

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

Description

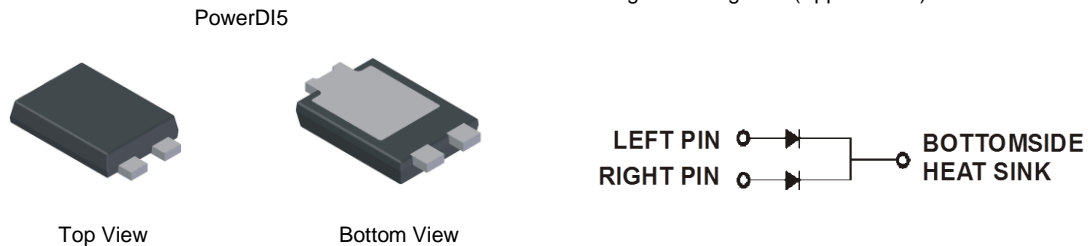
PDU620CT, a 6.0A Glass Passivated Dual Ultra-Fast Recovery Rectifier in our thermally efficient PowerDI[®]5 package, offers ultra-fast recovery time for high efficiency, high forward surge current for use in high-frequency inverters, freewheeling and polarity protection applications.

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)**
- **For automotive applications requiring specific change control (i.e.: parts qualified to AEC-Q100/101/104/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please refer to the related automotive grade (Q-suffix) part. A listing can be found at <https://www.diodes.com/products/automotive/automotive-products/>.**
- **This part is qualified to JEDEC standards (as references in AEC-Q) for High Reliability. <https://www.diodes.com/quality/product-definitions/>**

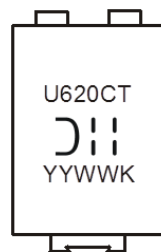
Mechanical Data

- Package: PowerDI5
- Package 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 ⁽³⁾
- Weight: 0.096 grams (Approximate)


Ordering Information (Note 4)

Orderable Part Number	Package	Packing	
		Qty.	Carrier
PDU620CT-13	PowerDI5	5,000	Tape & Reel

- Notes:
1. EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
 2. See <https://www.diodes.com/quality/lead-free/> 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 <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

Marking Information


U620CT = Product Type Marking Code
 DII = Manufacturer's Code Marking
 YYWW = Date Code Marking
 YY = Last Two Digits of Year (ex: 25 = 2025)
 WW = Week Code (01 to 52)
 K = Factory Designator

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	V _{R(RM)}	200	V
Working Peak Reverse Voltage	V _{R(WM)}		
DC Blocking Voltage	V _R		
RMS Reverse Voltage	V _{R(RMS)}	141	V
Average Rectified Output Current (See Figure 4)	I _O	3	A
(Per Element) (Total Device)		6	
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine Wave Superimposed on Rated Load	I _{FSM}	90	A

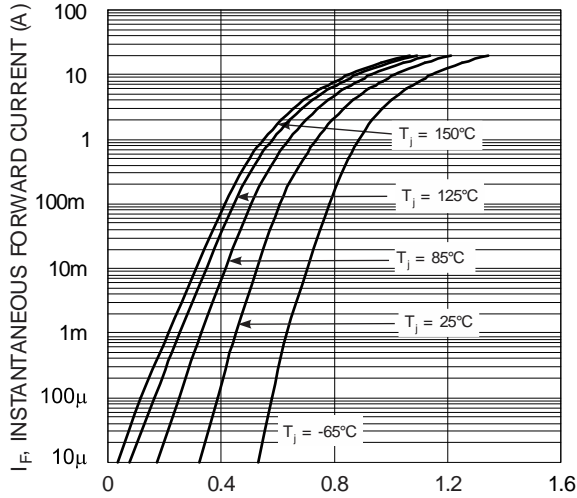
Thermal Characteristics

Characteristic	Symbol	Typ	Max	Unit
Thermal Resistance Junction to Soldering Point	R _{θJS}	—	3.0	°C/W
Thermal Resistance Junction to Ambient Air (Note 5)	T _A = +25°C R _{θJA}	80	—	°C/W
Thermal Resistance Junction to Ambient Air (Note 6)	T _A = +25°C R _{θJA}	65	—	°C/W
Thermal Resistance Junction to Ambient Air (Note 7)	T _A = +25°C R _{θJA}	45	—	°C/W
Operating Temperature Range	T _J	-65 to +150		°C
Storage Temperature Range	T _{STG}	-65 to +150		°C

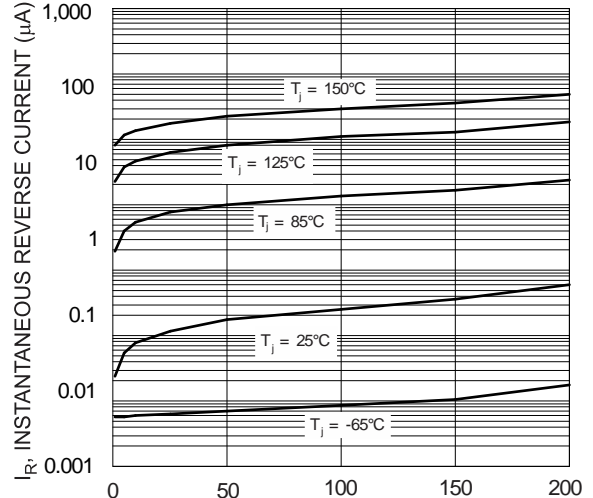
Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

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	V	I _F = 3A, T _S = +25°C
		0.96		I _F = 3A, T _S = +125°C
		1.20		I _F = 6A, T _S = +25°C
		1.13		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)

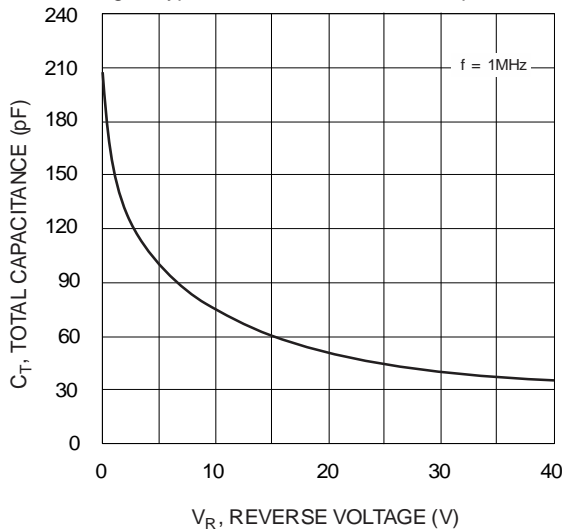
- Notes:
5. FR-4 PCB, 2 oz. copper, minimum recommended pad layout per <http://www.diodes.com/package-outlines.html>.
 6. Polyimide PCB, 2oz. copper, minimum recommended pad layout per <http://www.diodes.com/package-outlines.html>.
 7. Polyimide PCB, 2oz. copper. Cathode pad dimensions 9.4mm x 7.2mm.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



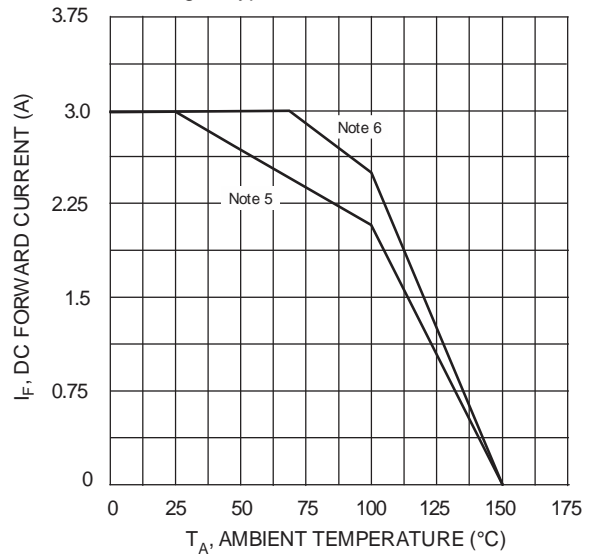
V_F , INSTANTANEOUS FORWARD VOLTAGE (V)
Fig. 1 Typical Forward Characteristics, per element



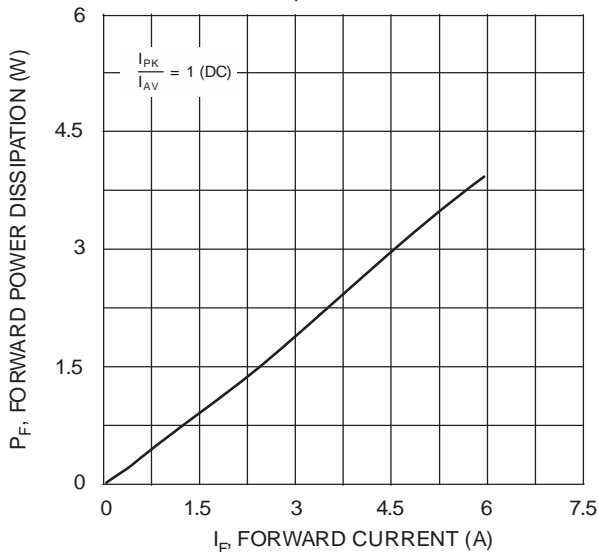
V_R , INSTANTANEOUS REVERSE VOLTAGE (V)
Fig. 2 Typical Reverse Characteristics



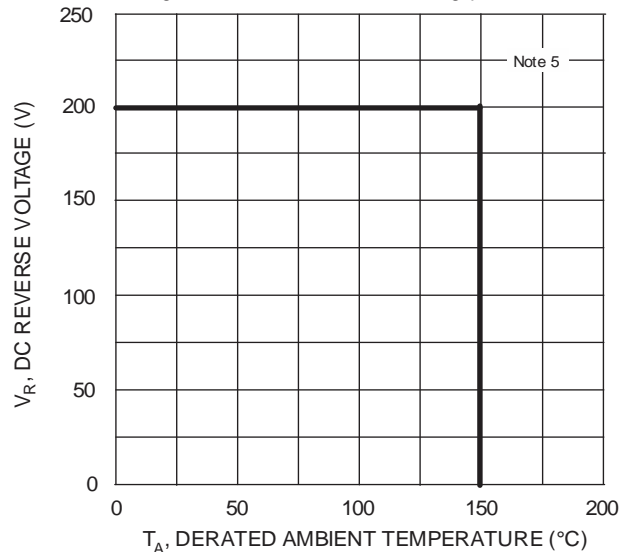
V_R , REVERSE VOLTAGE (V)
Fig. 3 Typical Total Capacitance vs. Reverse Voltage, per element



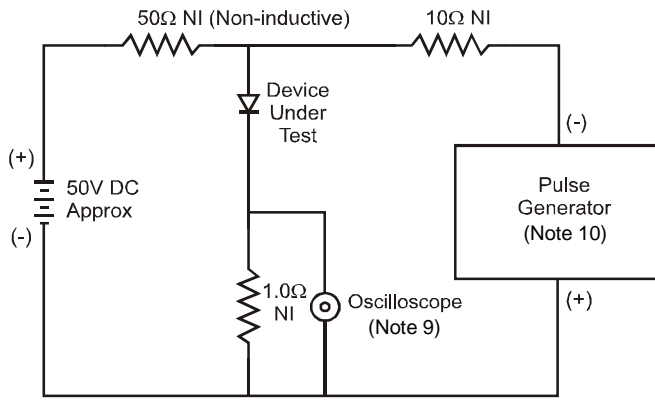
T_A , AMBIENT TEMPERATURE (°C)
Fig. 4 DC Forward Current Derating, per element



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

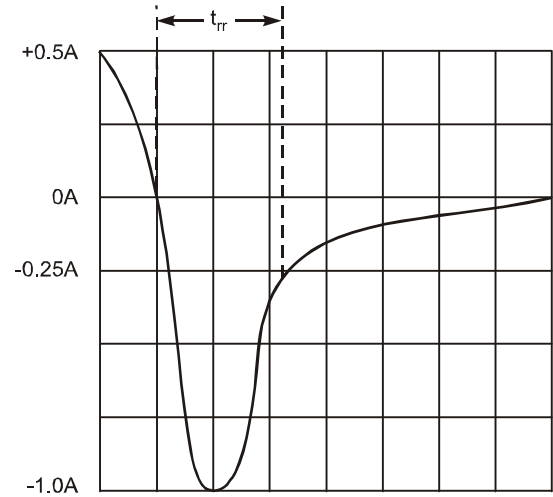


T_A , DERATED AMBIENT TEMPERATURE (°C)
Fig. 6 Operating Temperature Derating



Notes:

- 9. Rise Time = 7.0ns max. Input Impedance = 1.0MΩ, 22pF.
- 10. Rise Time = 10ns max. Input Impedance = 50Ω.



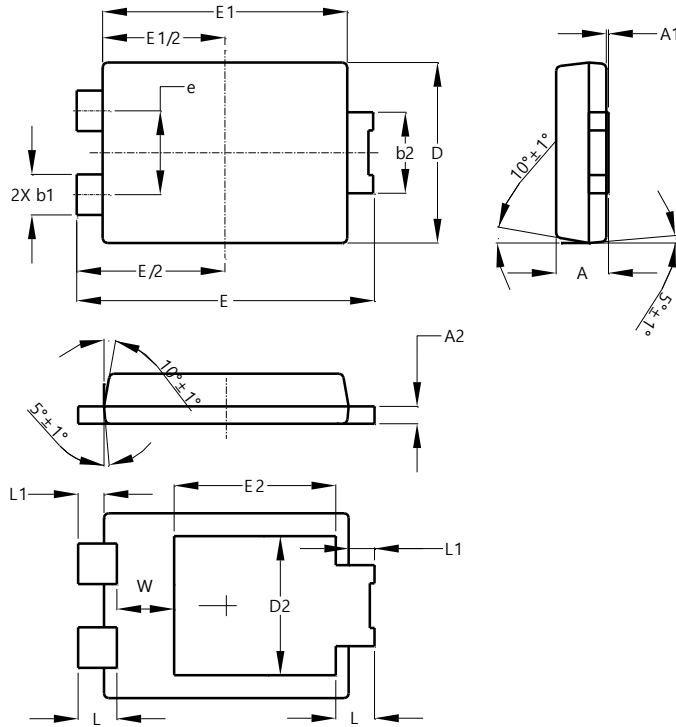
Set time base for 50/100 ns/cm

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

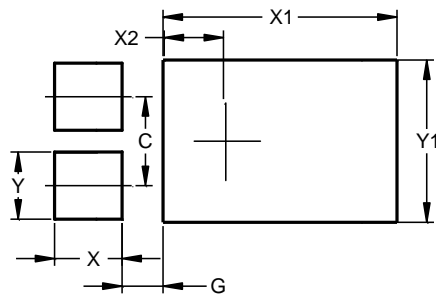


PowerDI5			
Dim	Min	Max	Typ
A	1.05	1.15	1.10
A1	0.00	0.05	--
A2	0.33	0.43	0.381
b1	0.80	0.99	0.89
b2	1.70	1.88	1.78
D	3.90	4.05	3.966
D2	--	--	3.054
E	6.40	6.60	6.51
e	--	--	1.84
E1	5.30	5.45	5.37
E2	--	--	3.549
L	0.75	0.95	0.85
L1	0.50	0.65	0.57
W	1.10	1.41	1.255
All Dimensions in mm			

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	1.400
X1	4.860
X2	1.310
Y	1.390
Y1	3.360

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