

**Features**

- Fast Switching Speed: 50ns Maximum
- 400V High Reverse Breakdown Voltage Rating
- Low Capacitance: 2.5pF Maximum
- Surface Mount Package Ideally Suited for Automated Insertion
- **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>(e3)</sup>
- Weight: 0.01 grams (approximate)

SOD123



Top View

**Ordering Information** (Note 4)

Product	Compliance	Marking	Reel Size (inches)	Tape Width (mm)	Quantity per Reel
BAV5004W-7	AEC-Q101	LY	7	8	3,000/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](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**



LY = Product Type Marking Code  
 YM = Date Code Marking  
 Y = Year (ex: A = 2013)  
 M = Month (ex: 9 = September)  
 Line Denotes Cathode Side

Date Code Key

Year	2013	2014	2015	2016	2017	2018	2019	2020
Code	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

**Maximum Ratings** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Repetitive Peak Reverse Voltage	V <sub>RRM</sub>	400	V
Working Peak Reverse Voltage	V <sub>RWM</sub>	350	V
DC Blocking Voltage	V <sub>R</sub>		V
RMS Reverse Voltage	V <sub>R(RMS)</sub>	247	V
Forward Continuous Current (Note 5)	I <sub>FM</sub>	300	mA
Peak Repetitive Forward Current (Note 5)	I <sub>FRM</sub>	625	mA
Non-Repetitive Peak Forward Surge Current	I <sub>FSM</sub>	5.0 3.0	A
		@ t = 1.0μs @ t = 1.0ms	

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5) (See figure 1)	P <sub>D</sub>	300	mW
Thermal Resistance Junction to Ambient Air (Note 5)	R <sub>θJA</sub>	417	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 6)	V <sub>(BR)R</sub>	400	—	—	V	I <sub>R</sub> = 150μA
Forward Voltage	V <sub>F</sub>	—	—	0.93 1.09 1.29	V	I <sub>F</sub> = 20mA I <sub>F</sub> = 100mA I <sub>F</sub> = 200mA
Reverse Current (Note 6)	I <sub>R</sub>	—	—	1 100	μA μA	V <sub>R</sub> = 240V V <sub>R</sub> = 240V, T <sub>J</sub> = +150°C
Total Capacitance	C <sub>T</sub>	—	0.9	2.5	pF	V <sub>R</sub> = 0V, f = 1.0MHz
Reverse Recovery Time	t <sub>rr</sub>	—	—	50	ns	I <sub>F</sub> = I <sub>R</sub> = 30mA, I <sub>rr</sub> = 3.0mA, R <sub>L</sub> = 100Ω

Notes: 5. Part mounted on FR-4 board with recommended pad layout, which can be found on our website at <http://www.diodes.com>.  
6. Short duration pulse test used to minimize self-heating effect.

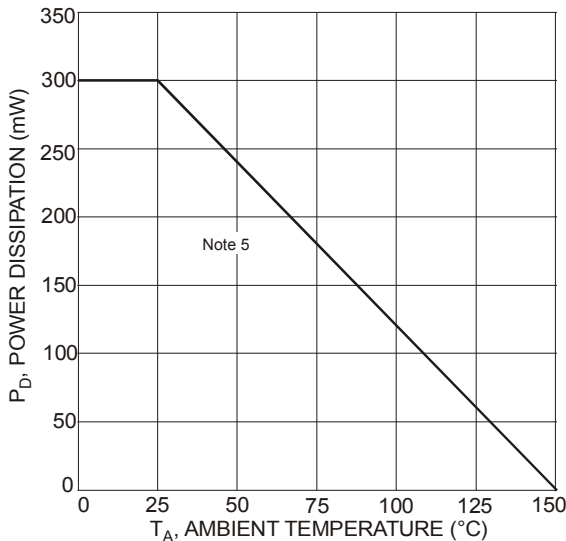


Fig. 1 Power Derating Curve

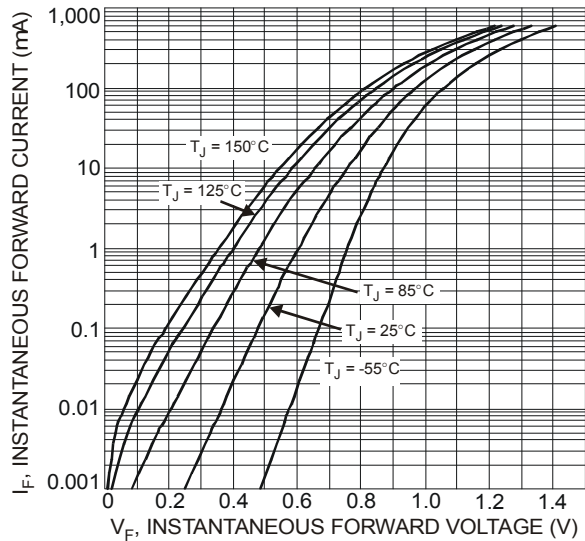


Fig. 2 Typical Forward Characteristics

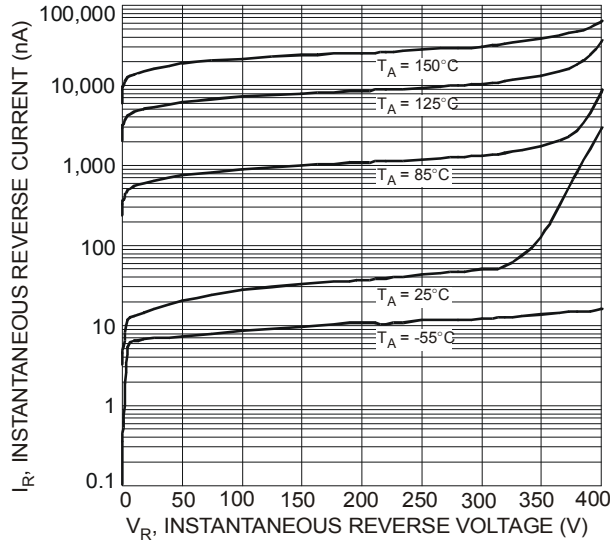


Fig. 3 Typical Reverse Characteristics

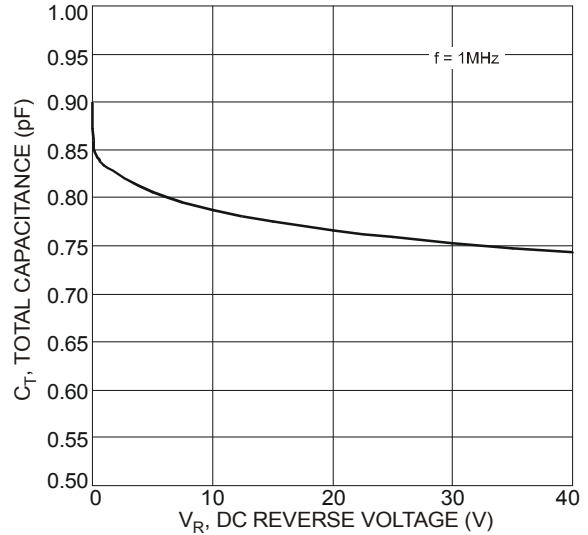
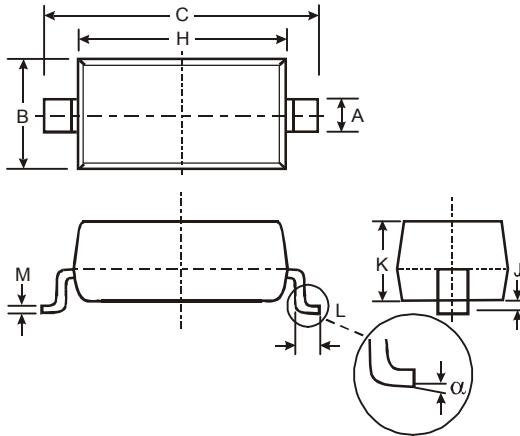


Fig. 4 Typical Total Capacitance vs. Reverse Voltage

### Package Outline Dimensions

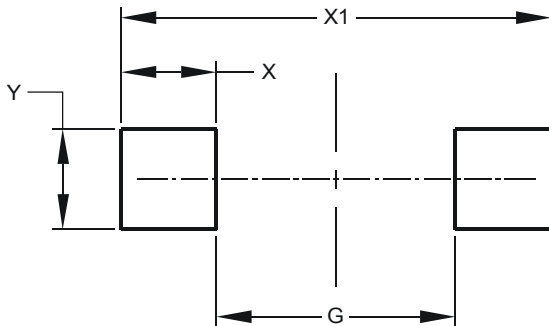
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.



SOD123		
Dim	Min	Max
A	0.55 Typ	
B	1.40	1.70
C	3.55	3.85
H	2.55	2.85
J	0.00	0.10
K	1.00	1.35
L	0.25	0.40
M	0.10	0.15
$\alpha$	0	$8^\circ$
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
X	0.900
X1	4.050
Y	0.950

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