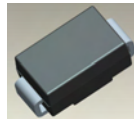


## Features

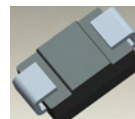
- Low Leakage Current
- Patented Super Barrier Rectifier Technology
- Soft, Fast Switching Capability
- 150°C Operating Junction Temperature
- **Lead Free Finish, RoHS Compliant (Note 1)**
- **Green Molding Compound (No Halogen and Antimony) (Note 7)**

## Mechanical Data

- Case: SMA
- Case Material: Molded Plastic, UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminals: Lead Free Plating (Matte Tin Finish.) Solderable per MIL-STD-202, Method 208
- Polarity Indicator: Cathode Band
- Marking Information: See Page 3
- Ordering Information: See Page 3
- Weight: 0.064 grams (approximate)



Top View



Bottom View

## 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>	40	V
Working Peak Reverse Voltage	V <sub>RWM</sub>		
DC Blocking Voltage	V <sub>RM</sub>		
Maximum Voltage Rate of Change (Rated V <sub>R</sub> )	dv/dt	10,000	V/μs
RMS Reverse Voltage	V <sub>R(RMS)</sub>	28	V
Average Rectified Output Current (See Figure 1)	I <sub>O</sub>	3	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I <sub>FSM</sub>	45	A

## Thermal Characteristics

Characteristic	Symbol	Value	Unit
Maximum Thermal Resistance			
Thermal Resistance Junction to Soldering (Note 2)	R <sub>θJS</sub>	5	°C/W
Thermal Resistance Junction to Ambient (Note 3)	R <sub>θJA</sub>	124	
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 5)	V <sub>(BR)R</sub>	40	-	-	V	I <sub>R</sub> = 0.4mA
Forward Voltage Drop	V <sub>F</sub>	-	0.30	0.35	V	I <sub>F</sub> = 0.5A, T <sub>J</sub> = 25°C
		-	0.33	0.38		I <sub>F</sub> = 1.0A, T <sub>J</sub> = 25°C
		-	0.43	0.50		I <sub>F</sub> = 3.0A, T <sub>J</sub> = 25°C
		-	-	0.48		I <sub>F</sub> = 3.0A, T <sub>J</sub> = 125°C
Leakage Current (Note 5)	I <sub>R</sub>	-	45	250	μA	V <sub>R</sub> = 5V, T <sub>J</sub> = 25°C
		-	80	400	μA	V <sub>R</sub> = 40V, T <sub>J</sub> = 25°C
		-	9	40	mA	V <sub>R</sub> = 40V, T <sub>J</sub> = 125°C

- Notes:
1. EU Directive 2002/95/EC (RoHS). All applicable RoHS exemptions applied. Please visit our website at [http://www.diodes.com/quality/lead\\_free.html](http://www.diodes.com/quality/lead_free.html).
  2. Theoretical R<sub>θJS</sub> calculated from the top center of the die straight down to the PCB cathode tab solder junction.
  3. FR-4 PCB, 2 oz. Copper, minimum recommended pad layout per <http://www.diodes.com/datasheets/ap02001.pdf>.
  4. Polyimide PCB, 2 oz. Copper, minimum recommended pad layout per <http://www.diodes.com/datasheets/ap02001.pdf>.
  5. Short duration pulse test used to minimize self-heating effect.
  6. FR-4 PCB, 2 oz. Copper, single side 16 x MRP, 1" x 1" PC Board.
  7. Product manufactured with Data Code 0924 (week 24, 2009) and newer are built with Green Molding Compound.

SBR is a registered trademark of Diodes Incorporated.

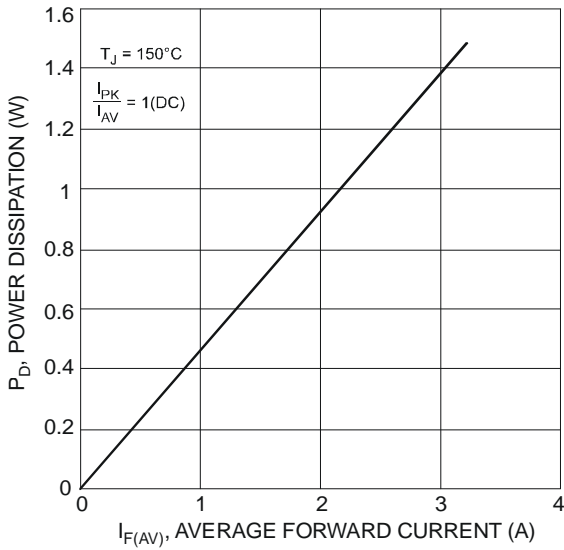


Fig. 1 Forward Power Dissipation

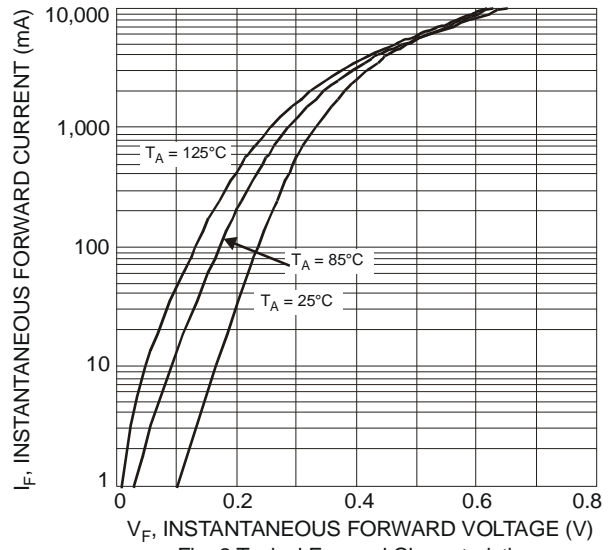


Fig. 2 Typical Forward Characteristics

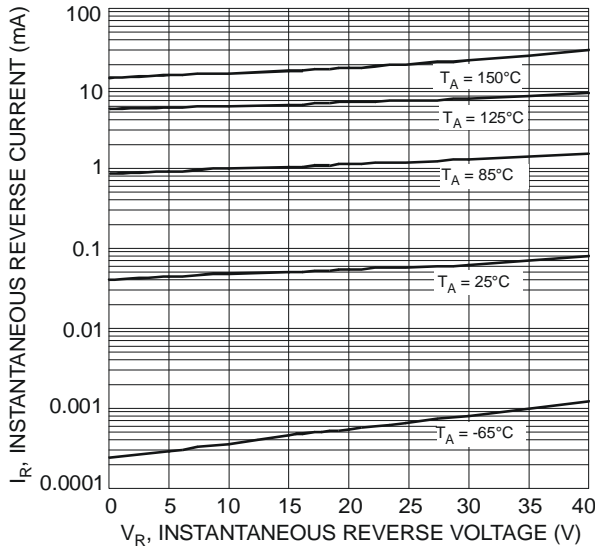


Fig. 3 Typical Reverse Characteristics

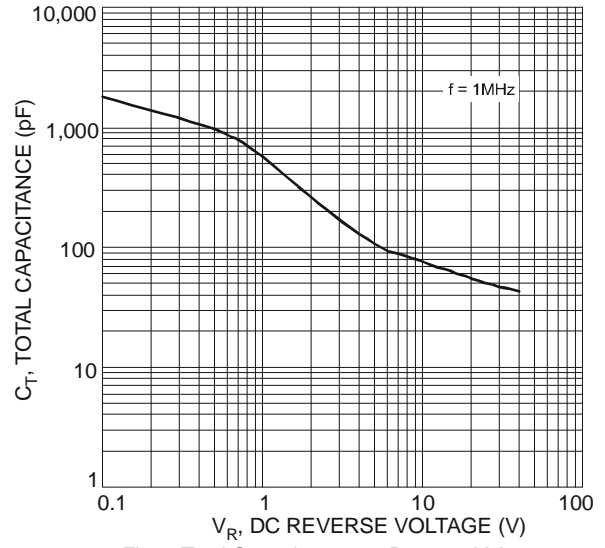


Fig. 4 Total Capacitance vs. Reverse Voltage

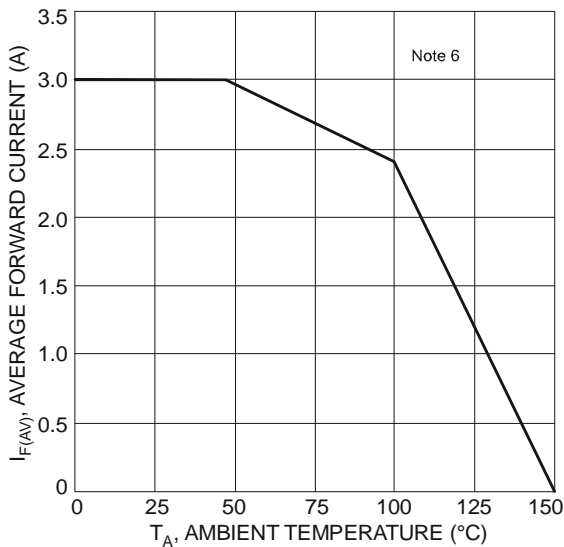


Fig. 5 Forward Current Derating Curve

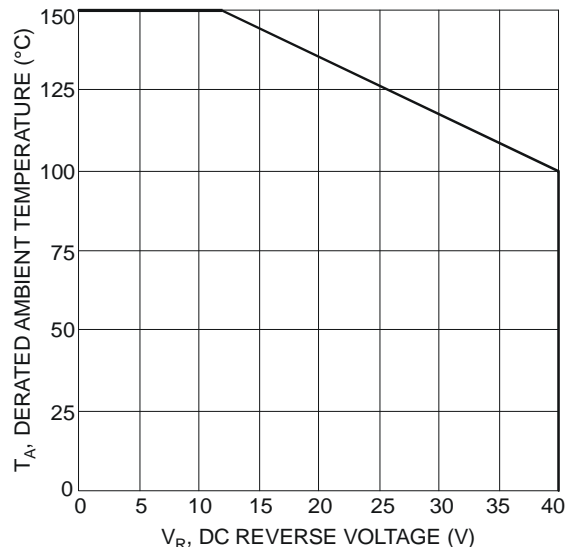


Fig. 6 Operating Temperature Derating

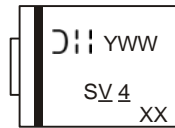
SBR is a registered trademark of Diodes Incorporated.

**Ordering Information** (Note 8)

Part Number	Case	Packaging
SBR3A40SA-13	SMA	5000/Tape & Reel

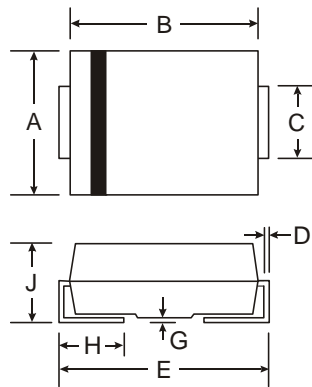
Notes: 8. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

**Marking Information**



SV 4 = Product Type Marking Code  
 YWW = Manufacturers' code marking  
 YWW = Date Code Marking  
 Y = Last digit of year (ex: 7 for 2007)  
 WW = Week code 01 to 52

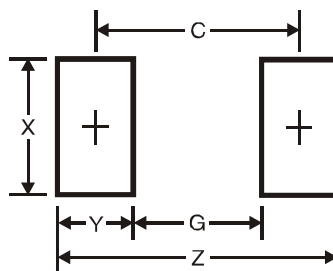
**Package Outline Dimensions**



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**



Dimensions	Value (in mm)
Z	6.5
G	1.5
X	1.7
Y	2.5
C	4.0

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2. support or sustain life and whose failure to perform when properly used in accordance with instructions for use provided in the labeling can be reasonably expected to result in significant injury to the user.

B. A critical component is any component in a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or to affect its safety or effectiveness.

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