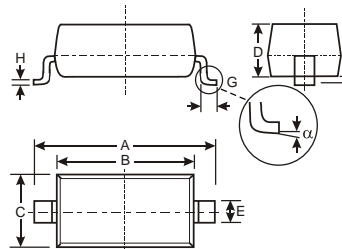


### Features

- Guard Ring Die Construction for Transient Protection
- Low Power Loss, High Efficiency
- High Surge Capability
- High Current Capability and Low Forward Voltage Drop
- For Use in Low Voltage, High Frequency Inverters, Free Wheeling, and Polarity Protection Application
- **Lead Free/RoHS Compliant (Note 1)**

### Mechanical Data

- Case: SOD-123
- Plastic Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Polarity: Cathode Band
- Leads: Solderable per MIL-STD-202, Method 208
- Lead Free Plating (Matte Tin Finish annealed over Alloy 42 leadframe)
- Marking: Date Code and Type Code, See Page 3
- Type Code: SL
- Ordering Information: See Page 3
- Weight: 0.01 grams (approximate)



SOD-123		
Dim	Min	Max
A	3.55	3.85
B	2.55	2.85
C	1.40	1.70
D	—	1.35
E	0.45	0.65
	0.55 Typical	
G	0.25	—
H	0.11 Typical	
J	—	0.10
	0°	8°
All Dimensions in mm		

### Maximum Ratings @ T<sub>A</sub> = 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 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, 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
Power Dissipation (Note 2)	P <sub>d</sub>	450	mW
Typical Thermal Resistance Junction to Ambient (Note 2)	R <sub>JA</sub>	222	°C/W
Operating and Storage Temperature Range	T <sub>j</sub> , T <sub>STG</sub>	-65 to +125	°C

- Notes: 1. No purposefully added lead.  
2. 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".

**Electrical Characteristics** @  $T_A = 25^\circ\text{C}$  unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 3)	$V_{(BR)R}$	40			V	$I_R = 1.0\text{mA}$
Forward Voltage	$V_F$			0.320 0.450 0.750	V	$I_F = 0.1\text{A}$ $I_F = 1.0\text{A}$ $I_F = 3.0\text{A}$
Reverse Leakage Current (Note 3)	$I_R$		10 1 15 1.5	50 2 75 3	mA mA $\mu\text{A}$ $\mu\text{A}$ mA	$V_R = 40\text{V}, T_A = 25^\circ\text{C}$ $V_R = 40\text{V}, T_A = 100^\circ\text{C}$ $V_R = 4\text{V}, T_A = 25^\circ\text{C}$ $V_R = 4\text{V}, T_A = 100^\circ\text{C}$ $V_R = 6\text{V}, T_A = 25^\circ\text{C}$ $V_R = 6\text{V}, T_A = 100^\circ\text{C}$
Total Capacitance	$C_T$		50		pF	$V_R = 4\text{V}, f = 1.0\text{MHz}$

Notes: 3. Short duration pulse test used to minimize self-heating effect.

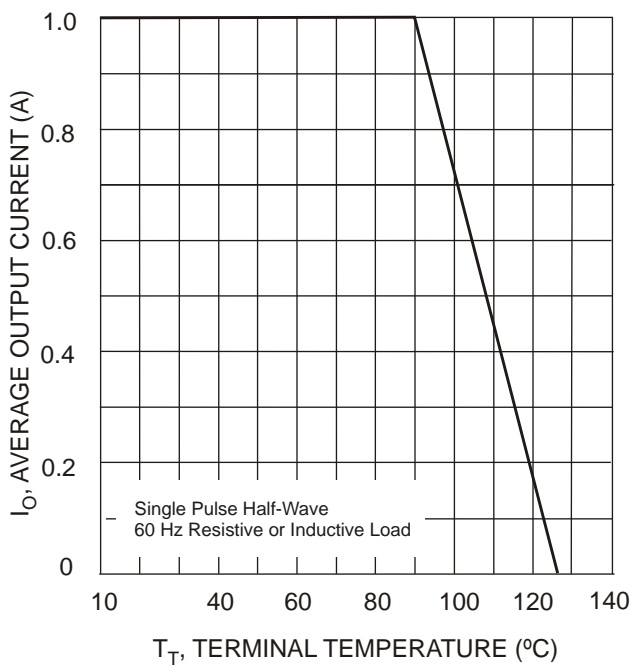


Fig. 1 Forward Current Derating Curve

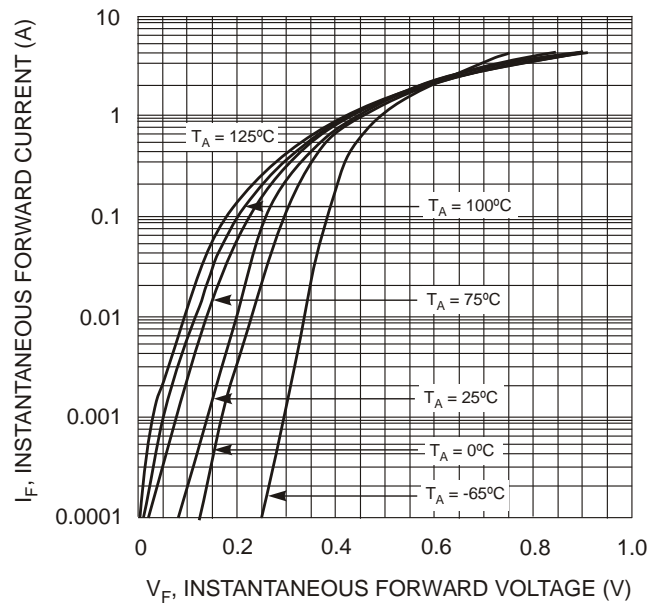


Fig. 2 Typical Forward Characteristics

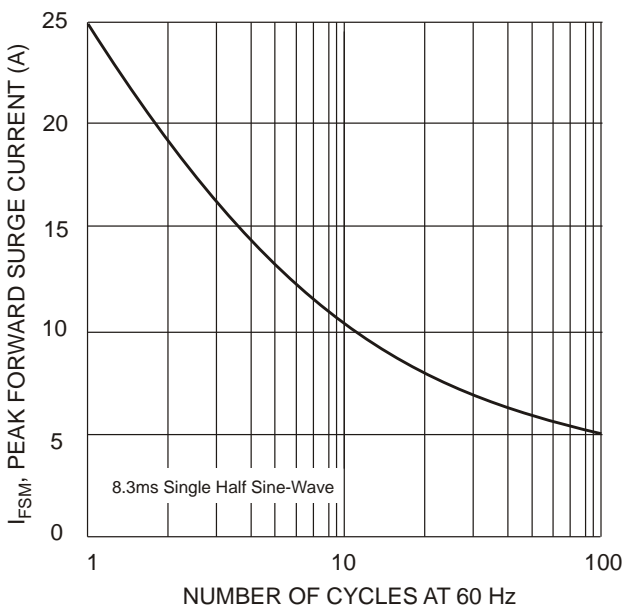


Fig. 3 Maximum Non-Repetitive Peak Fwd Surge Current

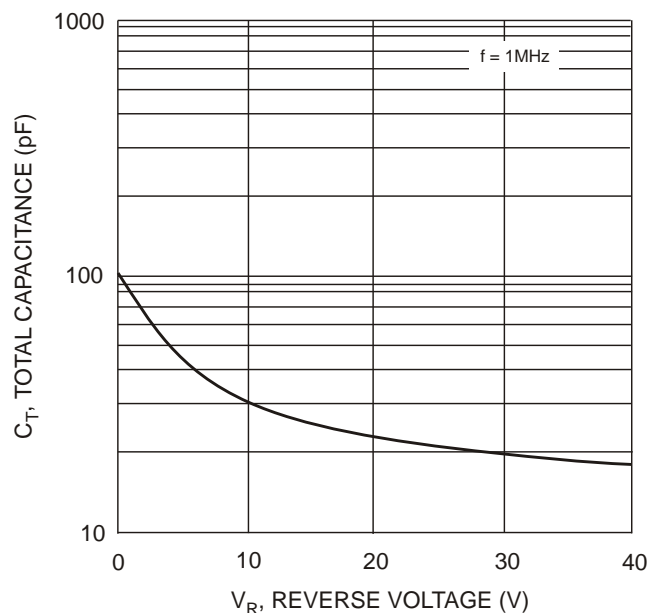
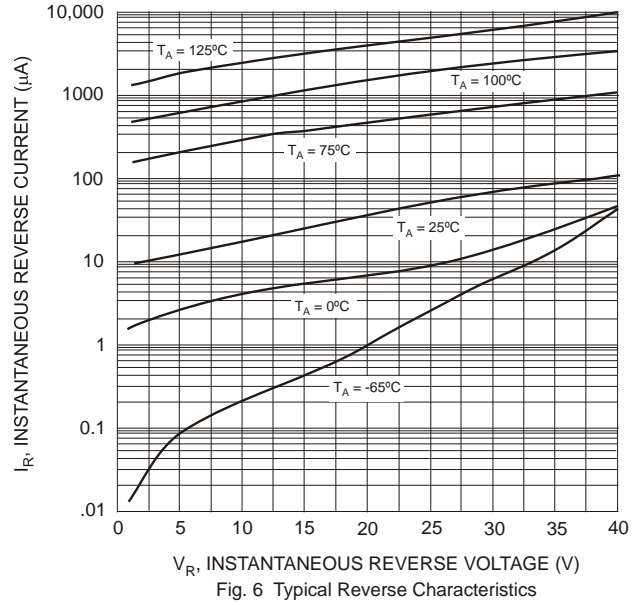
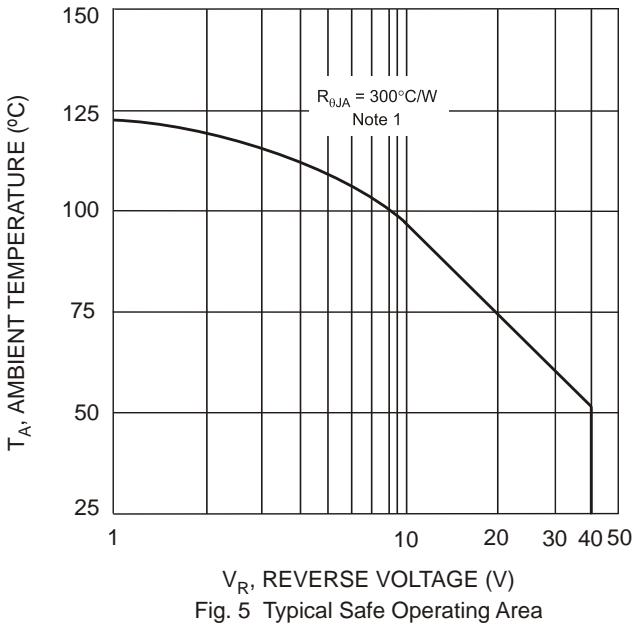


Fig. 4 Typical Total Capacitance



**Ordering Information** (Note 4)

Device	Packaging	Shipping
1N5819HW-7-F	SOD-123	3000/Tape & Reel

Notes: 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: N = 2002)  
 M = Month (ex: 9 = September)

Date Code Key

Year	2001	2002	2003	2004	2005	2006	2007	2008	2009
Code	M	N	P	R	S	T	U	V	W

Month	Jan	Feb	March	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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