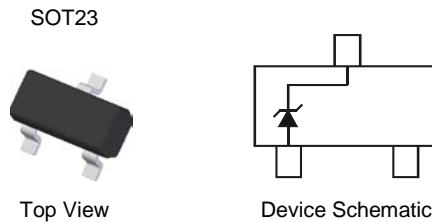


Features

- $\pm 2\%$ Tolerance on V_z
- 350mW Power Dissipation
- Zener Voltages from 2.7V - 39V
- Ideally Suited for Automated Assembly Processes
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

Mechanical Data

- Case: SOT23
- Case Material: Molded Plastic "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Solderable per MIL-STD-202, Method 208 Lead-Free Plating (Matte Tin Finish Annealed over Alloy 42 Leadframe). (e3)
- Polarity: See Diagram
- Weight: 0.008 grams (Approximate)



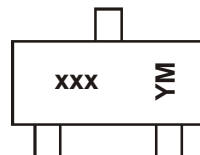
Ordering Information (Note 4)

| Part Number | Qualification | Case | Packaging |
|----------------------|---------------|-------|--------------------|
| (Type Number)-7-F* | Standard | SOT23 | 3000/Tape & Reel |
| (Type Number)Q-7-F* | Automotive | SOT23 | 3000/Tape & Reel |
| (Type Number)-13-F* | Standard | SOT23 | 10,000/Tape & Reel |
| (Type Number)Q-13-F* | Automotive | SOT23 | 10,000/Tape & Reel |

*For (Type Number), please see the Electrical Characteristics Table. Example: 7.5V Zener = BZX84B7V5-7-F.

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
 2. See <https://www.diodes.com/quality/lead-free/> for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
 3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
 4. For packaging details, see <http://www.diodes.com/products/packages.html>.

Marking Information



xxx = Product Type Marking Code
 (See Electrical Characteristics Table)
 YM = Date Code Marking
 Y = Year (ex: F = 2018)
 M = Month (ex: 9 = September)

Date Code Key

| Year | 2012 | 2013 | ... | 2018 | 2019 | 2020 | 2021 |
|------|------|------|-----|------|------|------|------|
| Code | Z | A | ... | F | G | H | I |

| Month | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Code | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | O | N | D |

Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

| Characteristic | Symbol | Value | Unit |
|---|----------------|-------|------|
| Forward Voltage @ I _F = 10mA | V _F | 0.9 | V |

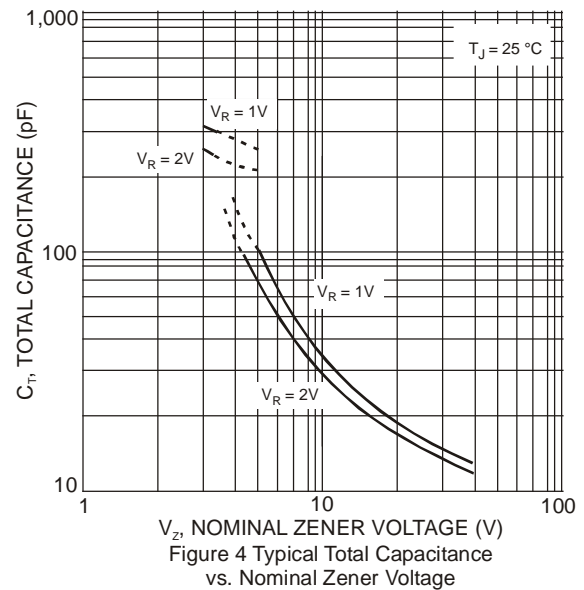
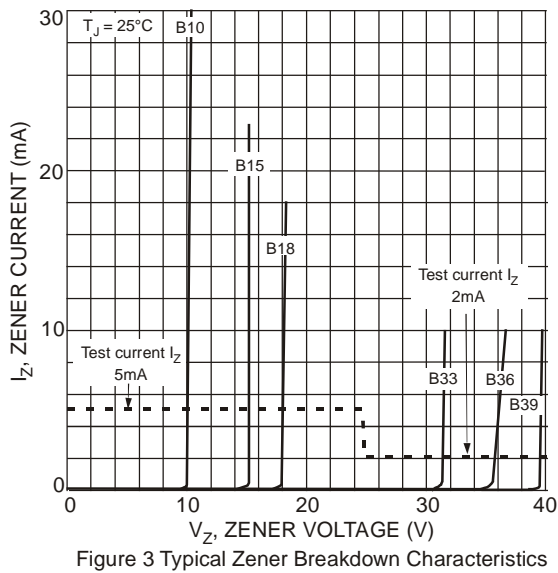
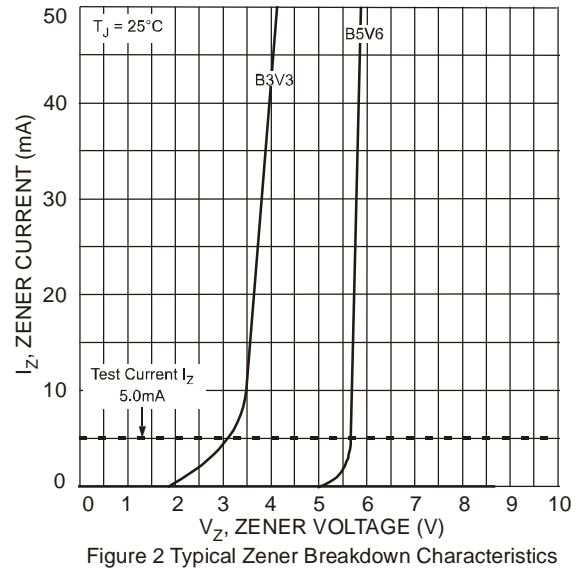
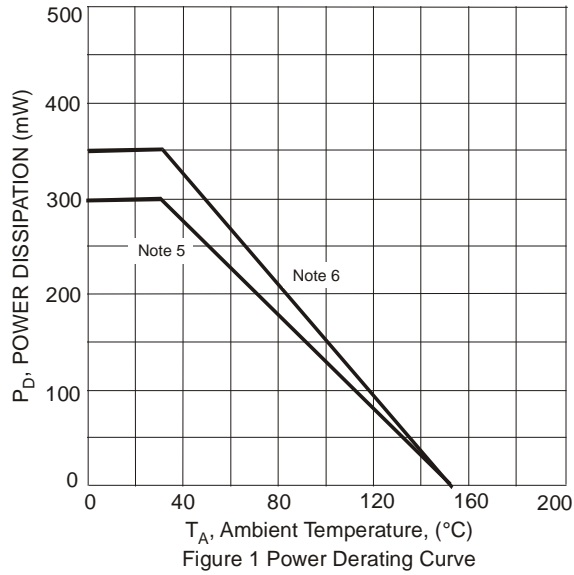
Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
|--|-----------------------------------|-------------|------|
| Power Dissipation (Note 5) | P _D | 300 | mW |
| Power Dissipation (Note 6) | P _D | 350 | mW |
| Thermal Resistance, Junction to Ambient Air (Note 5) | R _{θJA} | 417 | °C/W |
| Thermal Resistance, Junction to Ambient Air (Note 6) | R _{θJA} | 357 | °C/W |
| Operating and Storage Temperature Range | T _J , T _{STG} | -65 to +150 | °C |

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

| Type Number | Marking Code | Zener Voltage Range (Note 7) | | | | Maximum Zener Impedance f = 1KHz | | | Maximum Reverse Current (Note 7) | | Temperature Coefficient @ I _{ZT} | |
|-------------|--------------|----------------------------------|---------|---------|-----------------|-----------------------------------|-----------------------------------|----------------|----------------------------------|------|---|-------|
| | | V _Z @ I _{ZT} | | | I _{ZT} | Z _{ZT} @ I _{ZT} | Z _{ZK} @ I _{ZK} | I _R | V _R | Min | Max | |
| | | Nom (V) | Min (V) | Max (V) | (mA) | (Ω) | (Ω) | (mA) | (μA) | (V) | mV/°C | mV/°C |
| BZX84B2V7 | KZC | 2.7 | 2.65 | 2.75 | 5.0 | 100 | 600 | 1.0 | 20 | 1.0 | -3.5 | 0 |
| BZX84B3V0 | KZD | 3.0 | 2.94 | 3.06 | 5.0 | 95 | 600 | 1.0 | 10 | 1.0 | -3.5 | 0 |
| BZX84B3V3 | KZE | 3.3 | 3.23 | 3.37 | 5.0 | 95 | 600 | 1.0 | 5.0 | 1.0 | -3.5 | 0 |
| BZX84B3V6 | KZF | 3.6 | 3.53 | 3.67 | 5.0 | 90 | 600 | 1.0 | 5.0 | 1.0 | -3.5 | 0 |
| BZX84B3V9 | KZG | 3.9 | 3.82 | 3.98 | 5.0 | 90 | 600 | 1.0 | 3.0 | 1.0 | -3.5 | 0 |
| BZX84B4V3 | KZH | 4.3 | 4.21 | 4.39 | 5.0 | 90 | 600 | 1.0 | 3.0 | 1.0 | -3.5 | 0 |
| BZX84B4V7 | KZ1 | 4.7 | 4.61 | 4.79 | 5.0 | 80 | 500 | 1.0 | 3.0 | 2.0 | -3.5 | 0.2 |
| BZX84B5V1 | KZ2 | 5.1 | 5 | 5.2 | 5.0 | 60 | 480 | 1.0 | 2.0 | 2.0 | -2.7 | 1.2 |
| BZX84B5V6 | KZ3 | 5.6 | 5.49 | 5.71 | 5.0 | 40 | 400 | 1.0 | 1.0 | 2.0 | -2.0 | 2.5 |
| BZX84B6V2 | KZ4 | 6.2 | 6.08 | 6.32 | 5.0 | 10 | 150 | 1.0 | 3.0 | 4.0 | 0.4 | 3.7 |
| BZX84B6V8 | KZ5 | 6.8 | 6.66 | 6.94 | 5.0 | 15 | 80 | 1.0 | 2.0 | 4.0 | 1.2 | 4.5 |
| BZX84B7V5 | KZ6 | 7.5 | 7.35 | 7.65 | 5.0 | 15 | 80 | 1.0 | 1.0 | 5.0 | 2.5 | 5.3 |
| BZX84B8V2 | KZ7 | 8.2 | 8.04 | 8.36 | 5.0 | 15 | 80 | 1.0 | 0.7 | 5.0 | 3.2 | 6.2 |
| BZX84B9V1 | KZ8 | 9.1 | 8.92 | 9.28 | 5.0 | 15 | 100 | 1.0 | 0.5 | 6.0 | 3.8 | 7.0 |
| BZX84B10 | KZ9 | 10 | 9.8 | 10.2 | 5.0 | 20 | 150 | 1.0 | 0.2 | 7.0 | 4.5 | 8.0 |
| BZX84B11 | KY1 | 11 | 10.8 | 11.2 | 5.0 | 20 | 150 | 1.0 | 0.1 | 8.0 | 5.4 | 9.0 |
| BZX84B12 | KY2 | 12 | 11.8 | 12.2 | 5.0 | 25 | 150 | 1.0 | 0.1 | 8.0 | 6.0 | 10.0 |
| BZX84B13 | KY3 | 13 | 12.7 | 13.3 | 5.0 | 30 | 170 | 1.0 | 0.1 | 8.0 | 7.0 | 11.0 |
| BZX84B15 | KY4 | 15 | 14.7 | 15.3 | 5.0 | 30 | 200 | 1.0 | 0.1 | 10.5 | 9.2 | 13.0 |
| BZX84B16 | KY5 | 16 | 15.7 | 16.3 | 5.0 | 40 | 200 | 1.0 | 0.1 | 11.2 | 10.4 | 14.0 |
| BZX84B18 | KY6 | 18 | 17.6 | 18.4 | 5.0 | 45 | 225 | 1.0 | 0.1 | 12.6 | 12.4 | 16.0 |
| BZX84B20 | KY7 | 20 | 19.6 | 20.4 | 5.0 | 55 | 225 | 1.0 | 0.1 | 14.0 | 14.4 | 18.0 |
| BZX84B22 | KY8 | 22 | 21.6 | 22.4 | 5.0 | 55 | 250 | 1.0 | 0.1 | 15.4 | 16.4 | 20.0 |
| BZX84B24 | KY9 | 24 | 23.5 | 24.5 | 5.0 | 70 | 250 | 1.0 | 0.1 | 16.8 | 18.4 | 22.0 |
| BZX84B27 | KYA | 27 | 26.5 | 27.5 | 2.0 | 80 | 300 | 0.5 | 0.1 | 18.9 | 21.4 | 25.3 |
| BZX84B30 | KYB | 30 | 29.4 | 30.6 | 2.0 | 80 | 300 | 0.5 | 0.1 | 21.0 | 24.4 | 29.4 |
| BZX84B33 | KYC | 33 | 32.3 | 33.7 | 2.0 | 80 | 325 | 0.5 | 0.1 | 23.1 | 27.4 | 33.4 |
| BZX84B36 | KYD | 36 | 35.3 | 36.7 | 2.0 | 90 | 350 | 0.5 | 0.1 | 25.2 | 30.4 | 37.4 |
| BZX84B39 | KYE | 39 | 38.2 | 39.8 | 2.0 | 130 | 350 | 0.5 | 0.1 | 27.3 | 33.4 | 41.2 |

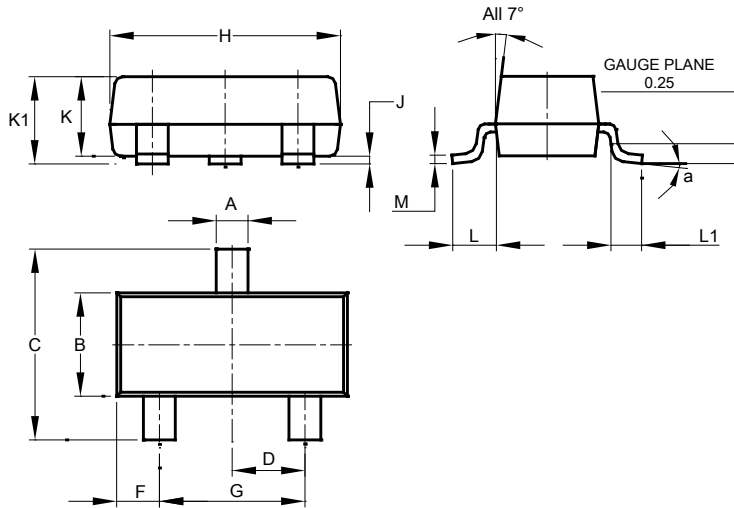
- Notes:
- Device mounted on FR-4 PCB with recommended pad layout, which can be found at <http://www.diodes.com>.
 - Valid provided the terminals are kept at ambient temperature.
 - Short duration pulse test used to minimize self-heating effect.



Package Outline Dimensions

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

SOT23

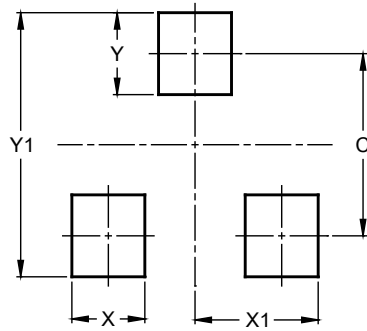


| SOT23 | | | |
|----------------------|-------|-------|-------|
| Dim | Min | Max | Typ |
| A | 0.37 | 0.51 | 0.40 |
| B | 1.20 | 1.40 | 1.30 |
| C | 2.30 | 2.50 | 2.40 |
| D | 0.89 | 1.03 | 0.915 |
| F | 0.45 | 0.60 | 0.535 |
| G | 1.78 | 2.05 | 1.83 |
| H | 2.80 | 3.00 | 2.90 |
| J | 0.013 | 0.10 | 0.05 |
| K | 0.890 | 1.00 | 0.975 |
| K1 | 0.903 | 1.10 | 1.025 |
| L | 0.45 | 0.61 | 0.55 |
| L1 | 0.25 | 0.55 | 0.40 |
| M | 0.085 | 0.150 | 0.110 |
| a | 0° | 8° | -- |
| All Dimensions in mm | | | |

Suggested Pad Layout

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

SOT23



| Dimensions | Value (in mm) |
|------------|---------------|
| C | 2.0 |
| X | 0.8 |
| X1 | 1.35 |
| Y | 0.9 |
| Y1 | 2.9 |

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