## Features

- Surface Mount Package Ideally Suited for Automated Insertion
- Low Leakage Current
- Fast Switching Speed
- High Reverse Breakdown Voltage
- **Lead, Halogen and Antimony Free, RoHS Compliant "Green" Device (Notes 1 and 4)**
- **Qualified to AEC-Q101 Standards for High Reliability**

## Mechanical Data

- Case: SOD-123
- 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: Cathode Band
- Marking Information: See Page 2
- Ordering Information: See Page 2
- Weight: 0.01 grams (approximate)

SOD-123

TOP VIEW

## 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<br>DC Blocking Voltage | $V_{RWM}$<br>$V_R$ | 300 | V |
| 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 @ t = 1.0μs<br>@ t = 1.0s | $I_{FSM}$ | 4.0<br>1.0 | A |

## Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
|---|---|---|---|
| Power Dissipation (Note 3) | $P_D$ | 400 | mW |
| Thermal Resistance Junction to Ambient Air (Note 3) | $R_{\theta JA}$ | 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 2) | $V_{(BR)R}$ | 350 | —<br>— | —<br>— | V | $I_R$ = 150μA |
| Forward Voltage | $V_{FM}$ | — | 0.78<br>0.93<br>1.03 | 0.87<br>1.0<br>1.25 | V | $I_F$ = 20mA<br>$I_F$ = 100mA<br>$I_F$ = 200mA |
| Leakage Current (Note 2) | $I_{RM}$ | — | 30<br>35 | 100<br>100 | nA<br>μA | $V_R$ = 240V, $T_J$ = 25°C<br>$V_R$ = 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,<br>$I_{rr}$ = 3.0mA, $R_L$ = 100Ω |

Notes:
1. No purposefully added lead. Halogen and Antimony Free.
2. Short duration pulse test used to minimize self-heating effect.
3. Part 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.
4. 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 $Sb_2O_3$ Fire Retardants.

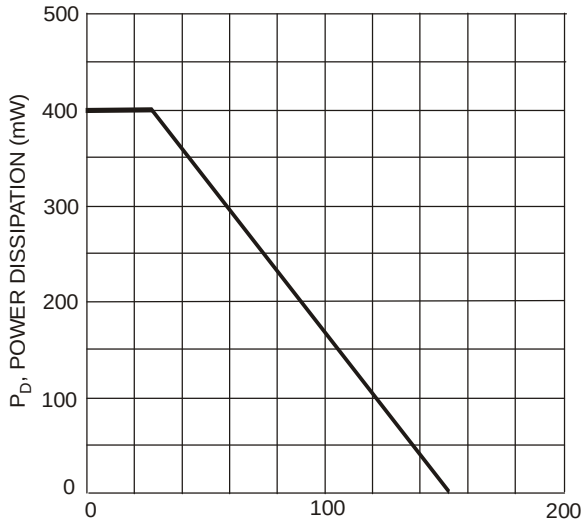



Fig. 1 Power Derating Curve

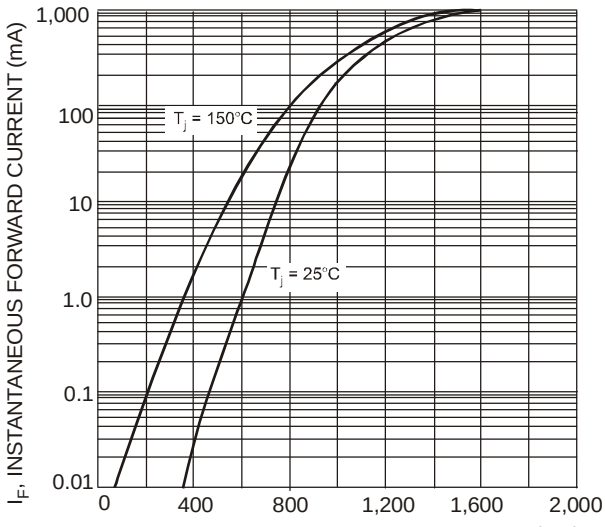



Fig. 2 Typical Forward Characteristics

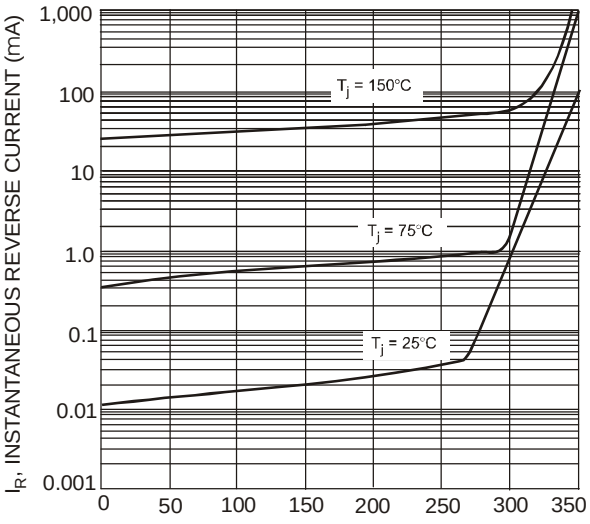



Fig. 3 Typical Reverse Characteristics

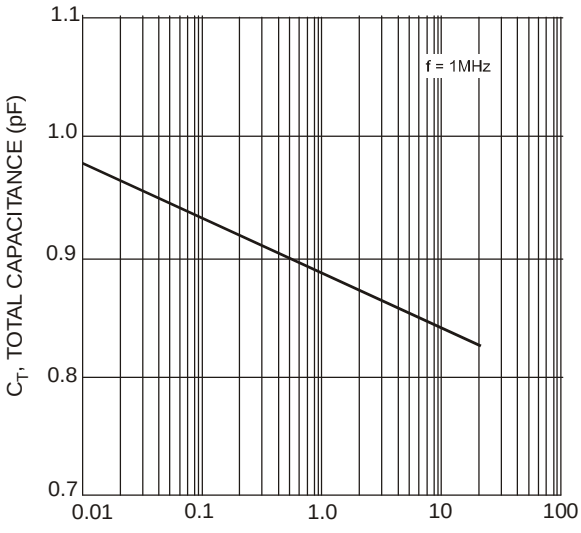


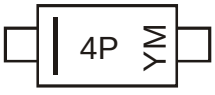

Fig. 4 Total Capacitance vs. Reverse Voltage

## Ordering Information (Note 5)

| Part Number | Case | Packaging |
|---|---|---|
| BAV3004W-7-F | SOD-123 | 3000/Tape & Reel |

Notes: 5. For packaging details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.

## Marking Information



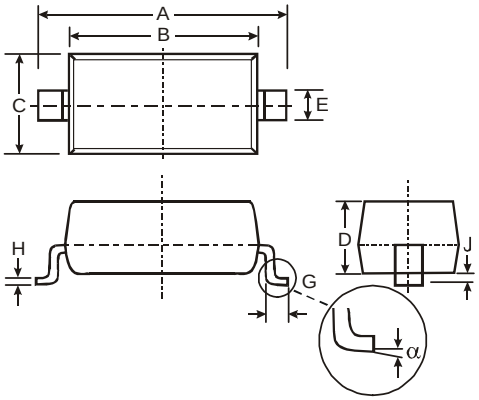

4P = Product Type Marking Code
YM = Date Code Marking
Y = Year (ex: T = 2006)
M = Month (ex: 9 = September)

Date Code Key

| Year | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Code | N | P | R | S | T | U | V | W | X | Y | Z |

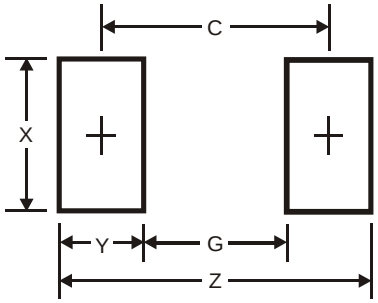
| Month | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Code | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | O | N | D |

## Package Outline Dimensions




| SOD-123 | | | |
|---|---|---|---|
| **Dim** | **Min** | **Max** | **Typ** |
| **A** | 3.55 | 3.85 | 3.65 |
| **B** | 2.55 | 2.85 | 2.65 |
| **C** | 1.40 | 1.70 | 1.55 |
| **D** | 1.00 | 1.35 | 1.05 |
| **E** | — | — | 0.55 |
| **G** | 0.25 | 0.40 | 0.30 |
| **H** | 0.10 | 0.15 | 0.11 |
| **J** | — | 0.10 | 0.05 |
| **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 |