Features

- Fast Switching Speed
- Surface Mount Package Ideally Suited for Automated Insertion
- For General Purpose Switching Applications
- High Reverse Breakdown Voltage
- **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.
  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
- Type Code: BAV19W: A8 or T2 or T3
  BAV20W: T2 or T3
  BAV21W: T3
- Weight: 0.01 grams (Approximate)

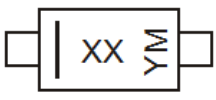
SOD123

Ordering Information (Note 5)

Part Number	Compliance	Case	Packaging
BAV19W-7-F	Commercial	SOD123	3,000/Tape and Reel
BAV20W-7-F	Commercial	SOD123	3,000/Tape and Reel
BAV20WQ-7-F (Note 4)	Automotive	SOD123	3,000/Tape and Reel
BAV21W-7-F	Commercial	SOD123	3,000/Tape and Reel
BAV21WQ-7-F (Note 4)	Automotive	SOD123	3,000/Tape and 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. Automotive products are AEC-Q101 qualified and are PPAP capable. Automotive, AEC-Q101 and standard products are and thermally the same, except where specified. For more information, please refer to https://www.diodes.com/quality/product-compliance-definitions/.
5. For packaging details, go to our website at http://www.diodes.com/products/packages.html.

Marking Information



XX = Product Type Marking Code (See Page 1)
YM = Date Code Marking
Y = Year (ex: F = 2018)
M = Month (ex: 9 = September)

Date Code Key

Year	1998	1999	2000	...	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Code	J	K	L	…	Z	A	B	C	D	E	F	G	H	J	K

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°C, unless otherwise specified.)

Characteristic	Symbol	BAV19W	BAV20W	BAV21W	Unit
Non-Repetitive Peak Reverse Voltage	V_{RM}	120	200	250	V
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	100	150	200	V
RMS Reverse Voltage	$V_{R(RMS)}$	71	106	141	V
Forward Continuous Current (Note 6)	I_{FM}	400			mA
Average Rectified Output Current (Note 6)	I_O	200			mA
Non-Repetitive Peak Forward Surge Current @t = 1.0ms @t = 1.0s	I_{FSM}	2.5 0.5			A
Repetitive Peak Forward Surge Current	I_{FRM}	625			mA

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 7)	P_D	250	mW
Thermal Resistance Junction to Ambient Air (Note 7)	$R_{\theta JA}$	500	°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 8) BAV19W BAV20W BAV21W	$V_{(BR)R}$	120 200 250	—	V	I_R = 100µA
Forward Voltage	V_{FM}	—	1.0 1.25	V	I_F = 100mA I_F = 200mA
Peak Reverse Current @ Rated DC Blocking Voltage (Note 8)	I_{RM}	—	100 15	nA µA	T_J = +25°C T_J = +100°C
Total Capacitance	C_T	—	5.0	pF	V_R = 0, f = 1.0MHz
Reverse Recovery Time	t_{RR}	—	50	ns	I_F = I_R = 30mA, I_{RR} = 0.1 x I_R, R_L = 100W

Notes:
6. I_{FM}, I_O are valid provided that terminals are kept at ambient temperature.
7. Part mounted on FR-4 PC board with minimum recommended pad layout, which can be found on our website at http://www.diodes.com/package-outlines.html.
8. Short duration pulse test used to minimize self-heating effect.

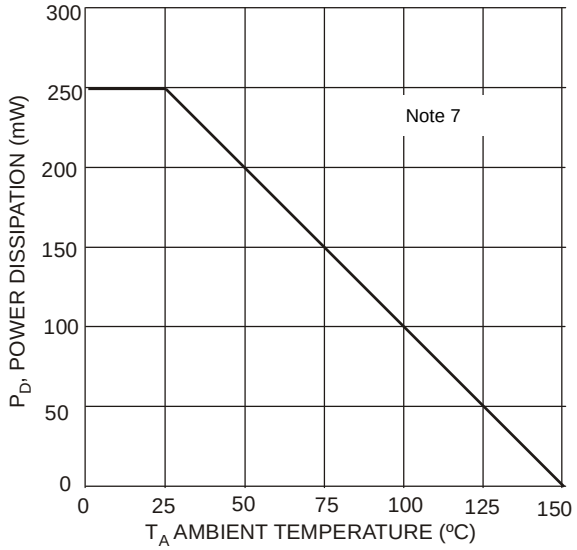


Fig. 1 Power Derating Curve

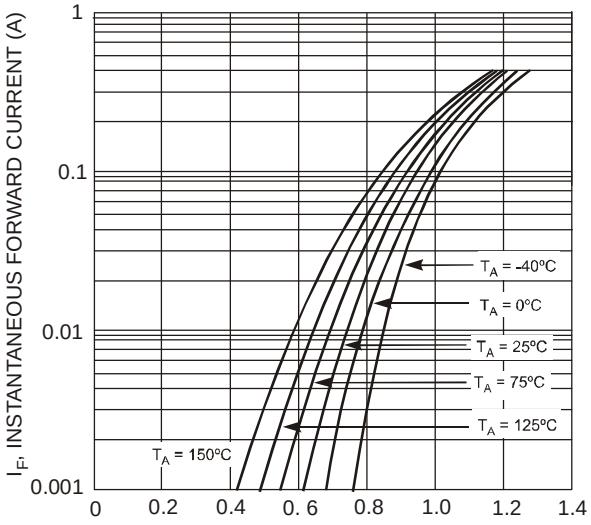


Fig. 2 Typical Forward Characteristics

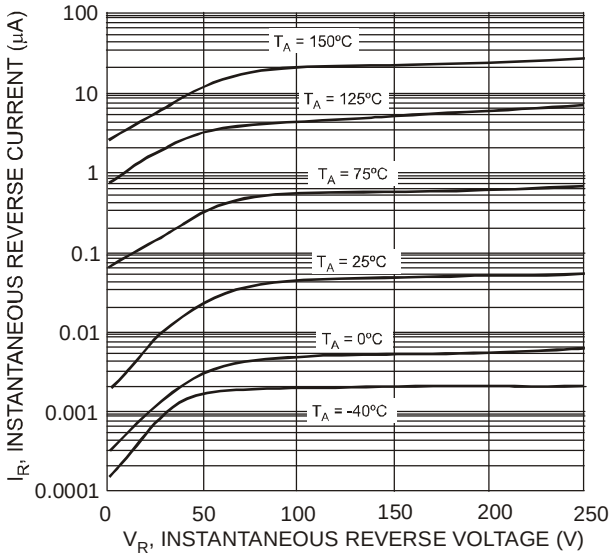


Fig. 3 Typical Reverse Characteristics

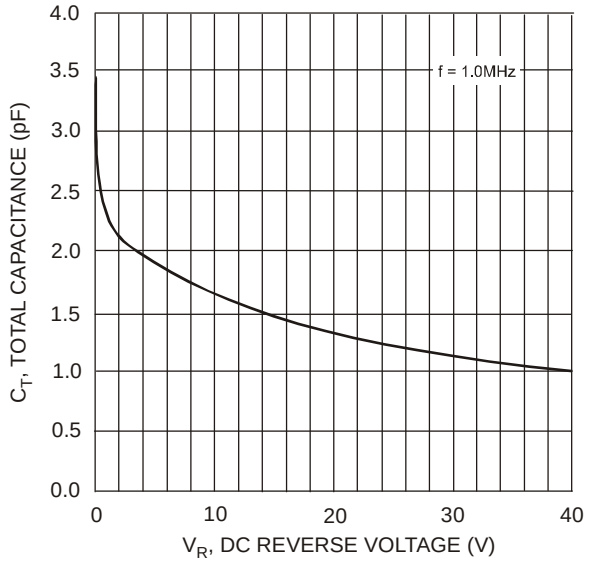
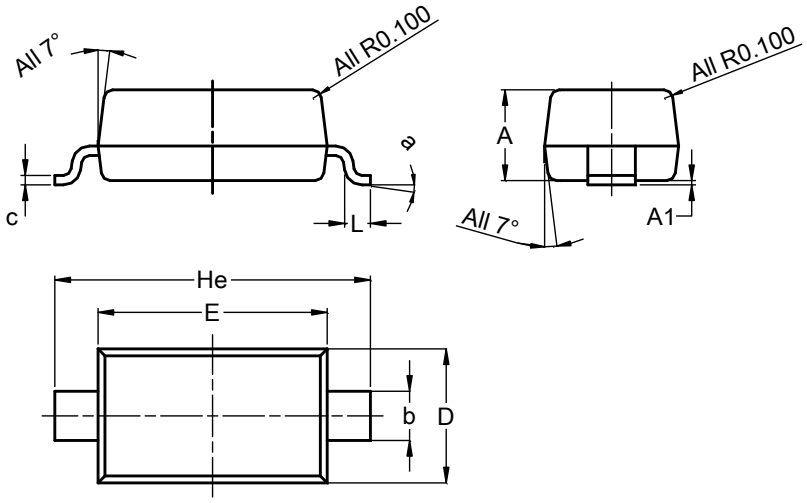


Fig. 4 Total Capacitance vs. Reverse Voltage

Package Outline Dimensions

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

SOD123

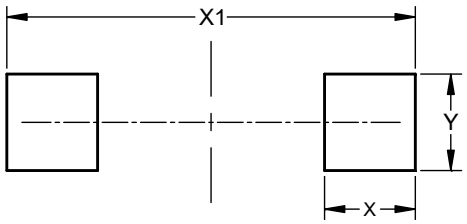


SOD123			
Dim	**Min**	**Max**	**Typ**
A	1.00	1.35	1.05
A1	0.00	0.10	0.05
b	0.52	0.62	0.57
c	0.10	0.15	0.11
D	1.40	1.70	1.55
E	2.55	2.85	2.65
He	3.55	3.85	3.65
L	0.25	0.40	0.30
a	0º	8º	--
All Dimensions in mm			

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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