

Features

- Fast Switching Speed
- Low Forward Voltage: Maximum of 0.715V at 1mA
- Fast Reverse Recovery: Maximum of 4ns
- Low Capacitance: Maximum of 2pF
- Surface Mount Package Ideally Suited for Automated Insertion
- For General Purpose Switching Applications
- Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- Halogen and Antimony Free. "Green" Device (Note 3)**
- The 1N4148WQ 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: SOD123
- 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 (E3)
- Polarity: Cathode Band
- Weight: 0.01 grams (Approximate)



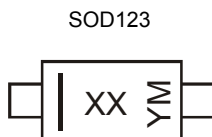
Top View

Ordering Information (Note 4)

Part Number	Compliance	Case	Packaging
BAV16W-7-F	Standard	SOD123	3,000/Tape & Reel
1N4148W-7-F	Standard	SOD123	3,000/Tape & Reel
1N4148WQ-7-F	Automotive	SOD123	3,000/Tape & Reel
1N4148W-13-F	Standard	SOD123	10,000/Tape & Reel
1N4148WQ-13-F	Automotive	SOD123	10,000/Tape & Reel

- Notes:
- No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
 - 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.
 - Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
 - 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)
YM = Date Code Marking
Y or Y = Year (ex: I = 2021)
M = Month (ex: 9 = September)

Date Code Key

Year	2001	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Code	M	I	J	K	L	M	N	O	P	R	S

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

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

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	100	V
RMS Reverse Voltage	$V_{R(RMS)}$	71	V
Forward Continuous Current	I_{FM}	300	mA
Non-Repetitive Peak Forward Surge Current	I_{FSM}	2.0 1.0	A
	@ $t = 1.0\mu\text{s}$ @ $t = 1.0\text{s}$		

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P_D	400	mW
Thermal Resistance Junction to Ambient Air (Note 5)	$R_{\theta JA}$	315	$^\circ\text{C/W}$
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 Condition
Reverse Breakdown Voltage (Note 6)	$V_{(BR)R}$	100	—	V	$I_R = 1.0\mu\text{A}$
Forward Voltage	V_{FM}	—	0.715 0.855 1.0 1.25	V	$I_F = 1.0\text{mA}$ $I_F = 10\text{mA}$ $I_F = 50\text{mA}$ $I_F = 150\text{mA}$
Peak Reverse Current (Note 6)	I_{RM}	—	1.0 50 30 25	μA μA μA nA	$V_R = 75\text{V}$ $V_R = 75\text{V}, T_J = +150^\circ\text{C}$ $V_R = 25\text{V}, T_J = +150^\circ\text{C}$ $V_R = 20\text{V}$
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: 5. Part mounted on FR-4 PC board, double-sided, with 3oz copper plating and with anode and cathode terminal pad dimensions of 2" x 2".
6. Short duration pulse test used to minimize self-heating effect.

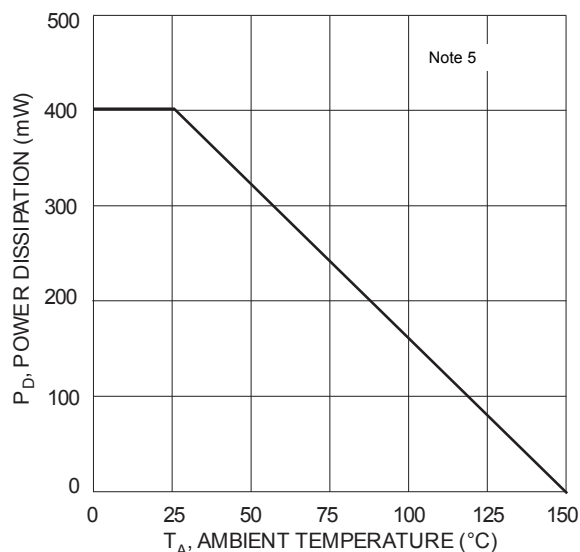


Figure 1 Power Derating Curve

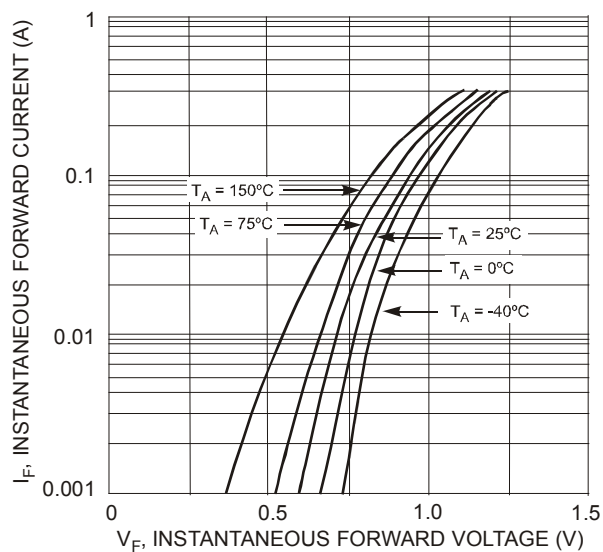


Figure 2 Typical Forward Characteristics

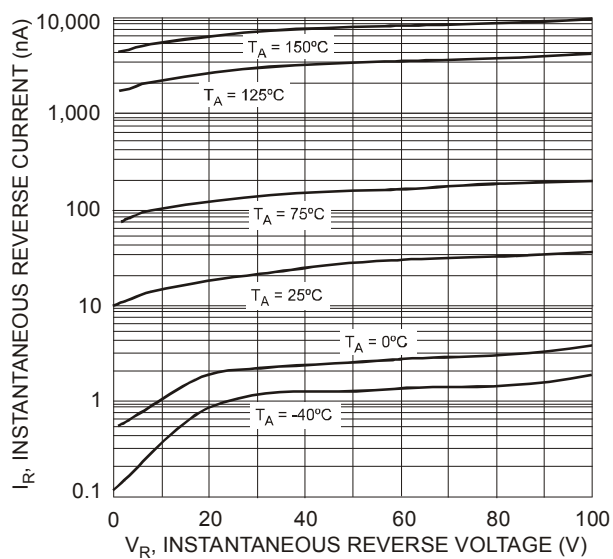


Figure 3 Typical Reverse Characteristics

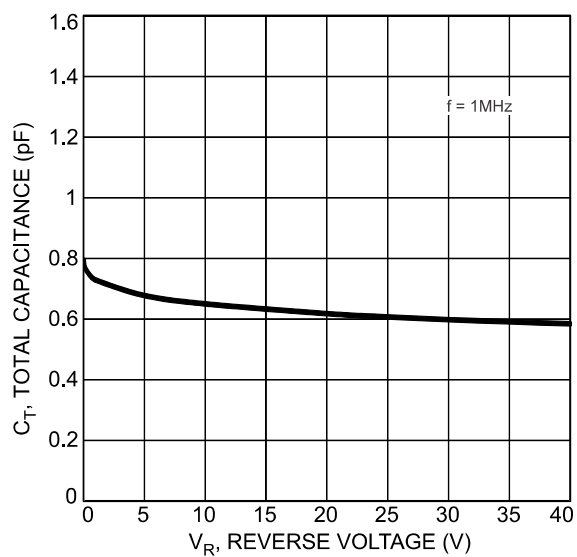
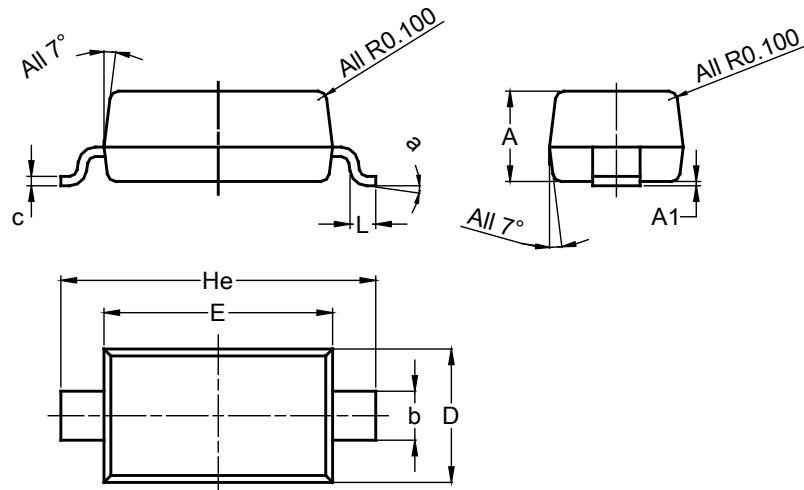


Figure 4 Typical Total Capacitance

Package Outline Dimensions

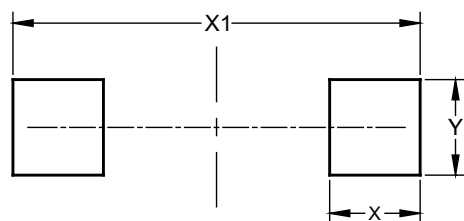
Please see <http://www.diodes.com/package-outlines.html> for the latest version.



SOD123			
Dim	Min	Max	Typ
A	1.00	1.35	1.05
A1	0.00	0.10	0.05
b	0.52	0.62	0.57
c	0.10	0.15	0.11
D	1.40	1.70	1.55
E	2.55	2.85	2.65
He	3.55	3.85	3.65
L	0.25	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.



Dimensions	Value (in mm)
X	0.900
X1	4.050
Y	0.950

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Product Specifications

Product Parameters

AEC Qualified	Yes
Compliance (Only Automotive supports PPAP)	Automotive
Configuration	Single
Polarity	Anode, Cathode
Power Rating (mW)	400 mW
ESD Diodes (Y N)	No
Peak Repetitive Reverse Voltage V_{RRM} (V)	100 V
Reverse Recovery Time t_{rr} (ns)	4 ns
Maximum Average Rectifier Current I_O (mA)	150 mA
Maximum Peak Forward Surge Current I_{FSM} (A)	2 A
Forward Voltage Drop $V_F @ I_F$ (mA)	1 mA
Maximum Reverse Current I_R (μ A)	1 μ A
Total Capacitance C_T (pF)	2 pF
$V(BR)_R$ (V) Min @ $I_R=100\mu A$	100@100 μ A
$T_{rr}(ns)$ Max @ $I_F=I_R=10$ mA, $I_{rr}=0.1 \times I_R$, $R_L=100\Omega$	4
Maximum Reverse Current $I_R @ V_R$ (V)	75 V
$V_F(V)$ Max @ $I_F=1.0mA$	0.715
$V_F(V)$ Max @ $I_F=10mA$	0.855
$C_T(pF)$ Max @ $V_R = 0V$, $f = 1MHz$	2

Related Content

Packages

[SOD123](#)



Technical Documents

SPICE Model

[1N4148W.spice.txt](#)

MDS Reports

[1N4148W_1N4448W_MDS.pdf](#) (41 KB)

Recommended Soldering Techniques

[TN1.pdf](#)

RoHS CofC

[RoHSFile](#)