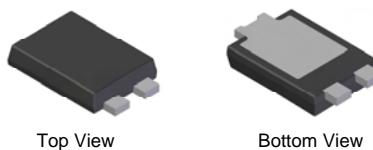


Features

- Guard Ring Die Construction for Transient Protection
- High Maximum Junction Temperature
- Very Low Leakage Current
- Highly Stable Oxide Passivated Junction
- Low Forward Voltage Drop
- High Forward Surge Current Capability
- Lead Free Finish, RoHS Compliant (Note 1)**
- "Green" Molding Compound (No Br, Sb)**
- Qualified to AEC-Q101 Standards for High Reliability**

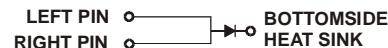


Top View

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)



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

Maximum Ratings

$\text{@ } T_A = 25^\circ\text{C}$ 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}		
Working Peak Reverse Voltage	V_{RWM}	100	V
DC Blocking Voltage	V_R		
RMS Reverse Voltage	$V_{R(RMS)}$	71	V
Average Rectified Output Current (See also figure 5)	I_O	5	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single half sine-wave Superimposed on Rated Load	I_{FSM}	250	A

Thermal Characteristics

Characteristic	Symbol	Typ	Max	Unit
Thermal Resistance Junction to Soldering Point	$R_{\theta JS}$	—	2.0	$^\circ\text{C/W}$
Thermal Resistance Junction to Ambient Air (Note 2) $T_A = 25^\circ\text{C}$	$R_{\theta JA}$	85	—	$^\circ\text{C/W}$
Thermal Resistance Junction to Ambient Air (Note 3) $T_A = 25^\circ\text{C}$	$R_{\theta JA}$	70	—	$^\circ\text{C/W}$
Thermal Resistance Junction to Ambient Air (Note 4) $T_A = 25^\circ\text{C}$	$R_{\theta JA}$	45	—	$^\circ\text{C/W}$
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +175		$^\circ\text{C}$

Electrical Characteristics

$\text{@ } T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 5)	$V_{(BR)R}$	100	—	—	V	$I_R = 3.5\mu\text{A}$
Forward Voltage	V_F	—	0.67	0.71	V	$I_F = 5\text{A}, T_S = 25^\circ\text{C}$
		—	0.55	0.58		$I_F = 5\text{A}, T_S = 125^\circ\text{C}$
		—	0.75	0.80		$I_F = 10\text{A}, T_S = 25^\circ\text{C}$
		—	0.62	0.66		$I_F = 10\text{A}, T_S = 125^\circ\text{C}$
Reverse Leakage Current (Note 5)	I_R	—	0.3	3.5	μA	$T_S = 25^\circ\text{C}, V_R = 100\text{V}$
		—	0.5	4.5	mA	$T_S = 125^\circ\text{C}, V_R = 100\text{V}$

Notes:

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

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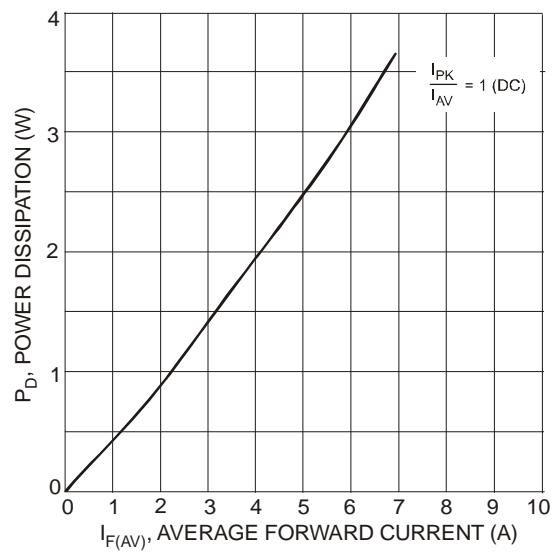


Fig. 1 Forward Power Dissipation

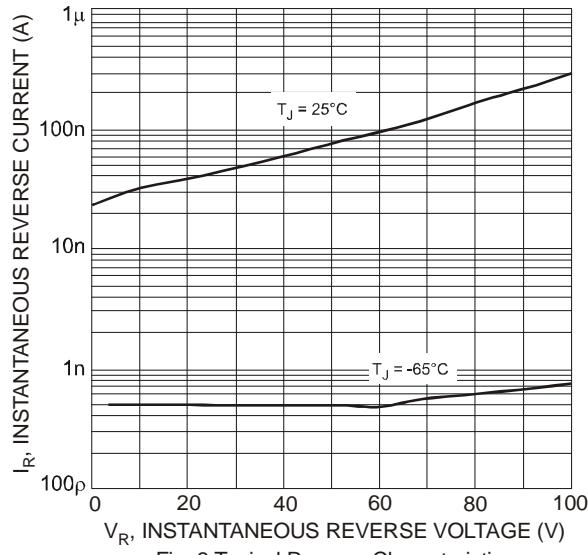


Fig. 3 Typical Reverse Characteristics

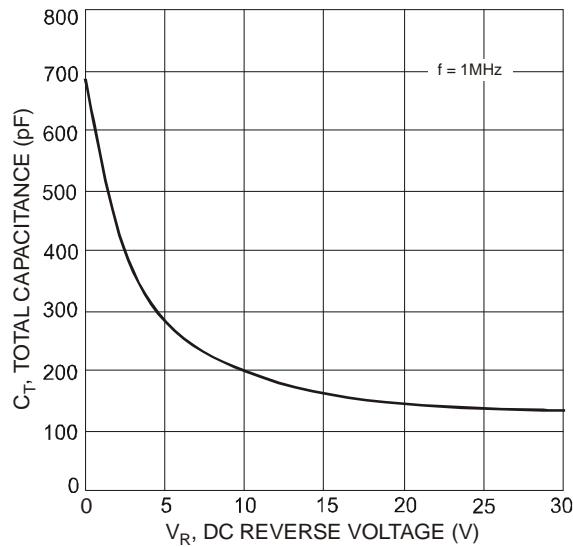


Fig. 5 Total Capacitance vs. Reverse Voltage

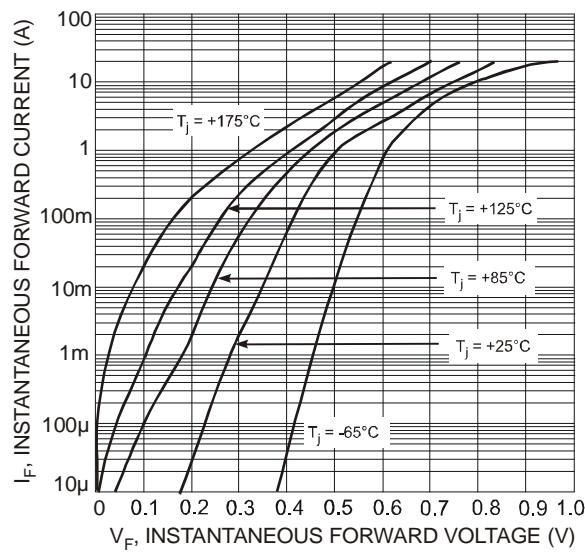


Fig. 2 Typical Forward Characteristics

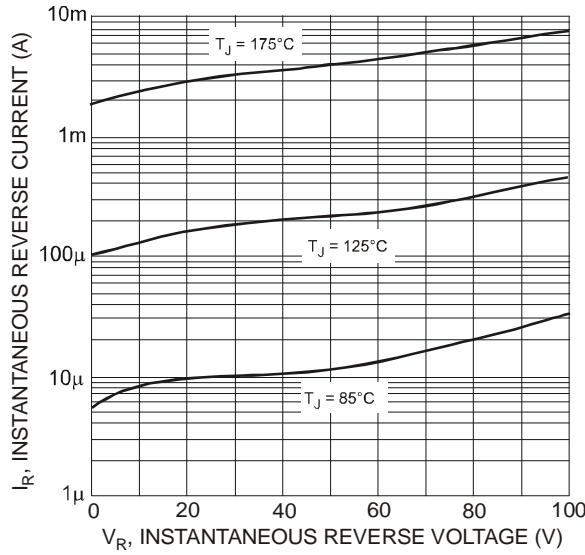


Fig. 4 Typical Reverse Characteristics

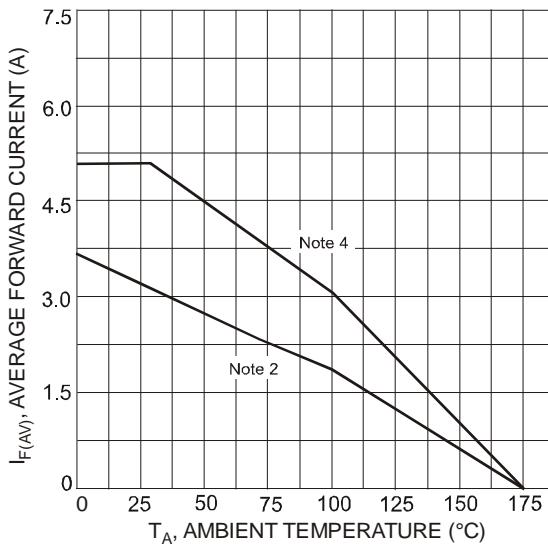


Fig. 6 Forward Current Derating Curve

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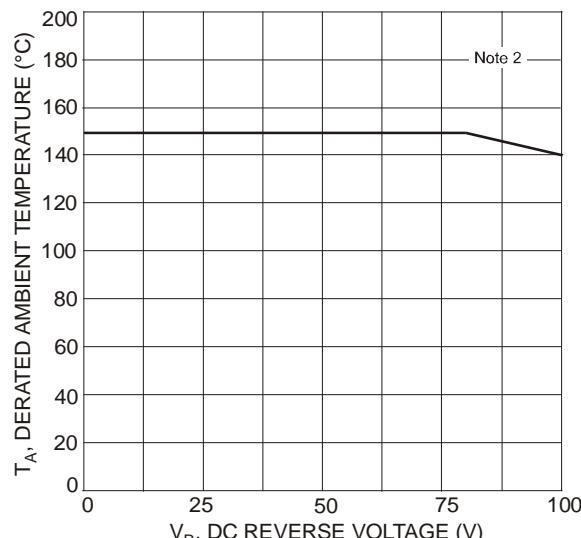


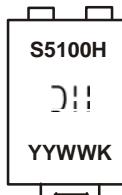
Fig. 7 Operating Temperature Derating

Ordering Information (Note 6)

Part Number	Case	Packaging
PDS5100H-13	PowerDI®5	5000/Tape & Reel

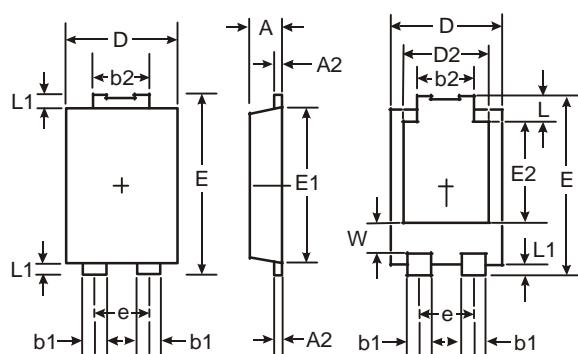
Notes: 6. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

Marking Information



S5100H = Product type marking code
 DII = Manufacturers' code marking
 YYWW = Date code marking
 YY = Last two digits of year ex: 04 for 2004
 WW = Week code 01 to 52
 K = Factory Designator

Package Outline Dimensions

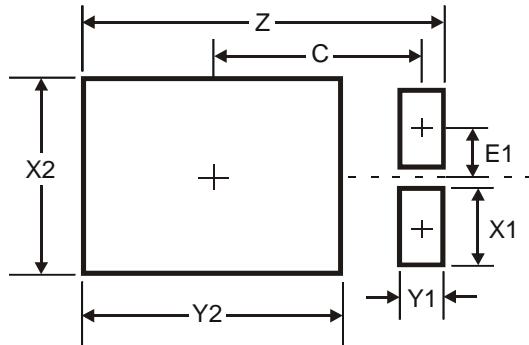


PowerDI®5		
Dim	Min	Max
A	1.05	1.15
A2	0.33	0.43
b1	0.80	0.99
b2	1.70	1.88
D	3.90	4.05
D2	3.05 NOM	
E	6.40	6.60
e	1.84 NOM	
E1	5.30	5.45
E2	3.55 NOM	
L	0.75	0.95
L1	0.50	0.65
W	1.20	1.50

All Dimensions in mm

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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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