

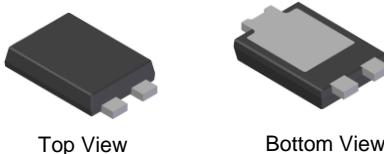
Features

- Guard Ring Die Construction for Transient Protection
- Low Forward Voltage Drop
- Very Low Leakage Current
- Highly Stable Oxide Passivated Junction
- High Forward Surge Current Capability
- Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- Halogen and Antimony Free. "Green" Device (Note 3)**
- Qualified to AEC-Q101 Standards for High Reliability
- PPAP Capable (Note 4)

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-020
- Terminals: Finish – Matte Tin Annealed over Copper Leadframe; Solderable per MIL-STD-202, Method 208(e3)
- Polarity: See Diagram
- Weight: 0.096 grams (Approximate)

PowerDI5



Top View

Bottom View



Note: Pins Left & Right must be electrically connected at the printed circuit board.

Ordering Information (Note 5)

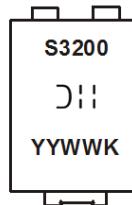
Part Number	Qualification	Case	Packaging
PDS3200-13	Commercial	PowerDI5	5,000/Tape & Reel
PDS3200Q-13	Automotive	PowerDI5	5,000/Tape & Reel

Notes:

- EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
- 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.
- Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
- Automotive products are AEC-Q101 qualified and are PPAP capable. Automotive, AEC-Q101 and standard products are electrically and thermally the same, except where specified. For more information, please refer to <https://www.diodes.com/quality/>.
- For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

Marking Information

PowerDI5



S3200 = Product Type Marking Code

DII = Manufacturer's Code Marking

YYWW = Date Code Marking

YY = Last Two Digits of Year (ex: 18 for 2018)

WW = Week Code (01 to 53)

K = Factory Designator

Maximum Ratings (@ $T_A = +25^\circ\text{C}$, 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_{RRM}		
Working Peak Reverse Voltage	V_{RWM}	200	V
DC Blocking Voltage	V_R		
RMS Reverse Voltage	$V_{R(\text{RMS})}$	141	V
Average Rectified Output Current	I_O	3	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I_{FSM}	180	A

Thermal Characteristics

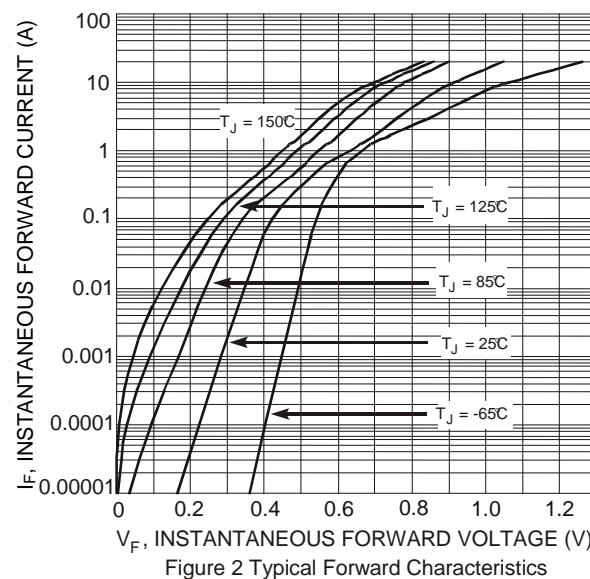
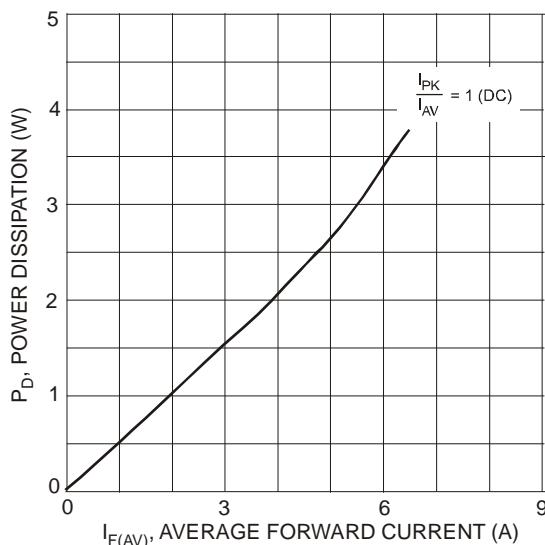
Characteristic	Symbol	Typ	Max	Unit
Thermal Resistance Junction to Soldering Point	$R_{\theta JS}$	—	2.0	$^\circ\text{C}/\text{W}$
Thermal Resistance Junction to Ambient Air (Note 6) $T_A = +25^\circ\text{C}$	$R_{\theta JA}$	75	—	$^\circ\text{C}/\text{W}$
Thermal Resistance Junction to Ambient Air (Note 7) $T_A = +25^\circ\text{C}$	$R_{\theta JA}$	60	—	$^\circ\text{C}/\text{W}$
Thermal Resistance Junction to Ambient Air (Note 8) $T_A = +25^\circ\text{C}$	$R_{\theta JA}$	45	—	$^\circ\text{C}/\text{W}$
Operating Temperature Range	T_J	-65 to +150		$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-65 to +175		$^\circ\text{C}$

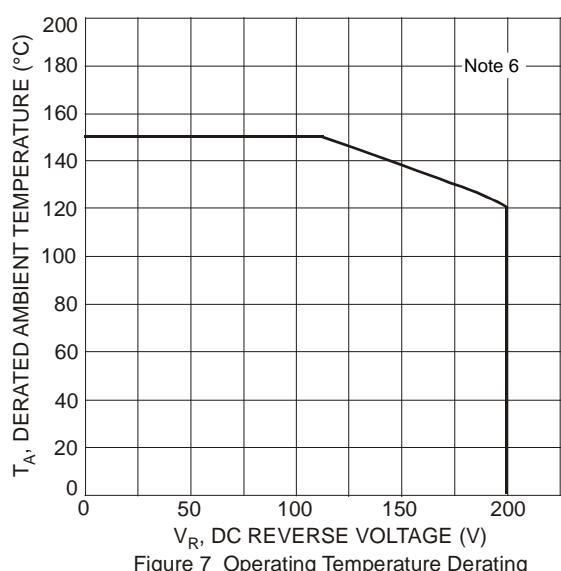
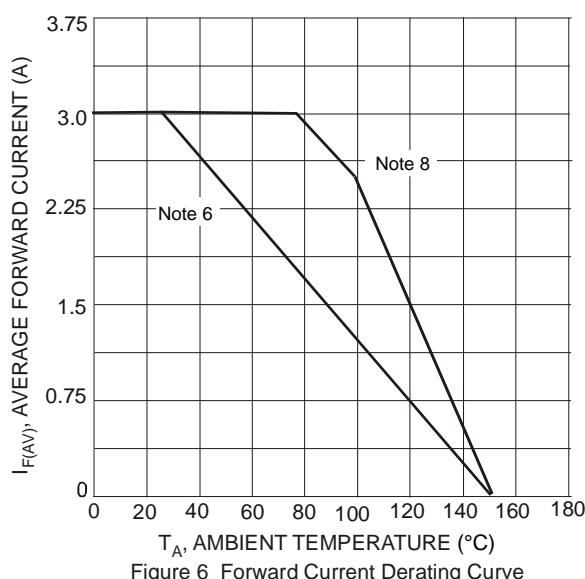
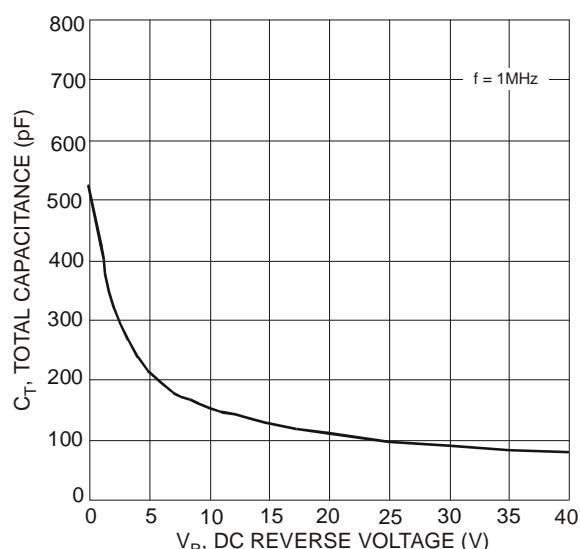
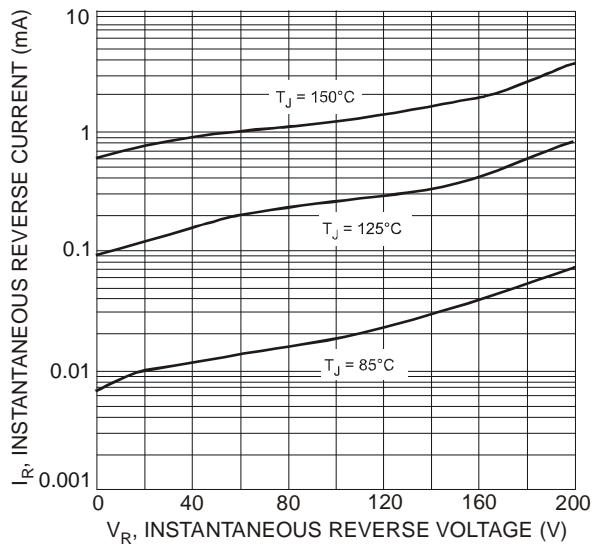
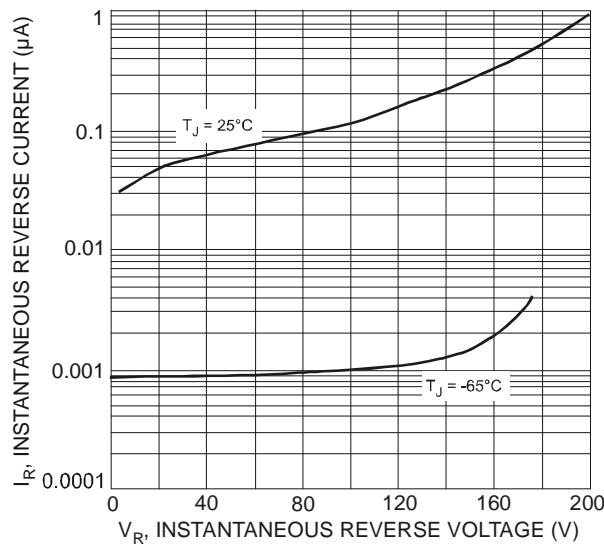
Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 9)	$V_{(BR)R}$	200	—	—	V	$I_R = 10\mu\text{A}$
Forward Voltage	V_F	—	0.75	0.78	V	$I_F = 3\text{A}$, $T_S = +25^\circ\text{C}$
		—	0.59	0.64		$I_F = 3\text{A}$, $T_S = +125^\circ\text{C}$
		—	0.82	0.88		$I_F = 6\text{A}$, $T_S = +25^\circ\text{C}$
		—	0.66	0.71		$I_F = 6\text{A}$, $T_S = +125^\circ\text{C}$
Reverse Leakage Current (Note 9)	I_R	—	1	10	μA	$T_S = +25^\circ\text{C}$, $V_R = 200\text{V}$
		—	0.8	4.5	mA	$T_S = +125^\circ\text{C}$, $V_R = 200\text{V}$

Notes:

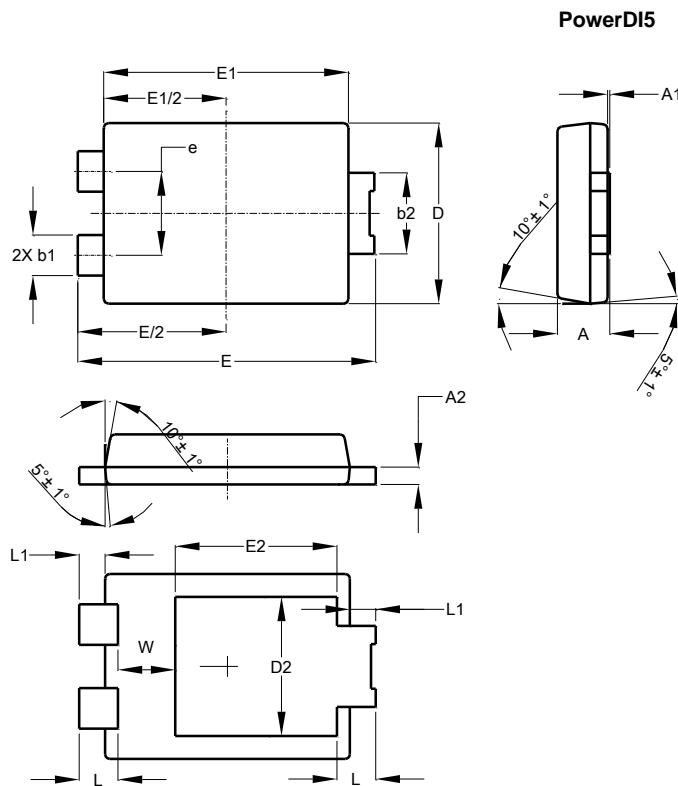
6. FR-4 PCB, 2oz. Copper, minimum recommended pad layout per <http://www.diodes.com/package-outlines.html>.
7. Polyimide PCB, 2oz. Copper, minimum recommended pad layout per <http://www.diodes.com/package-outlines.html>.
8. Polyimide PCB, 2oz. Copper. Cathode pad dimensions 9.4mm x 7.2mm. Anode pad dimensions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





Package Outline Dimensions

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

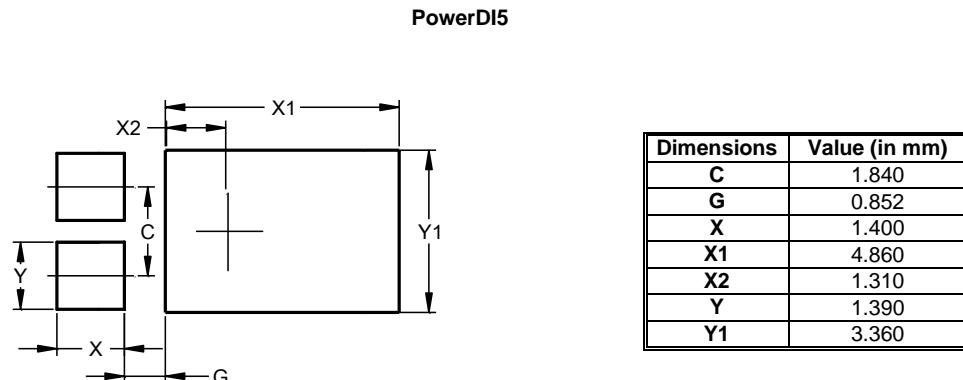


PowerDI5			
Dim	Min	Max	Typ
A	1.05	1.15	1.10
A1	0.00	0.05	--
A2	0.33	0.43	0.381
b1	0.80	0.99	0.89
b2	1.70	1.88	1.78
D	3.90	4.05	3.966
D2	--	--	3.054
E	6.40	6.60	6.51
e	--	--	1.84
E1	5.30	5.45	5.37
E2	--	--	3.549
L	0.75	0.95	0.85
L1	0.50	0.65	0.57
W	1.10	1.41	1.255

All Dimensions in mm

Suggested Pad Layout

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



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