PDS540

5A SCHOTTKY BARRIER RECTIFIER

PowerDI®5

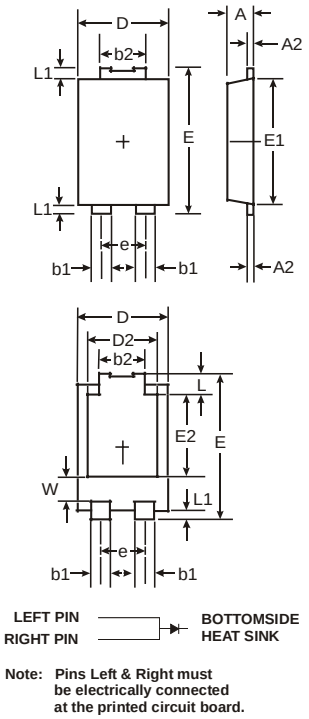
NEW PRODUCT

Features

- Guard Ring Die Construction for Transient Protection
- Low Power Loss, High Efficiency
- Low Forward Voltage Drop
- For Use in Low Voltage, High Frequency Inverters, Free Wheeling, and Polarity Protection Applications
- High Forward Surge Current Capability
- **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-020C
- Terminals: Finish – Matte Tin annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208 e3
- Polarity: See Diagram
- Marking Information: See Page 3
- Weight: 0.093 grams (approximate)



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

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	3.05 NOM	
E	6.40	6.60
e	1.84 NOM	
E1	5.30	5.45
E2	3.55 NOM	
L	0.75	0.95
L1	0.50	0.65
W	1.20	1.50
All Dimensions in mm		

Maximum Ratings @T_A = 25°C unless otherwise specified

Single phase, half wave, 60Hz, resistive or inductive load.
For capacitive 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_R	40	V
RMS Reverse Voltage	$V_{R(RMS)}$	28	V
Average Rectified Output Current (See also figure 5)	I_O	5	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single half sine-wave Superimposed on Rated Load	I_{FSM}	150	A
Operating Temperature Range	T_j	-65 to +150	°C
Storage Temperature Range	T_{STG}	-65 to +150	°C

Thermal Characteristics

Characteristic	Symbol	Typ	Max	Unit
Thermal Resistance Junction to Soldering Point	$R_{\theta JS}$	—	4.0	°C/W
Thermal Resistance Junction to Ambient Air (Note 2)	$R_{\theta JA}$	90	—	°C/W
Thermal Resistance Junction to Ambient Air (Note 3)	$R_{\theta JA}$	65	—	°C/W
Thermal Resistance Junction to Ambient Air (Note 4)	$R_{\theta JA}$	50	—	°C/W

Notes:
1. RoHS revision 13.2.2003. Glass and high temperature solder exemptions applied, see *EU Directive Annex Notes 5 and 7*.
2. FR-4 PCB, 2 oz. Copper, minimum recommended pad layout per http://www.diodes.com/datasheets/ap02001.pdf.
3. Polyimide PCB, 2 oz. Copper, minimum recommended pad layout per http://www.diodes.com/datasheets/ap02001.pdf.
4. Polyimide PCB, 2 oz. Copper. Cathode pad dimensions 9.4mm x 7.2mm. Anode pad dimensions 2.7mm x 1.6mm.

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Electrical Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 5)	$V_{(BR)R}$	40	—	—	V	I_R = 0.5mA
Forward Voltage	V_F	— — — —	0.48 0.43 0.57 0.55	0.52 0.47 0.65 0.59	V	I_F = 5A, T_S = 25°C I_F = 5A, T_S = 125°C I_F = 10A, T_S = 25°C I_F = 10A, T_S = 125°C
Reverse Leakage Current (Note 5)	I_R	— — —	0.015 3 10	0.25 15 40	mA	T_S = 25°C, V_R = 40V T_S = 100°C, V_R = 40V T_S = 125°C, V_R = 40V

Notes: 5. Short duration pulse test used to minimize self-heating effect.

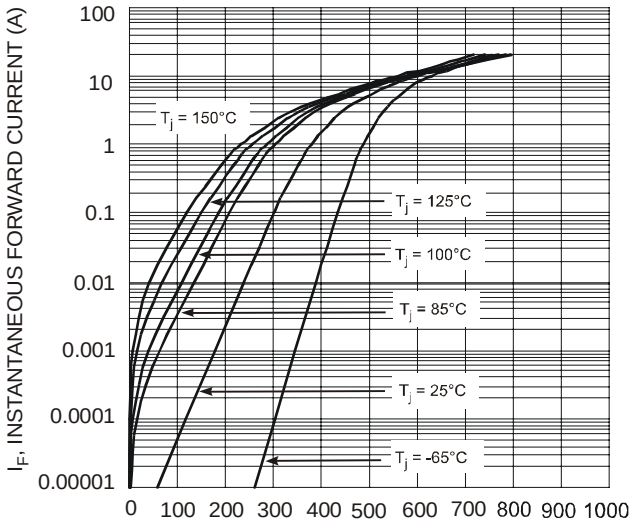

Fig. 1 Typical Forward Characteristics

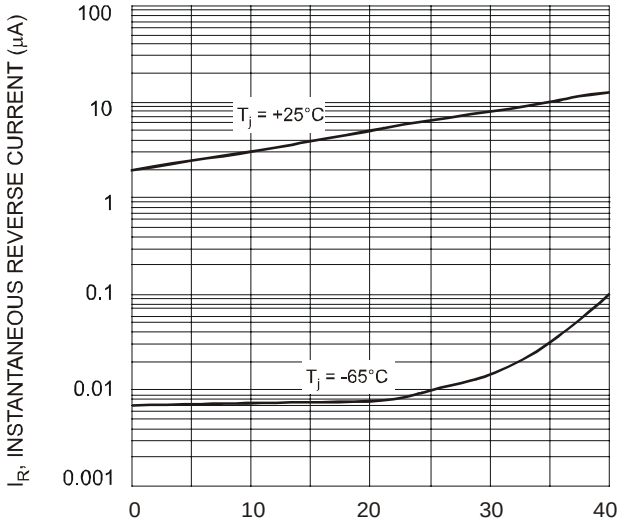

Fig. 2 Typical Reverse Characteristics

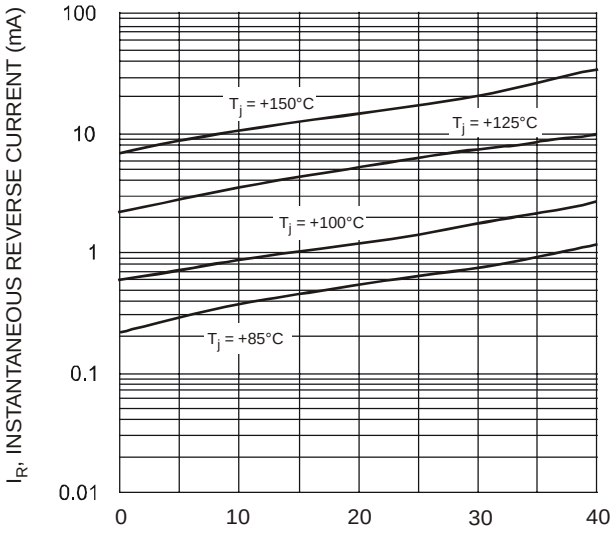

Fig. 3 Typical Reverse Characteristics

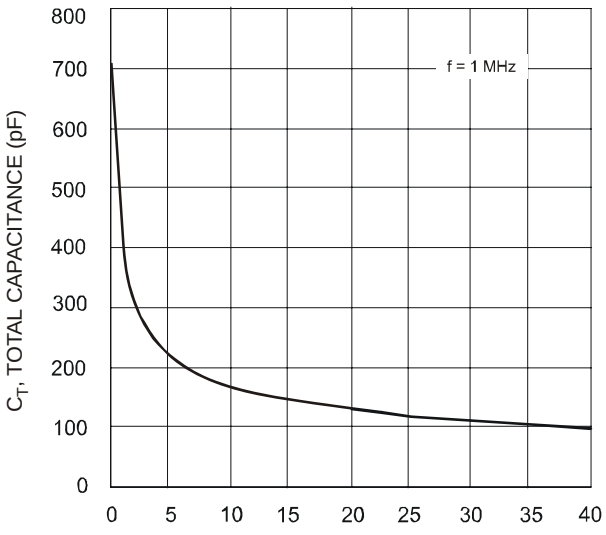

Fig. 4 Typical Total Capacitance vs. Reverse Voltage

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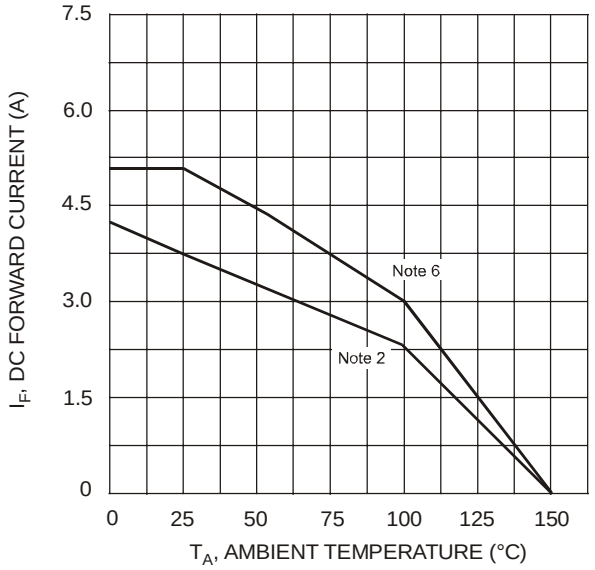

Fig. 5 DC Forward Current Derating

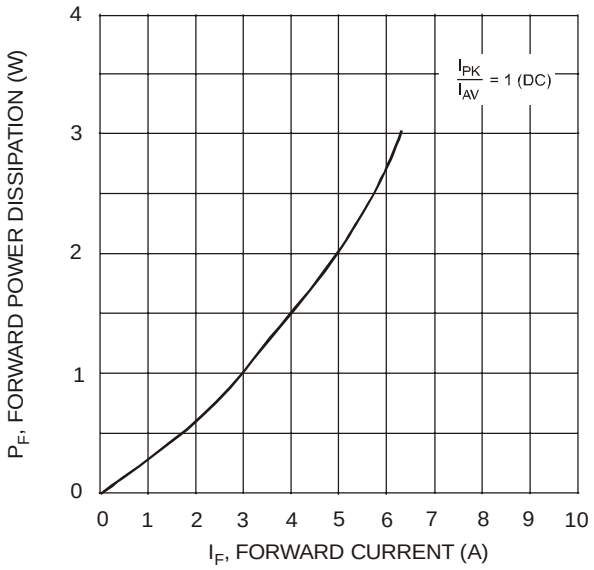

Fig. 6 Forward Power Dissipation

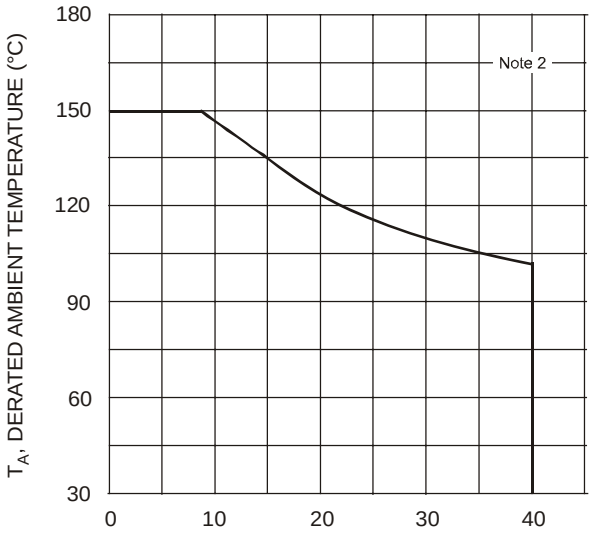

Fig. 7 Operating Temperature Derating

Ordering Information (Note 7)

Device	Packaging	Shipping
PDS540-13	PowerDI®5	5000/Tape & Reel

Notes: 6. Polyimide PCB, 2 oz. Copper. Cathode pad dimensions 6.5mm x 5.0mm. Anode pad dimensions 1.8mm x 1.1mm.
7. For packaging details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.

Marking Information

S540 = Product type marking code
= Manufacturers' code marking
YYWW = Date code marking
YY = Last digit of year ex: 04 for 2004
WW = Week code 01 to 52
K = Factory Designator

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