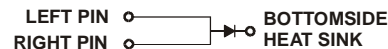
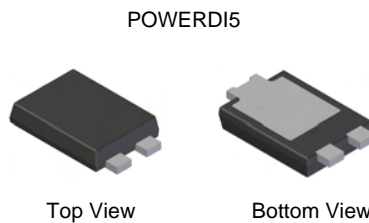


**Features**

- 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)**
- **Qualified to AEC-Q101 Standards for High Reliability**

**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)



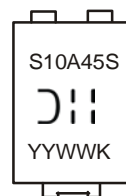
**Note:** Pins Left & Right must be electrically connected at the printed circuit board.

**Ordering Information** (Note 4)

Part Number	Case	Packaging
SBR10A45SP5-13	POWERDI5	5000/Tape & Reel
SBR10A45SP5-7	POWERDI5	1500/Tape & Reel
SBR10A45SP5Q-13	POWERDI5	5000/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**



S10A45S = Product Type Marking Code  
 J|| = Manufacturers' code marking  
 K = Factory designator  
 YYWW = Date Code Marking  
 YY = Last two digits of year (ex: 08 for 2008)  
 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>R</sub> RM	45	V
Working Peak Reverse Voltage	V <sub>R</sub> WM		
DC Blocking Voltage	V <sub>R</sub> M		
Average Rectified Output Current	I <sub>O</sub>	10	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
Typical Thermal Resistance	R <sub>θJA</sub>	102	°C/W
Thermal Resistance Junction to Ambient (Note 5)			
Thermal Resistance Junction to Ambient (Note 6)			
Operating Temperature Range	T <sub>J</sub>	V <sub>R</sub> ≤ 80% V <sub>R</sub> RM	-65 to +150
		V <sub>R</sub> ≤ 50% V <sub>R</sub> RM	≤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 7)	V <sub>(BR)R</sub>	45	-	-	V	I <sub>R</sub> = 0.5mA
Forward Voltage Drop	V <sub>F</sub>	-	0.39	-	V	I <sub>F</sub> = 5A, T <sub>J</sub> = +25°C
		-	0.46	0.53		I <sub>F</sub> = 10A, T <sub>J</sub> = +25°C
Leakage Current (Note 7)	I <sub>R</sub>	-	-	400	μA	V <sub>R</sub> = 45V, T <sub>J</sub> = +25°C

- Notes: 5. FR-4 PCB, 2oz. Copper, minimum recommended pad layout per <http://www.diodes.com>.  
6. Polyimide PCB, 2oz. Copper, minimum recommended pad layout per <http://www.diodes.com>.  
7. Short duration pulse test used to minimize self-heating effect.

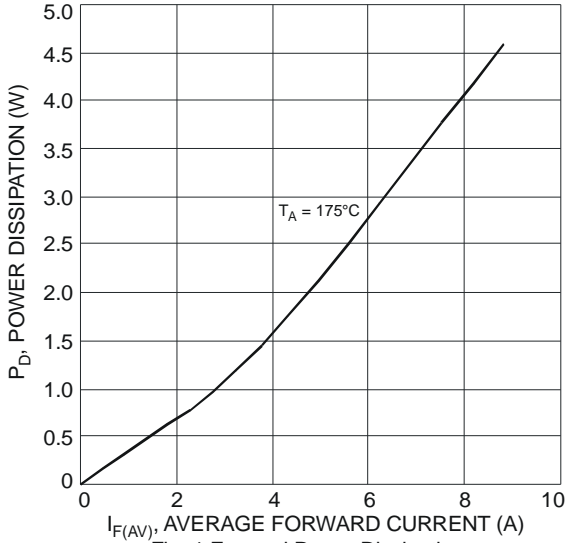


Fig. 1 Forward Power Dissipation

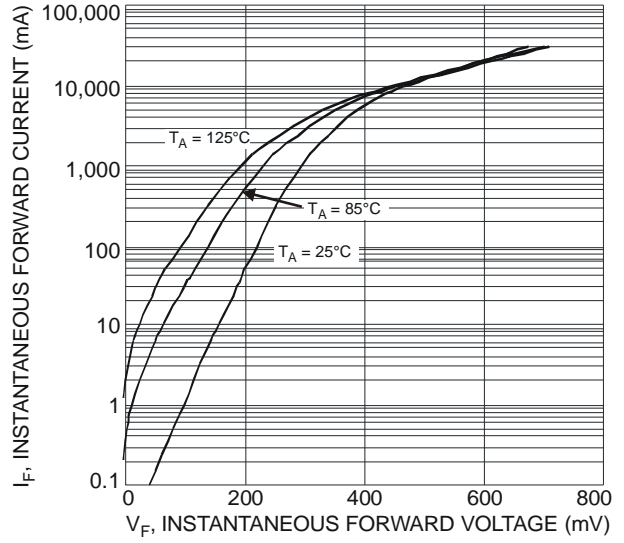


Fig. 2 Typical Forward Characteristics

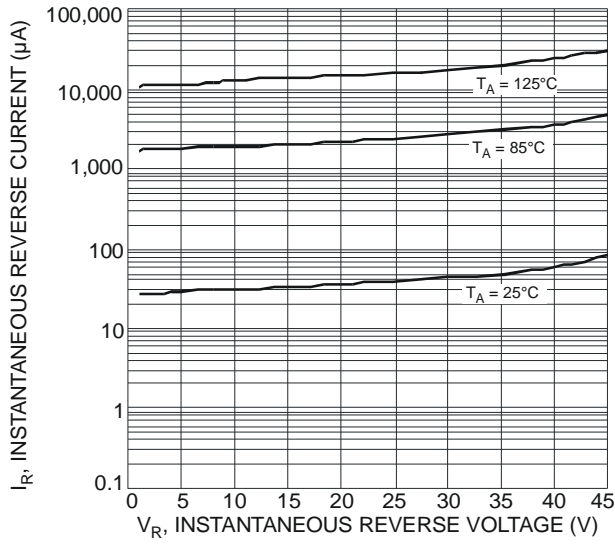


Fig. 3 Typical Reverse Characteristics

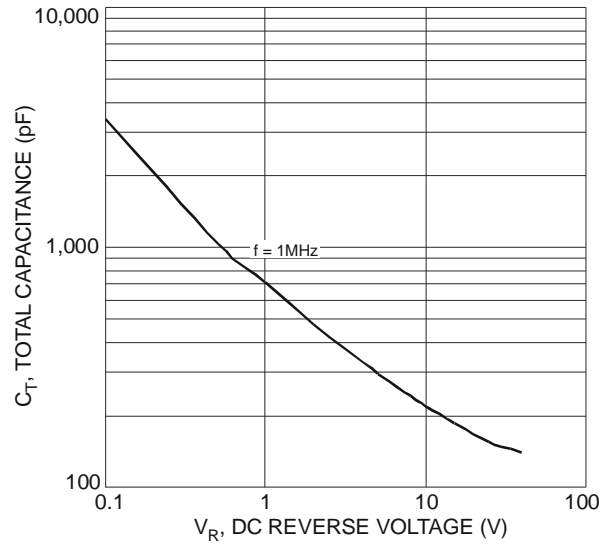


Fig. 4 Total Capacitance vs. Reverse Voltage

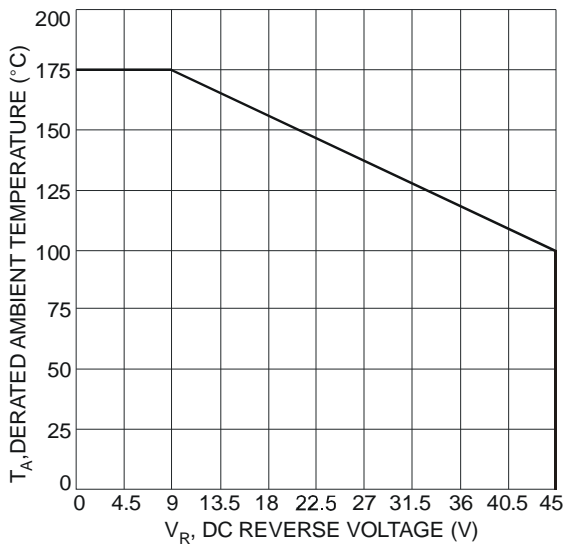


Fig. 5 Operating Temperature Derating

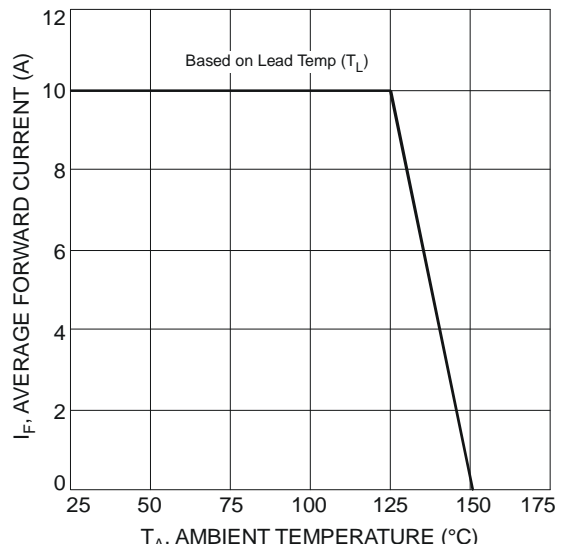
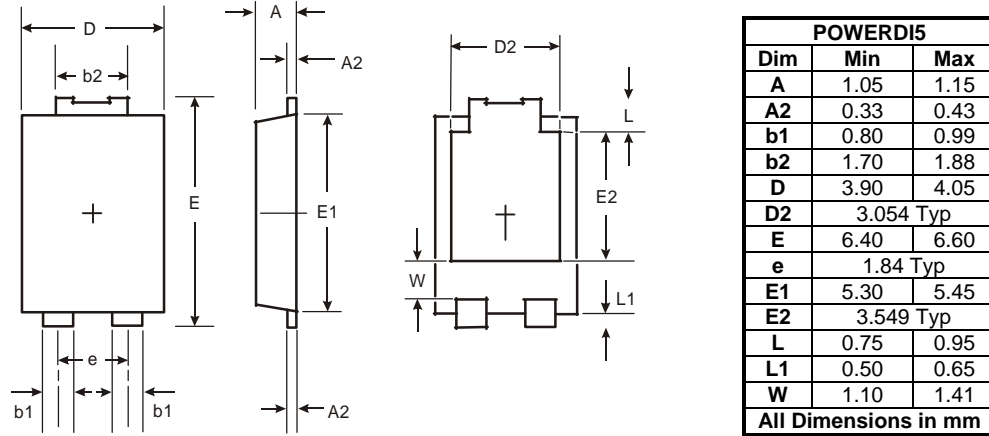


Fig. 6 Forward Current Derating Curve

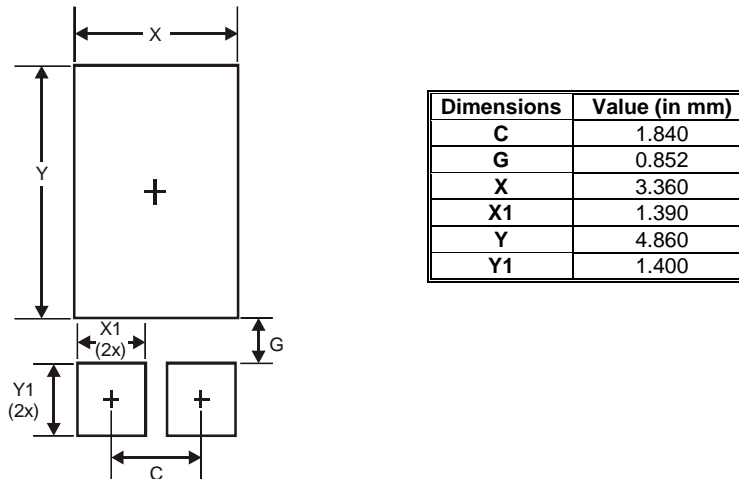
## Package Outline Dimensions

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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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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