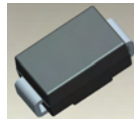


Features

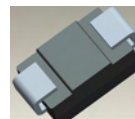
- Ultra Low Forward Voltage Drop
- Patented Super Barrier Rectifier Technology
- Soft, Fast Switching Capability
- 150°C Operating Junction Temperature
- **Lead Free Finish, RoHS Compliant (Note 1)**
- **Green Molding Compound (No Halogen and Antimony) (Note 6)**

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 @ $T_A = 25^\circ\text{C}$ 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}	20	V
Working Peak Reverse Voltage	V_{RWM}		
DC Blocking Voltage	V_{RM}		
RMS Reverse Voltage	$V_{R(RMS)}$	14	V
Average Rectified Output Current (See Figure 1)	I_O	3.0	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I_{FSM}	66	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Maximum Thermal Resistance			
Thermal Resistance Junction to Soldering (Note 2)	$R_{\theta JS}$	44	$^\circ\text{C/W}$
Thermal Resistance Junction to Ambient (Note 3)	$R_{\theta JA}$	127	
Thermal Resistance Junction to Ambient (Note 4)	$R_{\theta JA}$	97	
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 5)	$V_{(BR)R}$	20	-	-	V	$I_R = 0.75\text{mA}$
Forward Voltage Drop	V_F	-	0.26	0.30	V	$I_F = 0.5\text{A}, T_J = 25^\circ\text{C}$
		-	0.29	0.33		$I_F = 1.0\text{A}, T_J = 25^\circ\text{C}$
		-	0.35	0.39		$I_F = 3.0\text{A}, T_J = 25^\circ\text{C}$
		-	0.28	0.32		$I_F = 3.0\text{A}, T_J = 125^\circ\text{C}$
Leakage Current (Note 5)	I_R	-	-	500	μA	$V_R = 20\text{V}, T_J = 25^\circ\text{C}$
		-	-	100	mA	$V_R = 20\text{V}, T_J = 125^\circ\text{C}$

- 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.
 2. Theoretical $R_{\theta JS}$ 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>. $T_A = 25^\circ\text{C}$
 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. 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.

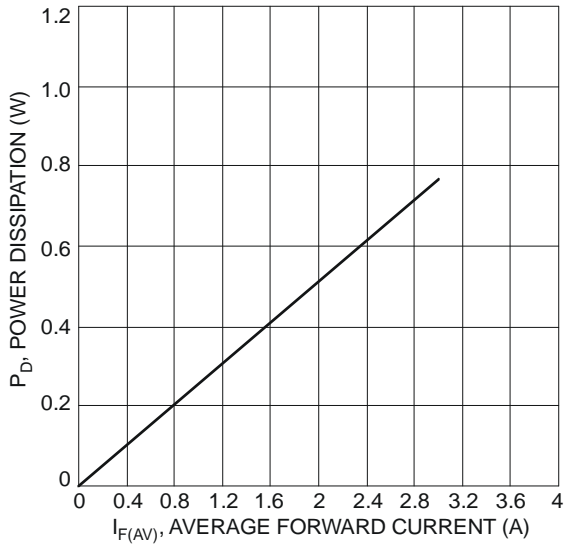


Fig. 1 Forward Power Dissipation

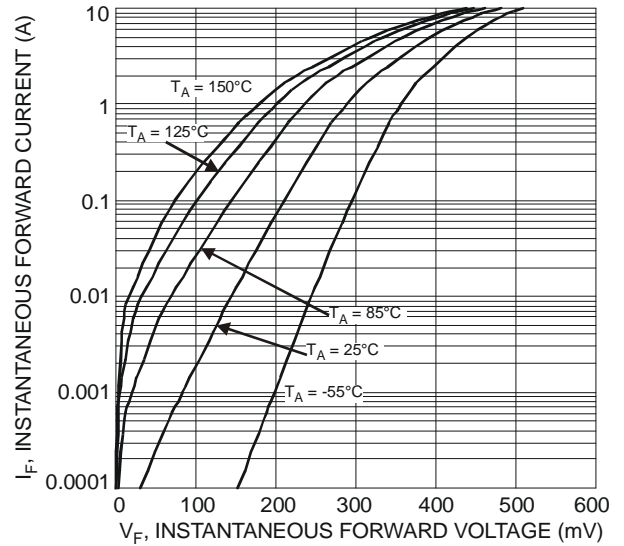


Fig. 2 Typical Forward Characteristics

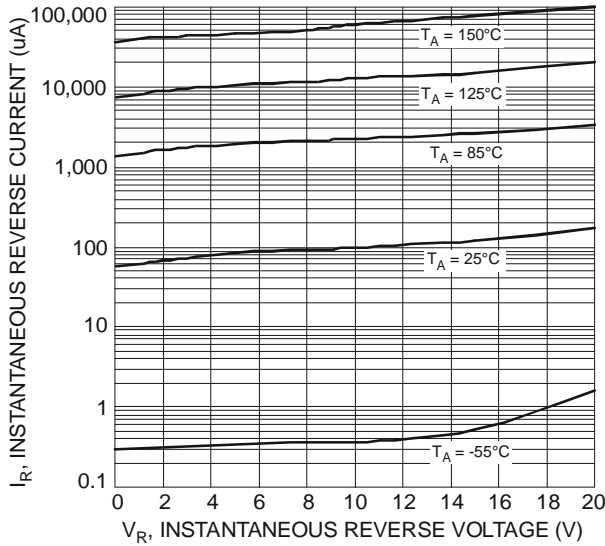


Fig. 3 Typical Reverse Characteristics

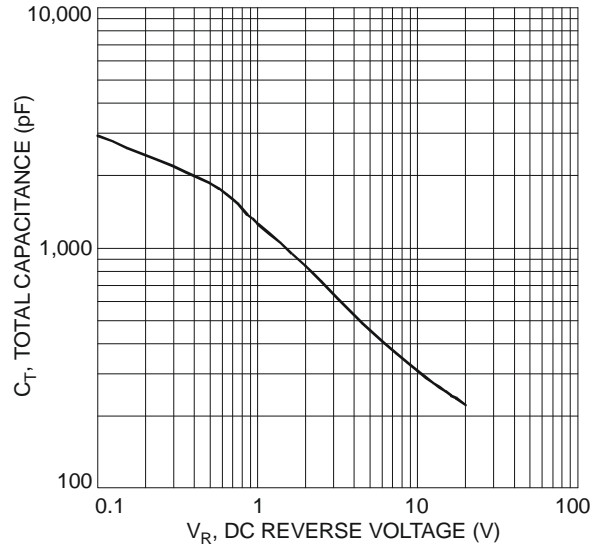


Fig. 4 Total Capacitance vs. Reverse Voltage

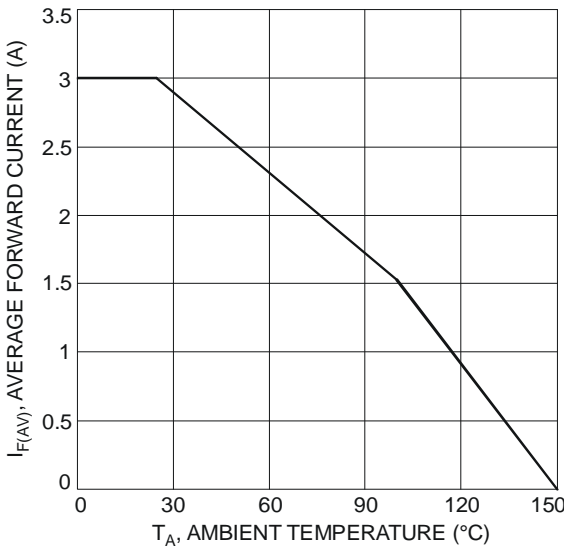


Fig. 5 Forward Current Derating Curve

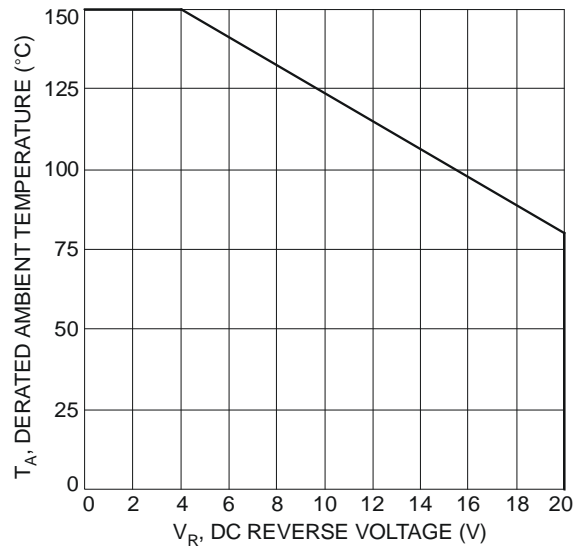


Fig. 6 Operating Temperature Derating

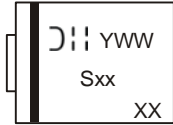
SBR is a registered trademark of Diodes Incorporated.

Ordering Information (Note 7)

Part Number	Case	Packaging
SBR3U20SA-13	SMA	5000/Tape & Reel

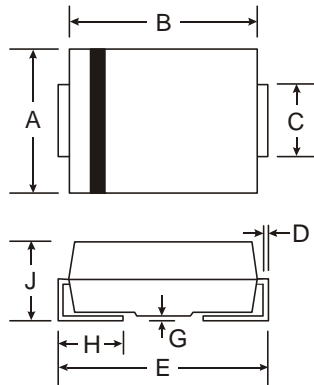
Notes: 7. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

Marking Information



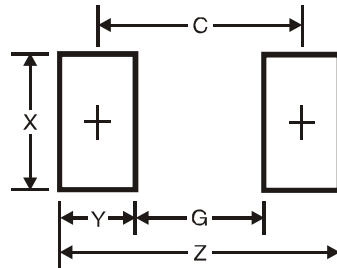
SQ2, SV2 = Product Type Marking Code
 □□□ = Manufacturers' Code Marking
 YWW = Date Code Marking
 Y = Last Digit of Year ex: 7 for 2007
 WW = Week Code 01 to 52

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.

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