

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

V <sub>R</sub>	I <sub>R</sub>	t <sub>rr</sub>
85V	5nA	3μs

## Description

The BAV116HWFQ is an 85V, 5nA and 3μs switching diode that is optimized for ultra-low leakage current.

## Applications


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

- Mobile
- Portable Electronics
- Consumer Electronics
- Automotive

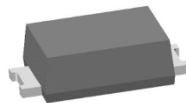
## Features

- Ultra Low Leakage Current (5nA @ V<sub>R</sub> = 75V)
- Flat Leadframe Design for Improved Thermal Transfer
- Low Capacitance
- **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 
- Weight: 0.018 grams (Approximate)

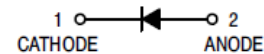
### SOD123F



Top View



Bottom View



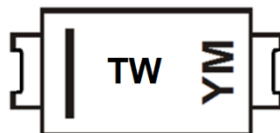
## Ordering Information (Note 5)

Product	Compliance	Case	Packaging
BAV116HWFQ-7	Automotive	SOD123F	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. Automotive products are AEC-Q101 qualified and are PPAP capable. Automotive, AEC-Q101 and standard products are electrically and thermally the same, except where specified. For more information, please refer to [http://www.diodes.com/quality/product\\_compliance\\_definitions/](http://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

### SOD123F



TW = Product Type Marking Code  
 YM = Date Code Marking  
 Y = Year (ex.: C = 2015)  
 M = Month (ex: O = October)  
 Bar Denotes Cathode Side

### Date Code Key

Year	2015	2016	2017	2018	2019	2020	2021
Code	C	D	E	F	G	H	I

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>	85	V
RMS Reverse Voltage	V <sub>R(RMS)</sub>	60	V
Forward Continuous Current (Note 6)	I <sub>FM</sub>	215	mA
Repetitive Peak Forward Current	I <sub>FRM</sub>	500	mA
Non-Repetitive Peak Forward Surge Current @ t = 1.0μs @ t = 1.0ms @ t = 1.0s	I <sub>FSM</sub>	4.0 1.0 0.5	A

**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
Thermal Resistance Junction to Solder Point	R <sub>θJSP</sub>	70	°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	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 7)	V <sub>(BR)R</sub>	85	—	—	V	I <sub>R</sub> = 100μA
Forward Voltage	V <sub>F</sub>	—	—	0.9 1.0 1.1 1.25	V	I <sub>F</sub> = 1.0mA I <sub>F</sub> = 10mA I <sub>F</sub> = 50mA I <sub>F</sub> = 150mA
Leakage Current (Note 7)	I <sub>R</sub>	—	—	5.0 80	nA nA	V <sub>R</sub> = 75V V <sub>R</sub> = 75V, T <sub>J</sub> = +150°C
Total Capacitance	C <sub>T</sub>	—	2	—	pF	V <sub>R</sub> = 0, f = 1.0MHz
Reverse Recovery Time	t <sub>rr</sub>	—	—	3.0	μs	I <sub>F</sub> = I <sub>R</sub> = 10mA, I <sub>rr</sub> = 0.1 x I <sub>R</sub> , R <sub>L</sub> = 100Ω

Notes: 6. Part mounted on FR-4 PC board with recommended pad layout, which can be found on our website at <http://www.diodes.com/datasheets/ap02001.pdf>.  
7. Short duration pulse test used to minimize self-heating effect.

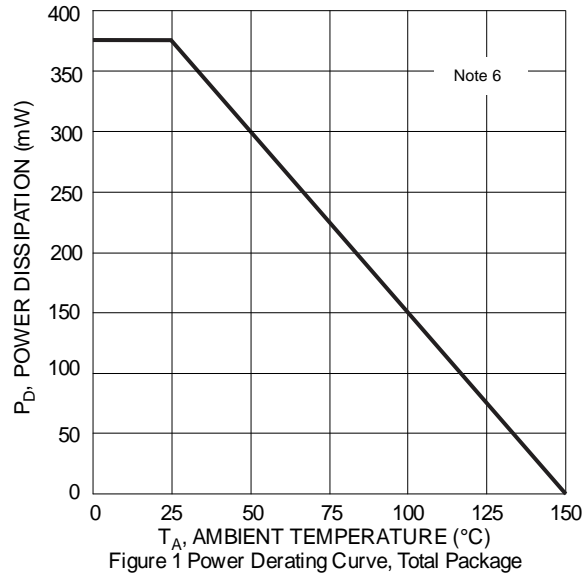


Figure 1 Power Derating Curve, Total Package

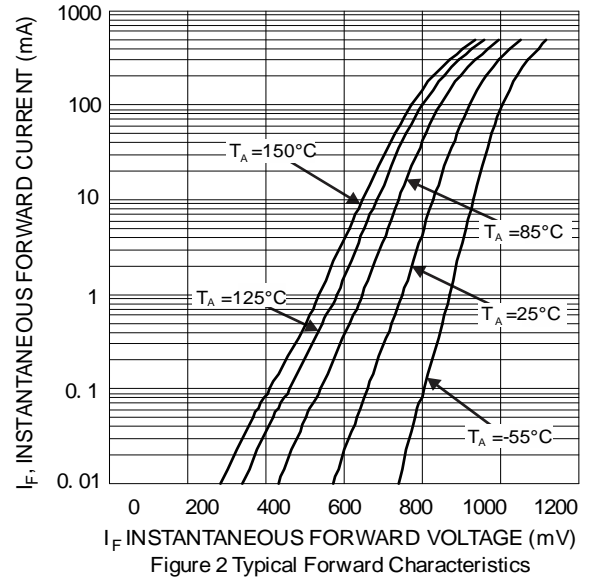


Figure 2 Typical Forward Characteristics

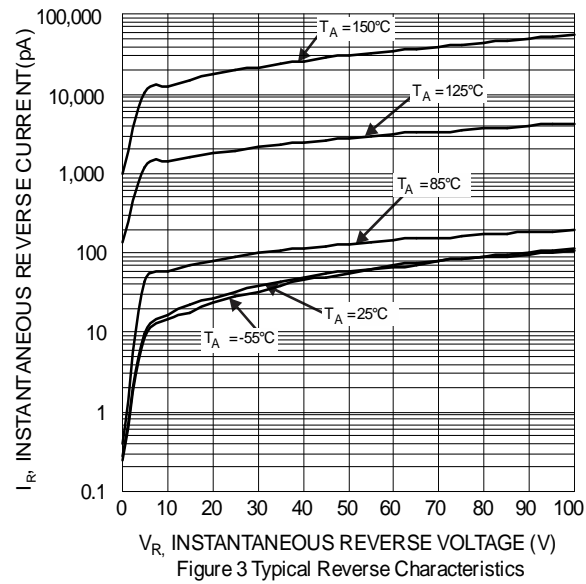


Figure 3 Typical Reverse Characteristics

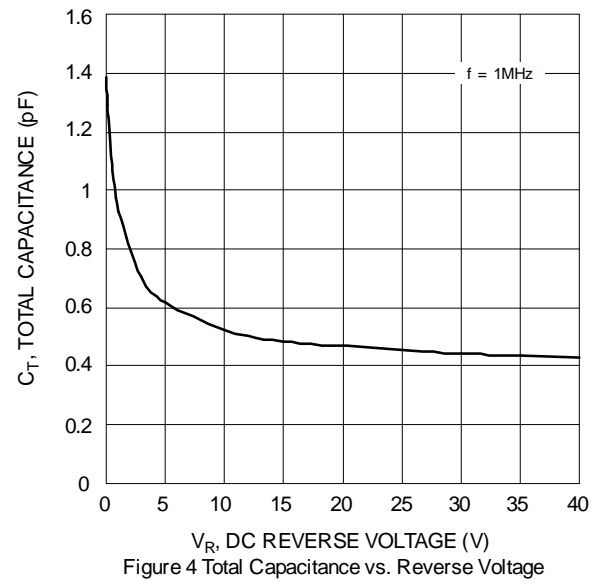
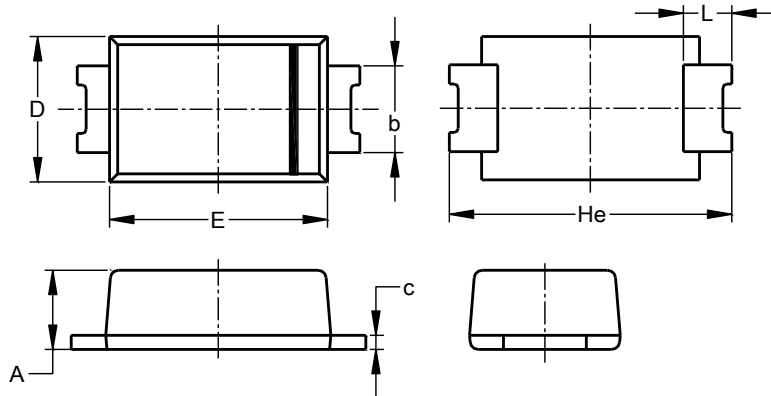


Figure 4 Total Capacitance vs. Reverse Voltage

## Package Outline Dimensions

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

SOD123F (Type B)

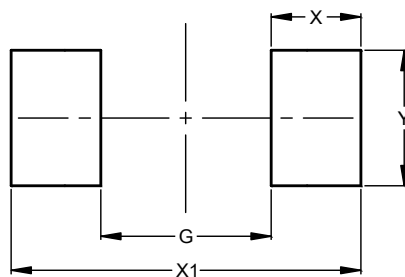


SOD123F (Type B)			
Dim	Min	Max	Typ
A	0.81	1.15	—
b	0.80	1.35	—
c	0.05	0.30	—
D	1.70	1.90	1.80
E	2.60	2.80	2.70
He	3.30	3.70	3.50
L	0.35	0.85	—
All Dimensions in mm			

## Suggested Pad Layout

Please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> 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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