1A SBR®
SUPER BARRIER RECTIFIER

Product Summary

V_{RRM} (V)	I_O (A)	$V_{F(MAX)}$ (V)@ +25°C	$I_{R(MAX)}$ (mA) +25°C
40	1	0.51	0.5

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)**

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

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

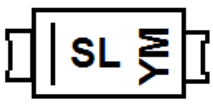
Bottom View

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

SBR is a registered trademark of Diodes Incorporated.

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 Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_{RM}	40	V
RMS Reverse Voltage	$V_{R(RMS)}$	28	V
Average Rectified Output Current	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 Ambient (Note 5)	$R_{\theta JA}$	135	°C/W
Typical Thermal Resistance, Junction to Case (Note 5)	$R_{\theta JC}$	20	°C/W
Typical Thermal Resistance, Junction to Ambient (Note 6)	$R_{\theta JA}$	75	°C/W
Typical Thermal Resistance, Junction to Case (Note 6)	$R_{\theta JC}$	12	°C/W
Operating Junction Temperature Range	T_J	-55 to +125	°C
Storage Temperature Range	T_{STG}	-55 to +150	°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 Drop	V_F	— — — — —	— 0.44 0.36 0.64 0.63	0.35 0.51 — 0.75 —	V	I_F = 0.1A, T_J = +25°C I_F = 1A, T_J = +25°C I_F = 1A, T_J = +125°C I_F = 3A, T_J = +25°C I_F = 3A, T_J = +125°C
Leakage Current (Note 7)	I_R	— — — —	0.008 0.010 0.050 —	— 0.075 0.5 50	mA	V_R = 4V, T_J = +25°C V_R = 6V, T_J = +25°C V_R = 40V, T_J = +25°C V_R = 40V, T_J = +125°C
Reverse Recovery Time	t_{RR}	—	15	—	ns	I_F = 10mA, I_{RRM} = 0.1I_R, T_A = +25°C
Total Capacitance	C_T	—	30	—	pF	V_R = 10V, f = 1MHz

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.

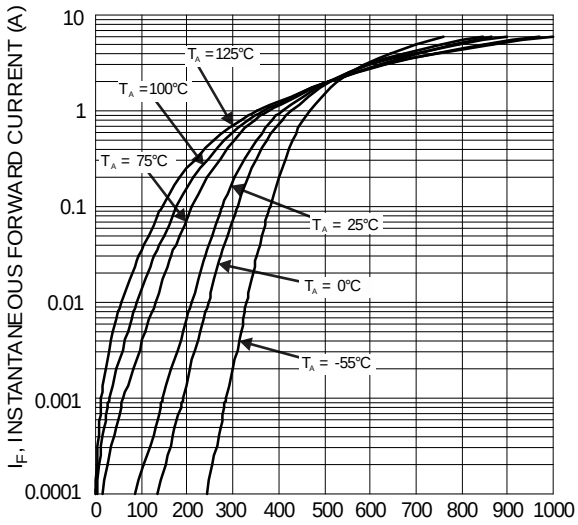


Figure 1 Typical Forward Characteristics

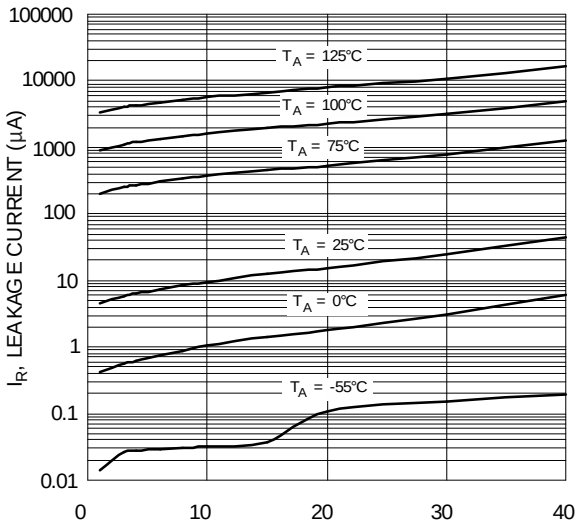


Figure 2 Typical Reverse Characteristics

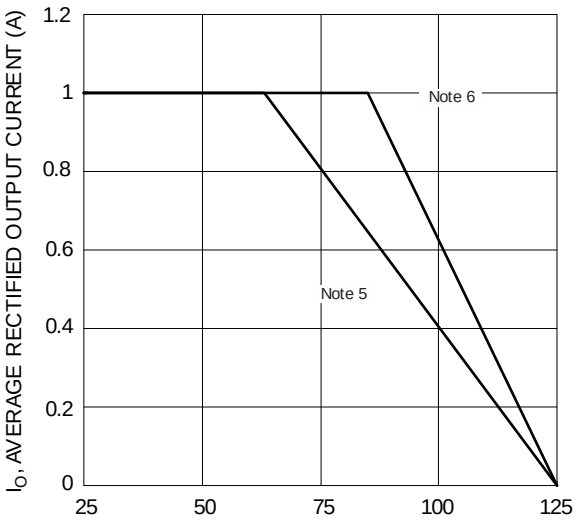


Figure 3 DC Forward Current Derating Curve

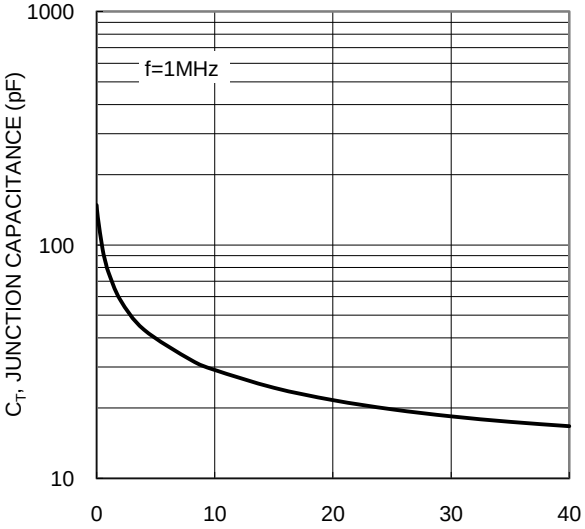
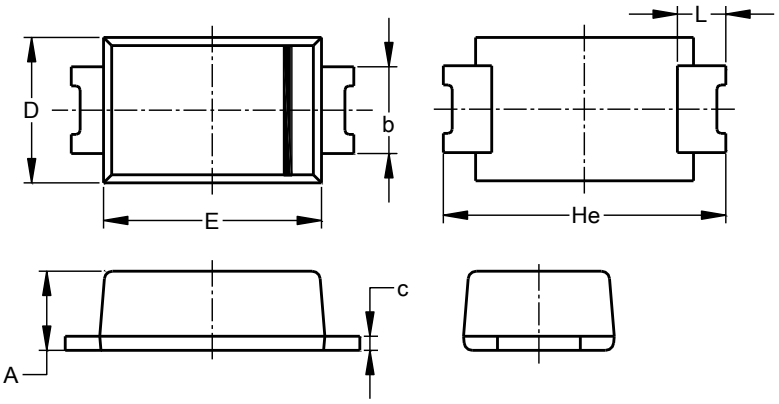


Figure 4. Typical Junction Capacitance

Package Outline Dimensions

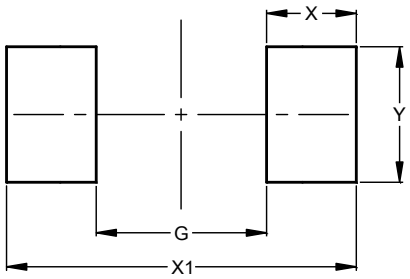
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for the latest version.



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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