

Features

- Fast Switching Speed
- Very Small Surface Mount Package
- For General Purpose Switching Applications
- High Conductance
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **The DIODES™ 1N4148WTQ is suitable for automotive applications requiring specific change control; this part is AEC-Q101 qualified, PPAP capable, and manufactured in IATF 16949 certified facilities.**

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

Mechanical Data

- Package: SOD523
- Package Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections: Cathode Band
- Terminals: Finish—Matte Tin Annealed over Alloy 42 Lead-Frame. Solderable per MIL-STD-202, Method 208 (E3)
- Weight: 0.0014 grams (Approximate)

SOD523



Top View



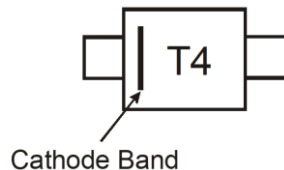
Device Schematic

Ordering Information (Note 4)

| Part Number | Package | Packing | |
|----------------------|---------|---------|-------------|
| | | Qty. | Carrier |
| 1N4148WT-7 (Note 5) | SOD523 | 3,000 | Tape & Reel |
| 1N4148WT-76 | SOD523 | 6,000 | Tape & Reel |
| 1N4148WTQ-7 (Note 5) | SOD523 | 3,000 | Tape & Reel |
| 1N4148WT-13 | SOD523 | 10,000 | 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/>.
 5. Dispensed in every other cavity of the tape.

Marking Information



T4 = Product Type Marking Code
A Bar on Top of the Letter 'T' Denotes AT Site

Maximum Ratings (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

| Characteristic | Symbol | Value | Unit |
|---|--------------|------------------------|------|
| Non-Repetitive Peak Reverse Voltage | V_{RM} | 100 | V |
| Reverse Voltage | V_R | 80 | V |
| RMS Reverse Voltage | $V_{R(RMS)}$ | 53 | V |
| Forward Continuous Current | I_{FM} | 250 | mA |
| Average Rectified Output Current | I_O | 125 | mA |
| Non-Repetitive Peak Forward Surge Current | I_{FSM} | @ $t = 1.0\mu\text{s}$ | 2.0 |
| | | @ $t = 100\text{ms}$ | 1.0 |
| | | | A |

Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
|---|-----------------|-------------|---------------------------|
| Power Dissipation (Note 6) | P_D | 150 | mW |
| Thermal Resistance Junction to Ambient Air (Note 6) | $R_{\theta JA}$ | 833 | $^\circ\text{C}/\text{W}$ |
| Operating and Storage Temperature Range | T_J, T_{STG} | -55 to +150 | $^\circ\text{C}$ |

Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

| Characteristic | Symbol | Min | Max | Unit | Test Conditions |
|------------------------------------|-------------|-----|-------|---------------|---|
| Reverse Breakdown Voltage (Note 7) | $V_{(BR)R}$ | 75 | — | V | $I_R = 1.0\mu\text{A}$ |
| Forward Voltage | V_F | — | 0.715 | V | $I_F = 1.0\text{mA}$ |
| | | — | 0.855 | | $I_F = 10\text{mA}$ |
| | | — | 1.0 | | $I_F = 50\text{mA}$ |
| | | — | 1.25 | | $I_F = 150\text{mA}$ |
| Peak Reverse Current (Note 7) | I_R | — | 1.0 | μA | $V_R = 75\text{V}$ |
| | | — | 50 | μA | $V_R = 75\text{V}, T_J = +150^\circ\text{C}$ |
| | | — | 30 | μA | $V_R = 25\text{V}, T_J = +150^\circ\text{C}$ |
| | | — | 25 | nA | $V_R = 20\text{V}$ |
| Total Capacitance | C_T | — | 2.0 | pF | $V_R = 0, f = 1.0\text{MHz}$ |
| Reverse Recovery Time | t_{RR} | — | 4.0 | ns | $I_F = I_R = 10\text{mA}$ $I_{RR} = 0.1 \times I_R, R_L = 100\Omega$ |

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

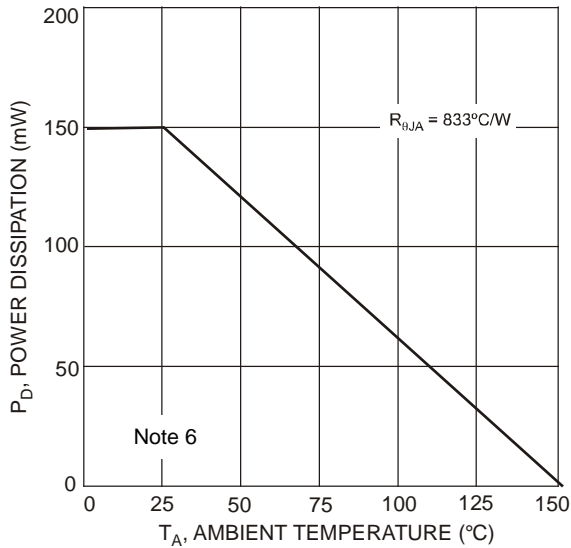


Fig. 1 Power Derating Curve

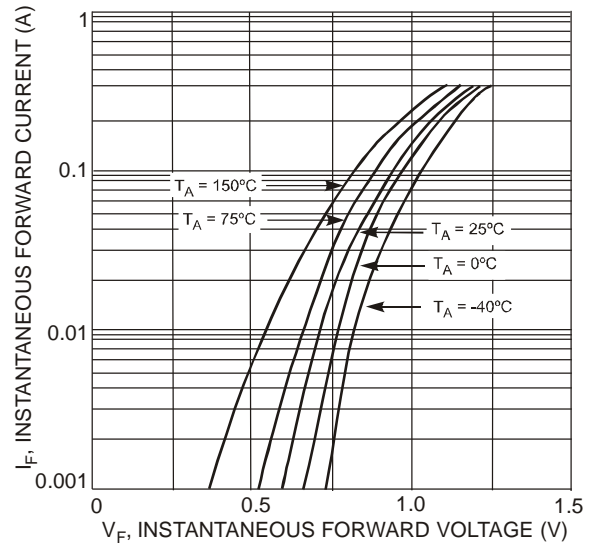


Fig. 2 Typical Forward Characteristics

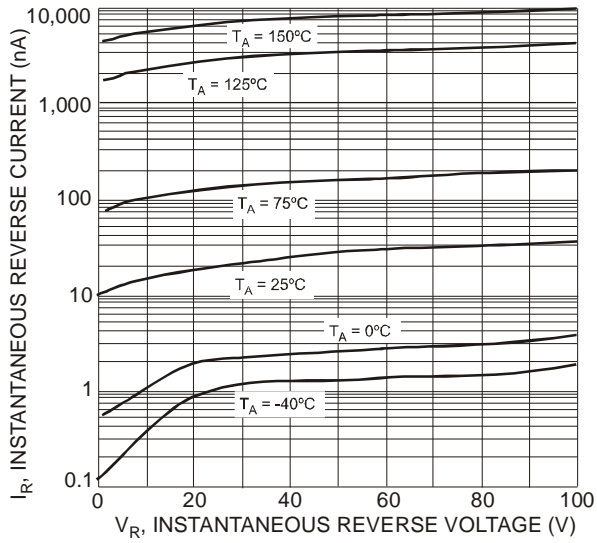


Fig. 3 Typical Reverse Characteristics

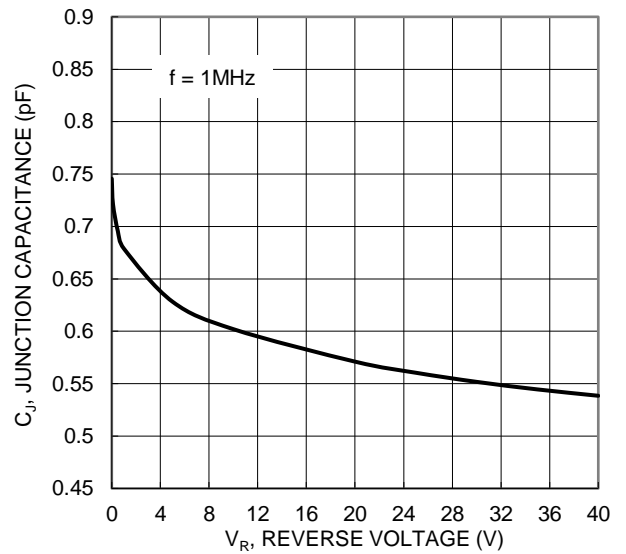
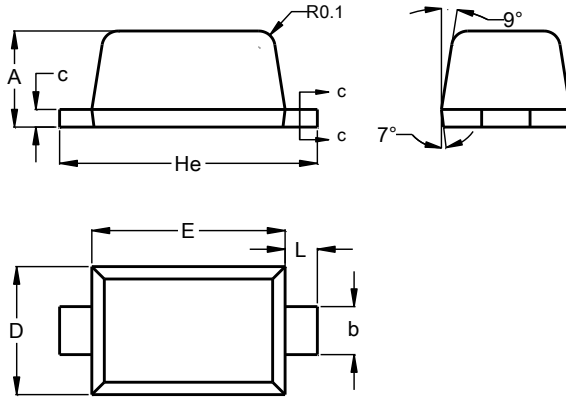


Fig. 4 Typical Junction Capacitance

Package Outline Dimensions

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

SOD523

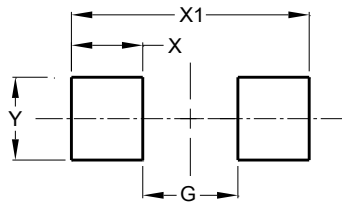


| SOD523 | | |
|----------------------|------|------|
| Dim | Min | Max |
| A | 0.55 | 0.65 |
| b | 0.26 | 0.34 |
| c | 0.11 | 0.17 |
| D | 0.75 | 0.85 |
| E | 1.15 | 1.25 |
| He | 1.55 | 1.65 |
| L | 0.10 | 0.30 |
| All Dimensions in mm | | |

Suggested Pad Layout

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

SOD523



| Dimensions | Value (in mm) |
|------------|---------------|
| G | 0.80 |
| X | 0.60 |
| X1 | 2.00 |
| Y | 0.70 |

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