6A DUAL ULTRA-FAST RECOVERY RECTIFIER
PowerDI5

Product Summary (@T_A = +25°C)

V_{RRM} (V)	I_O (A)	V_F Max (V)	I_R Max (µA)
200	6	1.2	5

Features and Benefits

- Glass Passivated Die Construction
- Ultra-Fast Recovery Time for High Efficiency
- Low Leakage Current
- High Forward Surge Current Capability
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

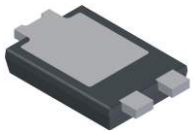
Description

PDU620CT, a 6.0A Glass Passivated Dual Ultra-Fast Recovery Rectifier in our thermally efficient PowerDI®5 package, offers ultra-fast recovery time for high efficiency, high forward surge current for use in high frequency inverters, freewheeling and polarity protection applications.

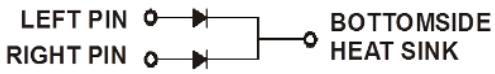
Mechanical Data

- Case: PowerDI5
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish – Matte Tin Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 e3
- Weight: 0.096 grams (Approximate)

Top View



Bottom View



Ordering Information (Note 4)

Part Number	Compliance	Case	Packaging
PDU620CT-13	Commercial	PowerDI5	5,000/Tape & Reel

Notes:
1. EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. All applicable RoHS exemptions applied.
2. See http://www.diodes.com/quality/lead_free.html for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
4. For packaging details, go to our website at http://www.diodes.com/products/packages.html.

Marking Information

U620CT = Product type marking code
= Manufacturers' code marking
YYWW = Date code marking
YY = Last two digits of year ex:16 for 2016
WW = Week code 01 to 52
K = Factory Designator

PowerDI is a registered trademark of Diodes Incorporated.

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 Figure 4) (Per element) (Total device)	I_O	3 6	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I_{FSM}	90	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 5)	T_A = +25°C	$R_{\theta JA}$	80	—	°C/W
Thermal Resistance Junction to Ambient Air (Note 6)	T_A = +25°C	$R_{\theta JA}$	65	—	°C/W
Thermal Resistance Junction to Ambient Air (Note 7)	T_A = +25°C	$R_{\theta JA}$	45	—	°C/W
Operating Temperature Range		T_J	-65 to +150		°C
Storage Temperature Range		T_{STG}	-65 to +150		°C

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit	Test Condition
Minimum Reverse Breakdown Voltage (Note 8)	$V_{(BR)R}$	200	V	I_R = 5µA
Maximum Forward Voltage (Per element)	V_{FM}	1.00 0.96 1.20 1 13	V	I_F = 3A, T_S = +25°C I_F = 3A, T_S = +125°C I_F = 6A, T_S = +25°C I_F = 6A, T_S = +125°C
Maximum Reverse Leakage Current (Per element) (Note 8)	I_{RM}	5 250	µA	T_S = +25°C, V_R = 200V T_S = +125°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. FR-4 PCB, 2 oz. Copper, minimum recommended pad layout per http://www.diodes.com/package-outlines.html.
6. Polymide PCB, 2oz. Copper, minimum recommended pad layout per http://www.diodes.com/package-outlines.html.
7. Polymide PCB, 2oz. Copper. Cathode pad dimensions 9.4mm x 7.2mm. Anode pad dimensions 2.7mm x 1.6mm.
8. Short duration pulse test used to minimize self-heating effect.

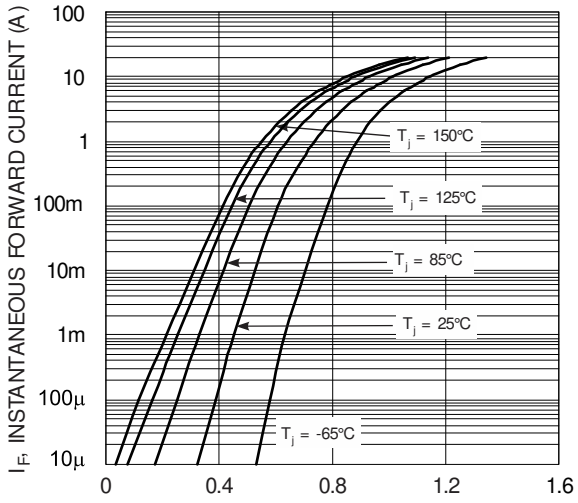


Fig. 1 Typical Forward Characteristics, per element

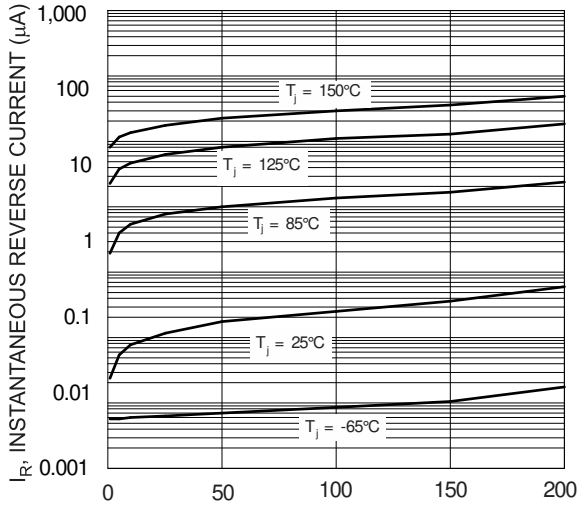


Fig. 2 Typical Reverse Characteristics

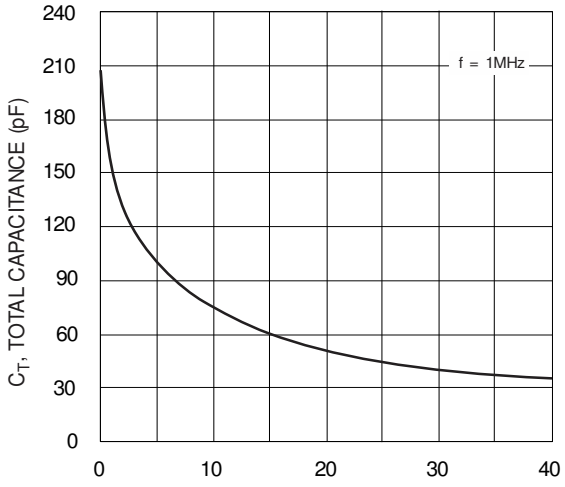


Fig. 3 Typical Total Capacitance vs. Reverse Voltage, per element

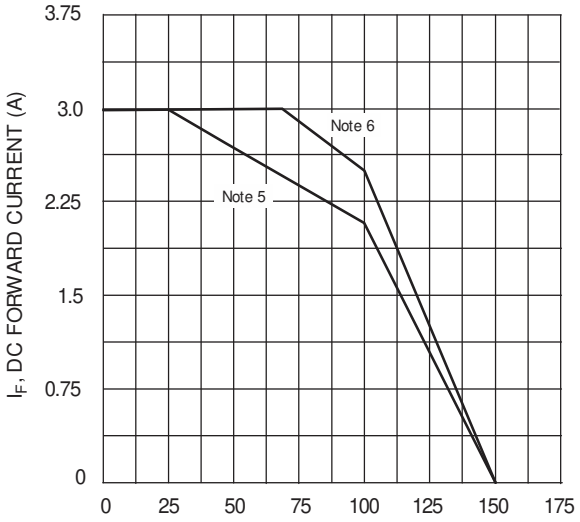


Fig. 4 DC Forward Current Derating, per element

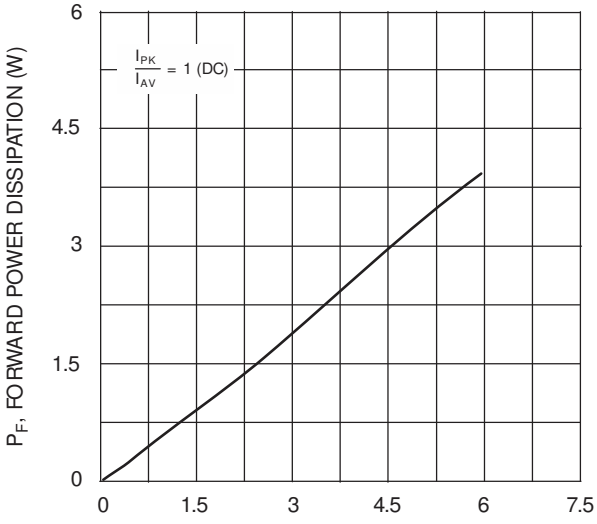


Fig. 5 Forward Power Dissipation, per element

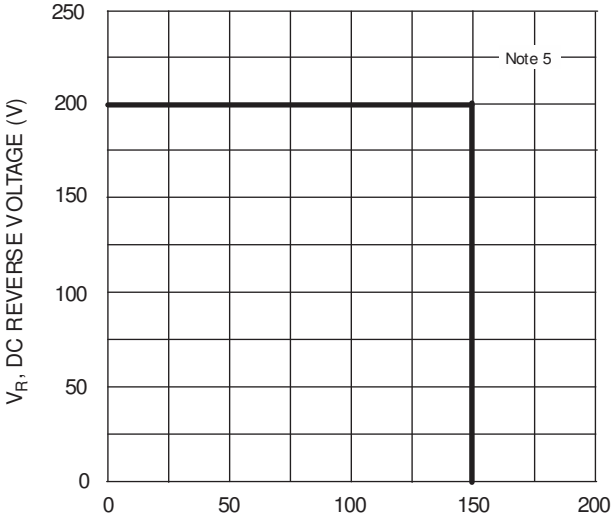
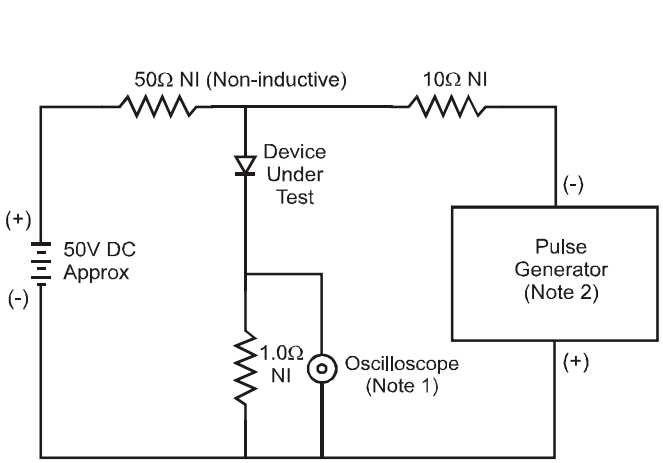
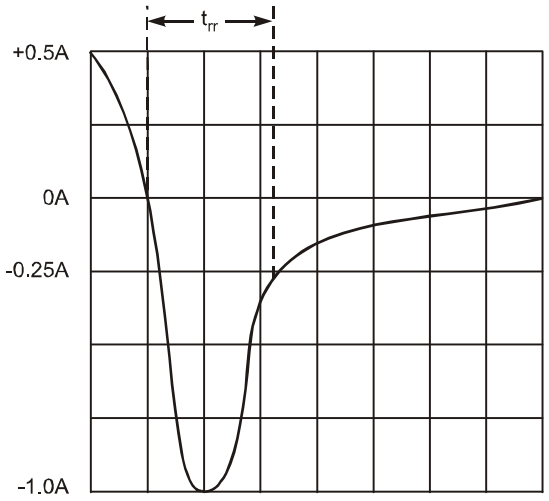


Fig. 6 Operating Temperature Derating



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



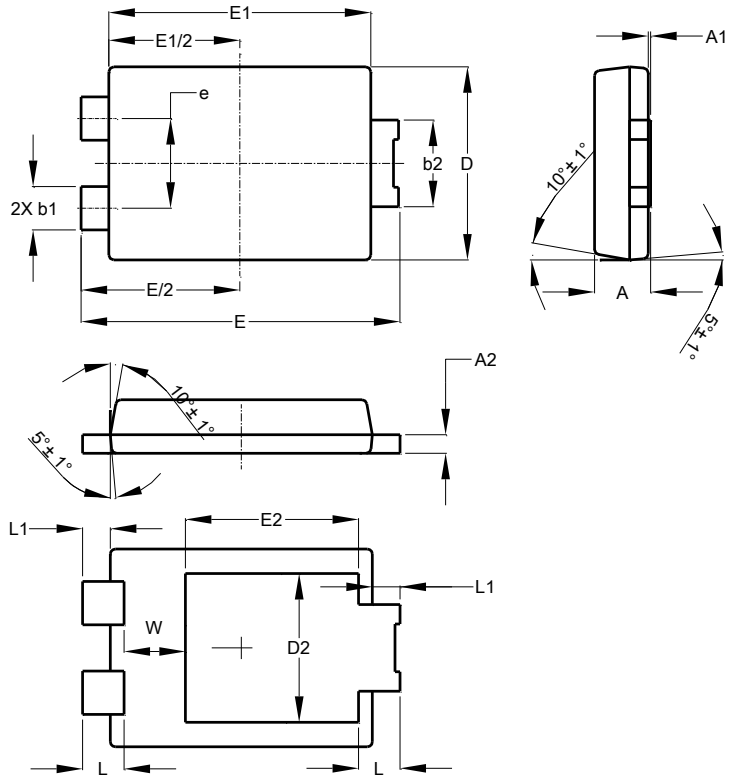
Set time base for 50/100 ns/cm

Fig. 7 Reverse Recovery Time Characteristic and Test Circuit

Package Outline Dimensions

Please see http://www.diodes.com/package-outlines.html for the latest version.

PowerDI5

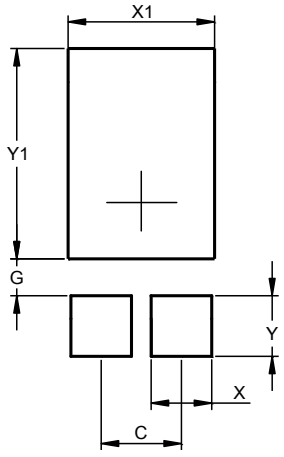


PowerDI5			
Dim	**Min**	**Max**	**Typ**
A	1.05	1.15	1.10
A1	0.00	0.05	--
A2	0.33	0.43	0.381
b1	0.80	0.99	0.89
b2	1.70	1.88	1.78
D	3.90	4.05	3.966
D2	--	--	3.054
E	6.40	6.60	6.504
e	--	--	1.84
E1	5.30	5.45	5.37
E2	--	--	3.549
L	0.75	0.95	0.85
L1	0.50	0.65	0.57
W	1.10	1.41	1.255
All Dimensions in mm			

Suggested Pad Layout

Please see http://www.diodes.com/package-outlines.html for the latest version.

PowerDI5



Dimensions	Value (in mm)
C	1.840
G	0.852
X	1.390
X1	3.360
Y	1.400
Y1	4.860

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