

## Product Summary

V <sub>RRM</sub> (V)	I <sub>O</sub> (A)	V <sub>F</sub> Max (V) T <sub>A</sub> = +25°C	I <sub>R</sub> Max (mA) T <sub>A</sub> = +25°C
150	1.0	0.7	0.1

## Applications

- Polarity Protection Diode
- Re-Circulating Diode
- Blocking Diode
- DC-DC
- AC-DC

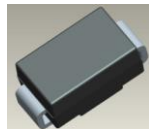
## Features and Benefits

- Ultra Low Forward Voltage Drop
- Excellent High Temperature Capability
- Patented Super Barrier Rectifier Technology
- Soft, Fast Switching Capability
- +150°C Operating Junction Temperature
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Notes 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**
- **An Automotive-Compliant Part is Available Under Separate Datasheet ([SBR1U150SAQ](#))**

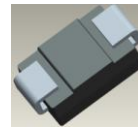
## Mechanical Data

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

SMA



Top View



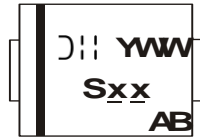
Bottom View

## Ordering Information (Note 4)

Part Number	Case	Packaging
SBR1U150SA-13	SMA	5,000/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](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>.

## Marking Information



**S D B, S V B** = Product Type Marking Code  
**D I I** = Manufacturers' Code Marking  
**Y W W** = Date Code Marking  
**Y** = Last Digit of Year (ex: 7 for 2007)  
**W W** = Week Code (01 to 53)  
**A B** = Foundry and Assembly Code

## 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	V <sub>RRM</sub>	150	V
Working Peak Reverse Voltage	V <sub>RWM</sub>		
DC Blocking Voltage	V <sub>RM</sub>		
RMS Reverse Voltage	V <sub>R(RMS)</sub>	106	V
Average Rectified Output Current (See Figure 1)	I <sub>O</sub>	1.0	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I <sub>FSM</sub>	42	A
Repetitive Peak Avalanche Power (1μS, +25°C)	P <sub>ARM</sub>	6,000	W

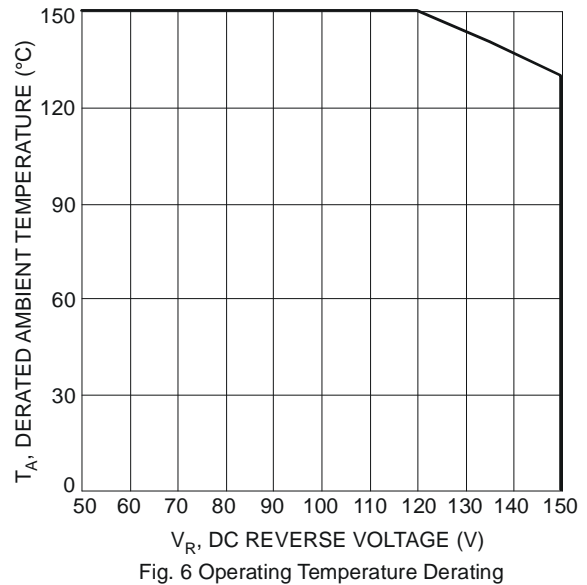
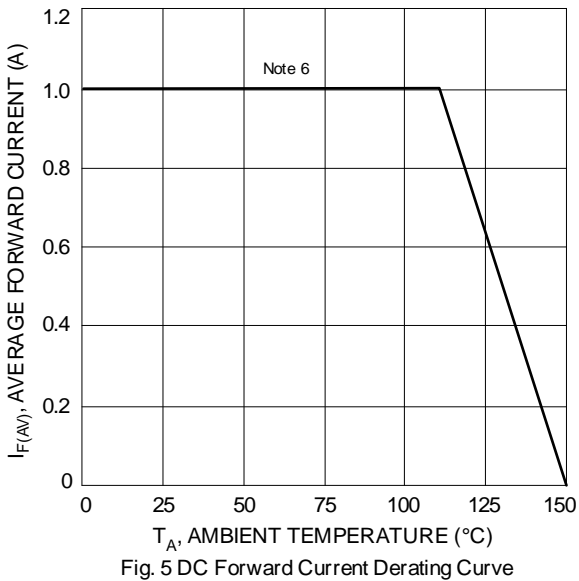
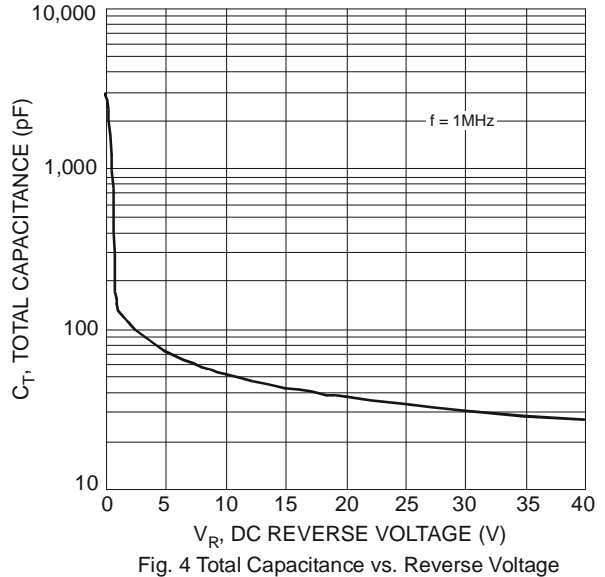
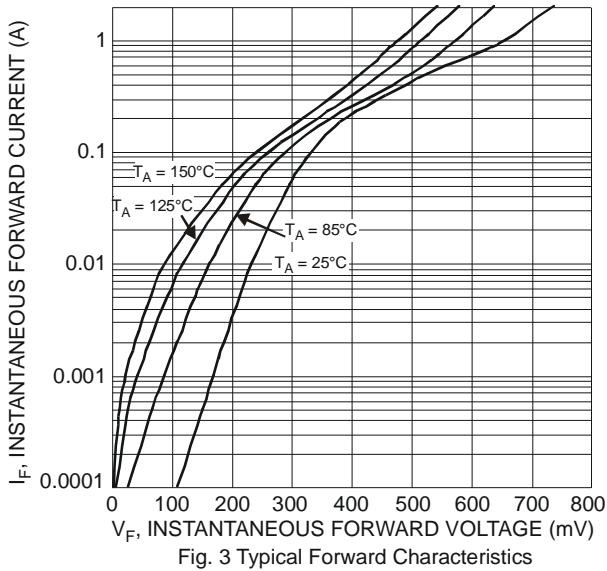
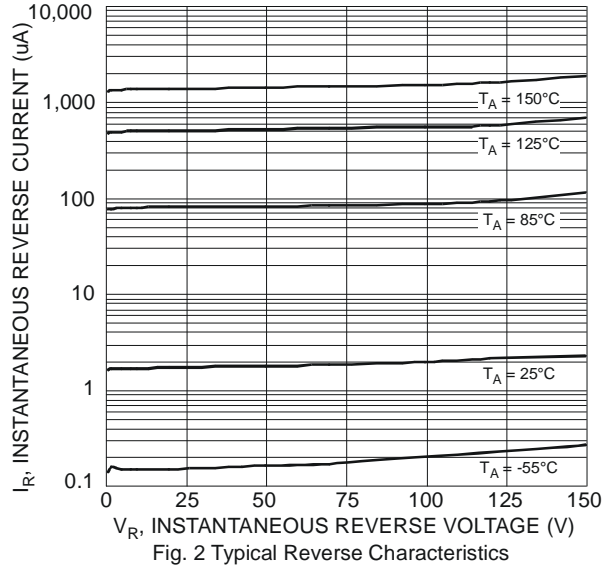
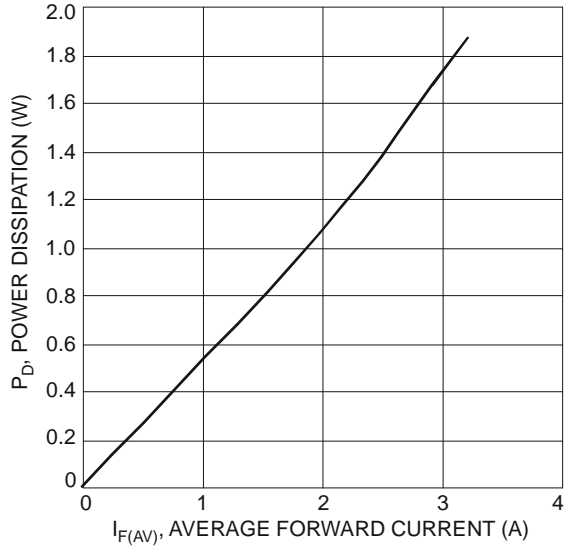
## Thermal Characteristics

Characteristic	Symbol	Value	Unit
Thermal Resistance Junction to Soldering (Note 5)	R <sub>θJS</sub>	3	°C/W
Thermal Resistance Junction to Ambient (Note 6)	R <sub>θJA</sub>	119	
Thermal Resistance Junction to Ambient (Note 7)	R <sub>θJA</sub>	88	
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-65 to +150	°C

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 8)	V <sub>(BR)R</sub>	150	-	-	V	I <sub>R</sub> = 100μA
Forward Voltage Drop	V <sub>F</sub>	-	-	0.70	V	I <sub>F</sub> = 1.0A, T <sub>J</sub> = +25°C
		-	-	0.56		I <sub>F</sub> = 1.0A, T <sub>J</sub> = +125°C
Leakage Current (Note 8)	I <sub>R</sub>	-	-	0.1	mA	V <sub>R</sub> = 150V, T <sub>J</sub> = +25°C
		-	-	10		V <sub>R</sub> = 150V, T <sub>J</sub> = +125°C

- Notes:
- Theoretical R<sub>θJS</sub> calculated from the top center of the die straight down to the PCB cathode tab solder junction.
  - FR-4 PCB, 2 oz. Copper, minimum recommended pad layout per <http://www.diodes.com/package-outlines.html>. T<sub>A</sub> = +25°C.
  - Polymide PCB, 2 oz. Copper, minimum recommended pad layout per <http://www.diodes.com>.
  - Short duration pulse test used to minimize self-heating effect.



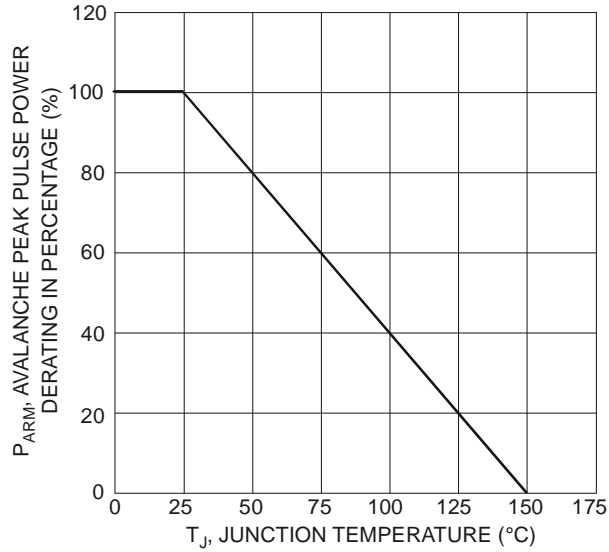


Fig. 7 Pulse Derating Curve

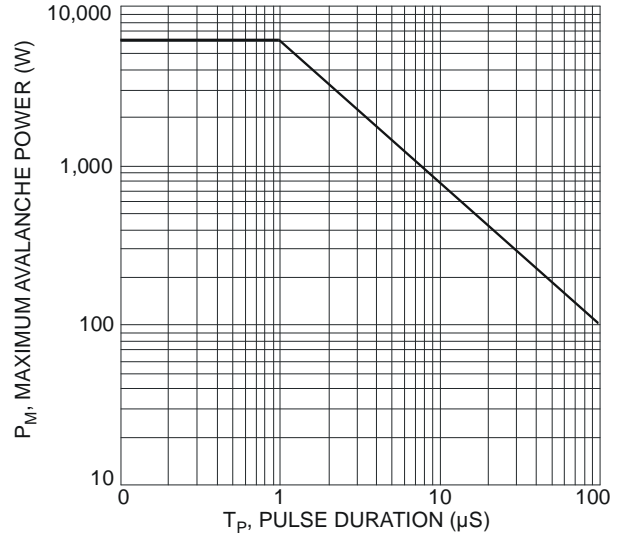
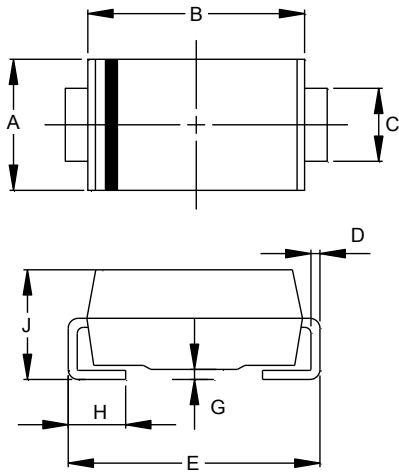


Fig. 8 Maximum Avalanche Power vs. Pulse Duration

## Package Outline Dimensions

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

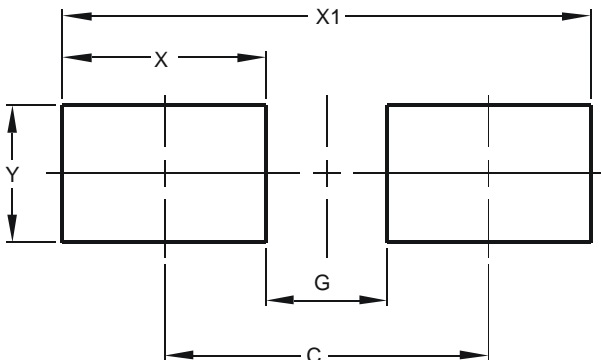


SMA		
Dim	Min	Max
A	2.29	2.92
B	4.00	4.60
C	1.27	1.63
D	0.15	0.31
E	4.80	5.59
G	0.05	0.20
H	0.76	1.52
J	1.96	2.40

All Dimensions in mm

## Suggested Pad Layout

Please see <http://www.diodes.com/package-outlines.html> 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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