

## Features

- Fast Switching Speed
- Surface Mount Package Ideally Suited for Automated Insertion
- For General Purpose Switching Applications
- High Conductance
- **Lead, Halogen and Antimony Free, RoHS Compliant (Note 2)**
- **"Green" Device (Note 4)**
- **Qualified to AEC-Q101 Standards for High Reliability**

## Mechanical Data

- Case: SOD-123
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish annealed over Alloy 42 leadframe (Lead Free Plating). Solderable per MIL-STD-202, Method 208
- 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<sub>A</sub> = 25°C unless otherwise specified

| Characteristic                                                                         | Symbol                                                 | Value      | Unit |
|----------------------------------------------------------------------------------------|--------------------------------------------------------|------------|------|
| Peak Repetitive Reverse Voltage<br>Working Peak Reverse Voltage<br>DC Blocking Voltage | V <sub>RRM</sub><br>V <sub>RWM</sub><br>V <sub>R</sub> | 100        | V    |
| RMS Reverse Voltage                                                                    | V <sub>R(RMS)</sub>                                    | 71         | V    |
| Forward Continuous Current                                                             | I <sub>FM</sub>                                        | 300        | mA   |
| Average Rectified Output Current                                                       | I <sub>O</sub>                                         | 150        | mA   |
| Non-Repetitive Peak Forward Surge Current                                              | I <sub>FSM</sub>                                       | 2.0<br>1.0 | A    |
|                                                                                        | @ t = 1.0μs<br>@ t = 1.0s                              |            |      |

## Thermal Characteristics

| Characteristic                                      | Symbol                            | Value       | Unit |
|-----------------------------------------------------|-----------------------------------|-------------|------|
| Power Dissipation (Note 1)                          | P <sub>D</sub>                    | 400         | mW   |
| Thermal Resistance Junction to Ambient Air (Note 1) | R <sub>θJA</sub>                  | 315         | °C/W |
| Operating and Storage Temperature Range             | T <sub>J</sub> , T <sub>STG</sub> | -65 to +150 | °C   |

## Electrical Characteristics @T<sub>A</sub> = 25°C unless otherwise specified

| Characteristic                     | Symbol             | Min | Max                           | Unit                 | Test Condition                                                                                                                               |
|------------------------------------|--------------------|-----|-------------------------------|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| Reverse Breakdown Voltage (Note 3) | V <sub>(BR)R</sub> | 100 | —                             | V                    | I <sub>R</sub> = 1.0μA                                                                                                                       |
| Forward Voltage                    | V <sub>FM</sub>    | —   | 0.715<br>0.855<br>1.0<br>1.25 | V                    | I <sub>F</sub> = 1.0mA<br>I <sub>F</sub> = 10mA<br>I <sub>F</sub> = 50mA<br>I <sub>F</sub> = 150mA                                           |
| Peak Reverse Current (Note 3)      | I <sub>RM</sub>    | —   | 1.0<br>50<br>30<br>25         | μA<br>μA<br>μA<br>nA | V <sub>R</sub> = 75V<br>V <sub>R</sub> = 75V, T <sub>J</sub> = 150°C<br>V <sub>R</sub> = 25V, T <sub>J</sub> = 150°C<br>V <sub>R</sub> = 20V |
| Total Capacitance                  | C <sub>T</sub>     | —   | 2.0                           | pF                   | V <sub>R</sub> = 0, f = 1.0MHz                                                                                                               |
| Reverse Recovery Time              | t <sub>rr</sub>    | —   | 4.0                           | ns                   | I <sub>F</sub> = I <sub>R</sub> = 10mA,<br>I <sub>rr</sub> = 0.1 x I <sub>R</sub> , R <sub>L</sub> = 100Ω                                    |

- Notes:
1. Part mounted on FR-4 PC board with minimum recommended pad layout, which can be found on our website at <http://www.diodes.com>.
  2. No purposefully added lead. Halogen and Antimony Free.
  3. Short duration pulse test used to minimize self-heating effect.
  4. Product manufactured with Data Code OW (week 42, 2009) and newer are built with Green Molding Compound. Product manufactured prior to Date Code OW are built with Non-Green Molding Compound and may contain Halogens or Sb<sub>2</sub>O<sub>3</sub> Fire Retardants.

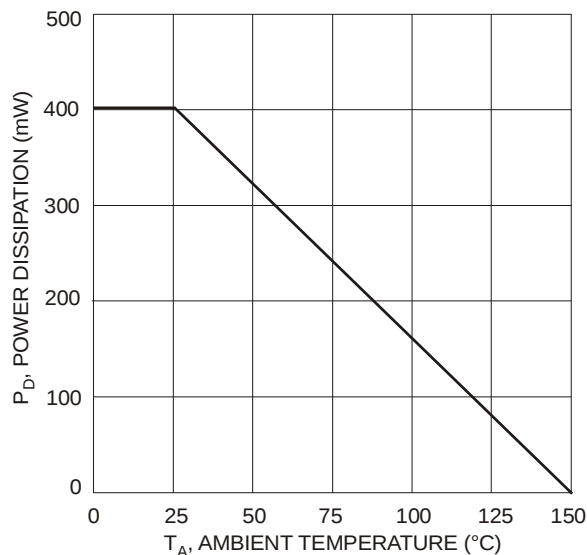


Fig. 1 Power Derating Curve

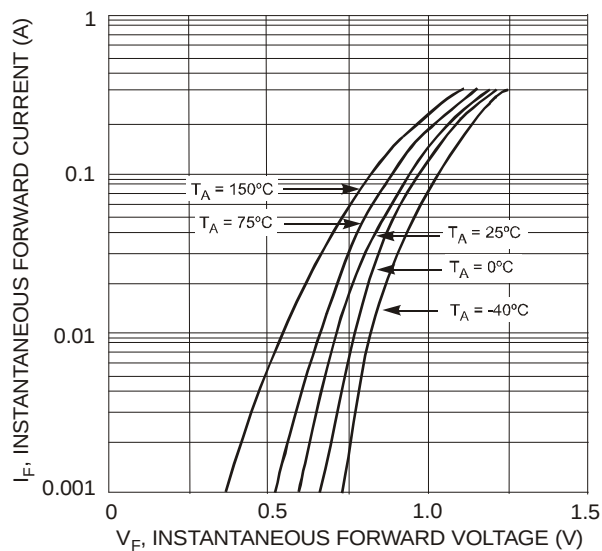


Fig. 2 Typical Forward Characteristics

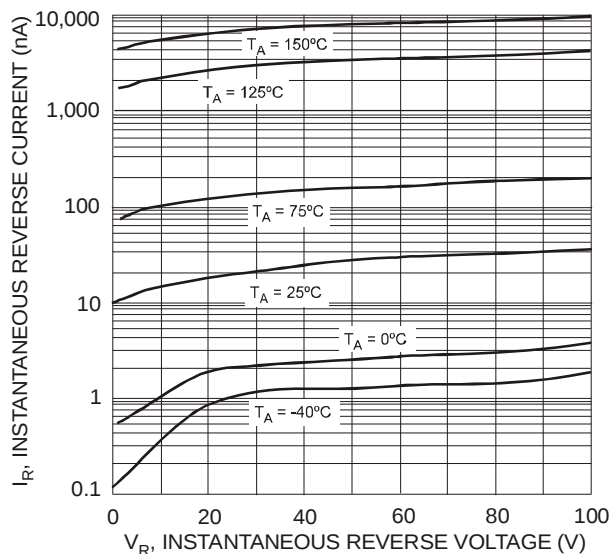


Fig. 3 Typical Reverse Characteristics

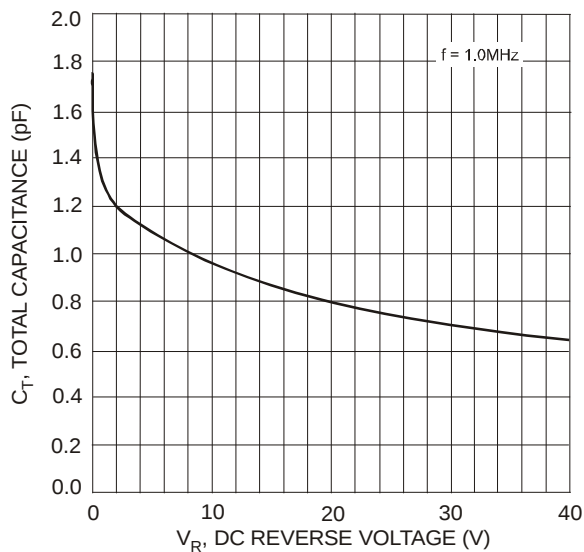


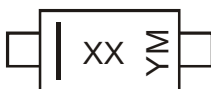
Fig. 4 Total Capacitance vs. Reverse Voltage

## Ordering Information (Note 5)

| Part Number  | Case    | Packaging          |
|--------------|---------|--------------------|
| BAV16W-7-F   | SOD-123 | 3,000/Tape & Reel  |
| 1N4148W-7-F  | SOD-123 | 3,000/Tape & Reel  |
| 1N4148W-13-F | SOD-123 | 10,000/Tape & Reel |

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

## Marking Information

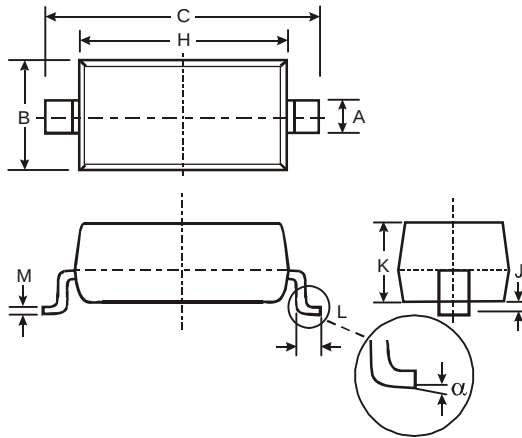


xx = Product Type Marking Code (T6, T4)  
 YM = Date Code Marking  
 Y = Year (ex: N = 2002)  
 M = Month (ex: 9 = September)

### Date Code Key

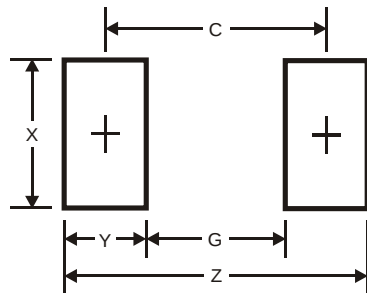
| Year  | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|-------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Code  | M    | N    | P    | R    | S    | T    | U    | V    | W    | 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



| SOD-123              |          |      |
|----------------------|----------|------|
| 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 |
| $\alpha$             | 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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