DSR6U600P5

6A DIODESTAR RECTIFIER
POWERDI®5

Product Summary

V_{RRM} (V)	I_O (A)	V_F (V)	$T_{RR\ max}$ (nS)	Q_{RR} typ. (nC)
600	6	2.6	25	220

Description and Applications

This DIODESTAR rectifier has been optimized for Power Factor Correction circuits operating in Boundary Conduction Mode (BCM.). It is also suitable for use as a re-circulating diode in High Intensity Discharge Lighting.

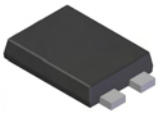
- Power Factor Correction
- High Intensity Discharge Lighting
- Motor control

Features and Benefits

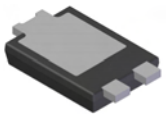
- Optimized for V_F and t_{rr} to meet compromise requirements of Boundary conduction Mode (BCM) Power Factor Correction circuits
- Soft switching, low EMI
- 175°C maximum operating junction temperature
- Thermally efficient, small form factor package enables higher density designs
- **Lead Free Finish, RoHS Compliant (Note 1)**
- **"Green" Molding Compound (No Br, Sb)**

Mechanical Data

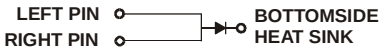
- Case: POWERDI®5
- Case Material: Molded Plastic, UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin annealed over Copper lead frame. Solderable per MIL-STD-202, Method 208 e3
- Weight 0.093 grams (approximate)



Top View



Bottom View



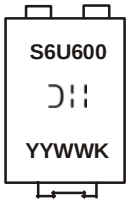
Note: Pins Left & Right must be electrically connected at the printed circuit board.

Ordering Information (Note 2)

Part Number	Case	Packaging
DSR6U600P5-13	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



S6U600 = 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

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 Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_{RM}	600	V
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) Thermal Resistance Junction to Ambient (Note 5)	 $R_{\theta JA}$ $R_{\theta JA}$	 104 30	ºC/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +175	ºC

Electrical Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage Drop	V_F	-	2.1	2.6	V	I_F = 6A, T_J = 25ºC
Leakage Current (Note 3)	I_R	-	-	50	µA	V_R = 600V, T_J = 25ºC
Reverse Recovery Time	t_{rr}	-	21	25	ns	I_F = 0.5A, I_R = 1A, I_{RR} = 0.25A
		-	33	45		I_F = 1A, V_R = 30V, di/dt = 50A/µs
Softness Factor	S	-	0.7	-	-	I_F = 6A, dI/dt = 200A/µs, V_R = 400V, T_J = 125ºC
Reverse Recovery Current	I_{RM}	-	4.3	-	A	
Reverse Recovery Charges	Q_{rr}	-	220	-	nC	
Junction Capacitance	C_J	-	30	-	pF	V_R = 4.0V, 1MHz

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. Polymide PCB, 2oz. Copper. Cathode pad dimensions 18.8mm x 14.4mm. Anode pad dimensions 5.6mm x 14.4mm.

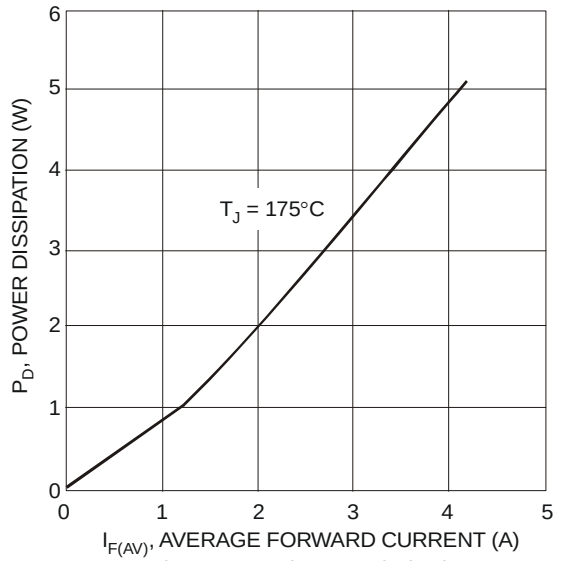


Fig. 1 Forward Power Dissipation

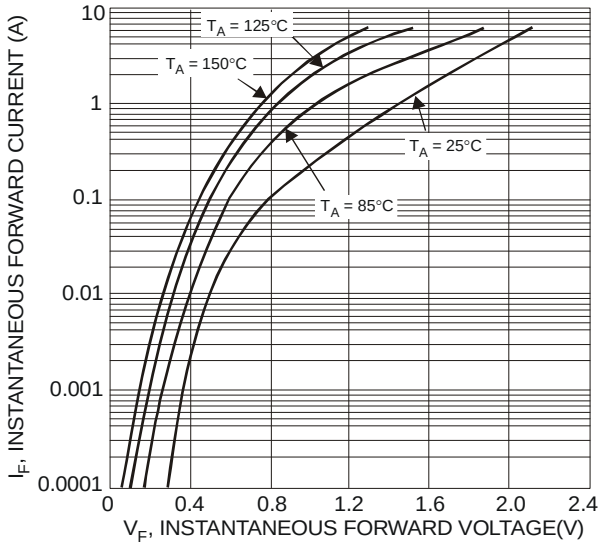


Fig. 2 Typical Forward Characteristics

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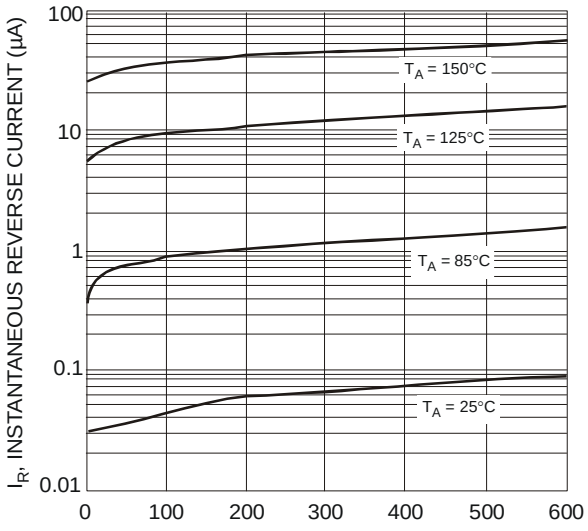


Fig. 3 Typical Reverse Characteristics

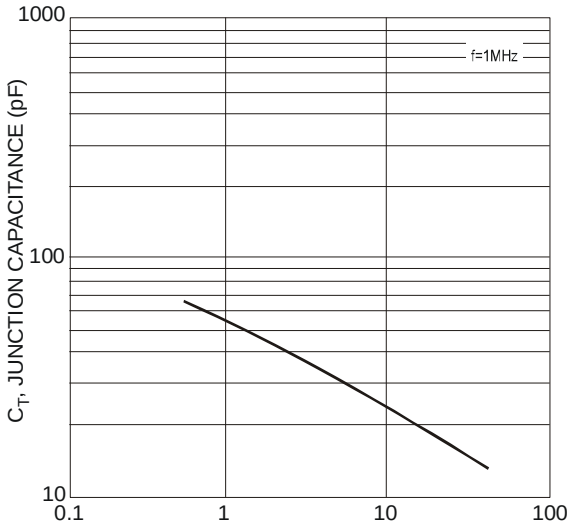


Fig. 4 Total Capacitance vs. Reverse Voltage

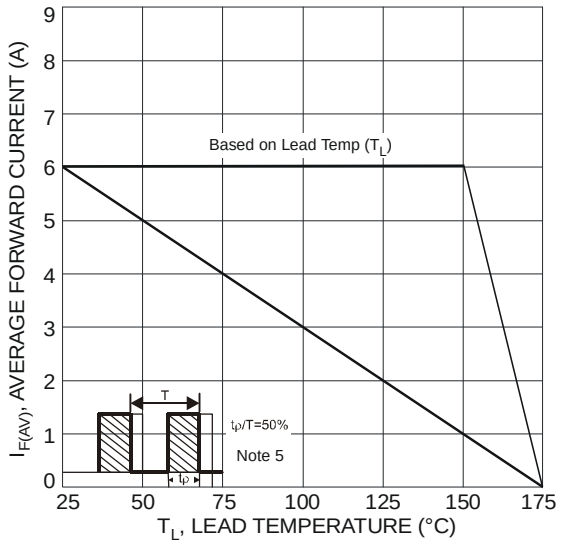


Fig. 5 Forward Current Derating Curve

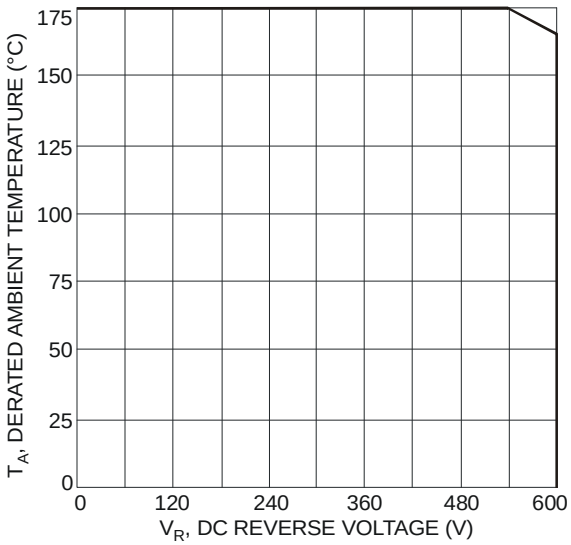
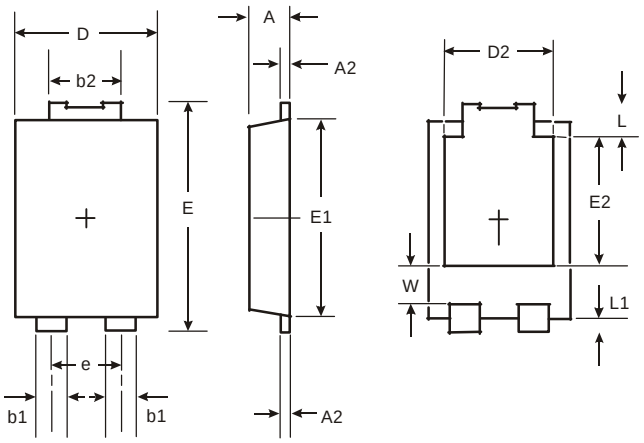


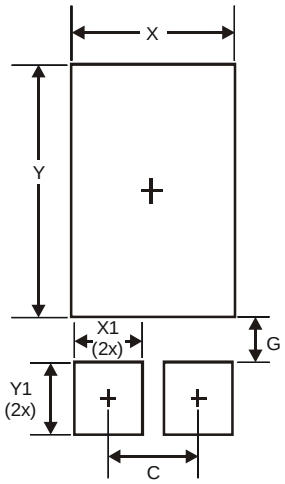
Fig. 6 Operating Temperature Derating

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		

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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