

PDU540

5A ULTRA-FAST RECOVERY RECTIFIER PowerDI™5

Features

- Glass Passivated Die Construction
- Ultra-Fast Recovery Time for High Efficiency
- High Maximum Junction Temperature
- For Use in 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)
- Qualified to AEC-Q101 Standards for High Reliability



• Case: PowerDI[™]5

Mechanical Data

- 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 (23)
- Polarity: See Diagram on Page 4
- Marking: See Page 3
- Weight: 0.096 grams (approx.)



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	400	v
RMS Reverse Voltage	V _{R(RMS)}	283	V
Average Rectified Output Current (See also figure 4)	lo	5	Α
Non-Repetitive Peak Forward Surge Current 8.3ms Single half sine-wave Superimposed on Rated Load	I _{FSM}	125	А

Thermal Characteristics

Characteristic		Symbol	Тур	Max	Unit
Thermal Resistance Junction to Soldering Point		R ₀ JS	_	3.0	°C/W
Thermal Resistance Junction to Ambient Air (Note 2)	$T_A = 25^{\circ}C$	R _{0JA}	95	_	°C/W
Thermal Resistance Junction to Ambient Air (Note 3)	$T_A = 25^{\circ}C$	R _{θJA}	55	_	°C/W
Thermal Resistance Junction to Ambient Air (Note 4)	$T_A = 25^{\circ}C$	R _{0JA}	40	—	°C/W
Operating Temperature Range		Tj	-65	to +175	°C
Storage Temperature Range		T _{STG}	-65	to +175	°C

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. Polymide PCB, 2 oz. Copper, minimum recommended pad layout per http://www.diodes.com/datasheets/ap02001.pdf.

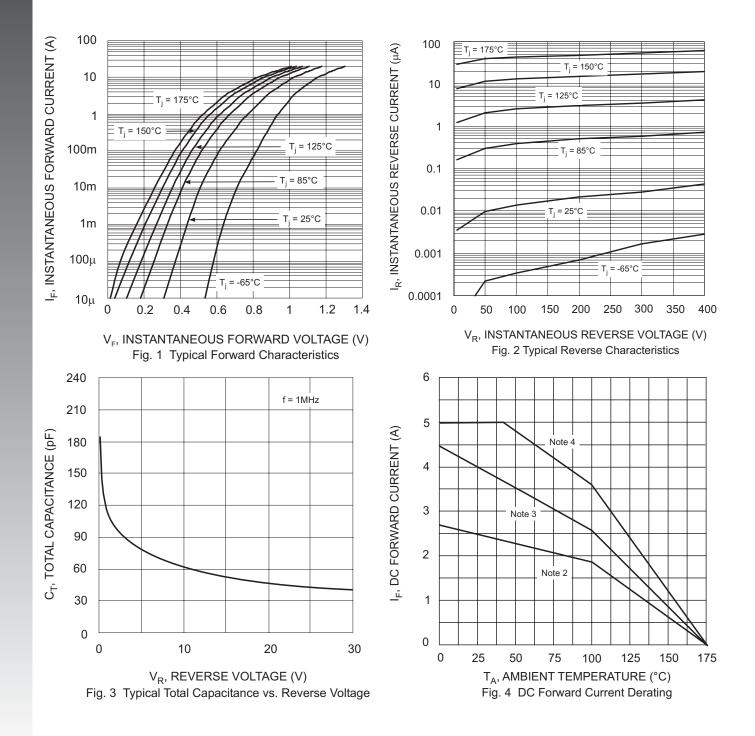
4. Polymide PCB, 2 oz. Copper. Cathode pad dimensions 9.4mm x 7.2mm. Anode pad dimensions 2.7mm x 1.6mm.



Electrical Characteristics @ T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit	Test Condition
Minimum Reverse Breakdown Voltage (Note 5)	V _{(BR)R}	400	V	$I_R = 10 \mu A$
Maximum Forward Voltage	V _{FM}	1.185 0.935 1.25 1.00	V	$ \begin{array}{l} {\sf I}_{\sf F}=5{\sf A}, {\sf T}_{\sf S}=25^\circ{\sf C} \\ {\sf I}_{\sf F}=5{\sf A}, {\sf T}_{\sf S}=150^\circ{\sf C} \\ {\sf I}_{\sf F}=8{\sf A}, {\sf T}_{\sf S}=25^\circ{\sf C} \\ {\sf I}_{\sf F}=8{\sf A}, {\sf T}_{\sf S}=150^\circ{\sf C} \end{array} $
Maximum Reverse Leakage Current (Note 5)	I _{RM}	10 500	μA	
Maximum Reverse Recovery Time	t _{rr}	35	ns	$I_F = 0.5A, I_R = 1.0A$ $I_{RR} = 0.25A$ (See figure 7)

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



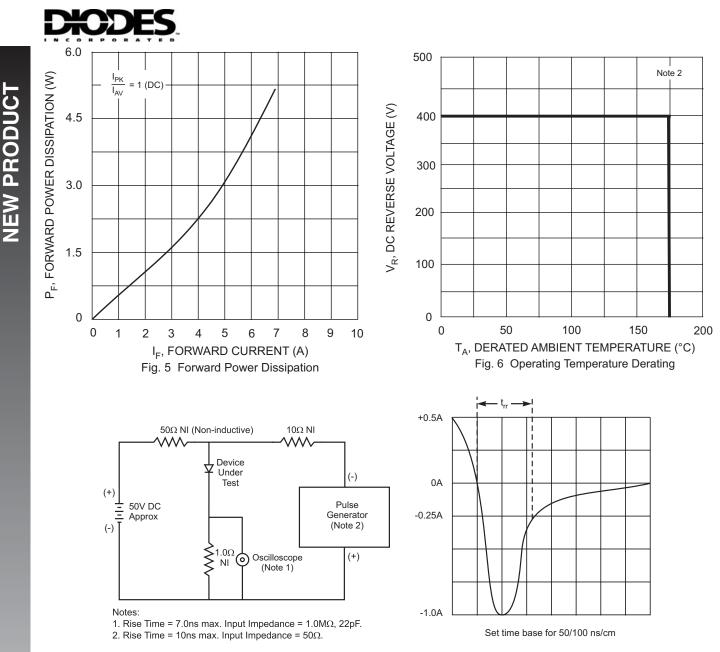


Fig. 7 Reverse Recovery Time Characteristic and Test Circuit

Ordering Information (Note 6)

Device	Packaging	Shipping
PDU540-13	PowerDI™5	5000/Tape & Reel

Notes: 6. For Packaging Details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.

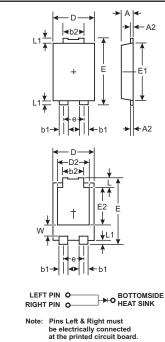
Marking Information



U540 = Product type marking code) [] = Manufacturers' code marking YYWW = Date code marking YY = Last digit of year ex: 06 for 2006 WW = Week code 01 to 52 K = Factory Designator



Package Outline Dimensions



PowerDI [™] 5			
Dim	Min	Мах	
Α	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		
Е	6.40	6.60	
е	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			

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