

## Features

- Fast Switching Speed
- Small Surface Mount Package
- For General Purpose Switching Applications
- **Lead Free by Design/RoHS Compliant (Note 1)**
- **Halogen and Antimony Free "Green" Device (Notes 2 & 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

## Mechanical Data

- Case: SOD323
- Case Material: Molded Plastic, "Green" Molding Compound (Notes 2 & 3). 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
- Weight: 0.006 grams (approximate)

SOD323



Top View

## Ordering Information (Notes 4 & 5)

| Part Number   | Qualification | Case   | Packaging          |
|---------------|---------------|--------|--------------------|
| 1N4148WS-7-F  | Commercial    | SOD323 | 3,000/Tape & Reel  |
| 1N4148WSQ-7-F | Automotive    | SOD323 | 3,000/Tape & Reel  |
| 1N4148WS-13-F | Commercial    | SOD323 | 10,000/Tape & Reel |
| BAV16WS-7-F   | Commercial    | SOD323 | 3,000/Tape & Reel  |

- Notes:
1. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. No purposely added lead.
  2. Halogen and Antimony free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
  3. Diodes Inc.'s "Green" policy can be found on our website at <http://www.diodes.com>.
  4. Product manufactured with Date 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.
  5. For packaging details, go to our website at <http://www.diodes.com>.

## Marking Information



XX = Product Type Marking Code, T4 or T6

**Maximum Ratings** @T<sub>A</sub> = 25°C unless otherwise specified

| Characteristic                               | Symbol              | Value       | Unit |   |
|--|---------------------|-------------|------|---|
| Non-Repetitive Peak Reverse Voltage (Note 7) | V <sub>RM</sub>     | 100         | V    |   |
| Peak Repetitive Reverse Voltage              | V <sub>RRM</sub>    | 75          | V    |   |
| Working Peak Reverse Voltage                 | V <sub>RWM</sub>    |             |      |   |
| DC Blocking Voltage                          | V <sub>R</sub>      |             |      |   |
| RMS Reverse Voltage                          | V <sub>R(RMS)</sub> | 53          | 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>    | @ t = 1.0μs | 2.0  | A |
|  |                     | @ t = 1.0s  | 1.0  |   |

**Thermal Characteristics**

| Characteristic                                      | Symbol                            | Value       | Unit |
|---|-----------------------------------|-------------|------|
| Power Dissipation (Note 6)                          | P <sub>D</sub>                    | 200         | mW   |
| Thermal Resistance Junction to Ambient Air (Note 6) | R <sub>θJA</sub>                  | 625         | °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 7) | V <sub>(BR)R</sub> | 75  | —     | V    | I <sub>R</sub> = 1.0μA   |
| Forward Voltage                    | V <sub>FM</sub>    | —   | 0.715 | V    | I <sub>F</sub> = 1.0mA   |
|                                    |                    |     | 0.855 |      | I <sub>F</sub> = 10mA  |
|                                    |                    |     | 1.0   |      | I <sub>F</sub> = 50mA  |
|                                    |                    |     | 1.25  |      | I <sub>F</sub> = 150mA   |
| Peak Reverse Current (Note 7)      | I <sub>RM</sub>    | —   | 1.0   | μA   | V <sub>R</sub> = 75V   |
|                                    |                    |     | 50    |      | V <sub>R</sub> = 75V, T <sub>J</sub> = 150°C   |
|                                    |                    |     | 30    |      | V <sub>R</sub> = 25V, T <sub>J</sub> = 150°C   |
|                                    |                    |     | 25    |      | 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, I <sub>rr</sub> = 0.1 x I <sub>R</sub> , R <sub>L</sub> = 100Ω |

- Notes: 6. Part mounted on FR-4 PC board with recommended pad layout, which can be found on our website <http://www.diodes.com>.  
 7. Short duration pulse test used to minimize self-heating effect.

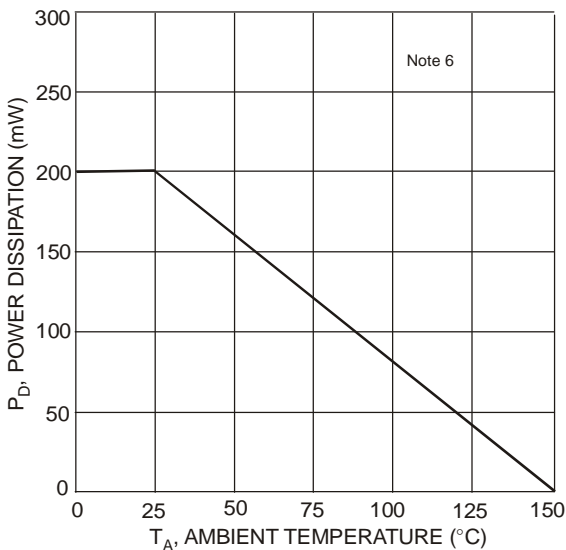


Fig. 1 Power Derating Curve

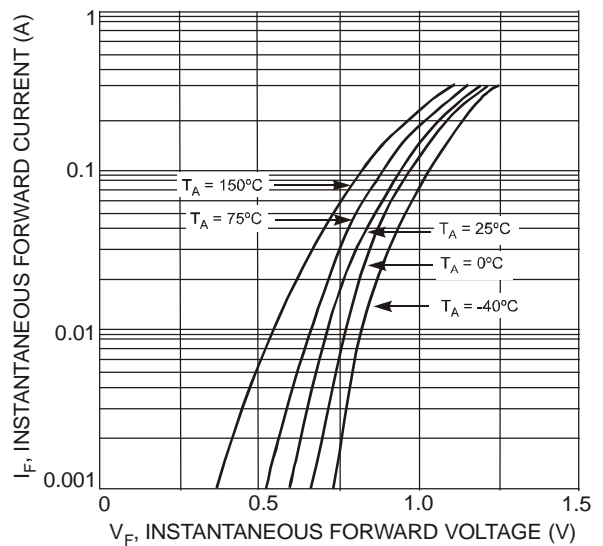


Fig. 2 Typical Forward Characteristics

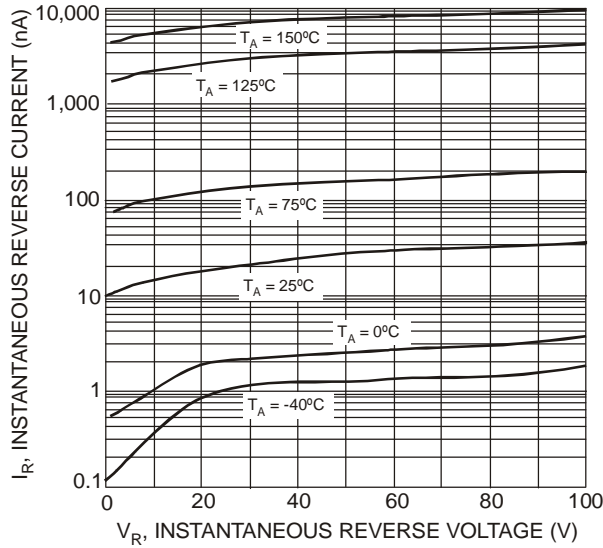


Fig. 3 Typical Reverse Characteristics

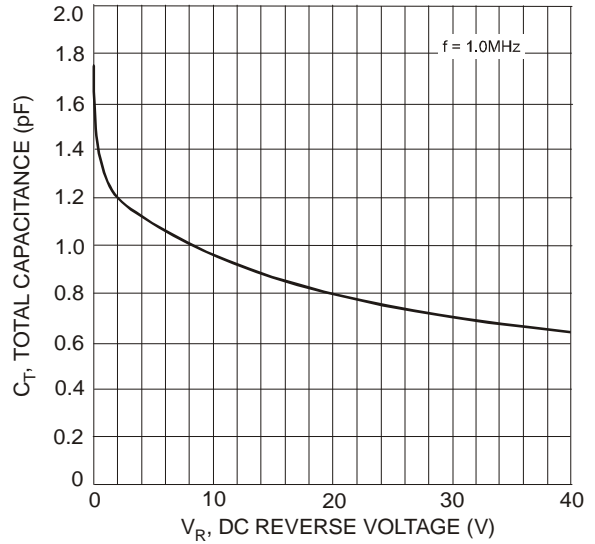


Fig. 4 Typical Total Capacitance vs. Reverse Voltage

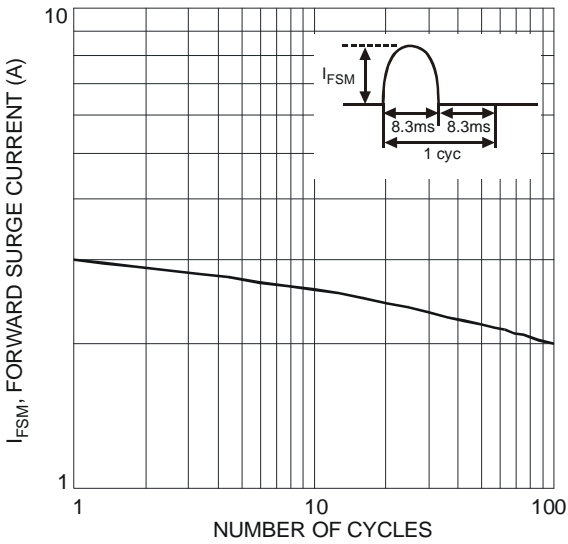


Fig. 5 Maximum Non-Repetitive Surge Current

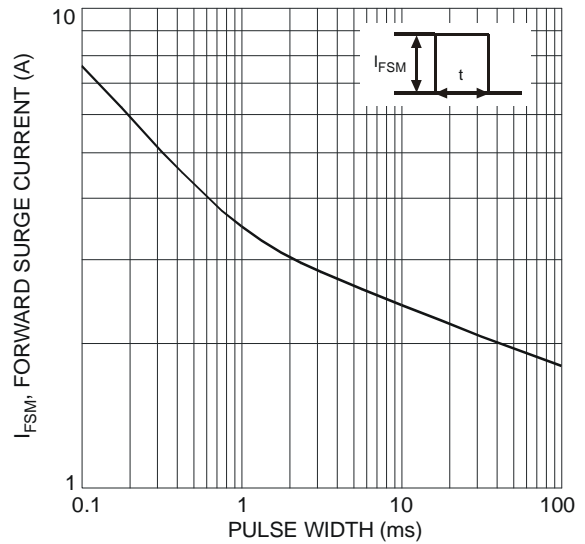
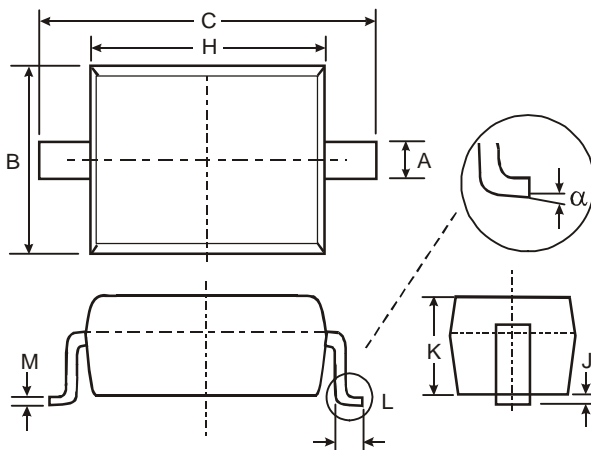


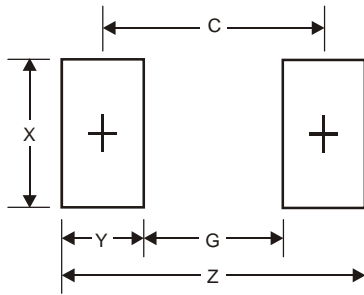
Fig. 6 Maximum Non-Repetitive Surge Current

**Package Outline Dimensions**



| SOD323               |      |      |
|----------------------|------|------|
| Dim                  | Min  | Max  |
| A                    | 0.25 | 0.35 |
| B                    | 1.20 | 1.40 |
| C                    | 2.30 | 2.70 |
| H                    | 1.60 | 1.80 |
| J                    | 0.00 | 0.10 |
| K                    | 1.0  | 1.1  |
| L                    | 0.20 | 0.40 |
| M                    | 0.10 | 0.15 |
| $\alpha$             | 0°   | 8°   |
| All Dimensions in mm |      |      |

## Suggested Pad Layout



| Dimensions | Value (in mm) |
|------------|---------------|
| Z          | 3.75          |
| G          | 1.05          |
| X          | 0.65          |
| Y          | 1.35          |
| C          | 2.40          |

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