PDS5100

5A HIGH VOLTAGE SCHOTTKY BARRIER RECTIFIER

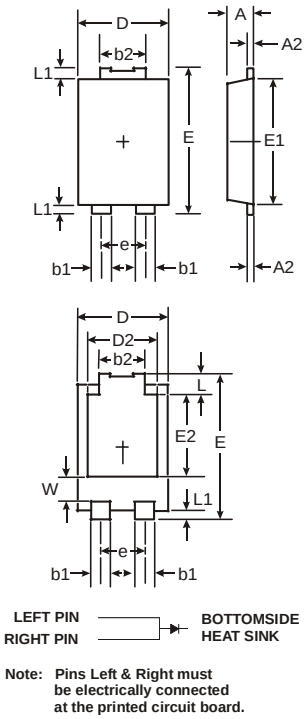
PowerDI®5

Features

- Guard Ring Die Construction for Transient Protection
- High Surge Current Capability
- Low Leakage Current
- 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®5
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminals: Finish – Matte Tin annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208 e3
- Polarity: See Diagram
- Marking Information: See Page 4
- Weight: 0.093 grams (approximate)



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

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		

Maximum Ratings @T_A = 25°C unless otherwise specified

Single phase, half wave, 60Hz, resistive or inductive load.
For capacitive 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	100	V
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}	120	A

Thermal Characteristics

Characteristic	Symbol	Typ	Max	Unit
Thermal Resistance Junction to Soldering Point	$R_{\theta JS}$	—	2.6	°C/W
Thermal Resistance Junction to Ambient Air (Note 2) $T_{A=25}$°C	$R_{\theta JA}$	90	—	°C/W
Thermal Resistance Junction to Ambient Air (Note 3) $T_{A=25}$°C	$R_{\theta JA}$	70	—	°C/W
Thermal Resistance Junction to Ambient Air (Note 4) $T_{A=25}$°C	$R_{\theta JA}$	50	—	°C/W
Operating Temperature Range	T_j	-65 to +150		°C
Storage Temperature Range	T_{STG}	-65 to +175		°C

Notes:
1. RoHS revision 13.2.2003. High temperature solder exemption applied, see *EU Directive Annex Note 7.*
2. FR-4 PCB, 2 oz. Copper, minimum recommended pad layout per http://www.diodes.com/datasheets/ap02001.pdf.
3. Polymide PCB, 2 oz. Copper, minimum recommended pad layout per http://www.diodes.com/datasheets/ap02001.pdf.
4. Polymide PCB, 2 oz. Copper. Cathode pad dimensions 9.4mm x 7.2mm. Anode pad dimensions 2.7mm x 1.6mm.

Electrical Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 5)	$V_{(BR)R}$	100	—	—	V	I_R = 200μA
Forward Voltage	V_F	— — — — —	0.74 0.64 0.60 0.81 0.68	0.79 0.68 0.64 0.89 0.73	V	I_F = 5A, T_S = 25°C I_F = 5A, T_S = 100°C I_F = 5A, T_S = 125°C I_F = 10A, T_S = 25°C I_F = 10A, T_S = 125°C
Reverse Leakage Current (Note 5)	I_R	— — —	0.002 0.5 2	0.2 5 20	mA	T_S = 25°C, V_R = 100V T_S = 100°C, V_R = 100V T_S = 125°C, V_R = 100V

Notes: 5. Short duration pulse test used to minimize self-heating effect.

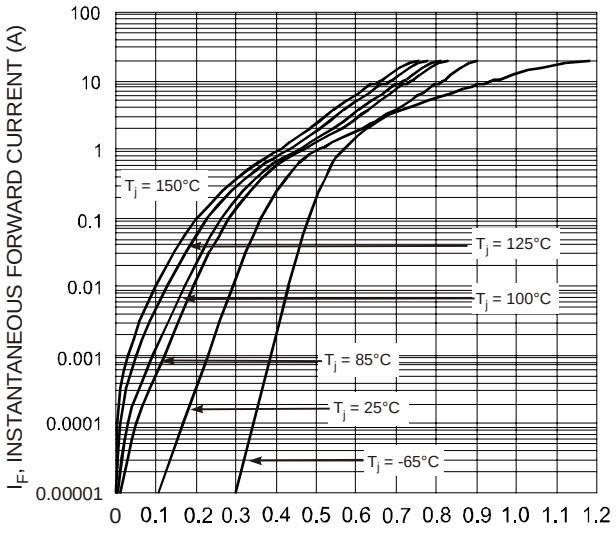


Fig. 1 Typical Forward Characteristics

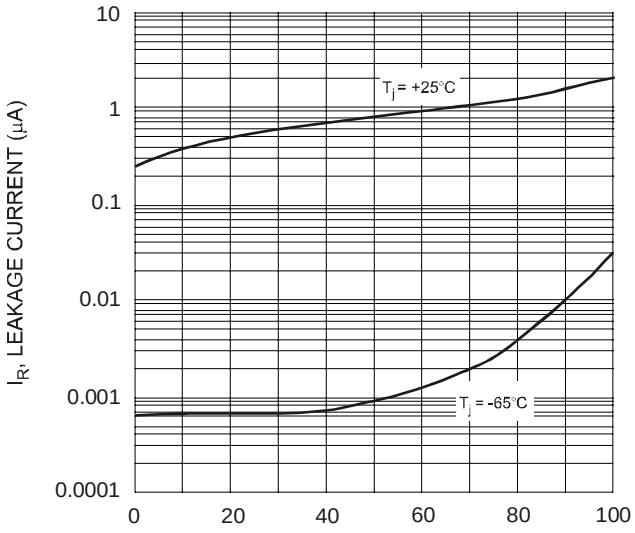


Fig. 2 Typical Reverse Characteristics

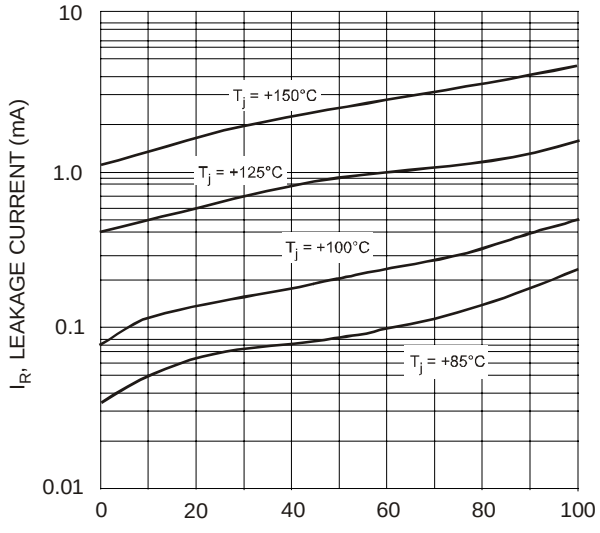


Fig. 3 Typical Reverse Characteristics

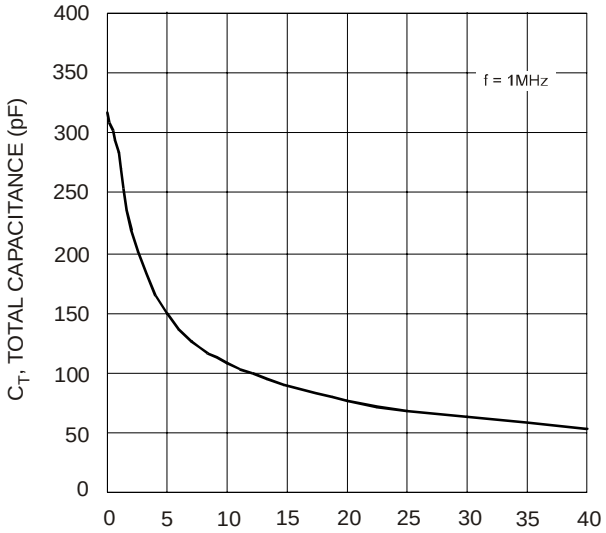


Fig. 4 Typical Total Capacitance vs. Reverse Voltage

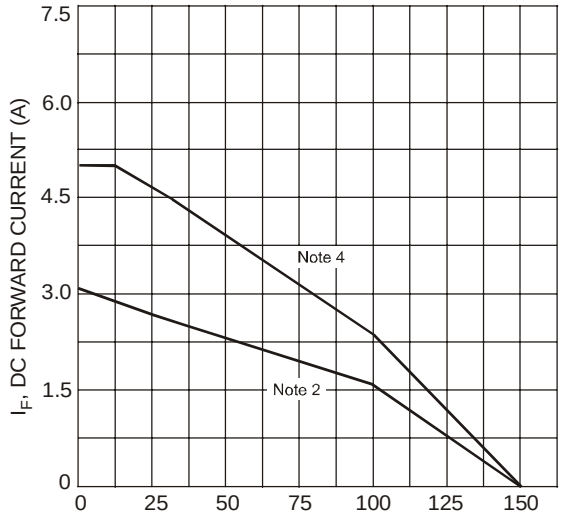


Fig. 5 DC Forward Current Derating

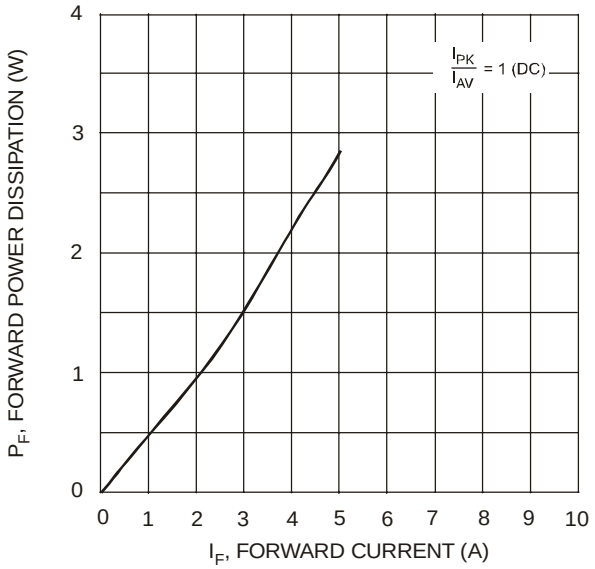


Fig. 6 Forward Power Dissipation

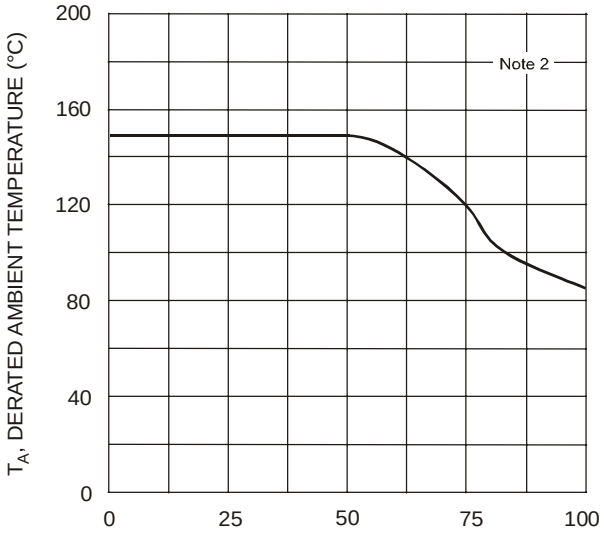


Fig. 7 Operating Temperature Derating

Ordering Information (Note 6)

Device	Packaging	Shipping
PDS5100-13	PowerDI®5	5000/Tape & Reel

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

Marking Information

S5100 = Product type marking code
= Manufacturers' code marking
YYWW = Date code marking
YY = Last digit of year ex: 04 for 2004
WW = Week code 01 to 52
K = Factory Designator

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