



**THE DATASHEET OF
BZX84B5V1**



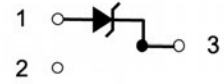
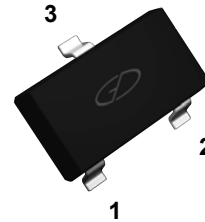
BZX84Bx Series

Surface Mount Zener Diodes

V_z Range: 2.4V to 51V Power Dissipation: 350mW

Features

- Total power dissipation: Max. 350 mW
- Working voltage range: Nom. 2.4V to 51V
- Zener tolerance: 2%
- Planar die construction



Package: SOT-23

Schematic Diagram

Absolute Maximum Ratings (T_A=25°C unless otherwise noted)

| Parameter | Symbol | Value | Unit |
|---|------------------|-------------|------|
| Power Dissipation | P _D | 350 | mW |
| Thermal Resistance, Junction to Ambient Air | R _{θJA} | 357 | °C/W |
| Storage Temperature Range | T _{STG} | -65 to +150 | °C |
| Junction Temperature Range | T _J | -65 to +150 | °C |

Electrical Characteristics (T_A=25°C unless otherwise noted)

| Part Number | Marking Code | Zener Voltage Range | | | | Maximum Zener Impedance | | | Maximum Reverse Current | | Temperature Coefficient (mV/°C) | | Non-Repetitive Peak Reverse Current I _{ZPM} (A) ¹ |
|-------------|--------------|----------------------------------|--------|--------|-----------------|-----------------------------------|-----------------------------------|------|-------------------------|----------------|---------------------------------|-----|---|
| | | V _Z @ I _{ZT} | | | I _{ZT} | Z _{ZT} @ I _{ZT} | Z _{ZK} @ I _{ZK} | | I _R | V _R | @ I _{ZT} | | |
| | | Nom(V) | Min(V) | Max(V) | (mA) | (Ω) | (Ω) | (mA) | (μA) | (V) | Min | Max | |
| BZX84B2V4 | 2Z11 | 2.4 | 2.35 | 2.45 | 5 | 100 | 275 | 1 | 50 | 1 | -3.5 | 0 | 6.0 |
| BZX84B2V7 | 2Z12 | 2.7 | 2.65 | 2.75 | 5 | 100 | 600 | 1 | 20 | 1 | -3.5 | 0 | 6.0 |
| BZX84B3V0 | 2Z13 | 3.0 | 2.94 | 3.06 | 5 | 95 | 600 | 1 | 10 | 1 | -3.5 | 0 | 6.0 |
| BZX84B3V3 | 2Z14 | 3.3 | 3.23 | 3.37 | 5 | 95 | 600 | 1 | 5 | 1 | -3.5 | 0 | 6.0 |
| BZX84B3V6 | 2Z15 | 3.6 | 3.53 | 3.67 | 5 | 90 | 600 | 1 | 5 | 1 | -3.5 | 0 | 6.0 |
| BZX84B3V9 | 2Z16 | 3.9 | 3.82 | 3.98 | 5 | 90 | 600 | 1 | 3 | 1 | -3.5 | 0 | 6.0 |
| BZX84B4V3 | 2Z17 | 4.3 | 4.21 | 4.39 | 5 | 90 | 600 | 1 | 3 | 1 | -3.5 | 0 | 6.0 |
| BZX84B4V7 | 2Z1 | 4.7 | 4.61 | 4.79 | 5 | 80 | 500 | 1 | 3 | 2 | -3.5 | 0.2 | 6.0 |

Electrical Characteristics (T_A=25°C unless otherwise noted)

| Part Number | Marking Code | Zener Voltage Range | | | | Maximum Zener Impedance | | | Maximum Reverse Current | | Temperature Coefficient (mV/°C) | | Non-Repetitive Peak Reverse Current I _{ZPM} (A) ¹ |
|-------------|--------------|----------------------------------|--------|--------|-----------------|-----------------------------------|-----------------------------------|------|-------------------------|----------------|---------------------------------|------|---|
| | | V _Z @ I _{ZT} | | | I _{ZT} | Z _{ZT} @ I _{ZT} | Z _{ZK} @ I _{ZK} | | I _R | V _R | @ I _{ZT} | | |
| | | Nom(V) | Min(V) | Max(V) | (mA) | (Ω) | (Ω) | (mA) | (μA) | (V) | Min | Max | |
| BZX84B5V1 | 2Z2 | 5.1 | 5 | 5.2 | 5 | 60 | 480 | 1 | 2 | 2 | -2.7 | 1.2 | 6.0 |
| BZX84B5V6 | 2Z3 | 5.6 | 5.49 | 5.71 | 5 | 40 | 400 | 1 | 1 | 2 | -2.0 | 2.5 | 6.0 |
| BZX84B6V2 | 2Z4 | 6.2 | 6.08 | 6.32 | 5 | 10 | 150 | 1 | 3 | 4 | 0.4 | 3.7 | 6.0 |
| BZX84B6V8 | 2Z5 | 6.8 | 6.66 | 6.94 | 5 | 15 | 80 | 1 | 2 | 4 | 1.2 | 4.5 | 6.0 |
| BZX84B7V5 | 2Z6 | 7.5 | 7.35 | 7.65 | 5 | 15 | 80 | 1 | 1 | 5 | 2.5 | 5.3 | 4.0 |
| BZX84B8V2 | 2Z7 | 8.2 | 8.04 | 8.36 | 5 | 15 | 80 | 1 | 0.7 | 5 | 3.2 | 6.2 | 4.0 |
| BZX84B9V1 | 2Z8 | 9.1 | 8.92 | 9.28 | 5 | 15 | 100 | 1 | 0.5 | 6 | 3.8 | 7.0 | 3.0 |
| BZX84B10 | 2Z9 | 10 | 9.8 | 10.2 | 5 | 20 | 150 | 1 | 0.2 | 7 | 4.5 | 8.0 | 3.0 |
| BZX84B11 | 2Y1 | 11 | 10.8 | 11.2 | 5 | 20 | 150 | 1 | 0.1 | 8 | 5.4 | 9.0 | 2.5 |
| BZX84B12 | 2Y2 | 12 | 11.8 | 12.2 | 5 | 25 | 150 | 1 | 0.1 | 8 | 6.0 | 10.0 | 2.5 |
| BZX84B13 | Z68 | 13 | 12.7 | 13.3 | 5 | 30 | 170 | 1 | 0.1 | 8 | 7.0 | 11.0 | 2.5 |
| BZX84B15 | 2Y4 | 15 | 14.7 | 15.3 | 5 | 30 | 200 | 1 | 0.05 | 10.5 | 9.2 | 13.0 | 2.0 |
| BZX84B16 | 2Y5 | 16 | 15.7 | 16.3 | 5 | 40 | 200 | 1 | 0.05 | 11.2 | 10.4 | 14.0 | 1.5 |
| BZX84B18 | 2Y6 | 18 | 17.6 | 18.4 | 5 | 45 | 225 | 1 | 0.05 | 12.6 | 12.4 | 16.0 | 1.5 |
| BZX84B20 | 2Y7 | 20 | 19.6 | 20.4 | 5 | 55 | 225 | 1 | 0.05 | 14 | 14.4 | 18.0 | 1.5 |
| BZX84B22 | 2Y8 | 22 | 21.6 | 22.4 | 5 | 55 | 250 | 1 | 0.05 | 15.4 | 16.4 | 20.0 | 1.25 |
| BZX84B24 | 2Y9 | 24 | 23.5 | 24.5 | 5 | 70 | 250 | 1 | 0.05 | 16.8 | 18.4 | 22.0 | 1.25 |
| BZX84B27 | 2Y10 | 27 | 26.5 | 27.5 | 2 | 80 | 300 | 0.5 | 0.05 | 18.9 | 21.4 | 25.3 | 1.0 |
| BZX84B30 | 2Y11 | 30 | 29.4 | 30.6 | 2 | 80 | 300 | 0.5 | 0.05 | 21 | 24.4 | 29.4 | 1.0 |
| BZX84B33 | 2Y12 | 33 | 32.3 | 33.7 | 2 | 80 | 325 | 0.5 | 0.05 | 23.1 | 27.4 | 33.4 | 0.9 |
| BZX84B36 | 2Y13 | 36 | 35.3 | 36.7 | 2 | 90 | 350 | 0.5 | 0.05 | 25.2 | 30.4 | 37.4 | 0.8 |
| BZX84B39 | 2Y14 | 39 | 38.2 | 39.8 | 2 | 130 | 350 | 0.5 | 0.05 | 27.3 | 33.4 | 41.2 | 0.7 |
| BZX84B43 | 2Y15 | 43 | 42.1 | 43.9 | 2 | 150 | 375 | 0.5 | 0.05 | 30.1 | 37.6 | 46.6 | 0.6 |
| BZX84B47 | 2Y16 | 47 | 46.1 | 47.9 | 2 | 170 | 375 | 0.5 | 0.05 | 32.9 | 42.0 | 51.8 | 0.5 |
| BZX84B51 | 2Y17 | 51 | 50 | 52 | 2 | 180 | 400 | 0.5 | 0.05 | 35.7 | 46.6 | 57.2 | 0.4 |

Note:

1. I_{ZPM} tested at tp=100uS, square wave

Typical Electrical Characteristic Curves

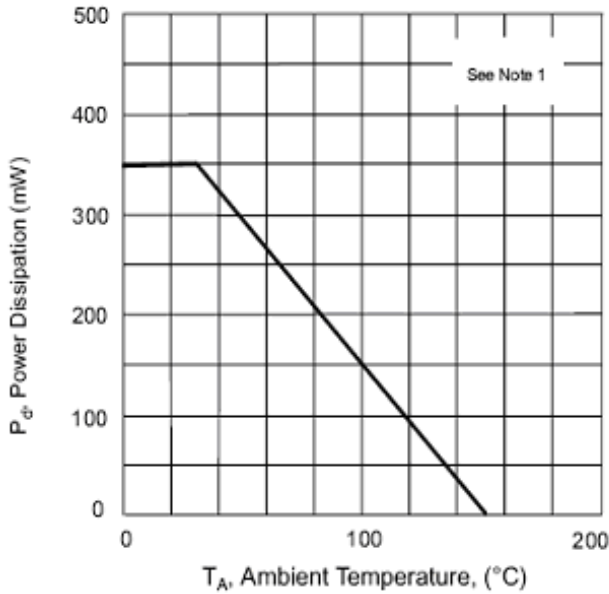


Figure 1. Power Derating Curve

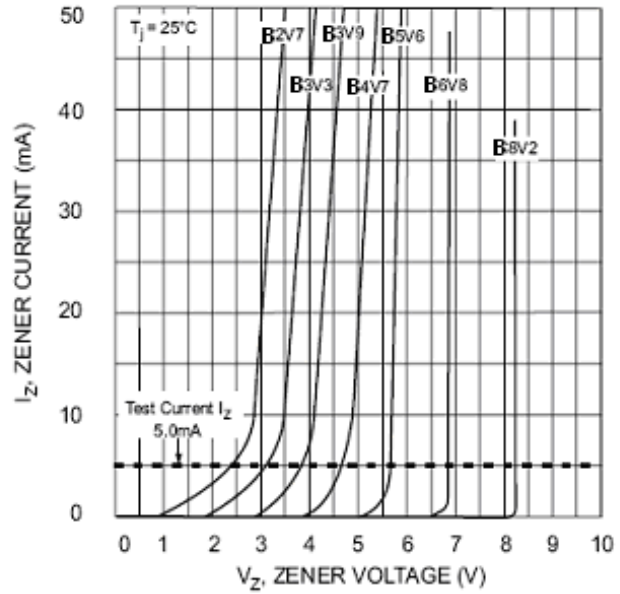


Figure 2. Zener Breakdown Characteristics

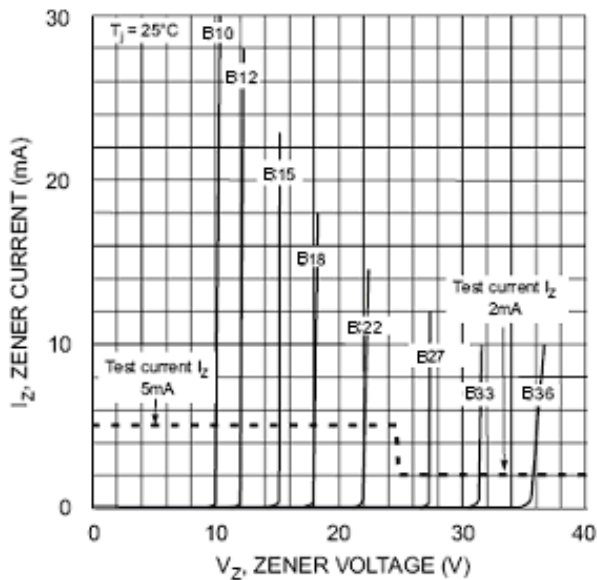


Figure 3. Zener Breakdown Characteristics

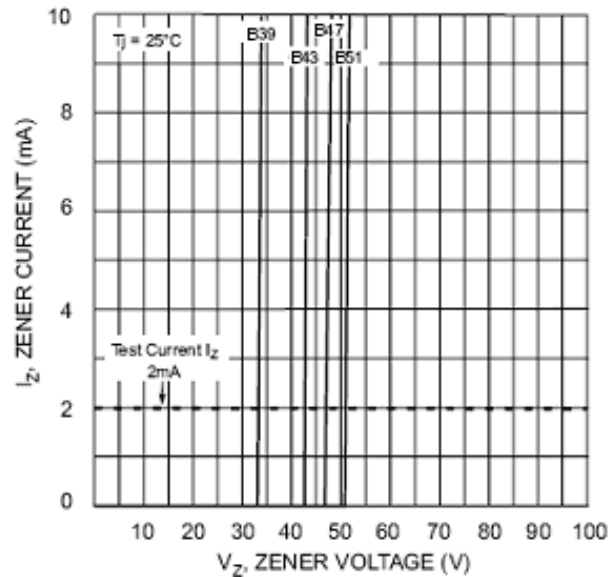
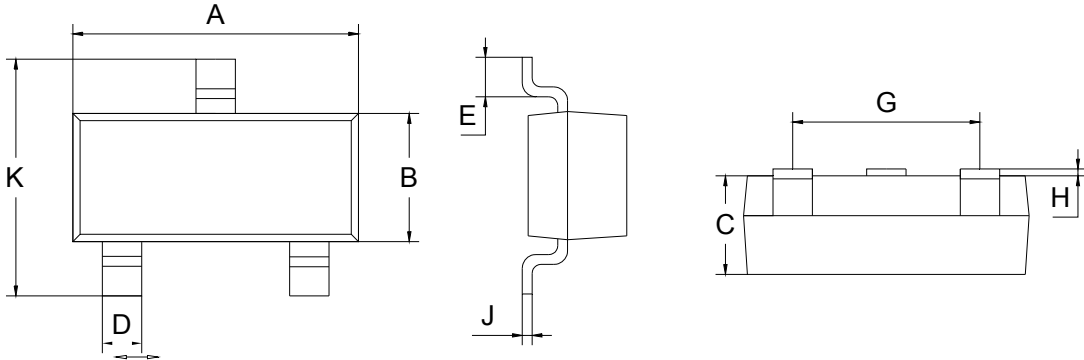


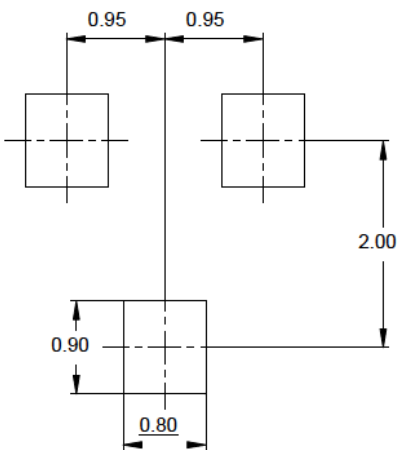
Figure 4. Zener Breakdown Characteristics

Package Outline Dimensions (SOT-23)



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|---------------------------|-------|----------------------|-------|
| | Min | Max | Min | Max |
| A | 2.700 | 3.100 | 0.106 | 0.122 |
| B | 1.100 | 1.500 | 0.043 | 0.059 |
| C | 1.000 TYP | | 0.039 TYP | |
| D | 0.400 TYP | | 0.016 TYP | |
| E | 0.350 | 0.480 | 0.014 | 0.019 |
| G | 1.800 | 2.000 | 0.071 | 0.079 |
| H | 0.020 | 0.100 | 0.001 | 0.004 |
| J | 0.100 TYP | | 0.004 TYP | |
| K | 2.200 | 2.600 | 0.087 | 0.102 |



Recommended Pad Layout









Unit : mm
 Dimensions for reference only.

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