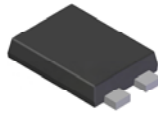
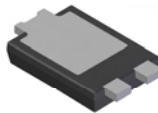


Features

- Guard Ring Die Construction for Transient Protection
- Very Low Forward Voltage Drop
- High Forward Surge Current Capability
- For Use in Low Voltage, High Frequency Inverters, Free Wheeling, and Polarity Protection Applications
- **Lead Free Finish, RoHS Compliant (Note 1)**
- **"Green" Molding Compound (No Br, Sb)**
- **Qualified to AEC-Q101 Standards for High Reliability**





Top View



Bottom View

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-020D
- Terminals: Finish – Matte Tin Annealed Over Copper Leadframe. Solderable per MIL-STD-202, Method 208 (E3)
- Polarity: See Diagram
- Marking Information: See Page 3
- Ordering Information: See Page 3
- Weight: 0.096 grams (approximate)

LEFT PIN  RIGHT PIN  BOTTOMSIDE HEAT SINK

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

Maximum Ratings @T_A = 25°C unless otherwise specified

Single phase, half wave, 60Hz, resistive or inductive load.
 For capacitance load, derate current by 20%.

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	V _{RRM}	45	V
Working Peak Reverse Voltage	V _{RWM}		
DC Blocking Voltage	V _R		
RMS Reverse Voltage	V _{R(RMS)}	32	V
Average Rectified Output Current (see also Figure 4)	I _O	10	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I _{FSM}	275	A

Thermal Characteristics

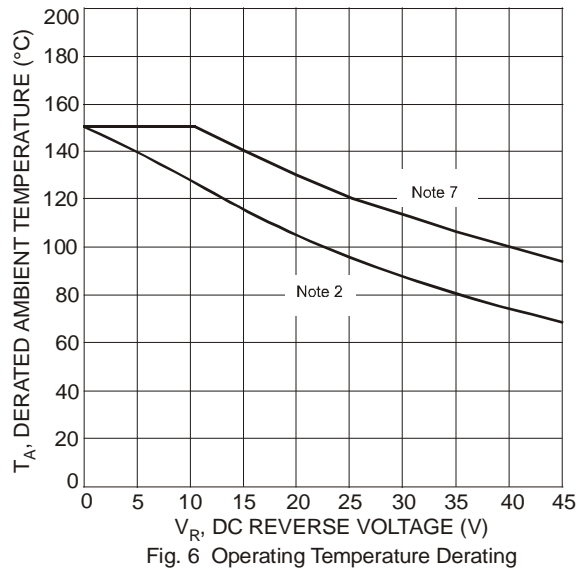
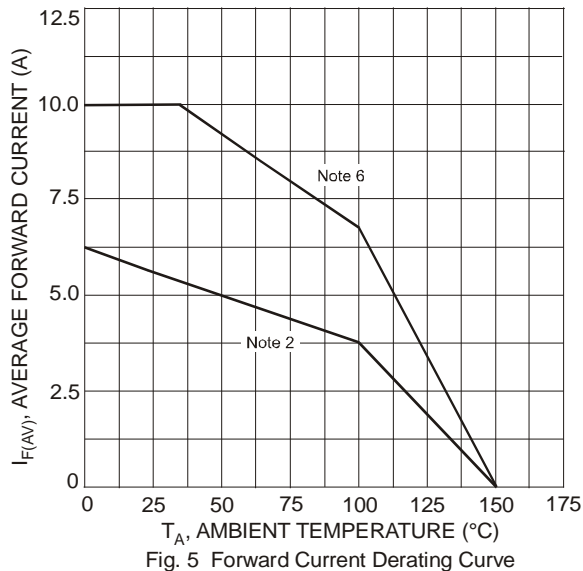
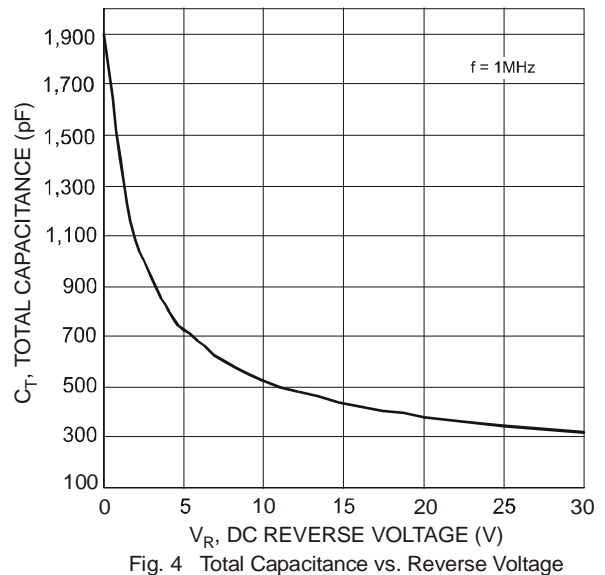
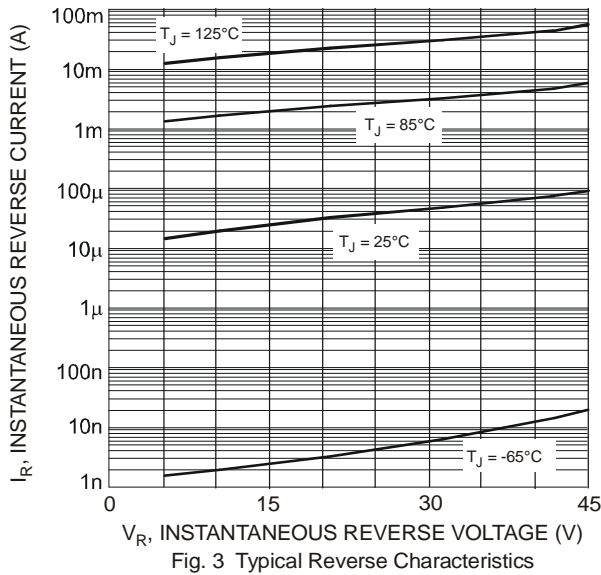
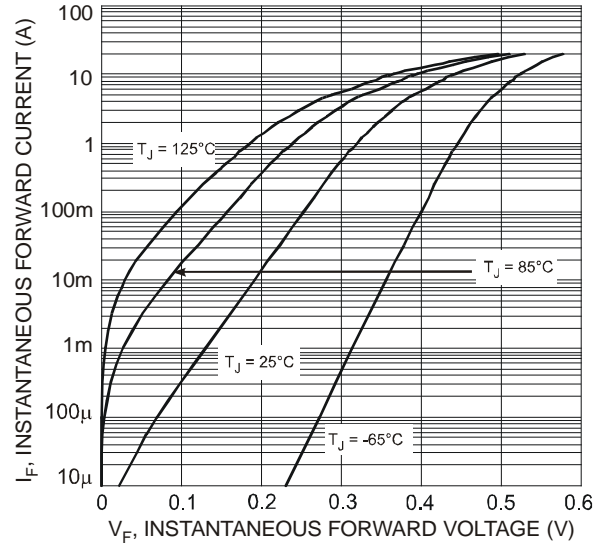
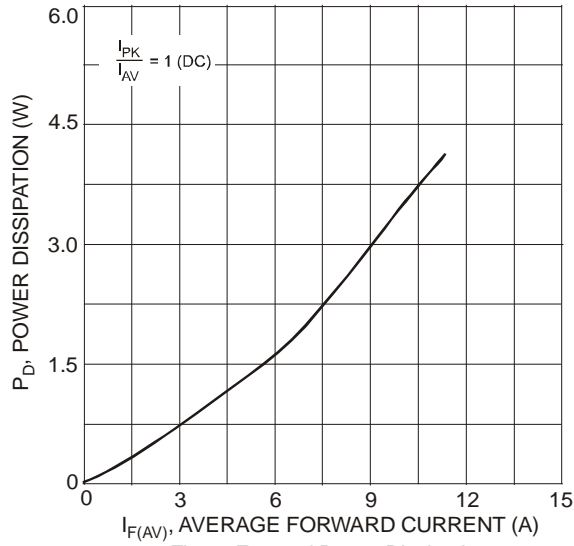
Characteristic	Symbol	Typ	Max	Unit
Thermal Resistance Junction to Soldering Point	R _{θJS}	—	0.8	°C/W
Thermal Resistance Junction to Ambient Air (Note 2) T _A = 25°C	R _{θJA}	85	—	°C/W
Thermal Resistance Junction to Ambient Air (Note 3) T _A = 25°C	R _{θJA}	65	—	°C/W
Thermal Resistance Junction to Ambient Air (Note 4) T _A = 25°C	R _{θJA}	50	—	°C/W
Operating Junction Temperature Range V _R ≤ 80% V _{RRM} V _R ≤ 50% V _{RRM}	T _J	-65 to +125 -65 to +150		°C
Storage Temperature Range	T _{STG}	-65 to +150		°C

Electrical Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 5)	V _{(BR)R}	45	—	—	V	I _R = 600μA
Forward Voltage	V _F	—	0.40	0.45	V	I _F = 5A, T _S = 25°C
		—	0.45	0.51		I _F = 10A, T _S = 25°C
		—	0.29	0.35		I _F = 5A, T _S = 125°C
		—	0.37	0.43		I _F = 10A, T _S = 125°C
Reverse Leakage Current (Note 5)	I _R	—	0.03	0.3	mA	T _S = 25°C, V _R = 35V
		—	10	25		T _S = 100°C, V _R = 35V
		—	0.1	0.6		T _S = 25°C, V _R = 45V
		—	65	150		T _S = 125°C, V _R = 45V

- Notes:
1. EU Directive **2002/95/EC** (RoHS). All applicable RoHS exemptions applied, see *EU Directive 2002/95/EC Annex Notes*.
 2. FR-4 PCB, 2 oz. Copper, minimum recommended pad layout per <http://www.diodes.com/datasheets/ap02001.pdf>.
 3. Polyimide PCB, 2 oz. Copper, minimum recommended pad layout per <http://www.diodes.com/datasheets/ap02001.pdf>.
 4. Polyimide PCB, 2 oz. Copper. Cathode pad dimensions 9.4mm x 7.2mm. Anode pad dimensions 2.7mm x 1.6mm.
 5. Short duration pulse test used to minimize self-heating effect.
 6. Polyimide PCB, 2 oz. Copper. Cathode pad dimensions 16.0mm x 12.4mm. Anode pad dimensions 4.7mm x 2.7mm.

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Notes: 7. Devices mounted such that $R_{\theta JA}$ @ 19°C/W.

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PDS1045

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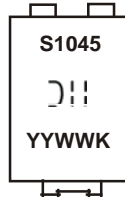
May 2008
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Ordering Information (Note 8)

Part Number	Case	Packaging
PDS1045-13	PowerDI [®] 5	5000/Tape & Reel

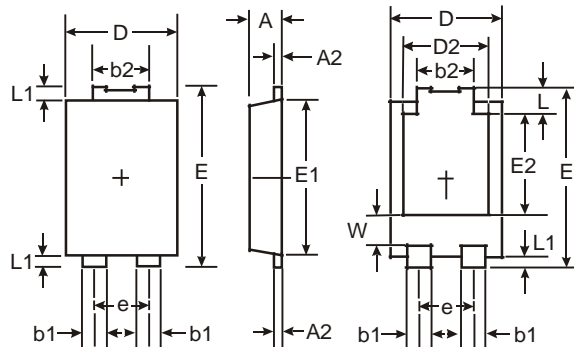
Notes: 8. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

Marking Information



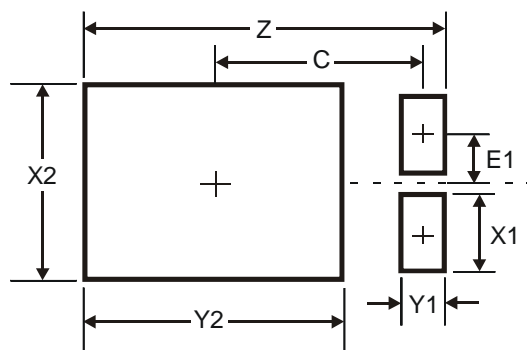
S1045 = Product type marking code
 DII = Manufacturers' code marking
 YYWW = Date code marking
 YY = Last two digits of year ex: 05 for 2005
 WW = Week code 01 to 52
 K = Factory designator

Package Outline Dimensions



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		

Suggested Pad Layout



Dimensions	Value (in mm)
Z	6.6
X1	1.4
X2	3.6
Y1	0.8
Y2	4.7
C	3.87
E1	0.9

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