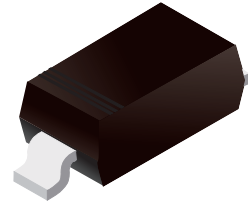


■ Zener Diodes

■ Features

- Planar Die Construction
- 500mW Power Dissipation on Ceramic PCB
- General Purpose, Medium Current
- Ideally Suited for Automated Assembly Processes
- Available in Lead Free Version



■ Simplified outline(SOD-123)



■ Absolute Maximum Ratings Ta = 25°C

| Parameter   | Symbol          | Value      | Unit |
|---|-----------------|------------|------|
| Power Dissipation   | $P_D$           | 500        | mW   |
| Forward Voltage at $I_F = 10\text{ mA}$                       | $V_F$           | 0.9        | V    |
| Typical thermal resistance junction to ambient <sup>(1)</sup> | $R_{\theta JA}$ | 305        | °C/W |
| Operating and Storage Temperature Range                       | $T_j, T_{stg}$  | -55 ~ +150 | °C   |

(1) Thermal resistance from junction to ambient at P.C.B. mounted with 7.6mm X 9.4mm X 0.87mm copper areas pads.

Fig.1 Maximum Continuous Power Derating



Fig.2 Typical Transient Thermal Impedance



Characteristics at Ta = 25°C

| Type      | Marking | Zener Voltage Range <sup>(2)</sup>    |         |         |                 | Maximum Zener <sup>(3)</sup> Impedance |                 |                                  |                 | Reverse Current <sup>(2)</sup> |                 |
|-----------|---------|---------------------------------------|---------|---------|-----------------|--|-----------------|----------------------------------|-----------------|--------------------------------|-----------------|
|           |         | V <sub>ZT</sub> (at I <sub>ZT</sub> ) |         |         | I <sub>ZT</sub> | Z <sub>ZT</sub> @I <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> |
|           |         | Min (V)                               | Nom (V) | Max (V) | (mA)            | (Ω)                                    | (mA)            | (Ω)                              | (mA)            | μA                             | V               |
| BZT52C2V0 | WY      | 1.91                                  | 2.0     | 2.09    | 5               | 100                                    | 5               | 600                              | 1               | 150                            | 1.0             |
| BZT52C2V4 | WX      | 2.2                                   | 2.4     | 2.6     | 5               | 100                                    | 5               | 600                              | 1               | 50                             | 1.0             |
| BZT52C2V7 | W1      | 2.5                                   | 2.7     | 2.9     | 5               | 100                                    | 5               | 600                              | 1               | 20                             | 1.0             |
| BZT52C3V0 | W2      | 2.8                                   | 3.0     | 3.2     | 5               | 95                                     | 5               | 600                              | 1               | 10                             | 1.0             |
| BZT52C3V3 | W3      | 3.1                                   | 3.3     | 3.5     | 5               | 95                                     | 5               | 600                              | 1               | 5.0                            | 1.0             |
| BZT52C3V6 | W4      | 3.4                                   | 3.6     | 3.8     | 5               | 90                                     | 5               | 600                              | 1               | 5.0                            | 1.0             |
| BZT52C3V9 | W5      | 3.7                                   | 3.9     | 4.1     | 5               | 90                                     | 5               | 600                              | 1               | 3.0                            | 1.0             |
| BZT52C4V3 | W6      | 4                                     | 4.3     | 4.6     | 5               | 90                                     | 5               | 600                              | 1               | 3.0                            | 1.0             |
| BZT52C4V7 | W7      | 4.4                                   | 4.7     | 5       | 5               | 80                                     | 5               | 500                              | 1               | 3.0                            | 2.0             |
| BZT52C5V1 | W8      | 4.8                                   | 5.1     | 5.4     | 5               | 60                                     | 5               | 480                              | 1               | 2.0                            | 2.0             |
| BZT52C5V6 | W9      | 5.2                                   | 5.6     | 6       | 5               | 40                                     | 5               | 400                              | 1               | 1.0                            | 2.0             |
| BZT52C6V2 | WA      | 5.8                                   | 6.2     | 6.6     | 5               | 10                                     | 5               | 150                              | 1               | 3.0                            | 4.0             |
| BZT52C6V8 | WB      | 6.4                                   | 6.8     | 7.2     | 5               | 15                                     | 5               | 80                               | 1               | 2.0                            | 4.0             |
| BZT52C7V5 | WC      | 7                                     | 7.5     | 7.9     | 5               | 15                                     | 5               | 80                               | 1               | 1.0                            | 5.0             |
| BZT52C8V2 | WD      | 7.7                                   | 8.2     | 8.7     | 5               | 15                                     | 5               | 80                               | 1               | 0.7                            | 5.0             |
| BZT52C9V1 | WE      | 8.5                                   | 9.1     | 9.6     | 5               | 15                                     | 5               | 100                              | 1               | 0.5                            | 6.0             |
| BZT52C10  | WF      | 9.4                                   | 10      | 10.6    | 5               | 20                                     | 5               | 150                              | 1               | 0.2                            | 7.0             |
| BZT52C11  | WG      | 10.4                                  | 11      | 11.6    | 5               | 20                                     | 5               | 150                              | 1               | 0.1                            | 8.0             |
| BZT52C12  | WH      | 11.4                                  | 12      | 12.7    | 5               | 25                                     | 5               | 150                              | 1               | 0.1                            | 8.0             |
| BZT52C13  | WI      | 12.4                                  | 13      | 14.1    | 5               | 30                                     | 5               | 170                              | 1               | 0.1                            | 8.0             |
| BZT52C15  | WJ      | 13.8                                  | 15      | 15.6    | 5               | 30                                     | 5               | 200                              | 1               | 0.1                            | 10.5            |
| BZT52C16  | WK      | 15.3                                  | 16      | 17.1    | 5               | 40                                     | 5               | 200                              | 1               | 0.1                            | 11.2            |
| BZT52C18  | WL      | 16.8                                  | 18      | 19.1    | 5               | 45                                     | 5               | 225                              | 1               | 0.1                            | 12.6            |
| BZT52C20  | WM      | 18.8                                  | 20      | 21.2    | 5               | 55                                     | 5               | 225                              | 1               | 0.1                            | 14.0            |
| BZT52C22  | WN      | 20.8                                  | 22      | 23.3    | 5               | 55                                     | 5               | 250                              | 1               | 0.1                            | 15.4            |
| BZT52C24  | WO      | 22.8                                  | 24      | 25.6    | 5               | 70                                     | 5               | 250                              | 1               | 0.1                            | 16.8            |
| BZT52C27  | WP      | 25.1                                  | 27      | 28.9    | 2               | 80                                     | 2               | 300                              | 0.5             | 0.1                            | 18.9            |
| BZT52C30  | WQ      | 28                                    | 30      | 32      | 2               | 80                                     | 2               | 300                              | 0.5             | 0.1                            | 21.0            |
| BZT52C33  | WR      | 31                                    | 33      | 35      | 2               | 80                                     | 2               | 325                              | 0.5             | 0.1                            | 23.1            |
| BZT52C36  | WS      | 34                                    | 36      | 38      | 2               | 90                                     | 2               | 350                              | 0.5             | 0.1                            | 25.2            |
| BZT52C39  | WT      | 37                                    | 39      | 41      | 2               | 130                                    | 2               | 350                              | 0.5             | 0.1                            | 27.3            |
| BZT52C43  | 6A      | 40                                    | 43      | 46      | 2.5             | 130                                    | 2               | 500                              | 1               | 2                              | 33              |
| BZT52C47  | 6B      | 44                                    | 47      | 50      | 2.5             | 150                                    | 2               | 500                              | 1               | 2                              | 36              |
| BZT52C51  | 6C      | 48                                    | 51      | 54      | 2.5             | 180                                    | 2               | 500                              | 1               | 1                              | 37              |
| BZT52C56  | 6D      | 52                                    | 56      | 60      | 2.5             | 180                                    | 2               | 500                              | 1               | 1                              | 43              |
| BZT52C62  | 6E      | 58                                    | 62      | 66      | 2.5             | 200                                    | 2               | 500                              | 1               | 0.2                            | 47              |
| BZT52C68  | 6F      | 64                                    | 68      | 72      | 2.5             | 250                                    | 2               | 500                              | 1               | 0.2                            | 52              |
| BZT52C75  | 6H      | 70                                    | 75      | 79      | 2.5             | 300                                    | 2               | 500                              | 1               | 0.2                            | 57              |

- NOTES: (1) f=1KHz  
 (2) Short duration test pulse used to minimize self-heating effect.  
 (3) V<sub>ZT</sub> is tested with pulses 20ms.

**Package Outline SOD-123**

Plastic surface mounted package; 2 leads



| UNIT |     | A   | C    | D   | E   | E <sub>1</sub> | L <sub>1</sub> | b   | A <sub>1</sub> | ∠  |
|------|-----|-----|------|-----|-----|----------------|----------------|-----|----------------|----|
| mm   | max | 1.3 | 0.22 | 1.8 | 2.8 | 3.9            | 0.45           | 0.7 | 0.2            | 9° |
|      | min | 0.9 | 0.09 | 1.5 | 2.5 | 3.6            | 0.25           | 0.5 | —              |    |
| mil  | max | 51  | 8.7  | 71  | 110 | 154            | 18             | 28  | 8              |    |
|      | min | 35  | 3.5  | 59  | 98  | 142            | 10             | 20  | —              |    |

**The recommended mounting pad size**



Unit:  $\frac{\text{mm}}{\text{mil}}$

**Summary of Packing Options**

| Package | Packing Description | Packing Quantity | Industry Standard |
|---------|---------------------|------------------|-------------------|
| SOD-123 | Tape/Reel, 7" reel  | 3000             | EIA-481-1         |

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