

## Features

- Ultra Low Forward Voltage Drop
- 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 2)**

## 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 Indicator: Cathode Band
- Weight: 0.064 grams (approximate)



Top View



Bottom View

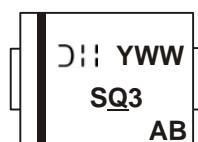
## Ordering Information (Note 3)

Part Number	Case	Packaging
SBR2U30SA -13	SMA	5000/Tape & Reel

Notes:

1. EU Directive 2002/95/EC (RoHS). All applicable RoHS exemptions applied, see EU Directive 2002/95/EC Annex Notes.
2. Product manufactured with Data Code 0924 (week 24, 2009) and newer are built with Green Molding Compound.
3. For packaging details, go to our website at <http://www.diodes.com>.

## Marking Information



SQ3 = Product Type Marking Code  
 DII = 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 @ $T_A = 25^\circ\text{C}$ 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	$V_{RRM}$		
Working Peak Reverse Voltage	$V_{RWM}$	30	V
DC Blocking Voltage	$V_{RM}$		
RMS Reverse Voltage	$V_{R(\text{RMS})}$	21	V
Average Rectified Output Current (See Figure 1)	$I_o$	2.0	A
Non-Repetitive Peak Forward Surge Current 8.3ms	$I_{FSM}$	30	A
Single Half Sine-Wave Superimposed on Rated Load			

## Thermal Characteristics

Characteristic	Symbol	Value	Unit
Maximum Thermal Resistance			
Thermal Resistance Junction to Soldering (Note 4)	$R_{\theta JS}$	5	$^\circ\text{C}/\text{W}$
Thermal Resistance Junction to Ambient (Note 5)	$R_{\theta JA}$	128	
Operating and Storage Temperature Range	$T_J, T_{STG}$	-65 to +150	$^\circ\text{C}$

## Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Min	TYP	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 6)	$V_{(BR)R}$	30	-	-	V	$I_R = 400 \mu\text{A}$
Forward Voltage Drop	$V_F$		0.21	0.26	V	$I_F = 0.1\text{A}, T_J = 25^\circ\text{C}$
			0.11	0.15		$I_F = 0.1\text{A}, T_J = 125^\circ\text{C}$
			0.31	0.35		$I_F = 1.0\text{A}, T_J = 25^\circ\text{C}$
			0.23	0.30		$I_F = 1.0\text{A}, T_J = 125^\circ\text{C}$
			0.36	0.40		$I_F = 2.0\text{A}, T_J = 25^\circ\text{C}$
			0.30	0.33		$I_F = 2.0\text{A}, T_J = 125^\circ\text{C}$
			210	500	$\mu\text{A}$	$V_R = 30\text{V}, T_J = 25^\circ\text{C}$
Leakage Current (Note 6)	$I_R$		23	100	$\text{mA}$	$V_R = 30\text{V}, T_J = 125^\circ\text{C}$

Notes: 4. Theoretical  $R_{\theta JS}$  calculated from the top center of the die straight down to the PCB cathode tab solder junction.

5. FR-4 PCB, 2 oz. Copper, minimum recommended pad layout per <http://www.diodes.com>.  $T_A = 25^\circ\text{C}$

6. Short duration pulse test used to minimize self-heating effect.

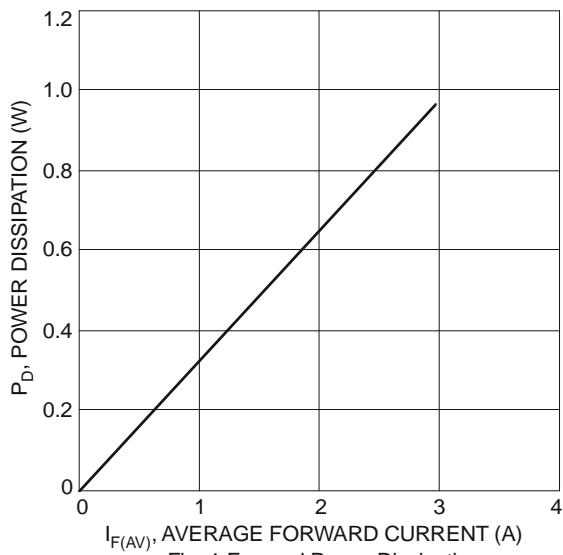


Fig. 1 Forward Power Dissipation

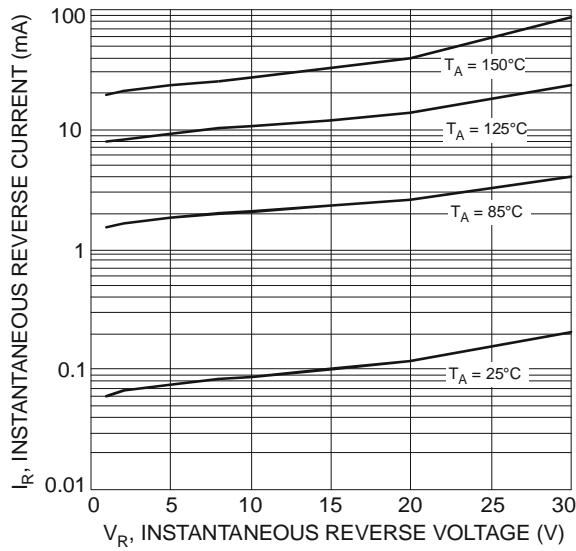


Fig. 3 Typical Reverse Characteristics

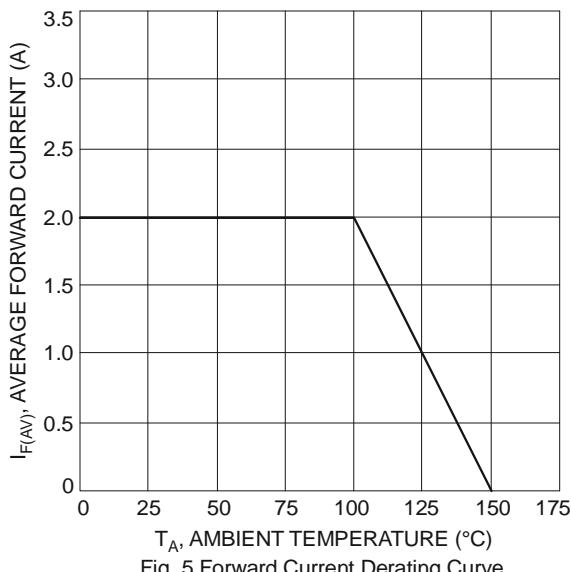


Fig. 5 Forward Current Derating Curve

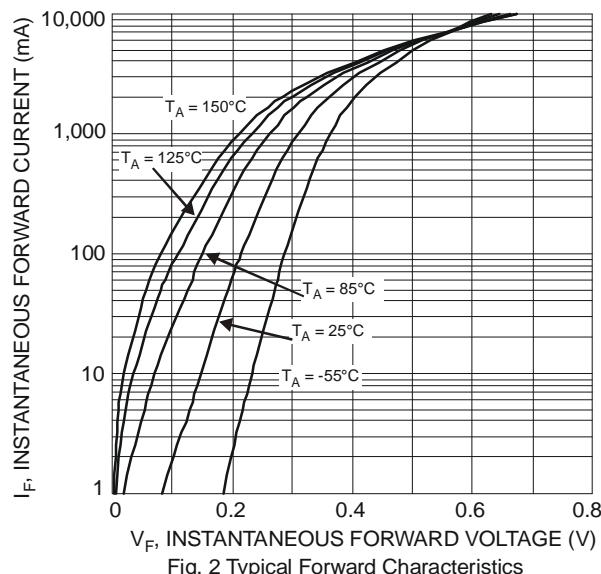


Fig. 2 Typical Forward Characteristics

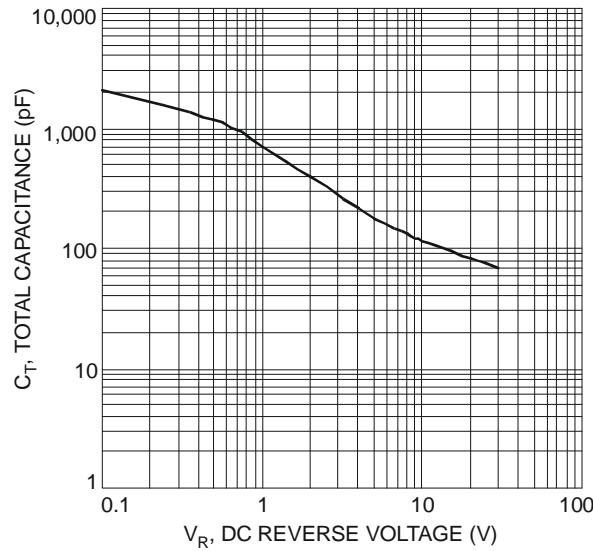


Fig. 4 Total Capacitance vs. Reverse Voltage

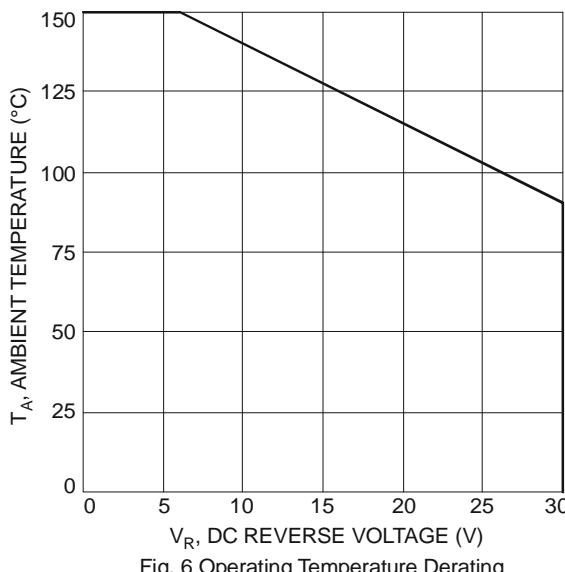


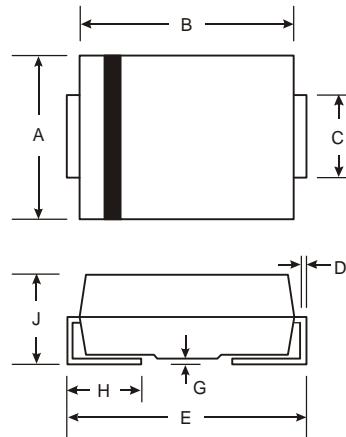
Fig. 6 Operating Temperature Derating

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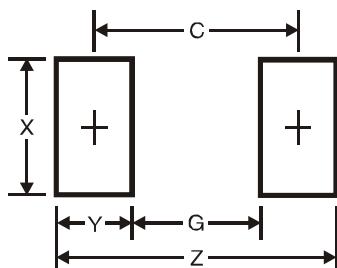
## Package Outline Dimensions



SMA		
Dim	Min	Max
<b>A</b>	2.29	2.92
<b>B</b>	4.00	4.60
<b>C</b>	1.27	1.63
<b>D</b>	0.15	0.31
<b>E</b>	4.80	5.59
<b>G</b>	0.05	0.20
<b>H</b>	0.76	1.52
<b>J</b>	2.01	2.30

All Dimensions in mm

## Suggested Pad Layout



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

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