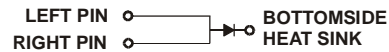
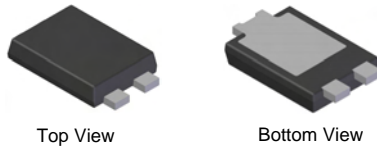


## Features

- 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**

## Mechanical Data

- Case: PowerDI<sup>®5</sup>
- 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)



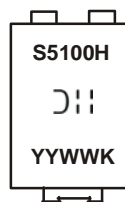
**Note:** Pins Left & Right must be electrically connected at the printed circuit board.

## Ordering Information (Note 2)

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

Notes: 2. For packaging details, go to our website at <http://www.diodes.com>.

## Marking Information



S5100H = Product type marking code  
 ):: = Manufacturers' code marking  
 YYWW = Date code marking  
 YY = Last two digits of year (ex: 04 for 2004)  
 WW = Week code (01 - 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 capacitance load, derate current by 20%.

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	$V_{RRM}$	100	V
Working Peak Reverse Voltage	$V_{RWM}$		
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

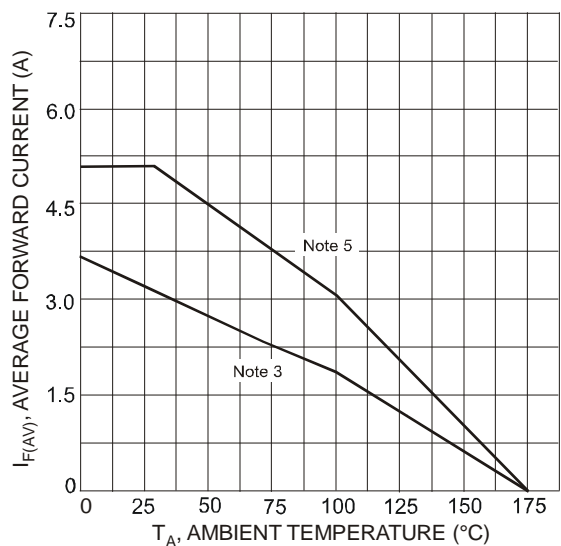
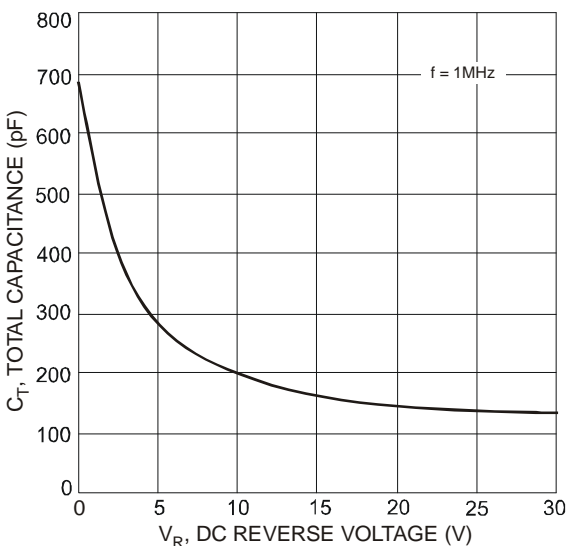
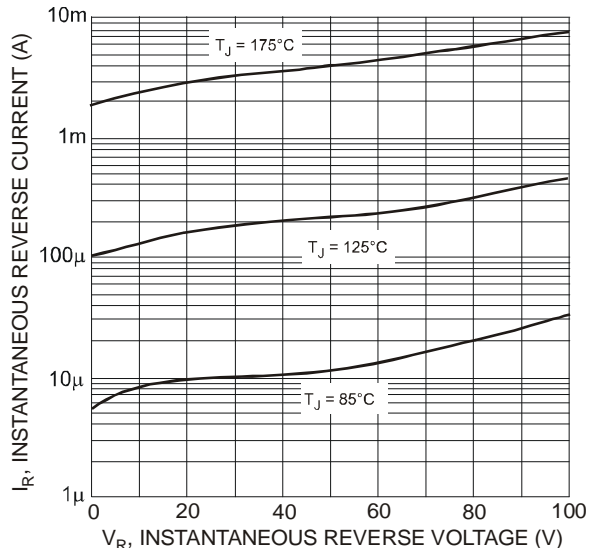
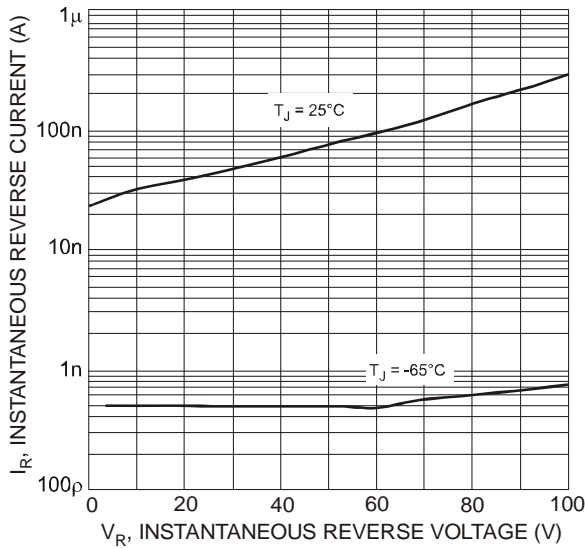
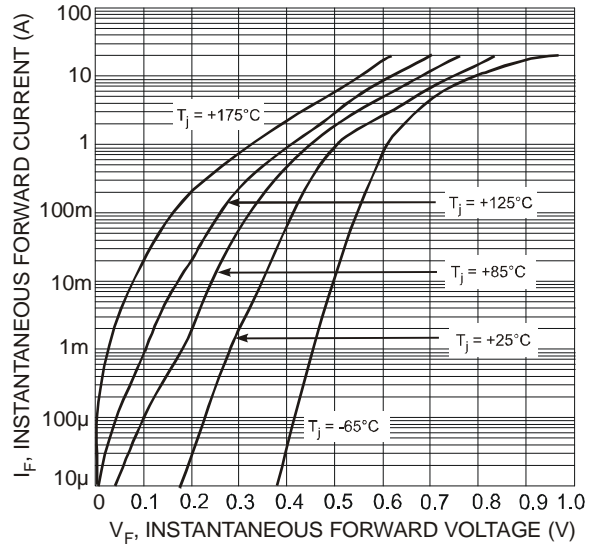
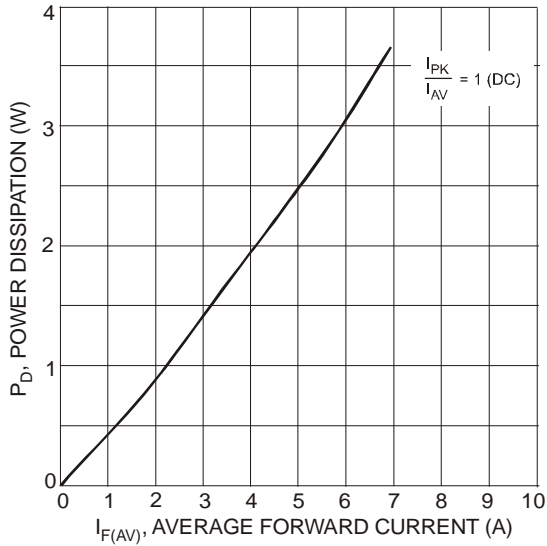
**Thermal Characteristics**

Characteristic	Symbol	Typ	Max	Unit
Thermal Resistance Junction to Soldering Point	$R_{\theta JS}$	—	2.0	$^\circ\text{C}/\text{W}$
Thermal Resistance Junction to Ambient Air (Note 3) $T_A = 25^\circ\text{C}$	$R_{\theta JA}$	85	—	$^\circ\text{C}/\text{W}$
Thermal Resistance Junction to Ambient Air (Note 4) $T_A = 25^\circ\text{C}$	$R_{\theta JA}$	70	—	$^\circ\text{C}/\text{W}$
Thermal Resistance Junction to Ambient Air (Note 5) $T_A = 25^\circ\text{C}$	$R_{\theta JA}$	45	—	$^\circ\text{C}/\text{W}$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-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 6)	$V_{(BR)R}$	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 6)	$I_R$	—	0.3	3.5	$\mu\text{A}$ mA	$T_S = 25^\circ\text{C}, V_R = 100\text{V}$
		—	0.5	4.5		$T_S = 125^\circ\text{C}, V_R = 100\text{V}$

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



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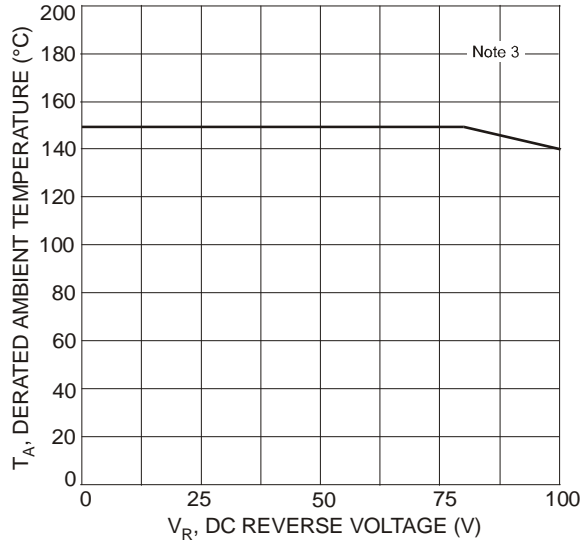
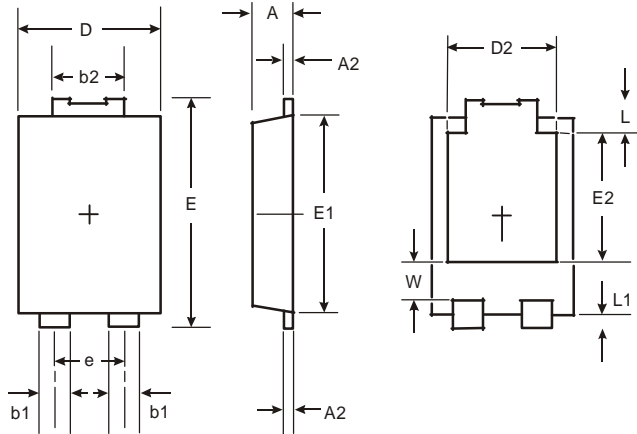


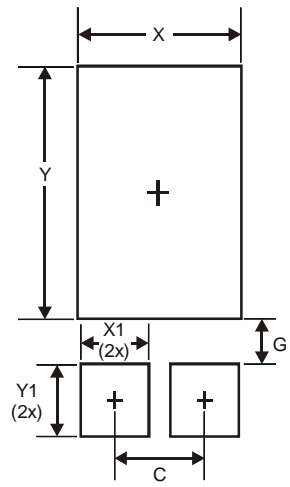
Fig. 7 Operating Temperature Derating

**Package Outline Dimensions**



PowerDI <sup>®5</sup>		
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	3.054 Typ	
E	6.40	6.60
e	1.84 Typ	
E1	5.30	5.45
E2	3.549 Typ	
L	0.75	0.95
L1	0.50	0.65
W	1.10	1.41
<b>All Dimensions in mm</b>		

**Suggested Pad Layout**



Dimensions	Value (in mm)
C	1.840
G	0.852
X	3.360
X1	1.390
Y	4.860
Y1	1.400

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2. support or sustain life and whose failure to perform when properly used in accordance with instructions for use provided in the labeling can be reasonably expected to result in significant injury to the user.

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