5A GLASS PASSIVATED FAST RECOVERY RECTIFIER
POWERDI5

NEW PRODUCT

Product Summary (@T_A = +25°C)

V_{RRM} (V)	I_O (A)	V_F Max (V)	I_R Max (µA)
800	5	1.2	10

Features and Benefits

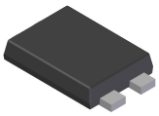
- Glass Passivated Die Construction for High Reliability
- Low Leakage Current Saves Power in Battery-Powered Applications
- Fast Reverse Recovery Speed provides High Efficiency in Switching Applications
- Large Exposed Heat Sink on Device Underside Provides Good Heat-Sinking to Support High Power Dissipation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

Description

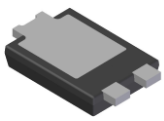
PDR5KF, a 5.0A Glass Passivated Rectifier in our thermally efficient PowerDI®5 package, offers high-surge current capability, low-leakage current and fast reverse recovery time.

Mechanical Data

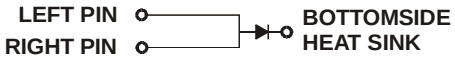
- Case: POWERDI®5
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish – Matte Tin Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 e3
- Polarity: See Diagram
- Weight: 0.096 grams (Approximate)



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®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 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
YYWW = Date Code Marking
YY = Last Two Digits of Year (ex: 15 for 2015)
WW = Week Code (01 to 53)
K = Factory Designator

NEW PRODUCT

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 Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	800	V
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	°C/W
Typical Thermal Resistance Junction to Lead (Note 6)	$R_{\theta JL}$	9.5	°C/W
Typical Thermal Resistance Junction to Ambient (Note 7)	$R_{\theta JA}$	24.5	°C/W
Typical Thermal Resistance Junction to Ambient (Note 6)	$R_{\theta JA}$	77	°C/W
Operating and Storage Temperature Range	T_J, 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 8)	$V_{(BR)R}$	800	—	—	V	I_R = 10μA
Forward Voltage	V_F	—	0.95	1.2	V	I_F = 5A, T_S = +25°C
Reverse Leakage Current (Note 8)	I_R	—	0.06 0.006	10 0.3	μA mA	V_R = 800V, T_J = +25°C V_R = 800V, T_J = +125°C
Reverse Recovery Time	t_{RR}	—	300	500	ns	I_F = 0.5A, I_R = 1.0A, I_{RR} = 0.25A

Notes:
5. Per IEC61000-4-5 surge standard, 1.2/50μs voltage impulse, 2ohm source impedance, 8x20μs 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.

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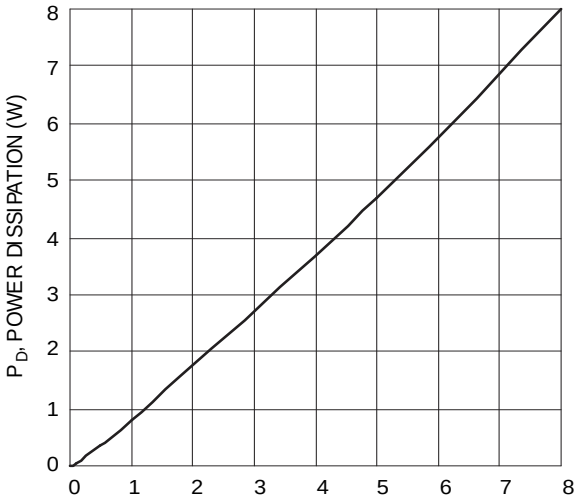

Figure 1 Forward Power Dissipation

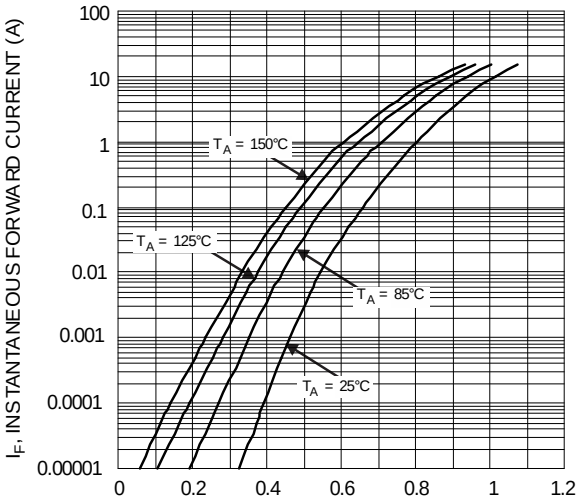

Figure 2 Typical Forward Characteristics

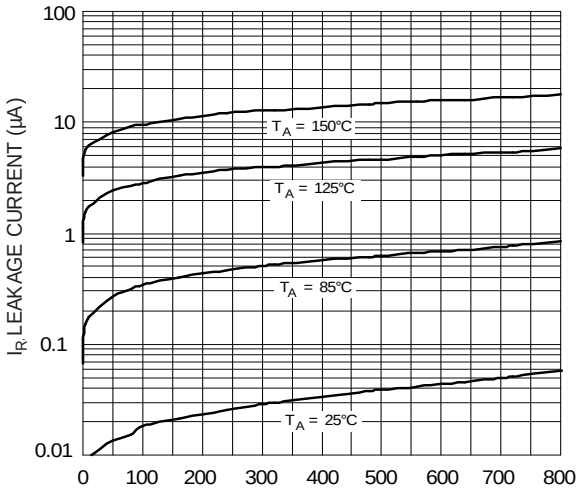

Fig. 3 Typical Reverse Characteristics

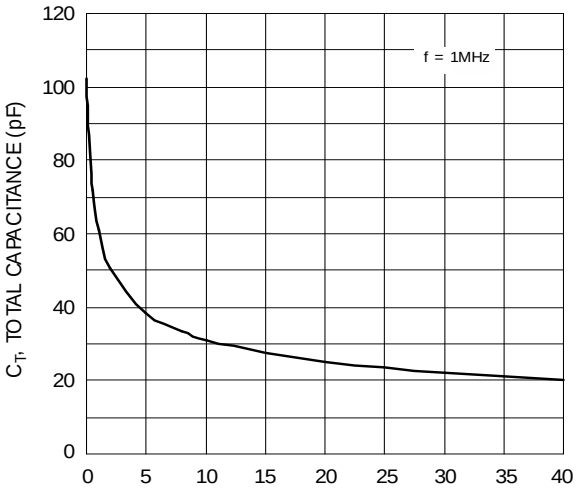

Fig. 4 Total Capacitance vs. Reverse Voltage

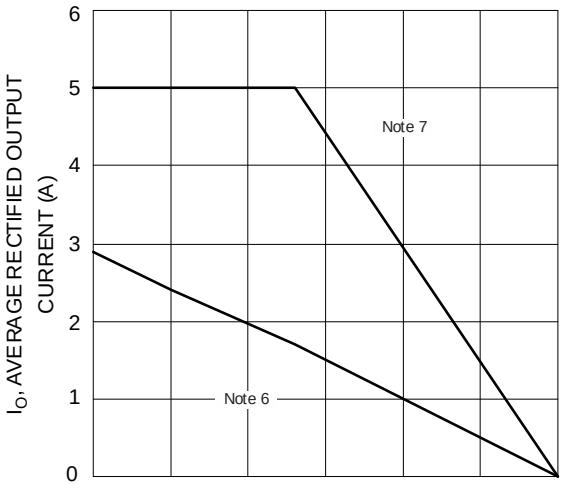

Figure 5 Forward Current Derating Curve

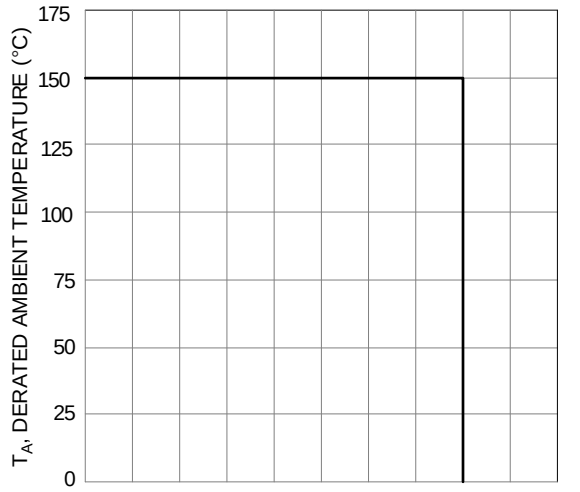

Figure 6 Operating Temperature Derating

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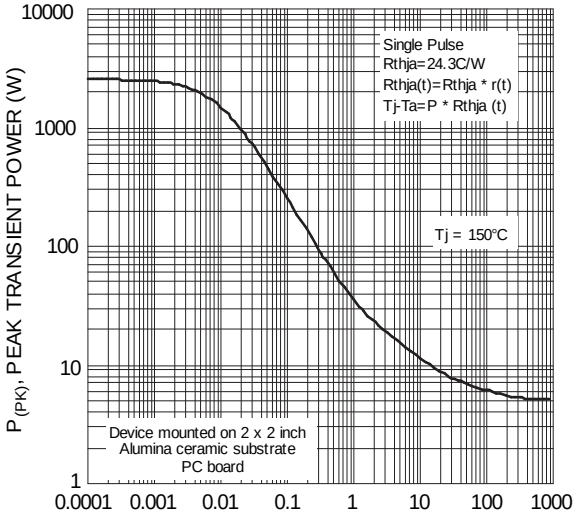
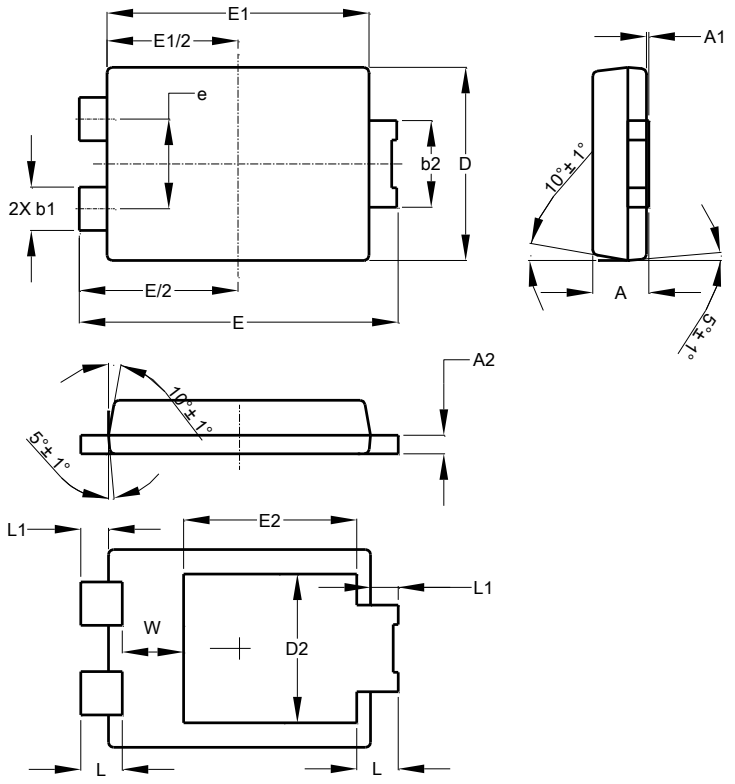


Figure 7 Single Pulse Maximum Power Dissipation

Package Outline Dimensions

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

POWERDI® 5



POWERDI® 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			

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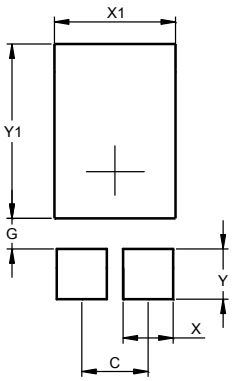
Suggested Pad Layout

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

POWERDI®5



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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