



#### PDS1040L

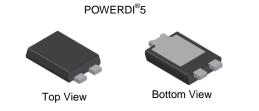
### **10A LOW VF SCHOTTKY BARRIER RECTIFIER** POWERDI

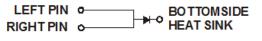
# Features

- 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, freewheeling and polarity protection applications
- Lead-Free Finish; RoHS Compliant (Notes 1 & 2)
- Halogen and Antimony Free. "Green" Device (Note 3)
- Qualified to AEC-Q101 Standards for High Reliability

## **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 (B)
- Polarity: See Diagram
- Weight: 0.096 grams (Approximate)





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

## Ordering Information (Note 4)

	Part Number	Case	Packaging
PDS1040L-13		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.			

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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**



S1040L = Product Type Marking Code ) | | = Manufacturer's Code Marking YYWW = Date Code Marking YY = Last Two Digits of Year (ex: 15 for 2015) WW = Week Code (01 - 53)K = Factory Designator



#### Maximum Ratings (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Single phase, half wave, 60Hz, resistive or inductive load.

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V <sub>RRM</sub> V <sub>RWM</sub> VR	40	V
RMS Reverse Voltage	V <sub>R(RMS)</sub>	28	V
Average Rectified Output Current	lo	10	А
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I <sub>FSM</sub>	275	A

### **Thermal Characteristics**

Characteristic	Symbol	Тур	Max	Unit
Thermal Resistance Junction to Soldering Point	$R_{\theta JS}$	—	1.5	°C/W
Thermal Resistance Junction to Ambient Air (Note 5) $T_A = +25^{\circ}C$	$R_{ ext{ heta}JA}$	85	—	°C/W
Thermal Resistance Junction to Ambient Air (Note 6) $T_A = +25^{\circ}C$	R <sub>θ</sub> JA	65		°C/W
Thermal Resistance Junction to Ambient Air (Note 7) $T_A = +25^{\circ}C$	$R_{ heta JA}$	50		°C/W
$\begin{array}{llllllllllllllllllllllllllllllllllll$	TJ	-65 to +130 -65 to +150		°C
Storage Temperature Range	T <sub>STG</sub>	-65 to -	+150	°C

# Electrical Characteristics (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 8)	V <sub>(BR)R</sub>	40	_	_	V	I <sub>R</sub> = 600μA
			0.41	0.46		$I_F = 6A, T_S = +25^{\circ}C$
		—	0.30	0.35		I <sub>F</sub> = 6A, T <sub>S</sub> = +125°C
Forward Voltage	VF	—	0.42	0.47	V	I <sub>F</sub> = 8A, T <sub>S</sub> = +25°C
l olward voltage	VF	_	0.32	0.41		I <sub>F</sub> = 8A, T <sub>S</sub> = +125°C
		_	0.44	0.49		I <sub>F</sub> = 10A, T <sub>S</sub> = +25°C
			0.35	0.43		I <sub>F</sub> = 10A, T <sub>S</sub> = +125°C
Reverse Current (Note 8)			0.07	0.6	mA	$T_{S} = +25^{\circ}C, V_{R} = 40V$
	I <sub>R</sub>	_	12.5	25		$T_{S} = +100^{\circ}C, V_{R} = 40V$

Notes:

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5. R-4 PCB, 2oz. Copper, minimum recommended pad layout per http://www.diodes.com.

Polymide PCB, 2oz. Copper, minimum recommended pad layout per http://www.diodes.com.
Polymide PCB, 2oz. Copper. Cathode pad dimensions 9.4mm x 7.2mm. Anode pad dimensions 2.7mm x 1.6mm.

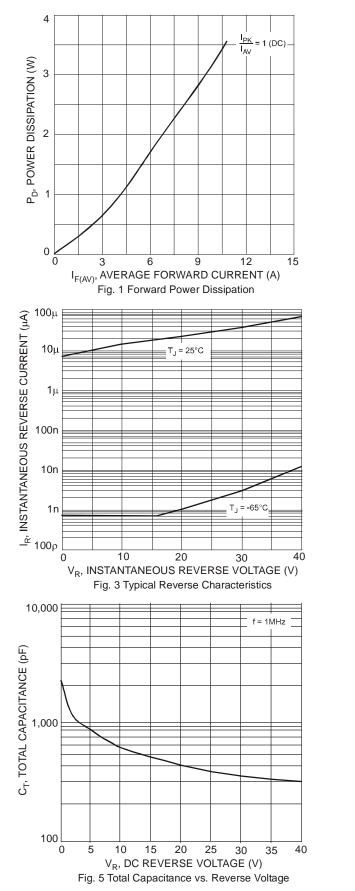
Polymide PCB, 2oz. Copper. Catnode pad dimensions 9.4mm x 7.2mn
Short duration pulse test used to minimize self-heating effect.

9. Polymide PCB, 202. Copper. Cathode pad dimensions 18.8mm x 14.4mm. Anode pad dimensions 5.6mm x 3.0mm.

10. Devices mounted such that  $R_{0JA} \cong 19^{\circ}C/W$ .







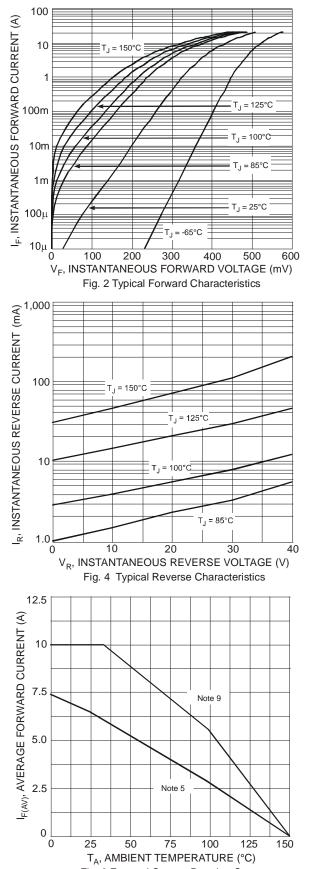
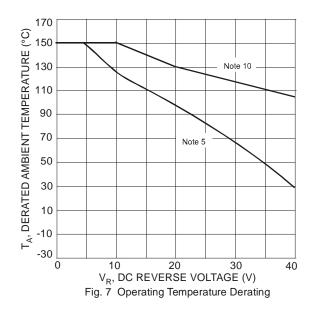


Fig. 6 Forward Current Derating Curve

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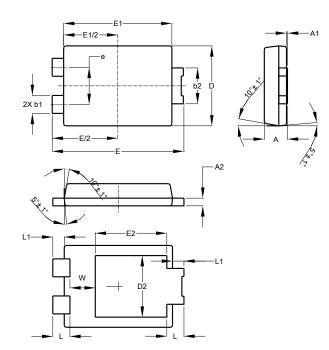


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# **Package Outline Dimensions**

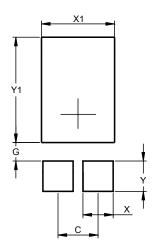
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for the latest version.



POWERDI <sup>®</sup> 5					
Dim	Min	Max	Тур		
Α	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		
е			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.



Dimensions	Value (in mm)		
С	1.840		
G	0.852		
Х	1.390		
X1	3.360		
Ý	1.400		
Y1	4.860		

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