

## Features

- Planar Die Construction
- Zener Voltages from 2.4V - 75V
- Ideally Suited for Automated Assembly Processes
- Halogen Free Available Upon Request By Adding Suffix "-HF"
- 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

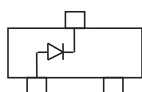
- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance : 357°C/W Junction to Ambient

| Parameter                  | Symbol    | Rating | Conditions |
|----------------------------|-----------|--------|------------|
| Power Dissipation          | $P_D$     | 350mW  | Note 1     |
| Peak Forward Surge Current | $I_{FSM}$ | 2.0A   | Note 2     |
| Maximum Forward Voltage    | $V_F$     | 0.9V   | $I_F=10mA$ |

Note:

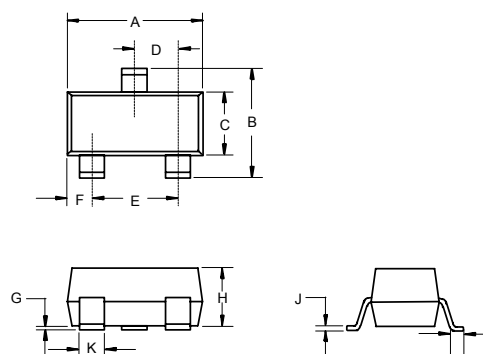
1. Mounted on 5.0mm<sup>2</sup> (.013mm thick) Land Areas.
2. Measured on 8.3ms, Single Half Sine-wave or Equivalent Square Wave

## Internal Structure



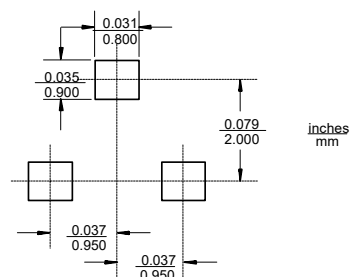
## 350 mWatt Zener Diodes 2.4 to 75 Volts

### 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>(3,4)</sup>   |        |         | Maximum Zener Impedance <sup>(5)</sup> |                                   |                 |                                   | Maximum<br>Reverse Current<br>I <sub>R</sub> @ V <sub>R</sub> |                | 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> |              |
|                    | Min.(V)                          | Nom(V) | Max.(V) | mA                                     | Ω                                 | mA              | Ω                                 | μA                                                            | V              |              |
| BZX84C2V4          | 2.28                             | 2.40   | 2.52    | 5                                      | 100                               | 1               | 600                               | 50                                                            | 1.0            | Z11          |
| BZX84C2V7          | 2.50                             | 2.70   | 2.90    | 5                                      | 100                               | 1               | 600                               | 20                                                            | 1.0            | W2           |
| BZX84C3V0          | 2.80                             | 3.00   | 3.20    | 5                                      | 95                                | 1               | 600                               | 10                                                            | 1.0            | Z13          |
| BZX84C3V3          | 3.10                             | 3.30   | 3.50    | 5                                      | 95                                | 1               | 600                               | 5                                                             | 1.0            | Z14          |
| BZX84C3V6          | 3.40                             | 3.60   | 3.80    | 5                                      | 90                                | 1               | 600                               | 5                                                             | 1.0            | Z15          |
| BZX84C3V9          | 3.70                             | 3.90   | 4.10    | 5                                      | 90                                | 1               | 600                               | 3                                                             | 1.0            | Z16          |
| BZX84C4V3          | 4.00                             | 4.30   | 4.60    | 5                                      | 90                                | 1               | 600                               | 3                                                             | 1.0            | Z17          |
| BZX84C4V7          | 4.40                             | 4.70   | 5.00    | 5                                      | 80                                | 1               | 500                               | 3                                                             | 2.0            | Z1           |
| BZX84C5V1          | 4.80                             | 5.10   | 5.40    | 5                                      | 60                                | 1               | 480                               | 2                                                             | 2.0            | Z2           |
| BZX84C5V6          | 5.20                             | 5.60   | 6.00    | 5                                      | 40                                | 1               | 400                               | 1                                                             | 2.0            | Z3           |
| BZX84C6V2          | 5.80                             | 6.20   | 6.60    | 5                                      | 10                                | 1               | 150                               | 3                                                             | 4.0            | Z4           |
| BZX84C6V8          | 6.40                             | 6.80   | 7.20    | 5                                      | 15                                | 1               | 80                                | 2                                                             | 4.0            | Z5           |
| BZX84C7V5          | 7.00                             | 7.50   | 7.90    | 5                                      | 15                                | 1               | 80                                | 1                                                             | 5.0            | Z6           |
| BZX84C8V2          | 7.70                             | 8.20   | 8.70    | 5                                      | 15                                | 1               | 80                                | 0.7                                                           | 5.0            | Z7           |
| BZX84C9V1          | 8.50                             | 9.10   | 9.60    | 5                                      | 15                                | 1               | 100                               | 0.5                                                           | 6.0            | Z8           |
| BZX84C10           | 9.40                             | 10.00  | 10.60   | 5                                      | 20                                | 1               | 150                               | 0.2                                                           | 7.0            | Z9           |
| BZX84C11           | 10.40                            | 11.00  | 11.60   | 5                                      | 20                                | 1               | 150                               | 0.1                                                           | 8.0            | Y1           |
| BZX84C12           | 11.40                            | 12.00  | 12.70   | 5                                      | 25                                | 1               | 150                               | 0.1                                                           | 8.0            | Y2           |
| BZX84C13           | 12.40                            | 13.00  | 14.10   | 5                                      | 30                                | 1               | 170                               | 0.1                                                           | 8.0            | Y3           |
| BZX84C15           | 13.80                            | 15.00  | 15.60   | 5                                      | 30                                | 1               | 200                               | 0.1                                                           | 10.5           | Y4           |
| BZX84C16           | 15.30                            | 16.00  | 17.10   | 5                                      | 40                                | 1               | 200                               | 0.1                                                           | 11.2           | Y5           |
| BZX84C18           | 16.80                            | 18.00  | 19.10   | 5                                      | 45                                | 1               | 225                               | 0.1                                                           | 12.6           | Y6           |
| BZX84C20           | 18.80                            | 20.00  | 21.20   | 5                                      | 55                                | 1               | 225                               | 0.1                                                           | 14.0           | Y7           |
| BZX84C22           | 20.80                            | 22.00  | 23.30   | 5                                      | 55                                | 1               | 250                               | 0.1                                                           | 15.4           | Y8           |
| BZX84C24           | 22.80                            | 24.00  | 25.60   | 5                                      | 70                                | 1               | 250                               | 0.1                                                           | 16.8           | Y9           |
| BZX84C27           | 25.10                            | 27.00  | 28.90   | 2                                      | 80                                | 0.5             | 300                               | 0.1                                                           | 18.9           | Y10          |
| BZX84C30           | 28.00                            | 30.00  | 32.00   | 2                                      | 80                                | 0.5             | 300                               | 0.1                                                           | 21.0           | Y11          |
| BZX84C33           | 31.00                            | 33.00  | 35.00   | 2                                      | 80                                | 0.5             | 325                               | 0.1                                                           | 23.1           | Y12          |
| BZX84C36           | 34.00                            | 36.00  | 38.00   | 2                                      | 90                                | 0.5             | 350                               | 0.1                                                           | 25.2           | Y13          |
| BZX84C39           | 37.00                            | 39.00  | 41.00   | 2                                      | 130                               | 0.5             | 350                               | 0.1                                                           | 27.3           | Y14          |
| BZX84C43           | 40.85                            | 43.00  | 45.15   | 2                                      | 150                               | 0.5             | 375                               | 0.1                                                           | 30.1           | Y15          |
| BZX84C47           | 44.65                            | 47.00  | 49.35   | 2                                      | 170                               | 0.5             | 375                               | 0.1                                                           | 32.9           | Y16          |
| BZX84C51           | 48.45                            | 51.00  | 53.55   | 2                                      | 180                               | 0.5             | 400                               | 0.1                                                           | 35.7           | Y17          |
| BZX84C56           | 53.20                            | 56.00  | 58.80   | 2                                      | 200                               | 0.5             | 425                               | 0.05                                                          | 39.2           | Y18          |
| BZX84C62           | 58.90                            | 62.00  | 65.10   | 2                                      | 215                               | 0.5             | 450                               | 0.05                                                          | 43.4           | Y19          |
| BZX84C68           | 64.60                            | 68.00  | 71.40   | 2                                      | 240                               | 0.5             | 475                               | 0.05                                                          | 47.6           | Y20          |
| BZX84C75           | 71.25                            | 75.00  | 78.75   | 2                                      | 255                               | 0.5             | 500                               | 0.05                                                          | 52.5           | Y21          |

Note :

- Standard zener voltage tolerance is +/- 5% with a 'C' suffix from BZX84C2V4~BZX84C75 , suffix 'B' is +/- 2% tolerance from BZX84B2V4~BZX84B75.
- 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>.

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

| MCC<br>Part Number | Zener Voltage <sup>(3,4)</sup>   |        |         | Maximum Zener Impedance <sup>(5)</sup> |                                   |                 |                                   | Maximum<br>Reverse Current<br>I <sub>R</sub> @ V <sub>R</sub> |                | 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> |              |
|                    | Min.(V)                          | Nom(V) | Max.(V) | mA                                     | Ω                                 | mA              | Ω                                 | μA                                                            | V              |              |
| BZX84B2V4          | 2.35                             | 2.40   | 2.45    | 5                                      | 100                               | 1               | 600                               | 50                                                            | 1.0            | W1           |
| BZX84B2V7          | 2.65                             | 2.70   | 2.75    | 5                                      | 100                               | 1               | 600                               | 20                                                            | 1.0            | W2           |
| BZX84B3V0          | 2.94                             | 3.00   | 3.06    | 5                                      | 95                                | 1               | 600                               | 10                                                            | 1.0            | W3           |
| BZX84B3V3          | 3.23                             | 3.30   | 3.37    | 5                                      | 95                                | 1               | 600                               | 5                                                             | 1.0            | W4           |
| BZX84B3V6          | 3.53                             | 3.60   | 3.67    | 5                                      | 90                                | 1               | 600                               | 5                                                             | 1.0            | W5           |
| BZX84B3V9          | 3.82                             | 3.90   | 3.98    | 5                                      | 90                                | 1               | 600                               | 3                                                             | 1.0            | W6           |
| BZX84B4V3          | 4.21                             | 4.30   | 4.39    | 5                                      | 90                                | 1               | 600                               | 3                                                             | 1.0            | W7           |
| BZX84B4V7          | 4.61                             | 4.70   | 4.79    | 5                                      | 80                                | 1               | 500                               | 3                                                             | 2.0            | Z1           |
| BZX84B5V1          | 5.00                             | 5.10   | 5.20    | 5                                      | 60                                | 1               | 480                               | 2                                                             | 2.0            | Z2           |
| BZX84B5V6          | 5.49                             | 5.60   | 5.71    | 5                                      | 40                                | 1               | 400                               | 1                                                             | 2.0            | Z3           |
| BZX84B6V2          | 6.08                             | 6.20   | 6.32    | 5                                      | 10                                | 1               | 150                               | 3                                                             | 4.0            | Z4           |
| BZX84B6V8          | 6.66                             | 6.80   | 6.94    | 5                                      | 15                                | 1               | 80                                | 2                                                             | 4.0            | Z5           |
| BZX84B7V5          | 7.35                             | 7.50   | 7.65    | 5                                      | 15                                | 1               | 80                                | 1                                                             | 5.0            | Z6           |
| BZX84B8V2          | 8.04                             | 8.20   | 8.36    | 5                                      | 15                                | 1               | 80                                | 0.7                                                           | 5.0            | Z7           |
| BZX84B9V1          | 8.92                             | 9.10   | 9.28    | 5                                      | 15                                | 1               | 100                               | 0.5                                                           | 6.0            | Z8           |
| BZX84B10           | 9.80                             | 10.00  | 10.20   | 5                                      | 20                                | 1               | 150                               | 0.2                                                           | 7.0            | Z9           |
| BZX84B11           | 10.78                            | 11.00  | 11.22   | 5                                      | 20                                | 1               | 150                               | 0.1                                                           | 8.0            | WH           |
| BZX84B12           | 11.76                            | 12.00  | 12.24   | 5                                      | 25                                | 1               | 150                               | 0.1                                                           | 8.0            | Y2           |
| BZX84B13           | 12.74                            | 13.00  | 13.26   | 5                                      | 30                                | 1               | 170                               | 0.1                                                           | 8.0            | Y3           |
| BZX84B15           | 14.70                            | 15.00  | 15.30   | 5                                      | 30                                | 1               | 200                               | 0.1                                                           | 10.5           | Y4           |
| BZX84B16           | 15.68                            | 16.00  | 16.32   | 5                                      | 40                                | 1               | 200                               | 0.1                                                           | 11.2           | Y5           |
| BZX84B18           | 17.64                            | 18.00  | 18.36   | 5                                      | 45                                | 1               | 225                               | 0.1                                                           | 12.6           | Y6           |
| BZX84B20           | 19.60                            | 20.00  | 20.40   | 5                                      | 55                                | 1               | 225                               | 0.1                                                           | 14.0           | WO           |
| BZX84B22           | 21.56                            | 22.00  | 22.44   | 5                                      | 55                                | 1               | 250                               | 0.1                                                           | 15.4           | WP           |
| BZX84B24           | 23.52                            | 24.00  | 24.48   | 5                                      | 70                                | 1               | 250                               | 0.1                                                           | 16.8           | Y9           |
| BZX84B27           | 26.46                            | 27.00  | 27.54   | 2                                      | 80                                | 0.5             | 300                               | 0.1                                                           | 18.9           | Y10          |
| BZX84B30           | 29.40                            | 30.00  | 30.60   | 2                                      | 80                                | 0.5             | 300                               | 0.1                                                           | 21.0           | Y11          |
| BZX84B33           | 32.34                            | 33.00  | 33.66   | 2                                      | 80                                | 0.5             | 325                               | 0.1                                                           | 23.1           | WU           |
| BZX84B36           | 35.28                            | 36.00  | 36.72   | 2                                      | 90                                | 0.5             | 350                               | 0.1                                                           | 25.2           | Y13          |
| BZX84B39           | 38.22                            | 39.00  | 39.78   | 2                                      | 130                               | 0.5             | 350                               | 0.1                                                           | 27.3           | Y14          |
| BZX84B43           | 42.14                            | 43.00  | 43.86   | 2                                      | 150                               | 0.5             | 375                               | 0.1                                                           | 30.1           | WY           |
| BZX84B47           | 45.83                            | 47.00  | 48.17   | 2                                      | 170                               | 0.5             | 375                               | 0.1                                                           | 32.9           | WZ           |
| BZX84B51           | 49.73                            | 51.00  | 52.27   | 2                                      | 180                               | 0.5             | 400                               | 0.1                                                           | 35.7           | XA           |
| BZX84B56           | 54.60                            | 56.00  | 57.40   | 2                                      | 200                               | 0.5             | 425                               | 0.05                                                          | 39.2           | XB           |
| BZX84B62           | 60.45                            | 62.00  | 63.55   | 2                                      | 215                               | 0.5             | 450                               | 0.05                                                          | 43.4           | XC           |
| BZX84B68           | 66.30                            | 68.00  | 69.70   | 2                                      | 240                               | 0.5             | 475                               | 0.05                                                          | 47.6           | XD           |
| BZX84B75           | 73.13                            | 75.00  | 76.87   | 2                                      | 255                               | 0.5             | 500                               | 0.05                                                          | 52.5           | XE           |

Note :

3. Standard zener voltage tolerance is +/- 5% with a 'C' suffix, suffix 'B' is +/- 2% tolerance.

4. 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.

5. 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

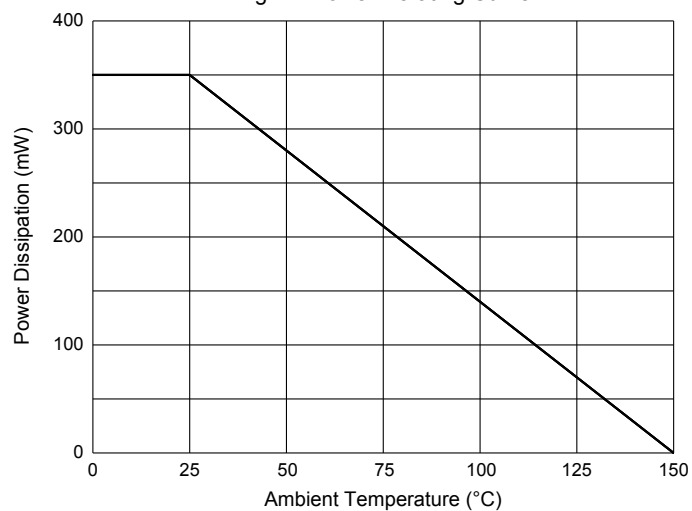


Fig. 2 - Typical Zener Breakdown Characteristics

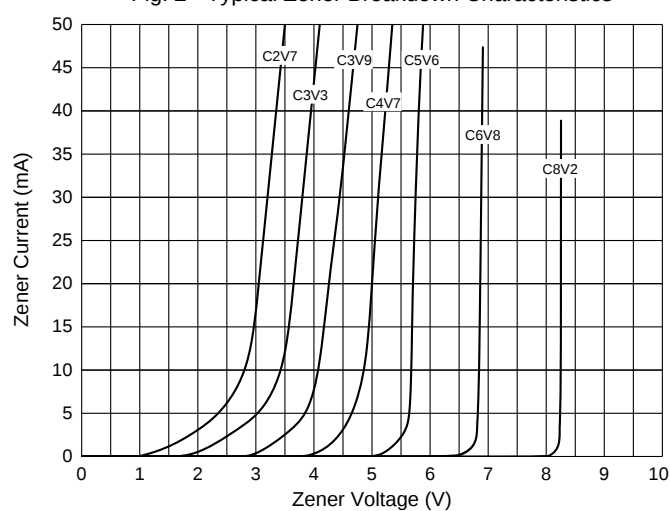
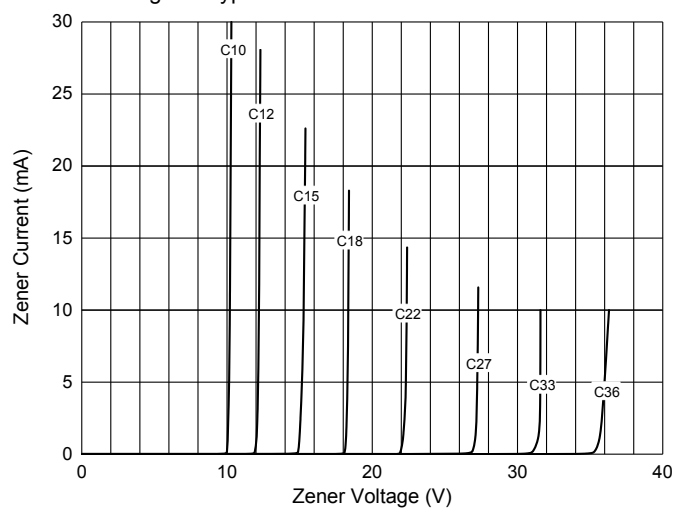


Fig. 3 - Typical Zener Breakdown Characteristics



## Ordering Information

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

Note : Adding "-HF" Suffix For Halogen Free, eg. Part Number-TP-HF

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