

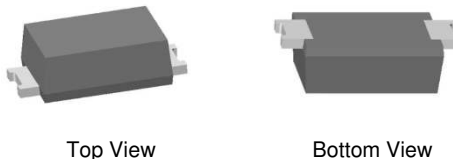
Features

- Flat Lead Package Design for Low Profile and High Power Dissipation
- **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**
- **PPAP Capable (Note 4)**

Mechanical Data

- Case: SOD123F
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections: Cathode Band
- Terminals: Finish — Matte Tin Annealed over Copper Alloy Leadframe. Solderable per MIL-STD-202, Method 208 ③
- Polarity: Cathode Band
- Weight: 0.015 grams (Approximate)

SOD123F (Type B)



Ordering Information (Note 5)

| Part Number | Compliance | Case | Packaging |
|----------------|------------|------------------|------------------|
| BZT52HC18WFQ-7 | Automotive | SOD123F (Type B) | 3000/Tape & Reel |

- 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. Automotive products are AEC-Q101 qualified and are PPAP capable. Refer to <https://www.diodes.com/quality/>.
 5. For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

Marking Information



XX = Product Type Marking Code
 (See Electrical Characteristics Table)
 YM = Date Code Marking
 Y = Year (ex: G = 2019)
 M = Month (ex: 9 = September)

Date Code Key

| Year | 2018 | 2019 | 2020 | 2021 | 2022 | ... | 2025 | 2026 | 2027 | 2028 |
|------|------|------|------|------|------|-----|------|------|------|------|
| Code | F | G | H | I | J | ... | M | N | O | P |

| 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 (Note 6) @ I _F = 10mA | V _F | 0.9 | V |
| Forward Current | I _F | 250 | mA |

Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
|--|-----------------------------------|-------------|------|
| Power Dissipation (Note 7) | P _D | 375 | mW |
| Power Dissipation (Note 8) | P _D | 830 | mW |
| Thermal Resistance, Junction to Ambient Air (Note 7) | R _{θJA} | 330 | °C/W |
| Thermal Resistance, Junction to Ambient Air (Note 8) | R _{θJA} | 150 | °C/W |
| Operating and Storage Temperature Range | T _J , T _{STG} | -65 to +150 | °C |

- Notes:
6. Short duration pulse test used to minimize self-heating effect.
 7. Device mounted on FR-4 PCB with minimum recommended pad layout, as shown in Diodes Incorporated's Suggested Pad Layout document, which can be found on our website at <http://www.diodes.com/package-outlines.html>.
 8. Device mounted on FR-4 PCB with mounting pad for cathode 1cm².

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

| Type Number | Marking Codes | Zener Voltage Range (Note 9) | | | Maximum Zener Impedance (Note 10) | | | Temperature Coefficient | | Total Capacitance | Maximum Reverse Current (Note 9) | |
|--------------|---------------|----------------------------------|---------|-----------------|-----------------------------------|-----------------------------------|-----------------|----------------------------------|-------------|--|----------------------------------|------------------|
| | | V _Z @ I _{ZT} | | I _{ZT} | Z _{ZT} @ I _{ZT} | Z _{ZK} @ I _{ZK} | I _{ZK} | T _C @ I _{ZT} | | C _T @ f = 1MHz, V _R = 0V | I _R | @ V _R |
| | | Min (V) | Max (V) | mA | Ω | | mA | Min (mV/°C) | Max (mV/°C) | Max (pF) | μA | V |
| BZT52HC18WFQ | WL | 16.8 | 19.1 | 5 | 20 | 170 | 1 | 12.4 | 16.0 | 70 | 0.05 | 12.6 |

Notes: 9. Short duration pulse test used to minimize self-heating effect.
10. f = 1kHz.

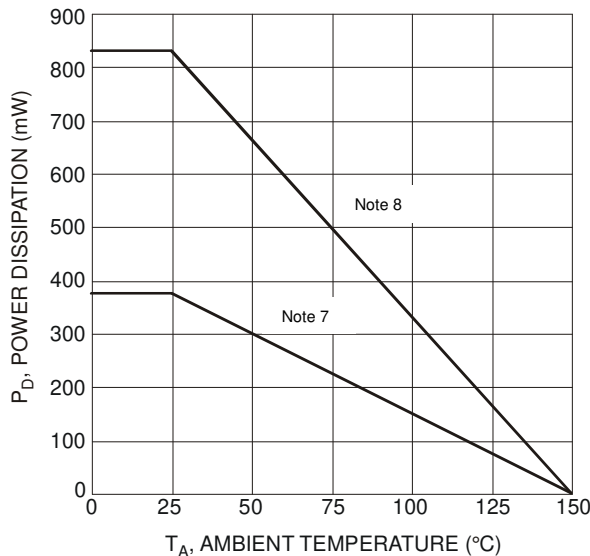


Figure 1 Power Derating Curve

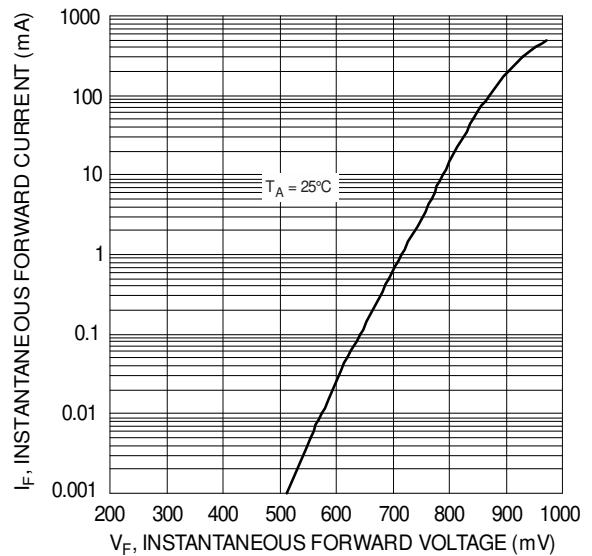


Figure 2 Typical Forward Characteristics

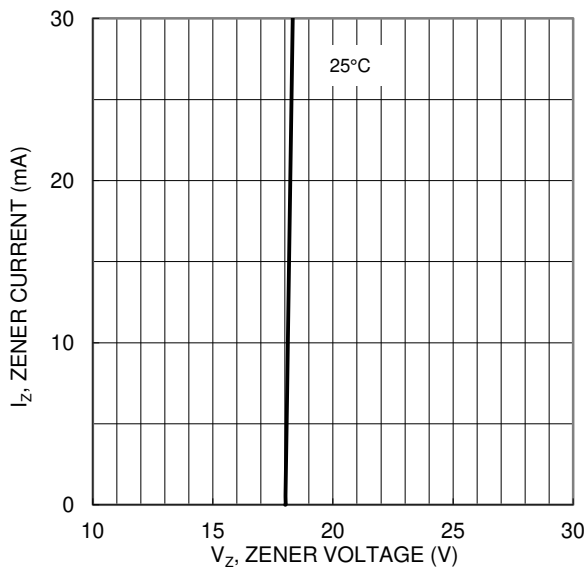
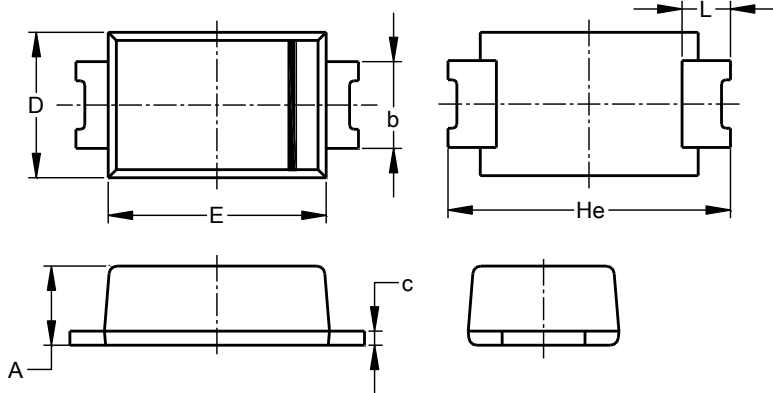


Figure 3 Typical Zener Breakdown Characteristics

Package Outline Dimensions

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

SOD123F (Type B)

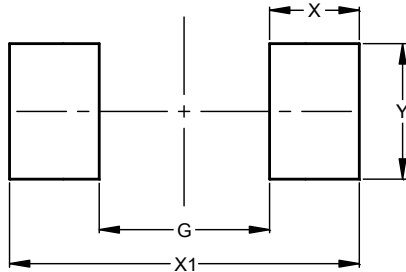


| SOD123F (Type B) | | | |
|----------------------|------|------|------|
| Dim | Min | Max | Typ |
| A | 0.81 | 1.15 | -- |
| b | 0.80 | 1.35 | -- |
| c | 0.05 | 0.30 | -- |
| D | 1.70 | 1.90 | 1.80 |
| E | 2.60 | 2.80 | 2.70 |
| He | 3.30 | 3.70 | 3.50 |
| L | 0.35 | 0.85 | -- |
| All Dimensions in mm | | | |

Suggested Pad Layout

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

SOD123F (Type B)



| Dimensions | Value (in mm) |
|------------|---------------|
| G | 1.90 |
| X | 1.00 |
| X1 | 3.90 |
| Y | 1.50 |

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