470                              | 0.5   | 10.0 | 12.0  | 0.045 | 52.5         | 6H  |

## Rating and Characteristic Curves (BZT52C2V0-HF Thru. BZT52C75-HF)

Fig.1 - Power Derating Curve

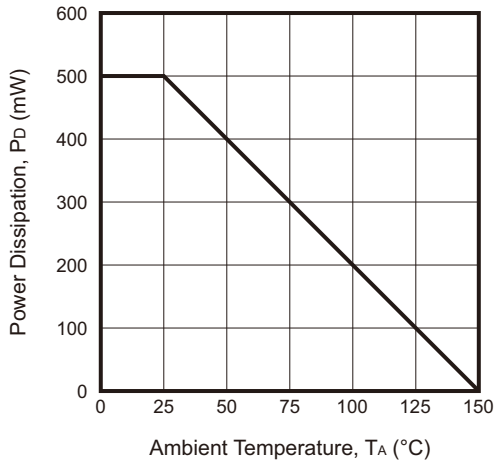


Fig.2 - Typical Zener Breakdown Characteristics

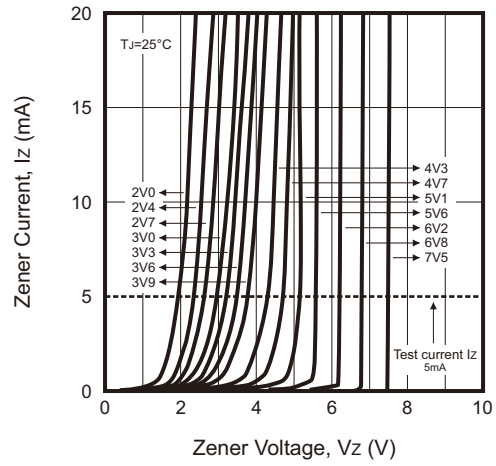


Fig.3 - Typical Zener Breakdown Characteristics

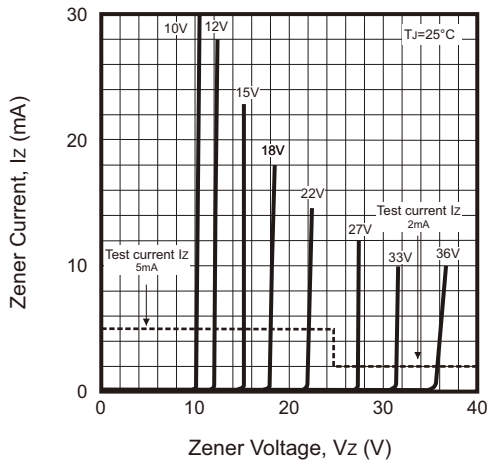


Fig.4 - Typical Zener Breakdown Characteristics

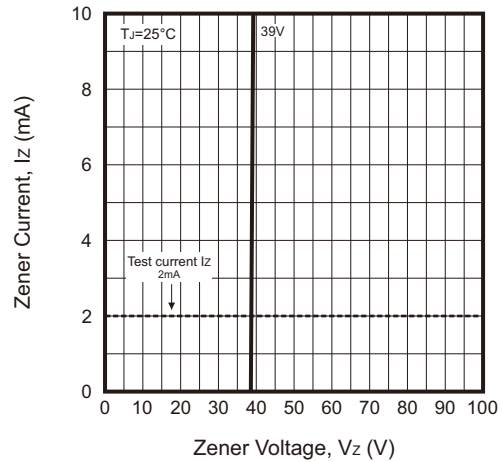


Fig.5 - Typical Temperature Coefficient of Zener Voltage

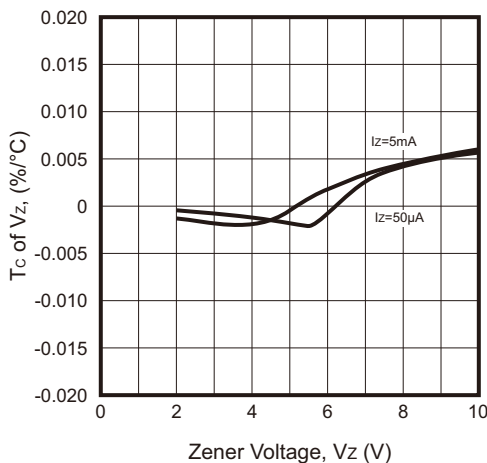
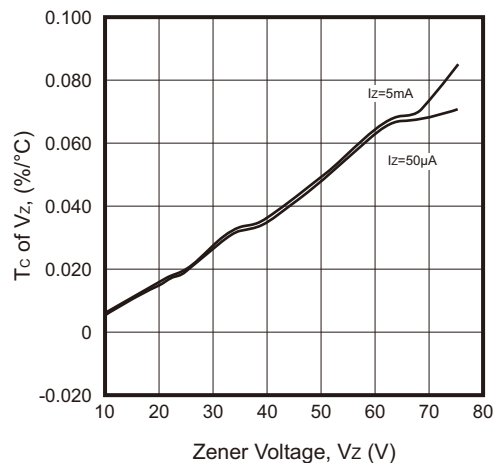


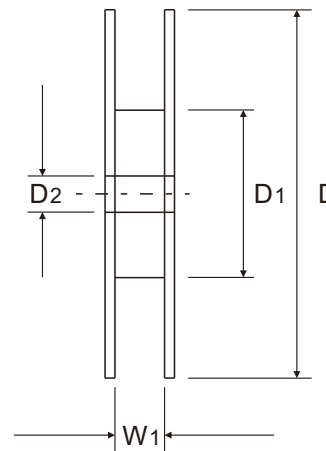
Fig.6 - Typical Temperature Coefficient of Zener Voltage



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## Reel Taping Specification



| SOD-123 | SYMBOL | A             | B             | C             | d             | D             | D1            | D2            |
|---------|--------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
|         | (mm)   | 1.85 ± 0.10   | 3.94 ± 0.10   | 1.57 ± 0.10   | 1.55 ± 0.05   | 178.00 ± 1.00 | 54.00 ± 0.50  | 13.00 ± 0.50  |
|         | (inch) | 0.073 ± 0.004 | 0.155 ± 0.004 | 0.062 ± 0.004 | 0.061 ± 0.002 | 7.008 ± 0.039 | 2.126 ± 0.020 | 0.512 ± 0.020 |

| SOD-123 | SYMBOL | E             | F             | P             | P1            | P0            | W                        | W1            |
|---------|--------|---------------|---------------|---------------|---------------|---------------|--------------------------|---------------|
|         | (mm)   | 1.75 ± 0.10   | 3.50 ± 0.05   | 4.00 ± 0.10   | 2.00 ± 0.05   | 4.00 ± 0.10   | 8.00 + 0.30<br>- 0.10    | 9.50 ± 1.00   |
|         | (inch) | 0.069 ± 0.004 | 0.138 ± 0.002 | 0.157 ± 0.004 | 0.079 ± 0.002 | 0.157 ± 0.004 | 0.315 + 0.012<br>- 0.004 | 0.374 ± 0.039 |

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