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**Product Summary** (@ $T_A = +25^\circ\text{C}$ )

$V_{RRM}$ (V)	$I_o$ (A)	$V_F$ Max (V)	$I_R$ Max ( $\mu\text{A}$ )
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<sup>®</sup>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**

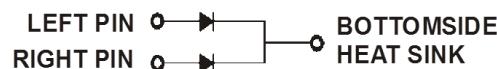
- Case: PowerDI5
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish – Matte Tin Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 (E3)
- Weight: 0.096 grams (Approximate)



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](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  
 DII = 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

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**Maximum Ratings** (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

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Single phase, half wave, 60Hz, resistive or inductive load.

For capacitive load, derate current by 20%.

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	$V_{RRM}$		
Working Peak Reverse Voltage	$V_{RWM}$	200	V
DC Blocking Voltage	$V_R$		
RMS Reverse Voltage	$V_{R(RMS)}$	141	V
Average Rectified Output Current (See Figure 4) (Per element)	$I_O$	3	A
(Total device)		6	
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	$I_{FSM}$	90	A

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**Thermal Characteristics**


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Characteristic	Symbol	Typ	Max	Unit
Thermal Resistance Junction to Soldering Point	$R_{\theta JS}$	—	3.0	$^\circ\text{C}/\text{W}$
Thermal Resistance Junction to Ambient Air (Note 5)	$T_A = +25^\circ\text{C}$	$R_{\theta JA}$	80	$^\circ\text{C}/\text{W}$
Thermal Resistance Junction to Ambient Air (Note 6)	$T_A = +25^\circ\text{C}$	$R_{\theta JA}$	65	$^\circ\text{C}/\text{W}$
Thermal Resistance Junction to Ambient Air (Note 7)	$T_A = +25^\circ\text{C}$	$R_{\theta JA}$	45	$^\circ\text{C}/\text{W}$
Operating Temperature Range	$T_J$	-65 to +150		$^\circ\text{C}$
Storage Temperature Range	$T_{STG}$	-65 to +150		$^\circ\text{C}$

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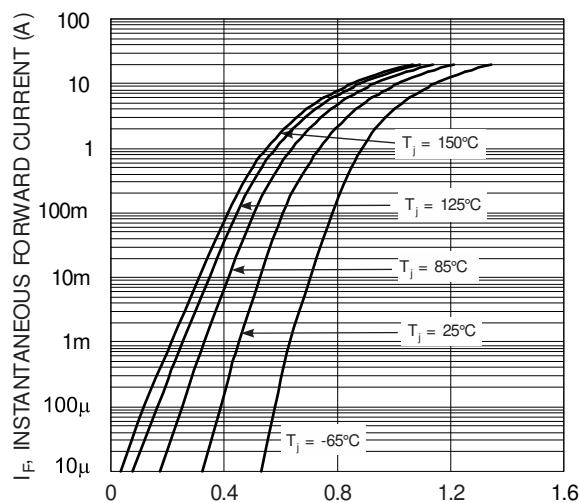
**Electrical Characteristics** (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

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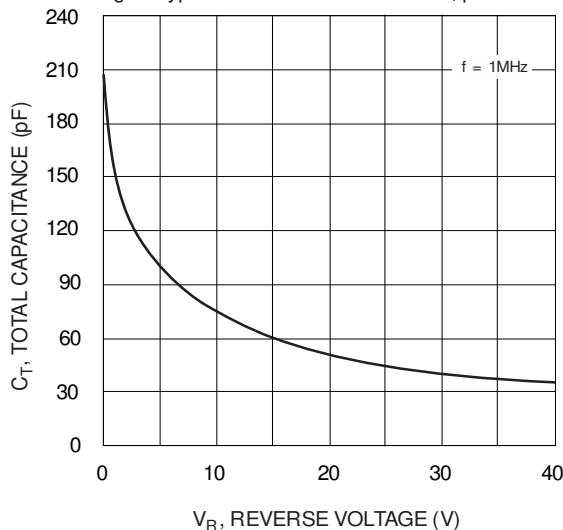
Characteristic	Symbol	Value	Unit	Test Condition
Minimum Reverse Breakdown Voltage (Note 8)	$V_{(BR)R}$	200	V	$I_R = 5\mu\text{A}$
Maximum Forward Voltage (Per element)	$V_{FM}$	1.00 0.96 1.20 1.13	V	$I_F = 3\text{A}, T_S = +25^\circ\text{C}$ $I_F = 3\text{A}, T_S = +125^\circ\text{C}$ $I_F = 6\text{A}, T_S = +25^\circ\text{C}$ $I_F = 6\text{A}, T_S = +125^\circ\text{C}$
Maximum Reverse Leakage Current (Per element) (Note 8)	$I_{RM}$	5 250	$\mu\text{A}$	$T_S = +25^\circ\text{C}, V_R = 200\text{V}$ $T_S = +125^\circ\text{C}, V_R = 200\text{V}$
Maximum Reverse Recovery Time	$t_{RR}$	25	ns	$I_F = 0.5\text{A}, I_R = 1.0\text{A}$ $I_{RR} = 0.25\text{A}$ (See Figure 7)

Notes:

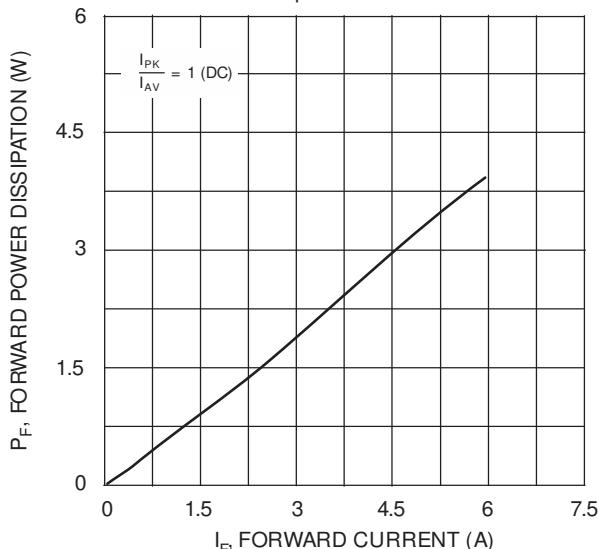
5. FR-4 PCB, 2 oz. Copper, minimum recommended pad layout per <http://www.diodes.com/package-outlines.html>.
6. Polyimide PCB, 2oz. Copper, minimum recommended pad layout per <http://www.diodes.com/package-outlines.html>.
7. Polyimide PCB, 2oz. Copper. Cathode pad dimensions 9.4mm x 7.2mm. Anode pad dimensions 2.7mm x 1.6mm.
8. Short duration pulse test used to minimize self-heating effect.



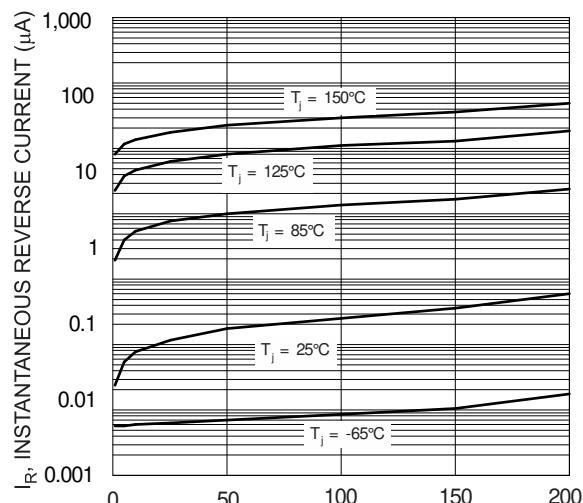
$V_F$ , INSTANTANEOUS FORWARD VOLTAGE (V)  
Fig. 1 Typical Forward Characteristics, per element



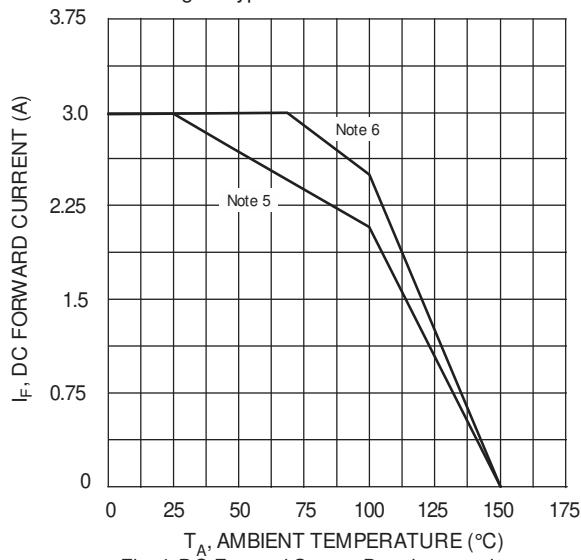
$V_R$ , REVERSE VOLTAGE (V)  
Fig. 3 Typical Total Capacitance vs. Reverse Voltage, per element



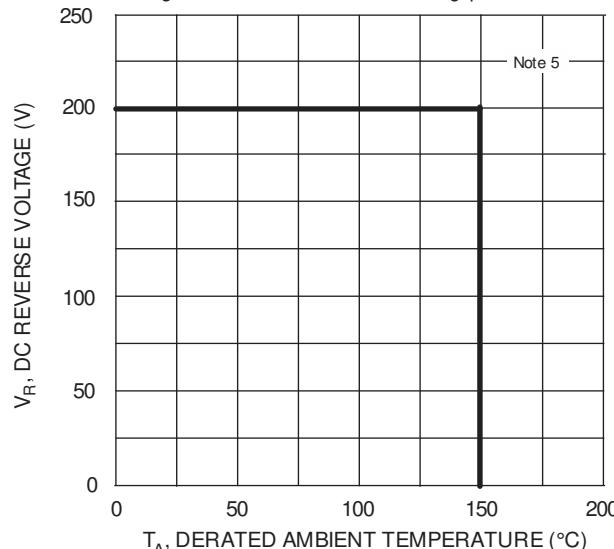
$I_F$ , FORWARD CURRENT (A)  
Fig. 5 Forward Power Dissipation, per element



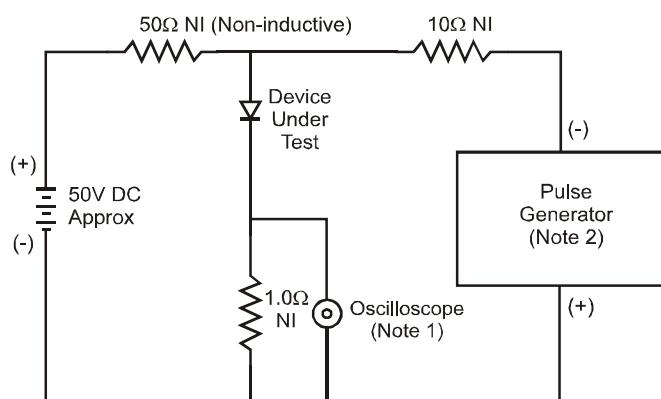
$V_R$ , INSTANTANEOUS REVERSE VOLTAGE (V)  
Fig. 2 Typical Reverse Characteristics



$T_A$ , AMBIENT TEMPERATURE (°C)  
Fig. 4 DC Forward Current Derating, per element

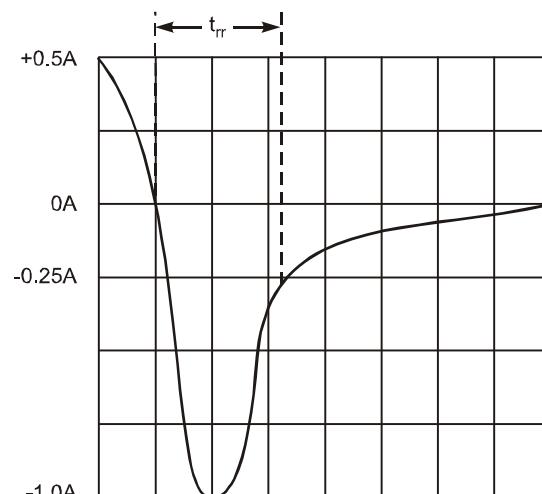


$T_A$ , DERATED AMBIENT TEMPERATURE (°C)  
Fig. 6 Operating Temperature Derating



Notes:

1. Rise Time = 7.0ns max. Input Impedance =  $1.0M\Omega$ ,  $22pF$ .
2. Rise Time = 10ns max. Input Impedance =  $50\Omega$ .



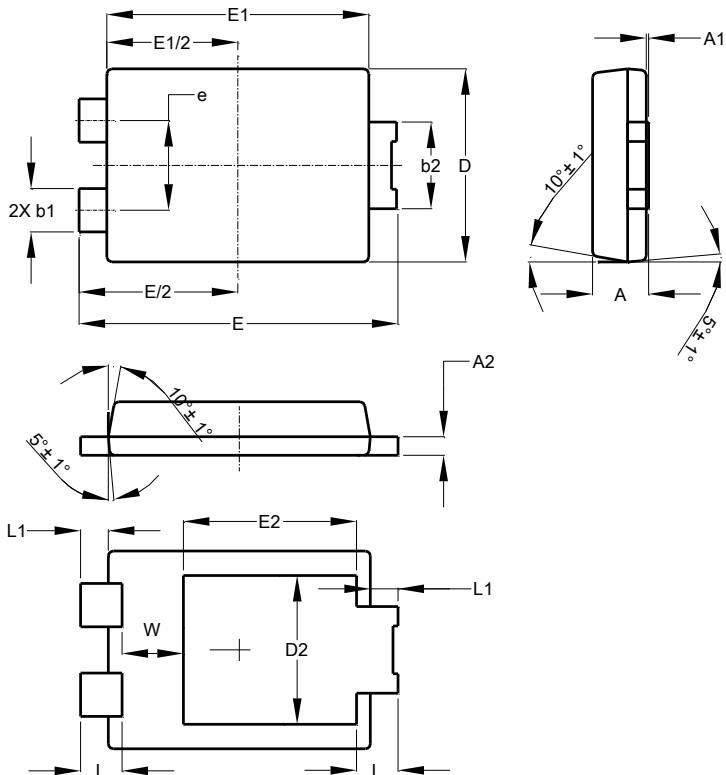
Set time base for 50/100 ns/cm

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



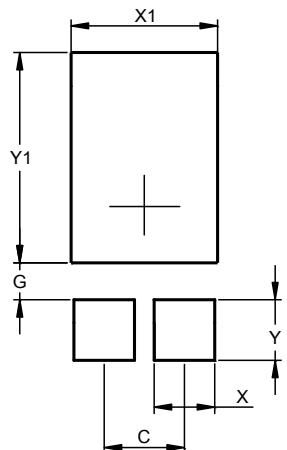
PowerDI5			
Dim	Min	Max	Typ
<b>A</b>	1.05	1.15	1.10
<b>A1</b>	0.00	0.05	--
<b>A2</b>	0.33	0.43	0.381
<b>b1</b>	0.80	0.99	0.89
<b>b2</b>	1.70	1.88	1.78
<b>D</b>	3.90	4.05	3.966
<b>D2</b>	--	--	3.054
<b>E</b>	6.40	6.60	6.504
<b>e</b>	--	--	1.84
<b>E1</b>	5.30	5.45	5.37
<b>E2</b>	--	--	3.549
<b>L</b>	0.75	0.95	0.85
<b>L1</b>	0.50	0.65	0.57
<b>W</b>	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)
<b>C</b>	1.840
<b>G</b>	0.852
<b>X</b>	1.390
<b>X1</b>	3.360
<b>Y</b>	1.400
<b>Y1</b>	4.860

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