BAV16W/1N4148W

SURFACE-MOUNT FAST SWITCHING DIODE

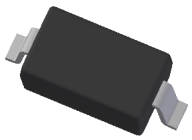
Features

- 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

- Package: SOD123
- 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 e3
- Polarity: Cathode Band
- Weight: 0.01 grams (Approximate)

SOD123



Top View

Ordering Information (Note 4)

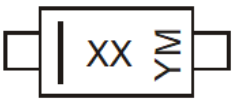
Orderable Part Number*	Package	Packing	
		Qty.	Carrier
BAV16W-7-F	SOD123	3,000	Tape & Reel
BAV16W-7-F-N	SOD123	3,000	Tape & Reel
1N4148W-7-F	SOD123	3,000	Tape & Reel
1N4148W-7-F-N	SOD123	3,000	Tape & Reel
1N4148WQ-7-F	SOD123	3,000	Tape & Reel
1N4148WQ-7-F-N	SOD123	3,000	Tape & Reel
1N4148W-13-F	SOD123	10,000	Tape & Reel
1N4148W-13-F-N	SOD123	10,000	Tape & Reel
1N4148WQ-13-F	SOD123	10,000	Tape & Reel
1N4148WQ-13-F-N	SOD123	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/.

* If products manufactured in a specific region are required, select part numbers with the -N, -V, or -W suffix. These suffixes identify the wafer fabrication and assembly/test locations as defined in our Supply Resiliency information.

Marking Information

SOD123



xx = Product Type Marking Code (T4)
YM = Date Code Marking
Y = Year (ex: L = 2024)
M = Month (ex: 9 = September)
A bar or underline around the date code or product type marking code denotes assembly site if marked.

Date Code Key

Year	2001	-	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Code	M	-	L	M	N	P	R	S	T	U	V	W

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

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Maximum Ratings (@ T_A = +25°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	@ t = 1.0μs @ t = 1.0s	I_{FSM}	2.0 1.0	A

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	°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 Condition
Reverse Breakdown Voltage (Note 6)	$V_{(BR)R}$	100	—	V	I_R = 1.0μA
Forward Voltage	V_{FM}	—	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 6)	I_{RM}	—	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: 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.

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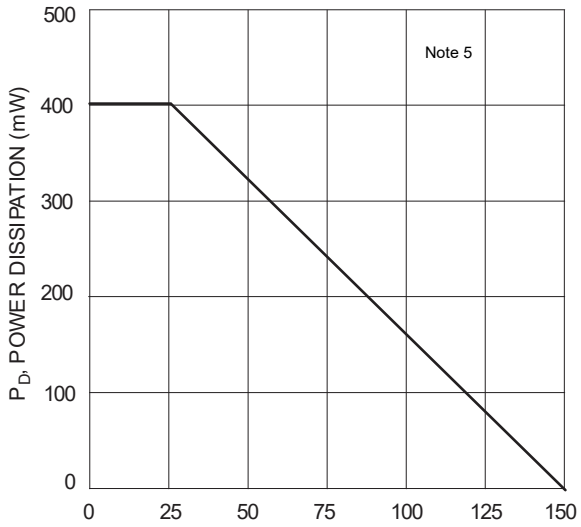


Figure 1 Power Derating Curve

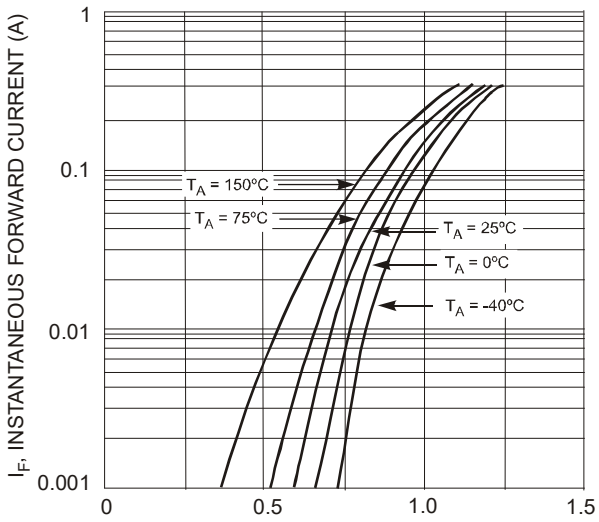


Figure 2 Typical Forward Characteristics

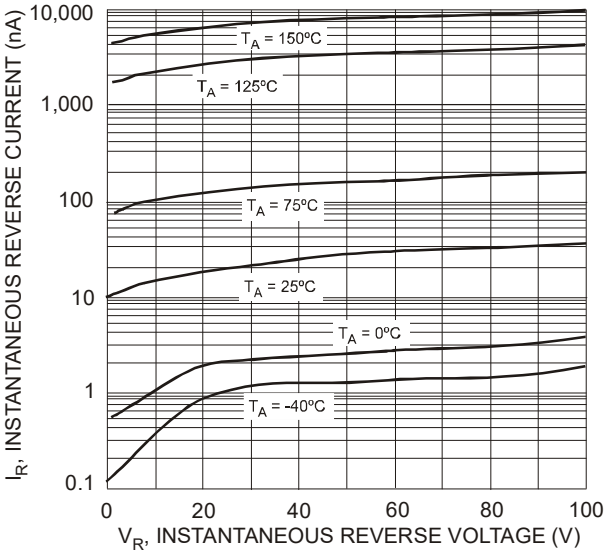


Figure 3 Typical Reverse Characteristics

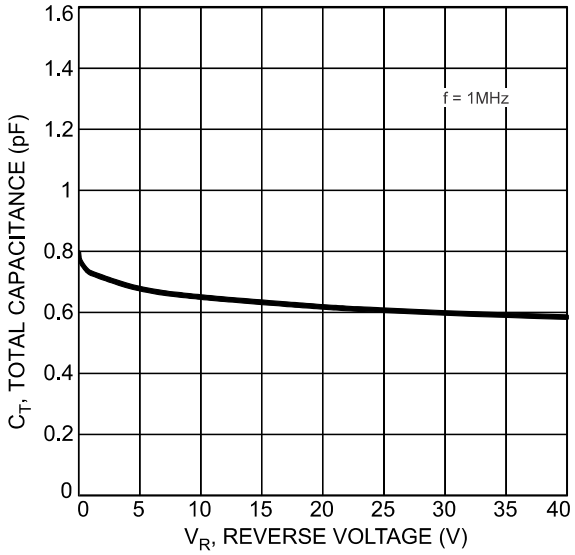


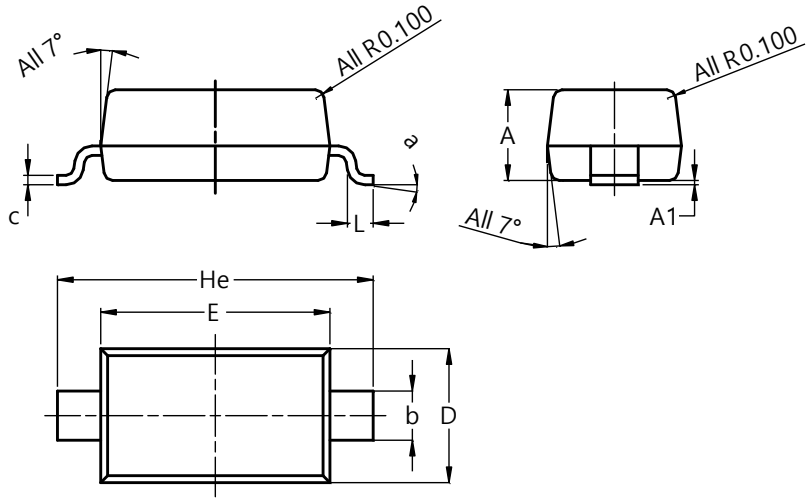
Figure 4 Typical Total Capacitance

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Package Outline Dimensions

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

SOD123

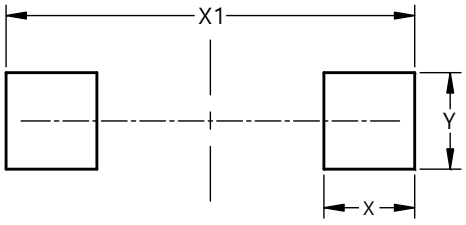


SOD123			
Dim	**Min**	**Max**	**Typ**
A	1.00	1.35	1.05
A1	0.00	0.10	0.05
b	0.52	0.62	0.57
c	0.10	0.15	0.11
D	1.40	1.70	1.55
E	2.55	2.85	2.65
He	3.55	3.85	3.65
L	0.25	0.40	0.30
a	0°	8°	--
All Dimensions in mm			

Suggested Pad Layout

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

SOD123



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

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