

## Features

- Halogen Free. "Green" Device (Note 1)
- AEC-Q101 Qualified
- Planar Die Construction
- Ideally Suited for Automated Assembly Processes
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

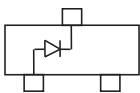
## Maximum Ratings

- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance : 357°C/W Junction to Ambient

| Parameter                  | Symbol    | Rating | Conditions |
|----------------------------|-----------|--------|------------|
| Power Dissipation          | $P_D$     | 350mW  | Note 2     |
| Peak Forward Surge Current | $I_{FSM}$ | 2.0A   | Note 3     |
| Maximum Forward Voltage    | $V_F$     | 0.9V   | $I_F=10mA$ |

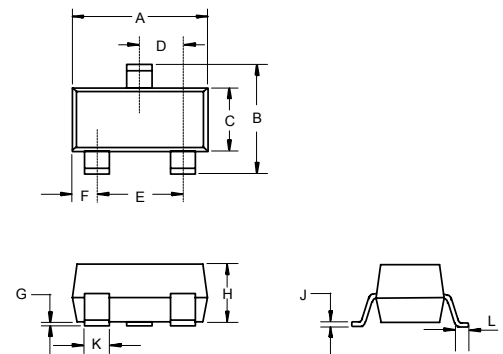
- Note: 1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.  
 2. Mounted on 5.0mm<sup>2</sup> (.013mm thick) Land Areas.  
 3. Measured on 8.3ms, Single Half Sine-wave or Equivalent Square Wave

## Internal Structure



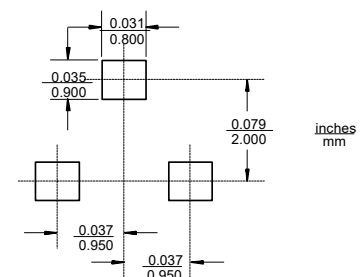
**350 mWatt  
Zener Diodes  
2.4 to 47 Volts**

## SOT-23



| DIM | INCHES |       | MM   |      | NOTE |
|-----|--------|-------|------|------|------|
|     | MIN    | MAX   | MIN  | MAX  |      |
| A   | 0.110  | 0.120 | 2.80 | 3.04 |      |
| B   | 0.083  | 0.104 | 2.10 | 2.64 |      |
| C   | 0.047  | 0.055 | 1.20 | 1.40 |      |
| D   | 0.034  | 0.041 | 0.85 | 1.05 |      |
| E   | 0.067  | 0.083 | 1.70 | 2.10 |      |
| F   | 0.018  | 0.024 | 0.45 | 0.60 |      |
| G   | 0.0004 | 0.006 | 0.01 | 0.15 |      |
| H   | 0.035  | 0.043 | 0.90 | 1.10 |      |
| J   | 0.003  | 0.007 | 0.08 | 0.18 |      |
| K   | 0.012  | 0.020 | 0.30 | 0.51 |      |
| L   | 0.007  | 0.020 | 0.20 | 0.50 |      |

## Suggested Solder Pad Layout



Electrical Characteristics @ 25°C Unless Otherwise Specified

| MCC<br>Part Number | Zener Voltage <sup>(4,5)</sup>   |        |         | Maximum Zener Impedance <sup>(6)</sup> |                                   |                 |                                   | Maximum<br>Reverse Current<br>I <sub>R</sub> @ V <sub>R</sub> |                | Typical<br>Temperature<br>Coefficient |             | Marking Code |
|--------------------|----------------------------------|--------|---------|--|-----------------------------------|-----------------|-----------------------------------|---|----------------|---------------------------------------|-------------|--------------|
|                    | V <sub>Z</sub> @ I <sub>ZT</sub> |        |         | I <sub>ZT</sub>                        | Z <sub>ZT</sub> @ I <sub>ZT</sub> | I <sub>ZK</sub> | Z <sub>ZK</sub> @ I <sub>ZK</sub> | I <sub>R</sub>  | V <sub>R</sub> | @I <sub>ZT</sub>                      |             |              |
|                    | Min.(V)                          | Nom(V) | Max.(V) | mA                                     | Ω                                 | mA              | Ω                                 | μA  | V              | Min.(mV/°C)                           | Max.(mV/°C) |              |
| BZX84C2V4HE3       | 2.28                             | 2.40   | 2.52    | 5                                      | 100                               | 1               | 600                               | 50  | 1.0            | -3.5                                  | 0           | Z11          |
| BZX84C2V7HE3       | 2.50                             | 2.70   | 2.90    | 5                                      | 100                               | 1               | 600                               | 20  | 1.0            | -3.5                                  | 0           | Z12          |
| BZX84C3V0HE3       | 2.80                             | 3.00   | 3.20    | 5                                      | 95                                | 1               | 600                               | 10  | 1.0            | -3.5                                  | 0           | Z13          |
| BZX84C3V3HE3       | 3.10                             | 3.30   | 3.50    | 5                                      | 95                                | 1               | 600                               | 5   | 1.0            | -3.5                                  | 0           | Z14          |
| BZX84C3V6HE3       | 3.40                             | 3.60   | 3.80    | 5                                      | 90                                | 1               | 600                               | 5   | 1.0            | -3.5                                  | 0           | Z15          |
| BZX84C3V9HE3       | 3.70                             | 3.90   | 4.10    | 5                                      | 90                                | 1               | 600                               | 3   | 1.0            | -3.5                                  | 0           | Z16          |
| BZX84C4V3HE3       | 4.00                             | 4.30   | 4.60    | 5                                      | 90                                | 1               | 600                               | 3   | 1.0            | -3.5                                  | 0           | Z17          |
| BZX84C4V7HE3       | 4.40                             | 4.70   | 5.00    | 5                                      | 80                                | 1               | 500                               | 3   | 2.0            | -3.5                                  | 0.2         | Z1           |
| BZX84C5V1HE3       | 4.80                             | 5.10   | 5.40    | 5                                      | 60                                | 1               | 480                               | 2   | 2.0            | -2.7                                  | 1.2         | Z2           |
| BZX84C5V6HE3       | 5.20                             | 5.60   | 6.00    | 5                                      | 40                                | 1               | 400                               | 1   | 2.0            | -2                                    | 2.5         | Z3           |
| BZX84C6V2HE3       | 5.80                             | 6.20   | 6.60    | 5                                      | 10                                | 1               | 150                               | 3   | 4.0            | 0.4                                   | 3.7         | Z4           |
| BZX84C6V8HE3       | 6.40                             | 6.80   | 7.20    | 5                                      | 15                                | 1               | 80                                | 2   | 4.0            | 1.2                                   | 4.5         | Z5           |
| BZX84C7V5HE3       | 7.00                             | 7.50   | 7.90    | 5                                      | 15                                | 1               | 80                                | 1   | 5.0            | 2.5                                   | 5.3         | Z6           |
| BZX84C8V2HE3       | 7.70                             | 8.20   | 8.70    | 5                                      | 15                                | 1               | 80                                | 0.7   | 5.0            | 3.2                                   | 6.2         | Z7           |
| BZX84C9V1HE3       | 8.50                             | 9.10   | 9.60    | 5                                      | 15                                | 1               | 100                               | 0.5   | 6.0            | 3.8                                   | 7.0         | Z8           |
| BZX84C10HE3        | 9.40                             | 10.00  | 10.60   | 5                                      | 20                                | 1               | 150                               | 0.2   | 7.0            | 4.5                                   | 8.0         | Z9           |
| BZX84C11HE3        | 10.40                            | 11.00  | 11.60   | 5                                      | 20                                | 1               | 150                               | 0.1   | 8.0            | 5.4                                   | 9.0         | Y1           |
| BZX84C12HE3        | 11.40                            | 12.00  | 12.70   | 5                                      | 25                                | 1               | 150                               | 0.1   | 8.0            | 6.0                                   | 10          | Y2           |
| BZX84C13HE3        | 12.40                            | 13.00  | 14.10   | 5                                      | 30                                | 1               | 170                               | 0.1   | 8.0            | 7.0                                   | 11          | Y3           |
| BZX84C15HE3        | 13.80                            | 15.00  | 15.60   | 5                                      | 30                                | 1               | 200                               | 0.1   | 10.5           | 9.2                                   | 13          | Y4           |
| BZX84C16HE3        | 15.30                            | 16.00  | 17.10   | 5                                      | 40                                | 1               | 200                               | 0.1   | 11.2           | 10.4                                  | 14          | Y5           |
| BZX84C18HE3        | 16.80                            | 18.00  | 19.10   | 5                                      | 45                                | 1               | 225                               | 0.1   | 12.6           | 12.4                                  | 16          | Y6           |
| BZX84C20HE3        | 18.80                            | 20.00  | 21.20   | 5                                      | 55                                | 1               | 225                               | 0.1   | 14.0           | 14.4                                  | 18          | Y7           |
| BZX84C22HE3        | 20.80                            | 22.00  | 23.30   | 5                                      | 55                                | 1               | 250                               | 0.1   | 15.4           | 16.4                                  | 20          | Y8           |
| BZX84C24HE3        | 22.80                            | 24.00  | 25.60   | 5                                      | 70                                | 1               | 250                               | 0.1   | 16.8           | 18.4                                  | 22          | Y9           |
| BZX84C27HE3        | 25.10                            | 27.00  | 28.90   | 2                                      | 80                                | 1               | 300                               | 0.1   | 18.9           | 21.4                                  | 25.3        | Y10          |
| BZX84C30HE3        | 28.00                            | 30.00  | 32.00   | 2                                      | 80                                | 1               | 300                               | 0.1   | 21.0           | 24.4                                  | 29.4        | Y11          |
| BZX84C33HE3        | 31.00                            | 33.00  | 35.00   | 2                                      | 80                                | 1               | 325                               | 0.1   | 23.1           | 27.4                                  | 33.4        | Y12          |
| BZX84C36HE3        | 34.00                            | 36.00  | 38.00   | 2                                      | 90                                | 1               | 350                               | 0.1   | 25.2           | 30.4                                  | 37.4        | Y13          |
| BZX84C39HE3        | 37.00                            | 39.00  | 41.00   | 2                                      | 130                               | 1               | 350                               | 0.1   | 27.3           | 33.4                                  | 41.2        | Y14          |
| BZX84C43HE3        | 40.85                            | 43.00  | 45.15   | 5                                      | 150                               | 1               | 375                               | 0.1   | 30.10          | 37.6                                  | 50.6        | Y15          |
| BZX84C47HE3        | 44.65                            | 47.00  | 49.35   | 5                                      | 170                               | 1               | 375                               | 0.1   | 32.90          | 42                                    | 55.8        | Y16          |

Note :

- Standard zener voltage tolerance is +/- 5% with a 'C' suffix from BZX84C2V4HE3~BZX84C47HE3
- Zener Voltage (V<sub>Z</sub>) Measurement. Guarantess the Zener Voltage When Measured at 90 Seconds While Maintaining the Lead Temperature (T<sub>L</sub>) at 25°C from the Diode Body.
- Zener Impedance (Z<sub>Z</sub>) Derivation. The zener Impedance is Derived from the 60 Cycle AC Voltage, Which Results When an AC Current Having an rms Value Equal to 10% of the DC Zener Current (I<sub>ZT</sub> or I<sub>ZK</sub>) is Superimposed on I<sub>ZT</sub> or I<sub>ZK</sub>.

**Curve Characteristics**

Fig. 1 - Power Derating Curve

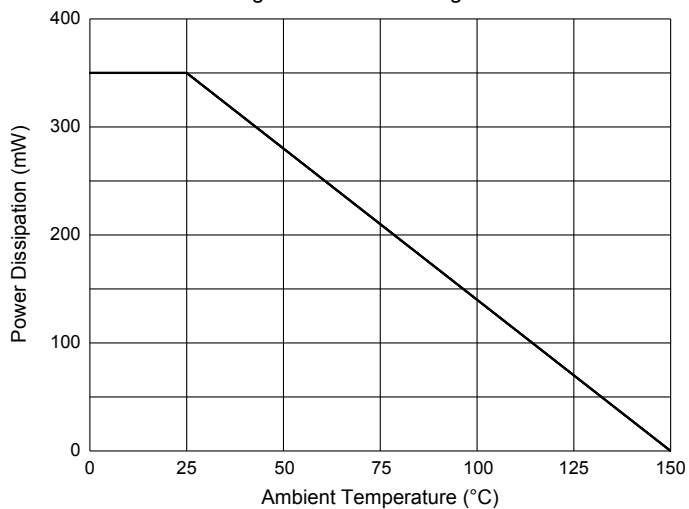


Fig. 2 - Typical Zener Breakdown Characteristics

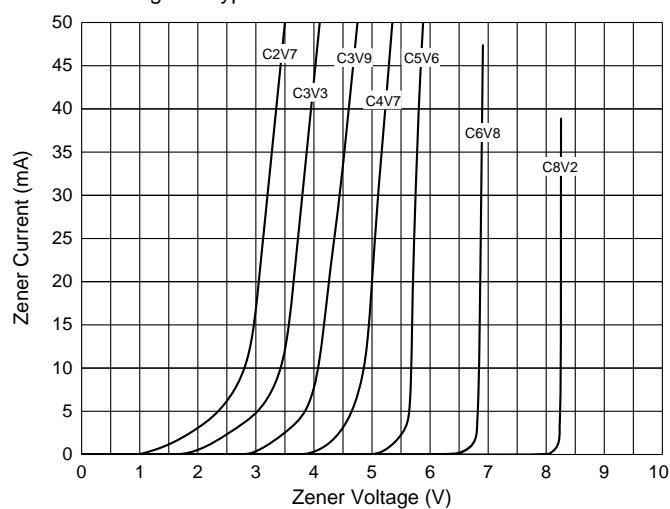
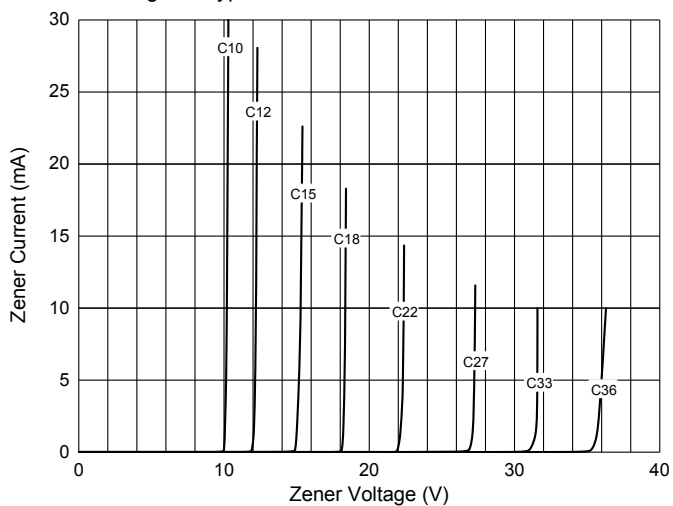


Fig. 3 - Typical Zener Breakdown Characteristics



## Ordering Information

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

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