Product Summary (@T_A = +25°C)

V_R	I_R	t_{rr}
250V	100nA	50ns

Features

- High Reverse-Breakdown Voltage
- Flat Leadframe Design for Improved Thermal Transfer
- High Conductance
- **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)**

Description

The BAV21HWFQ is a 250V, 100nA, and 50ns switching diode that is optimized for high reverse-breakdown voltage.

Applications

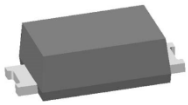
It is ideally suited for use in applications such as the following:

- Mobile
- Portable Electronics
- Consumer Electronics
- Automotive

Mechanical Data

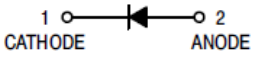
- Case: SOD123F
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections: Cathode Bar
- Terminals: Matte Tin Finish Annealed over Copper Alloy Leadframe. Solderable per MIL-STD-202, Method 208 e3
- Weight: 0.018 grams (Approximate)

SOD123F



Top View

Bottom View



Ordering Information (Note 5)

Product	Compliance	Case	Packaging
BAV21HWFQ-7	AEC-Q101	SOD123F	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 <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
4. Automotive products are AEC-Q101 qualified and are PPAP capable. Refer to https://www.diodes.com/quality/
5. For packaging details, see http://www.diodes.com/products/packages.html.

Marking Information

SOD123F

T3 = Product Type Marking Code
YM = Date Code Marking
Y = Year (ex.: F = 2018)
M = Month (ex: O = October)
Bar Denotes Cathode Side

Date Code Key

Year	2018	2019	2020	2021	2022	2023	2024
Code	F	G	H	I	J	K	L

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	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	250	V
RMS Reverse Voltage	$V_{R(RMS)}$	177	V
Forward Continuous Current	I_{FM}	400	mA
Average Rectified Output Current	I_O	200	mA
Repetitive Peak Forward Current	I_{FRM}	625	mA
Non-Repetitive Peak Forward Surge Current @ t = 1.0µs @ t = 100µs @ t = 10ms	I_{FSM}	9.0 3.0 1.7	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 6)	P_D	375	mW
Thermal Resistance Junction to Ambient Air (Note 6)	$R_{\Theta JA}$	330	°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)	$V_{(BR)R}$	250	—	V	I_R = 100µA
Forward Voltage	V_F	—	1.0 1.25	V	I_F = 100mA I_F = 200mA
Reverse Current (Note 7)	I_R	—	100 100	nA µA	V_R = 200 V, T_J = +25°C V_R = 200 V, T_J = +150°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 × I_R, R_L = 100Ω

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

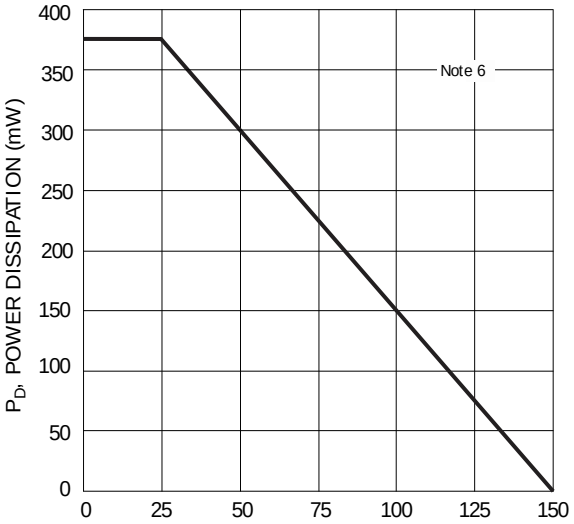


Figure 1 Power Derating Curve, Total Package

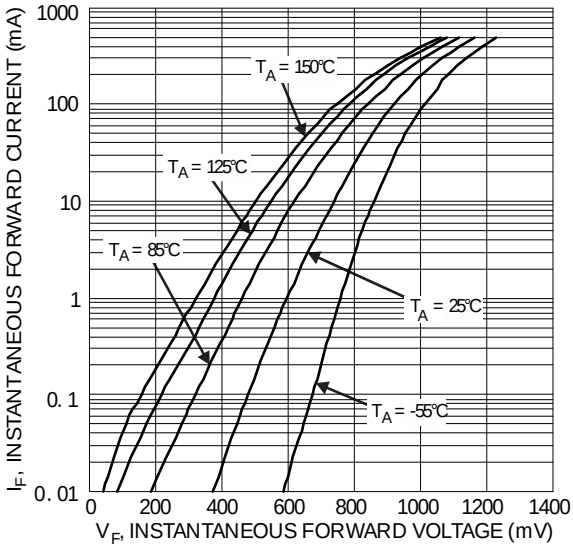


Figure 2 Typical Forward Characteristics

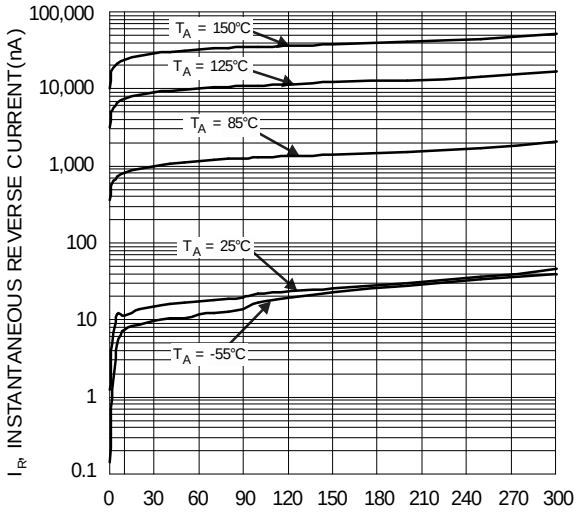


Figure 3 Typical Reverse Characteristics

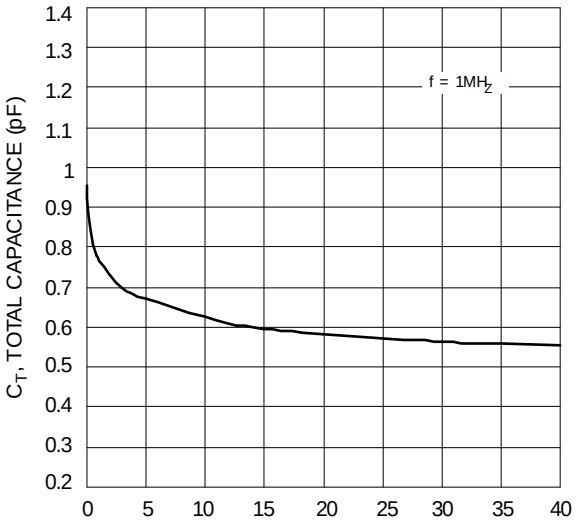
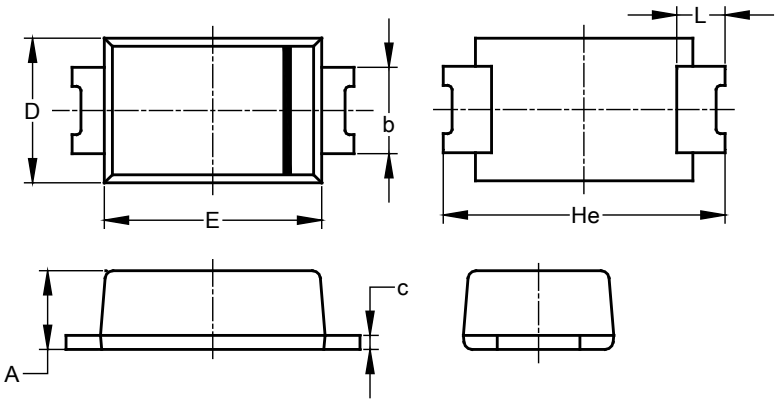


Figure 4 Total Capacitance vs. Reverse Voltage

Package Outline Dimensions

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

SOD123F (Type B)

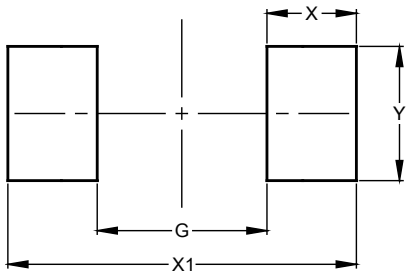


SOD123F (Type B)			
Dim	**Min**	**Max**	**Typ**
A	0.81	1.15	—
b	0.80	1.35	—
c	0.05	0.30	—
D	1.70	1.90	1.80
E	2.60	2.80	2.70
He	3.30	3.70	3.50
L	0.35	0.85	—
All Dimensions in mm			

Suggested Pad Layout

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

SOD123F (Type B)



Dimensions	Value (in mm)
G	1.90
X	1.00
X1	3.90
Y	1.50

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