



**THE DATASHEET OF
BZT52C3V3T-TP**



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**

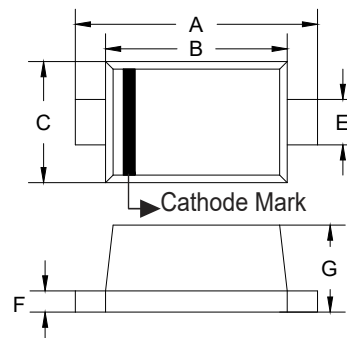
Maximum Ratings

- 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 | $I_F=10mA$ |

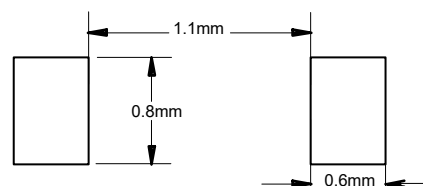
Note: 1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

SOD-523



| 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 Part Number ⁽⁴⁾ | Zener Voltage ⁽²⁾ | | | Maximum Zener Impedance ⁽³⁾ | | Maximum Zener Impedance ⁽³⁾ | | Maximum Reverse Current | | Typical Temperature Coefficient @ I _{ZTC} | | Marking Code ⁽⁴⁾ |
|-----------------------------------|----------------------------------|--------|---------|---|-----------------|---|-----------------|----------------------------|----------------|---|------|-----------------------------|
| | V _Z @ I _{ZT} | | | I _{ZT} | Z _{ZT} | I _{ZK} | Z _{ZK} | I _R | V _R | 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 ⁽⁴⁾ | Zener Voltage ⁽²⁾ | | | Maximum Zener Impedance ⁽³⁾ | | Maximum Zener Impedance ⁽³⁾ | | Maximum Reverse Current | | Typical Temperature Coefficient @ I _{ZT} | | Marking Code ⁽⁴⁾ |
|-----------------------------------|----------------------------------|--------|---------|---|-----------------|---|-----------------|----------------------------|----------------|--|------|-----------------------------|
| | V _Z @ I _{ZT} | | | I _{ZT} | Z _{ZT} | I _{ZK} | Z _{ZK} | I _R | V _R | 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

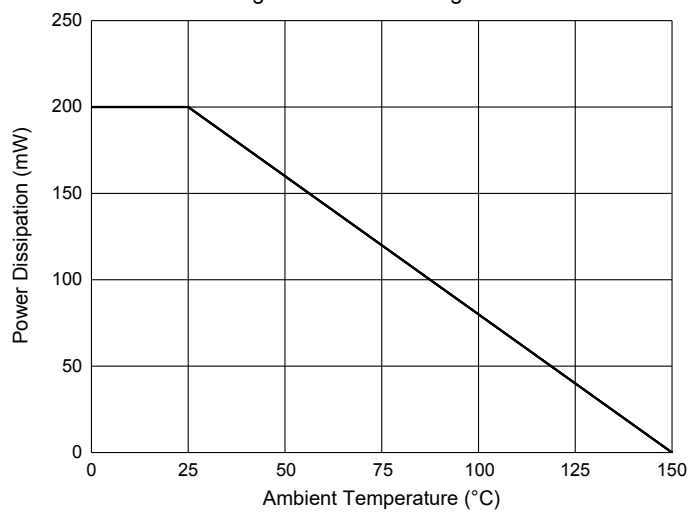


Fig. 2 - Typical Zener Breakdown Characteristics

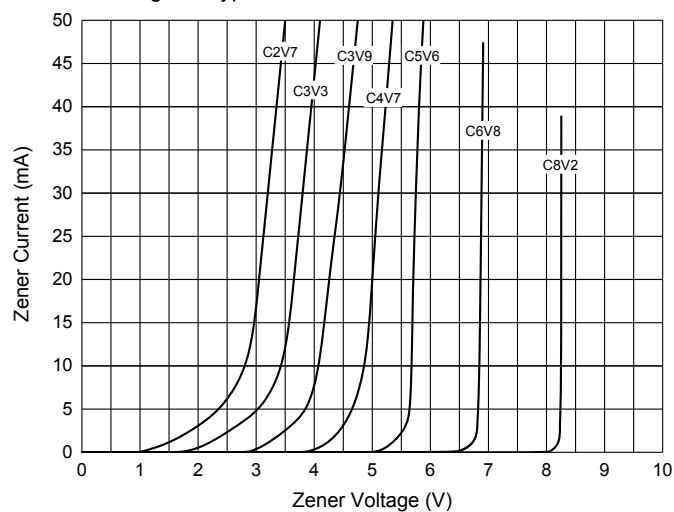
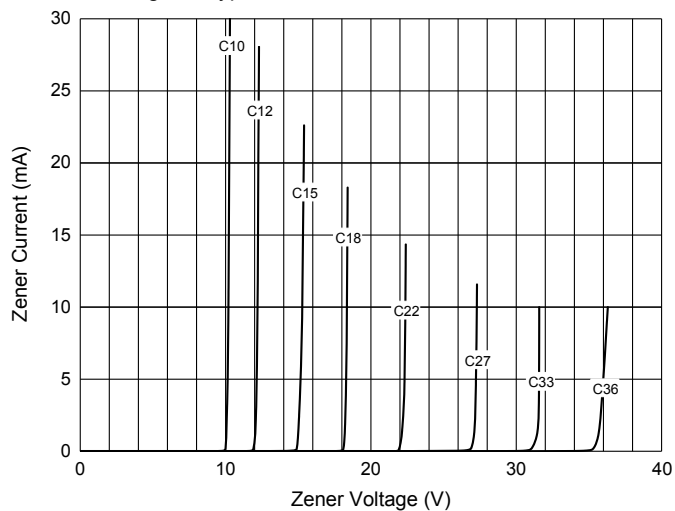


Fig. 3 - Typical Zener Breakdown Characteristics



Ordering Information

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

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