

## DATA SHEET

### BZT52-C2V0 SERIES

**SURFACE MOUNT ZENER DIODE**

**VOLTAGE** 2.0~51 Volts **POWER** 500 mW

#### FEATURES

- PLANAR DIE CONSTRUCTION
- 500mW POWER DISSIPATION
- ZENER VOLTAGES FROM 2.4~51V
- IDEALLY SUITED FOR AUTOMATED ASSEMBLY PROCESSES
- LEAD FREE AND HALOGEN-FREE

#### MECHANICAL DATA

- CASE: SOD-123, MOLDED PLASTIC
- TERMINALS: SOLDERABLE PER MIL-STD-202, METHOD 208
- POLARITY: SEE DIAGRAM BELOW
- APPROX. WEIGHT: 0.008 GRAMS
- MOUNTING POSITION: ANY



CASE: SOD-123

### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

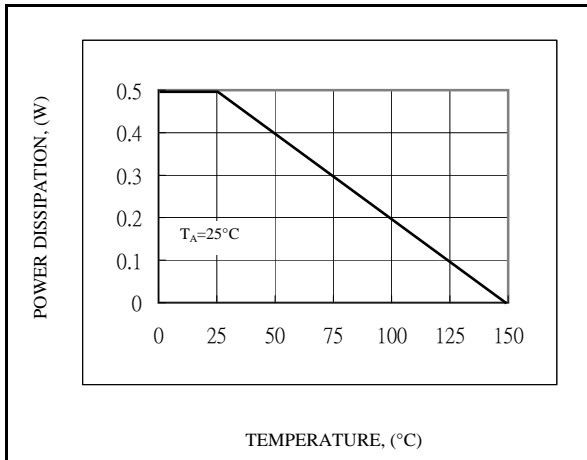
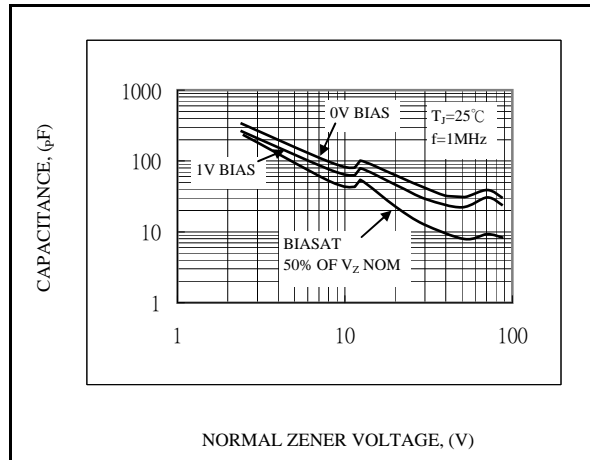
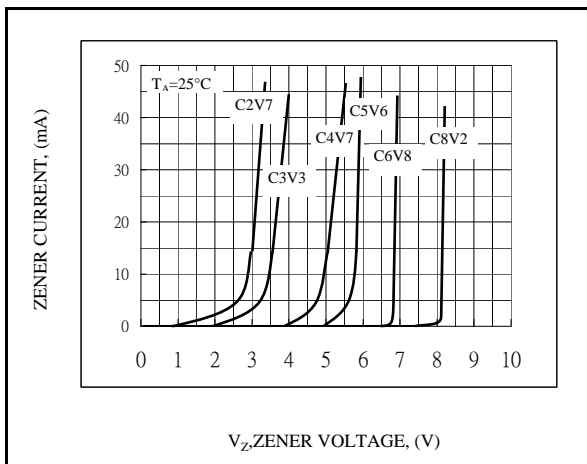
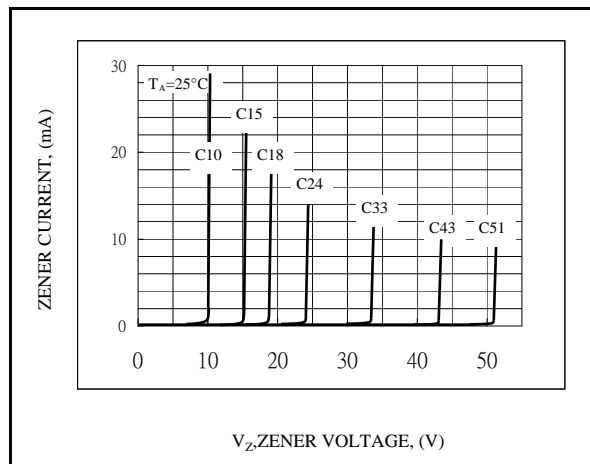
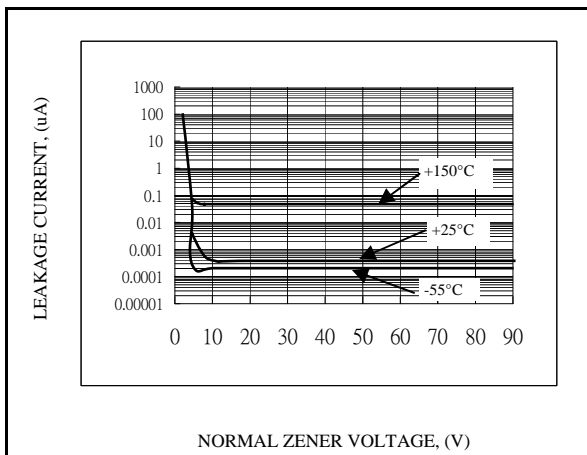
**RATINGS AT 25°C AMBIENT TEMPERATURE UNLESS OTHERWISE SPECIFIED.**

| PARAMETER                                            | SYMBOL          | VALUE       | UNITS |
|------------------------------------------------------|-----------------|-------------|-------|
| MAXIMUM FORWARD VOLTAGE DROP AT $I_F=10\text{mA}$    | $V_F$           | 0.9         | V     |
| MAXIMUM POWER DISSIPATION AT 25°C (NOTE.1)           | $P_D$           | 500         | mW    |
| JUNCTION TEMPERATURE                                 | $T_J$           | -55 TO +150 | °C    |
| STORAGE TEMPERATURE RANGE                            | $T_{STG}$       | -55 TO +150 | °C    |
| THERMAL RESISTANCE, JUNCTION TO AMBIENT AIR (NOTE.1) | $R_{\theta JA}$ | 305         | °C/W  |

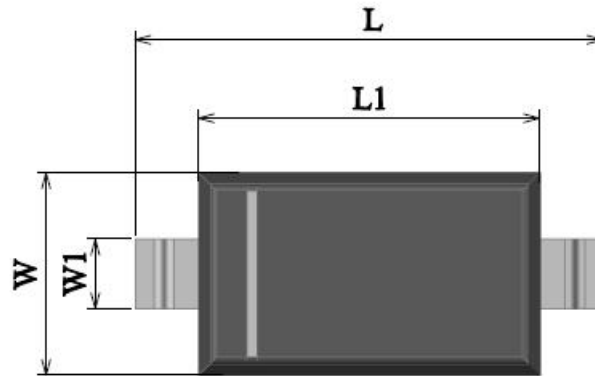
**NOTE:**

1. MOUNTED ON 25.0mm<sup>2</sup>(0.013mm thick) LAND AREAS.
2. DEVICE MOUNTED ON CERAMIC P.C.B:7.6mm x9.4mm x0.87mm WITH PAD AREAS 2.5mm<sup>2</sup>
3. SHORT DURATION TEST PULSE USED TO MINIMIZE SELF-HEATING EFFECT.
4. WHEN PROVIDED, OTHERWISE, PARTS ARE PROVIDED WITH DATE CODE ONLY, AND TYPE NUMBER IDENTIFICATIONS APPEAR ON REEL ONLY.
5.  $f = 1\text{KHz}$

| Part Number                    | Nominal Zener Voltage |        |        | Max. Zener Impedance |     |                   |      | Max Reverse Leakage Current |      |
|--------------------------------|-----------------------|--------|--------|----------------------|-----|-------------------|------|-----------------------------|------|
|                                | $V_Z @ I_{ZT}$        |        |        | $Z_{ZT} @ I_{ZT}$    |     | $Z_{ZK} @ I_{ZK}$ |      | $I_R @ V_R$                 |      |
|                                | Nom. V                | Min. V | Max. V | $\Omega$             | mA  | $\Omega$          | mA   | $\mu A$                     | V    |
| <b>500 mWatts Zener Diodes</b> |                       |        |        |                      |     |                   |      |                             |      |
| BZT52-C2V0                     | 1.91                  | 2.00   | 2.09   | 100                  | 5.0 | 600               | 1.00 | 150                         | 1.0  |
| BZT52-C2V4                     | 2.4                   | 2.20   | 2.60   | 100                  | 5.0 | 600               | 1.00 | 50                          | 1.0  |
| BZT52-C2V7                     | 2.7                   | 2.50   | 2.90   | 100                  | 5.0 | 600               | 1.00 | 20                          | 1.0  |
| BZT52-C3V0                     | 3.0                   | 2.80   | 3.20   | 95                   | 5.0 | 600               | 1.00 | 10                          | 1.0  |
| BZT52-C3V3                     | 3.3                   | 3.10   | 3.50   | 95                   | 5.0 | 600               | 1.00 | 5                           | 1.0  |
| BZT52-C3V6                     | 3.6                   | 3.40   | 3.80   | 90                   | 5.0 | 600               | 1.00 | 5                           | 1.0  |
| BZT52-C3V9                     | 3.9                   | 3.70   | 4.10   | 90                   | 5.0 | 600               | 1.00 | 3                           | 1.0  |
| BZT52-C4V3                     | 4.3                   | 4.00   | 4.60   | 90                   | 5.0 | 600               | 1.00 | 3.0                         | 1.0  |
| BZT52-C4V7                     | 4.7                   | 4.40   | 5.00   | 80                   | 5.0 | 500               | 1.00 | 3.0                         | 2.0  |
| BZT52-C5V1                     | 5.1                   | 4.80   | 5.40   | 60                   | 5.0 | 480               | 1.00 | 2.0                         | 2.0  |
| BZT52-C5V6                     | 5.6                   | 5.20   | 6.00   | 40                   | 5.0 | 400               | 1.00 | 1.0                         | 2.0  |
| BZT52-C6V2                     | 6.2                   | 5.80   | 6.60   | 10                   | 5.0 | 150               | 1.00 | 3.0                         | 4.0  |
| BZT52-C6V8                     | 6.8                   | 6.40   | 7.20   | 15                   | 5.0 | 80                | 1.00 | 2.0                         | 4.0  |
| BZT52-C7V5                     | 7.5                   | 7.00   | 7.90   | 15                   | 5.0 | 80                | 1.00 | 1.0                         | 5.0  |
| BZT52-C8V2                     | 8.2                   | 7.70   | 8.70   | 15                   | 5.0 | 80                | 1.00 | 0.7                         | 5.0  |
| BZT52-C9V1                     | 9.1                   | 8.50   | 9.60   | 15                   | 5.0 | 100               | 1.00 | 0.5                         | 6.0  |
| BZT52-C10                      | 10                    | 9.40   | 10.60  | 20                   | 5.0 | 150               | 1.00 | 0.2                         | 7.0  |
| BZT52-C11                      | 11                    | 10.40  | 11.60  | 20                   | 5.0 | 150               | 1.00 | 0.1                         | 8.0  |
| BZT52-C12                      | 12                    | 11.40  | 12.70  | 25                   | 5.0 | 150               | 1.00 | 0.1                         | 8.0  |
| BZT52-C13                      | 13                    | 12.40  | 14.10  | 30                   | 5.0 | 170               | 1.00 | 0.1                         | 8.0  |
| BZT52-C15                      | 15                    | 13.80  | 15.60  | 30                   | 5.0 | 200               | 1.00 | 0.1                         | 10.5 |
| BZT52-C16                      | 16                    | 15.30  | 17.10  | 40                   | 5.0 | 200               | 1.00 | 0.1                         | 11.2 |
| BZT52-C18                      | 18                    | 16.80  | 19.10  | 45                   | 5.0 | 225               | 1.00 | 0.1                         | 12.6 |
| BZT52-C20                      | 20                    | 18.80  | 21.20  | 55                   | 5.0 | 225               | 1.00 | 0.1                         | 14.0 |
| BZT52-C22                      | 22                    | 20.80  | 23.30  | 55                   | 5.0 | 250               | 1.00 | 0.1                         | 15.4 |
| BZT52-C24                      | 24                    | 22.80  | 25.60  | 70                   | 5.0 | 250               | 1.00 | 0.1                         | 16.8 |
| BZT52-C27                      | 27                    | 25.10  | 28.90  | 80                   | 2.0 | 300               | 0.50 | 0.1                         | 18.9 |
| BZT52-C30                      | 30                    | 28.00  | 32.00  | 80                   | 2.0 | 300               | 0.50 | 0.1                         | 21.0 |
| BZT52-C33                      | 33                    | 31.00  | 35.00  | 80                   | 2.0 | 325               | 0.50 | 0.1                         | 23.1 |
| BZT52-C36                      | 36                    | 34.00  | 38.00  | 90                   | 2.0 | 350               | 0.50 | 0.1                         | 25.2 |
| BZT52-C39                      | 39                    | 37.00  | 41.00  | 130                  | 2.0 | 350               | 0.50 | 0.1                         | 27.3 |
| BZT52-C43                      | 43                    | 40.00  | 46.00  | 100                  | 5.0 | 700               | 1.00 | 0.1                         | 32.0 |
| BZT52-C47                      | 47                    | 44.00  | 50.00  | 100                  | 5.0 | 750               | 1.00 | 0.1                         | 35.0 |
| BZT52-C51                      | 51                    | 48.00  | 54.00  | 100                  | 5.0 | 750               | 1.00 | 0.1                         | 38.0 |


**Fig.1-STEADY STATE POWER DERATING**

**Fig.2-TYPICAL CAPACITANCE**

**Fig.3- $V_Z=2.7$  THRU 8.2 VOLTS**

**Fig.4- $V_Z=10$  THRU 51VOLTS**

**Fig.5-TYPICAL LEAKAGE CURRENT**

## SOD-123 DIMENSION



| Symbol | Dimensions In Millimeters |      | Dimensions In Inches |       |
|--------|---------------------------|------|----------------------|-------|
|        | Min                       | Max  | Min                  | Max   |
| L      | 3.55                      | 3.85 | 0.140                | 0.152 |
| L1     | 2.60                      | 2.80 | 0.102                | 0.110 |
| W      | 1.50                      | 1.70 | 0.059                | 0.067 |
| W1     | 0.45                      | 0.65 | 0.018                | 0.026 |
| H      | 1.05                      | 1.25 | 0.041                | 0.049 |
| H1     | 0.55                      | 0.75 | 0.022                | 0.030 |