THE DATASHEET OF

SDM160S1F-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

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**
- **An Automotive-Compliant Part is Available Under Separate Datasheet (SDM160S1FQ)**

Description and Applications

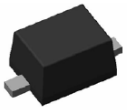
The SDM160S1F is a single rectifier packaged in SOD123F. Offering low V_F, low power loss and high efficiency, this device is ideal for use in general rectification applications as a:

- Boost Diode
- Blocking Diode

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 e3
- Polarity: Cathode Band
- Weight: 0.015 grams (Approximate)

SOD123F



Top View

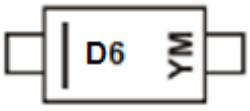
Ordering Information (Note 4)

Part Number	Case	Packaging
SDM160S1F-7	SOD123F	3,000/Tape & Reel

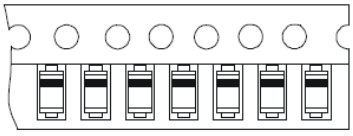
Notes:
1. EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. All applicable RoHS exemptions applied.
2. See http://www.diodes.com/quality/lead_free.html for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
4. 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 Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_{RM}	60	V
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 5)	$R_{\theta JC}$	40	°C/W
Typical Thermal Resistance Junction to Ambient (Note 5)	$R_{\theta JA}$	110	
Typical Thermal Resistance Junction to Case (Note 6)	$R_{\theta JC}$	8	
Typical Thermal Resistance Junction to Ambient (Note 6)	$R_{\theta JA}$	75	
Typical Thermal Resistance Junction to Solder point (Note 6)	$R_{\theta JS}$	18	
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 7)	$V_{(BR)R}$	60	—	—	V	I_R = 1.0mA
Forward Voltage Drop	V_F	— — —	0.32 0.43 0.46	0.37 0.49 0.53	V	I_F = 0.1A, T_J = +25°C I_F = 0.7A, T_J = +25°C I_F = 1A, T_J = +25°C
Leakage Current (Note 7)	I_R	— — — —	0.002 0.010 0.40 3.7	— 0.060 — —	mA	V_R = 10V, T_J = +25°C V_R = 60V, T_J = +25°C V_R = 60V, T_J = +85°C V_R = 60V, T_J = +125°C
Total Capacitance	C_T	—	48	—	pF	V_R = 10V, f = 1MHz

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.

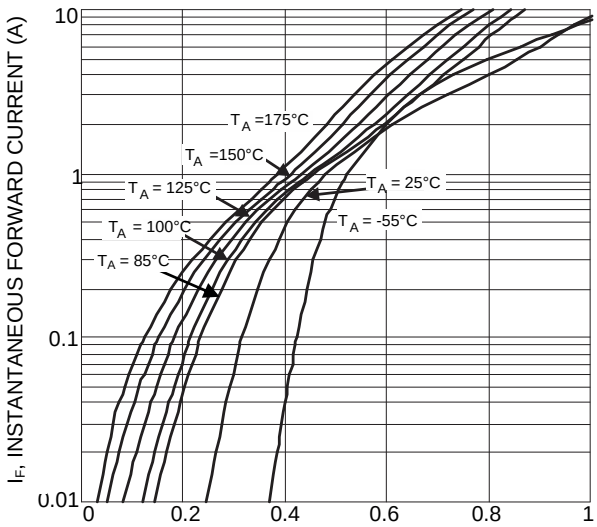


Figure 1 Typical Forward Characteristics

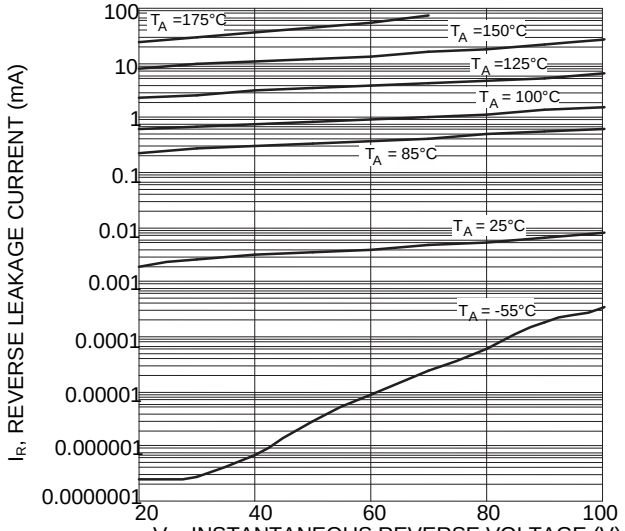


Figure 2 Typical Reverse Characteristics

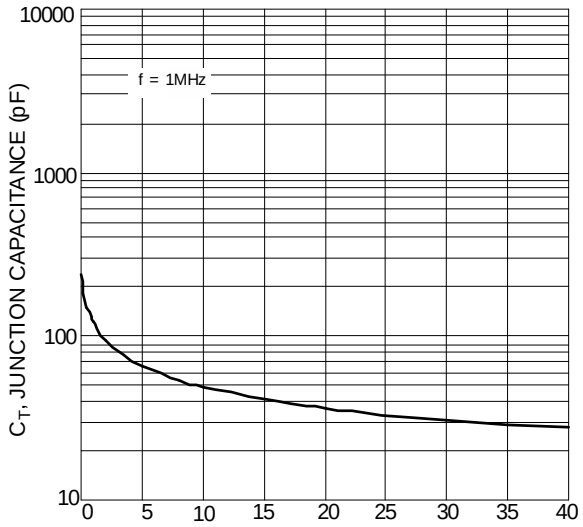


Figure 3 Typical Junction Capacitance

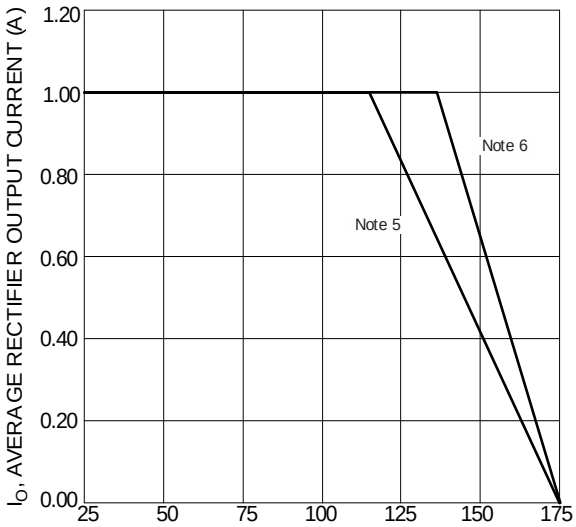


Figure 4 DC Forward Current Derating Curve

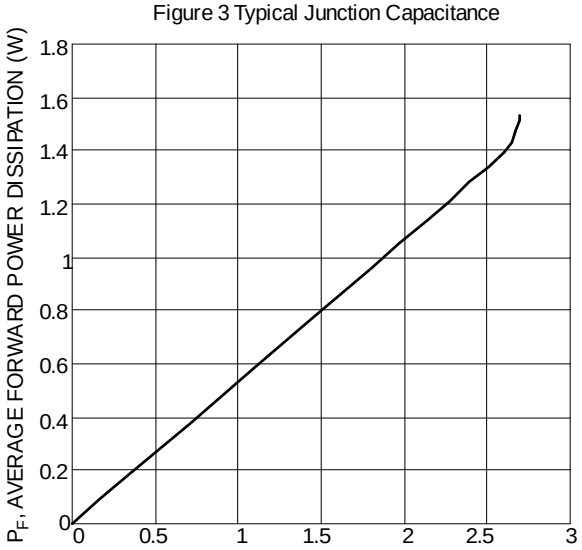
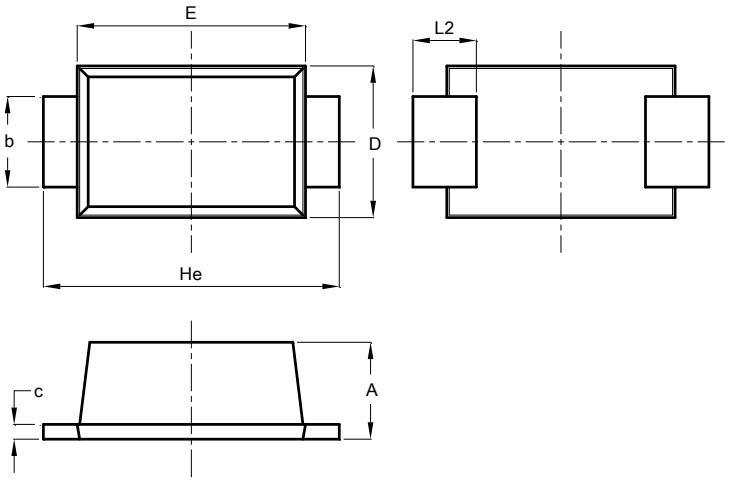


Figure 5 Forward Power Dissipation

Package Outline Dimensions

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

SOD123F

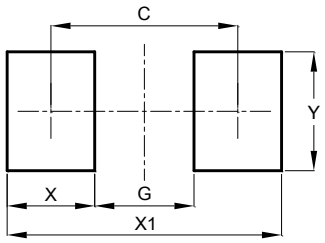


SOD123F			
Dim	**Min**	**Max**	**Typ**
A	0.81	1.15	-
b	0.80	1.35	-
c	0.05	0.30	-
D	1.70	1.90	1.80
E	2.60	2.80	2.70
He	3.30	3.70	3.50
L2	0.35	0.85	-
All Dimensions in mm			

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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