



**THE DATASHEET OF  
1N4148WS-7-F**



## Features

- Fast Switching Speed
- Small Surface Mount Package
- For General-Purpose Switching Applications
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **The 1N4148WSQ is suitable for automotive applications requiring specific change control; this part is AEC-Q101 qualified, PPAP capable, and manufactured in IATF16949 certified facilities.**

<https://www.diodes.com/quality/product-definitions/>

## Mechanical Data

- Package: SOD323
- Package 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
- Weight: 0.006 grams (Approximate)



Top View



Device Schematic

## Ordering Information (Note 4)

| Orderable Part Number | Package | Packing  |             |
|-----------------------|---------|----------|-------------|
|                       |         | Quantity | Carrier     |
| 1N4148WS-7-F          | SOD323  | 3,000    | Tape & Reel |
| 1N4148WSQ-7-F         | SOD323  | 3,000    | Tape & Reel |
| 1N4148WS-13-F         | SOD323  | 10,000   | Tape & Reel |
| 1N4148WSQ-13-F        | SOD323  | 10,000   | Tape & Reel |
| BAV16WS-7-F           | SOD323  | 3,000    | 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. For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>

## Marking Information



XX = Product Type Marking Code, T4  
 A bar on top of the letter 'T' denotes assembly site

**Maximum Ratings** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

| Characteristic                               | Symbol              | Value              | Unit |
|--|---------------------|--------------------|------|
| Non-Repetitive Peak Reverse Voltage (Note 5) | V <sub>RM</sub>     | 100                | V    |
| Peak Repetitive Reverse Voltage              | V <sub>R(RM)</sub>  | 75                 | V    |
| Working Peak Reverse Voltage                 | V <sub>R(WM)</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<br>2.0 | A    |
|  |                     | @ t = 1.0s<br>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> | -55 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 5) | V <sub>(BR)R</sub> | 75  | —                             | 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 5)      | 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: 5. Short duration pulse test used to minimize self-heating effect.  
6. Part mounted on FR-4 PC board with 1 inch square, 2oz copper pad layout.

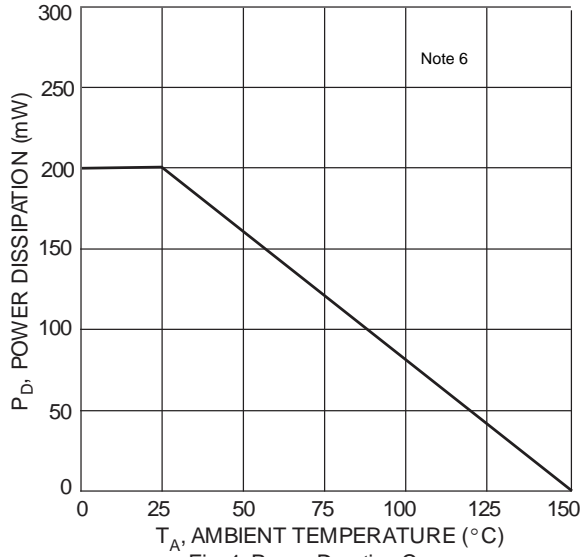


Fig. 1 Power Derating Curve

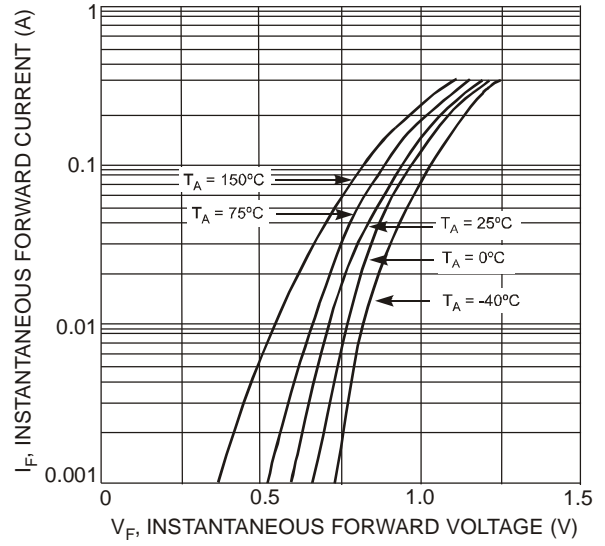


Fig. 2 Typical Forward Characteristics

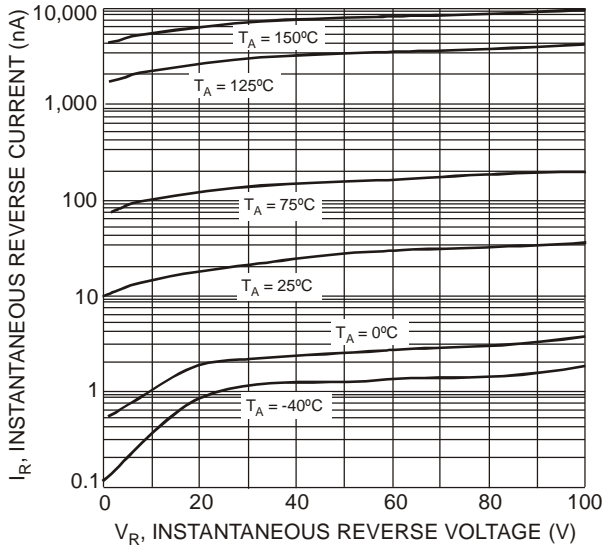


Fig. 3 Typical Reverse Characteristics

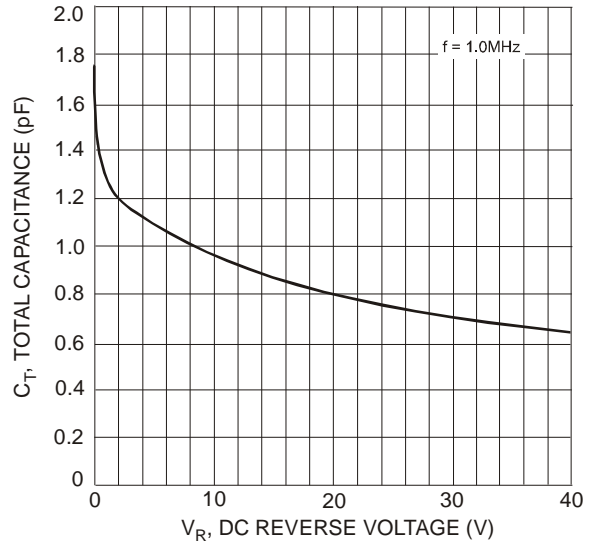


Fig. 4 Typical Total Capacitance vs. Reverse Voltage

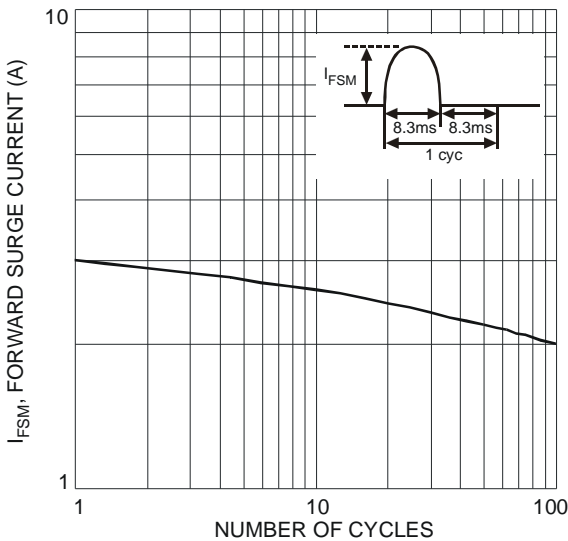


Fig. 5 Maximum Non-Repetitive Surge Current

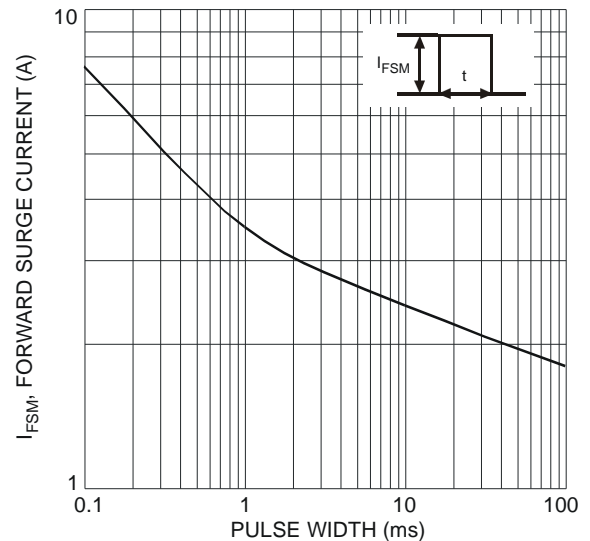
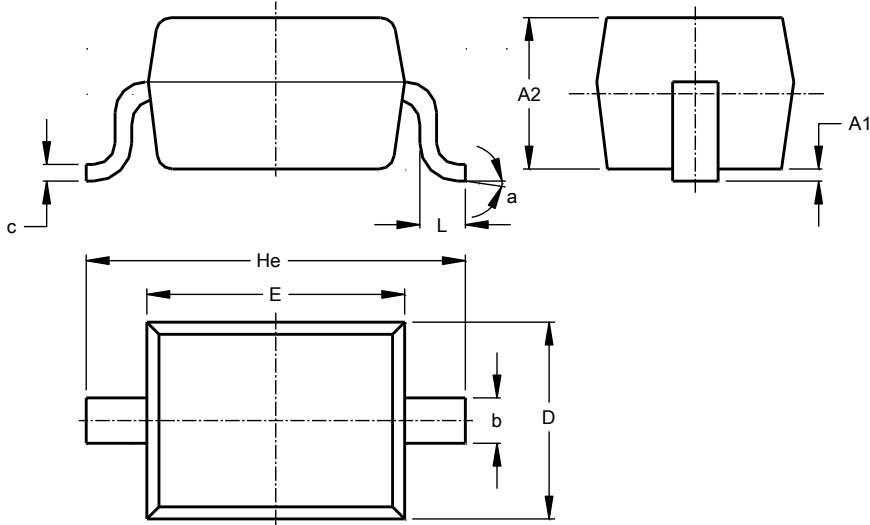


Fig. 6 Maximum Non-Repetitive Surge Current

**Package Outline Dimensions**

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

**SOD323**

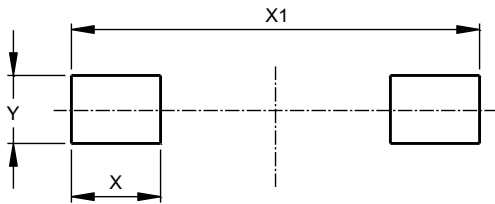


| SOD323               |      |      |      |
|----------------------|------|------|------|
| Dim                  | Min  | Max  | Typ  |
| A1                   | –    | 0.10 | 0.05 |
| A2                   | 1.00 | 1.10 | 1.05 |
| b                    | 0.25 | 0.35 | 0.30 |
| c                    | 0.10 | 0.15 | 0.11 |
| D                    | 1.20 | 1.40 | 1.30 |
| E                    | 1.60 | 1.80 | 1.70 |
| He                   | 2.30 | 2.70 | 2.50 |
| L                    | 0.20 | 0.40 | 0.30 |
| a                    | 0°   | 8°   | –    |
| All Dimensions in mm |      |      |      |

**Suggested Pad Layout**

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

**SOD323**



| Dimensions | Value (in mm) |
|------------|---------------|
| X          | 0.590         |
| X1         | 2.700         |
| Y          | 0.450         |

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