SURFACE MOUNT FAST SWITCHING DIODE

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 1N4148WTQ-7 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

- Case: SOD523
- Case 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

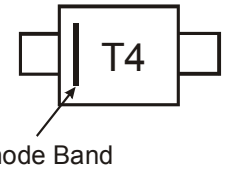
Device Schematic

Ordering Information (Note 4)

Part Number	Compliance	Case	Packaging
1N4148WT-7 (Note 5)	Standard	SOD523	3,000/Tape & Reel
1N4148WT-76	Standard	SOD523	6,000/Tape & Reel
1N4148WTQ-7 (Note 5)	Automotive	SOD523	3,000/Tape & Reel
1N4148WT-13	Standard	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



Cathode Band

T4 = Product Type Marking Code

Maximum Ratings (@ T_A = +25°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	@ t = 1.0μs @ t = 100ms	I_{FSM}	2.0 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	°C/W
Operating and Storage Temperature Range	T_J , T_{STG}	-55 to +150	°C

Electrical Characteristics (@ T_A = +25°C, unless otherwise specified.)

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

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

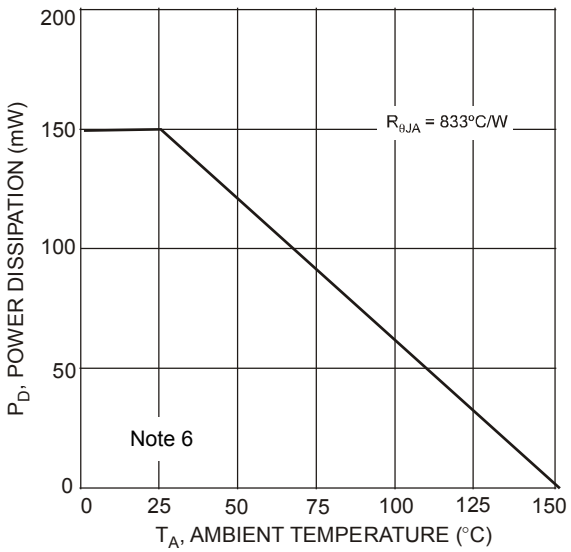


Fig. 1 Power Derating Curve

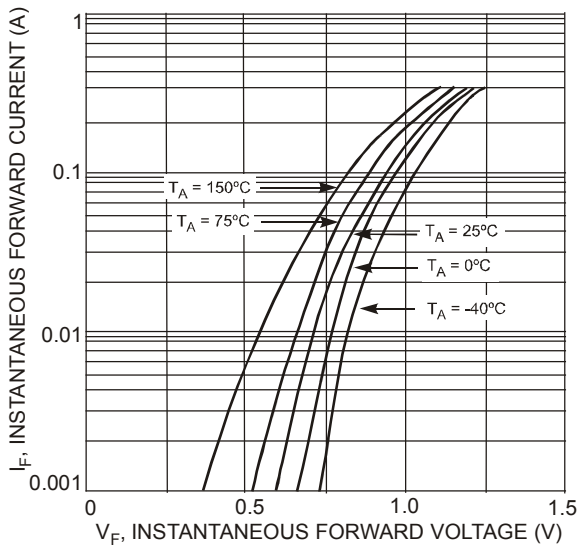


Fig. 2 Typical Forward Characteristics

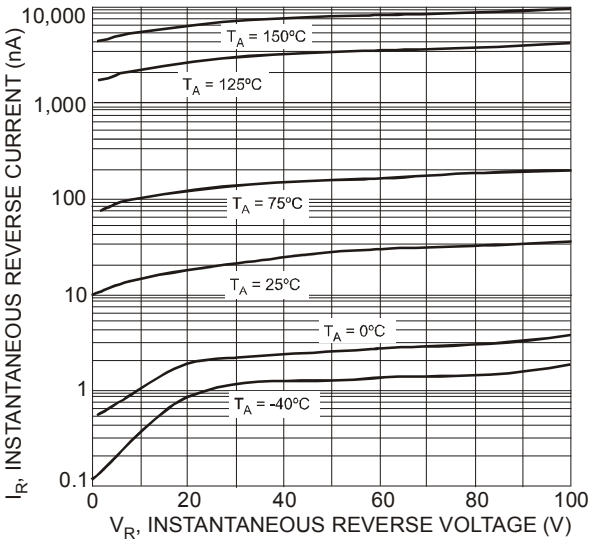


Fig. 3 Typical Reverse Characteristics

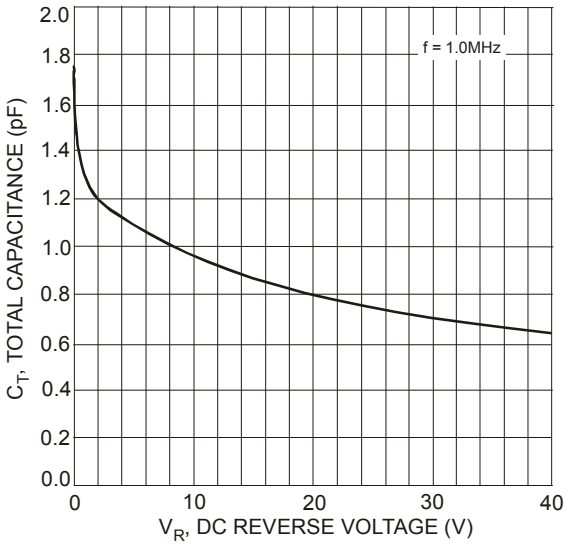
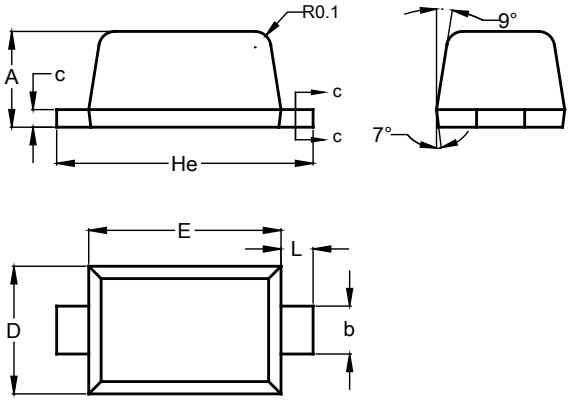


Fig. 4 Total Capacitance vs. Reverse Voltage

Package Outline Dimensions

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

SOD523

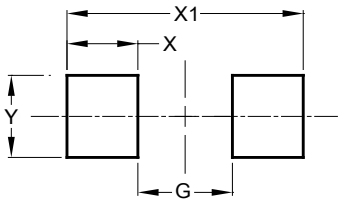


SOD523		
Dim	**Min**	**Max**
A	0.55	0.65
b	0.26	0.34
c	0.11	0.17
D	0.75	0.85
E	1.15	1.25
He	1.55	1.65
L	0.10	0.30
All Dimensions in mm		

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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