

Product Summary (@ T_A = +25°C)

V _{RRM} (V)	I _O (A)	V _F (MAX) (V)	I _R (MAX) (μA)
600	1	1.7	5

Description

The SF1JWF is a rectifier packaged in the SOD123F package and is suited as a boost diode in power factor correction circuitry. For use in secondary rectification and freewheeling for super-fast switching speed AC-AC and DC-DC converters in high-temperature conditions for consumer applications.

Applications

- Flat panel displays
- Switching power supplies/chargers
- LED Lighting
- Freewheeling diodes

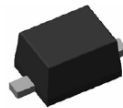
Features and Benefits

- Soft, Super-Fast Switching Capability for High Efficiency
- Low Leakage Current
- Glass Passivated for High Reliability
- Small Form Factor Package
- High Reverse Breakdown Voltage V_{RRM}
- Low-Forward Voltage, Low Power Loss
- Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- Halogen and Antimony Free. "Green" Device (Note 3)**
- For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/104/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please [contact us](mailto:contact@diodes.com) or your local Diodes representative. <https://www.diodes.com/quality/product-definitions/>**

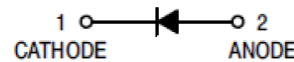
Mechanical Data

- 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
- Polarity: Cathode Band
- Weight: 0.016 grams (Approximate)

SOD123F



Top View



Schematic View

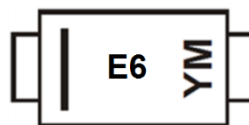
Ordering Information (Note 4)

Orderable Part Number	Package	Packing	
		Qty.	Carrier
SF1JWF-7	SOD123F	3,000	Tape & Reel

- Notes:
- EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
 - 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.
 - Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
 - For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

Marking Information

SOD123F



E6 = Product Type Marking Code
 YM = Date Code Marking
 Y = Year (ex: N = 2026)
 M = Month (ex: D = December)

Date Code Key

Year	2017	-	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Code	E	-	N	P	R	S	T	U	V	W	X	Y
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}	600	V
Working Peak Reverse Voltage	V _{RWM}		
DC Blocking Voltage	V _R		
RMS Reverse Voltage	V _{R(RMS)}	420	V
Average Rectified Output Current @T _A = +25°C	I _O	1	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine Wave Superimposed on Rated Load	I _{FSM}	30	A

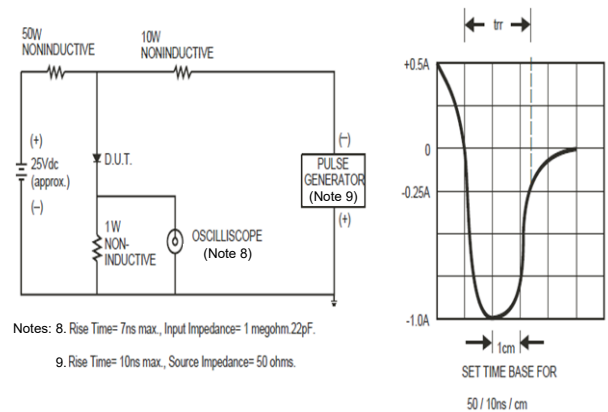
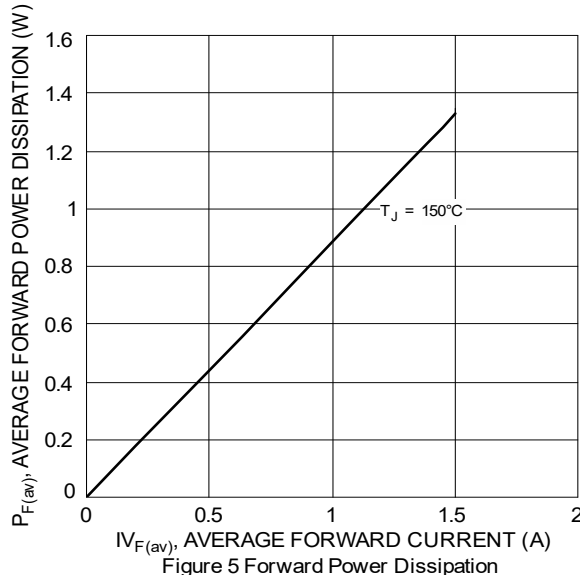
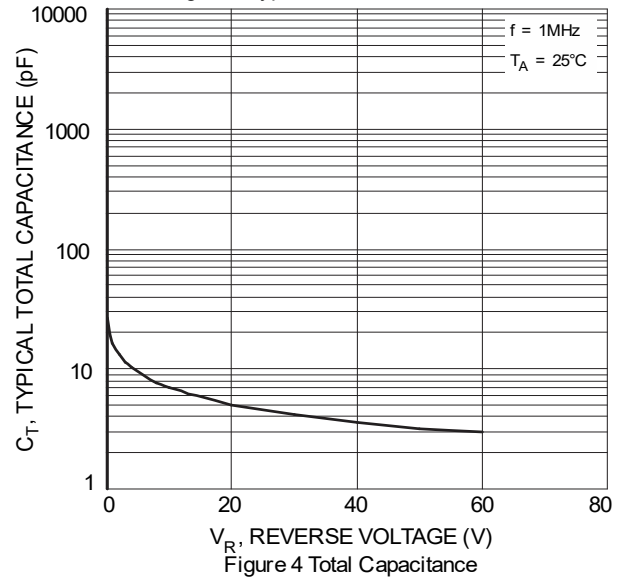
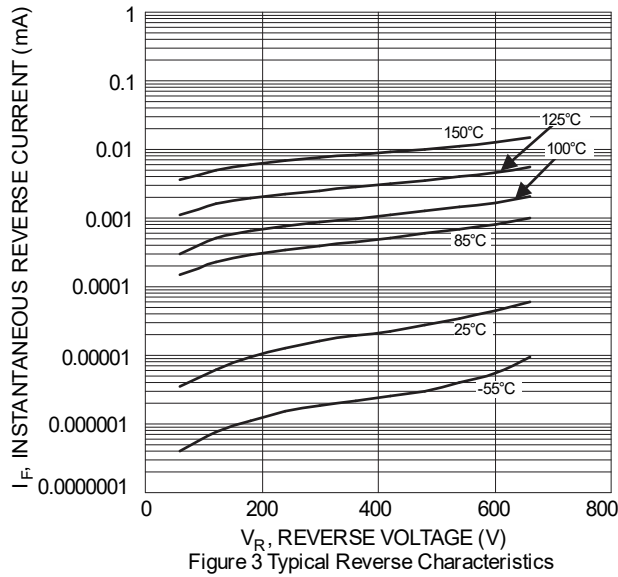
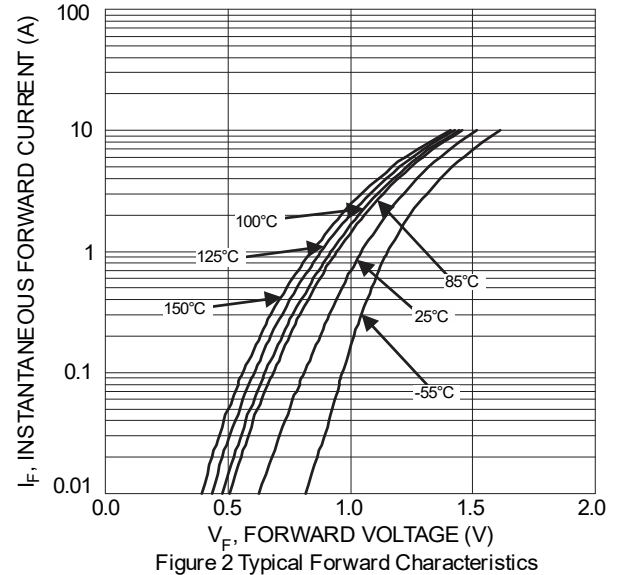
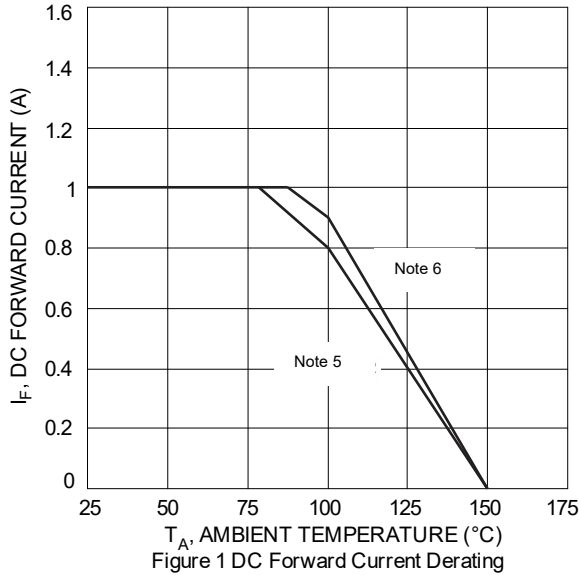
Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Case	R _{θJC}	58	°C/W
Typical Thermal Resistance Junction to Ambient (Note 6)	R _{θJA}	95	°C/W
Power Dissipation (Note 6)	P _D	1.7	W
Operating and Storage Temperature Range	T _J , T _{STG}	-65 to +150	°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}	600	—	—	V	I _R = 10μA
Forward Voltage	V _F	—	1.4 1.1	1.7 —	V	I _F = 1A, T _J = +25°C I _F = 1A, T _J = +125°C
Reverse Leakage Current (Note 7)	I _R	—	0.3 0.2	5 —	μA mA	V _R = 600V, T _J = +25°C V _R = 600V, T _J = +125°C
Reverse-Recovery Time	t _{RR}	—	30	35	ns	I _F = 0.5A, I _R = 1.0A, I _{RR} = 0.25A
Total Capacitance	C _T	—	7	—	pF	V _R = 4.0V _{DC} , f = 1MHz

Notes: 5. Device mounted on FR-4 substrate, 0.4" × 0.5", 2oz, single-sided, PCBs with 0.2" × 0.25" copper pad.
6. Device mounted on FR-4 substrate, 25.4mm × 25.4mm, 2oz, single-sided, PCBs with 2.1mm × 2.1mm copper pad.
7. Short duration pulse test used to minimize self-heating effect.

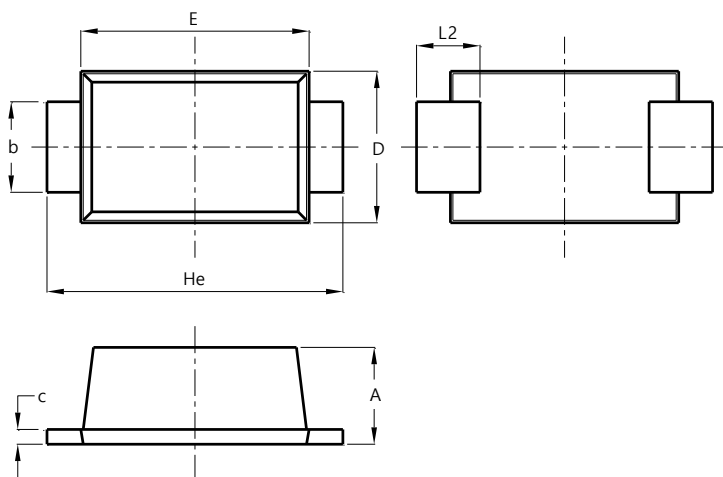


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Package Outline Dimensions

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

SOD123F

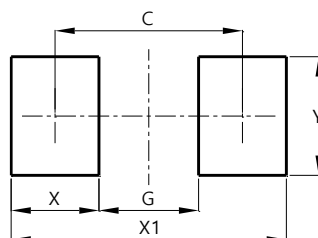


SOD123F			
Dim	Min	Max	Typ
A	0.81	1.15	-
b	0.80	1.05	-
c	0.05	0.30	-
D	1.70	1.90	1.80
E	2.60	2.80	2.70
He	3.30	3.70	3.50
L2	0.35	0.85	-
All Dimensions in mm			

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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