



**THE DATASHEET OF  
SDM160S1FQ-7**



## Product Summary

$V_{RRM}$ (V)	$I_o$ (A)	$V_F$ Max (V) @ +25°C	$I_R$ Max (mA) @ +25°C
60	1	0.53	0.06

## Description and Applications

The SDM160S1FQ is a single rectifier packaged in SOD123F. Offering low  $V_F$ , low power loss and high efficiency, this device is ideal for use in general rectification applications as a:

- Boost Diode
- Blocking Diode

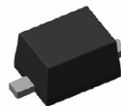
## Features and Benefits

- Guard Ring Die Construction for Transient Protection
- Low Power Loss, High Efficiency
- Interlocking Clip Design for High Surge Current Capacity
- **Lead-Free Finish; 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
- Terminals: Matte Tin Finish Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208  $\text{E3}$
- Polarity: Cathode Band
- Weight: 0.015 grams (Approximate)

SOD123F



Top View

## Ordering Information (Note 5)

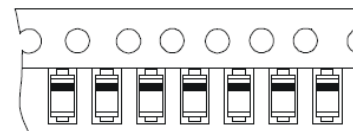
Part Number	Case	Packaging
SDM160S1FQ-7	SOD123F	3,000/Tape & Reel

- Notes:
1. EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. All applicable RoHS exemptions applied.
  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. Refer to [http://www.diodes.com/product\\_compliance\\_definitions.html](http://www.diodes.com/product_compliance_definitions.html).
  5. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

## Marking Information



D6 = Product Type Marking Code  
 YM = Date Code Marking  
 Y = Year (ex.: D = 2016)  
 M = Month (ex.: 9 = September)  
 Bar Denotes Cathode Pin



Bar Denotes Cathode Pin

### 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>		
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>	50	A

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Case (Note 6)	R <sub>θJC</sub>	40	°C/W
Typical Thermal Resistance Junction to Ambient (Note 6)	R <sub>θJA</sub>	100	
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +175	°C

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 8)	V <sub>(BR)R</sub>	60	—	—	V	I <sub>R</sub> = 1.0mA
Forward Voltage Drop	V <sub>F</sub>	—	0.32	0.37	V	I <sub>F</sub> = 0.1A, T <sub>J</sub> = +25°C
		—	0.43	0.49		I <sub>F</sub> = 0.7A, T <sub>J</sub> = +25°C
		—	0.46	0.53		I <sub>F</sub> = 1A, T <sub>J</sub> = +25°C
Leakage Current (Note 9)	I <sub>R</sub>	—	0.002	—	mA	V <sub>R</sub> = 10V, T <sub>J</sub> = +25°C
		—	0.010	0.060		V <sub>R</sub> = 60V, T <sub>J</sub> = +25°C
		—	0.40	—		V <sub>R</sub> = 60V, T <sub>J</sub> = +85°C
		—	3.7	—		V <sub>R</sub> = 60V, T <sub>J</sub> = +125°C
Total Capacitance	C <sub>T</sub>	—	48	—	pF	V <sub>R</sub> = 10V, f = 1MHz

- Notes:
6. Device mounted on FR-4 substrate, 0.4\*\*0.5", 2oz, single-sided, PC boards with 0.2\*\*0.25" copper pad.
  7. Device mounted on 1\*\*MRP FR-4 PC board, 2oz.
  8. Device mounted on 1-inch sq. copper pad, 2oz.
  9. Short duration pulse test used to minimize self-heating effect.

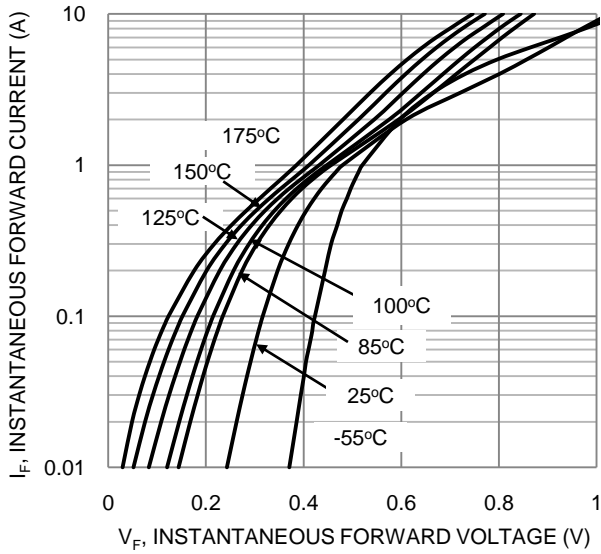


Figure 1. Typical Forward Characteristics

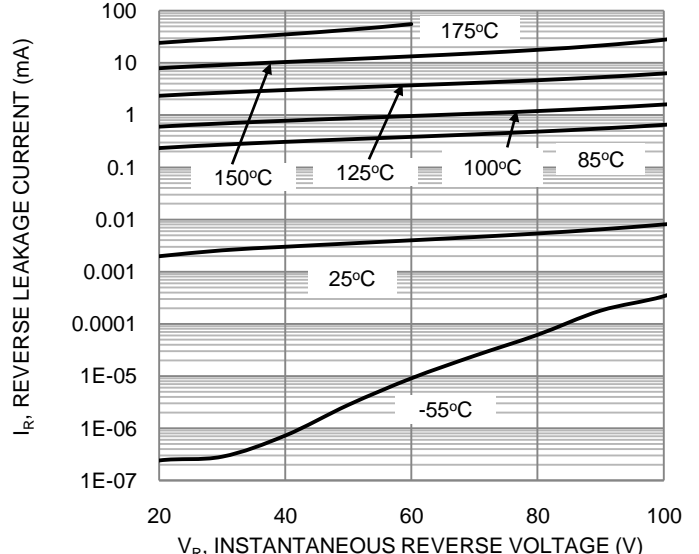


Figure 2. Typical Reverse Characteristics

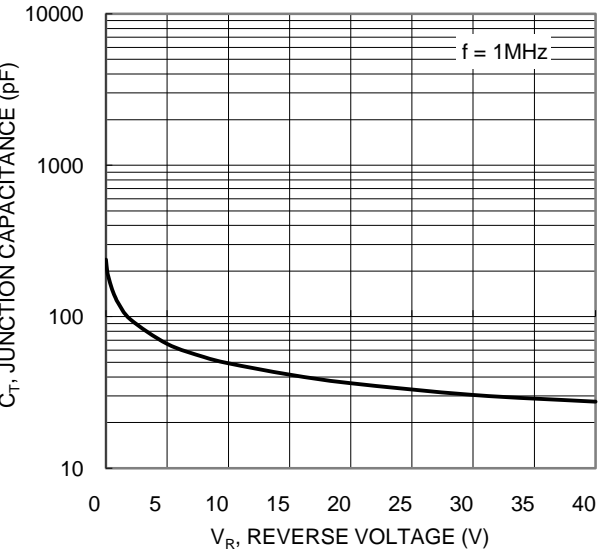


Figure 3. Typical Junction Capacitance

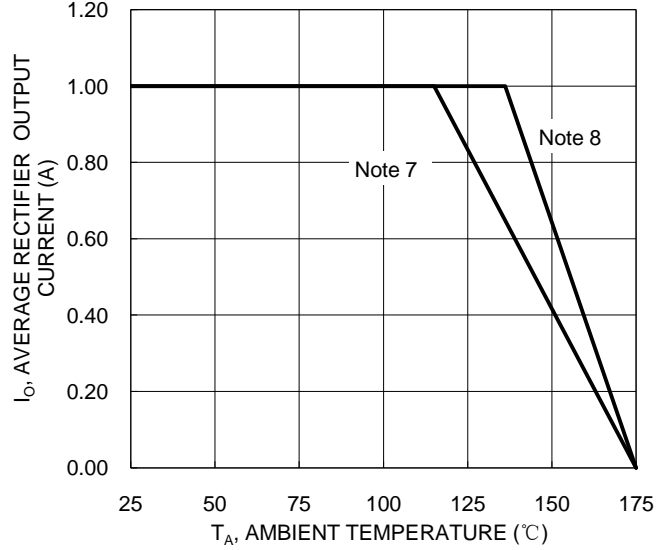


Figure 4. DC Forward Current Derating

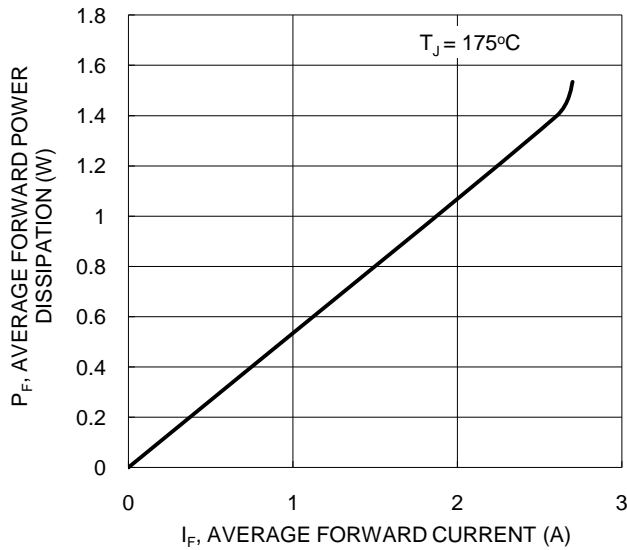
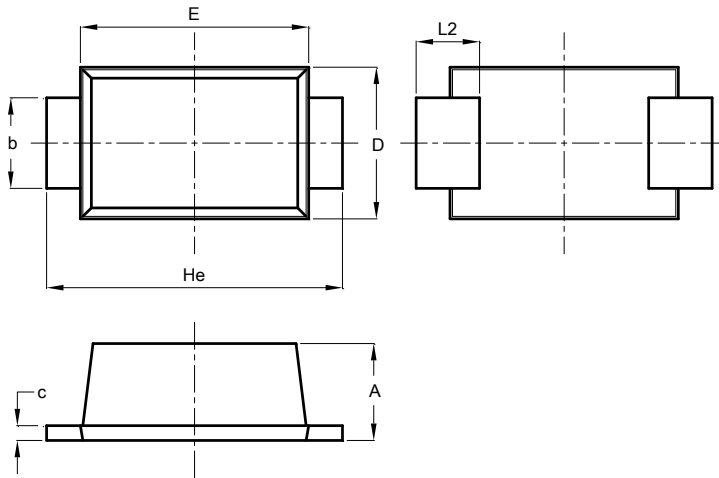


Figure 5. Forward Power Dissipation

**Package Outline Dimensions**

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

**SOD123F**

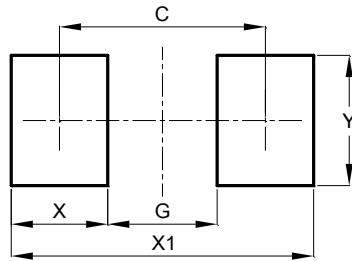


SOD123F			
Dim	Min	Max	Typ
A	0.81	1.15	-
b	0.80	1.35	-
c	0.05	0.30	-
D	1.70	1.90	1.80
E	2.60	2.80	2.70
He	3.30	3.70	3.50
L2	0.35	0.85	-
All Dimensions in mm			

**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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