



Silicon Planar Zener Diodes: BZX84BxxxAU Series

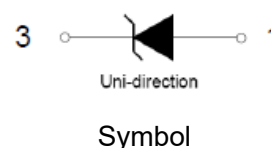
Rev.1.0

FEATURE

- ✧ Total power dissipation: max 300mW.
- ✧ Low zener impedance.
- ✧ High reliability and high stability.
- ✧ Voltage range includes breakdown voltages from 5.1V to 43V with $\pm 2\%$ for BZX84BxxxAU series.
- ✧ AEC-Q101 qualified.



SOT-23



DESCRIPTION

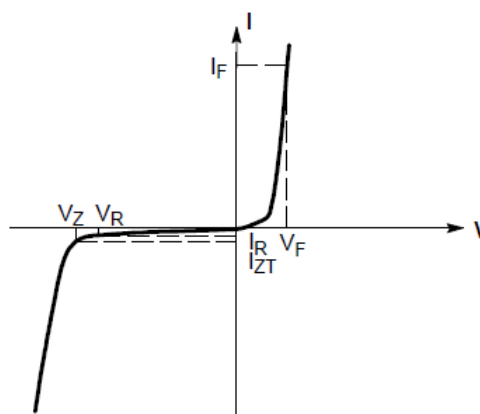
- ✧ SOT-23 small outline plastic package
- ✧ Color band denotes cathode end
- ✧ Epoxy UL: 94V-0
- ✧ Mounting position: any

ABSOLUTE MAXIMUM RATINGS AND THERMAL CHARACTERISTICS

| Parameter | Symbol | Value | Unit |
|--|-----------------|-------------|---------------------------|
| Total power dissipation @ $T_A=25^\circ\text{C}$ | P_D | 300 | mW |
| Thermal resistance from junction to ambient | $R_{\theta JA}$ | 417 | $^\circ\text{C}/\text{W}$ |
| Junction temperature range | T_J | -55 to +150 | $^\circ\text{C}$ |
| Storage temperature range | T_{STG} | -55 to +150 | $^\circ\text{C}$ |

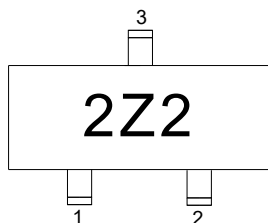
ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$)

| Symbol | Parameter |
|----------|-------------------------------------|
| V_Z | Reverse zener voltage at I_{ZT} |
| I_{ZT} | Reverse current |
| Z_{ZT} | Maximum zener impedance at I_{ZT} |
| I_R | Reverse leakage current at V_R |
| V_R | Reverse voltage |
| I_F | Forward current |
| V_F | Forward voltage at I_F |



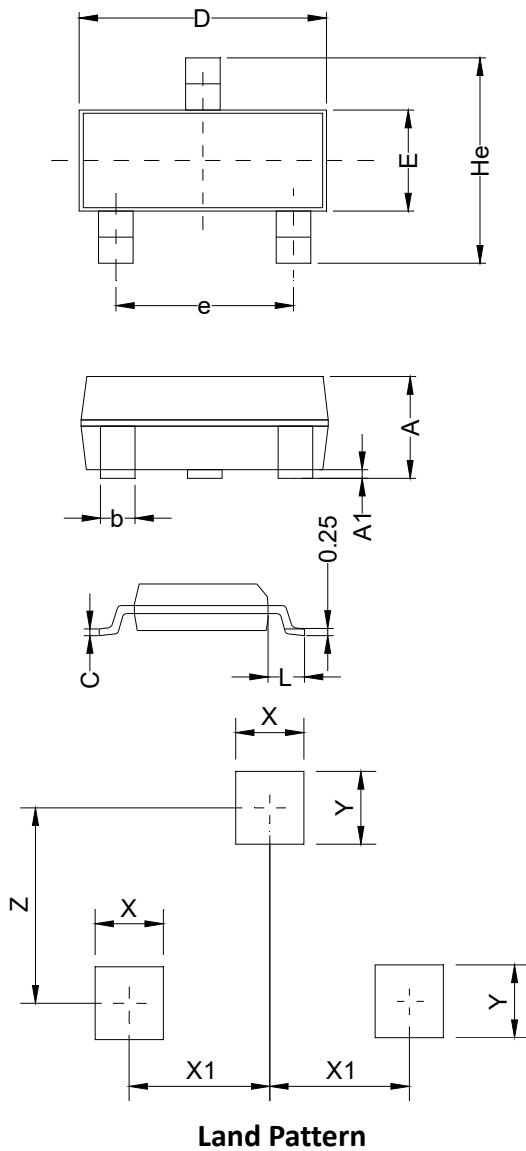
Zener voltage regulator

MARKING

ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$ unless otherwise noted)Maximum $V_F=0.9\text{V}$ at $I_F=10\text{mA}$

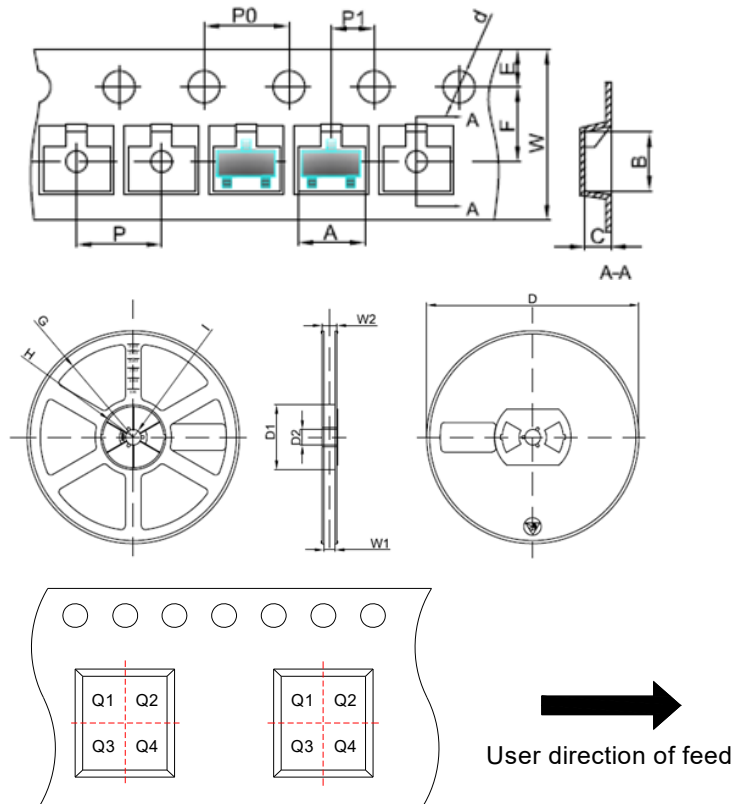
| Type number | Zener voltage range at I_{ZT} | | | | Maximum zener impedance | | | Maximum reverse leakage current | | Marking |
|-------------|---------------------------------|-------------|-------------|---------------|-------------------------|-----------------------|---------------|---------------------------------|---------------|---------|
| | Nom (Volts) | Min (Volts) | Max (Volts) | I_{ZT} (mA) | Z_{ZT} (Ω) | Z_{ZK} (Ω) | I_{ZK} (mA) | I_R (μA) | V_R (Volts) | |
| BZX84B5V1AU | 5.1 | 5.00 | 5.20 | 5 | 60 | 480 | 1.0 | 2 | 2.0 | 2Z2 |
| BZX84B5V6AU | 5.6 | 5.49 | 5.71 | 5 | 40 | 400 | 1.0 | 1 | 2.0 | 2Z3 |
| BZX84B6V2AU | 6.2 | 6.08 | 6.32 | 5 | 10 | 150 | 1.0 | 3 | 4.0 | 2Z4 |
| BZX84B6V8AU | 6.8 | 6.66 | 6.94 | 5 | 15 | 80 | 1.0 | 2 | 4.0 | 2Z5 |
| BZX84B7V5AU | 7.5 | 7.35 | 7.65 | 5 | 15 | 80 | 1.0 | 1 | 5.0 | 2Z6 |
| BZX84B8V2AU | 8.2 | 8.04 | 8.36 | 5 | 15 | 80 | 1.0 | 0.7 | 5.0 | 2Z7 |
| BZX84B9V1AU | 9.1 | 8.92 | 9.28 | 5 | 15 | 100 | 1.0 | 0.5 | 6.0 | 2Z8 |
| BZX84B10AU | 10 | 9.80 | 10.20 | 5 | 20 | 150 | 1.0 | 0.2 | 7.0 | 2Z9 |
| BZX84B11AU | 11 | 10.78 | 11.22 | 5 | 20 | 150 | 1.0 | 0.1 | 8.0 | 2Y1 • |
| BZX84B12AU | 12 | 11.76 | 12.24 | 5 | 25 | 150 | 1.0 | 0.1 | 8.0 | 2Y2 • |
| BZX84B13AU | 13 | 12.74 | 13.26 | 5 | 30 | 170 | 1.0 | 0.1 | 8.0 | 2Y3 |
| BZX84B15AU | 15 | 14.70 | 15.30 | 5 | 30 | 200 | 1.0 | 0.1 | 10.5 | 2Y4 |
| BZX84B16AU | 16 | 15.68 | 16.32 | 5 | 40 | 200 | 1.0 | 0.1 | 11.2 | 2Y5 |
| BZX84B18AU | 18 | 17.64 | 18.36 | 5 | 45 | 225 | 1.0 | 0.1 | 12.6 | 2Y6 • |
| BZX84B20AU | 20 | 19.60 | 20.40 | 5 | 55 | 225 | 1.0 | 0.1 | 14.0 | 2Y7 |
| BZX84B22AU | 22 | 21.56 | 22.44 | 5 | 55 | 250 | 1.0 | 0.1 | 15.4 | 2Y8 |
| BZX84B24AU | 24 | 23.52 | 24.48 | 5 | 70 | 250 | 1.0 | 0.1 | 16.8 | 2Y9 |
| BZX84B27AU | 27 | 26.46 | 27.54 | 2 | 80 | 300 | 0.5 | 0.1 | 18.9 | 2Y10 |
| BZX84B30AU | 30 | 29.40 | 30.60 | 2 | 80 | 300 | 0.5 | 0.1 | 21.0 | 2Y11 • |
| BZX84B33AU | 33 | 32.34 | 33.66 | 2 | 80 | 325 | 0.5 | 0.1 | 23.1 | 2Y12 |
| BZX84B36AU | 36 | 35.28 | 36.72 | 2 | 90 | 350 | 0.5 | 0.1 | 25.2 | 2Y13 |
| BZX84B39AU | 39 | 38.22 | 39.78 | 2 | 130 | 350 | 0.5 | 0.1 | 27.3 | 2Y14 |
| BZX84B43AU | 43 | 42.14 | 43.86 | 2 | 100 | 700 | 1.0 | 0.1 | 32 | 2Y15 |

PACKAGE MECHANICAL DATA



| Symbol | Millimeters | | | Inches | | |
|--------|-------------|-------|------|----------|-------|-------|
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | 0.90 | 1.063 | 1.15 | 0.035 | 0.042 | 0.045 |
| A1 | 0.00 | 0.075 | 0.14 | 0.000 | 0.003 | 0.006 |
| b | 0.30 | 0.40 | 0.50 | 0.012 | 0.016 | 0.020 |
| C | 0.07 | 0.10 | 0.15 | 0.003 | 0.004 | 0.006 |
| D | 2.80 | 2.90 | 3.00 | 0.110 | 0.114 | 0.118 |
| e | 1.80 | 1.90 | 2.00 | 0.071 | 0.075 | 0.079 |
| E | 1.20 | 1.30 | 1.40 | 0.047 | 0.051 | 0.055 |
| L | 0.55REF | | | 0.022REF | | |
| He | 2.25 | 2.40 | 2.55 | 0.089 | 0.094 | 0.100 |
| X | 0.80 | | | 0.031 | | |
| X1 | 0.95 | | | 0.037 | | |
| Y | 0.80 | | | 0.031 | | |
| Z | 2.02 | | | 0.080 | | |

TAPE AND REEL SPECIFICATION-SOT-23



Pin 1 quadrant: Q3

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 3,000units per 7" or 17.8cm diameter reel. The reels are clear in color and made of polystyrene plastic(anti-static coated).

| Symbol | Millimeters | Inches |
|--------|-------------|--------|
| | Typ. | Typ. |
| A | 3.15 | 0.124 |
| B | 2.77 | 0.109 |
| C | 1.22 | 0.048 |
| d | Φ1.50 | Φ0.059 |
| E | 1.75 | 0.069 |
| F | 3.50 | 0.138 |
| P0 | 4.00 | 0.157 |
| P | 4.00 | 0.157 |
| P1 | 2.00 | 0.079 |
| W | 8.00 | 0.315 |
| D | Φ178 | Φ7.008 |
| D1 | 54.40 | 2.142 |
| D2 | 13.00 | 0.512 |
| G | R78.00 | R3.071 |
| H | R25.60 | R1.008 |
| I | R6.50 | R0.256 |
| W1 | 9.50 | 0.374 |
| W2 | 12.30 | 0.484 |

ORDERING INFORMATION

| Part Number | Package | Reel Size | Quantity Per Reel |
|--------------------|---------|-----------|-------------------|
| BZX84BxxxAU Series | SOT-23 | 7 Inch | 3,000 pcs |

RATINGS AND CHARACTERISTICS CURVES (T_A=25°C, unless otherwise noted)

Fig.1 Power dissipation vs ambient temperature

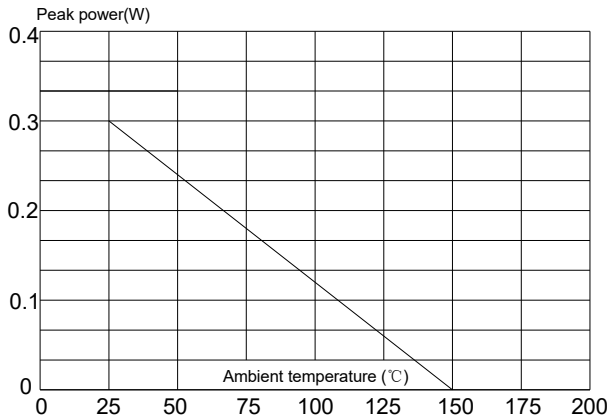


Fig.2 Zener breakdown characteristics

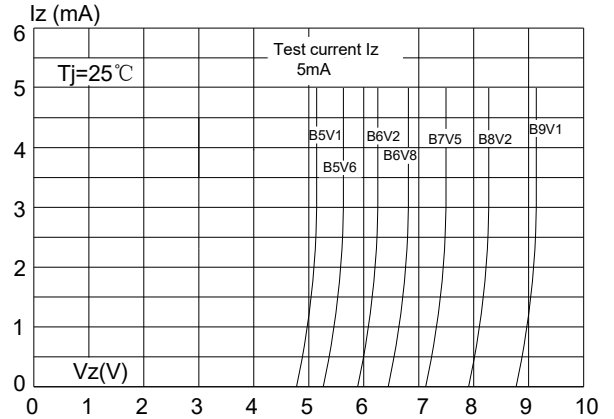


Fig.3 Zener breakdown characteristics

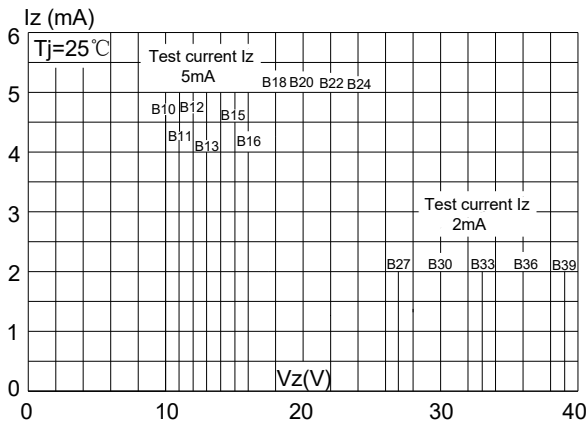
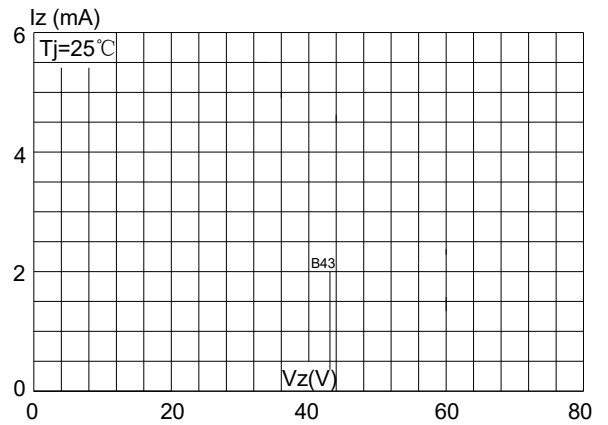


Fig.4 Zener breakdown characteristics




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