

## Features

- Planar Die Construction
- ESD Protected up to 16KV (HBM)
- Halogen Free. "Green" Device (Note 1)
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant t ("P" Suffix Designates RoHS Compliant. See Ordering Information)

**200 mW  
Zener Diode  
2.4 to 39 Volts**

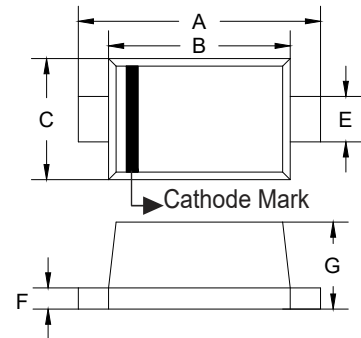
## Maximum Ratings

- Operating Junction Temperature Range: -65°C to +150°C
- Storage Temperature Range: -65°C to +150°C
- Thermal Resistance :625°C/W Junction to Ambient

| Parameter               | Symbol | Rating | Conditions |
|-------------------------|--------|--------|------------|
| Power Dissipation       | $P_D$  | 200mW  |            |
| Maximum Forward Voltage | $V_F$  | 0.9V   | $I_F=10mA$ |

Note: 1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

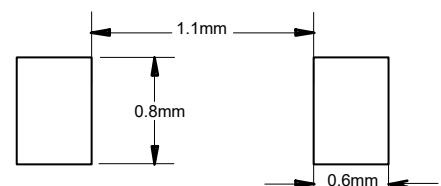
## SOD-523



### DIMENSIONS

| DIM | INCHES |       | MM   |      | NOTE |
|-----|--------|-------|------|------|------|
|     | MIN    | MAX   | MIN  | MAX  |      |
| A   | 0.059  | 0.067 | 1.50 | 1.70 |      |
| B   | 0.043  | 0.051 | 1.10 | 1.30 |      |
| C   | 0.030  | 0.033 | 0.75 | 0.85 |      |
| E   | 0.010  | 0.014 | 0.25 | 0.35 |      |
| F   | 0.003  | 0.008 | 0.08 | 0.20 |      |
| G   | 0.020  | 0.026 | 0.50 | 0.65 |      |

### Suggested Solder Pad Layout



**Electrical Characteristics @ 25°C Unless Otherwise Specified**

| MCC<br>Part Number <sup>(4)</sup> | Zener Voltage <sup>(2)</sup>     |        |         | Maximum Zener<br>Impedance <sup>(3)</sup> |                 | Maximum Zener<br>Impedance <sup>(3)</sup> |                 | Maximum Reverse<br>Current |                | Typical Temperature<br>Coefficient @ I <sub>ZT</sub> |      | Marking Code <sup>(4)</sup> |
|-----------------------------------|----------------------------------|--------|---------|---|-----------------|---|-----------------|----------------------------|----------------|--|------|-----------------------------|
|                                   | V <sub>Z</sub> @ I <sub>ZT</sub> |        |         | I <sub>ZT</sub>                           | Z <sub>ZT</sub> | I <sub>ZK</sub>                           | Z <sub>ZK</sub> | I <sub>R</sub>             | V <sub>R</sub> | Min  | Max. |                             |
|                                   | Min.(V)                          | Nom(V) | Max.(V) | mA  | Ω               | mA  | Ω               | Max.(μA)                   | V              | mV/°C  |      |                             |
| BZT52C2V4T                        | 2.28                             | 2.4    | 2.56    | 5   | 100             | 1.0                                       | 600             | 50                         | 1.0            | -3.5   | 0    | Z11                         |
| BZT52C2V7T                        | 2.5                              | 2.7    | 2.9     | 5   | 100             | 1.0                                       | 600             | 20                         | 1.0            | -3.5   | 0    | Z12                         |
| BZT52C3V0T                        | 2.8                              | 3.0    | 3.2     | 5   | 95              | 1.0                                       | 600             | 10                         | 1.0            | -3.5   | 0    | Z13                         |
| BZT52C3V3T                        | 3.1                              | 3.3    | 3.5     | 5   | 95              | 1.0                                       | 600             | 5                          | 1.0            | -3.5   | 0    | Z14                         |
| BZT52C3V6T                        | 3.4                              | 3.6    | 3.8     | 5   | 90              | 1.0                                       | 600             | 5                          | 1.0            | -3.5   | 0    | Z15                         |
| BZT52C3V9T                        | 3.7                              | 3.9    | 4.1     | 5   | 90              | 1.0                                       | 600             | 3                          | 1.0            | -3.5   | 0    | Z16                         |
| BZT52C4V3T                        | 4.0                              | 4.3    | 4.6     | 5   | 90              | 1.0                                       | 600             | 3                          | 1.0            | -3.5   | 0    | Z17                         |
| BZT52C4V7T                        | 4.4                              | 4.7    | 5.0     | 5   | 80              | 1.0                                       | 500             | 3                          | 2.0            | -3.5   | 0.2  | Z1                          |
| BZT52C5V1T                        | 4.8                              | 5.1    | 5.4     | 5   | 60              | 1.0                                       | 480             | 2                          | 2.0            | -2.7   | 1.2  | Z2                          |
| BZT52C5V6T                        | 5.2                              | 5.6    | 6.0     | 5   | 40              | 1.0                                       | 400             | 1                          | 2.0            | -2.0   | 2.5  | Z3                          |
| BZT52C6V2T                        | 5.8                              | 6.2    | 6.6     | 5   | 10              | 1.0                                       | 150             | 3                          | 4.0            | 0.4  | 3.7  | Z4                          |
| BZT52C6V8T                        | 6.4                              | 6.8    | 7.2     | 5   | 15              | 1.0                                       | 80              | 2                          | 4.0            | 1.2  | 4.5  | Z5                          |
| BZT52C7V5T                        | 7.0                              | 7.5    | 7.9     | 5   | 15              | 1.0                                       | 80              | 1                          | 5.0            | 2.5  | 5.3  | Z6                          |
| BZT52C8V2T                        | 7.7                              | 8.2    | 8.7     | 5   | 15              | 1.0                                       | 80              | 0.7                        | 5.0            | 3.2  | 6.2  | Z7                          |
| BZT52C9V1T                        | 8.5                              | 9.1    | 9.6     | 5   | 15              | 1.0                                       | 100             | 0.5                        | 6.0            | 3.8  | 7.0  | Z8                          |
| BZT52C10T                         | 9.4                              | 10     | 10.6    | 5   | 20              | 1.0                                       | 150             | 0.2                        | 7.0            | 4.5  | 8.0  | Z9                          |
| BZT52C11T                         | 10.4                             | 11     | 11.6    | 5   | 20              | 1.0                                       | 150             | 0.1                        | 8.0            | 5.4  | 9.0  | Y1                          |
| BZT52C12T                         | 11.4                             | 12     | 12.7    | 5   | 25              | 1.0                                       | 150             | 0.1                        | 8.0            | 6.0  | 10.0 | Y2                          |
| BZT52C13T                         | 12.4                             | 13     | 14.1    | 5   | 30              | 1.0                                       | 170             | 0.1                        | 8.0            | 7.0  | 11.0 | Y3                          |
| BZT52C15T                         | 13.8                             | 15     | 15.6    | 5   | 30              | 1.0                                       | 200             | 0.1                        | 10.5           | 9.2  | 13.0 | Y4                          |
| BZT52C16T                         | 15.3                             | 16     | 17.1    | 5   | 40              | 1.0                                       | 200             | 0.1                        | 11.2           | 10.4   | 14.0 | Y5                          |
| BZT52C18T                         | 16.8                             | 18     | 19.1    | 5   | 45              | 1.0                                       | 225             | 0.1                        | 12.6           | 12.4   | 16.0 | Y6                          |
| BZT52C20T                         | 18.8                             | 20     | 21.2    | 5   | 55              | 1.0                                       | 225             | 0.1                        | 14.0           | 14.4   | 18.0 | Y7                          |
| BZT52C22T                         | 20.8                             | 22     | 23.3    | 5   | 55              | 1.0                                       | 250             | 0.1                        | 15.4           | 16.4   | 20.0 | Y8                          |
| BZT52C24T                         | 22.8                             | 24     | 25.6    | 5   | 70              | 1.0                                       | 250             | 0.1                        | 16.8           | 18.4   | 22.0 | Y9                          |
| BZT52C27T                         | 25.1                             | 27     | 28.9    | 2   | 80              | 0.5                                       | 300             | 0.1                        | 18.9           | 21.4   | 25.3 | Y10                         |
| BZT52C30T                         | 28                               | 30     | 32      | 2   | 80              | 0.5                                       | 300             | 0.1                        | 21.0           | 24.4   | 29.4 | Y11                         |
| BZT52C33T                         | 31                               | 33     | 35      | 2   | 80              | 0.5                                       | 325             | 0.1                        | 23.1           | 27.4   | 33.4 | Y12                         |
| BZT52C36T                         | 34                               | 36     | 38      | 2   | 90              | 0.5                                       | 350             | 0.1                        | 25.2           | 30.4   | 37.4 | Y13                         |
| BZT52C39T                         | 37                               | 39     | 41      | 2   | 130             | 0.5                                       | 350             | 0.1                        | 27.3           | 33.4   | 41.2 | Y14                         |

- Note :
2. Tested with pulses, period = 5ms, pulse width=300us
  3. f=1KHz
  4. Standard Zener voltage tolerance is ±5% with a "C" suffix (e.g.: BZT52C2V4T),suffix "B" is ± 2 % tolerance (e.g.: BZT52B2V4T)

**Electrical Characteristics @ 25°C Unless Otherwise Specified**

| MCC Part Number <sup>(4)</sup> | Zener Voltage <sup>(2)</sup>     |        |         | Maximum Zener Impedance <sup>(3)</sup> |                 | Maximum Zener Impedance <sup>(3)</sup> |                 | Maximum Reverse Current |                | Typical Temperature Coefficient @ I <sub>ZT</sub> |      | Marking Code <sup>(4)</sup> |
|--------------------------------|----------------------------------|--------|---------|--|-----------------|--|-----------------|-------------------------|----------------|---|------|-----------------------------|
|                                | V <sub>Z</sub> @ I <sub>ZT</sub> |        |         | I <sub>ZT</sub>                        | Z <sub>ZT</sub> | I <sub>ZK</sub>                        | Z <sub>ZK</sub> | I <sub>R</sub>          | V <sub>R</sub> | Min   | Max. |                             |
|                                | Min.(V)                          | Nom(V) | Max.(V) | mA                                     | Ω               | mA                                     | Ω               | Max.(μA)                | V              | mV/°C   |      |                             |
| BZT52B2V4T                     | 2.35                             | 2.4    | 2.45    | 5                                      | 100             | 1.0                                    | 600             | 50                      | 1.0            | -3.5  | 0    | .Z11                        |
| BZT52B2V7T                     | 2.65                             | 2.7    | 2.75    | 5                                      | 100             | 1.0                                    | 600             | 20                      | 1.0            | -3.5  | 0    | .Z12                        |
| BZT52B3V0T                     | 2.94                             | 3.0    | 3.06    | 5                                      | 95              | 1.0                                    | 600             | 10                      | 1.0            | -3.5  | 0    | .Z13                        |
| BZT52B3V3T                     | 3.23                             | 3.3    | 3.37    | 5                                      | 95              | 1.0                                    | 600             | 5                       | 1.0            | -3.5  | 0    | .Z14                        |
| BZT52B3V6T                     | 3.53                             | 3.6    | 3.67    | 5                                      | 90              | 1.0                                    | 600             | 5                       | 1.0            | -3.5  | 0    | .Z15                        |
| BZT52B3V9T                     | 3.82                             | 3.9    | 3.98    | 5                                      | 90              | 1.0                                    | 600             | 3                       | 1.0            | -3.5  | 0    | .Z16                        |
| BZT52B4V3T                     | 4.21                             | 4.3    | 4.39    | 5                                      | 90              | 1.0                                    | 600             | 3                       | 1.0            | -3.5  | 0    | .Z17                        |
| BZT52B4V7T                     | 4.61                             | 4.7    | 4.79    | 5                                      | 80              | 1.0                                    | 500             | 3                       | 2.0            | -3.5  | 0.2  | .Z1                         |
| BZT52B5V1T                     | 5.00                             | 5.1    | 5.20    | 5                                      | 60              | 1.0                                    | 480             | 2                       | 2.0            | -2.7  | 1.2  | .Z2                         |
| BZT52B5V6T                     | 5.49                             | 5.6    | 5.71    | 5                                      | 40              | 1.0                                    | 400             | 1                       | 2.0            | -2.0  | 2.5  | .Z3                         |
| BZT52B6V2T                     | 6.08                             | 6.2    | 6.32    | 5                                      | 10              | 1.0                                    | 150             | 3                       | 4.0            | 0.4   | 3.7  | .Z4                         |
| BZT52B6V8T                     | 6.66                             | 6.8    | 6.94    | 5                                      | 15              | 1.0                                    | 80              | 2                       | 4.0            | 1.2   | 4.5  | .Z5                         |
| BZT52B7V5T                     | 7.35                             | 7.5    | 7.65    | 5                                      | 15              | 1.0                                    | 80              | 1                       | 5.0            | 2.5   | 5.3  | .Z6                         |
| BZT52B8V2T                     | 8.04                             | 8.2    | 8.36    | 5                                      | 15              | 1.0                                    | 80              | 0.7                     | 5.0            | 3.2   | 6.2  | .Z7                         |
| BZT52B9V1T                     | 8.92                             | 9.1    | 9.28    | 5                                      | 15              | 1.0                                    | 100             | 0.5                     | 6.0            | 3.8   | 7.0  | .Z8                         |
| BZT52B10T                      | 9.80                             | 10     | 10.20   | 5                                      | 20              | 1.0                                    | 150             | 0.2                     | 7.0            | 4.5   | 8.0  | .Z9                         |
| BZT52B11T                      | 10.78                            | 11     | 11.22   | 5                                      | 20              | 1.0                                    | 150             | 0.1                     | 8.0            | 5.4   | 9.0  | .Y1                         |
| BZT52B12T                      | 11.76                            | 12     | 12.24   | 5                                      | 25              | 1.0                                    | 150             | 0.1                     | 8.0            | 6.0   | 10.0 | .Y2                         |
| BZT52B13T                      | 12.74                            | 13     | 13.26   | 5                                      | 30              | 1.0                                    | 170             | 0.1                     | 8.0            | 7.0   | 11.0 | .Y3                         |
| BZT52B15T                      | 14.70                            | 15     | 15.30   | 5                                      | 30              | 1.0                                    | 200             | 0.1                     | 10.5           | 9.2   | 13.0 | .Y4                         |
| BZT52B16T                      | 15.68                            | 16     | 16.32   | 5                                      | 40              | 1.0                                    | 200             | 0.1                     | 11.2           | 10.4  | 14.0 | .Y5                         |
| BZT52B18T                      | 17.64                            | 18     | 18.36   | 5                                      | 45              | 1.0                                    | 225             | 0.1                     | 12.6           | 12.4  | 16.0 | .Y6                         |
| BZT52B20T                      | 19.60                            | 20     | 20.40   | 5                                      | 55              | 1.0                                    | 225             | 0.1                     | 14.0           | 14.4  | 18.0 | .Y7                         |
| BZT52B22T                      | 21.56                            | 22     | 22.44   | 5                                      | 55              | 1.0                                    | 250             | 0.1                     | 15.4           | 16.4  | 20.0 | .Y8                         |
| BZT52B24T                      | 23.52                            | 24     | 24.48   | 5                                      | 70              | 1.0                                    | 250             | 0.1                     | 16.8           | 18.4  | 22.0 | .Y9                         |
| BZT52B27T                      | 26.46                            | 27     | 27.54   | 2                                      | 80              | 0.5                                    | 300             | 0.1                     | 18.9           | 21.4  | 25.3 | .Y10                        |
| BZT52B30T                      | 29.40                            | 30     | 30.60   | 2                                      | 80              | 0.5                                    | 300             | 0.1                     | 21.0           | 24.4  | 29.4 | .Y11                        |
| BZT52B33T                      | 32.34                            | 33     | 33.66   | 2                                      | 80              | 0.5                                    | 325             | 0.1                     | 23.1           | 27.4  | 33.4 | .Y12                        |
| BZT52B36T                      | 35.28                            | 36     | 36.72   | 2                                      | 90              | 0.5                                    | 350             | 0.1                     | 25.2           | 30.4  | 37.4 | .Y13                        |
| BZT52B39T                      | 38.22                            | 39     | 39.78   | 2                                      | 130             | 0.5                                    | 350             | 0.1                     | 27.3           | 33.4  | 41.2 | .Y14                        |

Note :

2. Tested with pulses, period = 5ms, pulse width=300us
3. f=1KHz
4. Standard Zener voltage tolerance is ±5% with a "C" suffix (e.g.: BZT52C2V4T),suffix "B" is ± 2 % tolerance (e.g.: BZT52B2V4T)

**Curve Characteristics**

Fig. 1 - Power Derating Curve

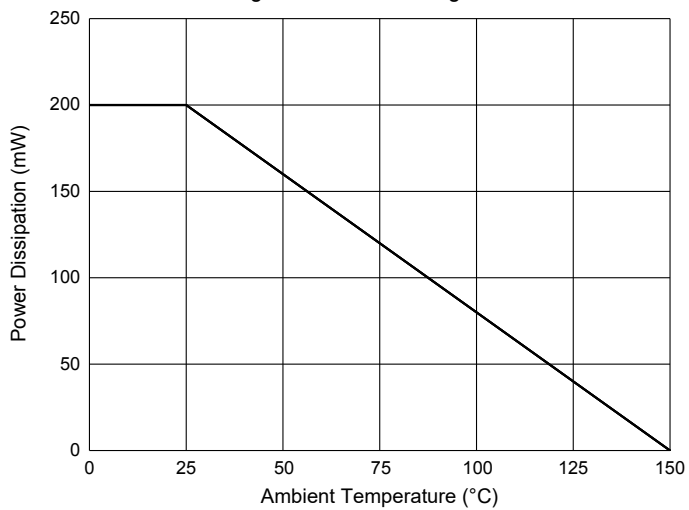


Fig. 2 - Typical Zener Breakdown Characteristics

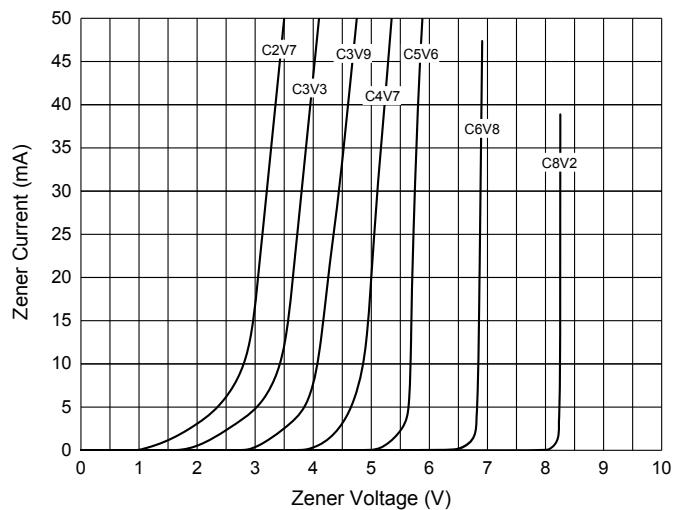
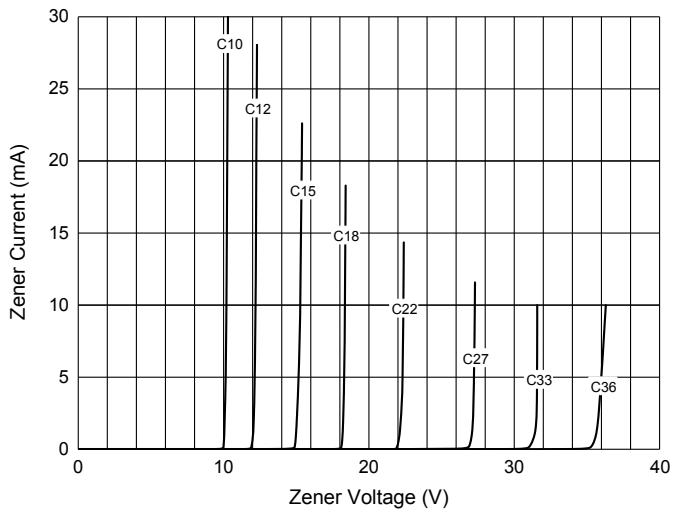


Fig. 3 - Typical Zener Breakdown Characteristics



## Ordering Information

| Device          | Packing              |
|-----------------|----------------------|
| Part Number-TP  | Tape&Reel:8Kpcs/Reel |
| Part Number-T3P | Tape&Reel:3Kpcs/Reel |

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