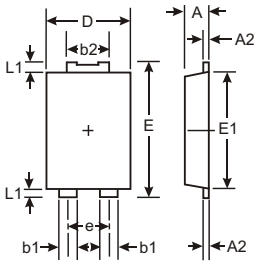
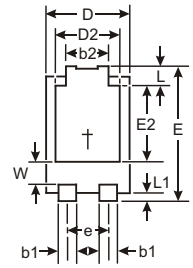
PDS1040L

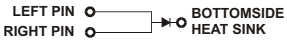
10A LOW VF SCHOTTKY BARRIER RECTIFIER
PowerDI 5

Features

- Guard Ring Die Construction for Transient Protection
- Very Low Forward Voltage Drop
- High Forward Surge Current Capability
- For Use in Low Voltage, High Frequency Inverters, Free Wheeling, and Polarity Protection Applications
- **Lead Free Finish, RoHS Compliant (Note 1)**
- **"Green" Molding Compound (No Br, Sb)**
- **Qualified to AEC-Q101 Standards for High Reliability**







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		

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: See Page 3
- Weight: 0.096 grams (approximate)

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	40	V
RMS Reverse Voltage	$V_{R(RMS)}$	28	V
Average Rectified Output Current (see also Figure 5)	I_O	10	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single half sine-wave Superimposed on Rated Load	I_{FSM}	275	A

Thermal Characteristics

Characteristic	Symbol	Typ	Max	Unit
Thermal Resistance Junction to Soldering Point	R_{JS}		1.5	C/W
Thermal Resistance Junction to Ambient Air (Note 2) T_A = 25°C	R_{JA}	85		C/W
Thermal Resistance Junction to Ambient Air (Note 3) T_A = 25°C	R_{JA}	65		C/W
Thermal Resistance Junction to Ambient Air (Note 4) T_A = 25°C	R_{JA}	50		C/W
Operating Junction Temperature Range V_R 80% V_{RRM} V_R 50% V_{RRM}	T_J	-65 to +130 -65 to +150		C
Storage Temperature Range	T_{STG}	-65 to +150		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)	$V_{(BR)R}$	40			V	I_R = 600 A
Forward Voltage	V_F		0.41 0.30 0.42 0.32 0.44 0.35	0.46 0.35 0.47 0.41 0.49 0.43	V	I_F = 6A, T_S = 25 C I_F = 6A, T_S = 125 C I_F = 8A, T_S = 25 C I_F = 8A, T_S = 125 C I_F = 10A, T_S = 25 C I_F = 10A, T_S = 125 C
Reverse Current (Note 5)	I_R		0.07 12.5	0.6 25	mA	T_S = 25 C, V_R = 40V T_S = 100 C, V_R = 40V

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

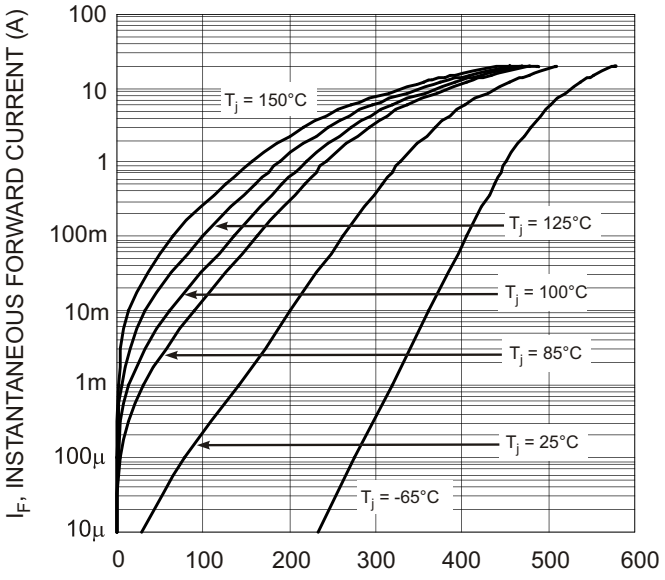


Fig. 1 Typical Forward Characteristics

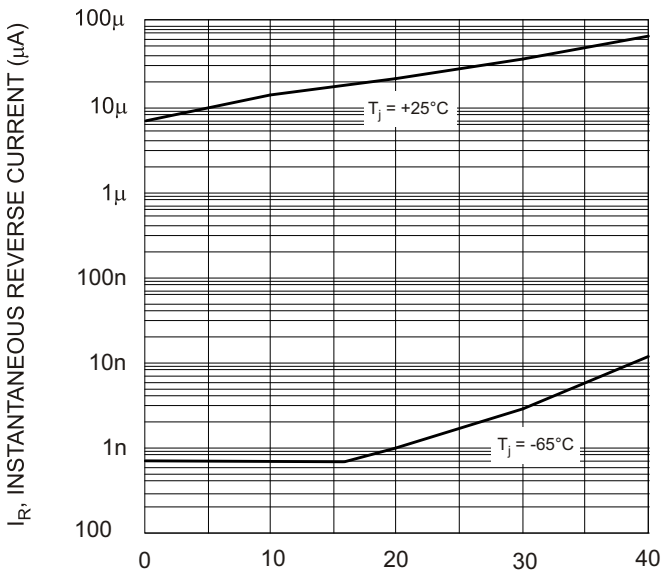


Fig. 2 Typical Reverse Characteristics

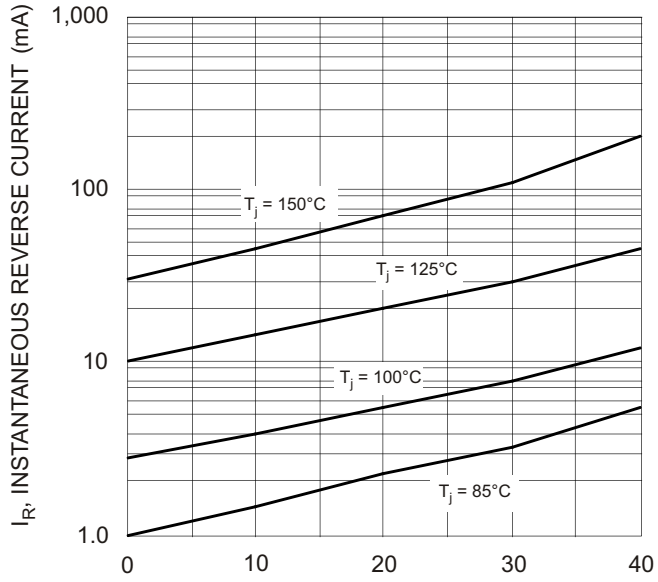


Fig. 3 Typical Reverse Characteristics

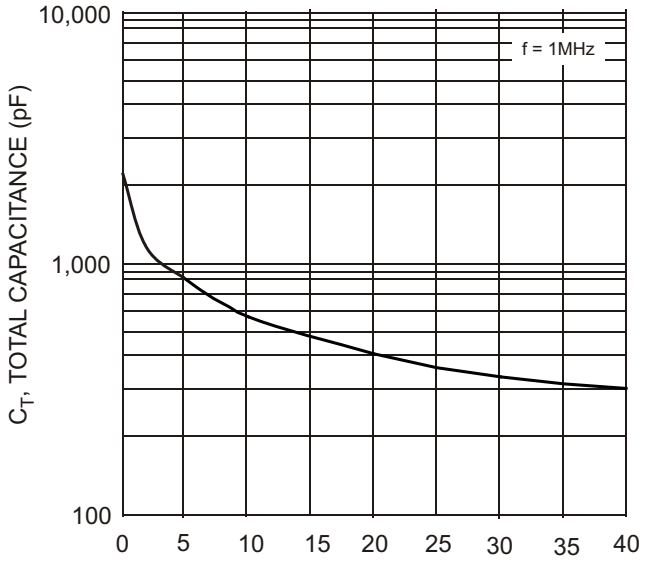


Fig. 4 Typical Total Capacitance vs. Reverse Voltage

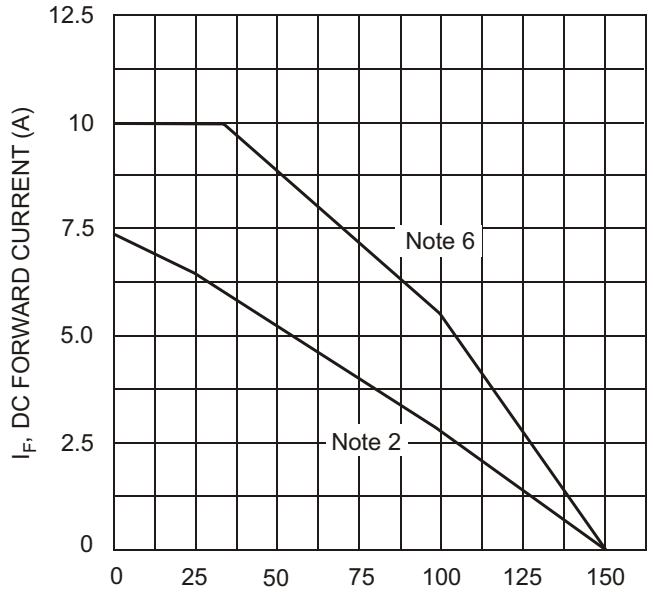


Fig. 5 DC Forward Current Derating

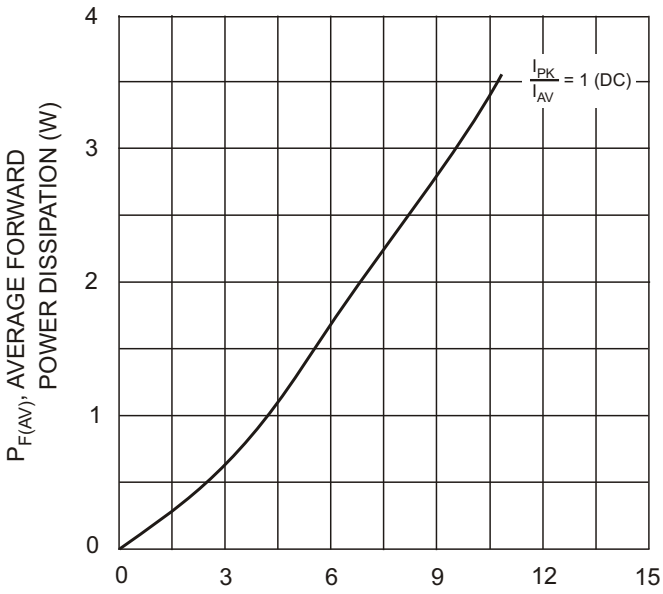


Fig. 6 Forward Power Dissipation

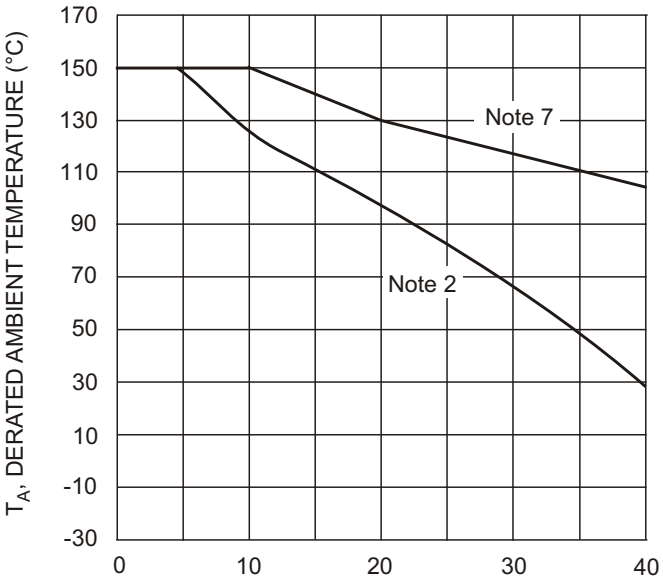


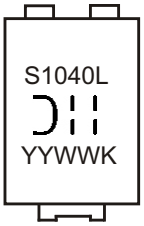
Fig. 7 Operating Temperature Derating

Ordering Information (Note 8)

Device	Packaging	Shipping
PDS1040L-13	PowerDI 5	5000/Tape & Reel

Notes:
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.
5. Short duration test pulse used to minimize self-heating effect.
6. Polymide PCB, 2 oz. Copper. Cathode pad dimensions 18.8mm x 14.4mm. Anode pad dimensions 5.6mm x 3.0mm.
7. Devices mounted such that R $_{JA}$ 19°C/W.
8. For Packaging Details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.

Marking Information



S1040L = 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 to 52
K = Factory designator

IMPORTANT NOTICE

Diodes Incorporated and its subsidiaries reserve the right to make modifications, enhancements, improvements, corrections or other changes without further notice to any product herein. Diodes Incorporated does not assume any liability arising out of the application or use of any product described herein; neither does it convey any license under its patent rights, nor the rights of others. The user of products in such applications shall assume all risks of such use and will agree to hold Diodes Incorporated and all the companies whose products are represented on our website, harmless against all damages.

LIFE SUPPORT

Diodes Incorporated products are not authorized for use as critical components in life support devices or systems without the expressed written approval of the President of Diodes Incorporated.