Product Summary

V_{RRM} (V)	I_O (A)	V_F Max (V) @ +25°C	I_R Max (mA) @ +25°C
60	2	0.51	0.15

Features and Benefits

- Optimized for Ultra-Low-Forward Voltage Drop
- +175°C Operation Junction Temperature
- Patented Super Barrier Rectifier Technology (SBR®)
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **The SBR2U60S1FQ is suitable for automotive applications requiring specific change control; this part is AEC-Q101 qualified, PPAP capable, and manufactured in IATF16949 certified facilities.**
  https://www.diodes.com/quality/product-definitions/

Description and Applications

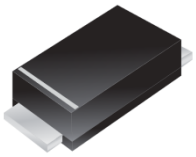
The SBR2U60S1FQ is a single rectifier packaged in SOD123F. Offering ultra-low V_F, low power loss, and high efficiency, this device is ideal for use in general rectification and applications as:

- DC-DC conversion
- AC-DC rectification
- Reverse-polarity protections
- SMPS

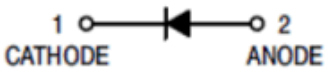
Mechanical Data

- 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: 0.015 grams (Approximate)

SOD123F



Top View



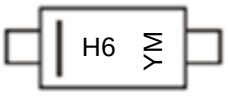
Schematic View

Ordering Information (Note 4)

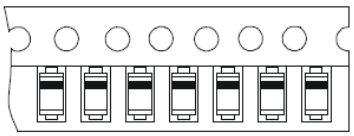
Orderable Part Number	Package	Packing	
		Qty.	Carrier
SBR2U60S1FQ-7	SOD123F	3000	Tape & Reel

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 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: 9 = September)
Bar = Cathode



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

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	2	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine Wave Superimposed on Rated Load	I_{FSM}	35	A
Power Dissipation	P_{tot}	1.3	W

ESD Ratings

Characteristic	Symbol	Ratings	Unit
Human Body Mode ESD Protection	ESD HBM	4000	V
Machine Model ESD Protection	ESD MM	400	V
Charged Device Model	ESD CDM	1	kV

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Ambient (Note 5) Typical Thermal Resistance Junction to Case (Note 5)	$R_{\theta JA}$ $R_{\theta JC}$	115 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.

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	— — — — —	0.25 0.32 0.37 0.44 0.42	— — 0.46 0.51 —	V	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 = 2A, T_J = +125°C
Leakage Current (Note 7)	I_R	— — —	15 50 11	— 150 25	µA µA mA	V_R = 10V, T_J = +25°C V_R = 60V, T_J = +25°C V_R = 60V, T_J = +125°C
Total Capacitance	C_T	— — —	125 75 35	— — —	pF	V_R = 4V, f = 1MHz V_R = 10V, f = 1MHz V_R = 60V, f = 1MHz
Switching Speed	t_{RR}	—	12.3	—	ns	I_F = 0.5A, I_R = 1.0A I_{RR} = 0.25A, T_A = +25°C

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

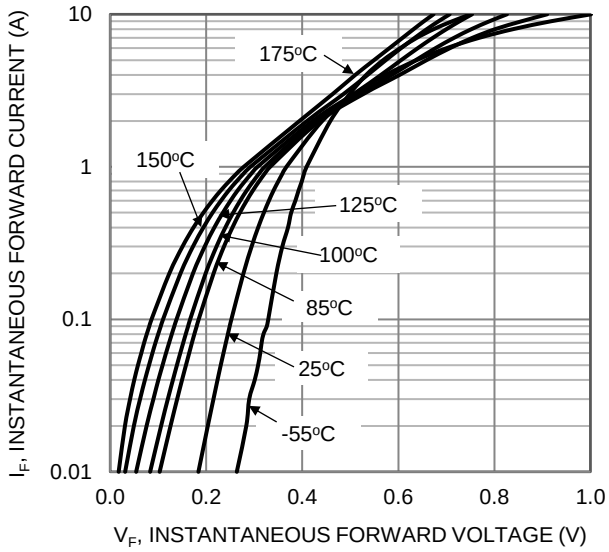


Figure 1. Typical Forward Characteristics

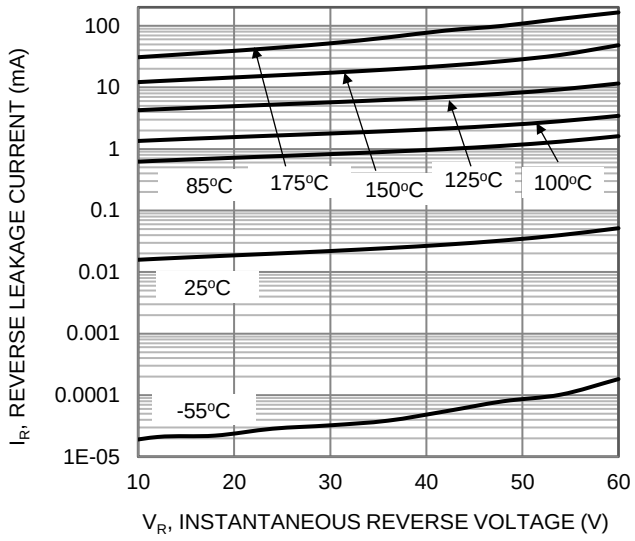


Figure 2. Typical Reverse Characteristics

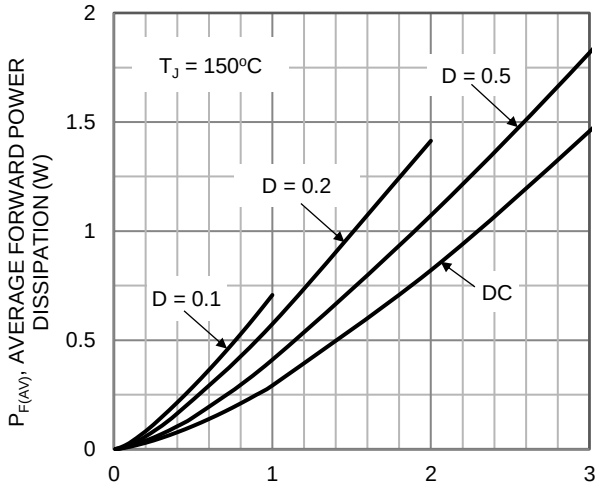


Figure 3. Forward Power Dissipation

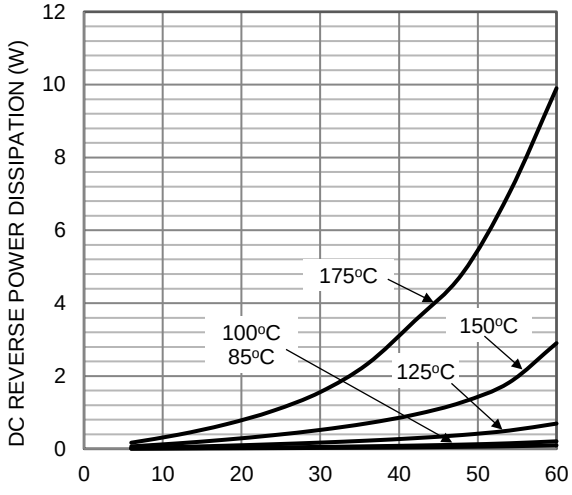


Figure 4. DC Reverse Power Dissipation

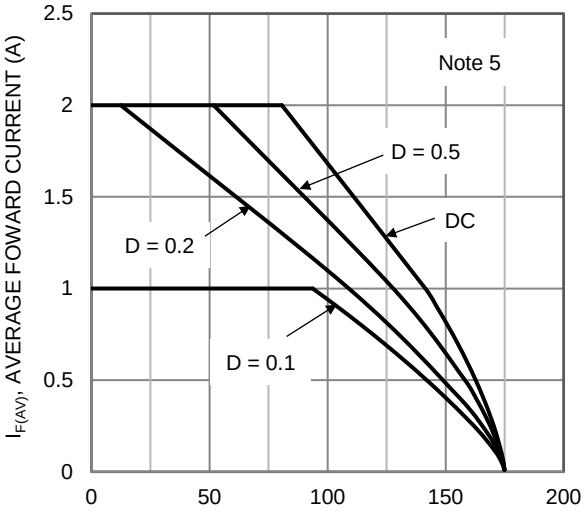


Figure 5. Forward Current Derating

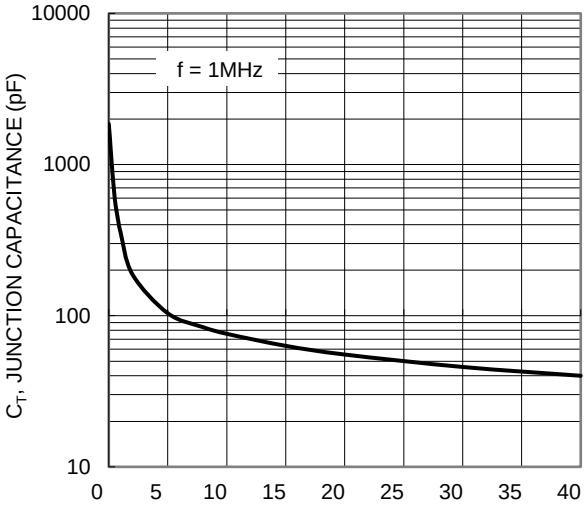


Figure 6. Typical Junction Capacitance

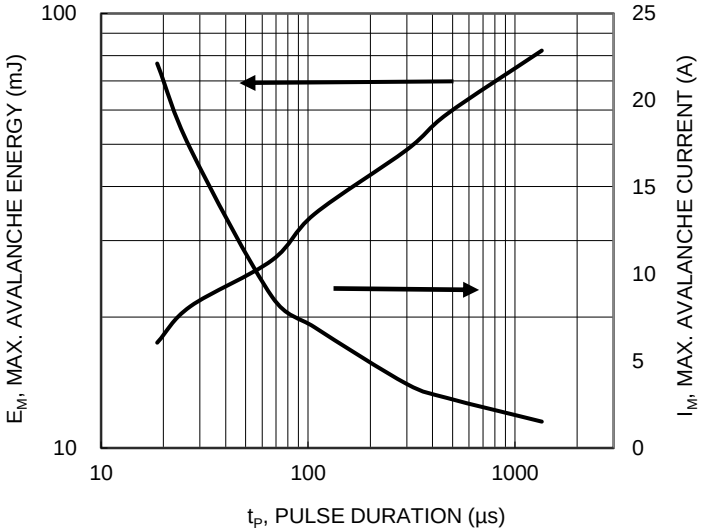


Figure 7. Single Pulse Max. Avalanche Energy and Current

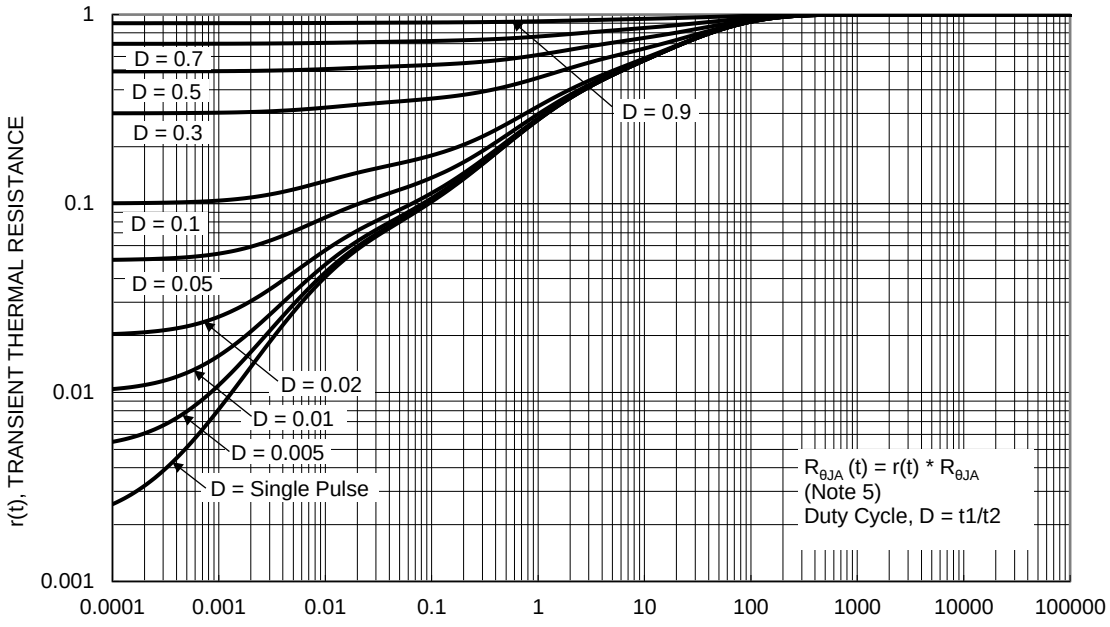
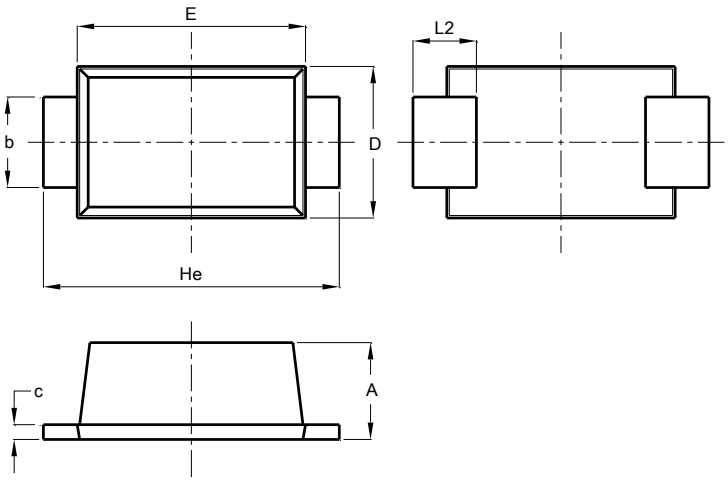


Figure 8. Transient Thermal Resistance

Package Outline Dimensions

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

SOD123F

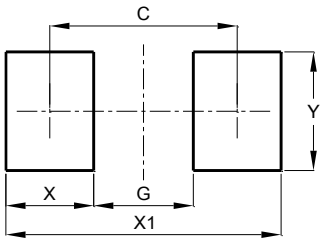


SOD123F			
Dim	**Min**	**Max**	**Typ**
A	0.81	1.15	-
b	0.80	1.05	-
c	0.05	0.30	-
D	1.70	1.90	1.80
E	2.60	2.80	2.70
He	3.30	3.70	3.50
L2	0.35	0.85	-
All Dimensions in mm			

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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