SBR1U150SA

1.0A SBR®

SURFACE MOUNT SUPER BARRIER RECTIFIER

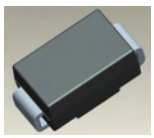
Features

- Ultra Low Forward Voltage Drop
- Excellent High Temperature Capability
- Patented Super Barrier Rectifier Technology
- Soft, Fast Switching Capability
- 150ºC Operating Junction Temperature
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Notes 3 & 4)**
- **Qualified to AEC-Q101 Standards for High Reliability**

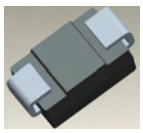
Mechanical Data

- Case: SMA
- Case Material: Molded Plastic, UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections: Lead Free Plating (Matte Tin Finish.) Solderable per MIL-STD-202, Method 208 e3
- Polarity Indicator: Cathode Band
- Weight: 0.064 grams (approximate)

SMA



Top View



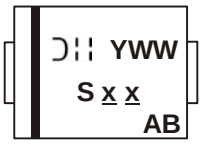
Bottom View

Ordering Information (Note 5)

Part Number	Case	Packaging
SBR1U150SA-13	SMA	5000/Tape & Reel
SBR1U150SAQ-13	SMA	5000/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 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. Product manufactured with Date Code 0924 (week 24, 2009) and newer are built with Green Molding Compound.
5. For packaging details, go to our website at http://www.diodes.com.

Marking Information



S D B, S V B = Product Type Marking Code
= Manufacturers' Code Marking
YWW = Date Code Marking
Y = Last digit of year (ex: 7 for 2007)
WW = Week code (01 to 53)
AB = Foundry and Assembly Code

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}	150	V
RMS Reverse Voltage	$V_{R(RMS)}$	106	V
Average Rectified Output Current (See Figure 1)	I_O	1.0	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I_{FSM}	42	A
Repetitive Peak Avalanche Power (1μS, +25°C)	P_{ARM}	6,000	W

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Thermal Resistance Junction to Soldering (Note 6)	$R_{\theta JS}$	3	°C/W
Thermal Resistance Junction to Ambient (Note 7)	$R_{\theta JA}$	119	
Thermal Resistance Junction to Ambient (Note 8)	$R_{\theta JA}$	88	
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +150	°C

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 9)	$V_{(BR)R}$	150	-	-	V	I_R = 100μA
Forward Voltage Drop	V_F	-	-	0.70	V	I_F = 1.0A, T_J = +25ºC
		-	-	0.56		I_F = 1.0A, T_J = +125ºC
Leakage Current (Note 9)	I_R	-	-	0.1	mA	V_R = 150V, T_J = +25ºC
		-	-	10	mA	V_R = 150V, T_J = +125ºC

Notes:
6. Theoretical $R_{\theta JS}$ calculated from the top center of the die straight down to the PCB cathode tab solder junction.
7. FR-4 PCB, 2 oz. Copper, minimum recommended pad layout per http://www.diodes.com/datasheets/ap02001.pdf. T_A = 25ºC
8. Polymide PCB, 2 oz. Copper, minimum recommended pad layout per http://www.diodes.com
9. Short duration pulse test used to minimize self-heating effect.

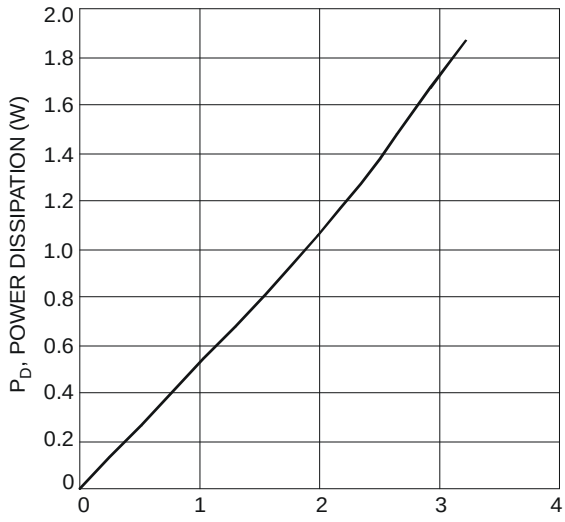


Fig. 1 Forward Power Dissipation

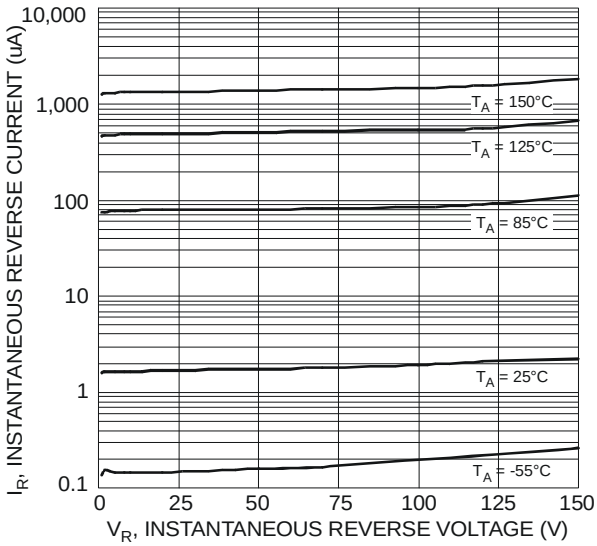


Fig. 2 Typical Reverse Characteristics

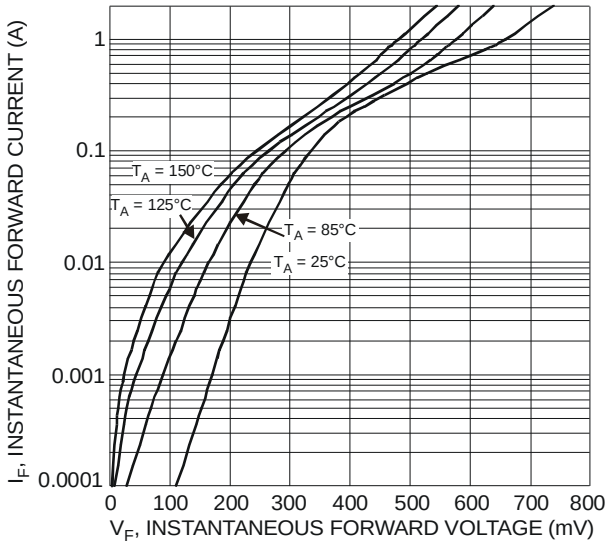


Fig. 3 Typical Forward Characteristics

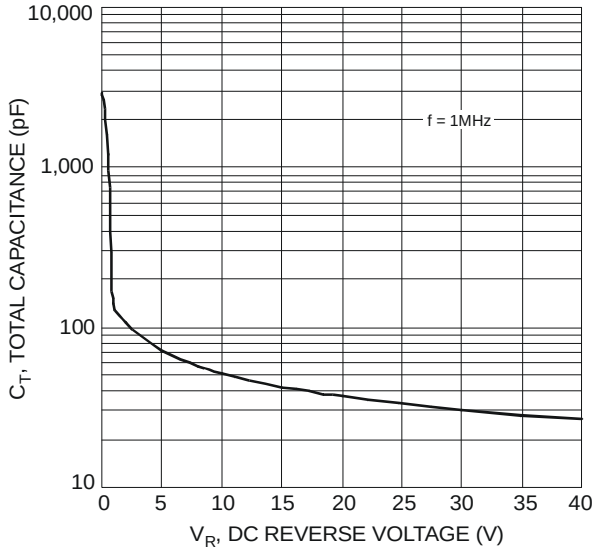


Fig. 4 Total Capacitance vs. Reverse Voltage

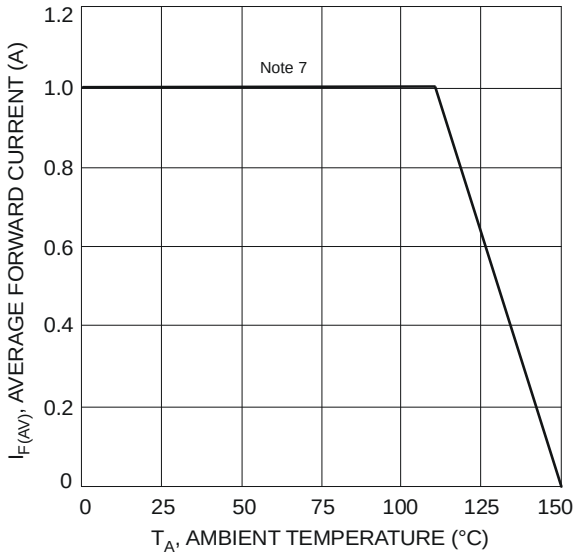


Fig. 5 DC Forward Current Derating Curve

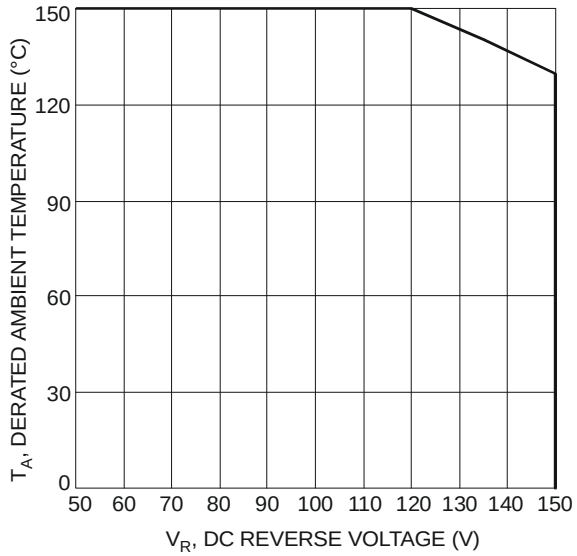


Fig. 6 Operating Temperature Derating

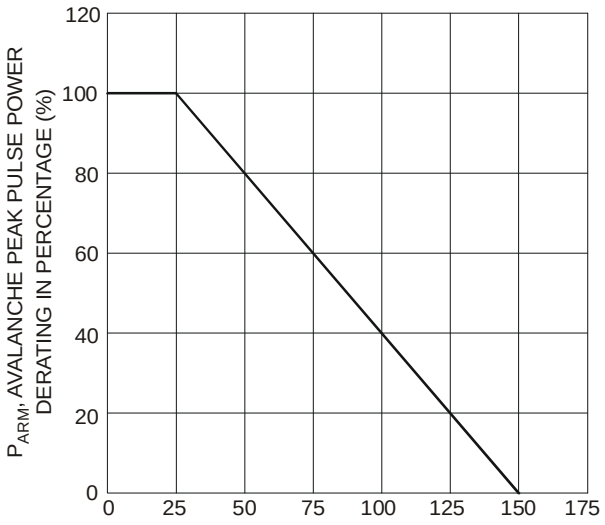


Fig. 7 Pulse Derating Curve

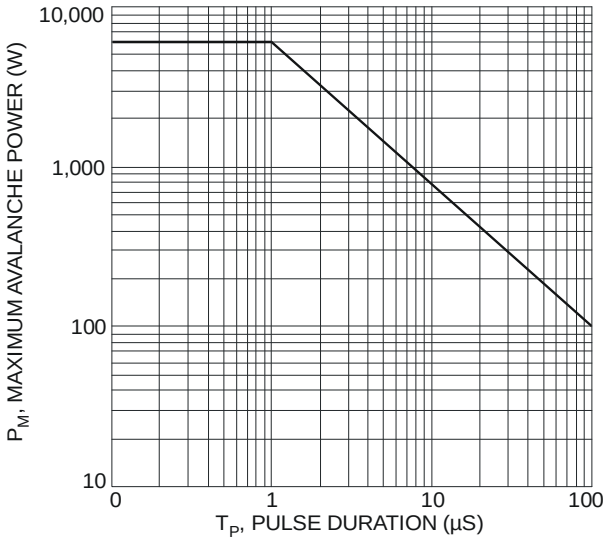
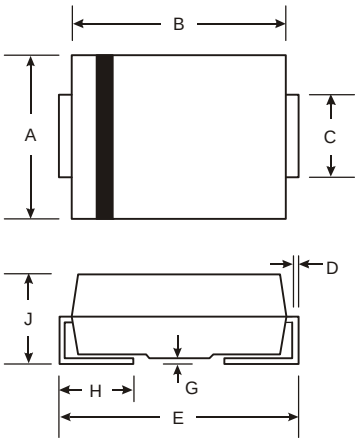


Fig. 8 Maximum Avalanche Power vs. Pulse Duration

Package Outline Dimensions

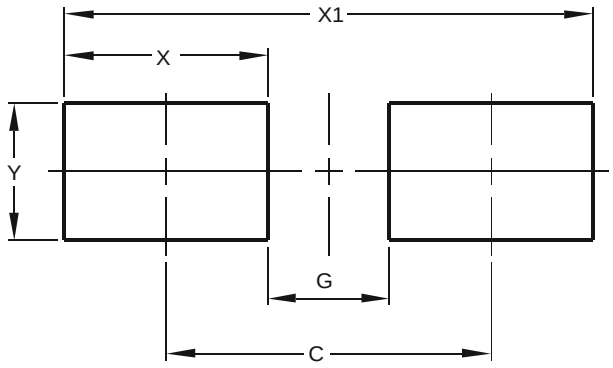
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for latest version.



SMA		
Dim	**Min**	**Max**
A	2.29	2.92
B	4.00	4.60
C	1.27	1.63
D	0.15	0.31
E	4.80	5.59
G	0.05	0.20
H	0.76	1.52
J	2.01	2.30
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)
C	4.00
G	1.50
X	2.50
X1	6.50
Y	1.70

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