

**Product Summary** (@ T<sub>A</sub> = +25°C)

V <sub>RRM</sub> (V)	I <sub>O</sub> (A)	V <sub>F(MAX)</sub> (V)	I <sub>R(MAX)</sub> (μA)
40	2	0.55	500

**Applications**

- SMPS
- DC-DC Converter
- Freewheeling Diodes

**Features and Benefits**

- Low Leakage Current
- 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 (Note 3)**

**Mechanical Data**

- Case: SMA
- Case Material: Molded Plastic, "Green" Molding Compound. 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 <sup>Ⓔ</sup>
- Polarity Indicator: Cathode Band
- Weight: 0.064 grams (Approximate)



Top View

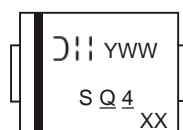


Bottom View

**Ordering Information** (Note 4)

Part Number	Case	Packaging
SBR2A40SA-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/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**


**S Q 4** = Product Type Marking Code  
**YWW** = Manufacturer's Code Marking  
**YWW** = Date Code Marking  
**Y** = Last Digit of Year (ex: 9 for 2009)  
**WW** = Week Code (01 – 53)  
**XX** = Foundry and Assembly

### 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>		
Average Rectified Output Current (See Figure 1)	I <sub>O</sub>	2	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I <sub>FSM</sub>	15	A

### Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Ambient (Note 5)	R <sub>θJA</sub>	110	°C/W
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
Forward Voltage Drop	V <sub>F</sub>	-	-	0.55	V	I <sub>F</sub> = 2.0A, T <sub>J</sub> = +25°C
				0.50		I <sub>F</sub> = 1.0A, T <sub>J</sub> = +25°C
Leakage Current (Note 6)	I <sub>R</sub>	-	-	500	μA	V <sub>R</sub> = 40V, T <sub>J</sub> = +25°C
				100		V <sub>R</sub> = 40V, T <sub>J</sub> = +125°C

- Notes: 5. Device mounted on Polyimide substrate, with 1" x 1", 2 oz. Copper, double-sided PCB board.  
6. Short duration pulse test used to minimize self-heating effect.

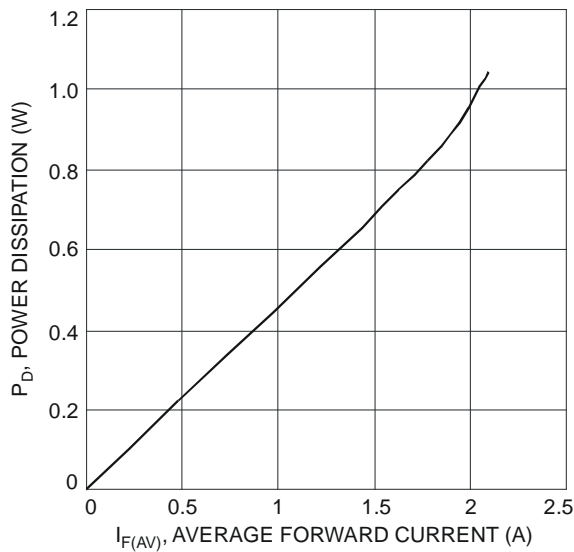


Fig. 1 Forward Power Dissipation

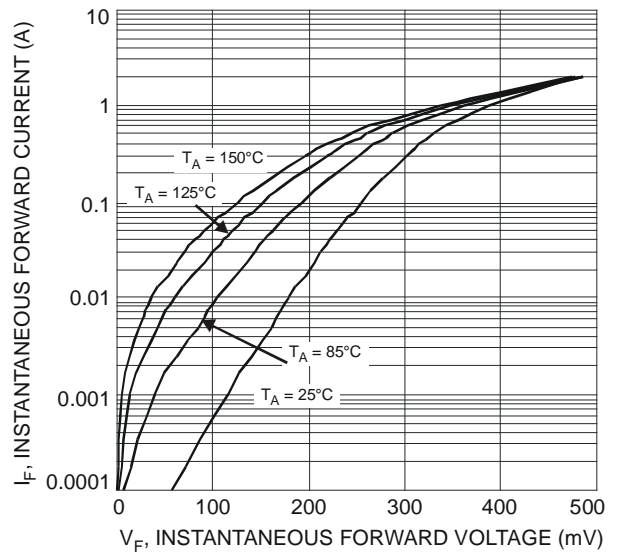


Fig. 2 Typical Forward Characteristics

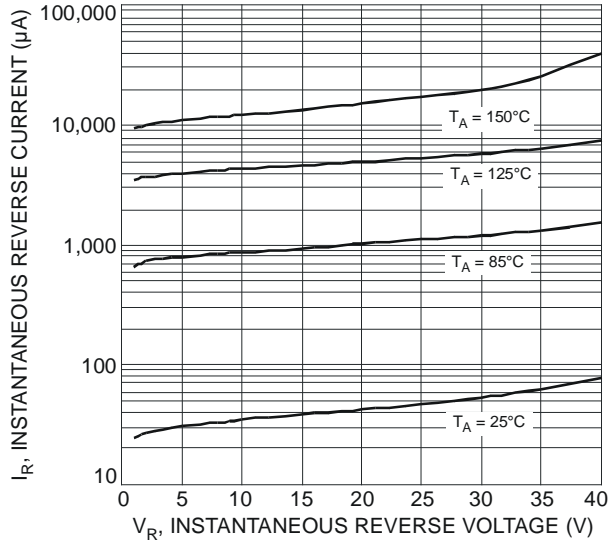


Fig. 3 Typical Reverse Characteristics

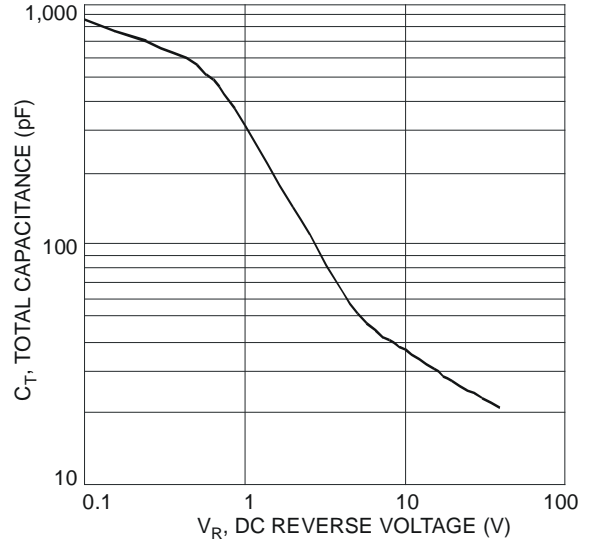


Fig. 4 Total Capacitance vs. Reverse Voltage

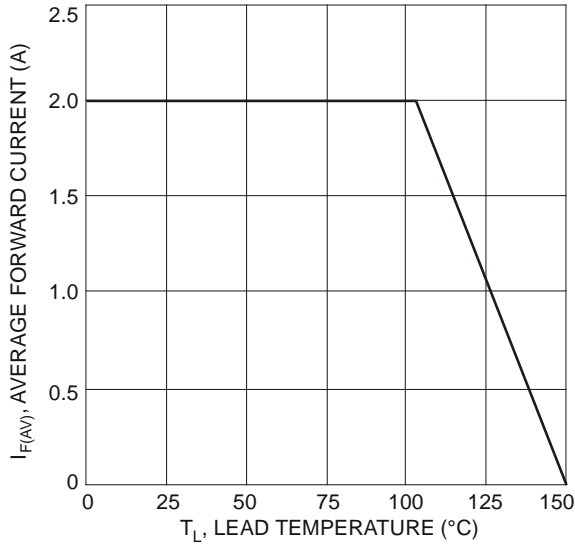


Fig. 5 Forward Current Derating Curve

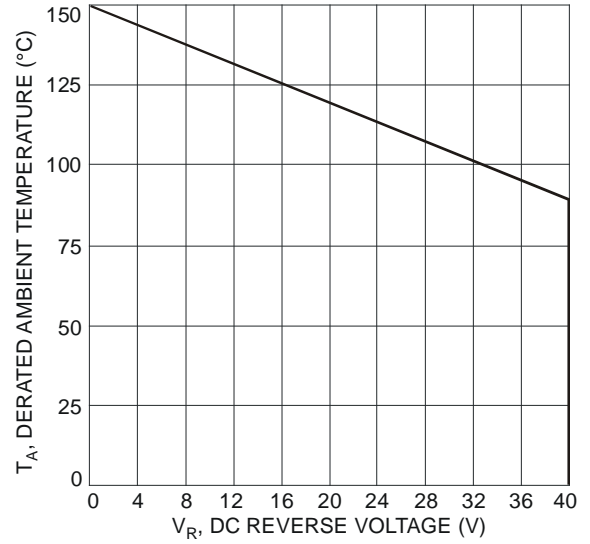
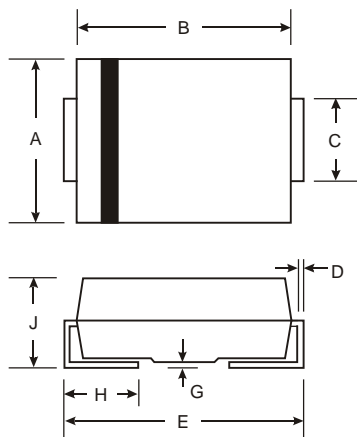


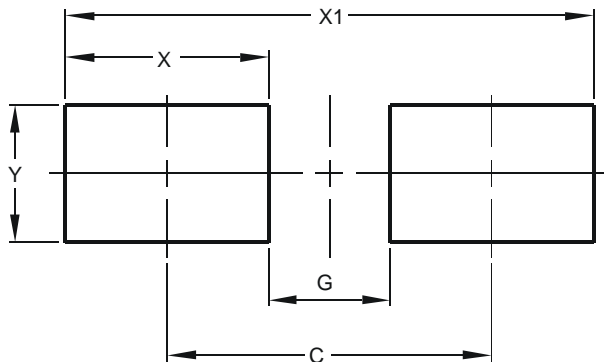
Fig. 6 Operating Temperature Derating

**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)
<b>C</b>	4.00
<b>G</b>	1.50
<b>X</b>	2.50
<b>X1</b>	6.50
<b>Y</b>	1.70

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