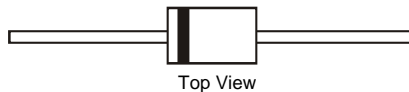


## Features

- 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 (Note 2)**

## Mechanical Data

- Case: DO-201AD
- Case Material: Molded Plastic, UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminals: Finish – Tin Plated Leads. Solderable per MIL-STD-202, Method 208 **e3**
- Marking Information: See Page 3
- Ordering Information: See Page 3
- Weight: 0.121 grams (approximate)



## 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>	45	V
Working Peak Reverse Voltage	V <sub>RWM</sub>		
DC Blocking Voltage	V <sub>RM</sub>		
RMS Reverse Voltage	V <sub>R(RMS)</sub>	32	V
Average Rectified Output Current	I <sub>O</sub>	12	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I <sub>FSM</sub>	200	A
Peak Repetitive Reverse Surge Current (2μS – 1KHz)	I <sub>RRM</sub>	2	A

## Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance	R <sub>θJA</sub>	31	°C/W
Thermal Resistance Junction to Ambient (Note 3)			
Thermal Resistance Junction to Lead (Note 3) T <sub>L</sub> = 135°C	R <sub>θJL</sub>	7.2	
Operating Temperature Range	T <sub>J</sub>	V <sub>R</sub> ≤ 80% V <sub>RRM</sub>	-65 to +150
		V <sub>R</sub> ≤ 50% V <sub>RRM</sub>	≤180
		DC Forward Mode	≤200
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	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 1)	V <sub>(BR)R</sub>	45	-	-	V	I <sub>R</sub> = 0.5mA
Forward Voltage Drop	V <sub>F</sub>	-	0.43	0.48	V	I <sub>F</sub> = 12A, T <sub>J</sub> = 25°C
		-	0.40	0.44		I <sub>F</sub> = 12A, T <sub>J</sub> = 125°C
Leakage Current (Note 1)	I <sub>R</sub>	-	50	500	μA	V <sub>R</sub> = 45V, T <sub>J</sub> = 25°C
		-	-	40	mA	V <sub>R</sub> = 45V, T <sub>J</sub> = 125°C
		-	27	100	mA	V <sub>R</sub> = 45V, T <sub>J</sub> = 150°C

- Notes:
1. Short duration pulse test used to minimize self-heating effect.
  2. EU Directive 2002/95/EC (RoHS). All applicable RoHS exemptions applied. Please visit our website at [http://www.diodes.com/products/lead\\_free.html](http://www.diodes.com/products/lead_free.html).
  3. Device mounted on 2" x 2" (50mm x 50mm) copper pad, with lead length 0.5".

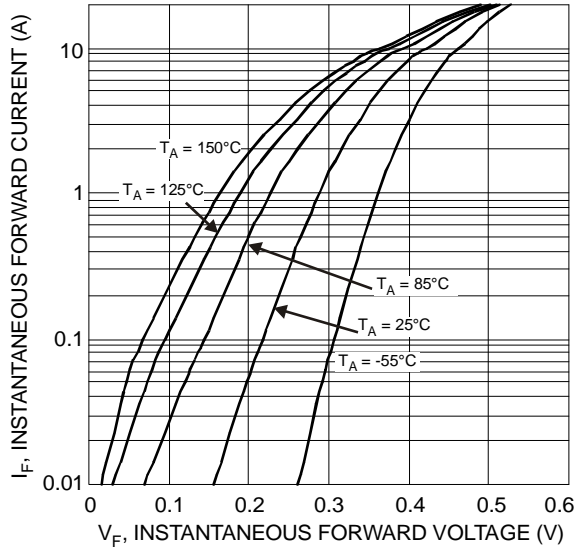


Fig. 1 Typical Forward Characteristics

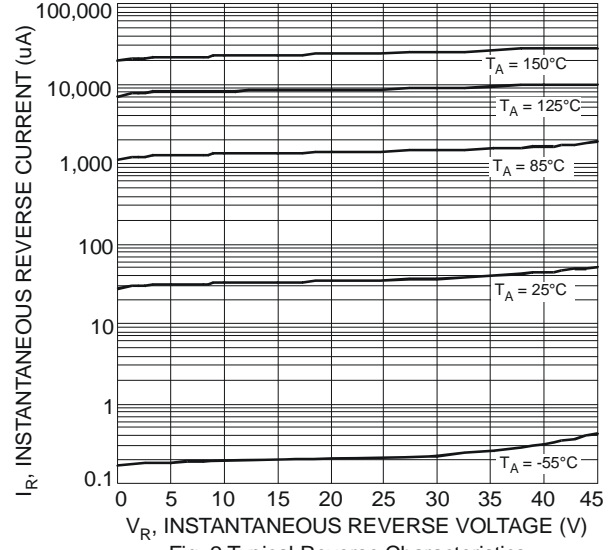


Fig. 2 Typical Reverse Characteristics

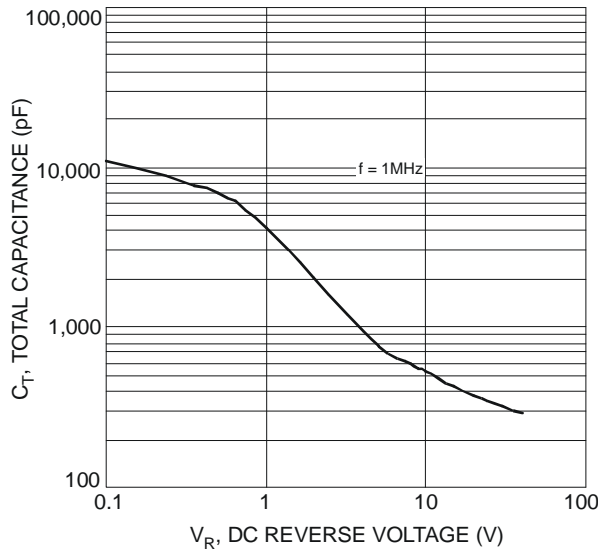


Fig. 3 Total Capacitance vs. Reverse Voltage

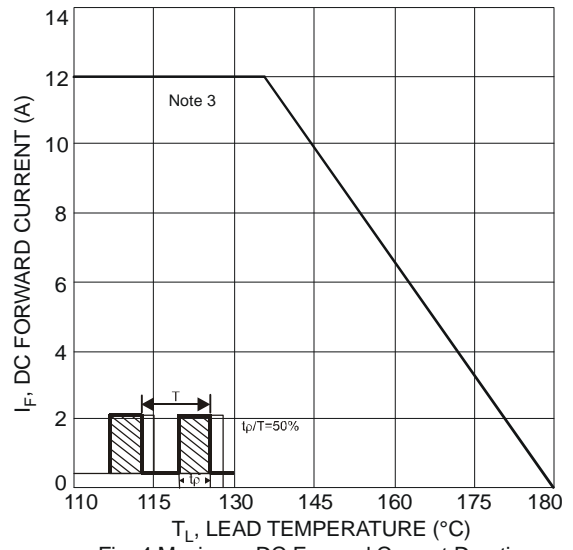


Fig. 4 Maximum DC Forward Current Derating

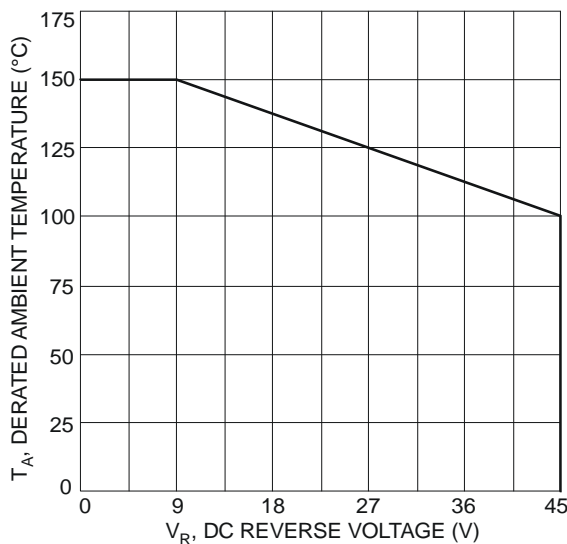


Fig. 5 Operating Temperature Derating


**Ordering Information** (Note 4)

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

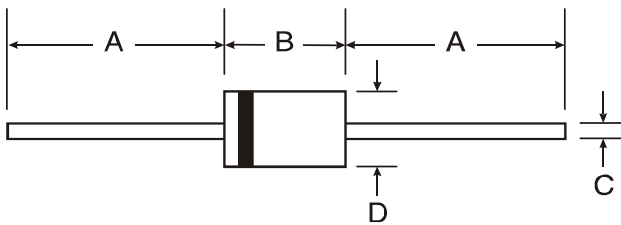
Notes: 4. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

**Marking Information**



SBR12A45 = Product Type Marking Code  
 AB = Foundry and Assembly Code  
 = Manufacturers' code marking  
 YYWW = Date Code Marking  
 Y = Last digit of year (ex: 8 for 2008)  
 WW = Week code 01 to 52

**Package Outline Dimensions**



DO-201AD		
Dim	Min	Max
A	25.40	—
B	7.20	9.50
C	1.20	1.30
D	4.80	5.30
All Dimensions in mm		

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