

# BZX84C2V4 - BZX84C39

## 350mW Surface Mount Zener Diode

### SOT-23

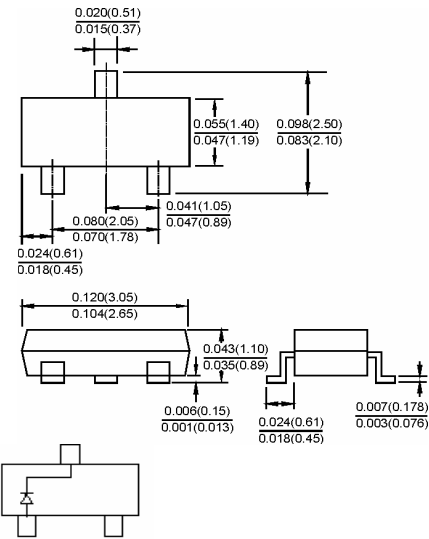


### Features

- ✧ Planar die construction
- ✧ 350 mW power dissipation
- ✧ Zener voltages from 2.4V – 39V
- ✧ Ideally suited for automated assembly processes

### Mechanical Data

- ✧ Case: SOT-23, Molding plastic
- ✧ Case material – UL Flammability rating 94V-0
- ✧ Moisture sensitivity: Level 1 per J-STD-020A
- ✧ Terminals: Solderable per MIL-STD-202, Method 208
- ✧ Polarity: See diagram
- ✧ Lead free plating
- ✧ Marking: Marking Code
- ✧ Weight: 0.008 grams (approx.)



Dimensions in inches and (millimeters)

### Maximum Ratings and Electrical Characteristics

Rating at 25 °C ambient temperature unless otherwise specified.

| Type Number                                         | Symbol          | Value        | Units |
|-----------------------------------------------------|-----------------|--------------|-------|
| Forward Voltage @ IF = 10mA                         | $V_F$           | 0.9          | V     |
| Power Dissipation (Note 1)                          | $P_d$           | 350          | mW    |
| Thermal Resistance Junction to Ambient Air (Note 1) | $R_{\theta JA}$ | 357          | K /W  |
| Operating and Storage Temperature Range             | $T_J, T_{STG}$  | -65 to + 150 | °C    |

- Notes:
1. Valid Provided that Device Terminals are Kept at Ambient Temperature.
  2. Tested with Pulses. Period = 5ms, Pulse Width = 300us.
  3. f = 1KHz.

ELECTRICAL CHARACTERISTICS (TA=25°C unless otherwise noted)

| Type<br>Number<br>(Note 1) | Marking<br>Code | Zener Voltage Range (Note 2) |         |         |     | Maximum Zener<br>Impedance (Note 3) |      |     | Maximum Reverse<br>Current |      | Typical Temperature<br>Coefficient<br>@ IZT<br>mV / °C |      |
|----------------------------|-----------------|------------------------------|---------|---------|-----|-------------------------------------|------|-----|----------------------------|------|--------------------------------------------------------|------|
|                            |                 | Vz @ Izt                     |         |         | IZT | ZZK @ IZK                           |      |     | IR                         | VR   |                                                        |      |
|                            |                 | Nom (V)                      | Min (V) | Max (V) | mA  | Ohms                                | Ohms | mA  |                            |      | uA                                                     | V    |
| BZX84C2V4                  | Z11             | 2.4                          | 2.2     | 2.6     | 5.0 | 100                                 | 600  | 1.0 | 50                         | 1.0  | -3.5                                                   | 0    |
| BZX84C2V7                  | Z12             | 2.7                          | 2.5     | 2.9     | 5.0 | 100                                 | 600  | 1.0 | 20                         | 1.0  | -3.5                                                   | 0    |
| BZX84C3V0                  | Z13             | 3.0                          | 2.8     | 3.2     | 5.0 | 95                                  | 600  | 1.0 | 10                         | 1.0  | -3.5                                                   | 0    |
| BZX84C3V3                  | Z14             | 3.3                          | 3.1     | 3.5     | 5.0 | 95                                  | 600  | 1.0 | 5.0                        | 1.0  | -3.5                                                   | 0    |
| BZX84C3V6                  | Z15             | 3.6                          | 3.4     | 3.8     | 5.0 | 90                                  | 600  | 1.0 | 5.0                        | 1.0  | -3.5                                                   | 0    |
| BZX84C3V9                  | Z16             | 3.9                          | 3.7     | 4.1     | 5.0 | 90                                  | 600  | 1.0 | 3.0                        | 1.0  | -3.5                                                   | 0    |
| BZX84C4V3                  | Z17             | 4.3                          | 4.0     | 4.6     | 5.0 | 90                                  | 600  | 1.0 | 3.0                        | 1.0  | -3.5                                                   | 0.0  |
| BZX84C4V7                  | Z1              | 4.7                          | 4.4     | 5.0     | 5.0 | 80                                  | 500  | 1.0 | 3.0                        | 2.0  | -3.5                                                   | 0.2  |
| BZX84C5V1                  | Z2              | 5.1                          | 4.8     | 5.4     | 5.0 | 60                                  | 480  | 1.0 | 2.0                        | 2.0  | -2.7                                                   | 1.2  |
| BZX84C5V6                  | Z3              | 5.6                          | 5.2     | 6.0     | 5.0 | 40                                  | 400  | 1.0 | 1.0                        | 2.0  | -2.0                                                   | 2.5  |
| BZX84C6V2                  | Z4              | 6.2                          | 5.8     | 6.6     | 5.0 | 10                                  | 150  | 1.0 | 3.0                        | 4.0  | 0.4                                                    | 3.7  |
| BZX84C6V8                  | Z5              | 6.8                          | 6.4     | 7.2     | 5.0 | 15                                  | 80   | 1.0 | 2.0                        | 4.0  | 1.2                                                    | 4.5  |
| BZX84C7V5                  | Z6              | 7.5                          | 7.0     | 7.9     | 5.0 | 15                                  | 80   | 1.0 | 1.0                        | 5.0  | 2.5                                                    | 5.3  |
| BZX84C8V2                  | Z7              | 8.2                          | 7.7     | 8.7     | 5.0 | 15                                  | 80   | 1.0 | 0.7                        | 5.0  | 3.2                                                    | 6.1  |
| BZX84C9V1                  | Z8              | 9.1                          | 8.5     | 9.6     | 5.0 | 15                                  | 100  | 1.0 | 0.5                        | 6.0  | 3.8                                                    | 7.0  |
| BZX84C10                   | Z9              | 10                           | 9.4     | 10.6    | 5.0 | 20                                  | 150  | 1.0 | 0.2                        | 7.0  | 4.5                                                    | 8.0  |
| BZX84C11                   | Y1              | 11                           | 10.4    | 11.6    | 5.0 | 20                                  | 150  | 1.0 | 0.1                        | 8.0  | 5.4                                                    | 9.0  |
| BZX84C12                   | Y2              | 12                           | 11.4    | 12.7    | 5.0 | 25                                  | 150  | 1.0 | 0.1                        | 8.0  | 6.0                                                    | 10.0 |
| BZX84C13                   | Y3              | 13                           | 12.4    | 14.1    | 5.0 | 30                                  | 170  | 1.0 | 0.1                        | 8.0  | 7.0                                                    | 11.0 |
| BZX84C15                   | Y4              | 15                           | 13.8    | 15.6    | 5.0 | 30                                  | 200  | 1.0 | 0.1                        | 10.5 | 9.2                                                    | 13.0 |
| BZX84C16                   | Y5              | 16                           | 15.3    | 17.1    | 5.0 | 40                                  | 200  | 1.0 | 0.1                        | 11.2 | 10.4                                                   | 14.0 |
| BZX84C18                   | Y6              | 18                           | 16.8    | 19.1    | 5.0 | 45                                  | 225  | 1.0 | 0.1                        | 12.6 | 12.4                                                   | 16.0 |
| BZX84C20                   | Y7              | 20                           | 18.8    | 21.2    | 5.0 | 55                                  | 225  | 1.0 | 0.1                        | 14.0 | 14.4                                                   | 18.0 |
| BZX84C22                   | Y8              | 22                           | 20.8    | 23.3    | 5.0 | 55                                  | 250  | 1.0 | 0.1                        | 15.4 | 16.4                                                   | 20.0 |
| BZX84C24                   | Y9              | 24                           | 22.8    | 25.6    | 5.0 | 70                                  | 250  | 1.0 | 0.1                        | 16.8 | 18.4                                                   | 22.0 |
| BZX84C27                   | Y10             | 27                           | 25.1    | 28.9    | 2.0 | 80                                  | 300  | 0.5 | 0.1                        | 18.9 | 21.4                                                   | 25.3 |
| BZX84C30                   | Y11             | 30                           | 28      | 32      | 2.0 | 80                                  | 300  | 0.5 | 0.1                        | 21.0 | 24.4                                                   | 29.4 |
| BZX84C33                   | Y12             | 33                           | 31      | 35      | 2.0 | 80                                  | 325  | 0.5 | 0.1                        | 23.1 | 27.4                                                   | 33.4 |
| BZX84C36                   | Y13             | 36                           | 34      | 38      | 2.0 | 90                                  | 350  | 0.5 | 0.1                        | 25.2 | 30.4                                                   | 37.4 |
| BZX84C39                   | Y14             | 39                           | 37      | 41      | 2.0 | 130                                 | 350  | 0.5 | 0.1                        | 27.3 | 33.4                                                   | 41.2 |

- Notes: 1. Valid provided that device terminals are kept at ambient temperature.  
2. Tested with pulses, 300us pulse width, period = 5ms.  
3. f = 1KHz.

## RATINGS AND CHARACTERISTIC CURVES (BZX84C2V4 - BZX84C39)

FIG.1- POWER DERATING CURVE

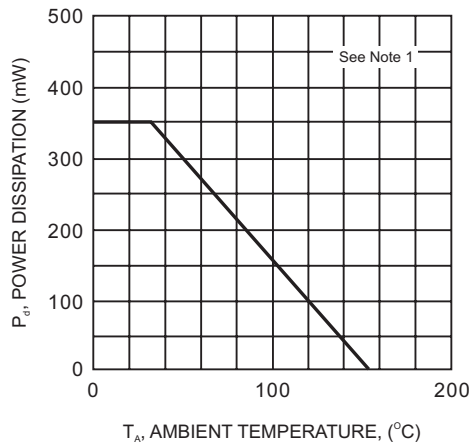


FIG.2- ZENER BREAKDOWN CHARACTERISTICS

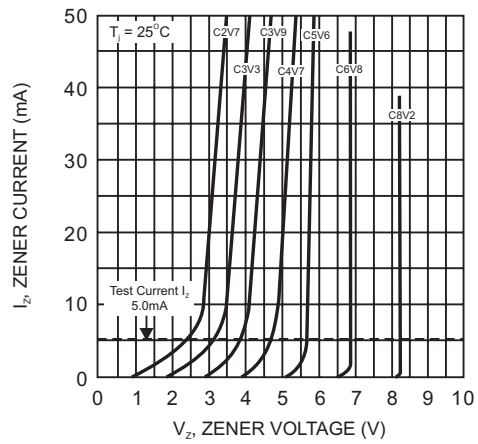


FIG.3- ZENER BREAKDOWN CHARACTERISTICS

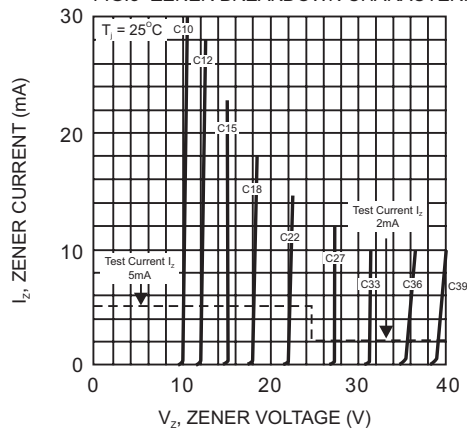


FIG.4- JUNCTION CAPACITANCE VS NOMINAL ZENER VOLTAGE

