

**1.0A SURFACE MOUNT SCHOTTKY BARRIER RECTIFIER**
**Features**

- Guard Ring Die Construction for Transient Protection
- Very Low Forward Voltage Drop
- **Totally Lead-Free & Fully RoHS Compliant(Note 1 & 2)**
- **Halogen and Antimony Free."Green" Device(Note 3)**

**Mechanical Data**

- Case: SOD123
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Lead Free Plating (Matte Tin Finish Annealed over Alloy 42 Leadframe) Solderable per MIL-STD-202, Method 208 (E3)
- Polarity: Cathode Band
- Weight: 0.01 grams (Approximate)

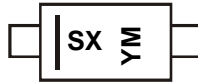


Top View

**Ordering Information** (Note 4)

Part Number	Case	Packaging
B130LAW-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](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**


SX = Product Type Marking Code  
 YM = Date Code Marking  
 Y = Year (ex: E = 2017)  
 M = Month (ex: 9 = September)

## Date Code Key

Year	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Code	A	B	C	D	E	F	G	H	I	J	K	L

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 capacitive load, derate current by 20%.

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	V <sub>RRM</sub>	30	V
Working Peak Reverse Voltage	V <sub>RWM</sub>		
DC Blocking Voltage	V <sub>R</sub>		
RMS Reverse Voltage	V <sub>R(RMS)</sub>	21	V
Average Forward Current	I <sub>F(AV)</sub>	1.0	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I <sub>FSM</sub>	12	A

### Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 6)	$P_D$	450	mW
Typical Thermal Resistance Junction to Ambient (Note 6)	$R_{\theta JA}$	222	$^{\circ}C/W$
Operating Temperature Range (See Figure 5)	$T_J$	-55 to +125	$^{\circ}C$
Storage Temperature Range	$T_{STG}$	-55 to +150	$^{\circ}C$

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 7)	$V_{(BR)R}$	30	—	—	V	$I_R = 1.5mA$
Forward Voltage	$V_F$	—	0.25	—	V	$I_F = 0.1A$
		—	0.35	0.37		$I_F = 0.7A$
		—	0.38	0.42		$I_F = 1.0A$
Leakage Current (Note 7)	$I_R$	—	0.15	1.0	mA	$V_R = 30V, T_A = 25^{\circ}C$
Total Capacitance	$C_T$	—	40	—	pF	$V_R = 10V, f = 1.0MHz$

- Notes:
- Device mounted on GETEK substrate, 2"x2", 2 oz. copper, double-sided, cathode pad dimensions 0.75" x 1.0", anode pad dimensions 0.25" x 1.0".
  - Device mounted on FR-4 substrate, 2"x2", 2 oz. copper, single-sided, pad layout as per Diodes Incorporated, which can be found on our website at <http://www.diodes.com/package-outlines.html>.
  - Short duration pulse test used to minimize self-heating effect.

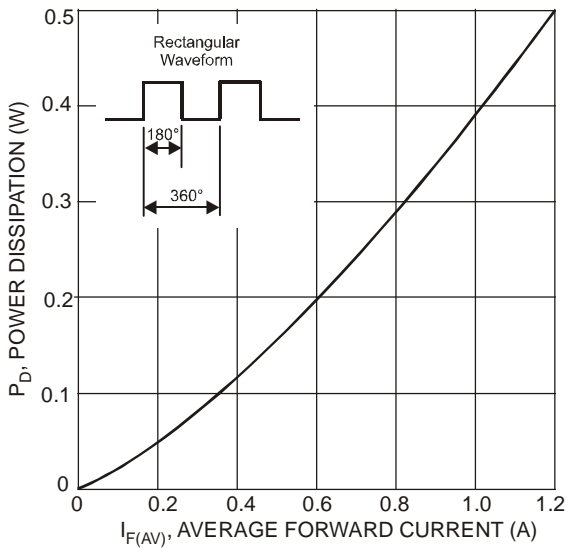


Fig. 1 Forward Power Dissipation

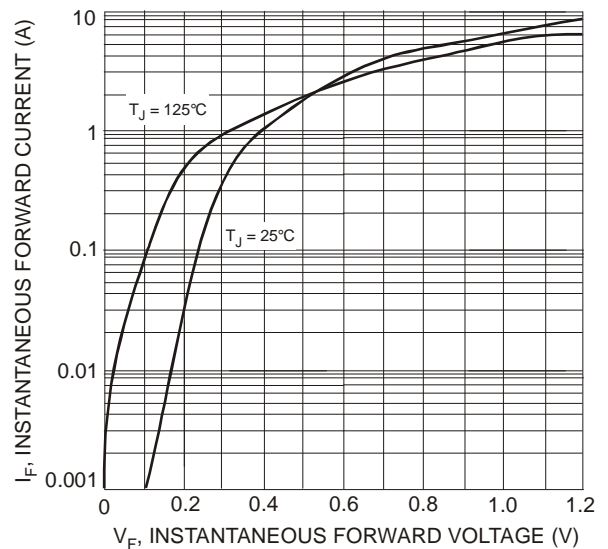


Fig. 2 Typical Forward Characteristics

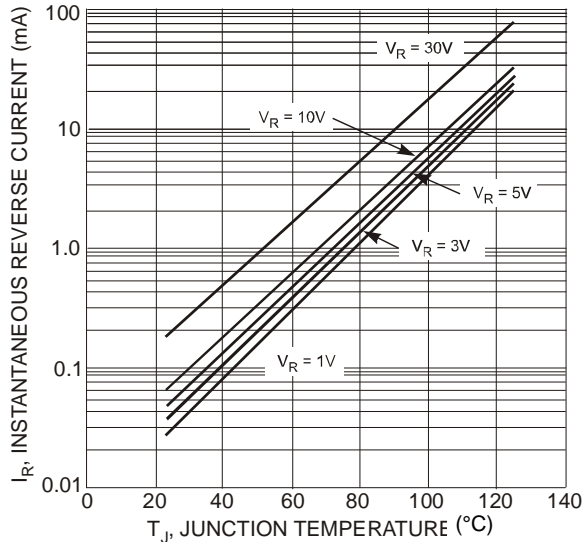


Fig. 3 Typical Pulsed Reverse Characteristics

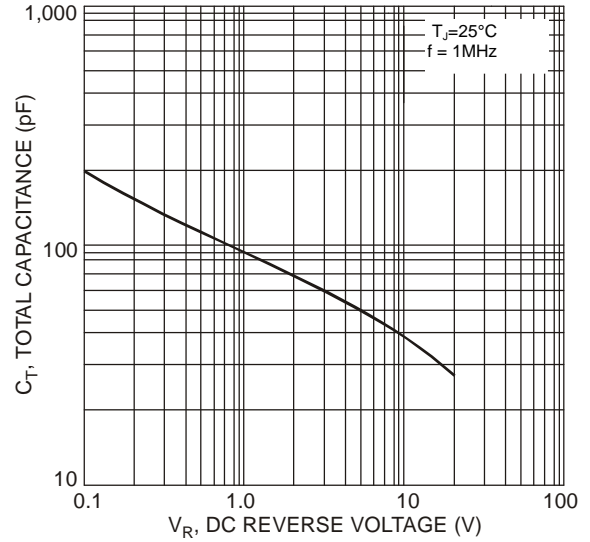


Fig. 4 Total Capacitance vs. Reverse Voltage

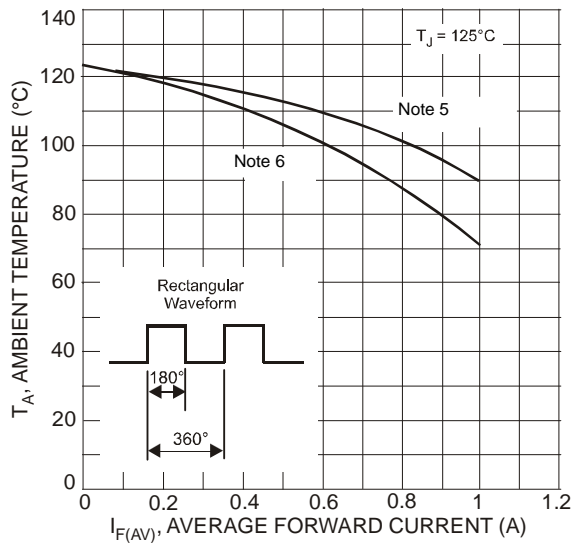


Fig. 5 Forward Current Derating Curve

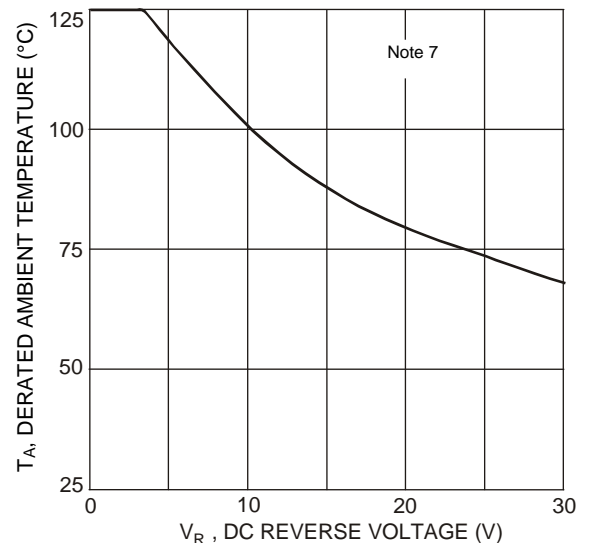


Fig. 6 Operating Temperature Derating

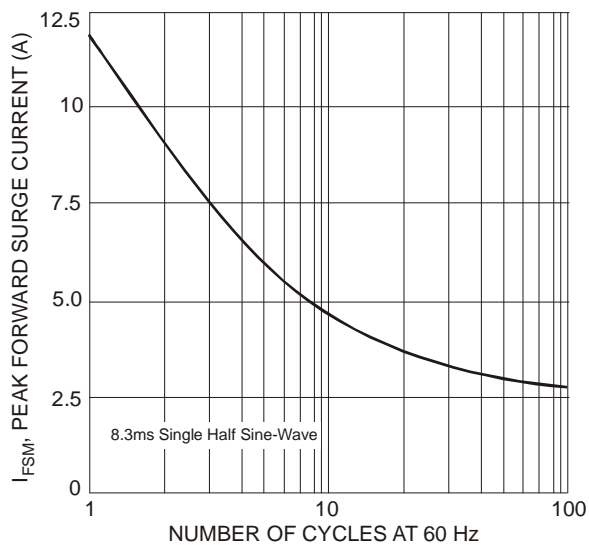
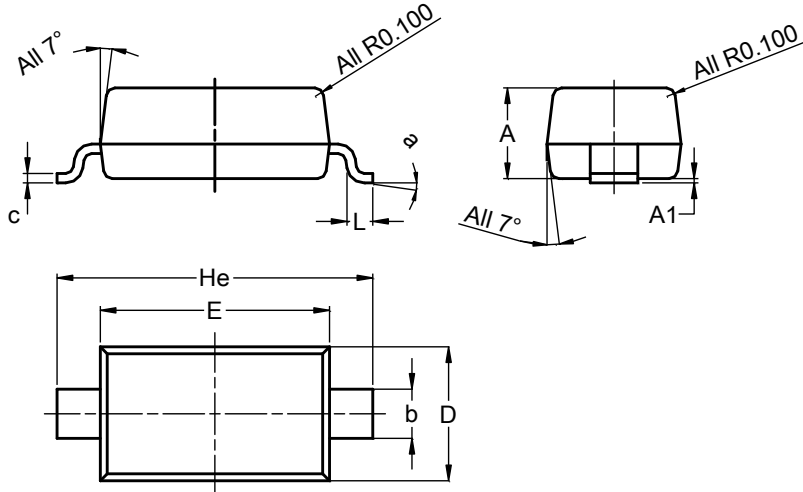


Fig. 7 Maximum Non-Repetitive Peak Forward Surge Current

**Package Outline Dimensions**

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

**SOD123**

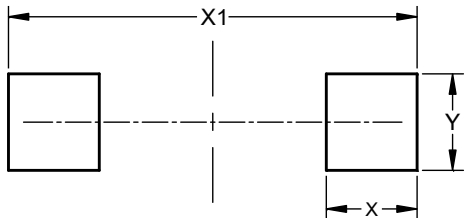


SOD123			
Dim	Min	Max	Typ
A	1.00	1.35	1.05
A1	0.00	0.10	0.05
b	0.52	0.62	0.57
c	0.10	0.15	0.11
D	1.40	1.70	1.55
E	2.55	2.85	2.65
He	3.55	3.85	3.65
L	0.25	0.40	0.30
a	0°	8°	--
All Dimensions in mm			

**Suggested Pad Layout**

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

**SOD123**



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

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