BAV16W/1N4148W

SURFACE MOUNT FAST SWITCHING DIODE

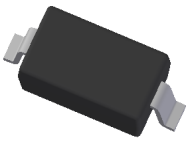
Features

- 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)**
- **Qualified to AEC-Q101 Standards for High Reliability**
- **PPAP Capable (Note 4)**

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)

SOD123



Top View

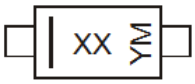
Ordering Information (Note 4 & 5)

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:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
2. See http://www.diodes.com/quality/lead_free.html 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. Automotive products are AEC-Q101 qualified and are PPAP capable. Automotive, AEC-Q10x and standard products are electrically and thermally the same, except where specified. For more information, please refer to http://www.diodes.com/quality/product_compliance_definitions/.
5. For packaging details, go to our website at http://www.diodes.com/package-outlines.html.

Marking Information

SOD123



xx = Product Type Marking Code (T4)
YM = Date Code Marking
Y or $\overline{Y}$ = Year (ex: E = 2017)
M = Month (ex: 9 = September)

Date Code Key

Year	2001	2002	2003	…..	2012	2013	2014	2015	2016	2017	2018	2019	2020
Code	M	N	P	…..	Z	A	B	C	D	E	F	G	H

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 6)	P_D	400	mW
Thermal Resistance Junction to Ambient Air (Note 6)	$R_{\theta JA}$	315	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +150	°C

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

Characteristic	Symbol	Min	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 7)	$V_{(BR)R}$	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 7)	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: 6. 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".
7. Short duration pulse test used to minimize self-heating effect.

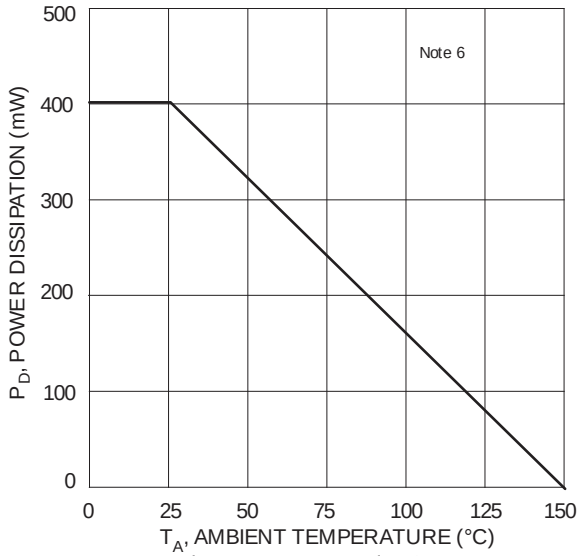

Figure 1 Power Derating Curve

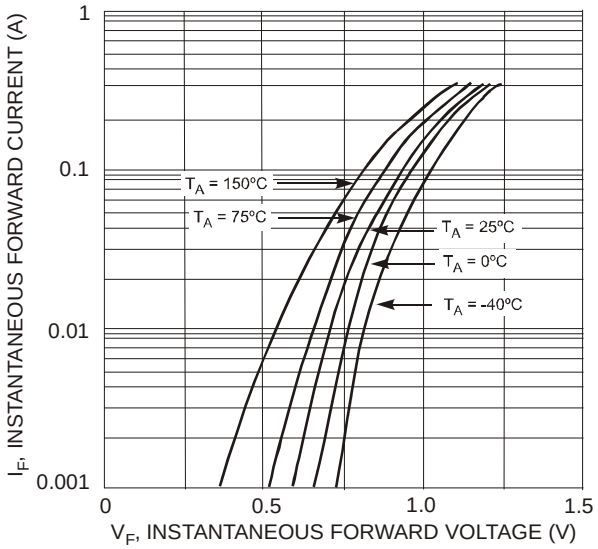

Figure 2 Typical Forward Characteristics

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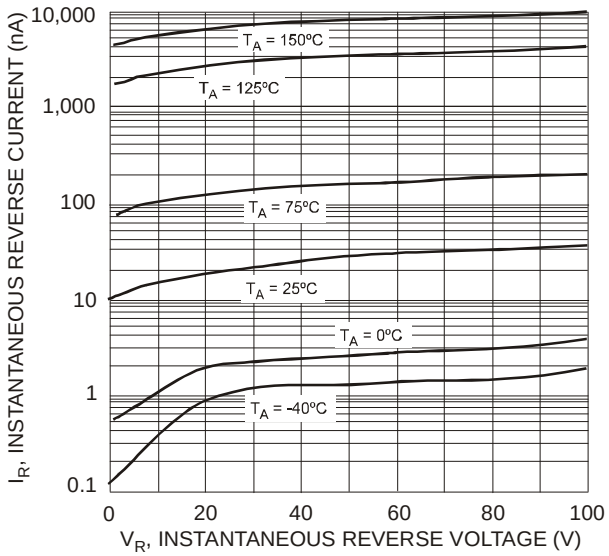


Figure 3 Typical Reverse Characteristics

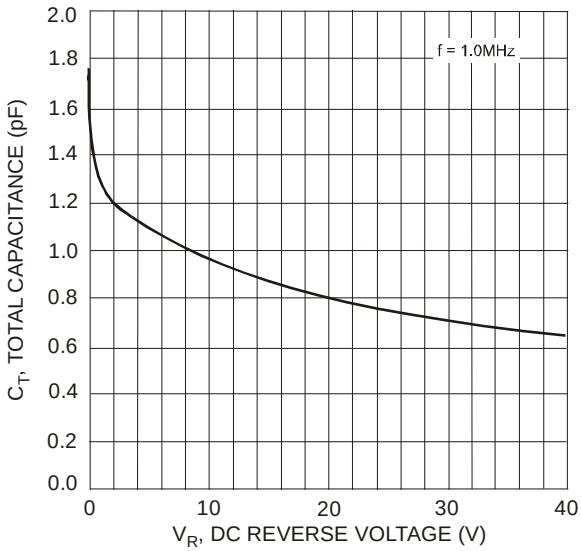
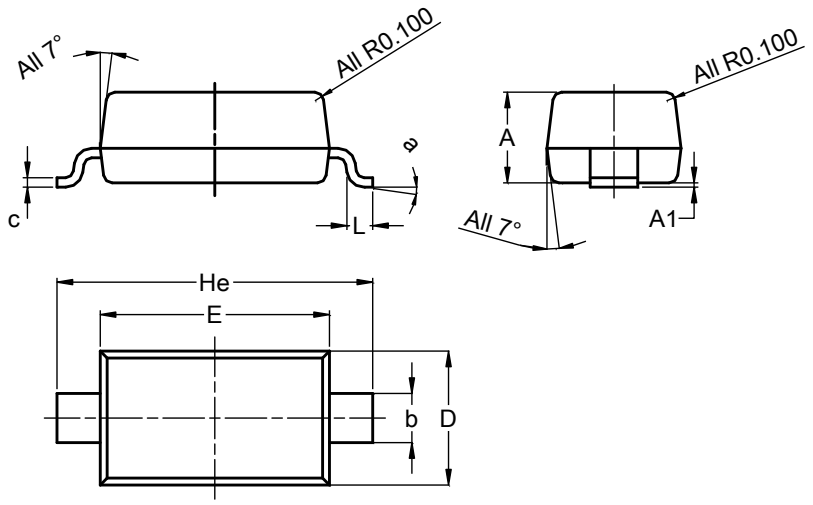


Figure 4 Total Capacitance vs. Reverse Voltage

Package Outline Dimensions

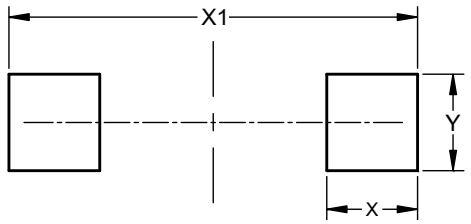
Please see http://www.diodes.com/package-outlines.html for the latest version.



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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