Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

Contact us

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Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China

PDU420

4A 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 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)**
- **Qualified to AEC-Q101 Standards for High Reliability**

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 on Page 4
- Marking: See Page 3
- Ordering Information: See Page 3
- Weight: 0.096 grams (approximate)

TOP VIEW

BOTTOM VIEW

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	200	V
RMS Reverse Voltage	$V_{R(RMS)}$	141	V
Average Rectified Output Current (See also figure 4)	I_O	4	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single half sine-wave Superimposed on Rated Load	I_{FSM}	125	A

Thermal Characteristics

Characteristic		Symbol	Typ	Max	Unit
Thermal Resistance Junction to Soldering Point		$R_{\theta JS}$	—	3.0	°C/W
Thermal Resistance Junction to Ambient Air (Note 2)	T_A = 25°C	$R_{\theta JA}$	85	—	°C/W
Thermal Resistance Junction to Ambient Air (Note 3)	T_A = 25°C	$R_{\theta JA}$	60	—	°C/W
Thermal Resistance Junction to Ambient Air (Note 4)	T_A = 25°C	$R_{\theta JA}$	40	—	°C/W
Operating Temperature Range		T_j	-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)	$V_{(BR)R}$	200	V	$I_R = 5\mu A$
Maximum Forward Voltage	V_{FM}	0.875 0.71 0.89 0.85 0.72 1.25	V	$I_F = 3A$, $T_S = 25°C$ $I_F = 3A$, $T_S = 150°C$ $I_F = 4A$, $T_S = 25°C$ $I_F = 4A$, $T_S = 100°C$ $I_F = 4A$, $T_S = 150°C$ $I_F = 12A$, $T_S = 25°C$
Maximum Reverse Leakage Current (Note 5)	I_{RM}	5 150	μA	$T_S = 25°C$, $V_R = 200V$ $T_S = 150°C$, $V_R = 200V$
Maximum Reverse Recovery Time	t_{rr}	25	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.

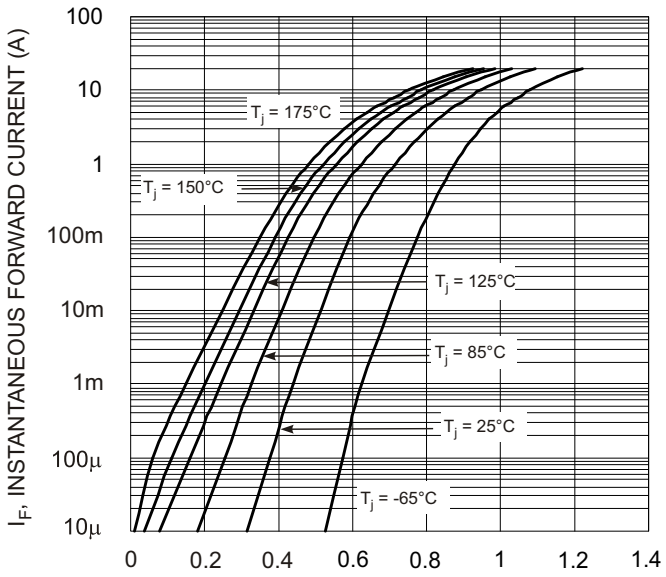


Fig. 1 Typical Forward Characteristics

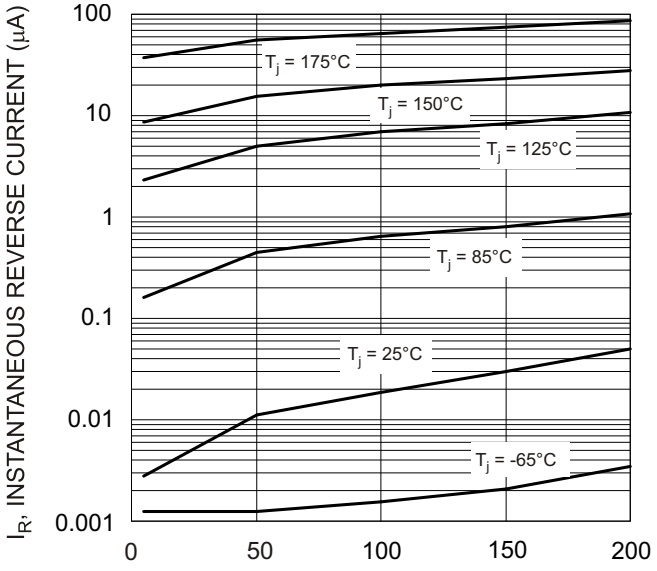


Fig. 2 Typical Reverse Characteristics

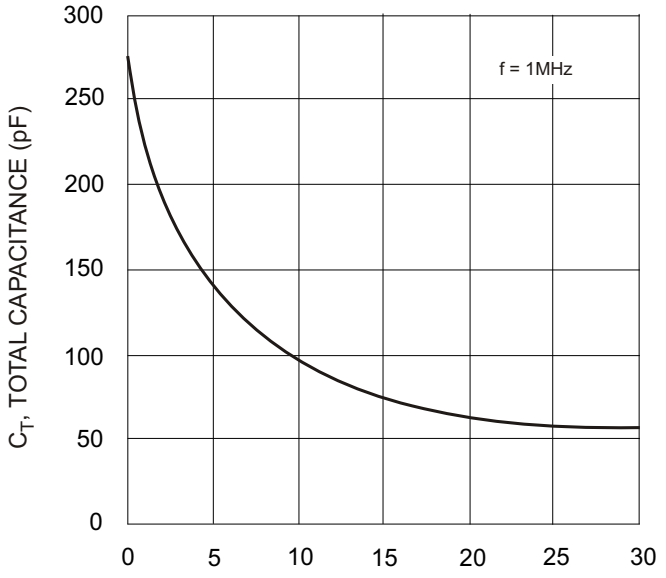


Fig. 3 Typical Total Capacitance

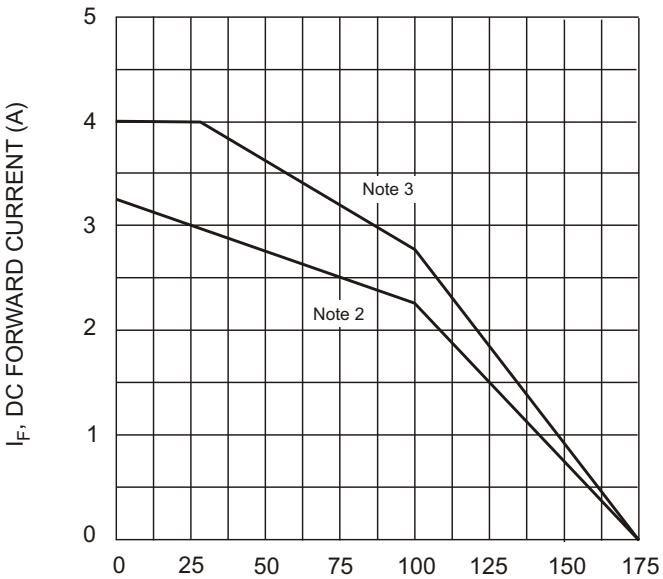


Fig. 4 DC Forward Current Derating

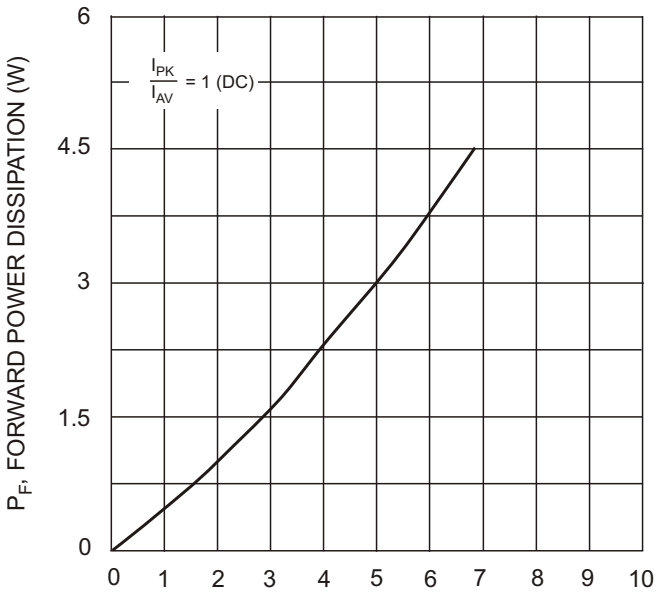


Fig. 5 Forward Power Dissipation

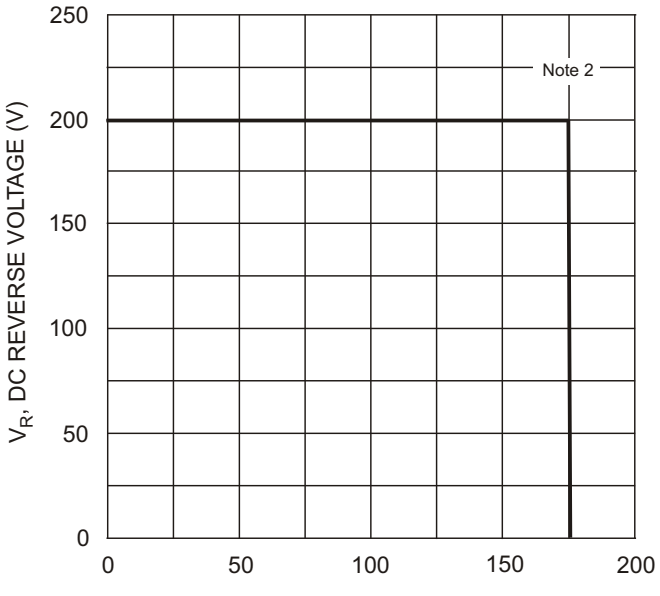
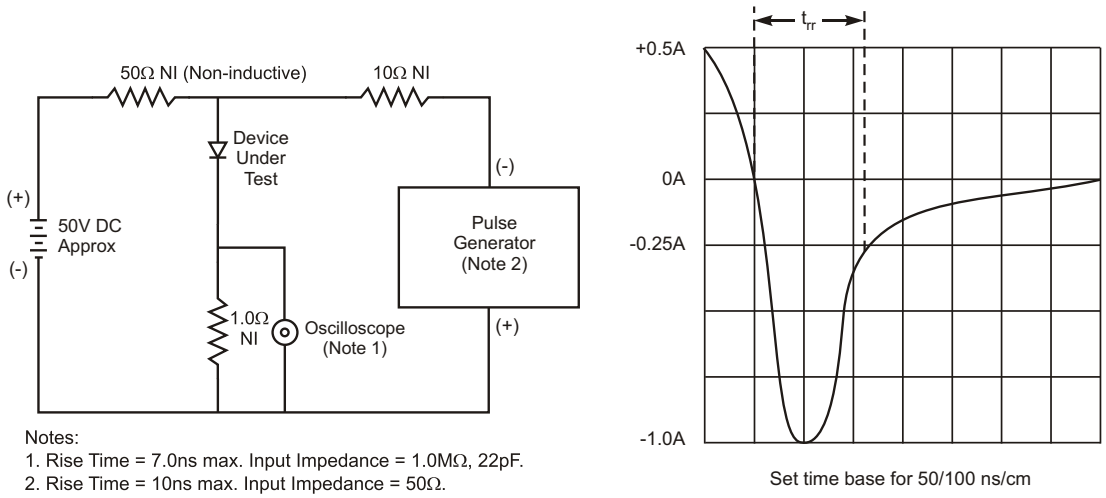


Fig. 6 Operating Temperature Derating



Notes:
1. Rise Time = 7.0ns max. Input Impedance = 1.0MΩ, 22pF.
2. Rise Time = 10ns max. Input Impedance = 50Ω.

Fig. 7 Reverse Recovery Time Characteristic and Test Circuit

Ordering Information (Note 6)

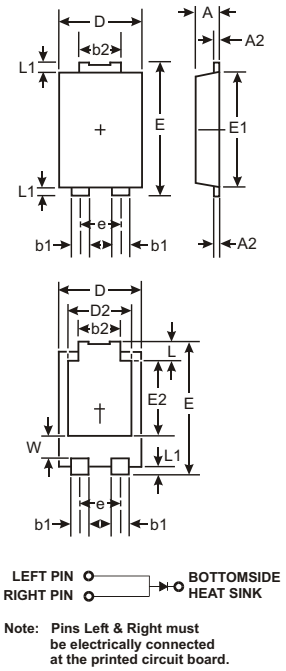
Device	Packaging	Shipping
PDU420-13	PowerDI™5	5000/Tape & Reel

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

Marking Information

U420 = 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



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		