

## Product Summary (@T<sub>A</sub> = +25°C)

V <sub>R</sub>	I <sub>R</sub>	t <sub>rr</sub>
250V	100nA	50ns

## 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:

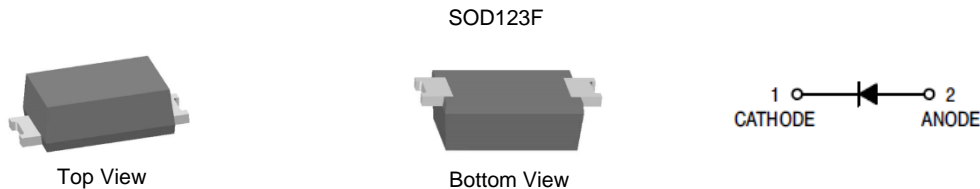
- Mobile
- Portable Electronics
- Consumer Electronics
- Automotive

## 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)**

## 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 Ⓔ3
- Weight: 0.018 grams (Approximate)



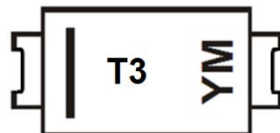
## Ordering Information (Note 5)

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<sub>A</sub> = +25°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>	250	V
RMS Reverse Voltage	V <sub>R(RMS)</sub>	177	V
Forward Continuous Current	I <sub>FM</sub>	400	mA
Average Rectified Output Current	I <sub>O</sub>	200	mA
Repetitive Peak Forward Current	I <sub>FRM</sub>	625	mA
Non-Repetitive Peak Forward Surge Current	I <sub>FSM</sub>	9.0 3.0 1.7	A
	@ t = 1.0μs		
	@ t = 100μs		
	@ t = 10ms		

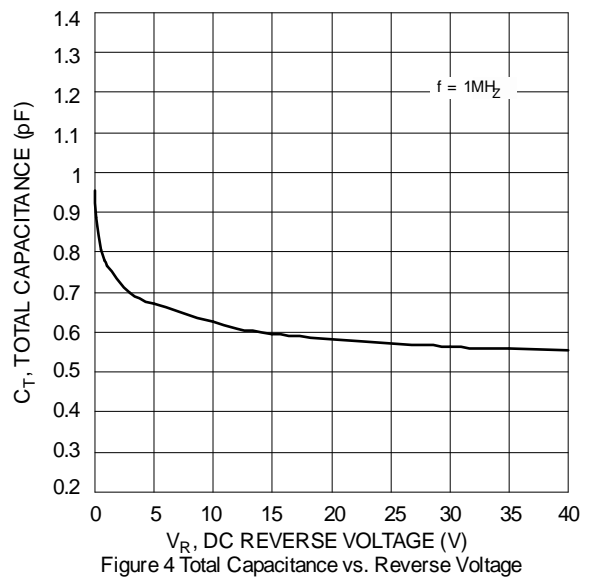
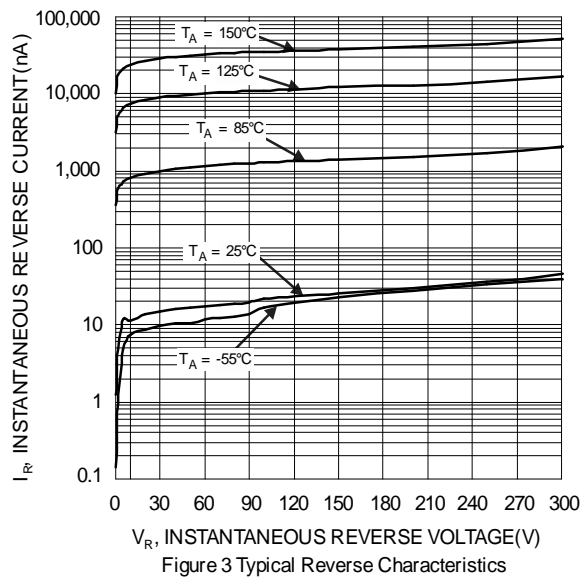
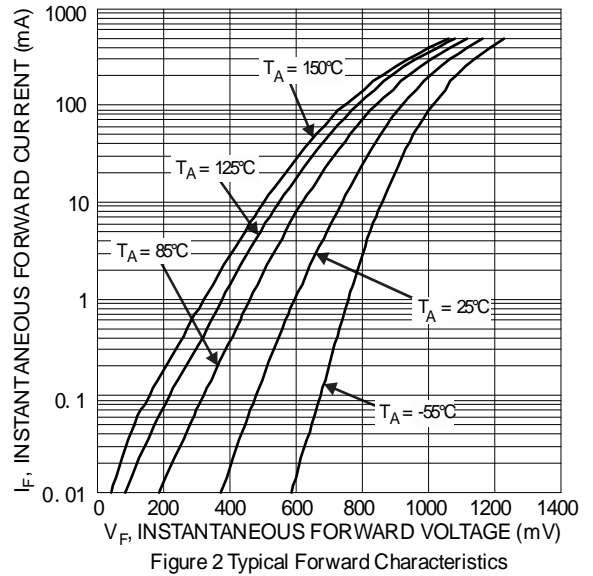
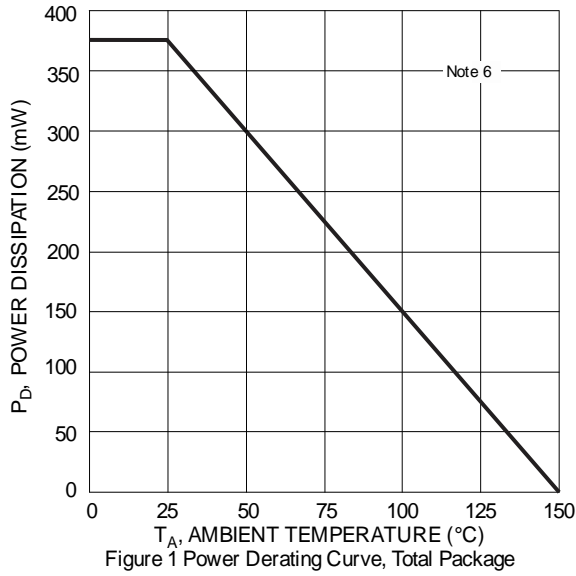
**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 6)	P <sub>D</sub>	375	mW
Thermal Resistance Junction to Ambient Air (Note 6)	R <sub>θJA</sub>	330	°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 7)	V <sub>(BR)R</sub>	250	—	V	I <sub>R</sub> = 100μA
Forward Voltage	V <sub>F</sub>	—	1.0 1.25	V	I <sub>F</sub> = 100mA I <sub>F</sub> = 200mA
Reverse Current (Note 7)	I <sub>R</sub>	—	100 100	nA μA	V <sub>R</sub> = 200 V, T <sub>J</sub> = +25°C V <sub>R</sub> = 200 V, T <sub>J</sub> = +150°C
Total Capacitance	C <sub>T</sub>	—	5.0	pF	V <sub>R</sub> = 0, 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> = 0.1 × I <sub>R</sub> , R <sub>L</sub> = 100Ω

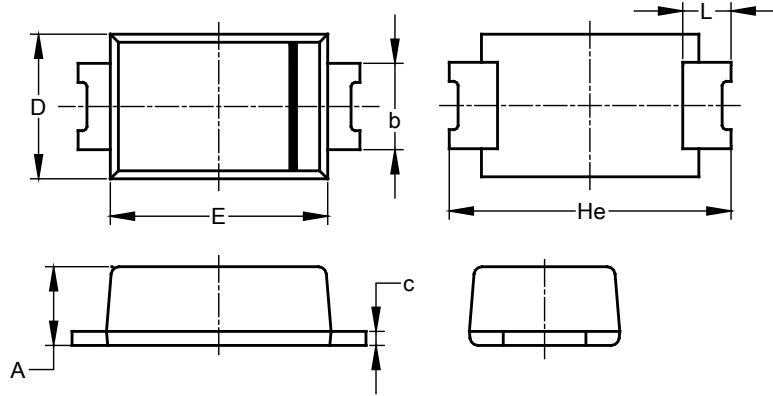
Notes: 6. Part mounted on FR-4 PCB with recommended pad layout, which can be found on our website at <http://www.diodes.com>.  
7. Short duration pulse test used to minimize self-heating effect.



## Package Outline Dimensions

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

SOD123F (Type B)

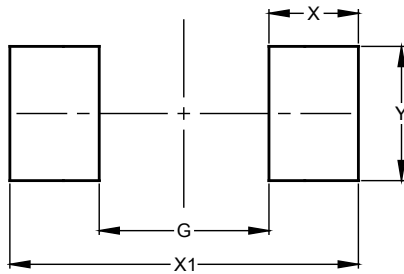


SOD123F (Type B)			
Dim	Min	Max	Typ
A	0.81	1.15	—
b	0.80	1.35	—
c	0.05	0.30	—
D	1.70	1.90	1.80
E	2.60	2.80	2.70
He	3.30	3.70	3.50
L	0.35	0.85	—
All Dimensions in mm			

## 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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