

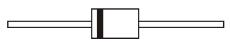
## 12A SBR<sup>®</sup> SUPER BARRIER RECTIFIER

## Features

- Designed as Bypass Diodes for Solar Panels
- Selectively Rated for +200°C Maximum Junction Temperature for High Thermal Reliability
- Patented Super Barrier Rectifier Technology
- High Forward Surge Capability
- Ultra Low Forward Voltage Drop
- Excellent High Temperature Stability
- Lead-Free Finish; RoHS Compliant (Notes 1 & 2)
- Halogen and Antimony Free. "Green" Device (Note 3)

## **Mechanical Data**

- Case: DO-201AD
- Case Material: Molded Plastic, UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Weight: 1.21 grams (approximate)



Top View

### Ordering Information (Notes 4 & 5)

Part Number		Case	Packaging		
Pb	SBR12A45SD1-T	DO-201AD	1200/Tape & Reel, 13-inch		
Green	SBR12A45SD1-T-G	DO-201AD	1200/Tape & Reel, 13-inch		

1. EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. All applicable RoHS exemptions applied.

2. See http://www.diodes.com for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.

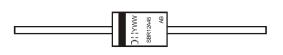
3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

4. For packaging details, go to our website at http://www.diodes.com.

5. For Green Molding version, add '-G' to part number (ex. SBR12A45SD1-T-G)

## **Marking Information**

Notes:



SBR12A45 = Product Type Marking Code AB = Foundry and Assembly Code D11 = Manufacturers' code marking YWW = Date Code Marking Y = Last digit of year (ex: 8 for 2008) WW = Week code (01 to 53)



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

Single phase, half wave, 60Hz, resistive or inductive load.

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	Vrrm Vrwm Vrm	45	V
RMS Reverse Voltage	V <sub>R(RMS)</sub>	32	V
Average Rectified Output Current	lo	12	A
Non-Repetitive Avalanche Energy ( $T_J = +25^{\circ}C$ , IAS = 20A , L = 8.5mH)	Eas	20	mJ
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	IFSM	200	A
Peak Repetitive Reverse Surge Current (2µS – 1KHz)	I <sub>RRM</sub>	2	А

# **Thermal Characteristics**

Characteristic		Symbol	Value	Unit
Typical Thermal Resistance Thermal Resistance Junction to Ambient (Note 6 Thermal Resistance Junction to Lead (Note 6) T <sub>L</sub>		R <sub>θ</sub> JA R <sub>θJL</sub>	31 7.2	°C/W
Operating Temperature Range	$V_R \le 80\% V_{RRM}$ $V_R \le 50\% V_{RRM}$ DC Forward Mode	TJ	-65 to +150 ≤180 ≤200	°C
Storage Temperature Range		T <sub>STG</sub>	-65 to +175	°C

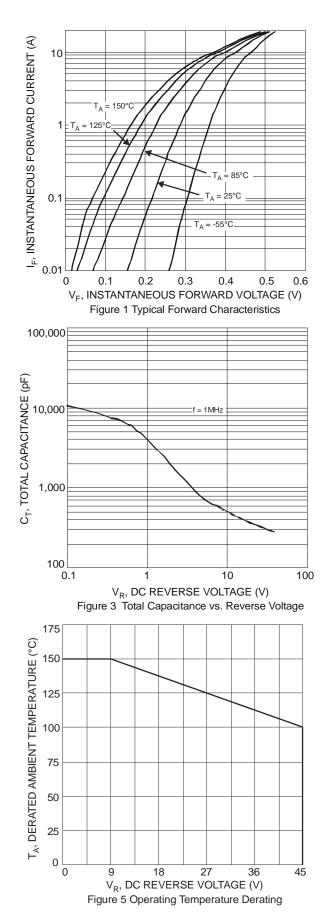
# Electrical Characteristics (@T<sub>A</sub> = +25°C, unless otherwise specified.)

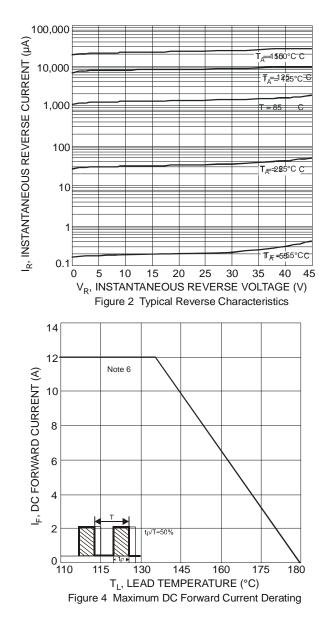
Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 7)	V <sub>(BR)R</sub>	45	_	-	V	$I_R = 0.5 mA$
Forward Voltage Drop	VF		0.43 0.40	0.48 0.44	V	I <sub>F</sub> = 12A, T <sub>J</sub> = +25°C I <sub>F</sub> = 12A, T <sub>J</sub> = +125°C
Leakage Current (Note 7)	I <sub>R</sub>		50  27	500 40 100	mA	$V_R = 45V, T_J = +25^{\circ}C$ $V_R = 45V, T_J = +125^{\circ}C$ $V_R = 45V, T_J = +150^{\circ}C$

Notes: 6. Device mounted on 2" x 2" (50mm x 50mm) copper pad, with lead length 0.5".

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



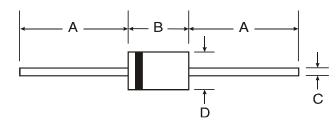






## **Package Outline Dimensions**

Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for latest version.



DO-201AD					
Dim	Min	Max			
Α	25.40	_			
В	7.20	9.50			
С	1.20	1.30			
D	4.80	5.30			
All Dimensions in mm					

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