

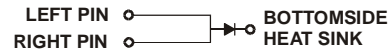
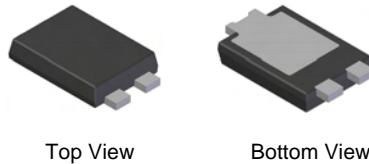
## Features

- Designed as Bypass Diodes for Solar Panels
- Selectively Rated for 200°C Maximum Junction Temperature for High Thermal Reliability
- Patented Super Barrier Rectifier Technology
- 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: POWERDI5
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish – Matte Tin annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208 ③
- Weight: 0.093 grams (approximate)

POWERDI5



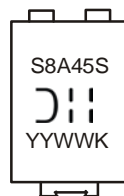
**Note:** Pins Left & Right must be electrically connected at the printed circuit board.

## Ordering Information (Note 4)

Part Number	Case	Packaging
SBR8A45SP5-13	POWERDI5	5000/Tape & Reel
SBR8A45SP5-7	POWERDI5	1500/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> 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>.

## Marking Information



S8A45S = Product Type Marking Code  
 ⌋|| = Manufacturers' code marking  
 K = Factory designator  
 YYWW = Date Code Marking  
 YY = Last two digits of year (ex: 09 for 2009)  
 WW = Week code (01 ~ 53)

**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>		
Average Rectified Output Current	I <sub>O</sub>	8	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I <sub>FSM</sub>	180	A

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Thermal Resistance Junction to Lead	R <sub>θJL</sub>	3	°C/W
Thermal Resistance Junction to Case (Note 5)	R <sub>θJC</sub>	8	°C/W
Thermal Resistance Junction to Ambient (Note 5)	R <sub>θJA</sub>	102	°C/W
Thermal Resistance Junction to Ambient (Note 6)	R <sub>θJA</sub>	60	°C/W
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
Forward Voltage Drop	V <sub>F</sub>	-	-	0.60	V	I <sub>F</sub> = 8A, T <sub>J</sub> = +25°C
		-	0.52	0.57		I <sub>F</sub> = 8A, T <sub>J</sub> = +125°C
Leakage Current (Note 7)	I <sub>R</sub>	-	0.03	0.30	mA	V <sub>R</sub> = 45V, T <sub>J</sub> = +25°C
		-	10	75		V <sub>R</sub> = 45V, T <sub>J</sub> = +125°C

- Notes:
- FR-4 PCB, 2oz. Copper, minimum recommended pad layout per <http://www.diodes.com>
  - Polymide PCB, 2oz. Copper, minimum recommended pad layout per <http://www.diodes.com>.
  - Short duration pulse test used to minimize self-heating effect.

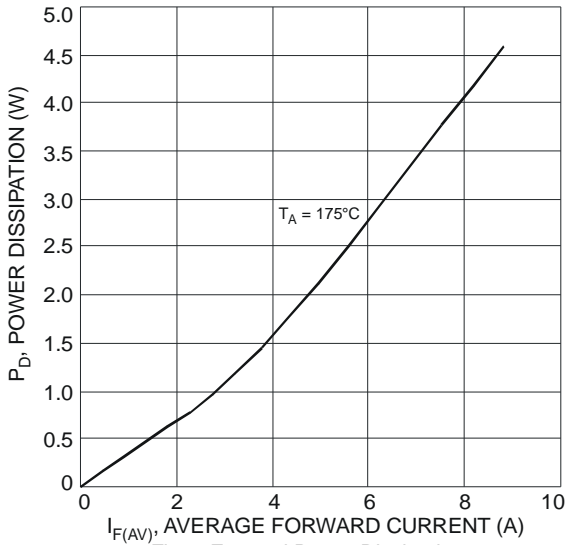


Fig. 1 Forward Power Dissipation

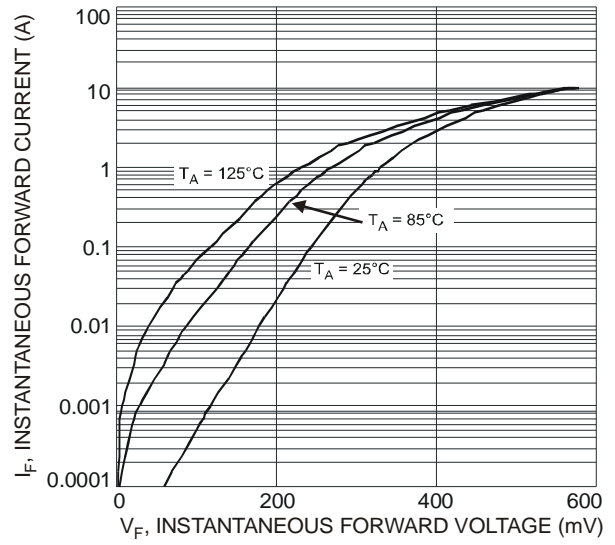


Fig. 2 Typical Forward Characteristics

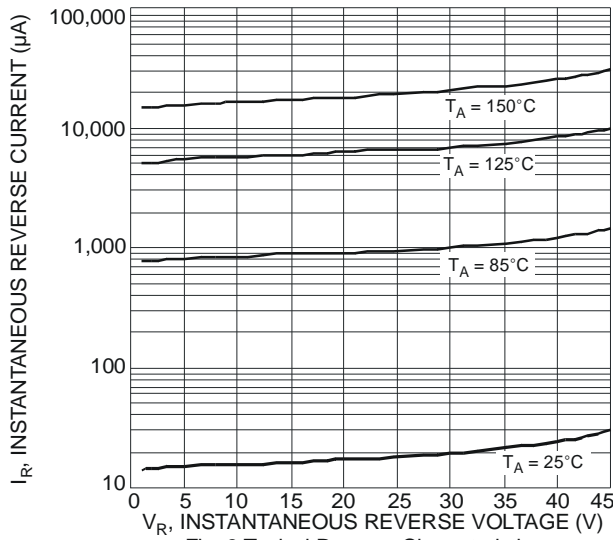


Fig. 3 Typical Reverse Characteristics

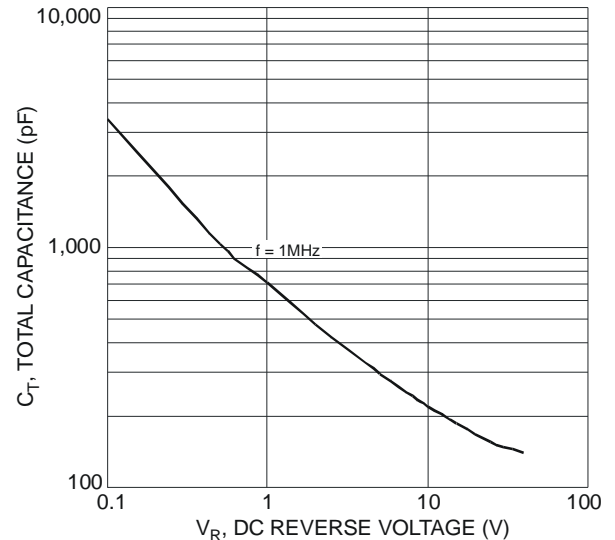


Fig. 4 Total Capacitance vs. Reverse Voltage

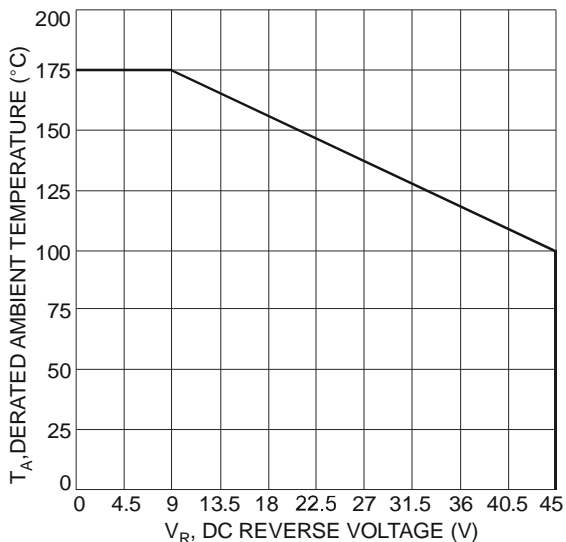


Fig. 5 Operating Temperature Derating

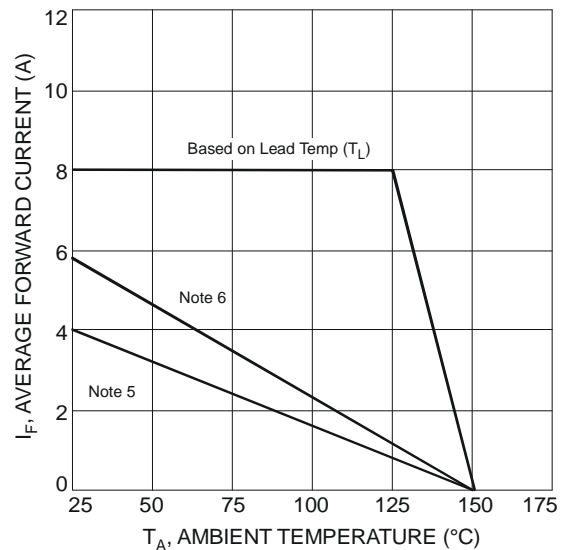
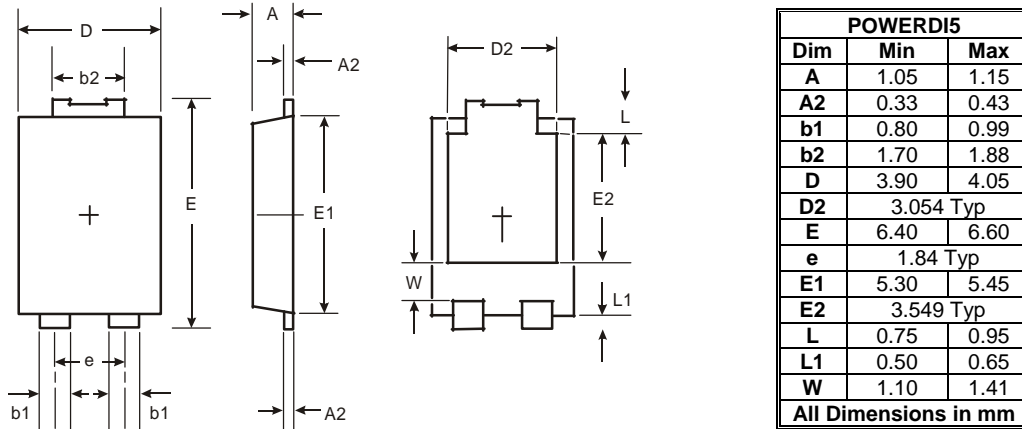


Fig. 6 Forward Current Derating Curve

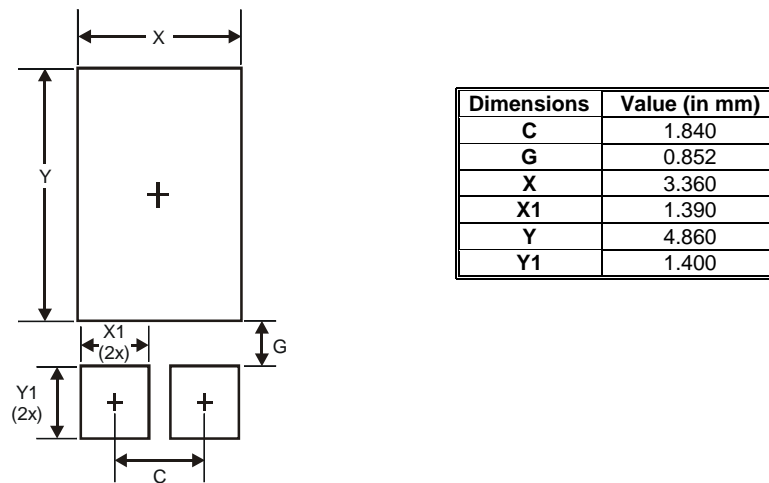
**Package Outline Dimensions**

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



**Suggested Pad Layout**

Please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for the latest version.



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