



## Product Summary

V <sub>RRM</sub> (V)	I <sub>O</sub> (A)	V <sub>F</sub> Max (V) @ +25°C	I <sub>R</sub> Max (mA) +25°C
40	1	0.51	0.1

## Features and Benefits

- Low forward voltage (V<sub>F</sub>) minimizes conduction losses and improving efficiency
- Reduced high temperature reverse leakage; Increased reliability against thermal runaway failure in high temperature operation
- **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**

## Description and Applications

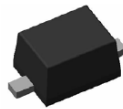
The SBR140S1F is a single rectifier packaged in SOD123F. Offering low V<sub>F</sub> and excellent high temperature stability this device is ideal for use in general rectification applications as a:

- Boost Diode
- Blocking Diode
- Blocking Dode

## 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
- Terminals: Matte Tin Finish Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208
- Polarity: Cathode Band
- Weight: 0.015 grams (Approximate)

SOD123F



Top View

## Ordering Information (Note 4)

Part Number	Case	Packaging
SBR140S1F-7	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. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

## Marking Information



F4 = Product Type Marking Code  
 YM = Date Code Marking  
 Y = Year (ex.: A = 2013)  
 M = Month (ex: 9 = September)

### Date Code Key

Year	2013	2014	2015	2016	2017	2018	2019	2020
Code	A	B	C	D	E	F	G	H

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.)

Single phase, half wave, 60Hz, resistive or inductive load.  
For capacitance load, derate current by 20%.

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	V <sub>R(RM)</sub>	40	V
Working Peak Reverse Voltage	V <sub>R(WM)</sub>		
DC Blocking Voltage	V <sub>RM</sub>		
RMS Reverse Voltage	V <sub>R(RMS)</sub>	28	V
Average Rectified Output Current	I <sub>O</sub>	1	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I <sub>FSM</sub>	30	A

### Thermal Characteristics

Characteristic	Symbol	Value	Unit
Thermal Resistance Junction to Case (Note 5)	R <sub>θJC</sub>	40	°C/W
Thermal Resistance Junction to Ambient (Note 5)	R <sub>θJA</sub>	110	
Thermal Resistance Junction to Case (Note 6)	R <sub>θJC</sub>	8	
Thermal Resistance Junction to Ambient (Note 6)	R <sub>θJA</sub>	75	
Thermal Resistance Junction to Solder point (Note 6)	R <sub>θJS</sub>	25	
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	

### 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>	40	—	—	V	I <sub>R</sub> = 200μA
Forward Voltage Drop	V <sub>F</sub>	—	0.44	0.51	V	I <sub>F</sub> = 1A, T <sub>J</sub> = +25°C
Leakage Current (Note 7)	I <sub>R</sub>	—	20	100	μA	V <sub>R</sub> = 40V, T <sub>J</sub> = +25°C

- Notes:
- 5. Device mounted on 1\*MRP FR-4 PC board, 2oz.
  - 6. Device mounted on 1-inch sq. copper pad, 2oz.
  - 7. Short duration pulse test used to minimize self-heating effect.

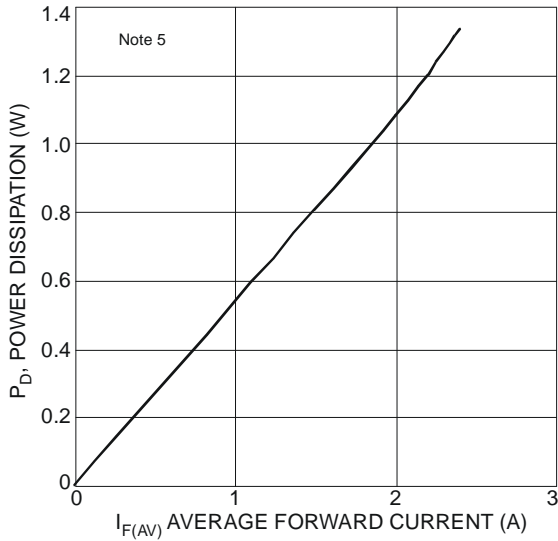


Figure 1 Forward Power Dissipation

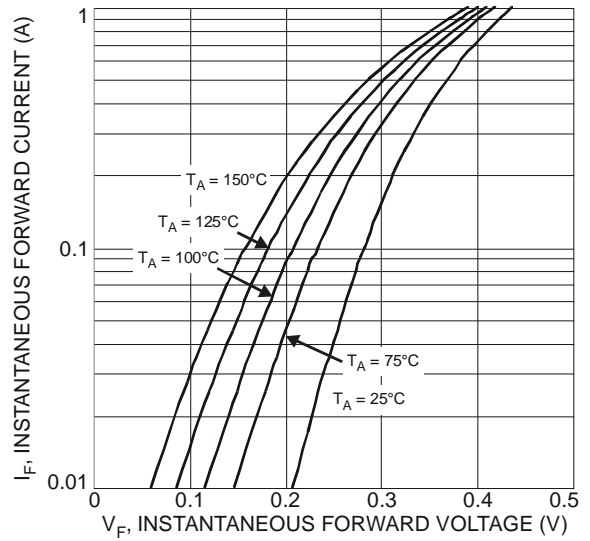


Figure 2 Typical Forward Characteristics

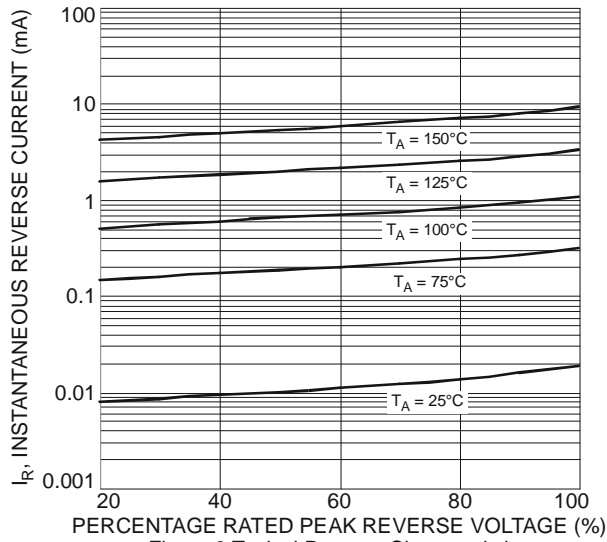


Figure 3 Typical Reverse Characteristics

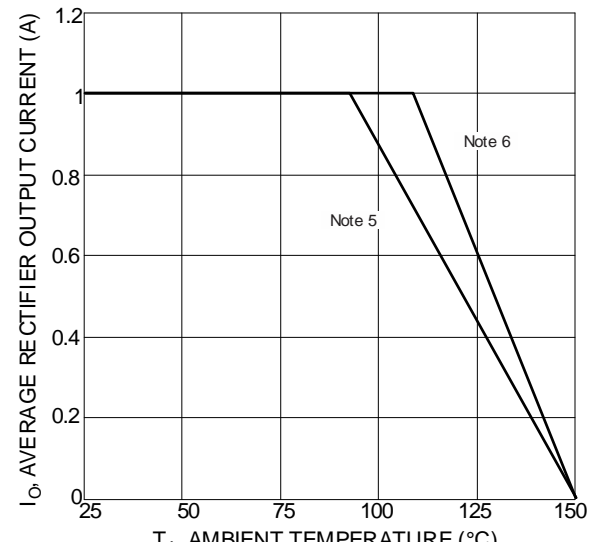


Figure 4 DC Forward Current Derating Curve

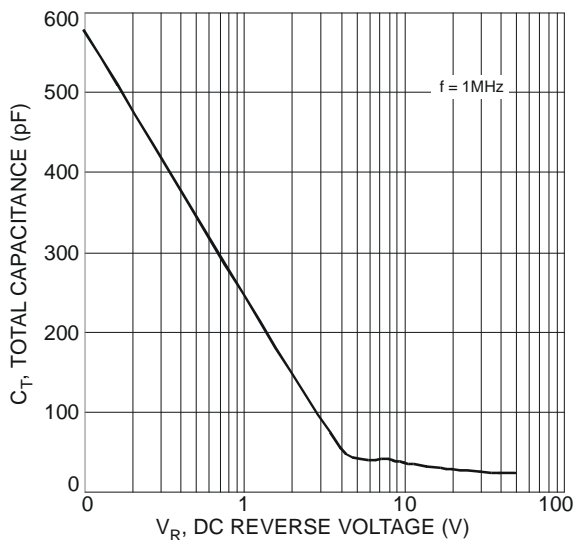
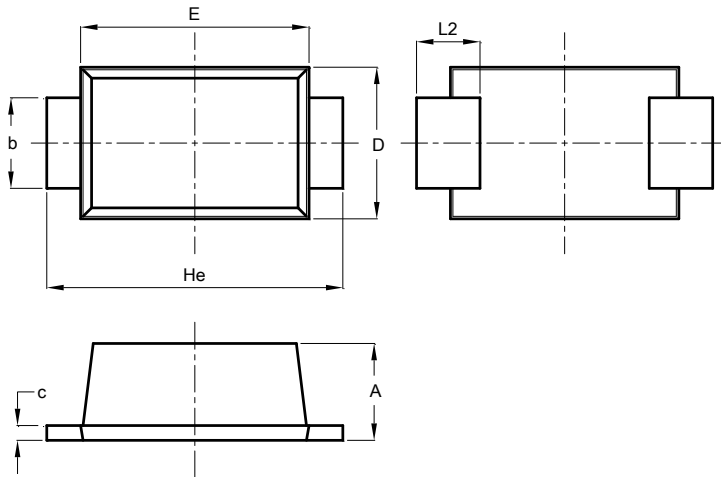


Figure 5 Total Capacitance vs. Reverse Voltage

**Package Outline Dimensions**

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

**SOD123F**

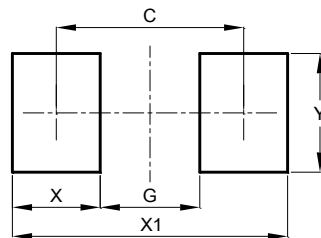


SOD123F			
Dim	Min	Max	Typ
A	0.81	1.15	-
b	0.80	1.35	-
c	0.05	0.30	-
D	1.70	1.90	1.80
E	2.60	2.80	2.70
He	3.30	3.70	3.50
L2	0.35	0.85	-
All Dimensions in mm			

**Suggested Pad Layout**

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

**SOD123F**



Dimensions	Value (in mm)
C	2.86
G	1.52
X	1.34
X1	4.20
Y	1.80

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