

### SURFACE MOUNT ZENER DIODE

#### 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  $\pm 5\%$

#### Mechanical Data

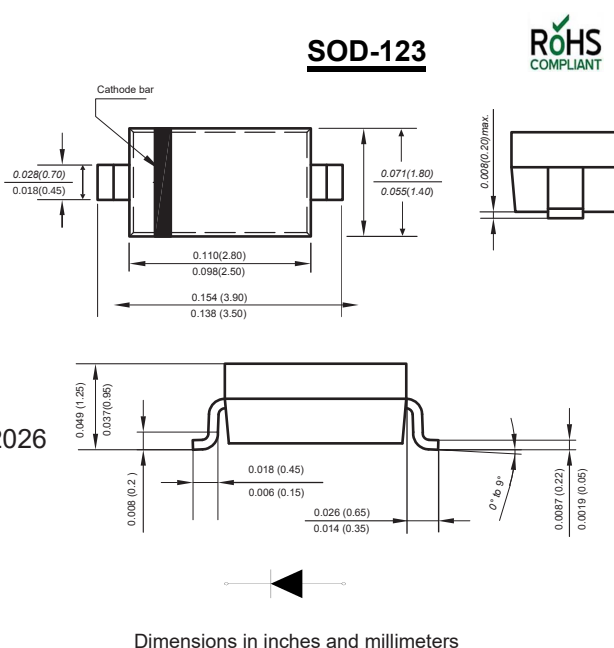
**Case** : JEDEC SOD-123 Molded plastic body

**Terminals** : Solder plated, solderable per MIL-STD-750, Method 2026

**Polarity** : Polarity symbol marking on body

**Mounting Position** : Any

**Weight** : 0.00056 ounce, 0.016 grams



#### Ordering Information

| Type No.                                                      | Marking          | Package Code |      |
|---------------------------------------------------------------|------------------|--------------|------|
| BZT52C2V0-BZT52C75                                            | See table 2      | SOD-123      |      |
| MAXIMUM RATING @ Ta=25℃ unless otherwise specified            |                  |              |      |
| Parameter                                                     | Symbol           | Value        | Unit |
| Forward Voltage @ I <sub>F</sub> =10mA                        | V <sub>F</sub>   | 0.9          | V    |
| Power Dissipation                                             | P <sub>d</sub>   | 500          | mW   |
| Typical thermal resistance juncting to ambient <sup>(1)</sup> | R <sub>θJA</sub> | 305          | ℃/W  |
| Junction temperature                                          | T <sub>j</sub>   | 150          | ℃    |
| Storage temperature range                                     | T <sub>stg</sub> | -65-150      | ℃    |

(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.

### ELECTRICAL CHARACTERISTICS CURVE

Fig.1 Maximum Continuous Power Derating

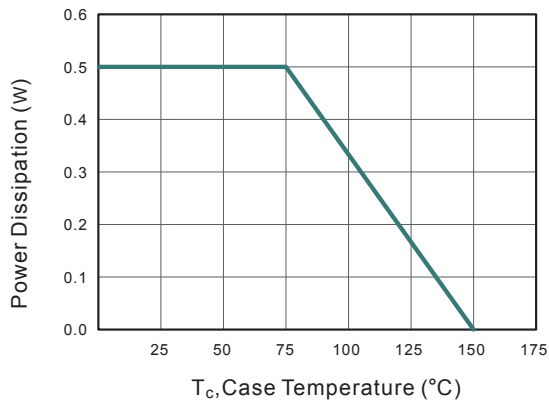


Fig.2 Typical Transient Thermal Impedance

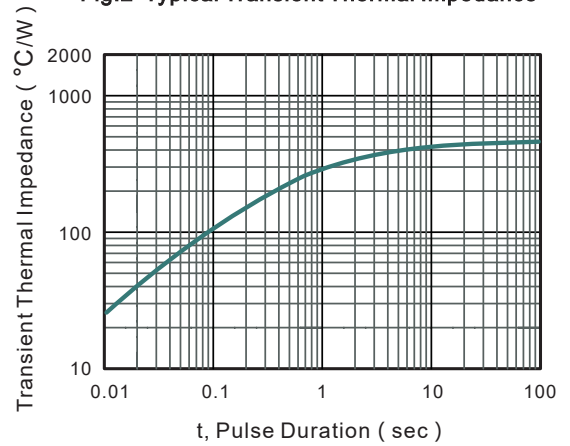
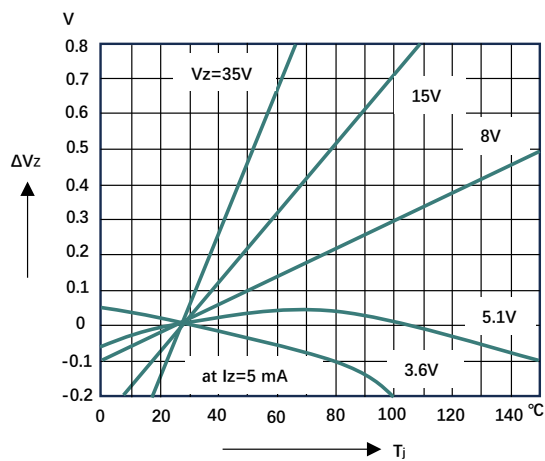


Fig.3 Change of Zener voltage versus junction temperature



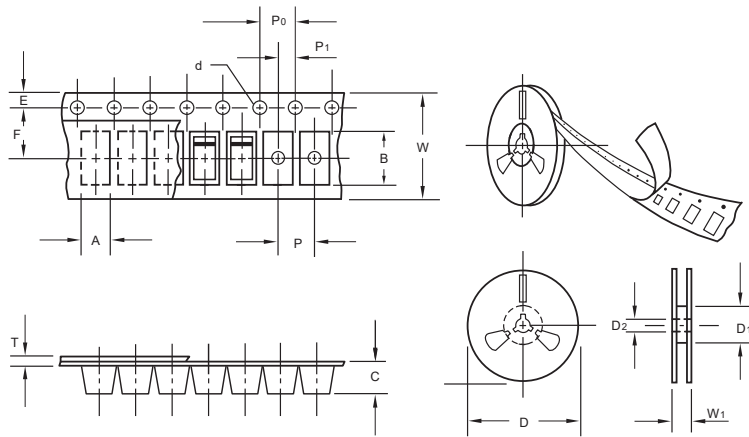
The curve above is for reference only.

### 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 )             |
| BZT52C2V0 | WY      | 1.8                                    | 2.0       | 2.15      | 5               | 100                                    | 120             | 0.5               |
| BZT52C2V2 | WZ      | 2.08                                   | 2.2       | 2.33      | 5               | 100                                    | 120             | 0.7               |
| BZT52C2V4 | WX      | 2.28                                   | 2.4       | 2.56      | 5               | 100                                    | 120             | 1                 |
| BZT52C2V7 | W1      | 2.5                                    | 2.7       | 2.9       | 5               | 110                                    | 120             | 1                 |
| BZT52C3V0 | W2      | 2.8                                    | 3.0       | 3.2       | 5               | 120                                    | 50              | 1                 |
| BZT52C3V3 | W3      | 3.1                                    | 3.3       | 3.5       | 5               | 130                                    | 20              | 1                 |
| BZT52C3V6 | W4      | 3.4                                    | 3.6       | 3.8       | 5               | 130                                    | 10              | 1                 |
| BZT52C3V9 | W5      | 3.7                                    | 3.9       | 4.1       | 5               | 130                                    | 5               | 1                 |
| BZT52C4V3 | W6      | 4                                      | 4.3       | 4.6       | 5               | 130                                    | 5               | 1                 |
| BZT52C4V7 | W7      | 4.4                                    | 4.7       | 5         | 5               | 130                                    | 2               | 1                 |
| BZT52C5V1 | W8      | 4.8                                    | 5.1       | 5.4       | 5               | 130                                    | 2               | 1.5               |
| BZT52C5V6 | W9      | 5.2                                    | 5.6       | 6         | 5               | 80                                     | 1               | 2.5               |
| BZT52C6V2 | WA      | 5.8                                    | 6.2       | 6.6       | 5               | 50                                     | 1               | 3                 |
| BZT52C6V8 | WB      | 6.4                                    | 6.8       | 7.2       | 5               | 30                                     | 0.5             | 3.5               |
| BZT52C7V5 | WC      | 7                                      | 7.5       | 7.9       | 5               | 30                                     | 0.5             | 4                 |
| BZT52C8V2 | WD      | 7.7                                    | 8.2       | 8.7       | 5               | 30                                     | 0.5             | 5                 |
| BZT52C9V1 | WE      | 8.5                                    | 9.1       | 9.6       | 5               | 30                                     | 0.5             | 6                 |
| BZT52C10  | WF      | 9.4                                    | 10        | 10.6      | 5               | 30                                     | 0.1             | 7                 |
| BZT52C11  | WG      | 10.4                                   | 11        | 11.6      | 5               | 30                                     | 0.1             | 8                 |
| BZT52C12  | WH      | 11.4                                   | 12        | 12.7      | 5               | 35                                     | 0.1             | 9                 |
| BZT52C13  | WI      | 12.4                                   | 13        | 14.1      | 5               | 35                                     | 0.1             | 10                |
| BZT52C15  | WJ      | 13.8                                   | 15        | 15.6      | 5               | 40                                     | 0.1             | 11                |
| BZT52C16  | WK      | 15.3                                   | 16        | 17.1      | 5               | 40                                     | 0.1             | 12                |
| BZT52C18  | WL      | 16.8                                   | 18        | 19.1      | 5               | 45                                     | 0.1             | 13                |
| BZT52C20  | WM      | 18.8                                   | 20        | 21.2      | 5               | 50                                     | 0.1             | 15                |
| BZT52C22  | WN      | 20.8                                   | 22        | 23.3      | 5               | 55                                     | 0.1             | 17                |
| BZT52C24  | WO      | 22.8                                   | 24        | 25.6      | 5               | 60                                     | 0.1             | 19                |
| BZT52C27  | WP      | 25.1                                   | 27        | 28.9      | 5               | 70                                     | 0.1             | 21                |
| BZT52C30  | WQ      | 28                                     | 30        | 32        | 5               | 80                                     | 0.1             | 23                |
| BZT52C33  | WR      | 31                                     | 33        | 35        | 5               | 80                                     | 0.1             | 25                |
| BZT52C36  | WS      | 34                                     | 36        | 38        | 5               | 90                                     | 0.1             | 27                |
| BZT52C39  | WT      | 37                                     | 39        | 41        | 2.5             | 100                                    | 2               | 30                |
| BZT52C43  | WU      | 40                                     | 43        | 46        | 2.5             | 130                                    | 2               | 33                |
| BZT52C47  | WV      | 44                                     | 47        | 50        | 2.5             | 150                                    | 2               | 36                |
| BZT52C51  | WW      | 48                                     | 51        | 54        | 2.5             | 180                                    | 1               | 39                |
| BZT52C56  | XW      | 52                                     | 56        | 60        | 2.5             | 180                                    | 1               | 43                |
| BZT52C62  | 6E      | 58                                     | 62        | 66        | 2.5             | 200                                    | 0.2             | 47                |
| BZT52C68  | 6F      | 64                                     | 68        | 72        | 2.5             | 250                                    | 0.2             | 52                |
| BZT52C75  | 6H      | 70                                     | 75        | 79        | 2.5             | 300                                    | 0.2             | 57                |

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

### Packing information



unit:mm

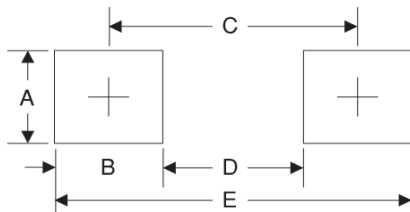
| Item                     | Symbol | Tolerance | SOD-123 |
|--------------------------|--------|-----------|---------|
| Carrier width            | A      | 0.1       | 2.1     |
| Carrier length           | B      | 0.1       | 4.0     |
| Carrier depth            | C      | 0.1       | 1.60    |
| Sprocket hole            | d      | 0.05      | 1.55    |
| 7" Reel outside diameter | D      | 2.0       | 178.00  |
| 7" Reel inner diameter   | D1     | min       | 50.0    |
| Feed hole diameter       | D2     | 0.5       | 13.00   |
| Sprocket hole position   | E      | 0.1       | 1.75    |
| Punch hole position      | F      | 0.1       | 3.50    |
| Punch hole pitch         | P      | 0.1       | 4.00    |
| Sprocket hole pitch      | P0     | 0.1       | 4.00    |
| Embossment center        | P1     | 0.1       | 2.00    |
| Overall tape thickness   | T      | 0.1       | 0.25    |
| Tape width               | W      | 0.3       | 8.15    |
| Reel width               | W1     | 1.0       | 10.5    |

Note: Devices are packed in accordance with EIA standard RS-481-A and specifications listed above.

### Reel packing

| PACKAGE | REEL SIZE | REEL (pcs) | COMPONENT SPACING (m/m) | BOX (pcs) | INNER BOX (m/m) | REEL DIA, (m/m) | CARTON SIZE (m/m) | CARTON (pcs) | APPROX. GROSS WEIGHT (kg) |
|---------|-----------|------------|-------------------------|-----------|-----------------|-----------------|-------------------|--------------|---------------------------|
| SOD-123 | 7"        | 3,000      | 4.0                     | 45,000    | 210*208*203     | 178             | 430*430*235       | 180,000      | 9.0                       |

### Suggested Pad Layout



| Symbol | Unit (mm) | Unit (inch) |
|--------|-----------|-------------|
| A      | 1.2       | 0.047       |
| B      | 1.2       | 0.047       |
| C      | 3.2       | 0.126       |
| D      | 2.0       | 0.079       |
| E      | 4.4       | 0.173       |

### Important Notice and Disclaimer