



**THE DATASHEET OF  
B160S1F-7**



## 1.0A SURFACE MOUNT SCHOTTKY BARRIER RECTIFIER

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

V <sub>RRM</sub> (V)	I <sub>o</sub> (A)	V <sub>F(MAX)</sub> (V)	I <sub>R(MAX)</sub> (μA)
60	1	0.65	200

### Description and Applications

The Schottky rectifier providing low V<sub>F</sub> and excellent reverse leakage stability at high temperatures, this device is ideal for use in general rectification applications such as:

- Boost Diode
- Blocking Diode
- Recirculating Diode

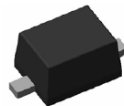
### Features and Benefits

- Reduced Low Forward Voltage Drop (V<sub>F</sub>); Better Efficiency and Cooler Operation
- Reduced High-Temperature Reverse Leakage; Increased Reliability against Thermal Runaway Failure in High Temperature Operation
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

### Mechanical Data

- Case: SOD123F (Standard)
- 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 Ⓜ3
- Polarity: Cathode Band
- Weight: 0.0015 grams (Approximate)

SOD123F  
(Standard)



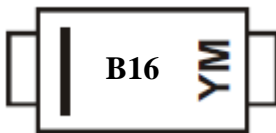
Top View

### Ordering Information (Note 4)

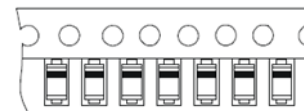
Part Number	Case	Packaging
B160S1F-7	SOD123F (Standard)	3000/Tape & Reel

- Notes:
1. EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
  2. See [http://www.diodes.com/quality/lead\\_free/](http://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. For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

### Marking Information



B16 = Product Type Marking Code  
 YM = Date Code Marking  
 Y = Year (ex.: F = 2018)  
 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 capacitive load, derate current by 20%.

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	V <sub>RRM</sub>	60	V
Working Peak Reverse Voltage	V <sub>RWM</sub>		
DC Blocking Voltage	V <sub>RM</sub>		
RMS Reverse Voltage	V <sub>R(RMS)</sub>	42	V
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 Ambient (Note 5)	R <sub>θJA</sub>	100	°C/W
Typical Thermal Resistance, Junction to Case (Note 5)	R <sub>θJC</sub>	50	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

### Electrical Characteristics (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ.	Max	Unit	Test Condition
Forward Voltage Drop	V <sub>F</sub>	—	0.53 0.50	0.65 —	V	I <sub>F</sub> = 1A, T <sub>J</sub> = +25°C I <sub>F</sub> = 1A, T <sub>J</sub> = +125°C
Leakage Current (Note 6)	I <sub>R</sub>	—	0.02 8.2	0.2 —	mA	V <sub>R</sub> = 60V, T <sub>J</sub> = +25°C V <sub>R</sub> = 60V, T <sub>J</sub> = +125°C
Typical Capacitance	C <sub>T</sub>	—	45	—	pF	V <sub>R</sub> = 4.0V, f = 1MHz

Notes: 5. Device mounted on FR-4 substrate, 0.4" x 0.5", 2oz, single-sided, PC boards with 0.2" x 0.25" copper pad.  
6. Short duration pulse test used to minimize self-heating effect.

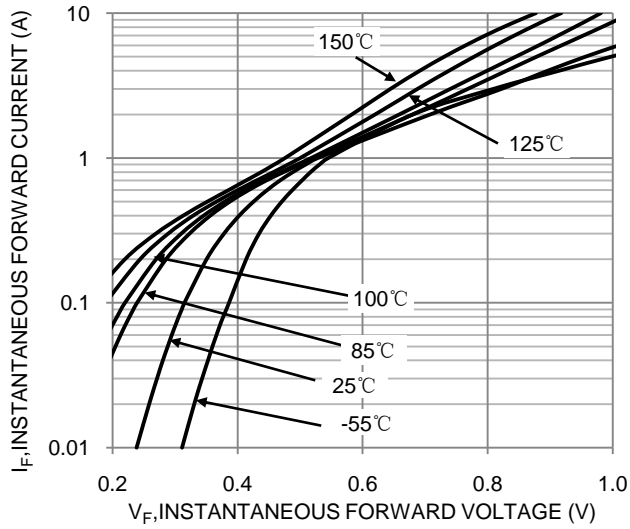


Figure 1. Typical Forward Characteristics

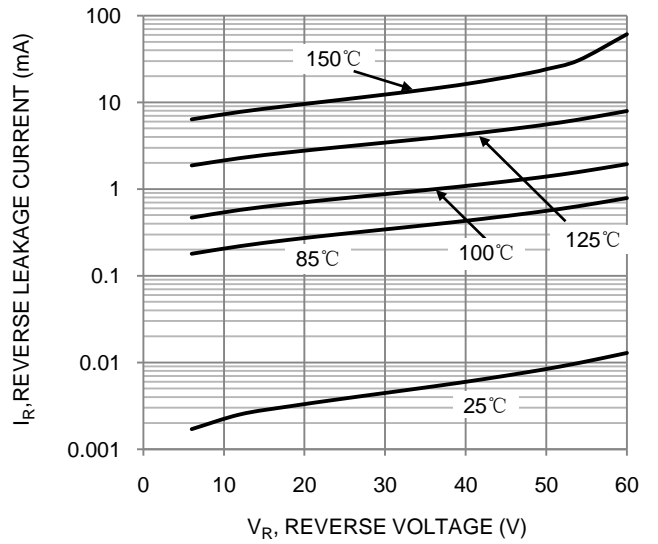


Figure 2. Typical Reverse Characteristics

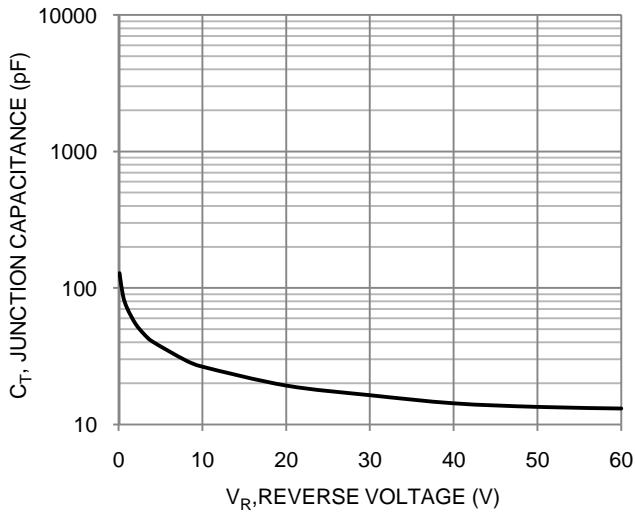


Figure 3. Typical Junction Capacitance

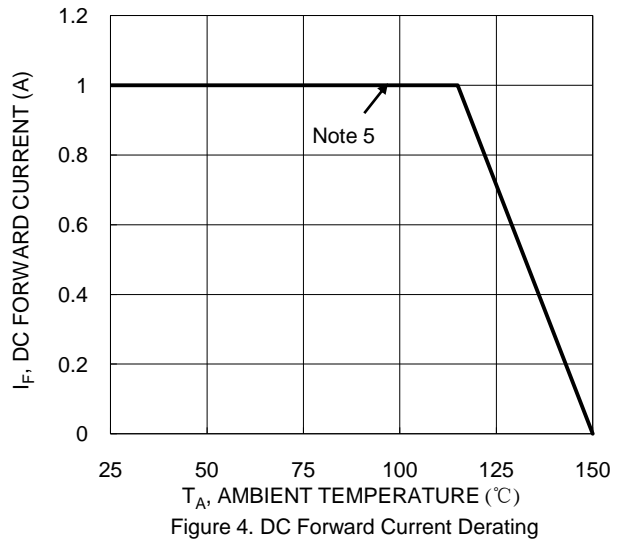
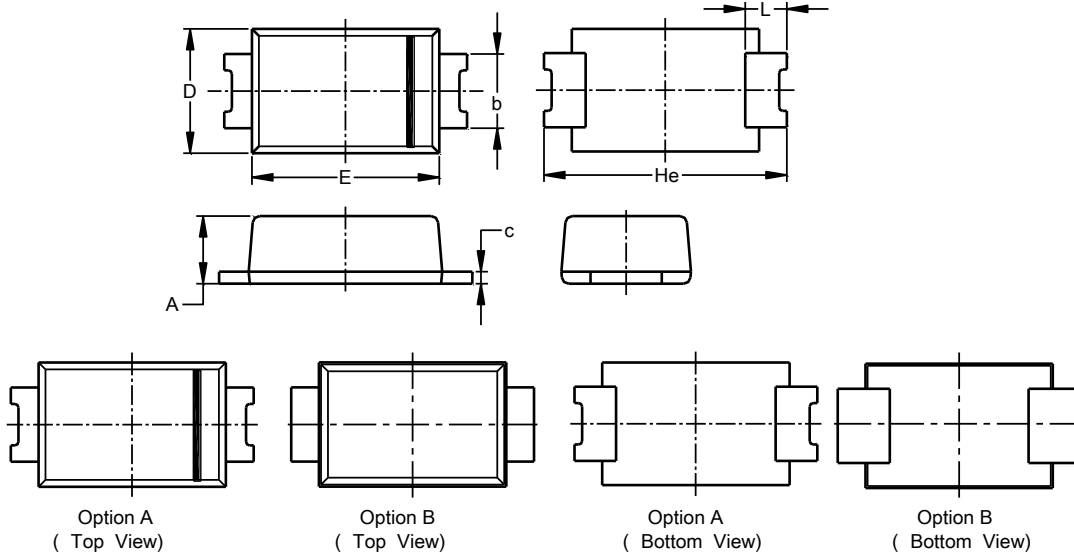


Figure 4. DC Forward Current Derating

**Package Outline Dimensions**

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

**SOD123F (Standard)**

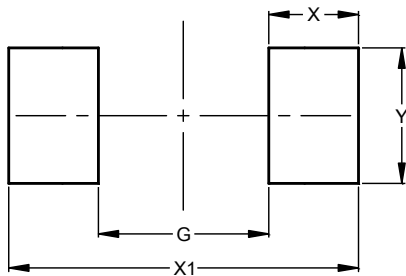


SOD123F (Standard)			
Dim	Min	Max	Typ
A	0.81	1.15	-
b	0.80	1.35	-
c	0.05	0.30	-
D	1.70	1.90	1.80
E	2.60	2.80	2.70
He	3.30	3.70	3.50
L	0.35	0.85	-
<b>All Dimensions in mm</b>			

**Suggested Pad Layout**

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

**SOD123F (Standard)**



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

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