

Product Summary

V _{RRM} (V)	I ₀ (A)	V _{F(MAX)} (V) @ +25°C	I _{R(MAX)} (mA) +25°C
40	1	0.51	0.5

Description and Applications

The 1N5819HW1 is a single rectifier packaged in SOD123F. Offering low V_F and excellent high temperature stability this device is ideal for use in general rectification applications as a:

- Boost Diode
- Blocking Diode

Features and Benefits

- Low forward voltage (V_F) minimizes conduction losses and improving efficiency
- Reduced high temperature reverse leakage; Increased reliability against thermal runaway failure in high temperature operation
- Lead-Free Finish; RoHS Compliant (Notes 1 & 2)
- Halogen and Antimony Free. "Green" Device (Note 3)

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: 0.0016 grams (Approximate)

SOD123F



Top View



Bottom View

Ordering Information (Note 4)

Part Number	Case	Packaging
1N5819HW1-7-F	SOD123F	3000/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



SL = Product Type Marking Code
 YM = Date Code Marking
 Y = Year (ex.: C = 2015)
 M = Month (ex: 9 = September)

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

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Maximum Ratings (@ $T_A = +25^\circ\text{C}$, 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	V_{RWM}	40	V
DC Blocking Voltage	V_{RM}		
RMS Reverse Voltage	$V_{R(\text{RMS})}$	28	V
Average Rectified Output Current	I_O	1	A
Non-Repetitive Peak Forward Surge Current 8.3ms	I_{FSM}	30	A
Single Half Sine-Wave Superimposed on Rated Load			

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance, Junction to Ambient (Note 5)	$R_{\theta JA}$	135	$^\circ\text{C}/\text{W}$
Typical Thermal Resistance, Junction to Case (Note 5)	$R_{\theta JC}$	20	$^\circ\text{C}/\text{W}$
Typical Thermal Resistance, Junction to Ambient (Note 6)	$R_{\theta JA}$	75	$^\circ\text{C}/\text{W}$
Typical Thermal Resistance, Junction to Case (Note 6)	$R_{\theta JC}$	12	$^\circ\text{C}/\text{W}$
Operating Junction Temperature Range	T_J	-55 to +125	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55 to +150	$^\circ\text{C}$

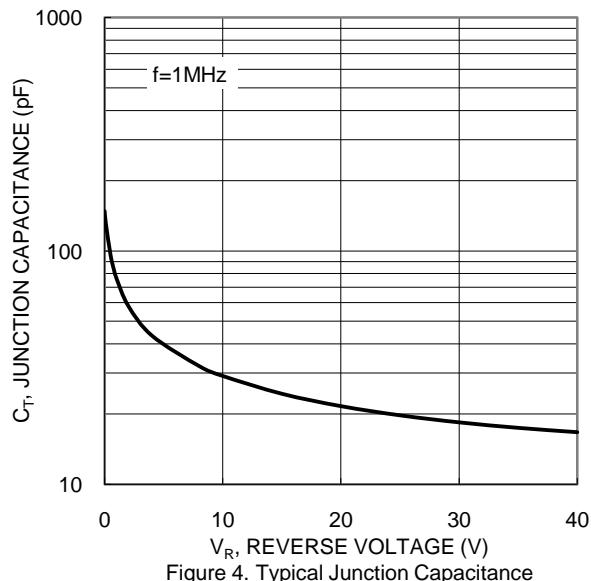
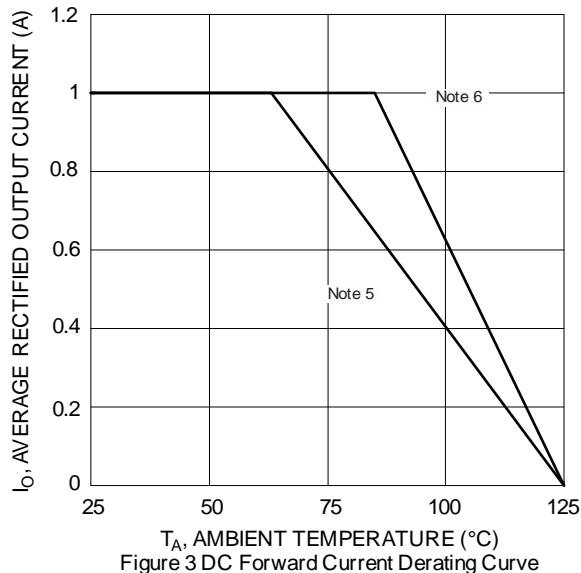
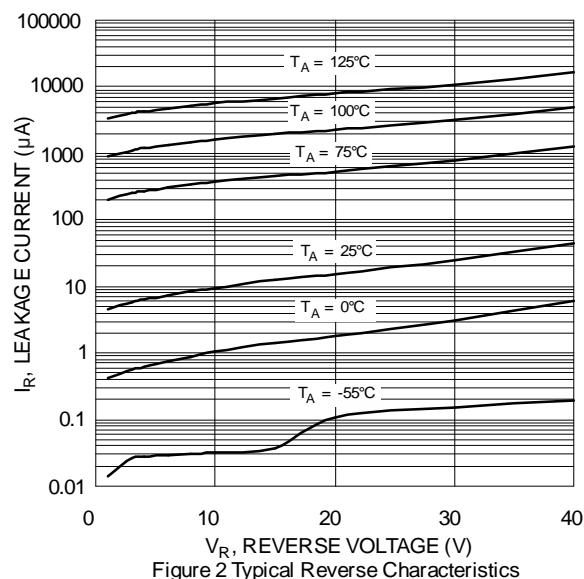
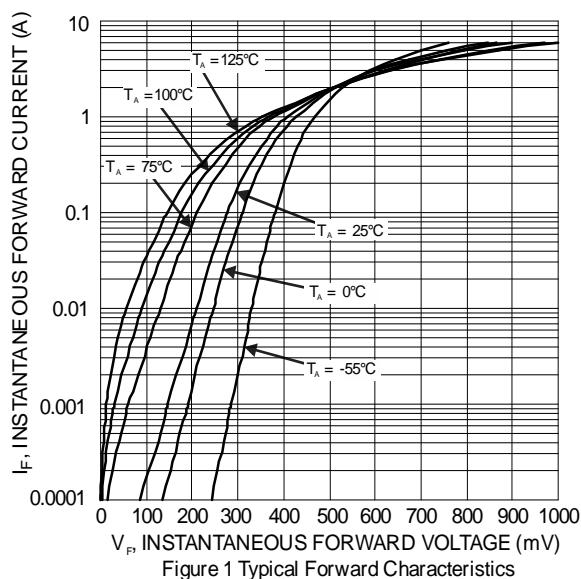
Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 6)	$V_{(BR)R}$	40	—	—	V	$I_R = 1.0\text{mA}$
Forward Voltage Drop	V_F	—	—	0.35	V	$I_F = 0.1\text{A}, T_J = +25^\circ\text{C}$
		—	0.44	0.51		$I_F = 1\text{A}, T_J = +25^\circ\text{C}$
		—	0.36	—		$I_F = 1\text{A}, T_J = +125^\circ\text{C}$
		—	0.64	0.75		$I_F = 3\text{A}, T_J = +25^\circ\text{C}$
		—	0.63	—		$I_F = 3\text{A}, T_J = +125^\circ\text{C}$
Leakage Current (Note 7)	I_R	—	0.008	—	mA	$V_R = 4\text{V}, T_J = +25^\circ\text{C}$
		—	0.010	0.075		$V_R = 6\text{V}, T_J = +25^\circ\text{C}$
		—	0.050	0.5		$V_R = 40\text{V}, T_J = +25^\circ\text{C}$
		—	—	50		$V_R = 40\text{V}, T_J = +125^\circ\text{C}$
Reverse Recovery Time	t_{RR}	—	15	—	ns	$I_F = 10\text{mA}, I_{RRM} = 0.1I_R, T_A = +25^\circ\text{C}$
Total Capacitance	C_T	—	30	—	pF	$V_R = 10\text{V}, f = 1\text{MHz}$

Notes: 5. Device mounted on 1 x MRP FR-4 PC board, 2oz.

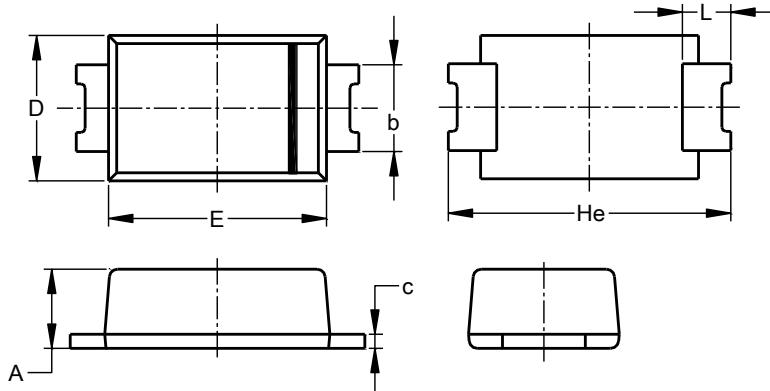
6. Device mounted on 1inch sq. copper pad, 2oz.

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



Package Outline Dimensions

Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.

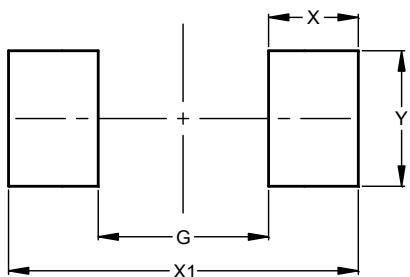


SOD123F (Type B)			
Dim	Min	Max	Typ
A	0.81	1.15	--
b	0.80	1.35	--
c	0.05	0.30	--
D	1.70	1.90	1.80
E	2.60	2.80	2.70
He	3.30	3.70	3.50
L	0.35	0.85	--

All Dimensions in mm

Suggested Pad Layout

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



Dimensions	Value (in mm)
G	1.90
X	1.00
X1	3.90
Y	1.50

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