

**1.0A SURFACE MOUNT SCHOTTKY BARRIER RECTIFIER**
**Product Summary (@ T<sub>A</sub> = +25°C)**

V <sub>RRM</sub> (V)	I <sub>O</sub> (A)	V <sub>F(MAX)</sub> (mV)	I <sub>R(MAX)</sub> (μA)
40	1.0	450	50


**Description and 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 (Notes 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 
- Weight: 0.01 grams (approximate)



Top View

**Ordering Information (Note 4)**

Part Number	Case	Packaging
1N5819HW-7-F	SOD-123	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](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/datasheets/ap02007.pdf>.

**Marking Information**


SL = Product Type Marking Code  
 YM = Date Code Marking  
 Y = Year (ex: B = 2014)  
 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<sub>A</sub> = +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 @ I <sub>R</sub> = 1.0mA DC Blocking Voltage	V <sub>RRM</sub> V <sub>RWM</sub> V <sub>R</sub>	40	V
RMS Reverse Voltage	V <sub>R(RMS)</sub>	28	V
Average Rectified Output Current @ T <sub>L</sub> = +90°C	I <sub>O</sub>	1.0	A
Repetitive Peak Forward Current t <sub>p</sub> ≤ 1ms, δ ≤ 0.5	I <sub>FRM</sub>	1.5	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I <sub>FSM</sub>	25	A

## Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P <sub>D</sub>	450	mW
Typical Thermal Resistance Junction to Ambient (Note 5)	R <sub>θJA</sub>	222	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-65 to +125	°C

## Electrical Characteristics (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 3)	V <sub>(BR)R</sub>	40	—	—	V	I <sub>R</sub> = 1.0mA
Forward Voltage	V <sub>F</sub>	—	—	0.320 0.450 0.750	V	I <sub>F</sub> = 0.1A I <sub>F</sub> = 1.0A I <sub>F</sub> = 3.0A
Reverse Leakage Current (Note 6)	I <sub>R</sub>	—	—	1.0 10 50 1 15 75 3	mA mA μA mA μA μA mA	V <sub>R</sub> = 40V, T <sub>A</sub> = +25°C V <sub>R</sub> = 40V, T <sub>A</sub> = +100°C V <sub>R</sub> = 4V, T <sub>A</sub> = +25°C V <sub>R</sub> = 4V, T <sub>A</sub> = +100°C V <sub>R</sub> = 6V, T <sub>A</sub> = +25°C V <sub>R</sub> = 6V, T <sub>A</sub> = +100°C
Total Capacitance	C <sub>T</sub>	—	50	60	pF	V <sub>R</sub> = 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.

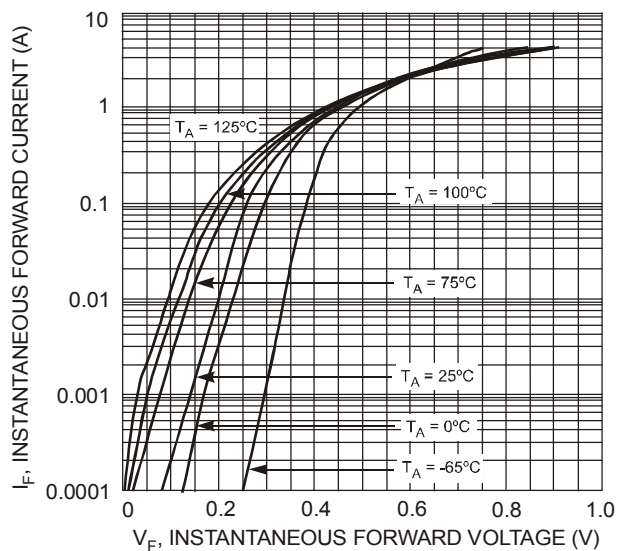


Fig. 1 Typical Forward Characteristics

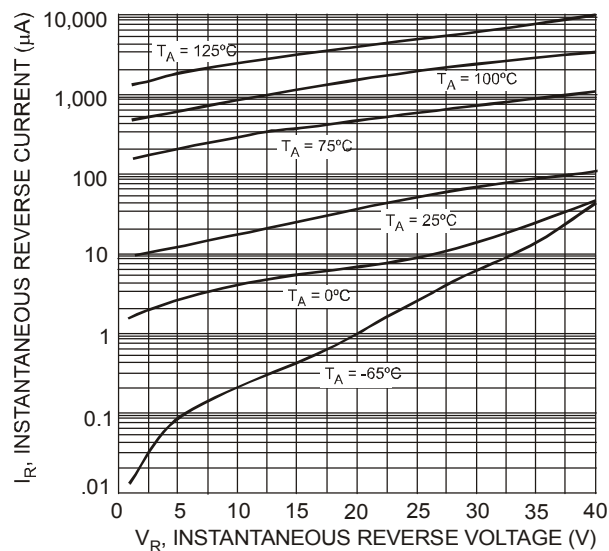


Fig. 2 Typical Reverse Characteristics

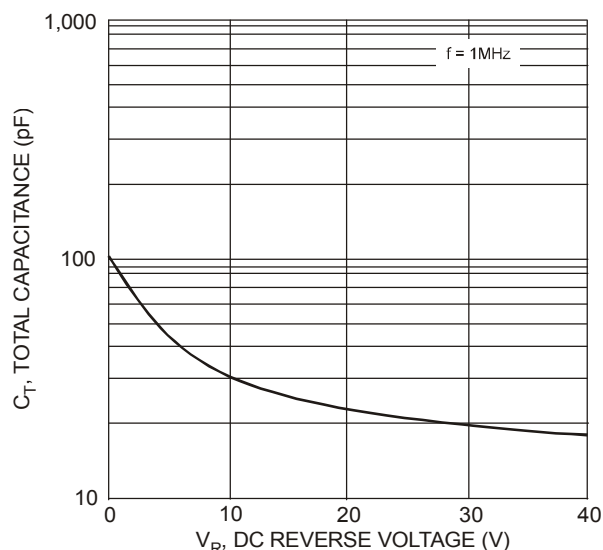


Fig. 3 Total Capacitance vs. Reverse Voltage

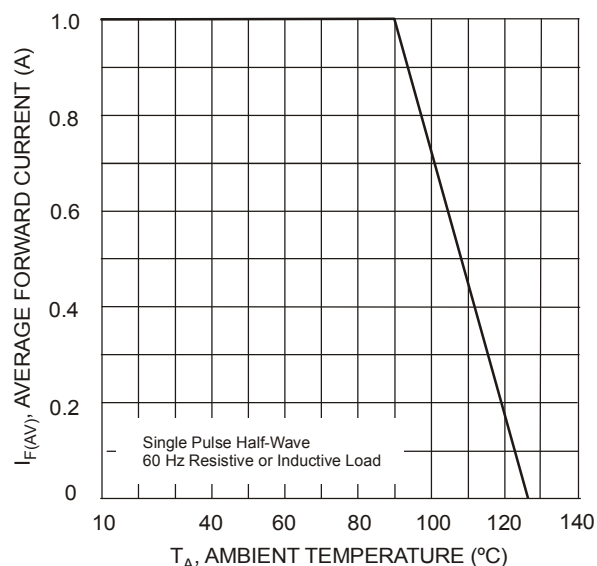


Fig. 4 Forward Current Derating Curve

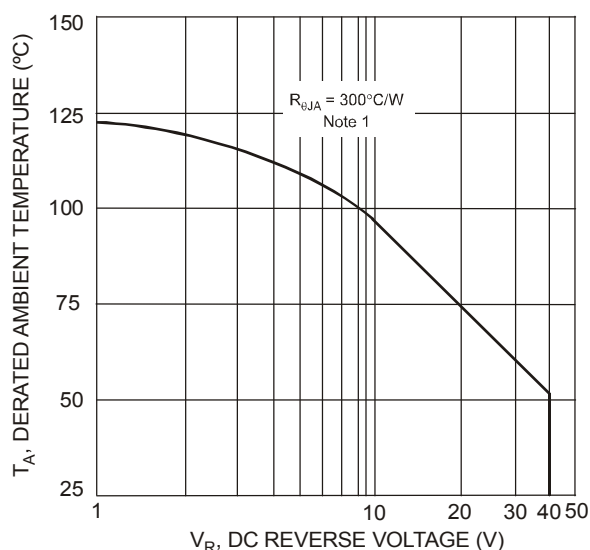


Fig. 5 Operating Temperature Derating

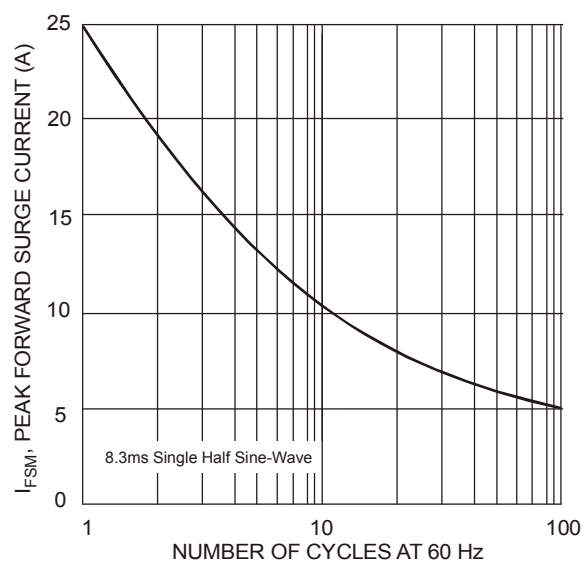
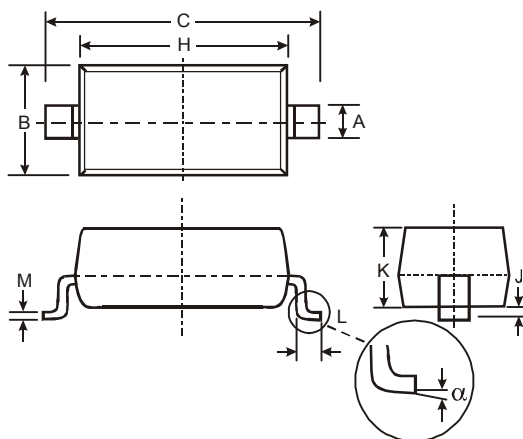


Fig. 6 Maximum Non-Repetitive Peak Forward Surge Current

## Package Outline Dimensions

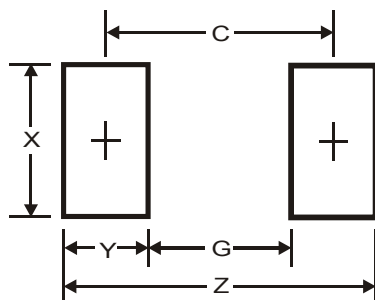
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.



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
$\alpha$	0	8°
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)
Z	4.9
G	2.5
X	0.7
Y	1.2
C	3.7

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