

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 (Note 1)**

Mechanical Data

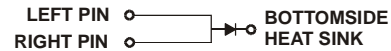
- Case: POWERDI^{®5}
- Case Material: Molded Plastic, "Green" Molding compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208 ⁽³⁾
- Polarity: See Diagram
- Weight: 0.093 grams (approximate)



Top View



Bottom View



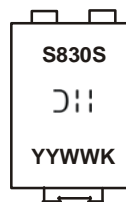
Note: Pins Left & Right must be electrically connected at the printed circuit board.

Ordering Information (Note 2)

Part Number	Case	Packaging
SBR830SP5-13	POWERDI ^{®5}	5000/Tape & Reel

- Notes:
1. EU Directive 2002/95/EC (RoHS). All applicable RoHS exemptions applied, see EU Directive 2002/95/EC Annex Notes
 2. For packaging details, go to our website at <http://www.diodes.com>.

Marking Information



- S830S = Product type marking code
- DII = Manufacturers' code marking
- YYWW = Date code marking
- YY = Last two digits of year (ex: 11 for 2011)
- WW = Week code (01 – 53)
- K = Factory designator

Maximum Ratings @ $T_A = 25^\circ\text{C}$ 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_{RRM}	30	V
Working Peak Reverse Voltage	V_{RWM}		
DC Blocking Voltage	V_{RM}		
Average Rectified Output Current (See Figure 1)	I_O	8	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I_{FSM}	150	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance	$R_{\theta JA}$	116	$^\circ\text{C}/\text{W}$
Thermal Resistance Junction to Ambient (Note 4)		39	
Thermal Resistance Junction to Ambient (Note 5)			
Operating Temperature Range	T_J	$V_R \leq 80\% V_{RRM}$	-65 to +150
		$V_R \leq 50\% V_{RRM}$	≤ 180
		DC Forward Mode	≤ 200
Storage Temperature Range	T_{STG}	-65 to +175	$^\circ\text{C}$

Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage Drop	V_F	-	0.37	0.44	V	$I_F = 4.0\text{A}, T_J = 25^\circ\text{C}$
		-	-	0.52		$I_F = 8.0\text{A}, T_J = 25^\circ\text{C}$
		-	0.40	0.46		$I_F = 8.0\text{A}, T_J = 125^\circ\text{C}$
Leakage Current (Note 3)	I_R	-	-	200	μA	$V_R = 30\text{V}, T_J = 25^\circ\text{C}$

- Notes:
- Short duration pulse test used to minimize self-heating effect.
 - FR-4 PCB, 2oz. Copper, minimum recommended pad layout per <http://www.diodes.com/datasheets/ap02001.pdf>.
 - Polymide PCB, 2oz. Copper. Cathode pad dimensions 18.8mm x 14.4mm. Anode pad dimensions 5.6mm x 14.4mm.

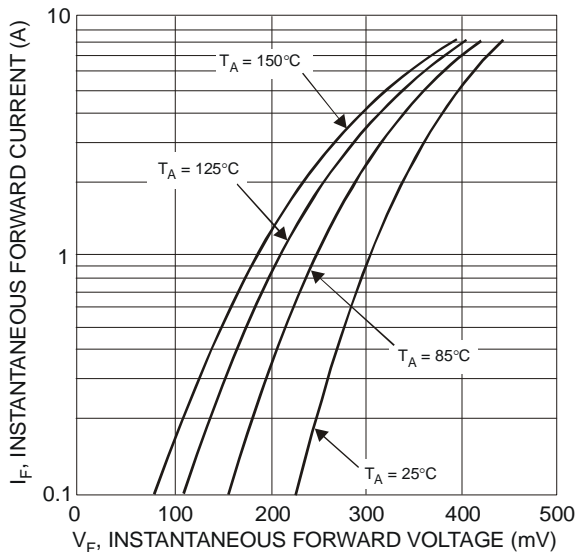


Fig. 1 Typical Forward Characteristics

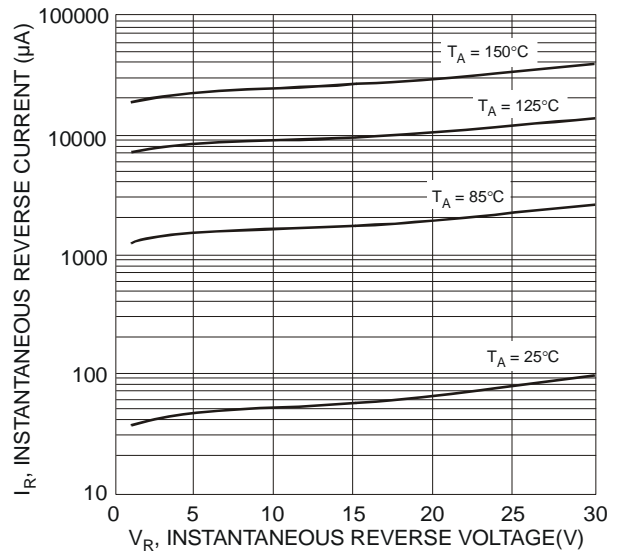
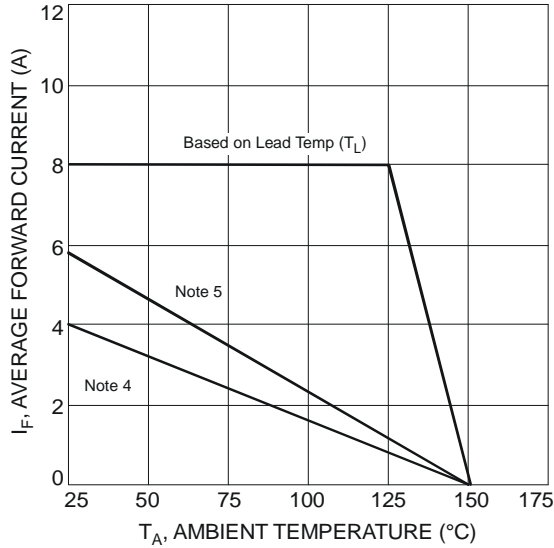
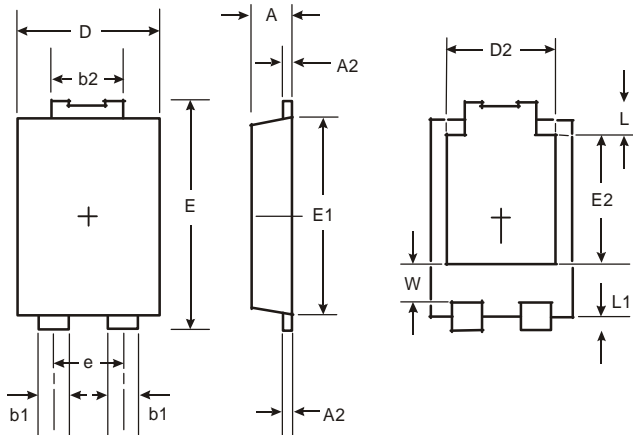


Fig. 2 Typical Reverse Characteristics

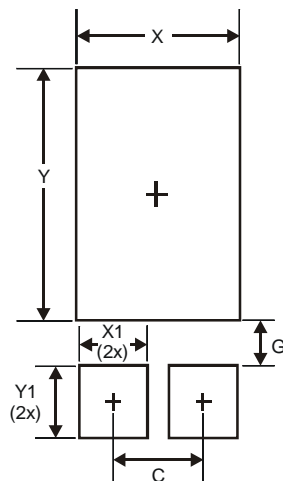


Package Outline Dimensions



POWERDI [®] 5		
Dim	Min	Max
A	1.05	1.15
A2	0.33	0.43
b1	0.80	0.99
b2	1.70	1.88
D	3.90	4.05
D2	3.054 Typ	
E	6.40	6.60
e	1.84 Typ	
E1	5.30	5.45
E2	3.549 Typ	
L	0.75	0.95
L1	0.50	0.65
W	1.10	1.41
All Dimensions in mm		

Suggested Pad Layout



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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