8A SBR® SUPER BARRIER RECTIFIER POWERDI®

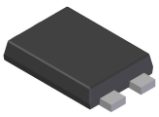
Features

- 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)**

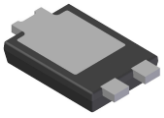
Mechanical Data

- Case: POWERDI®5
- 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 e3
- Weight: 0.093 grams (Approximate)

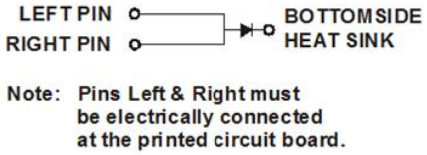
POWERDI®5



Top View



Bottom View



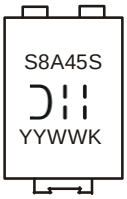
Ordering Information (Note 4)

Part Number	Case	Packaging
SBR8A45SP5-13	POWERDI®5	5,000/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/quality/lead_free.html 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/products/packages.html.

Marking Information

POWERDI®5



S8A45S = Product Type Marking Code
= Manufacturers' Code Marking
K = Factory Designator
YYWW = Date Code Marking
YY = Last Two Digits of Year (ex: 15 for 2015)
WW = Week Code (01 ~ 53)

Maximum Ratings (@T_A = +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 Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_{RM}	45	V
Average Rectified Output Current	I_O	8	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I_{FSM}	180	A

Thermal Characteristics

Characteristic		Symbol	Value	Unit
Typical Thermal Resistance Junction to Lead		$R_{\theta JL}$	3	°C/W
Typical Thermal Resistance Junction to Case (Note 5)		$R_{\theta JC}$	8	°C/W
Typical Thermal Resistance Junction to Ambient (Note 5)		$R_{\theta JA}$	102	°C/W
Typical Thermal Resistance Junction to Ambient (Note 6)		$R_{\theta JA}$	60	°C/W
Operating Temperature Range	$V_R \le 80\% V_{RRM}$	T_J	-65 to +150	°C
	$V_R \le 50\% V_{RRM}$		≤180	
	DC Forward Mode		≤200	
Storage Temperature Range		T_{STG}	-65 to +175	°C

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage Drop	V_F	- -	- 0.52	0.60 0.57	V	I_F = 8A, T_J = +25°C I_F = 8A, T_J = +125°C
Leakage Current (Note 7)	I_R	- -	0.03 10	0.30 75	mA	V_R = 45V, T_J = +25°C V_R = 45V, T_J = +125°C

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

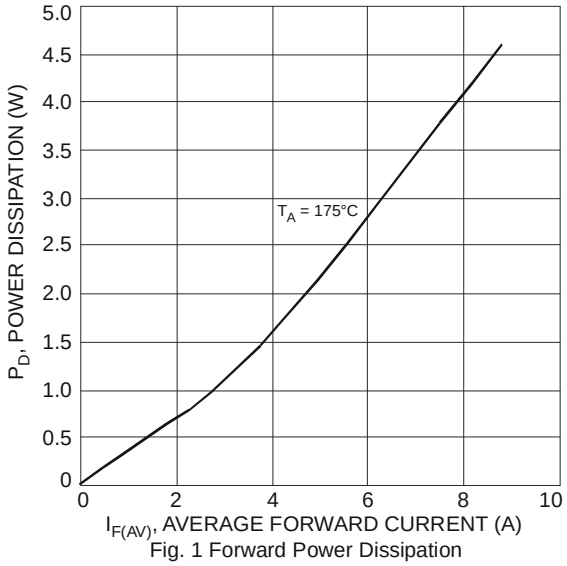


Fig. 1 Forward Power Dissipation

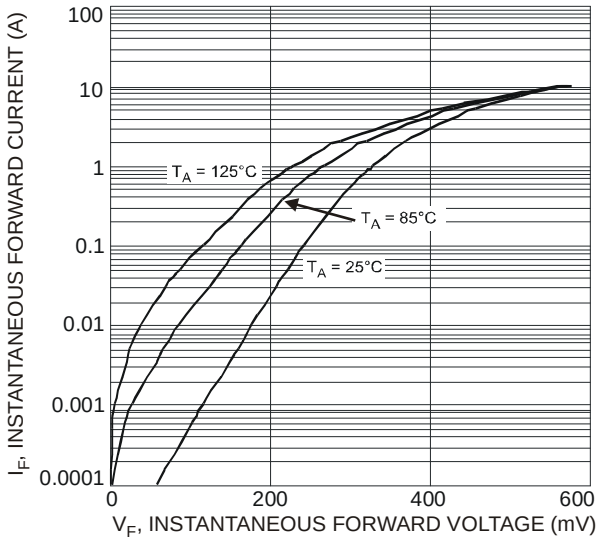


Fig. 2 Typical Forward Characteristics

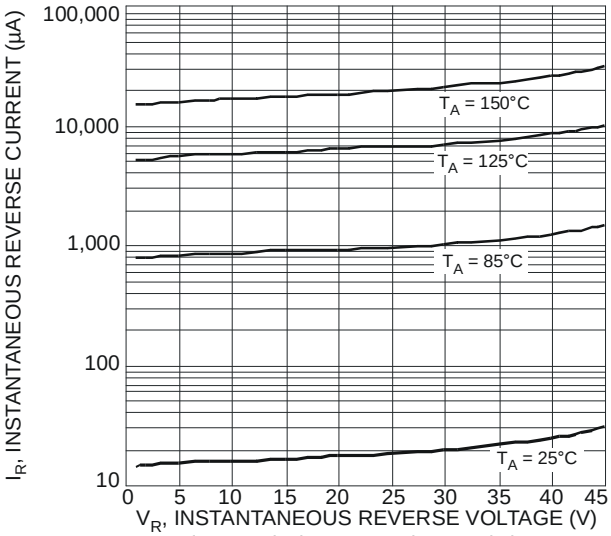


Fig. 3 Typical Reverse Characteristics

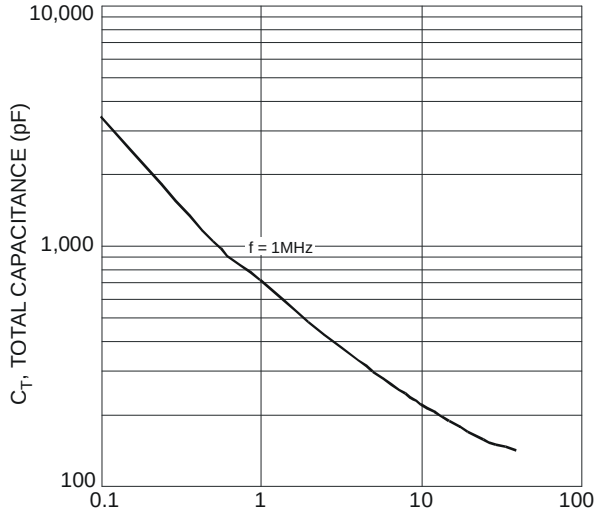


Fig. 4 Total Capacitance vs. Reverse Voltage

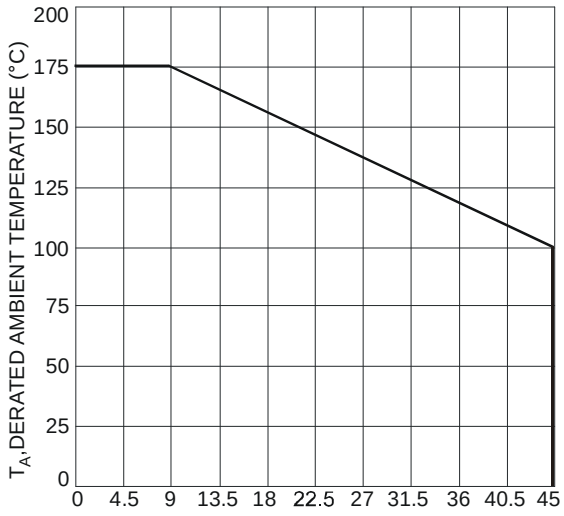


Fig. 5 Operating Temperature Derating

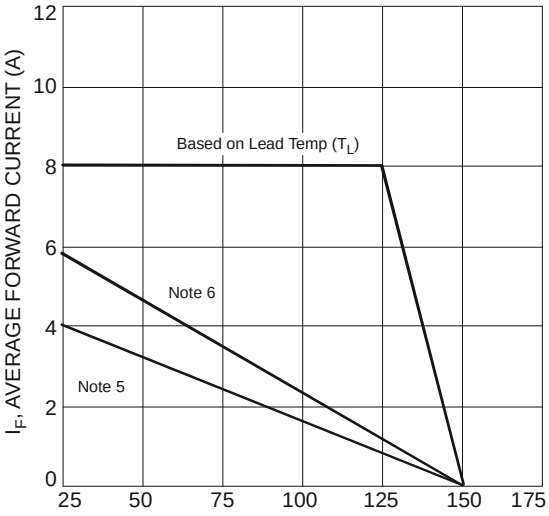
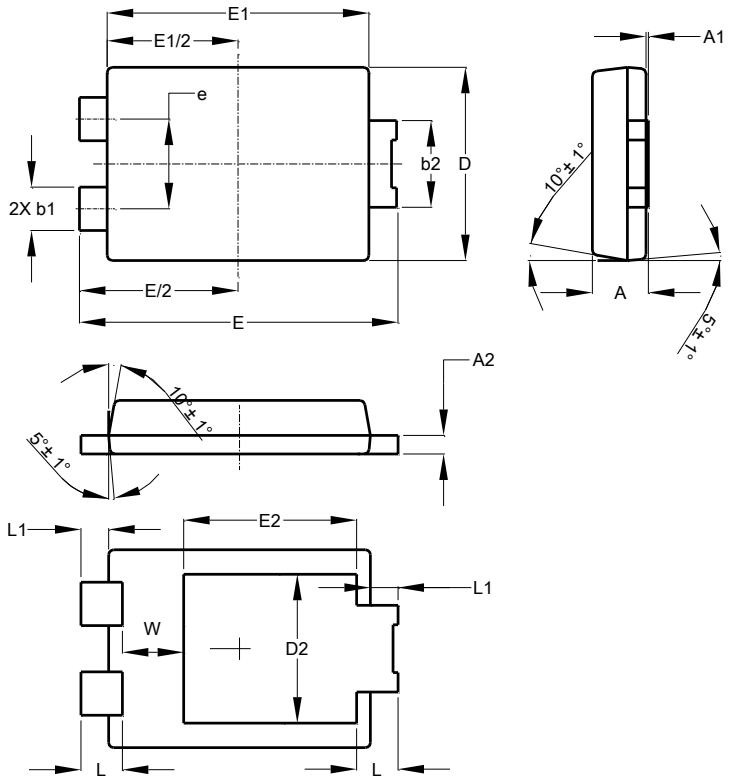


Fig. 6 Forward Current Derating Curve

Package Outline Dimensions

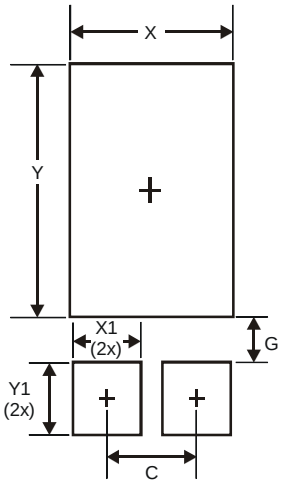
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for the latest version.



POWERDI®5			
Dim	**Min**	**Max**	**Typ**
A	1.05	1.15	1.10
A2	0.33	0.43	0.381
b1	0.80	0.99	0.89
b2	1.70	1.88	1.78
D	3.90	4.05	3.966
D2	-	-	3.054
E	6.40	6.60	6.504
e	-	-	1.84
E1	5.30	5.45	5.37
E2	-	-	3.549
L	0.75	0.95	0.85
L1	0.50	0.65	0.57
W	1.10	1.41	1.255
All Dimensions in mm			

Suggested Pad Layout

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



Dimensions	Value (in mm)
C	1.840
G	0.852
X	3.360
X1	1.390
Y	4.860
Y1	1.400

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