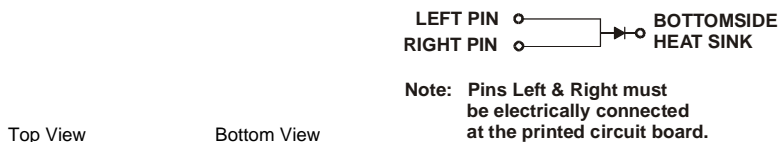


Features

- 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)**
- **“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 [Ⓔ]
- Weight: 0.093 grams (approximate)

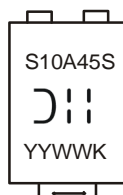



Ordering Information (Note 2)

Part Number	Case	Packaging
SBR10A45SP5-13	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



S10A45S = 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°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}	45	V
Working Peak Reverse Voltage	V _{RWM}		
DC Blocking Voltage	V _{RM}		
Average Rectified Output Current	I _O	10	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I _{FSM}	180	A

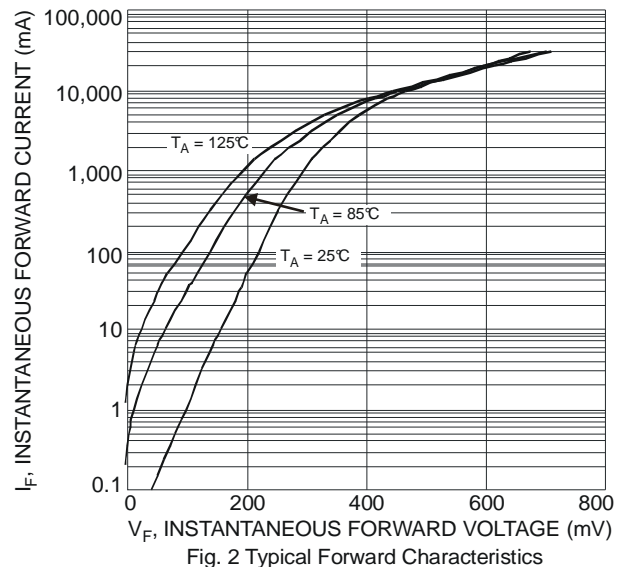
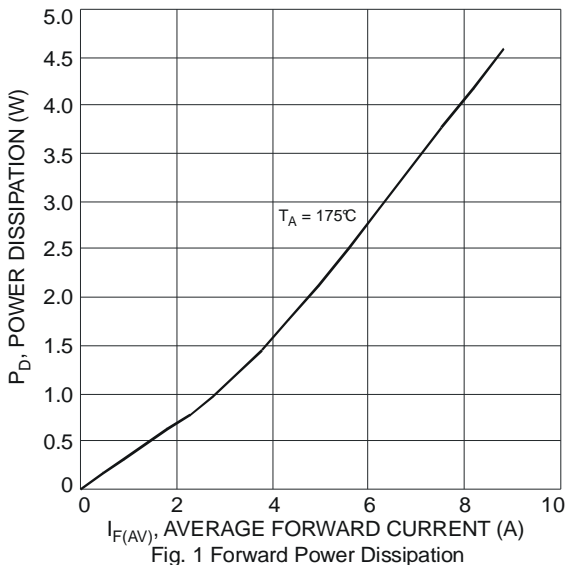
Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance	R _{θJA}	102	°C/W
Thermal Resistance Junction to Ambient (Note 3)	R _{θJA}	60	
Operating Temperature Range	T _J	V _R ≤ 80% V _{RRM}	-65 to +150
		V _R ≤ 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
Reverse Breakdown Voltage (Note 5)	V _{(BR)R}	45	-	-	V	I _R = 0.5mA
Forward Voltage Drop	V _F	-	0.39	-	V	I _F = 5A, T _J = 25°C
		-	0.46	0.53		I _F = 10A, T _J = 25°C
Leakage Current (Note 5)	I _R	-	-	400	μA	V _R = 45V, T _J = 25°C

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



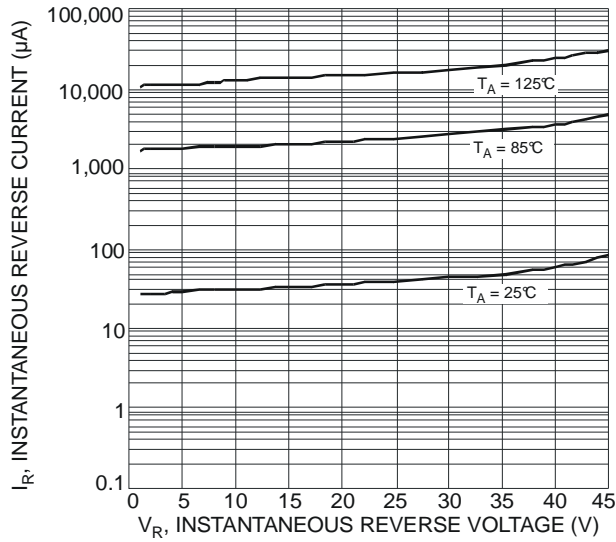


Fig. 3 Typical Reverse Characteristics

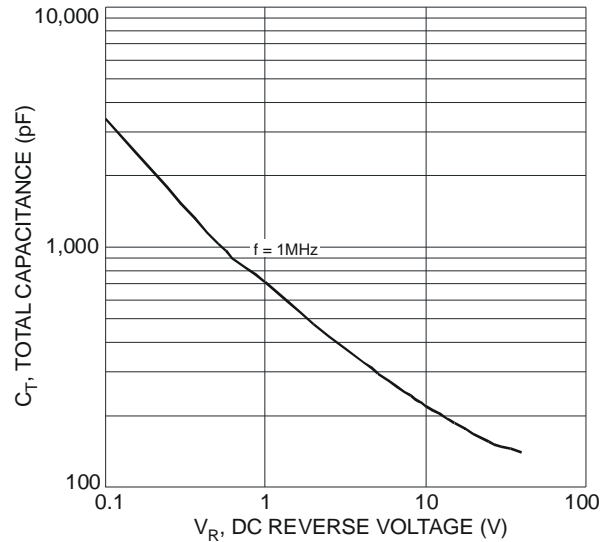


Fig. 4 Total Capacitance vs. Reverse Voltage

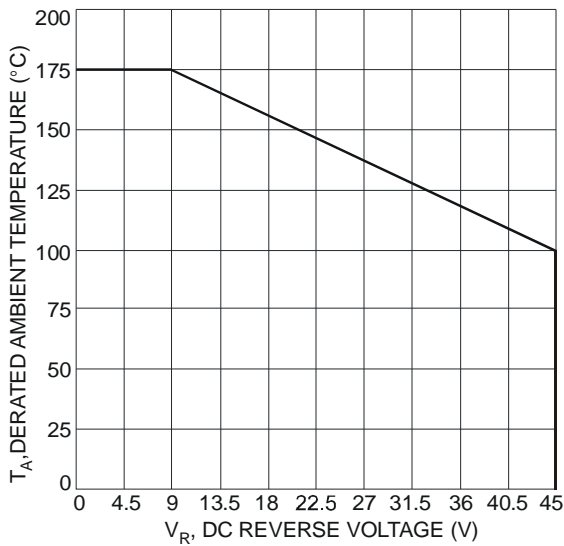


Fig. 5 Operating Temperature Derating

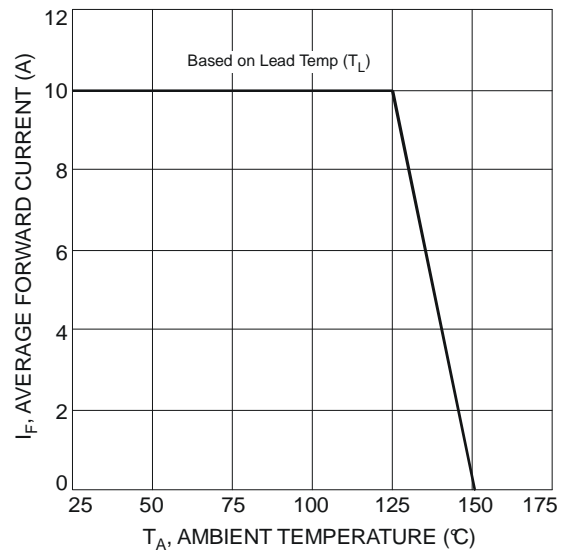
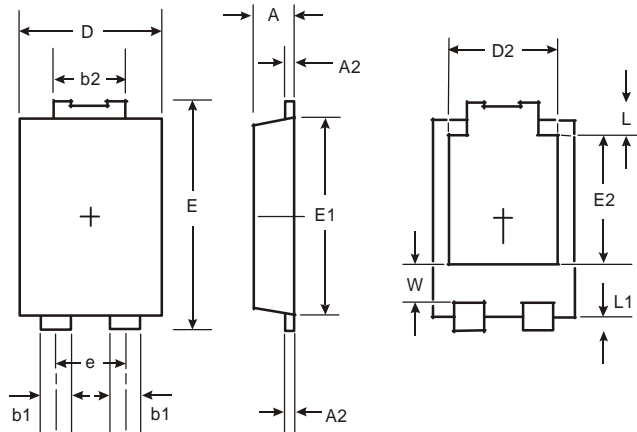


Fig. 6 Forward Current Derating Curve

Package Outline Dimensions



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		

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SBR10A45SP5

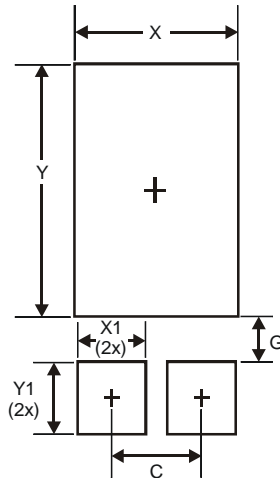
Document number: DS35202 Rev. 4 - 2

3 of 4

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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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SBR10A45SP5

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4 of 4

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