

Product Summary (@ $T_A = +25^\circ\text{C}$)

V_{RRM} (V)	I_o (A)	$V_F(\text{MAX})$ (mV)	$I_R(\text{MAX})$ (μA)
40	1.0	450	50

Description and Applications

The device is a single rectifier offering low V_F and excellent high temperature stability. This device is ideal for use in general rectification applications:

- For Use in Low Voltage, High Frequency Inverters
- Free Wheeling
- Polarity Protection Application

Features and Benefits

- High Surge Capability
- Low Power Loss, High Efficiency
- High Current Capability and Low Forward Voltage Drop
- Guard Ring Die Construction for Transient Protection
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- Halogen and Antimony Free. "Green" Device (Note 3)

Mechanical Data

- Case: SOD123
- Plastic Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Polarity: Cathode Band
- Leads: Matte Tin Finish Annealed over Alloy 42 Leadframe (Lead Free Plating) Solderable per MIL-STD-202, Method 208(e3)
- Weight: 0.01 grams (Approximate)



Top View

Ordering Information (Note 4)

Part Number	Case	Packaging
1N5819HW-7-F	SOD123	3000/Tape & Reel

Notes:

1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
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


SL = Product Type Marking Code

YM = Date Code Marking

Y = Year (ex: D = 2016)

M = Month (ex: 9 = September)

Date Code Key

Year	2011	2012	2013	2014	2015	2016	2017					
Code	Y	Z	A	B	C	D	E					
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 capacitance load, derate current by 20%.

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	V _{RRM}		
Working Peak Reverse Voltage @ I _R = 1.0mA	V _{RWM}	40	V
DC Blocking Voltage	V _R		
Average Rectified Output Current	I _O	1.0	A
Repetitive Peak Forward Current t _p ≤ 1ms, δ ≤ 0.5	I _{FRM}	1.5	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I _{FSM}	25	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P _D	450	mW
Typical Thermal Resistance Junction to Ambient (Note 5)	R _{θJA}	222	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-65 to +125	°C

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 6)	V _{(BR)R}	40	—	—	V	I _R = 1.0mA
Forward Voltage	V _F	—	—	0.320	V	I _F = 0.1A
		—	—	0.450		I _F = 1.0A
		—	—	0.750		I _F = 3.0A
Reverse Leakage Current (Note 6)	I _R	—	—	1.0	mA	V _R = 40V, T _A = +25°C
		—	—	10	mA	V _R = 40V, T _A = +100°C
		—	10	50	μA	V _R = 4V, T _A = +25°C
		—	1	2	mA	V _R = 4V, T _A = +100°C
		—	15	75	μA	V _R = 6V, T _A = +25°C
		—	1.5	3	mA	V _R = 6V, T _A = +100°C
Total Capacitance	C _T	—	50	60	pF	V _R = 4V, f = 1.0MHz

Notes: 5. Device mounted on FR-4 PC Board, 2"x2", 2 oz. copper, single sided, cathode pad dimensions 0.75"x1.0", anode pad dimensions 0.25"x1.0".
 6. Short duration pulse test used to minimize self-heating effect.

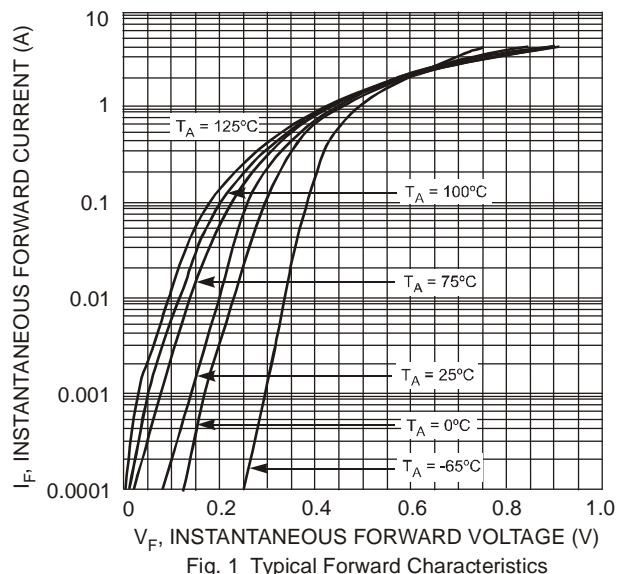


Fig. 1 Typical Forward Characteristics

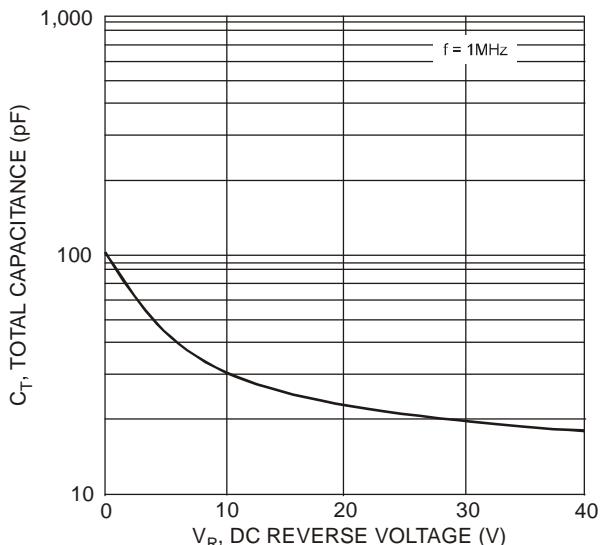


Fig. 3 Total Capacitance vs. Reverse Voltage

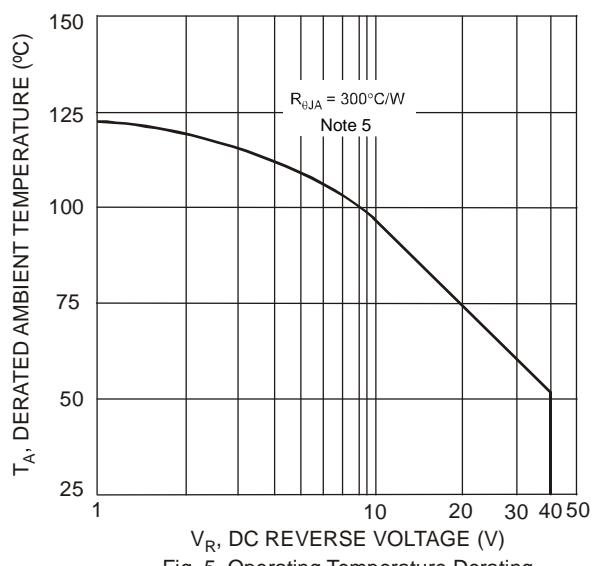


Fig. 5 Operating Temperature Derating

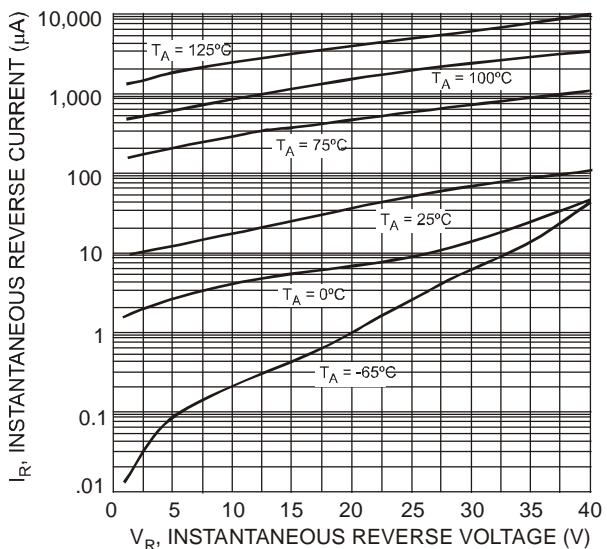


Fig. 2 Typical Reverse Characteristics

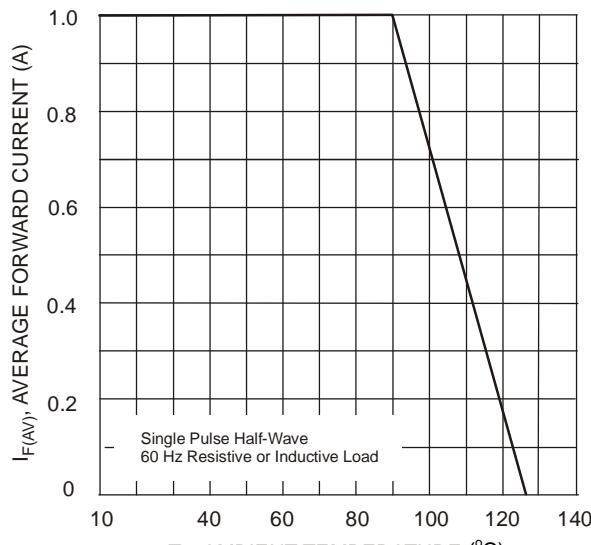


Fig. 4 Forward Current Derating Curve

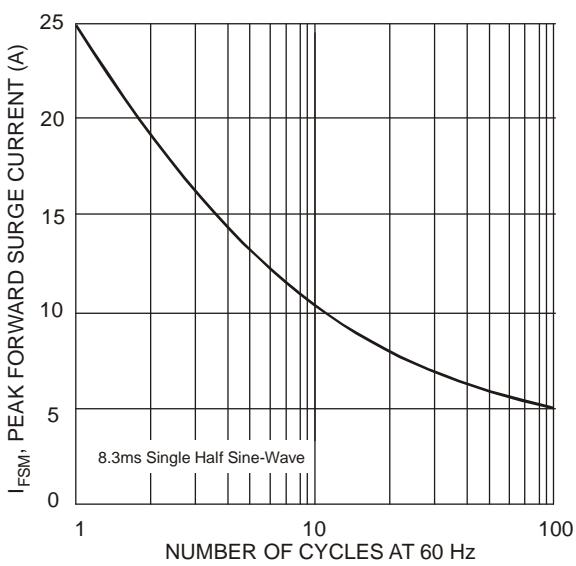
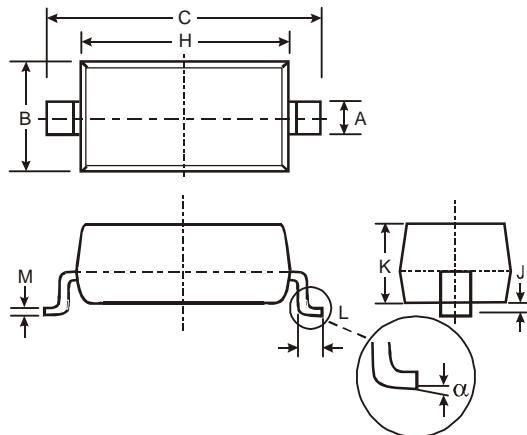


Fig. 6 Maximum Non-Repetitive Peak Forward Surge Current

Package Outline Dimensions

Please see AP02001 at http://www.diodes.com/_files/datasheets/ap02001.pdf for the latest version.

SOD123



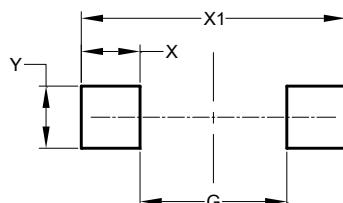
SOD123		
Dim	Min	Max
A	0.55	Typ
B	1.40	1.70
C	3.55	3.85
H	2.55	2.85
J	0.00	0.10
K	1.00	1.35
L	0.25	0.40
M	0.10	0.15
α	0	8°

All Dimensions in mm

Suggested Pad Layout

Please see AP02001 at http://www.diodes.com/_files/datasheets/ap02001.pdf for the latest version.

SOD123



Dimensions	Value(in mm)
G	2.250
X	0.900
X1	4.050
Y	0.950

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