

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

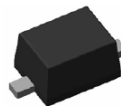
Features and Benefits

- 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 
- Polarity: Cathode Band
- Weight: 0.015 grams (Approximate)

SOD123F



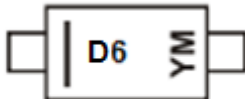
Top View

Ordering Information (Note 5)

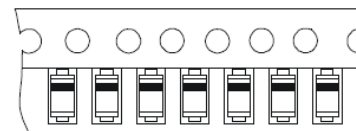
Part Number	Case	Packaging
SDM160S1FQ-7	SOD123F	3,000/Tape & Reel

- 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 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.
 5. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

Marking Information

Cathode Pin 

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_A = +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 _{RRM}	60	V
Working Peak Reverse Voltage	V _{RWM}		
DC Blocking Voltage	V _{RM}		
Average Rectified Output Current	I _O	1	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I _{FSM}	50	A

Thermal Characteristics

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

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 8)	V _{(BR)R}	60	—	—	V	I _R = 1.0mA
Forward Voltage Drop	V _F	—	0.32	0.37	V	I _F = 0.1A, T _J = +25°C
			0.43	0.49		I _F = 0.7A, T _J = +25°C
			0.46	0.53		I _F = 1A, T _J = +25°C
Leakage Current (Note 9)	I _R	—	0.002	—	mA	V _R = 10V, T _J = +25°C
			0.010	0.060		V _R = 60V, T _J = +25°C
			0.40	—		V _R = 60V, T _J = +85°C
			3.7	—		V _R = 60V, T _J = +125°C
Total Capacitance	C _T	—	48	—	pF	V _R = 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.

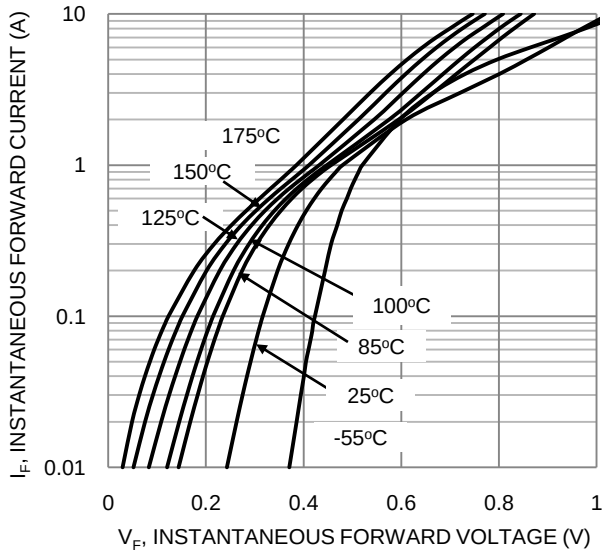


Figure 1. Typical Forward Characteristics

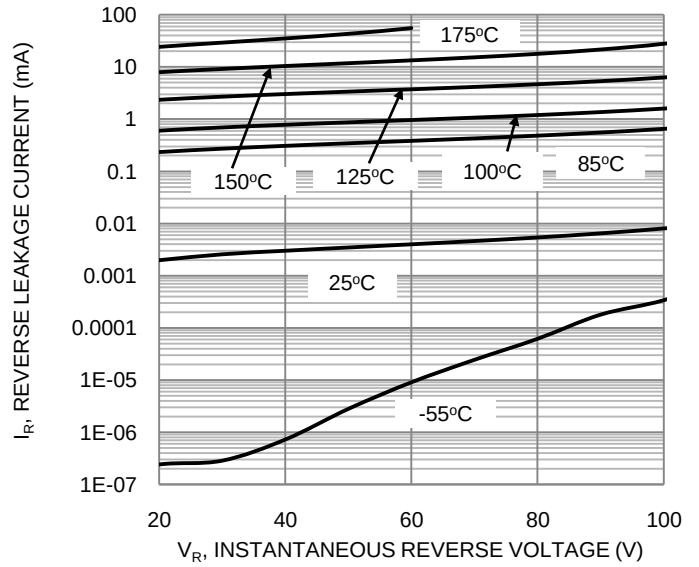


Figure 2. Typical Reverse Characteristics

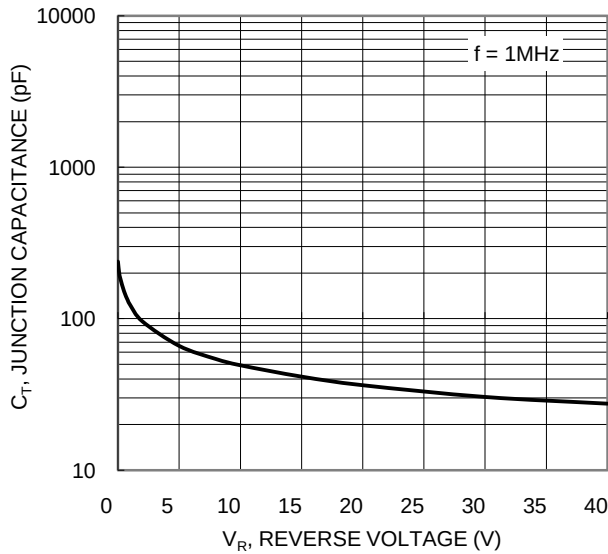


Figure 3. Typical Junction Capacitance

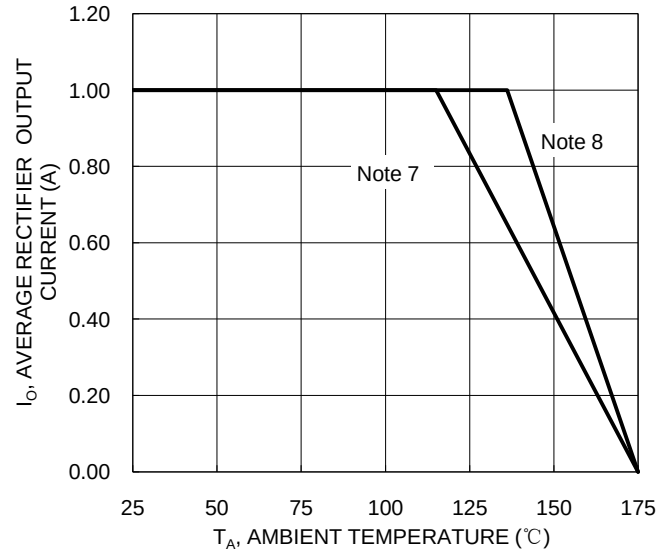


Figure 4. DC Forward Current Derating

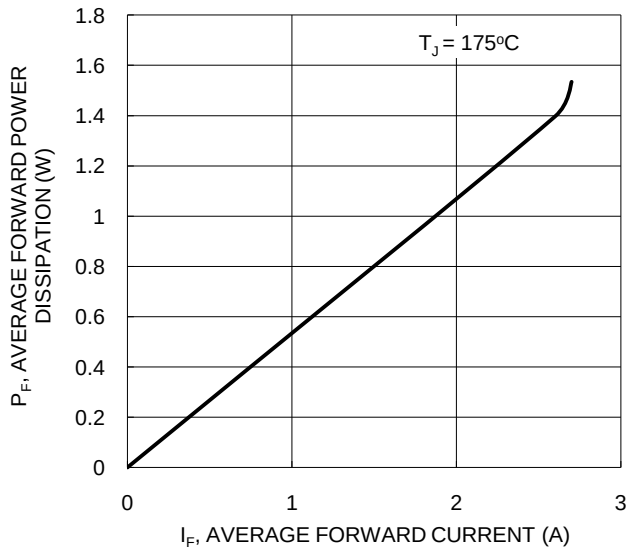
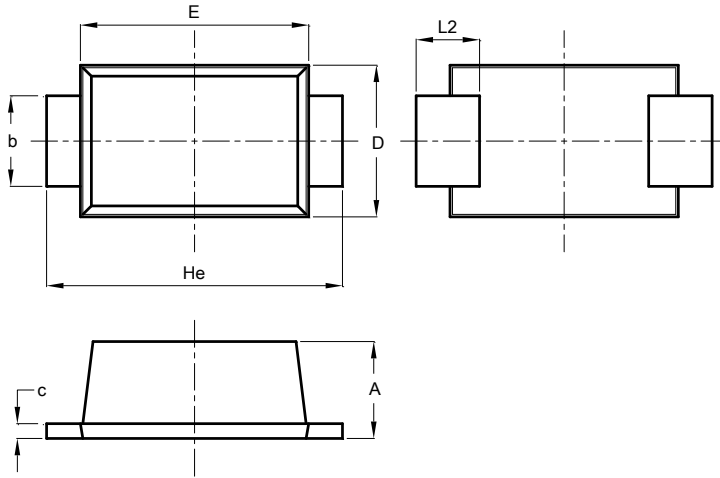


Figure 5. Forward Power Dissipation

Package Outline Dimensions

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

SOD123F

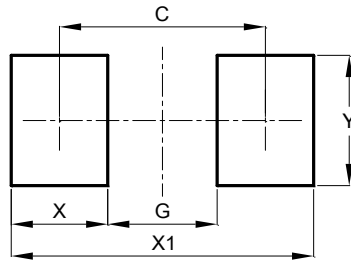


SOD123F			
Dim	Min	Max	Typ
A	0.81	1.15	-
b	0.80	1.35	-
c	0.05	0.30	-
D	1.70	1.90	1.80
E	2.60	2.80	2.70
He	3.30	3.70	3.50
L2	0.35	0.85	-
All Dimensions in mm			

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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