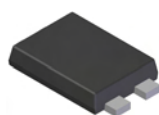


## Features

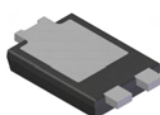
- Designed as Bypass Diodes for Solar Panels
- Selectively Rated for 200°C Maximum Junction Temperature for High Thermal Reliability
- Patented Super Barrier Rectifier Technology
- High Forward Surge Capability
- Ultra Low Forward Voltage Drop
- Excellent High Temperature Stability
- **Lead Free Finish, RoHS Compliant (Note 1)**
- **“Green” Molding Compound (No Br, Sb)**

## 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 ②③
- Weight: 0.093 grams (approximate)



Top View



Bottom View

LEFT PIN ○ RIGHT PIN ○ → BOTTOMSIDE HEAT SINK

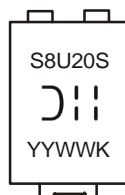
Note: Pins Left & Right must be electrically connected at the printed circuit board.

## Ordering Information (Note 2)

Part Number	Case	Packaging
SBR8U20SP5-13	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



S8U20S = Product Type Marking Code  
 ⏏ = 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** @ $T_A = 25^\circ\text{C}$  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	$V_{RRM}$	20	V
Working Peak Reverse Voltage	$V_{RWM}$		
DC Blocking Voltage	$V_{RM}$		
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

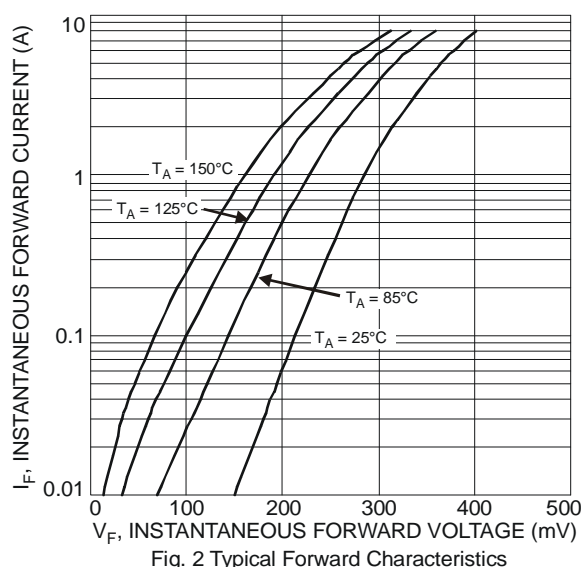
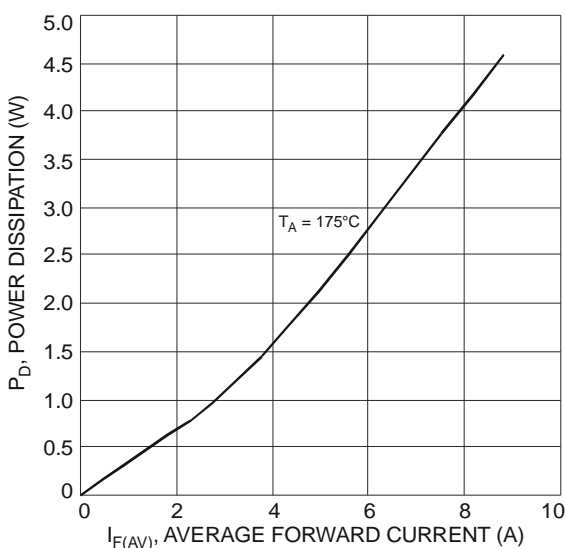
**Thermal Characteristics**

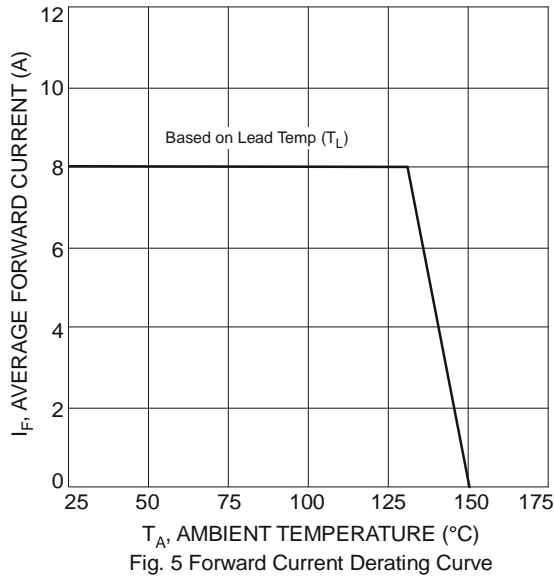
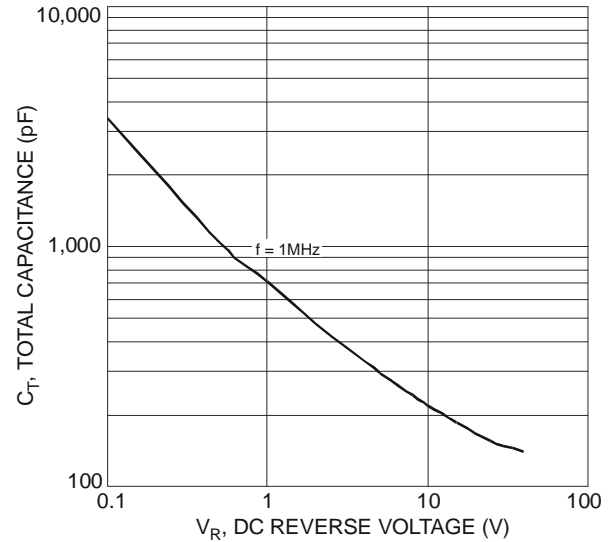
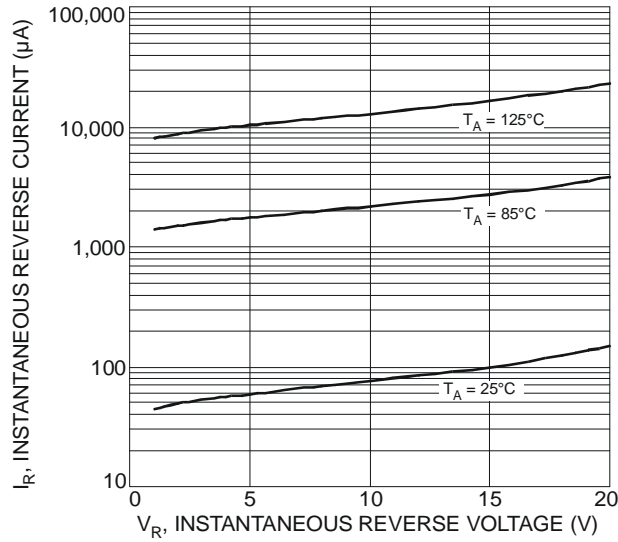
Characteristic	Symbol	Value	Unit
Maximum Thermal Resistance	$R_{\theta JA}$	102	$^\circ\text{C/W}$
Thermal Resistance Junction to Ambient (Note 3)	$R_{\theta JA}$	60	
Thermal Resistance Junction to Ambient (Note 4)			
Operating Temperature Range	$V_R \leq 80\% V_{RRM}$	-65 to +150	$^\circ\text{C}$
	$V_R \leq 50\% V_{RRM}$	$\leq 180$	
	DC Forward Mode	$\leq 200$	
Storage Temperature Range	$T_{STG}$	-65 to +175	$^\circ\text{C}$

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

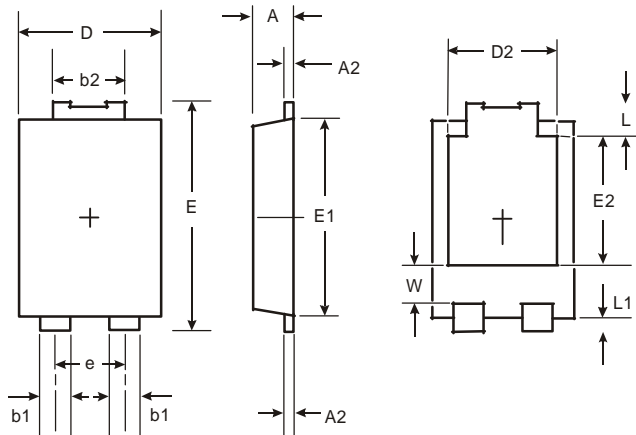
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage Drop	$V_F$	-	0.41 0.33	0.51 0.43	V	$I_F = 8\text{A}, T_J = 25^\circ\text{C}$ $I_F = 8\text{A}, T_J = 125^\circ\text{C}$
Leakage Current (Note 5)	$I_R$	-	0.08 0.2	0.2 0.5	mA	$V_R = 4\text{V}, T_J = 25^\circ\text{C}$ $V_R = 20\text{V}, T_J = 25^\circ\text{C}$

- Notes: 3. FR-4 PCB, 2oz. Copper, minimum recommended pad layout per <http://www.diodes.com>.  
 4. Polyimide PCB, 2oz. Copper. Cathode pad dimensions 18.8mm x 14.4mm. Anode pad dimensions 5.6mm x 14.4mm.  
 5. Short duration pulse test used to minimize self-heating effect.



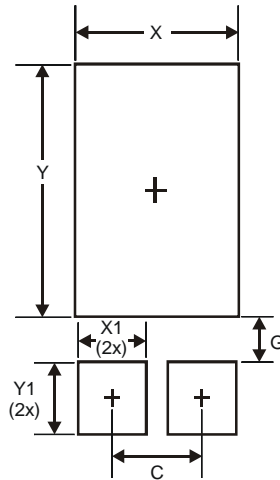


## Package Outline Dimensions



POWERDI <sup>®</sup> 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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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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Document number: DS35668 Rev. 2 - 2

4 of 4

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January 2012

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