



**THE DATASHEET OF  
BZX84C47-7**



## Features

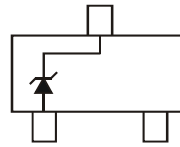
- Planar Die Construction
- 350mW Power Dissipation
- Zener Voltages from 43V - 51V
- Ideally Suited for Automated Assembly Processes
- Lead, Halogen and Antimony Free, RoHS Compliant "Green" Device (Notes 3 and 6)**

## Mechanical Data

- Case: SOT-23
- 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 2
- Ordering Information: See Page 2
- Weight: 0.008 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)                           | $P_D$           | 300         | mW                 |
| Power Dissipation (Note 2)                           | $P_D$           | 350         | mW                 |
| Thermal Resistance, Junction to Ambient Air (Note 1) | $R_{\theta JA}$ | 417         | $^\circ\text{C/W}$ |
| Thermal Resistance, Junction to Ambient Air (Note 2) | $R_{\theta JA}$ | 357         | $^\circ\text{C/W}$ |
| Operating and Storage Temperature Range              | $T_J, T_{STG}$  | -65 to +150 | $^\circ\text{C}$   |

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

| Type Number | Type Code | Zener Voltage Range (Note 5) |         |         |          | Maximum Zener Impedance (Note 4) |                   |      | Maximum Reverse Current (Note 5) |       | Typical Temperature Coefficient @ $I_{ZT}$ mV/ $^\circ\text{C}$ |      |
|-------------|-----------|------------------------------|---------|---------|----------|----------------------------------|-------------------|------|----------------------------------|-------|---|------|
|             |           | $V_Z @ I_{ZT}$               |         |         | $I_{ZT}$ | $Z_{ZT} @ I_{ZT}$                | $Z_{ZK} @ I_{ZK}$ |      | $I_R$                            | $V_R$ | Min   | Max  |
|             |           | Nom (V)                      | Min (V) | Max (V) | (mA)     | ( $\Omega$ )                     | ( $\Omega$ )      | (mA) | ( $\mu\text{A}$ )                | (V)   |   |      |
| BZX84C43    | Y15/KYF   | 43                           | 40.0    | 46.0    | 2.0      | 150                              | 375               | 0.5  | 0.1                              | 30.1  | 10.0  | 12.0 |
| BZX84C47    | Y16/KYG   | 47                           | 44.0    | 50.0    | 2.0      | 170                              | 375               | 0.5  | 0.1                              | 32.9  | 10.0  | 12.0 |
| BZX84C51    | Y17/KYH   | 51                           | 48.0    | 54.0    | 2.0      | 180                              | 400               | 0.5  | 0.1                              | 35.7  | 10.0  | 12.0 |

- Notes:
- Device mounted on FR-4 PC board with recommended pad layout, which can be found on our website at <http://www.diodes.com/datasheets/ap02001.pdf>.
  - Valid provided the terminals are kept at ambient temperature.
  - No purposefully added lead. Halogen and Antimony Free.
  - $f = 1\text{KHz}$ .
  - Short duration pulse test used to minimize self-heating effect.
  - Product manufactured with Data Code V9 (week 33, 2008) and newer are built with Green Molding Compound. Product manufactured prior to Date Code V9 are built with Non-Green Molding Compound and may contain Halogens or  $\text{Sb}_2\text{O}_3$  Fire Retardants.

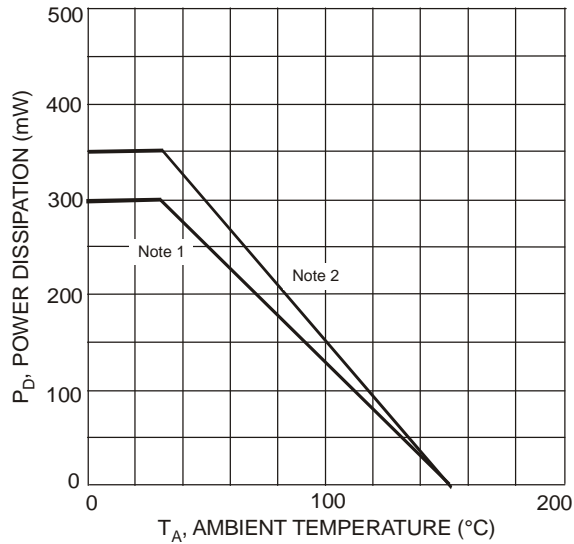


Fig. 1 Power Derating Curve

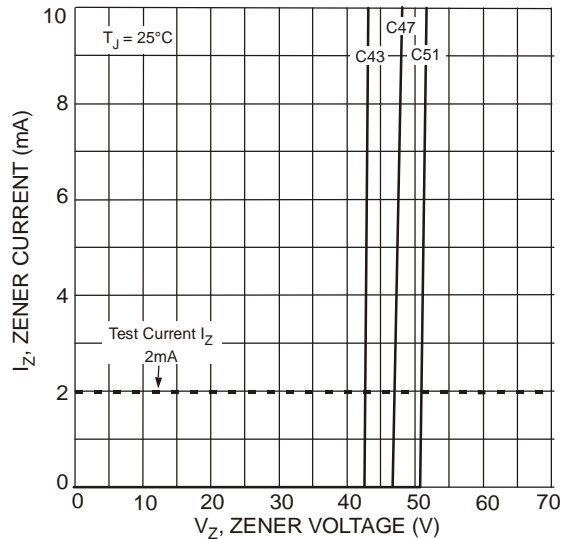


Fig. 2 Typical Zener Breakdown Characteristics

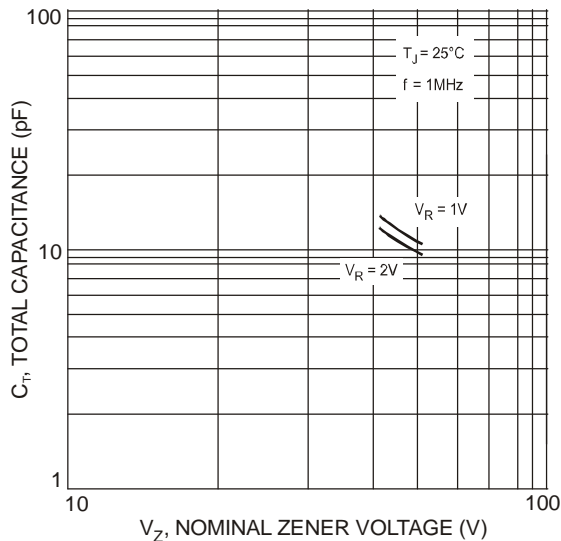


Fig. 3 Typical Total Capacitance vs. Nominal Zener Voltage

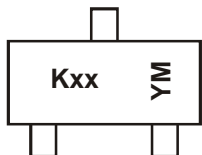
### Ordering Information (Note 7)

| Part Number        | Case   | Packaging        |
|--------------------|--------|------------------|
| (Type Number)-7-F* | SOT-23 | 3000/Tape & Reel |

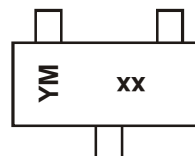
\*Add "-7" to the appropriate type number in Electrical Characteristics Table on Page 2. Example: 43V Zener = BZX84C43-7-F.

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

### Marking Information



Kxx = Product Type Marking Code  
(See Electrical Characteristics Table)  
YM = Date Code Marking  
Y = Year ex: T = 2006  
M = Month (ex: 9 = September)



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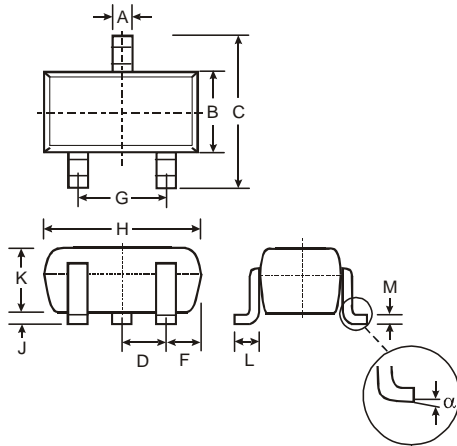
#### Date Code Key

| Year | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|------|------|------|------|------|------|------|------|------|------|------|
| Code | T    | U    | V    | W    | X    | Y    | Z    | A    | B    | C    |

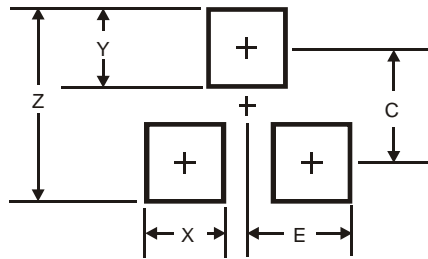
| Month | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Code  | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | O   | N   | D   |

**Package Outline Dimensions**



| SOT-23   |       |       |
|----------|-------|-------|
| Dim      | Min   | Max   |
| A        | 0.37  | 0.51  |
| B        | 1.20  | 1.40  |
| C        | 2.30  | 2.50  |
| D        | 0.89  | 1.03  |
| F        | 0.45  | 0.60  |
| G        | 1.78  | 2.05  |
| H        | 2.80  | 3.00  |
| J        | 0.013 | 0.10  |
| K        | 0.903 | 1.10  |
| L        | 0.45  | 0.61  |
| M        | 0.085 | 0.180 |
| $\alpha$ | 0°    | 8°    |

**Suggested Pad Layout**



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

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