

Features

- Low Leakage Current: $\leq 100\text{nA}$
- Fast Switching Speed: $\leq 50\text{ns}$
- High Reverse Breakdown Voltage: $\geq 350\text{V}$
- Ideal for Battery Powered Portable Applications or Automated Insertion
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Notes 3 & 4)**
- **Qualified to AEC-Q101 Standards for High Reliability**

Mechanical Data

- Case: SOD123
- Case Material: Molded Plastic. 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)
- Polarity: Cathode Band
- Weight: 0.01 grams (approximate)

SOD123



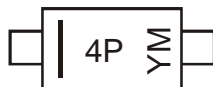
Top View

Ordering Information (Note 5)

| Part Number | Case | Packaging |
|---------------|--------|-------------------|
| BAV3004W-7-F | SOD123 | 3,000/Tape & Reel |
| BAV3004WQ-7-F | SOD123 | 3,000/Tape & Reel |

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
 2. See <http://www.diodes.com> 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. Product manufactured with Date 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 Sb_2O_3 Fire Retardants.
 5. For packaging details, go to our website at <http://www.diodes.com>.

Marking Information



4P = Product Type Marking Code
 YM = Date Code Marking
 Y = Year (ex: Z = 2012)
 M = Month (ex: 9 = September)

Date Code Key

| Year | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Code | N | P | R | S | T | U | V | W | X | Y | Z | A | B | C | D | E |

| 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 |
|---|---------------------|-------------|------|
| Peak Repetitive Reverse Voltage | V _{RRM} | 350 | V |
| Working Peak Reverse Voltage | V _{RWM} | 300 | V |
| DC Blocking Voltage | V _R | | |
| RMS Reverse Voltage | V _{R(RMS)} | 212 | V |
| Forward Continuous Current | I _{FM} | 225 | mA |
| Repetitive Peak Forward Current | I _{FRM} | 625 | mA |
| Non-Repetitive Peak Forward Surge Current | I _{FSM} | @ t = 1.0μs | 4.0 |
| | | @ t = 1.0s | 1.0 |

Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
|---|-----------------------------------|-------------|------|
| Power Dissipation (Note 6) | P _D | 400 | mW |
| Thermal Resistance Junction to Ambient Air (Note 6) | R _{θJA} | 312 | °C/W |
| Operating and Storage Temperature Range | T _J , T _{STG} | -65 to +150 | °C |

Electrical Characteristics @T_A = 25°C unless otherwise specified

| Characteristic | Symbol | Min | Typ | Max | Unit | Test Condition |
|------------------------------------|--------------------|-----|----------------------|---------------------|----------|---|
| Reverse Breakdown Voltage (Note 7) | V _{(BR)R} | 350 | — | — | V | I _R = 150μA |
| Forward Voltage | V _{FM} | — | 0.78 0.93 1.03 | 0.87 1.0 1.25 | V | I _F = 20mA I _F = 100mA I _F = 200mA |
| Leakage Current (Note 7) | I _{RM} | — | 30 35 | 100 100 | nA μA | V _R = 240V, T _J = 25°C V _R = 240V, T _J = 150°C |
| Total Capacitance | C _T | — | 1.0 | 5.0 | pF | V _R = 0, f = 1.0MHz |
| Reverse Recovery Time | t _{rr} | — | — | 50 | ns | I _F = I _R = 30mA, I _{rr} = 3.0mA, R _L = 100Ω |

Notes: 6. Valid provided that terminals are kept at ambient room temperature.
7. Short duration pulse test used to minimize self-heating effect.

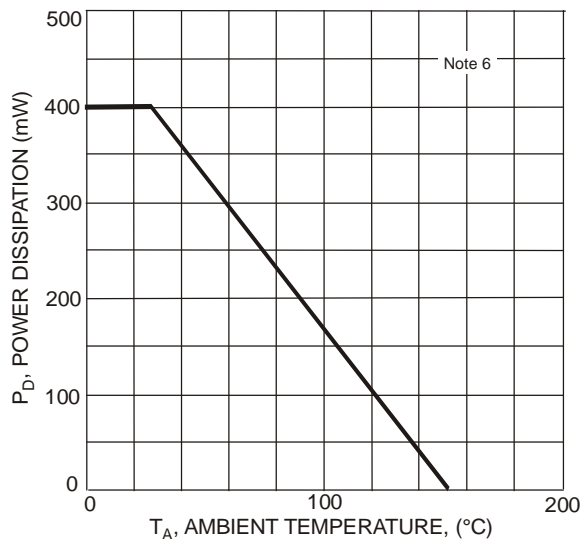


Fig. 1 Power Derating Curve

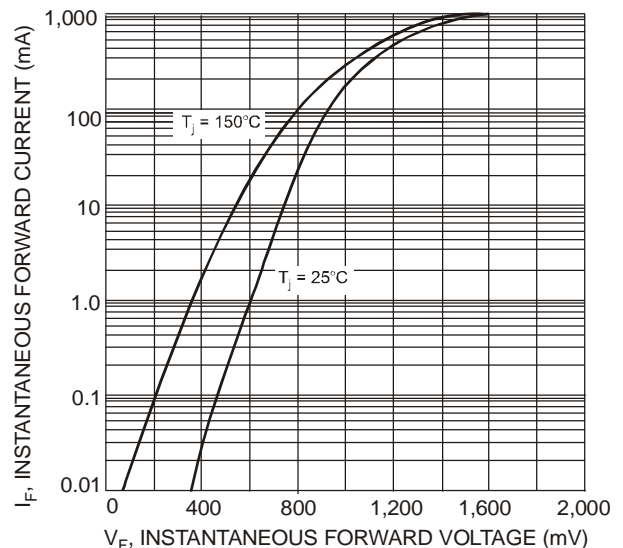


Fig. 2 Typical Forward Characteristics

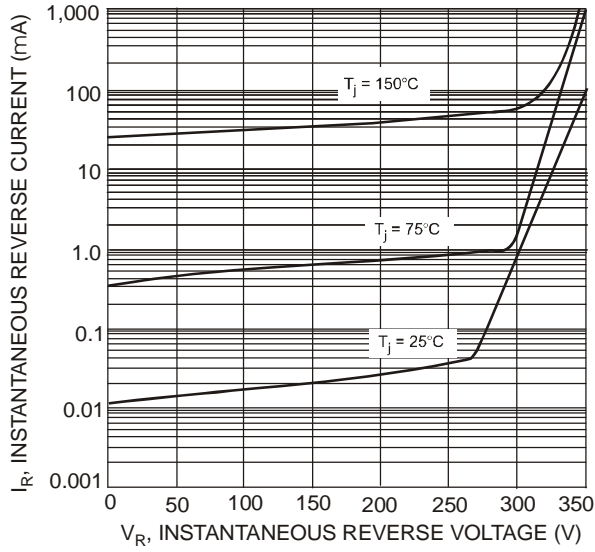


Fig. 3 Typical Reverse Characteristics

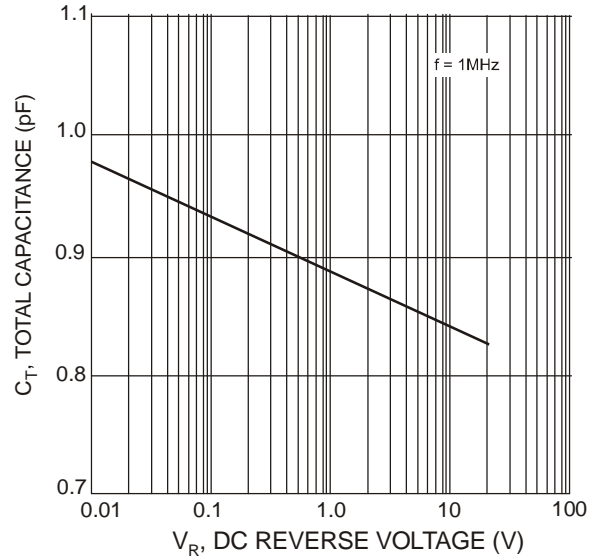
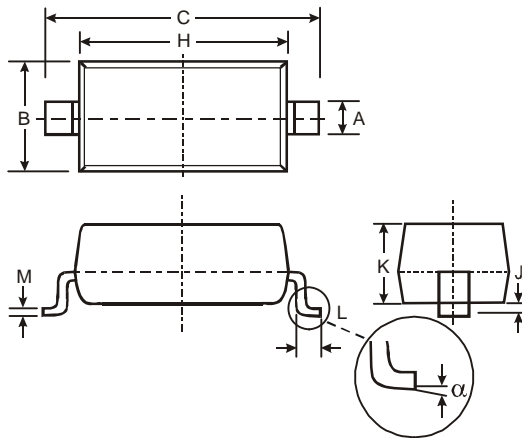


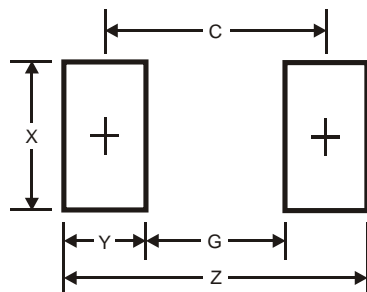
Fig. 4 Typical Total Capacitance vs. Reverse Voltage

Package Outline Dimensions



| SOD123 | | |
|----------------------|------|-----------|
| Dim | Min | Max |
| A | 0.55 | Typ |
| B | 1.40 | 1.70 |
| C | 3.55 | 3.85 |
| H | 2.55 | 2.85 |
| J | 0.00 | 0.10 |
| K | 1.00 | 1.35 |
| L | 0.25 | 0.40 |
| M | 0.10 | 0.15 |
| α | 0 | 8° |
| All Dimensions in mm | | |

Suggested Pad Layout



| Dimensions | Value (in mm) |
|------------|---------------|
| Z | 4.9 |
| G | 2.5 |
| X | 0.7 |
| Y | 1.2 |
| C | 3.7 |

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