

OBSOLETE – PART DISCONTINUED

Product Summary

V_{RRM} (V)	I_O (A)	V_F (V)	$T_{RR\ max}$ (nS)	$Q_{RR\ typ.}$ (nC)
600	6	3.0	23	135

Description and Applications

This DIODESTAR rectifier has been optimized for Power Factor Correction circuits operating in continuous conduction mode (CCM). It is also suitable for use as a re-circulating diode in High Intensity Discharge Lighting.

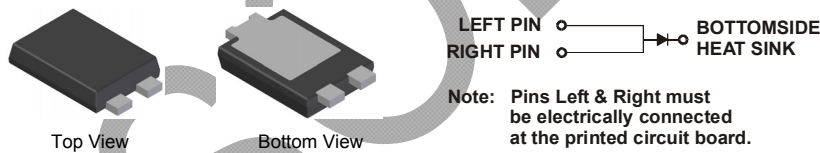
- CCM Power Factor Correction
- High Intensity Discharge Lighting
- Motor control

Features and Benefits

- Optimized for Q_{rr} and t_{rr} to minimize diode reverse recovery losses in Continuous Conduction Mode (CCM) Power Factor Correction circuits
- Soft switching, low EMI
- 175 C maximum operating junction temperature
- Thermally efficient, small form factor package enables higher density designs.
- Off board profile of 1.1mm, ideal for use in low profile applications
- **Lead Free Finish, RoHS Compliant (Note 1)**
- **“Green” Molding Compound (No Br, Sb)**

Mechanical Data

- Case: POWERDI[®]5
- Case Material: Molded Plastic, UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin annealed over Copper lead frame. Solderable per MIL-STD-202, Method 208 [Ⓔ]
- Weight 0.093 grams (approximate)

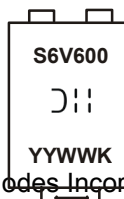


Ordering Information (Note 2)

Part Number	Case	Packaging
DSR6V600P5-13	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



S6V600 = Product Type Marking Code
 ⌋|| = Manufacturers' Code Marking
 YYWW = Date Code Marking
 YY = Last Two Digits of Year (ex: 09 for 2009)
 WW = Week Code (01 – 53)
 K = Factory Designator

POWERDI is a registered trademark of Diodes Incorporated.

OBSOLETE - PART DISCONTINUED

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}	600	V
Working Peak Reverse Voltage	V_{RWM}		
DC Blocking Voltage	V_{RM}		
Average Rectified Output Current	I_O	6	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I_{FSM}	55	A

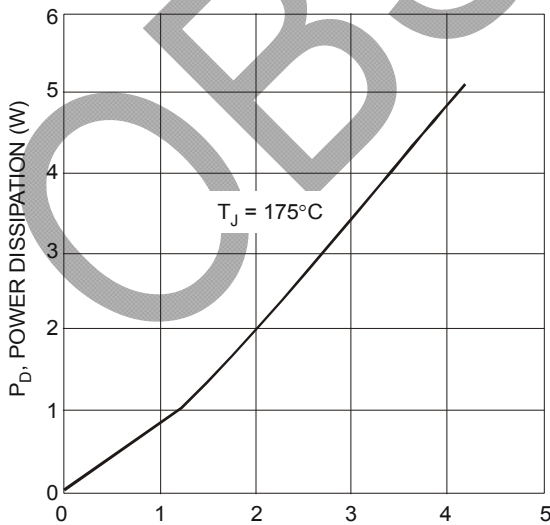
Thermal Characteristics

Characteristic	Symbol	Value	Unit
Maximum Thermal Resistance			
Thermal Resistance Junction to Ambient (Note 4)	$R_{\theta JA}$	104	$^\circ\text{C/W}$
Thermal Resistance Junction to Ambient (Note 5)	$R_{\theta JA}$	30	
Operating and Storage Temperature Range	T_J, 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	-	2.5	3.0	V	$I_F = 6\text{A}, T_J = 25^\circ\text{C}$
Leakage Current (Note 3)	I_R	-	0.2	10	μA	$V_R = 600\text{V}, T_J = 25^\circ\text{C}$
		-	-	23		$I_F = 0.5\text{A}, I_R = 1\text{A}, I_{RR} = 0.25\text{A}$
Reverse Recovery Time	t_{rr}	-	-	35	ns	$I_F = 1\text{A}, V_R = 30\text{V}, di/dt = 50\text{A}/\mu\text{s}$
		-	-	-		
Softness Factor	S	-	0.7	-	-	
Reverse Recovery Current	I_{RM}	-	3.6	-	A	$I_F = 6\text{A}, di/dt = 200\text{A}/\mu\text{s}, V_R = 400\text{V}, T_J = 125^\circ\text{C}$
Reverse Recovery Charges	Q_{rr}	-	135	-	nC	
Junction Capacitance	C_J	-	30	-	pF	$V_R = 4.0\text{V}, 1\text{MHz}$

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



POWERDI is a registered trademark of Diodes Incorporated.
Fig. 1 Forward Power Dissipation

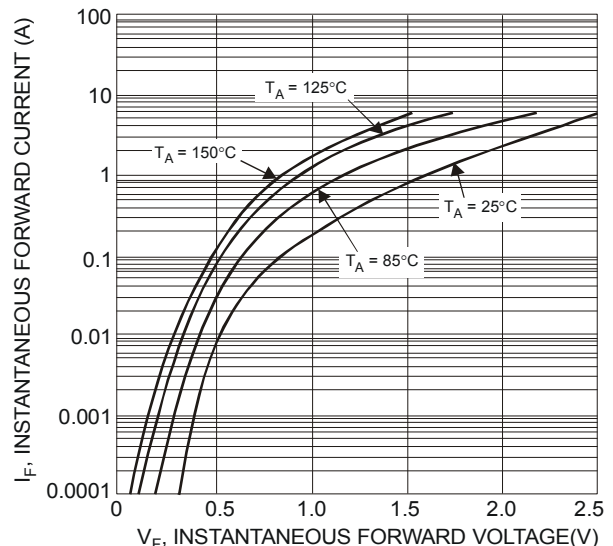


Fig. 2 Typical Forward Characteristics

OBSOLETE - PART DISCONTINUED

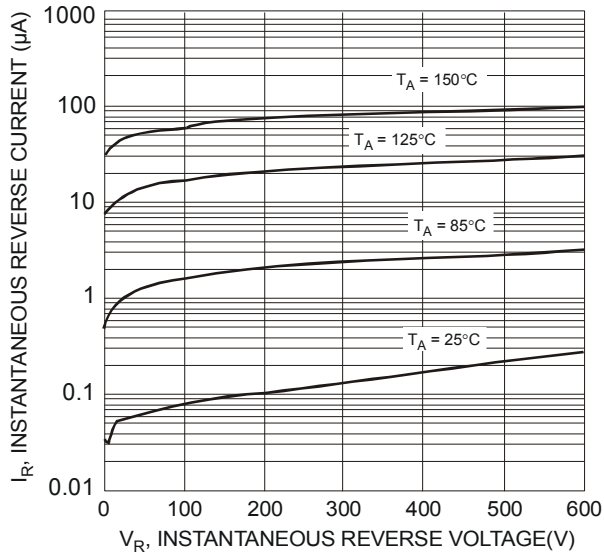


Fig. 3 Typical Reverse Characteristics

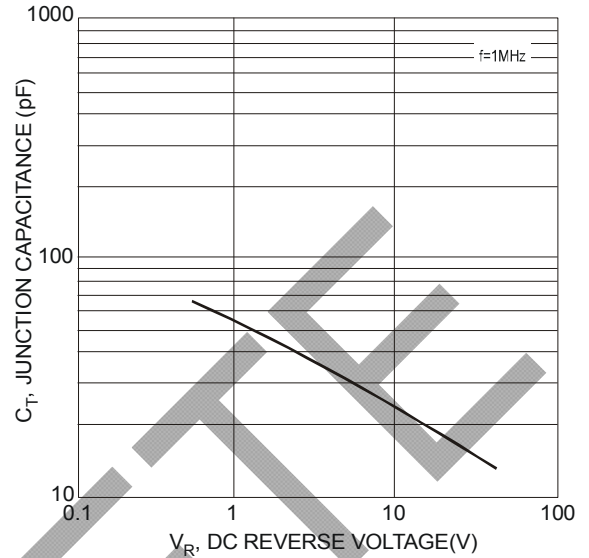


Fig. 4 Total Capacitance vs. Reverse Voltage

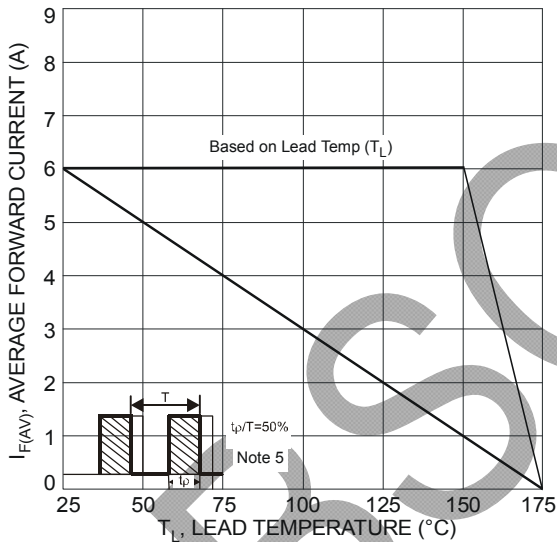


Fig. 5 Forward Current Derating Curve

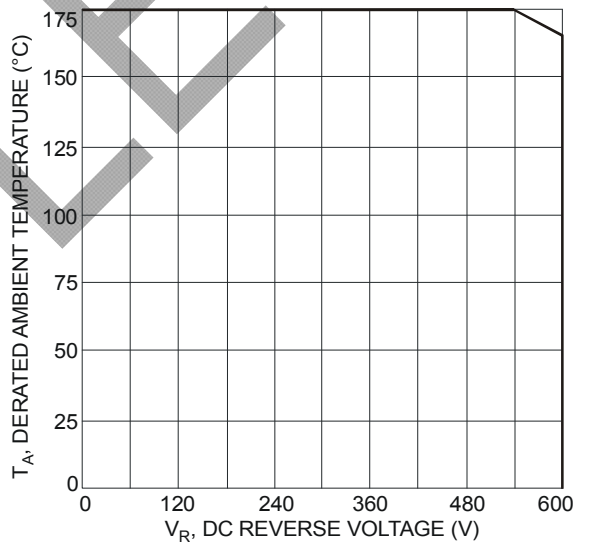
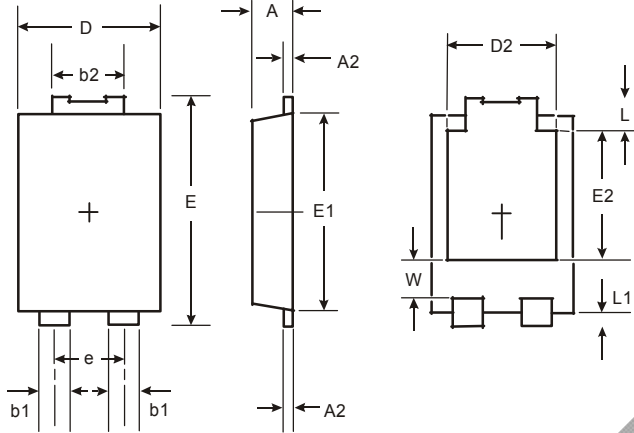


Fig. 6 Operating Temperature Derating

POWERDI is a registered trademark of Diodes Incorporated.

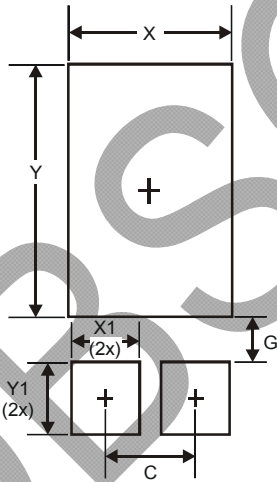
OBSOLETE - PART DISCONTINUED

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

POWERDI is a registered trademark of Diodes Incorporated.

IMPORTANT NOTICE

DIODES INCORPORATED MAKES NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, WITH REGARDING TO THIS DOCUMENT, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE (AND THEIR EQUIVALENTS UNDER THE LAWS OF ANY JURISDICTION).

Diodes Incorporated and its subsidiaries reserve the right to make modifications, enhancements, improvements, corrections or other changes without further notice to this document and any product described herein. Diodes Incorporated does not assume any liability arising out of the application or use of this document or any product described herein; neither does Diodes Incorporated convey any license under its patent or trademark rights, nor the rights of others. Any Customer or user of this document or products described herein in such applications shall assume all risks of such use and will agree to hold Diodes Incorporated and all the companies whose products are represented on Diodes Incorporated website, harmless against all damages.

Diodes Incorporated does not warrant or accept any liability whatsoever in respect of any products purchased through unauthorized sales channel. Should Customers purchase or use Diodes Incorporated products for any unintended or unauthorized application, Customers shall indemnify and hold Diodes Incorporated and its representatives harmless against all claims, damages, expenses, and attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized application.

Products described herein may be covered by one or more United States, international or foreign patents pending. Product names and markings noted herein may also be covered by one or more United States, international or foreign trademarks.

LIFE SUPPORT

Diodes Incorporated products are specifically not authorized for use as critical components in life support devices or systems without the express written approval of the Chief Executive Officer of Diodes Incorporated. As used herein:

A. Life support devices or systems are devices or systems which:

1. are intended to implant into the body, or
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.

B. A critical component is any component in a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or to affect its safety or effectiveness.

Customers represent that they have all necessary expertise in the safety and regulatory ramifications of their life support devices or systems, and acknowledge and agree that they are solely responsible for all legal, regulatory and safety-related requirements concerning their products and any use of Diodes Incorporated products in such safety-critical, life support devices or systems, notwithstanding any devices- or systems-related information or support that may be provided by Diodes Incorporated. Further, Customers must fully indemnify Diodes Incorporated and its representatives against any damages arising out of the use of Diodes Incorporated products in such safety-critical, life support devices or systems.

Copyright © 2011, Diodes Incorporated

www.diodes.com

POWERDI is a registered trademark of Diodes Incorporated.