Product Summary (@T_A = +25°C)

V_{RRM} (V)	I_O (A)	V_F Max (V)	I_R Max (nA)
60	2	0.70	800

Description

The SBR2M60S1FQ is a single rectifier packaged in SOD123F, offering very low-forward voltage drop (V_F) and excellent low reverse leakage stability at high temperatures.

Features and Benefits

- Optimized for Low Leakage
- +175°C Operation Junction Temperature
- Patented Super Barrier Rectifier SBR® Technology
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **The SBR2M60S1FQ is suitable for automotive applications requiring specific change control; this part is AEC-Q101 qualified, PPAP capable, and manufactured in IATF 16949 certified facilities.**
  https://www.diodes.com/quality/product-definitions/

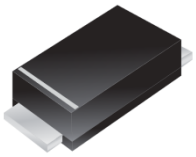
Applications

- DC-DC converters
- AC-DC rectifiers
- Reverse polarity protection
- SMPS

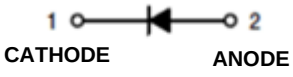
Mechanical Data

- Package: SOD123F
- Package 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: 0.016 grams (Approximate)

SOD123F



Top View



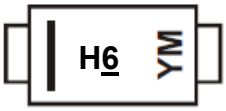
Schematic View

Ordering Information (Note 4)

Orderable Part Number	Package	Packing	
		Qty.	Carrier
SBR2M60S1FQ-7	SOD123F	3,000	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 https://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



H6 = Product Type Marking Code
YM = Date Code Marking
Y = Year (ex: M = 2025)
M = Month (ex: N = November)

Date Code Key

Year	2016	-	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Code	D	-	M	N	P	R	S	T	U	V	W	X

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

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Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM}	60	V
Average Rectified Output Current	I_O	2	A
Non-Repetitive Peak Forward Surge Current 8.3ms	I_{FSM}	30	A
Power Dissipation	P_D	1.3	W

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Ambient (Note 5)	$R_{\theta JA}$	115	°C/W
Typical Thermal Resistance Junction to Case (Note 5)	$R_{\theta JC}$	40	°C/W
Operating and Storage Temperature Range (Note 6)	T_J, T_{STG}	-55 to +175	°C

Notes: 5. Device mounted on FR-4 substrate, 0.4"*0.5", 2oz, single-sided, PC boards with 0.2"*0.25" copper pad.
6. T_J = +175°C for operation when reverse dissipation does not lead to reverse leakage runaway. See Figure 4, 5.

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 (Note 7)	V_F	— — — — — —	385 460 520 600 455 535	— — 600 700 — —	mV	I_F = 0.1A, T_J = +25°C I_F = 0.5A, T_J = +25°C I_F = 1A, T_J = +25°C I_F = 2A, T_J = +25°C I_F = 1A, T_J = +125°C I_F = 2A, T_J = +125°C
Leakage Current (Note 7)	I_R	— — — — —	85 130 200 45 60	— — 800 — 350	nA nA nA µA µA	V_R = 10V, T_J = +25°C V_R = 40V, T_J = +25°C V_R = 60V, T_J = +25°C V_R = 10V, T_J = +125°C V_R = 60V, T_J = +125°C
Junction Capacitance	C_J	— — —	120 80 35	— — —	pF	V_R = 4V, T_J = +25°C, f = 1MHz V_R = 10V, T_J = +25°C, f = 1MHz V_R = 60V, T_J = +25°C, f = 1MHz
Reverse-Recovery Time	t_{RR}	—	12	—	ns	I_F = 0.5A, I_R = 1A, I_{RR} = 0.25A, RG1

Note: 7. Short duration pulse test used to minimize self-heating effect.

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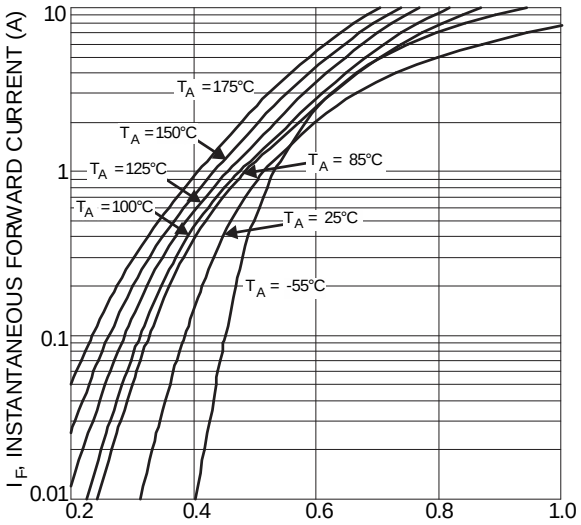


Figure 1 Typical Forward Characteristics

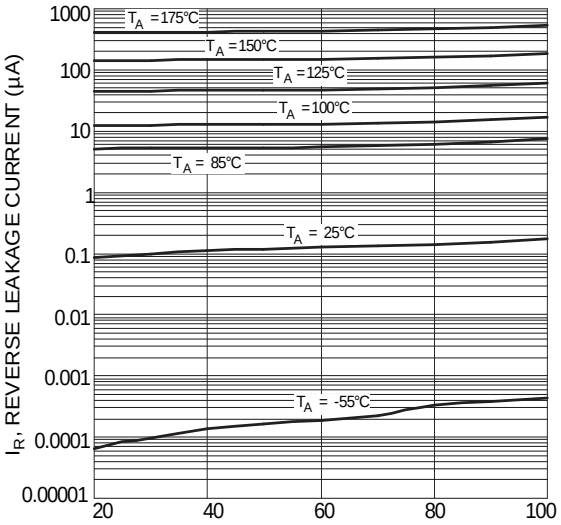


Figure 2 Typical Reverse Characteristics

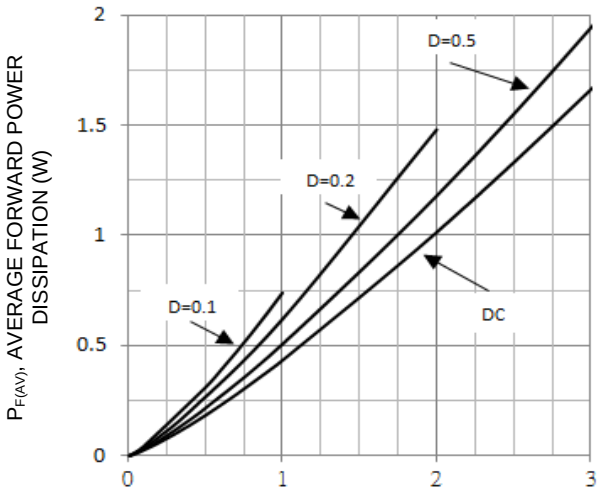


Figure 3 Forward Power Dissipation

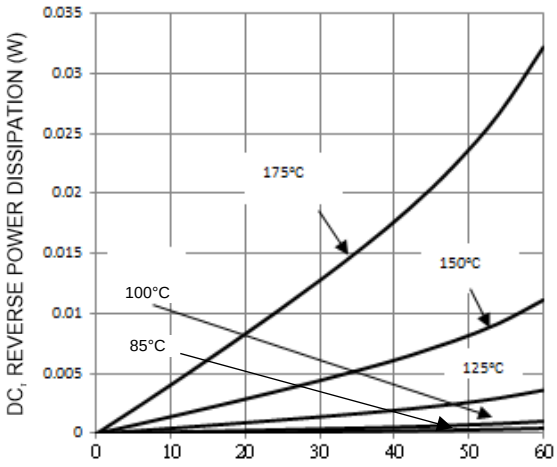


Figure 4 DC Reverse Power Dissipation

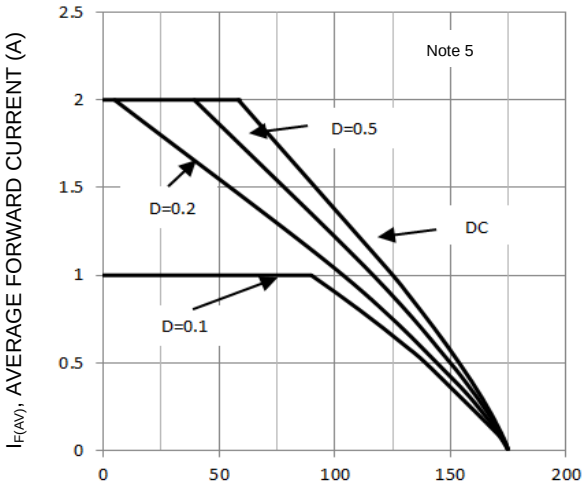


Figure 5 Forward Current Derating

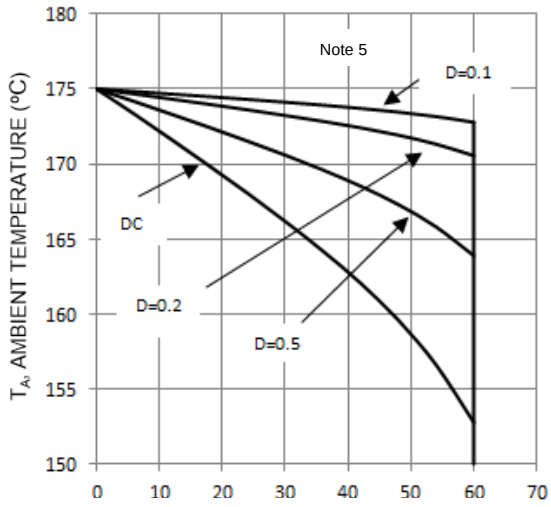


Figure 6 DC Reverse Safe Operating Area

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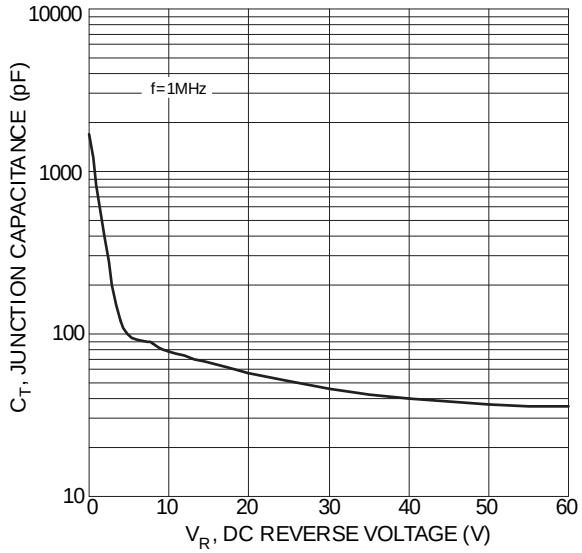


Figure 7 Total Capacitance vs. Reverse Voltage

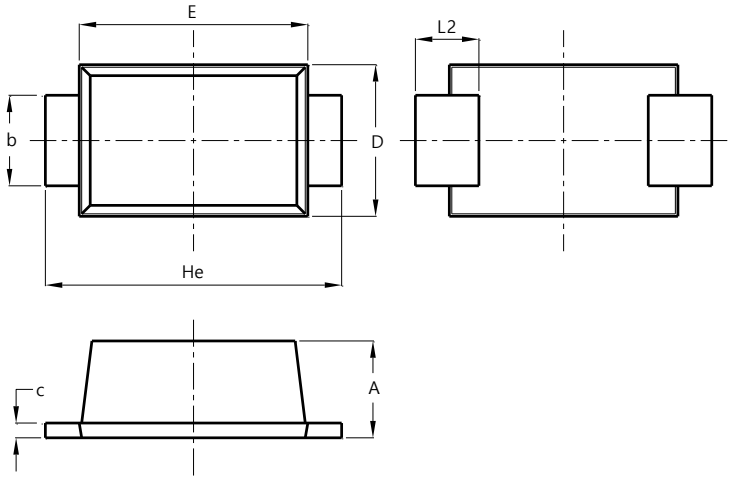
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Package Outline Dimensions

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

SOD123F

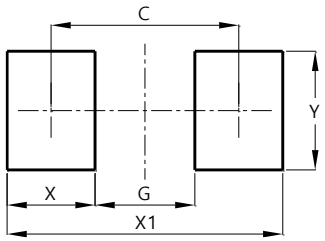


SOD123F			
Dim	**Min**	**Max**	**Typ**
A	0.81	1.15	-
b	0.80	1.05	-
c	0.05	0.30	-
D	1.70	1.90	1.80
E	2.60	2.80	2.70
He	3.30	3.70	3.50
L2	0.35	0.85	-
All Dimensions in mm			

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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