

#### 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

### **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<sup>3</sup>
- Polarity: Cathode Band
- Weight: 0.01 grams (Approximate)

#### SOD123



Top View

## **Ordering Information** (Note 4)

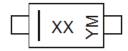
Part Number	Compliance	Case	Packaging
BAV16W-7-F	Standard	SOD123	3,000/Tape & Reel
1N4148W-7-F	Standard	SOD123	3,000/Tape & Reel
1N4148WQ-7-F	Automotive	SOD123	3,000/Tape & Reel
1N4148W-13-F	Standard	SOD123	10,000/Tape & Reel
1N4148WQ-13-F	Automotive	SOD123	10,000/Tape & Reel

Notes:

- 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. For packaging details, go to our website at http://www.diodes.com/products/packages.html.

## **Marking Information**

SOD123



xx = Product Type Marking Code (T4)

YM = Date Code Marking Y = Year (ex: A = 2013)

M = Month (ex: 9 = September)

Date Code Kev

Date Code Ne	· y												
Year	2001	2002	2003		2012	2013	2014	2015	2016	2017	2018	2019	2020
Code	М	N	Р		Z	Α	В	С	D	Е	F	G	Н
Month	Jan	Feb	Mar	Apr	Ма	y J	un	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	(	6	7	8	9	0	N	D



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

Characteristic	Symbol	Value	Unit	
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage		V <sub>RRM</sub> V <sub>RWM</sub> V <sub>R</sub>	100	V
RMS Reverse Voltage		V <sub>R(RMS)</sub>	71	V
Forward Continuous Current		I <sub>FM</sub>	300	mA
Non-Repetitive Peak Forward Surge Current	@ t = 1.0μs @ t = 1.0s	I <sub>FSM</sub>	2.0 1.0	А

### **Thermal Characteristics**

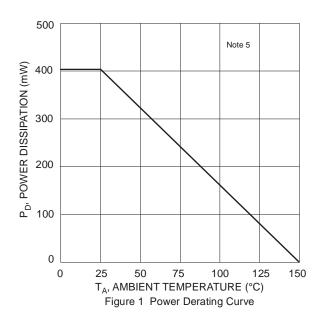
Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	$P_{D}$	400	mW
Thermal Resistance Junction to Ambient Air (Note 5)	$R_{ hetaJA}$	315	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-65 to +150	°C

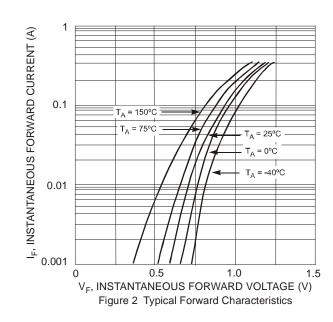
## Electrical Characteristics (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 6)	$V_{(BR)R}$	100	_	V	$I_R = 1.0 \mu A$
Forward Voltage	V <sub>FM</sub>		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 <sub>RM</sub>	_	1.0 50 30 25	μΑ μΑ μΑ nA	$V_R = 75V$ $V_R = 75V$ , $T_J = +150$ °C $V_R = 25V$ , $T_J = +150$ °C $V_R = 20V$
Total Capacitance	Ст	_	2.0	pF	$V_R = 0, f = 1.0MHz$
Reverse Recovery Time	t <sub>rr</sub>	_	4.0	ns	$I_F = I_R = 10 \text{mA},$ $I_{rr} = 0.1 \times I_R, R_L = 100 \Omega$

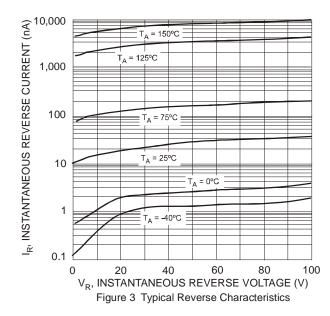
Notes:

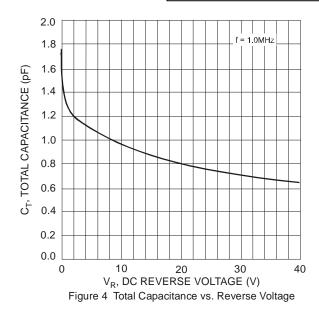
- . Part mounted on FR-4 PC board, double-sided, with 3oz copper plating and with anode and cathode terminal pad dimensions of 2" \* 2".
- 6. Short duration pulse test used to minimize self-heating effect.





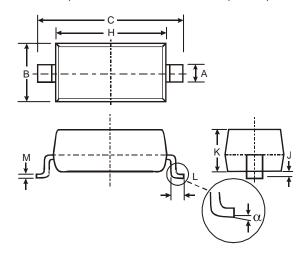






# **Package Outline Dimensions**

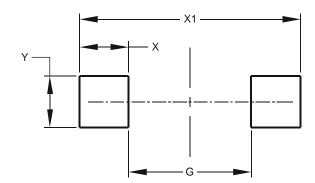
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for the latest version.



SOD123						
Dim	Min Max					
Α	0.55 Typ					
В	1.40	1.70				
С	3.55	3.85				
Н	2.55	2.85				
J	0.00	0.10				
K	1.00 1.35					
L	0.25	0.40				
М	0.10	0.15				
α	0	8°				
All Dimensions in mm						

# **Suggested Pad Layout**

Please see AP02001 at http://www.diodes.com/datasheets/ap02001.pdf for the latest version.



Dimensions	Value (in mm)
G	2.250
Х	0.900
X1	4.050
Υ	0.950



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