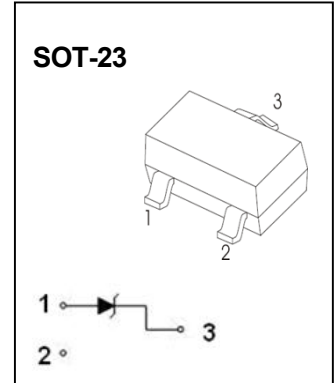


## SOT-23 Plastic-Encapsulate Diodes

### BZX84B2V4 THRU BZX84B39 ZENER DIODES

#### FEATURES

- ◆ Planar Die Construction
- ◆ 300mW Power Dissipation
- ◆ Zener Voltages from 5.1V - 20V
- ◆ 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      | $^{\circ}\text{C/W}$ |
| Junction Temperature                           | $T_j$           | 150      | $^{\circ}\text{C}$   |
| Storage Temperature Range                      | $T_{stg}$       | -55~+150 | $^{\circ}\text{C}$   |

## Electrical Characteristics (T<sub>A</sub>=25°C unless otherwise specified)

| PART<br>NUMBER | MARKING<br>CODE | ZENER VOLTAGE<br>RANGE             |      |      | TEST CURRENT     |                  | REVERSE<br>LEAKAGE<br>CURRENT    |      | DYNAMIC<br>RESISTANCE<br>f = 1 kHz |                                     |
|----------------|-----------------|------------------------------------|------|------|------------------|------------------|----------------------------------|------|------------------------------------|-------------------------------------|
|                |                 | V <sub>Z</sub> at I <sub>ZT1</sub> |      |      | I <sub>ZT1</sub> | I <sub>ZT2</sub> | I <sub>R</sub> at V <sub>R</sub> |      | Z <sub>Z</sub> at I <sub>ZT1</sub> | Z <sub>ZK</sub> at I <sub>ZT2</sub> |
|                |                 | V                                  |      |      | mA               |                  | μA                               | V    |                                    |                                     |
|                |                 | MIN.                               | NOM. | MAX. |                  |                  |                                  |      | MAX.                               | MAX.                                |
| BZX84B2V4      | 2Z11            | 2.35                               | 2.4  | 2.45 | 5                | 1                | 50                               | 1    | 100                                | 275                                 |
| BZX84B2V7      | 2Z12            | 2.65                               | 2.7  | 2.75 | 5                | 1                | 20                               | 1    | 100                                | 600                                 |
| BZX84B3V0      | 2Z13            | 2.94                               | 3.0  | 3.06 | 5                | 1                | 10                               | 1    | 95                                 | 600                                 |
| BZX84B3V3      | 2Z14            | 3.23                               | 3.3  | 3.37 | 5                | 1                | 5                                | 1    | 95                                 | 600                                 |
| BZX84B3V6      | 2Z15            | 3.53                               | 3.6  | 3.67 | 5                | 1                | 5                                | 1    | 90                                 | 600                                 |
| BZX84B3V9      | 2Z16            | 3.82                               | 3.9  | 3.98 | 5                | 1                | 3                                | 1    | 90                                 | 600                                 |
| BZX84B4V3      | 2Z17            | 4.21                               | 4.3  | 4.39 | 5                | 1                | 3                                | 1    | 90                                 | 600                                 |
| BZX84B4V7      | 2Z1             | 4.61                               | 4.7  | 4.79 | 5                | 1                | 3                                | 2    | 80                                 | 500                                 |
| BZX84B5V1      | 2Z2             | 5.0                                | 5.1  | 5.2  | 5                | 1                | 2                                | 2    | 60                                 | 480                                 |
| BZX84B5V6      | 2Z3             | 5.49                               | 5.6  | 5.71 | 5                | 1                | 1                                | 2    | 40                                 | 400                                 |
| BZX84B6V2      | 2Z4             | 6.08                               | 6.2  | 6.32 | 5                | 1                | 3                                | 4    | 10                                 | 150                                 |
| BZX84B6V8      | 2Z5             | 6.66                               | 6.8  | 6.94 | 5                | 1                | 2                                | 4    | 15                                 | 80                                  |
| BZX84B7V5      | 2Z6             | 7.35                               | 7.5  | 7.65 | 5                | 1                | 1                                | 5    | 15                                 | 80                                  |
| BZX84B8V2      | 2Z7             | 8.04                               | 8.2  | 8.36 | 5                | 1                | 0.7                              | 5    | 15                                 | 80                                  |
| BZX84B9V1      | 2Z8             | 8.92                               | 9.1  | 9.28 | 5                | 1                | 0.5                              | 6    | 15                                 | 100                                 |
| BZX84B10       | 2Z9             | 9.8                                | 10   | 10.2 | 5                | 1                | 0.2                              | 7    | 20                                 | 150                                 |
| BZX84B11       | 2Y1             | 10.8                               | 11   | 11.2 | 5                | 1                | 0.1                              | 8    | 20                                 | 150                                 |
| BZX84B12       | 2Y2             | 11.8                               | 12   | 12.2 | 5                | 1                | 0.1                              | 8    | 25                                 | 150                                 |
| BZX84B13       | 2Y3             | 12.7                               | 13   | 13.3 | 5                | 1                | 0.1                              | 8    | 30                                 | 170                                 |
| BZX84B15       | 2Y4             | 14.7                               | 15   | 15.3 | 5                | 1                | 0.05                             | 10.5 | 30                                 | 200                                 |
| BZX84B16       | 2Y5             | 15.7                               | 16   | 16.3 | 5                | 1                | 0.05                             | 11.2 | 40                                 | 200                                 |
| BZX84B18       | 2Y6             | 17.6                               | 18   | 18.4 | 5                | 1                | 0.05                             | 12.6 | 45                                 | 225                                 |
| BZX84B20       | 2Y7             | 19.6                               | 20   | 20.4 | 5                | 1                | 0.05                             | 14   | 55                                 | 225                                 |
| BZX84B22       | 2Y8             | 21.6                               | 22   | 22.4 | 5                | 1                | 0.05                             | 15.4 | 55                                 | 250                                 |
| BZX84B24       | 2Y9             | 23.5                               | 24   | 24.5 | 5                | 1                | 0.05                             | 16.8 | 70                                 | 250                                 |
| BZX84B27       | 2Y10            | 26.5                               | 27   | 27.5 | 2                | 0.5              | 0.05                             | 18.9 | 80                                 | 300                                 |
| BZX84B30       | 2Y11            | 29.4                               | 30   | 30.6 | 2                | 0.5              | 0.05                             | 21   | 80                                 | 300                                 |
| BZX84B33       | 2Y12            | 32.3                               | 33   | 33.7 | 2                | 0.5              | 0.05                             | 23.1 | 80                                 | 325                                 |
| BZX84B36       | 2Y13            | 35.3                               | 36   | 36.7 | 2                | 0.5              | 0.05                             | 25.2 | 90                                 | 350                                 |
| BZX84B39       | 2Y14            | 38.2                               | 39   | 39.8 | 2                | 0.5              | 0.05                             | 27.3 | 130                                | 350                                 |

### Notes:

1. Valid provided that device terminals are kept at ambient temperature.
2. Tested with pulses, period=5ms,pulse width =300μs.
3. f=1kHz.

## ELECTRICAL CHARACTERISTICS CURVE

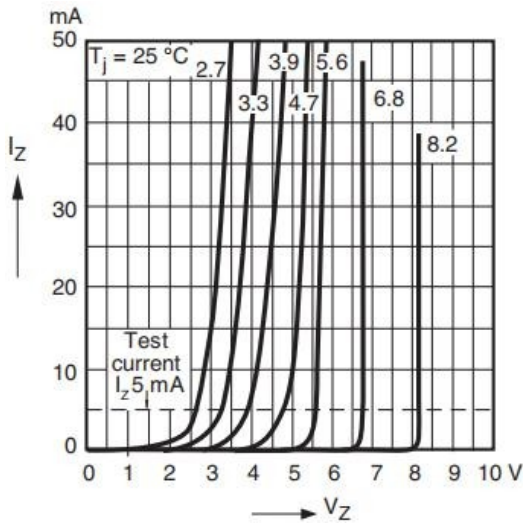


Fig.1-Zener Characteristic1

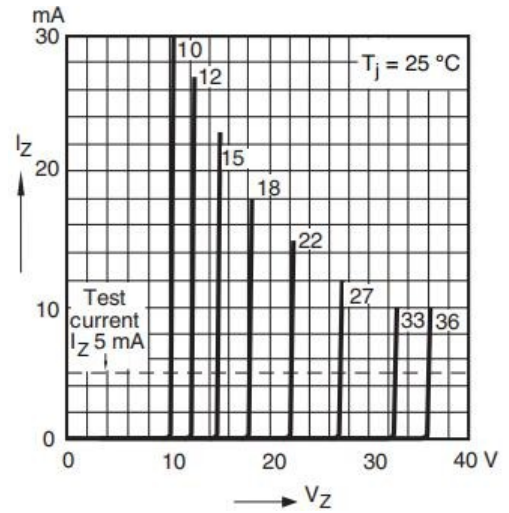


Fig.2-Zener Characteristic2

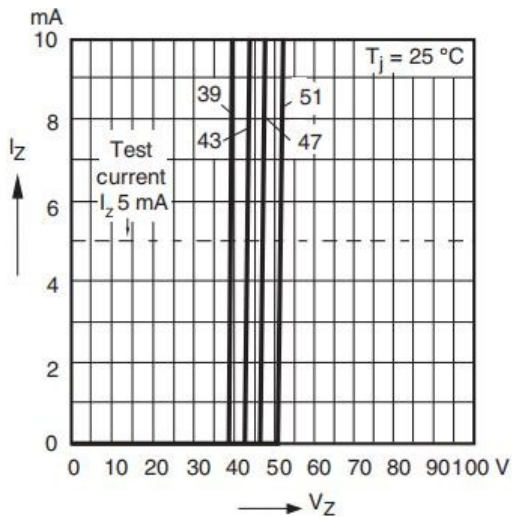


Fig.3-Zener Characteristic3

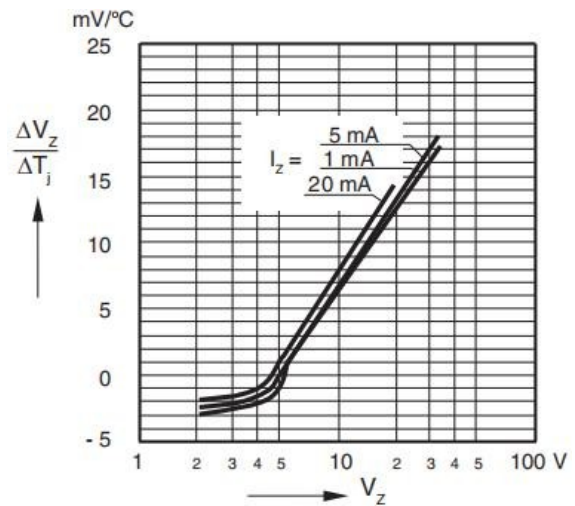


Fig.4-Temperature Dependence of Zener Voltage vs. Zener Voltage

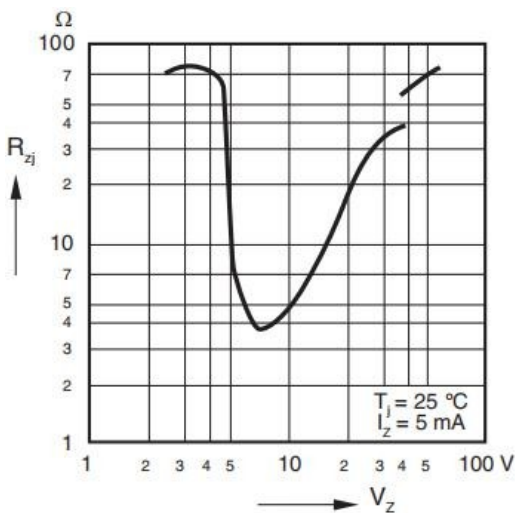


Fig.5-Dynamic Resistance vs. Zener Voltage

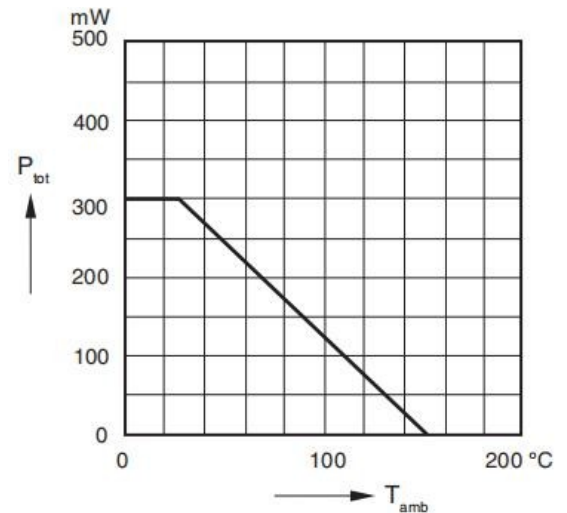


Fig.6-Power Dissipation vs. Ambient Temperature