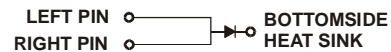
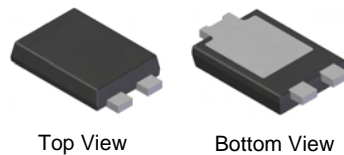


Features

- Ultra Low Forward Voltage Drop
- Excellent High Temperature Stability
- Patented Super Barrier Rectifier Technology
- Soft, Fast Switching Capability
- 150°C Operating Junction Temperature
- **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: Matte Tin Finish annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208
- Polarity: See Diagram
- Weight: 0.093 grams (approximate)



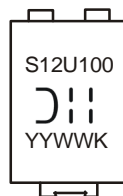
Note: Pins Left & Right must be electrically connected at the printed circuit board.

Ordering Information (Note 2)

Part Number	Case	Packaging
SBR12U100P5-13	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



S12U100 = Product Type Marking Code
 = Manufacturers' Code Marking
 YYWW = Date Code Marking
 YY = Last Two Digits of Year (ex: 08 for 2008)
 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}	100	V
Working Peak Reverse Voltage	V_{RWM}		
DC Blocking Voltage	V_{RM}		
Average Rectified Output Current (See Figure 1)	I_O	12	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I_{FSM}	250	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Ambient (Note 3) $T_A = 25^\circ\text{C}$	$R_{\theta JA}$	27	$^\circ\text{C/W}$
Typical Thermal Resistance Junction to Lead	$R_{\theta JL}$	3	$^\circ\text{C/W}$
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +150	$^\circ\text{C}$

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage Drop	V_F	-	0.49	-	V	$I_F = 5\text{A}, T_J = 25^\circ\text{C}$
			-	0.51		$I_F = 5\text{A}, T_J = 125^\circ\text{C}$
			-	0.71		$I_F = 12\text{A}, T_J = 25^\circ\text{C}$
Leakage Current (Note 4)	I_R	-	11	0.25 40	mA	$V_R = 100\text{V}, T_J = 25^\circ\text{C}$ $V_R = 100\text{V}, T_J = 125^\circ\text{C}$

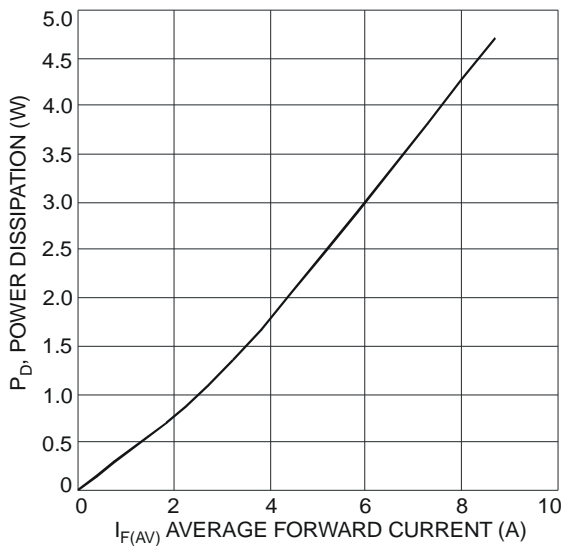
 Notes: 3. Device mounted on Polyimide PCB with 16x recommended pad layout.
 4. Short duration pulse test used to minimize self-heating effect.


Fig. 1 Forward Power Dissipation

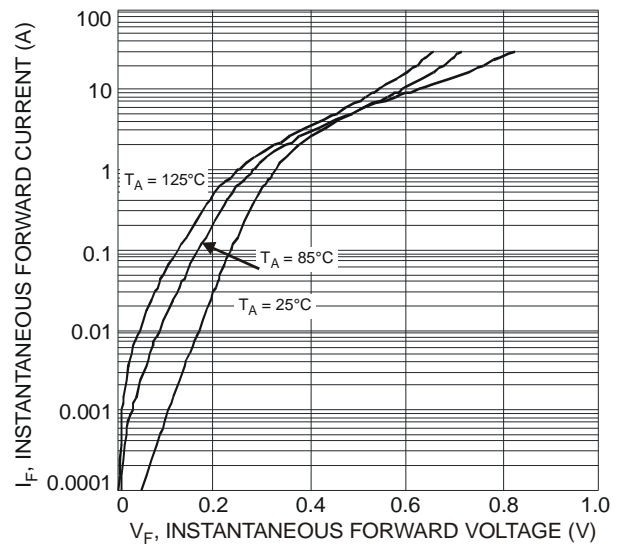


Fig. 2 Typical Forward Characteristics

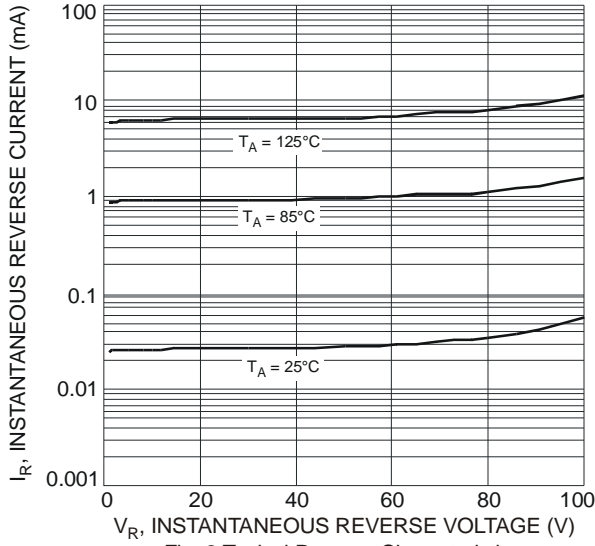


Fig. 3 Typical Reverse Characteristics

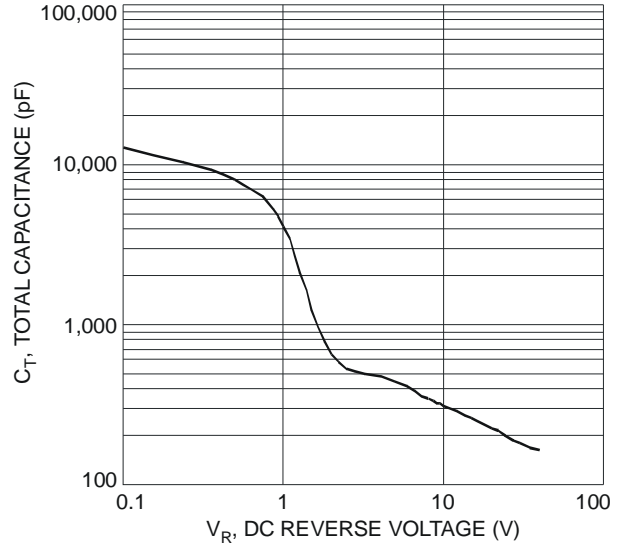


Fig. 4 Total Capacitance vs. Reverse Voltage

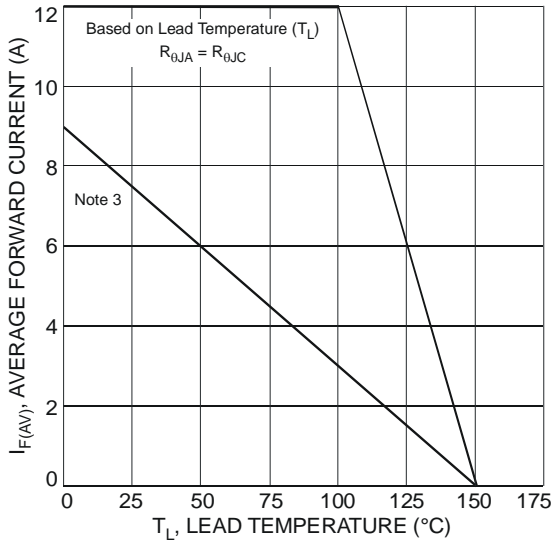


Fig. 5 Forward Current Derating Curve

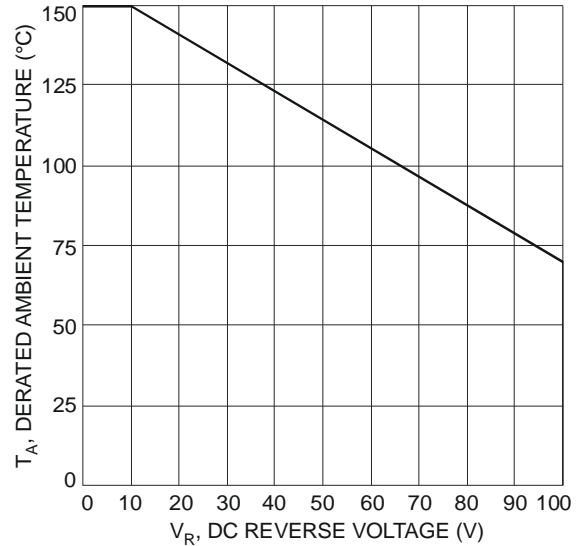
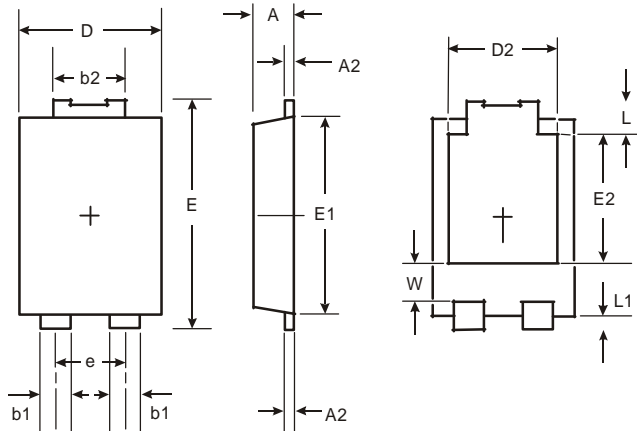


Fig. 6 Operating Temperature Derating

Package Outline Dimensions



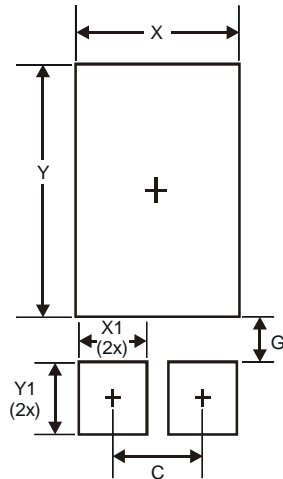
PowerDI [®] 5		
Dim	Min	Max
A	1.05	1.15
A2	0.33	0.43
b1	0.80	0.99
b2	1.70	1.88
D	3.90	4.05
D2	3.054 Typ	
E	6.40	6.60
e	1.84 Typ	
E1	5.30	5.45
E2	3.549 Typ	
L	0.75	0.95
L1	0.50	0.65
W	1.10	1.41
All Dimensions in mm		

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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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December 2010
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