

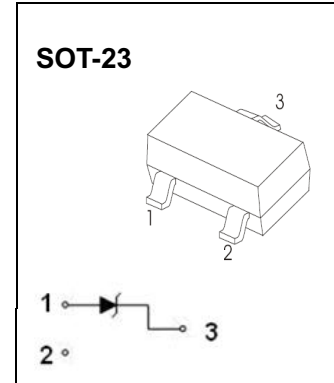


## SOT-23 Plastic-Encapsulate Diodes

### **BZX84B2V4-BZX84B39** ZENER DIODES

#### FEATURES

- Planar Die Construction
- 300mW Power Dissipation
- Zener Voltages from 2.4V - 39V
- Ultra-Small Surface Mount Package Power Dissipation



#### MAXMUM RATINGS( $T_a=25^{\circ}\text{C}$ unless otherwise specified )

| Characteristic                                 | Symbol           | Value    | Unit                        |
|--|------------------|----------|-----------------------------|
| Forward Voltage (Note 2) @ $I_F = 10\text{mA}$ | $V_F$            | 0.9      | V                           |
| Power Dissipation(Note 1)                      | $P_d$            | 300      | mW                          |
| Thermal Resistance from Junction to Ambient    | $R_{\theta JA}$  | 417      | $^{\circ}\text{C}/\text{W}$ |
| Junction Temperature                           | $T_j$            | 150      |                             |
| Storage Temperature Range                      | $T_{\text{stg}}$ | -55~+150 |                             |

# ELECTRICAL CHARACTERISTICS

T =25°C unless otherwise specified

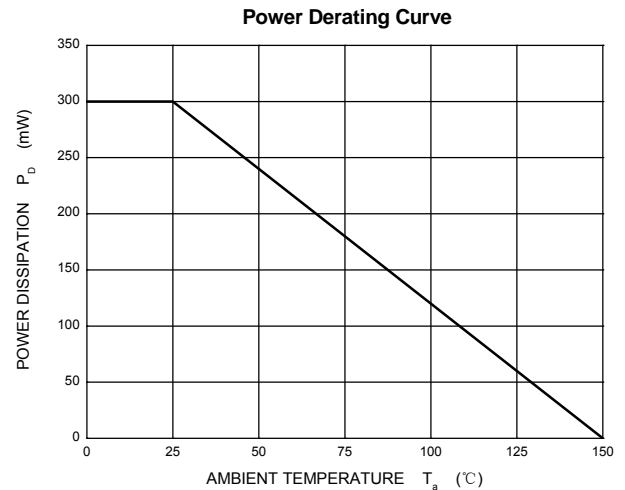
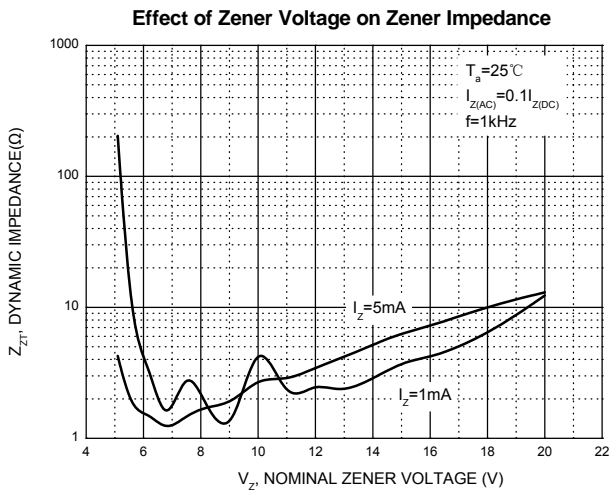
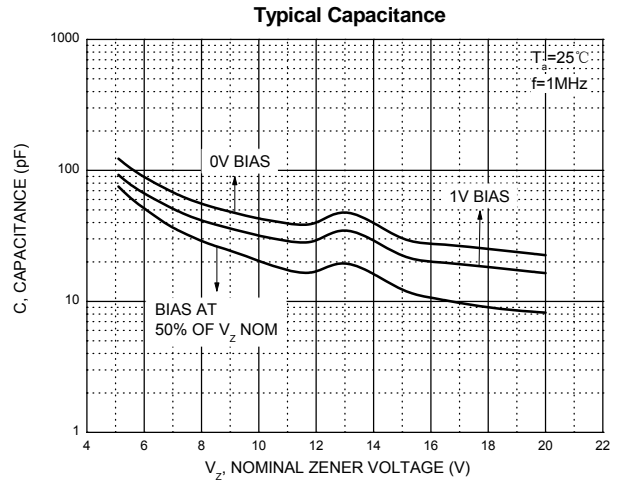
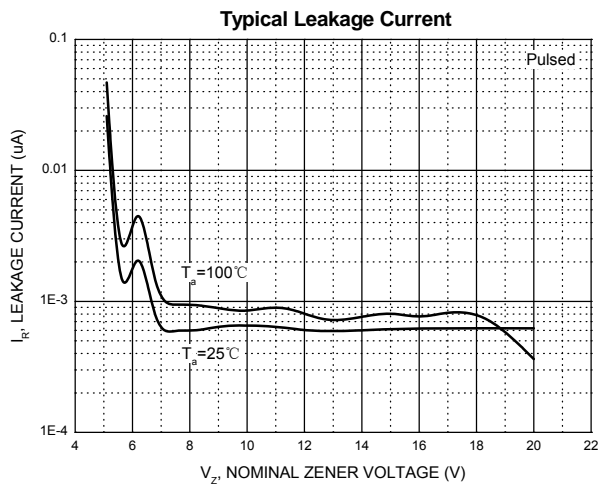
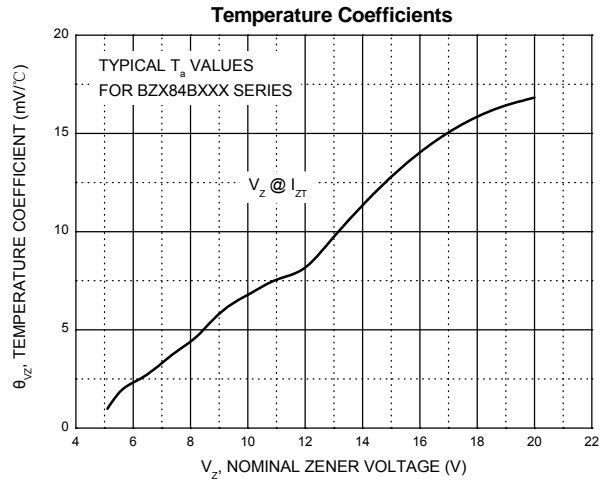
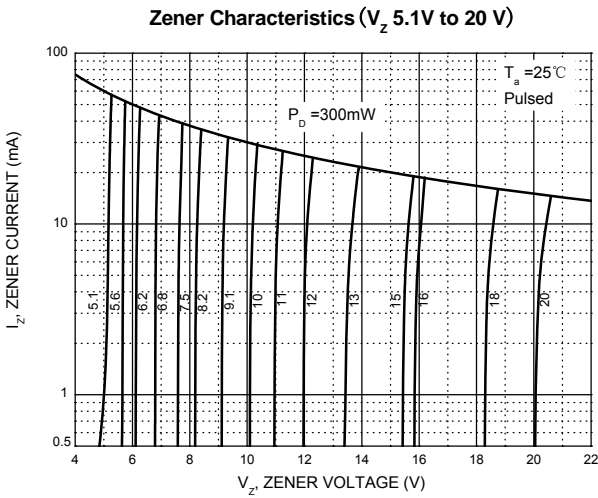
| Type Number | Type Code | Zener Voltage Range (Note 2)    |        |        |                 | Maximum Zener Impedance (Note 3) |                                  |                 | Maximum Reverse Current |                | Typical Temperature Coefficient @I <sub>ZT</sub> =5 mA |      |
|-------------|-----------|---------------------------------|--------|--------|-----------------|----------------------------------|----------------------------------|-----------------|-------------------------|----------------|--|------|
|             |           | V <sub>Z</sub> @I <sub>ZT</sub> |        |        | I <sub>ZT</sub> | Z <sub>ZT</sub> @I <sub>ZT</sub> | Z <sub>ZK</sub> @I <sub>ZK</sub> | I <sub>ZK</sub> | I <sub>R</sub>          | V <sub>R</sub> | mV/°C  |      |
|             |           | Nom(V)                          | Min(V) | Max(V) | mA              | Ω                                |                                  | mA              | μA                      | V              | Min  | Max  |
| BZX84B2V4   | 2Z11      | 2.4                             | 2.35   | 2.45   | 5               | 100                              | 600                              | 1.0             | 50                      | 1.0            | -3.5   | 0    |
| BZX84B2V7   | 2Z12      | 2.7                             | 2.65   | 2.75   | 5               | 100                              | 600                              | 1.0             | 20                      | 1.0            | -3.5   | 0    |
| BZX84B3V0   | 2Z13      | 3                               | 2.94   | 3.06   | 5               | 95                               | 600                              | 1.0             | 10                      | 1.0            | -3.5   | 0    |
| BZX84B3V3   | 2Z14      | 3.3                             | 3.23   | 3.37   | 5               | 95                               | 600                              | 1.0             | 5                       | 1.0            | -3.5   | 0    |
| BZX84B3V6   | 2Z15      | 3.6                             | 3.53   | 3.67   | 5               | 90                               | 600                              | 1.0             | 5                       | 1.0            | -3.5   | 0    |
| BZX84B3V9   | 2Z16      | 3.9                             | 3.82   | 3.98   | 5               | 90                               | 600                              | 1.0             | 3                       | 1.0            | -3.5   | 0    |
| BZX84B4V3   | 2Z17      | 4.3                             | 4.21   | 4.39   | 5               | 90                               | 600                              | 1.0             | 3                       | 1.0            | -3.5   | 0    |
| BZX84B4V7   | 2Z1       | 4.7                             | 4.61   | 4.79   | 5               | 80                               | 500                              | 1.0             | 3                       | 2.0            | -3.5   | 0.2  |
| BZX84B5V1   | 2Z2       | 5.1                             | 5.00   | 5.20   | 5               | 60                               | 480                              | 1.0             | 2                       | 2.0            | -2.7   | 1.2  |
| BZX84B5V6   | 2Z3       | 5.6                             | 5.49   | 5.71   | 5               | 40                               | 400                              | 1.0             | 1                       | 2.0            | -2.0   | 2.5  |
| BZX84B6V2   | 2Z4       | 6.2                             | 6.08   | 6.32   | 5               | 10                               | 150                              | 1.0             | 3                       | 4.0            | 0.4  | 3.7  |
| BZX84B6V8   | 2Z5       | 6.8                             | 6.66   | 6.94   | 5               | 15                               | 80                               | 1.0             | 2                       | 4.0            | 1.2  | 4.5  |
| BZX84B7V5   | 2Z6       | 7.5                             | 7.35   | 7.65   | 5               | 15                               | 80                               | 1.0             | 1                       | 5.0            | 2.5  | 5.3  |
| BZX84B8V2   | 2Z7       | 8.2                             | 8.04   | 8.36   | 5               | 15                               | 80                               | 1.0             | 0.7                     | 5.0            | 3.2  | 6.2  |
| BZX84B9V1   | 2Z8       | 9.1                             | 8.92   | 9.28   | 5               | 15                               | 100                              | 1.0             | 0.5                     | 6.0            | 3.8  | 7.0  |
| BZX84B10    | 2Z9       | 10                              | 9.80   | 10.20  | 5               | 20                               | 150                              | 1.0             | 0.2                     | 7.0            | 4.5  | 8.0  |
| BZX84B11    | 2Y1       | 11                              | 10.78  | 11.22  | 5               | 20                               | 150                              | 1.0             | 0.1                     | 8.0            | 5.4  | 9.0  |
| BZX84B12    | 2Y2       | 12                              | 11.76  | 12.24  | 5               | 25                               | 150                              | 1.0             | 0.1                     | 8.0            | 6.0  | 10.0 |
| BZX84B13    | 2Y3       | 13                              | 12.74  | 13.26  | 5               | 30                               | 170                              | 1.0             | 0.1                     | 8.0            | 7.0  | 11.0 |
| BZX84B15    | 2Y4       | 15                              | 14.70  | 15.30  | 5               | 30                               | 200                              | 1.0             | 0.1                     | 10.5           | 9.2  | 13.0 |
| BZX84B16    | 2Y5       | 16                              | 15.68  | 16.32  | 5               | 40                               | 200                              | 1.0             | 0.1                     | 11.2           | 10.4   | 14.0 |
| BZX84B18    | 2Y6       | 18                              | 17.64  | 18.36  | 5               | 45                               | 225                              | 1.0             | 0.1                     | 12.6           | 12.4   | 16.0 |
| BZX84B20    | 2Y7       | 20                              | 19.60  | 20.40  | 5               | 55                               | 225                              | 1.0             | 0.1                     | 14.0           | 14.4   | 18.0 |
| BZX84B22    | 2Y8       | 22                              | 21.56  | 22.44  | 5               | 55                               | 250                              | 1.0             | 0.1                     | 15.4           | 16.4   | 20.0 |
| BZX84B24    | 2Y9       | 24                              | 23.52  | 24.48  | 5               | 70                               | 250                              | 1.0             | 0.1                     | 16.8           | 18.4   | 22.0 |
| BZX84B27    | 2Y10      | 27                              | 26.46  | 27.54  | 2               | 80                               | 300                              | 0.5             | 0.1                     | 18.9           | 21.4   | 25.3 |
| BZX84B30    | 2Y11      | 30                              | 29.40  | 30.60  | 2               | 80                               | 300                              | 0.5             | 0.1                     | 21.0           | 24.4   | 29.4 |
| BZX84B33    | 2Y12      | 33                              | 32.34  | 33.66  | 2               | 80                               | 325                              | 0.5             | 0.1                     | 23.1           | 27.4   | 33.4 |
| BZX84B36    | 2Y13      | 36                              | 35.28  | 36.72  | 2               | 90                               | 350                              | 0.5             | 0.1                     | 25.2           | 30.4   | 37.4 |
| BZX84B39    | 2Y14      | 39                              | 38.22  | 39.78  | 2               | 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, period=5ms,pulse width =300μs.
3. f=1kHz.

# Typical Characteristics

Notes: Our company currently provide 5.1 V - 20 V products only



## SOT-23 Package Outline Dimensions



| Symbol | Dimensions In Millimeters |       | Dimensions In Inches |       |
|--------|---------------------------|-------|----------------------|-------|
|        | Min                       | Max   | Min                  | Max   |
| A      | 0.900                     | 1.150 | 0.035                | 0.045 |
| A1     | 0.000                     | 0.100 | 0.000                | 0.004 |
| A2     | 0.900                     | 1.050 | 0.035                | 0.041 |
| b      | 0.300                     | 0.500 | 0.012                | 0.020 |
| c      | 0.080                     | 0.150 | 0.003                | 0.006 |
| D      | 2.800                     | 3.000 | 0.110                | 0.118 |
| E      | 1.200                     | 1.400 | 0.047                | 0.055 |
| E1     | 2.250                     | 2.550 | 0.089                | 0.100 |
| e      | 0.950 TYP                 |       | 0.037 TYP            |       |
| e1     | 1.800                     | 2.000 | 0.071                | 0.079 |
| L      | 0.550 REF                 |       | 0.022 REF            |       |
| L1     | 0.300                     | 0.500 | 0.012                | 0.020 |
| θ      | 0°                        | 8°    | 0°                   | 8°    |

## SOT-23 Suggested Pad Layout



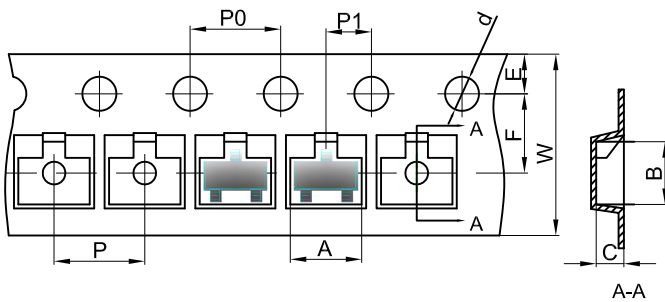
- Note:
1. Controlling dimension: in millimeters.
  2. General tolerance:  $\pm 0.05\text{mm}$ .
  3. The pad layout is for reference purposes only.

### NOTICE

JCET reserve the right to make modifications, enhancements, improvements, corrections or other changes without further notice to any product herein. JCET does not assume any liability arising out of the application or use of any product described herein.

# SOT-23 Tape and Reel

## SOT-23 Embossed Carrier Tape



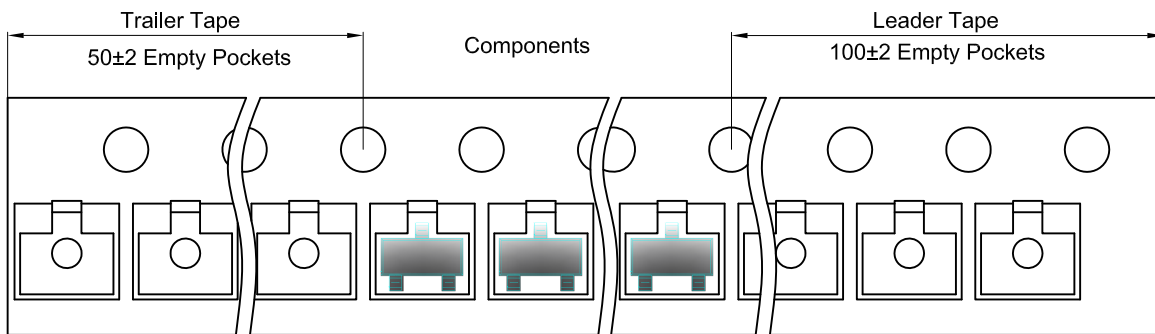
### Packaging Description:

SOT-23 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 3,000 units per 7" or 17.8cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated).

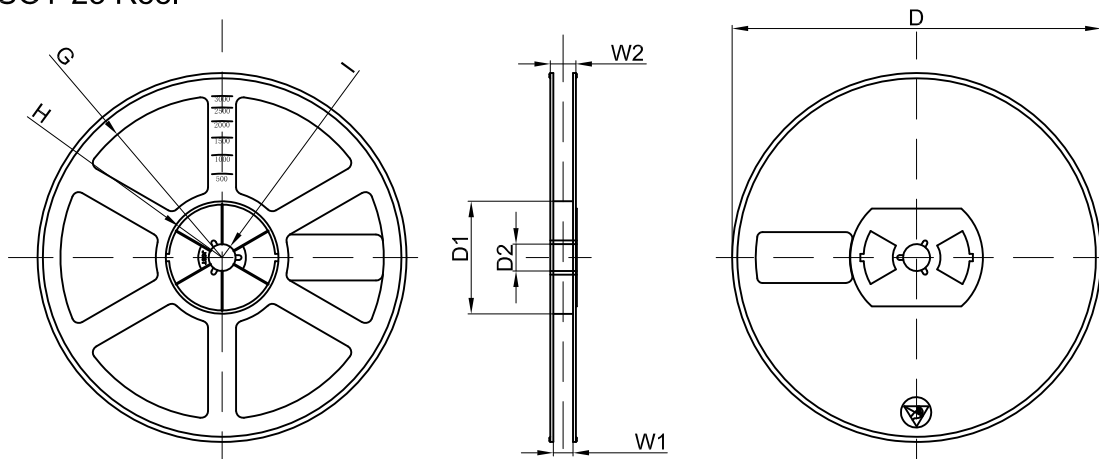
Dimensions are in millimeter

| Pkg type | A    | B    | C    | d     | E    | F    | P0   | P    | P1   | W    |
|----------|------|------|------|-------|------|------|------|------|------|------|
| SOT-23   | 3.15 | 2.77 | 1.22 | Ø1.50 | 1.75 | 3.50 | 4.00 | 4.00 | 2.00 | 8.00 |

## SOT-23 Tape Leader and Trailer



## SOT-23 Reel



Dimensions are in millimeter

| Reel Option | D       | D1    | D2    | G      | H      | I     | W1   | W2    |
|-------------|---------|-------|-------|--------|--------|-------|------|-------|
| 7"Dia       | Ø178.00 | 54.40 | 13.00 | R78.00 | R25.60 | R6.50 | 9.50 | 12.30 |

| REEL     | Reel Size | Box        | Box Size(mm) | Carton      | Carton Size(mm) | G.W.(kg) |
|----------|-----------|------------|--------------|-------------|-----------------|----------|
| 3000 pcs | 7 inch    | 45,000 pcs | 203×203×195  | 180,000 pcs | 438×438×220     |          |