

**Product Summary** (@T<sub>A</sub> = +25°C)

V <sub>RRM</sub> (V)	I <sub>0</sub> (A)	V <sub>F</sub> Max (V)	I <sub>R</sub> Max (μA)
800	5	1.2	10

**Description**

PDR5KF, a 5.0A Glass Passivated Rectifier in our thermally efficient PowerDI<sup>®</sup>5 package, offers high-surge current capability, low-leakage current and fast reverse recovery time.

**Features and Benefits**

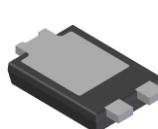
- Glass Passivated Die Construction for High Reliability
- Low Leakage Current Saves Power in Battery-Powered Applications
- Fast Reverse Recovery Speed provides High Efficiency in Switching Applications
- Large Exposed Heat Sink on Device Underside Provides Good Heat-Sinking to Support High Power Dissipation
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

**Mechanical Data**

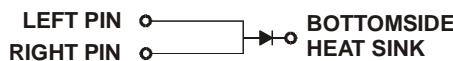
- Case: POWERDI<sup>®</sup>5
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish – Matte Tin Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 ⑧
- Polarity: See Diagram
- Weight: 0.096 grams (Approximate)



Top View



Bottom View



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

**Ordering Information** (Note 4)

Part Number	Compliance	Case	Packaging
PDR5KF-13	Commercial	POWERDI <sup>®</sup> 5	5,000/Tape & Reel

Notes:

1. EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. All applicable RoHS exemptions applied.
2. See [http://www.diodes.com/quality/lead\\_free.html](http://www.diodes.com/quality/lead_free.html) 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 <http://www.diodes.com/products/packages.html>.

**Marking Information**

R5KF = Product Type Marking Code  
 DII = Manufacturers' Code Marking  
 YYWW = Date Code Marking  
 YY = Last Two Digits of Year (ex: 15 for 2015)  
 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 capacitance load, derate current by 20%.

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	$V_{RRM}$		
Working Peak Reverse Voltage	$V_{RWM}$	800	V
DC Blocking Voltage	$V_R$		
Average Rectified Output Current	$I_O$	5	A
Peak Repetitive Reverse Surge Voltage (Note 5)	$V_{RSM}$	1,050	V
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	$I_{FSM}$	250	A

## Thermal Characteristics

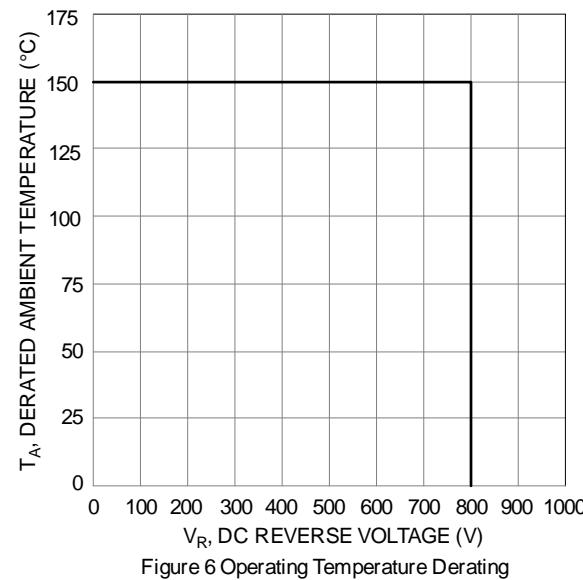
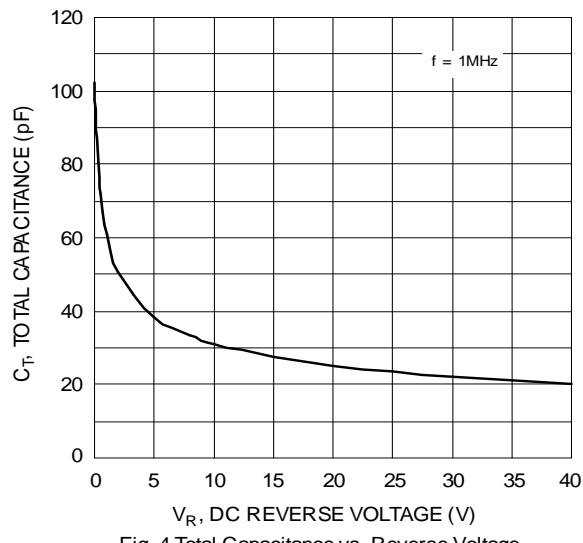
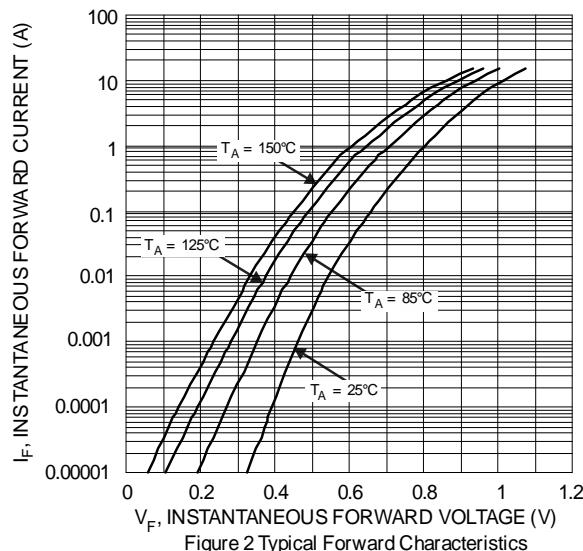
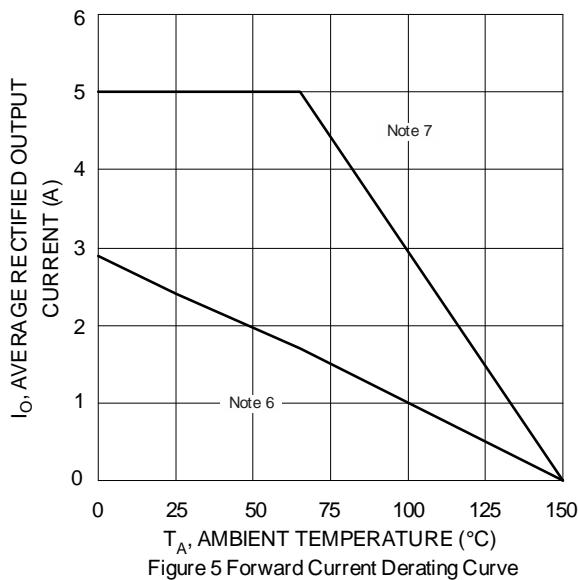
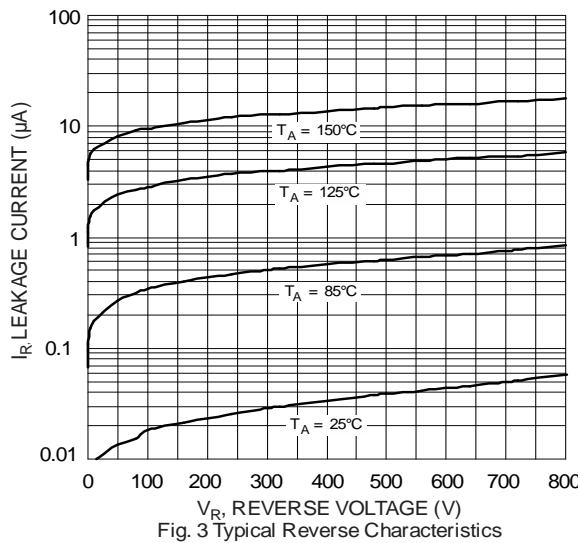
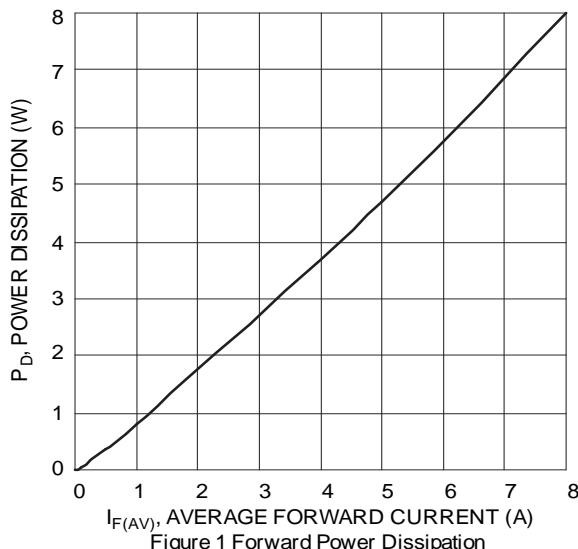
Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Lead (Note 7)	$R_{\theta JL}$	2.2	$^\circ\text{C}/\text{W}$
Typical Thermal Resistance Junction to Lead (Note 6)	$R_{\theta JL}$	9.5	$^\circ\text{C}/\text{W}$
Typical Thermal Resistance Junction to Ambient (Note 7)	$R_{\theta JA}$	24.5	$^\circ\text{C}/\text{W}$
Typical Thermal Resistance Junction to Ambient (Note 6)	$R_{\theta JA}$	77	$^\circ\text{C}/\text{W}$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-65 to +150	$^\circ\text{C}$

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 8)	$V_{(BR)R}$	800	—	—	V	$I_R = 10\mu\text{A}$
Forward Voltage	$V_F$	—	0.95	1.2	V	$I_F = 5\text{A}, T_S = +25^\circ\text{C}$
Reverse Leakage Current (Note 8)	$I_R$	—	0.06 0.006	10 0.3	$\mu\text{A}$ mA	$V_R = 800\text{V}, T_J = +25^\circ\text{C}$ $V_R = 800\text{V}, T_J = +125^\circ\text{C}$
Reverse Recovery Time	$t_{RR}$	—	300	500	ns	$I_F = 0.5\text{A}, I_R = 1.0\text{A},$ $I_{RR} = 0.25\text{A}$

Notes:

5. Per IEC61000-4-5 surge standard, 1.2/50 $\mu\text{s}$  voltage impulse, 2ohm source impedance, 8x20 $\mu\text{s}$  surge current.
6. Device mounted on FR-4 PC board, 2oz copper trace weight, with 1x recommended pad layout. Please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for the latest revision.
7. Device mounted on 2 inch by 2 inch Alumina substrate PC board.
8. Short duration pulse test used to minimize the self-heating effect.



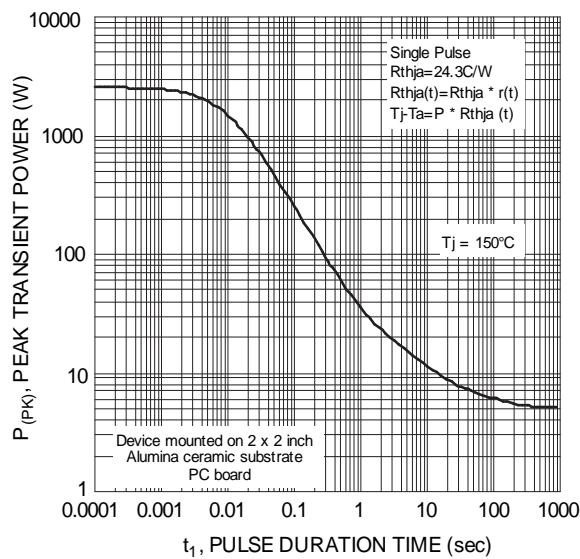
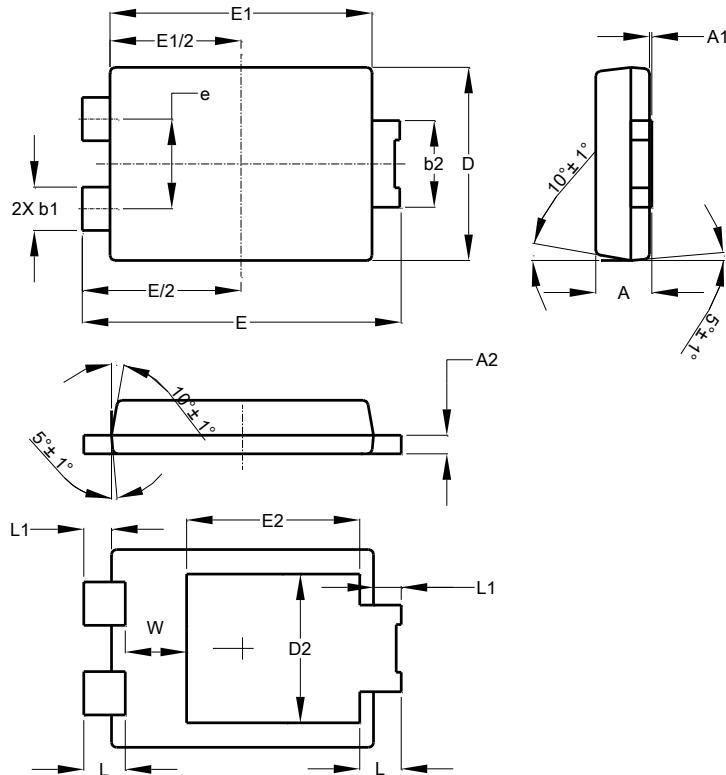


Figure 7 Single Pulse Maximum Power Dissipation

## Package Outline Dimensions

Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.

POWERDI<sup>®</sup> 5

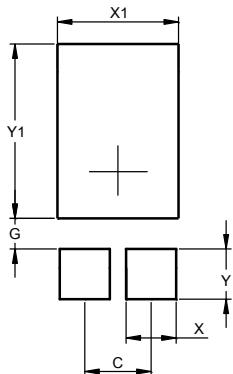
POWERDI <sup>®</sup> 5			
Dim	Min	Max	Typ
A	1.05	1.15	1.10
A1	0.00	0.05	--
A2	0.33	0.43	0.381
b1	0.80	0.99	0.89
b2	1.70	1.88	1.78
D	3.90	4.05	3.966
D2	-	-	3.054
E	6.40	6.60	6.504
e	-	-	1.84
E1	5.30	5.45	5.37
E2	-	-	3.549
L	0.75	0.95	0.85
L1	0.50	0.65	0.57
W	1.10	1.41	1.255

All Dimensions in mm

## Suggested Pad Layout

Please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for the latest version.

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

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