

Features

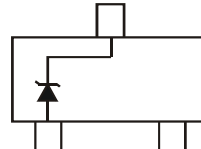
- Ultra-Small Surface Mount Package
- Planar Die Construction
- **Lead Free/RoHS Compliant (Note 2)**
- **"Green" Device (Note 3 and 4)**

Mechanical Data

- Case: SOT-523
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminals: Solderable per MIL-STD-202, Method 208
- Lead Free Plating (Matte Tin Finish annealed over Alloy 42 leadframe).
- Polarity: See Diagram
- Marking Information: See Page 3
- Ordering Information: See Page 3
- Weight: 0.002 grams (approximate)



Top View



Device Schematic

Maximum Ratings @ $T_A = 25^\circ\text{C}$ unless otherwise specified

| Characteristic | Symbol | Value | Unit |
|---------------------------------------|--------|-------|------|
| Forward Voltage @ $I_F = 10\text{mA}$ | V_F | 0.9 | V |

Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
|--|-----------------|-------------|--------------------|
| Power Dissipation (Note 1) | P_D | 150 | mW |
| Thermal Resistance, Junction to Ambient Air (Note 1) | $R_{\theta JA}$ | 833 | $^\circ\text{C/W}$ |
| Operating and Storage Temperature Range | T_J, T_{STG} | -65 to +150 | $^\circ\text{C}$ |

- Notes:
1. Device mounted on FR-4 PC board with recommended pad layout at <http://www.diodes.com/datasheets/ap02001.pdf>.
 2. No purposefully added lead.
 3. Diodes Inc.'s "Green" policy can be found on our website at http://www.diodes.com/products/lead_free/index.php.
 4. Product manufactured with Date Code UO (week 40, 2007) and newer are built with Green Molding Compound. Product manufactured prior to Date Code UO are built with Non-Green Molding Compound and may contain Halogens or Sb2O3 Fire Retardants.

Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

| Type Number | Marking Code | Zener Voltage Range (Note 5) | | | | Maximum Zener Impedance (Note 6) | | | Maximum Reverse Current (Note 5) | | Temperature Coefficient of Zener Voltage @ $I_{ZT} = 5\text{mA}$ ($\text{mV}/^\circ\text{C}$) | |
|-------------|--------------|------------------------------|---------|---------|----------|----------------------------------|-------------------|---------------|----------------------------------|---------|---|------|
| | | $V_Z @ I_{ZT}$ | | | I_{ZT} | $Z_{ZT} @ I_{ZT}$ | $Z_{ZK} @ I_{ZK}$ | I_{ZK} | I_R | @ V_R | Min | Max |
| | | Nom (V) | Min (V) | Max (V) | mA | Ω | mA | μA | V | | | |
| BZX84C2V4T | RB | 2.4 | 2.2 | 2.6 | 5.0 | 100 | 600 | 1.0 | 50 | 1.0 | -3.5 | 0 |
| BZX84C2V7T | RC | 2.7 | 2.5 | 2.9 | 5.0 | 100 | 600 | 1.0 | 20 | 1.0 | -3.5 | 0 |
| BZX84C3V0T | RD | 3.0 | 2.8 | 3.2 | 5.0 | 95 | 600 | 1.0 | 20 | 1.0 | -3.5 | 0 |
| BZX84C3V3T | RE | 3.3 | 3.1 | 3.5 | 5.0 | 95 | 600 | 1.0 | 5.0 | 1.0 | -3.5 | 0 |
| BZX84C3V6T | RF | 3.6 | 3.4 | 3.8 | 5.0 | 90 | 600 | 1.0 | 5.0 | 1.0 | -3.5 | 0 |
| BZX84C3V9T | RG | 3.9 | 3.7 | 4.1 | 5.0 | 90 | 600 | 1.0 | 3.0 | 1.0 | -3.5 | 0 |
| BZX84C4V3T | RH | 4.3 | 4.0 | 4.6 | 5.0 | 90 | 600 | 1.0 | 3.0 | 1.0 | -3.5 | 0 |
| BZX84C4V7T | R1 | 4.7 | 4.4 | 5.0 | 5.0 | 80 | 600 | 1.0 | 3.0 | 2.0 | -3.5 | 0.2 |
| BZX84C5V1T | R2 | 5.1 | 4.8 | 5.4 | 5.0 | 60 | 500 | 1.0 | 2.0 | 2.0 | -2.7 | 1.2 |
| BZX84C5V6T | R3 | 5.6 | 5.2 | 6.0 | 5.0 | 40 | 480 | 1.0 | 1.0 | 2.0 | -2.0 | 2.5 |
| BZX84C6V2T | R4 | 6.2 | 5.8 | 6.6 | 5.0 | 10 | 400 | 1.0 | 3.0 | 4.0 | 0.4 | 3.7 |
| BZX84C6V8T | R5 | 6.8 | 6.4 | 7.2 | 5.0 | 15 | 150 | 1.0 | 2.0 | 4.0 | 1.2 | 4.5 |
| BZX84C7V5T | R6 | 7.5 | 7.0 | 7.9 | 5.0 | 15 | 80 | 1.0 | 1.0 | 5.0 | 2.5 | 5.3 |
| BZX84C8V2T | R7 | 8.2 | 7.7 | 8.7 | 5.0 | 15 | 80 | 1.0 | 0.7 | 5.0 | 3.2 | 6.2 |
| BZX84C9V1T | R8 | 9.1 | 8.5 | 9.6 | 5.0 | 15 | 80 | 1.0 | 0.5 | 6.0 | 3.8 | 7.0 |
| BZX84C10T | R9 | 10 | 9.4 | 10.6 | 5.0 | 20 | 100 | 1.0 | 0.2 | 7.0 | 4.5 | 8.0 |
| BZX84C11T | P1 | 11 | 10.4 | 11.6 | 5.0 | 20 | 150 | 1.0 | 0.1 | 8.0 | 5.4 | 9.0 |
| BZX84C12T | P2 | 12 | 11.4 | 12.7 | 5.0 | 25 | 150 | 1.0 | 0.1 | 8.0 | 6.0 | 10.0 |
| BZX84C13T | P3 | 13 | 12.4 | 14.1 | 5.0 | 30 | 150 | 1.0 | 0.1 | 8.0 | 7.0 | 11.0 |
| BZX84C15T | P4 | 15 | 13.8 | 15.6 | 5.0 | 30 | 170 | 1.0 | 0.1 | 10.5 | 9.2 | 13.0 |
| BZX84C16T | P5 | 16 | 15.3 | 17.1 | 5.0 | 40 | 200 | 1.0 | 0.1 | 11.2 | 10.4 | 14.0 |
| BZX84C18T | P6 | 18 | 16.8 | 19.1 | 5.0 | 45 | 200 | 1.0 | 0.1 | 12.6 | 12.4 | 16.0 |
| BZX84C20T | P7 | 20 | 18.8 | 21.2 | 5.0 | 55 | 225 | 1.0 | 0.1 | 14.0 | 14.4 | 18.0 |
| BZX84C22T | P8 | 22 | 20.8 | 23.3 | 5.0 | 55 | 225 | 1.0 | 0.1 | 15.4 | 16.4 | 20.0 |
| BZX84C24T | P9 | 24 | 22.8 | 25.6 | 5.0 | 70 | 250 | 1.0 | 0.1 | 16.8 | 18.4 | 22.0 |
| BZX84C27T | PA | 27 | 25.1 | 28.9 | 2.0 | 80 | 250 | 0.5 | 0.1 | 18.9 | 21.4 | 25.3 |
| BZX84C30T | PB | 30.0 | 28.0 | 32.0 | 2.0 | 80 | 300 | 0.5 | 0.1 | 21.0 | 24.4 | 29.4 |
| BZX84C33T | PC | 33.0 | 31.0 | 35.0 | 2.0 | 80 | 300 | 0.5 | 0.1 | 23.1 | 27.4 | 33.4 |
| BZX84C36T | PD | 36.0 | 34.0 | 38.0 | 2.0 | 90 | 325 | 0.5 | 0.1 | 25.2 | 30.4 | 37.4 |
| BZX84C39T | PE | 39.0 | 37.0 | 41.0 | 2.0 | 130 | 350 | 0.5 | 0.1 | 27.3 | 33.4 | 41.2 |

Notes: 5. Short duration pulse test used to minimize self-heating effect.
6. $f = 1\text{KHz}$.

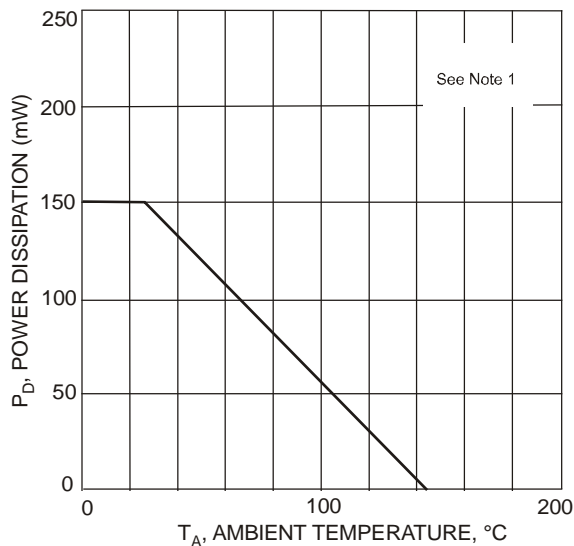


Fig. 1. Power Derating Curve

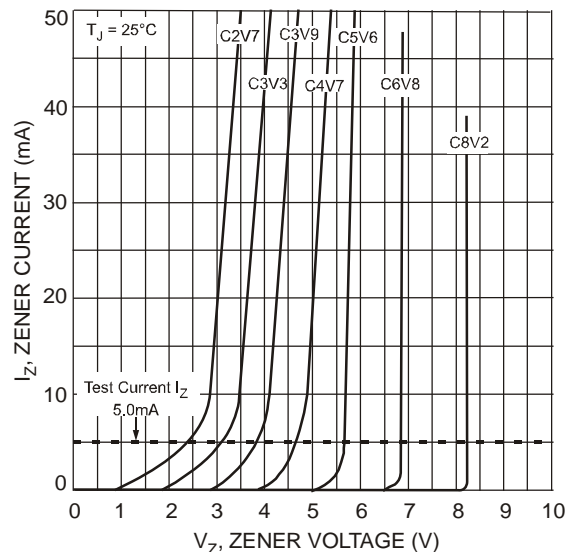


Fig. 2 Typical Zener Breakdown Characteristics

BZX84C2V4T - BZX84C39T

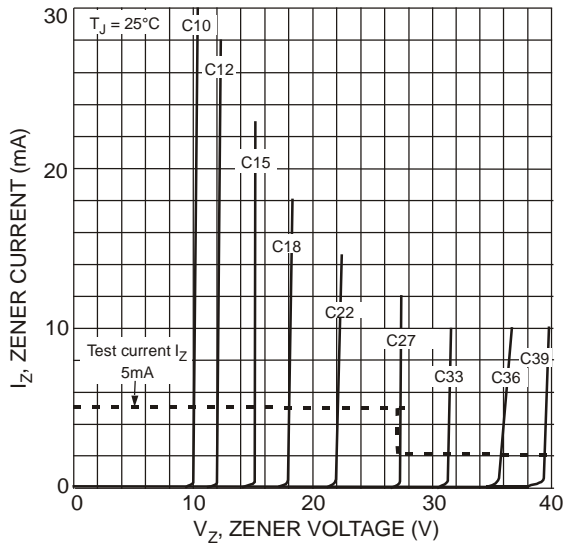


Fig. 3. Typical Zener Breakdown Characteristics

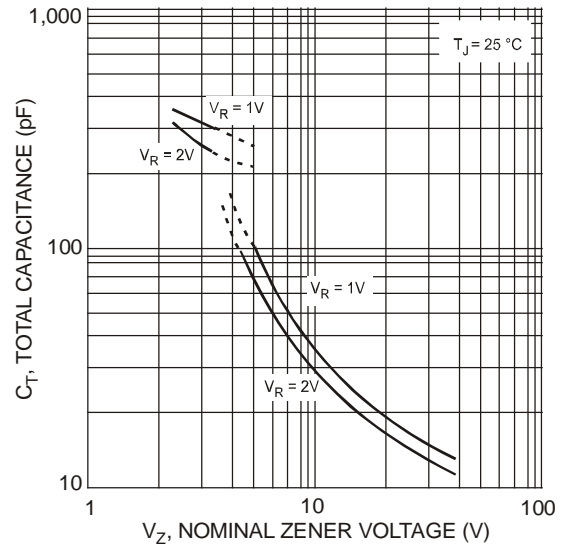


Fig. 4. Typical Total Capacitance vs. Nominal Zener Voltage

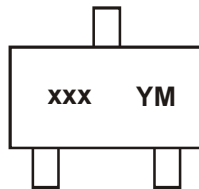
Ordering Information (Note 7)

| Part Number | Case | Packaging |
|--------------------|---------|------------------|
| (Type Number)-7-F* | SOT-523 | 3000/Tape & Reel |

*Add "-7-F" to the appropriate type number in Electrical Characteristics Table on page 2 example: 6.2V Zener = BZX84C6V2T-7-F.

Notes: 7. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

Marking Information



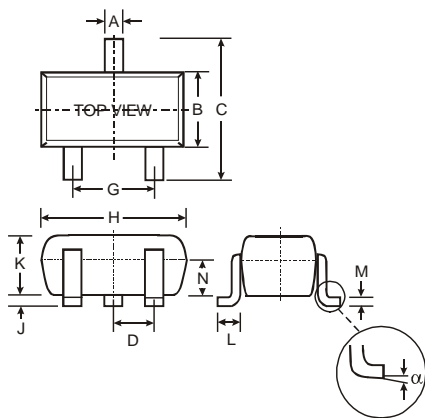
xxx = Product Type Marking Code
(See Electrical Characteristics Table)
YM = Date Code Marking
Y = Year (ex: N = 2002)
M = Month (ex: 9 = September)

Date Code Key

| Year | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2111 | 2012 |
|------|------|------|------|------|------|------|------|------|------|------|------|
| Code | N | P | R | S | T | U | V | W | X | Y | Z |

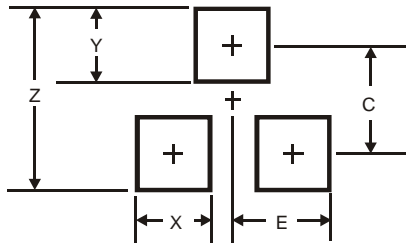
| Month | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Code | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | O | N | D |

Package Outline Dimensions



| SOT-523 | | | |
|----------------------|------|------|------|
| Dim | Min | Max | Typ |
| A | 0.15 | 0.30 | 0.22 |
| B | 0.75 | 0.85 | 0.80 |
| C | 1.45 | 1.75 | 1.60 |
| D | — | — | 0.50 |
| G | 0.90 | 1.10 | 1.00 |
| H | 1.50 | 1.70 | 1.60 |
| J | 0.00 | 0.10 | 0.05 |
| K | 0.60 | 0.80 | 0.75 |
| L | 0.10 | 0.30 | 0.22 |
| M | 0.10 | 0.20 | 0.12 |
| N | 0.45 | 0.65 | 0.50 |
| α | 0° | 8° | — |
| All Dimensions in mm | | | |

Suggested Pad Layout



| Dimensions | Value (in mm) |
|------------|---------------|
| Z | 1.8 |
| X | 0.4 |
| Y | 0.51 |
| C | 1.3 |
| E | 0.7 |

IMPORTANT NOTICE

Diodes Incorporated and its subsidiaries reserve the right to make modifications, enhancements, improvements, corrections or other changes without further notice to any product herein. Diodes Incorporated does not assume any liability arising out of the application or use of any product described herein; neither does it convey any license under its patent rights, nor the rights of others. The user of products in such applications shall assume all risks of such use and will agree to hold Diodes Incorporated and all the companies whose products are represented on our website, harmless against all damages.

LIFE SUPPORT

Diodes Incorporated products are not authorized for use as critical components in life support devices or systems without the expressed written approval of the President of Diodes Incorporated.

AMEYA360

Components Supply Platform

Authorized Distribution Brand :



Website :

Welcome to visit www.ameya360.com

Contact Us :

➤ Address :

401 Building No.5, JiuGe Business Center, Lane 2301, Yishan Rd
Minhang District, Shanghai , China

➤ Sales :

Direct +86 (21) 6401-6692

Email amall@ameya360.com

QQ 800077892

Skype [ameyasales1](#) [ameyasales2](#)

➤ Customer Service :

Email service@ameya360.com

➤ Partnership :

Tel +86 (21) 64016692-8333

Email mkt@ameya360.com