

## Features

- Low Leakage Current:  $\leq 100\text{nA}$
- Fast Switching Speed:  $\leq 50\text{ns}$
- High Reverse Breakdown Voltage:  $\geq 350\text{V}$
- Ideal for Battery-Powered, Portable Applications
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3 & 4)**
- **Qualified to AEC-Q101 Standards for High Reliability**
- **An Automotive-Compliant Part is Available Under Separate Datasheet ([BAV3004WQ](#))**

## Mechanical Data

- Case: SOD123
- Case Material: Molded Plastic.  
UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Solderable per MIL-STD-202, Method 208; Lead-Free Plating (Matte Tin Finish Annealed over Alloy 42 Leadframe)
- Polarity: Cathode Band
- Weight: 0.01 grams (Approximate)

SOD123



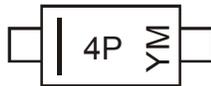
Top View

## Ordering Information (Note 5)

Part Number	Compliance	Case	Packaging
BAV3004W-7-F	Standard	SOD123	3000/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  $<900\text{ppm}$  bromine,  $<900\text{ppm}$  chlorine ( $<1500\text{ppm}$  total Br + Cl) and  $<100\text{ppm}$  antimony compounds.
  4. Product manufactured with Date Code V9 (week 33, 2008) and newer are built with Green Molding Compound. Product manufactured prior to Date Code V9 are built with Non-Green Molding Compound and may contain Halogens or  $\text{Sb}_2\text{O}_3$  Fire Retardants.
  5. For packaging details, go to our website at <http://www.diodes.com>.

## Marking Information



- 4P = Product Type Marking Code  
 YM = Date Code Marking  
 Y = Year (ex: G = 2019)  
 M = Month (ex: 9 = September)

### Date Code Key

Year	2002	2003	2004	2005	2006	...	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Code	N	P	R	S	T	...	G	H	I	J	K	L	M	N	O	P

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	$V_{RRM}$	350	V
Working Peak Reverse Voltage	$V_{RWM}$	300	V
DC Blocking Voltage	$V_R$		
RMS Reverse Voltage	$V_{R(RMS)}$	212	V
Forward Continuous Current	$I_{FM}$	225	mA
Repetitive Peak Forward Current	$I_{FRM}$	625	mA
Non-Repetitive Peak Forward Surge Current		@ $t = 1.0\mu\text{s}$	4.0
		@ $t = 1.0\text{s}$	1.0

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 6)	$P_D$	400	mW
Thermal Resistance Junction to Ambient Air (Note 6)	$R_{\theta JA}$	312	$^\circ\text{C/W}$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-65 to +150	$^\circ\text{C}$

**Electrical Characteristics** @ $T_A = 25^\circ\text{C}$  unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 7)	$V_{(BR)R}$	350	—	—	V	$I_R = 150\mu\text{A}$
Forward Voltage	$V_{FM}$	—	0.78	0.87	V	$I_F = 20\text{mA}$
			0.93	1.0		$I_F = 100\text{mA}$
			1.03	1.25		$I_F = 200\text{mA}$
Leakage Current (Note 7)	$I_{RM}$	—	30	100	nA	$V_R = 240\text{V}, T_J = 25^\circ\text{C}$
			35	100	$\mu\text{A}$	$V_R = 240\text{V}, T_J = 150^\circ\text{C}$
Total Capacitance	$C_T$	—	1.0	5.0	pF	$V_R = 0, f = 1.0\text{MHz}$
Reverse Recovery Time	$t_{rr}$	—	—	50	ns	$I_F = I_R = 30\text{mA}, I_{rr} = 3.0\text{mA}, R_L = 100\Omega$

Notes: 6. Valid provided that terminals are kept at ambient room temperature.  
7. Short duration pulse test used to minimize self-heating effect.

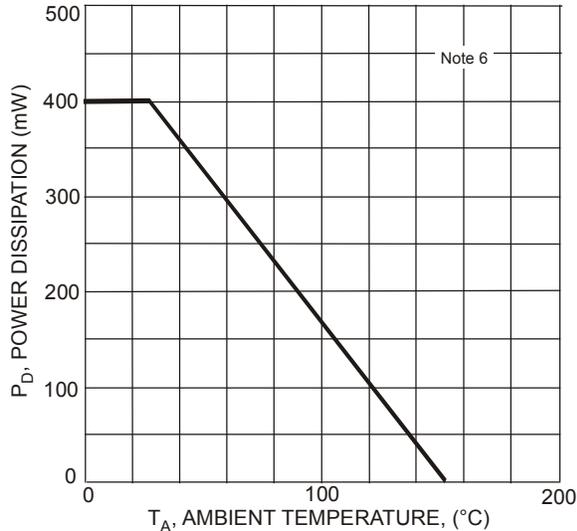


Fig. 1 Power Derating Curve

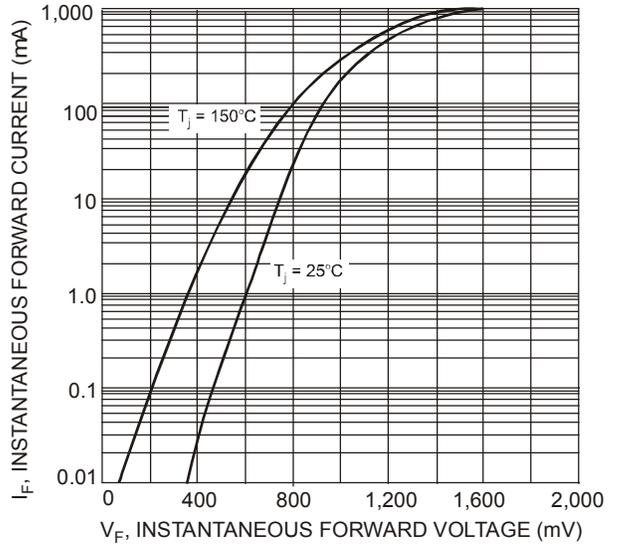


Fig. 2 Typical Forward Characteristics

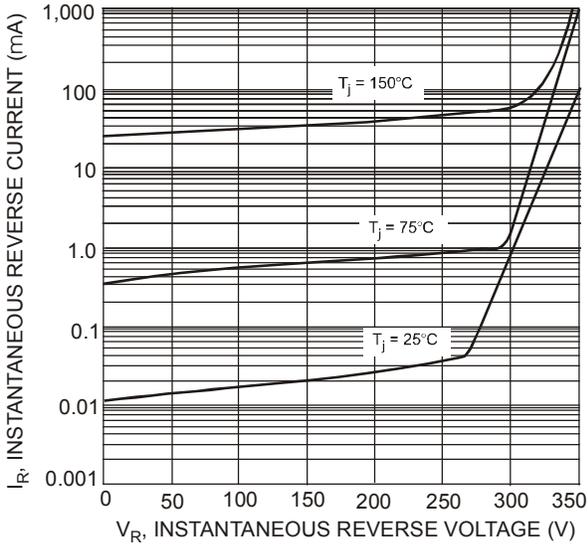


Fig. 3 Typical Reverse Characteristics

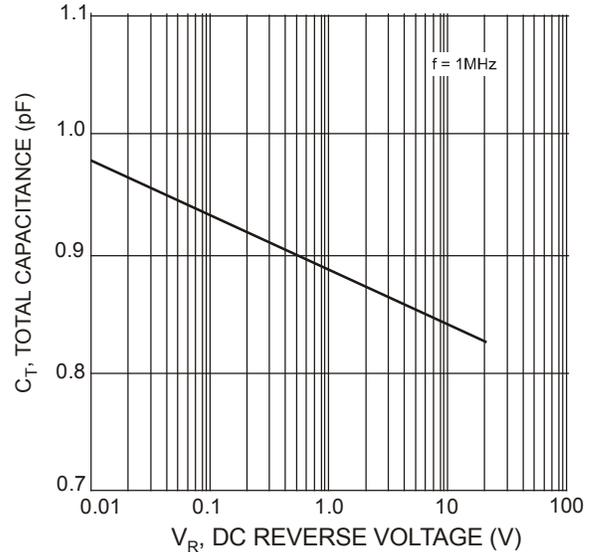
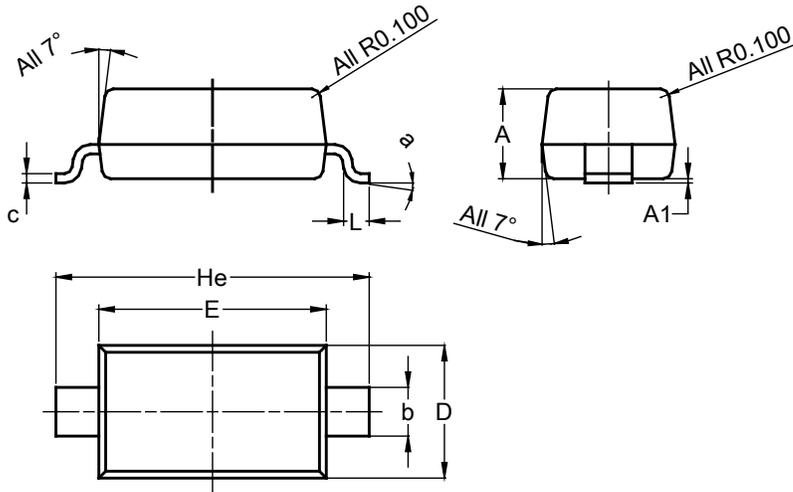


Fig. 4 Typical Total Capacitance vs. Reverse Voltage

**Package Outline Dimensions**

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

**SOD123**

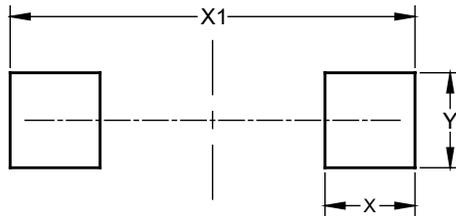


SOD123			
Dim	Min	Max	Typ
A	1.00	1.35	1.05
A1	0.00	0.10	0.05
b	0.52	0.62	0.57
c	0.10	0.15	0.11
D	1.40	1.70	1.55
E	2.55	2.85	2.65
He	3.55	3.85	3.65
L	0.25	0.40	0.30
a	0°	8°	--
All Dimensions in mm			

**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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