



#### 5A SCHOTTKY BARRIER RECTIFIER POWERDI®

#### **Features**

- Guard Ring Die Construction for Transient Protection
- Low Power Loss, High Efficiency
- Low Forward Voltage Drop
- For Use in Low Voltage, High Frequency Inverters, Free Wheeling, and Polarity Protection Applications
- High Forward Surge Current Capability
- 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: POWERDI5
- 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 (3)
- Polarity: See Diagram
- Weight: 0.093 grams (approximate)

#### POWERDI5



Top View



Bottom View

LEFT PIN O→→→ BOTTOMSIDE RIGHT PIN O→→→ HEAT SINK

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

### **Ordering Information** (Note 4)

Part Number	Case	Packaging
PDS540-13	POWERDI5	5000/Tape & Reel
PDS540-7	POWERDI5	1500/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 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.

# **Marking Information**



S540 = Product type marking code

| | = Manufacturers' code marking

YYWW = Date code marking

YY = Last digit of year (ex: 04 for 2004)

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. For capacitance load, derate current by 20%.

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V <sub>RRM</sub> V <sub>RWM</sub> V <sub>R</sub>	40	٧
RMS Reverse Voltage	V <sub>R(RMS)</sub>	28	V
Average Rectified Output Current (See also figure 5)	lo	5	А
Non-Repetitive Peak Forward Surge Current 8.3ms Single half sine-wave Superimposed on Rated Load	I <sub>FSM</sub>	150	А

### **Thermal Characteristics**

Characteristic	Symbol	Тур	Max	Unit
Thermal Resistance Junction to Soldering Point	$R_{ heta}$ JS	_	4.0	°C/W
Thermal Resistance Junction to Ambient Air (Note 5)	$R_{ hetaJA}$	90	_	°C/W
Thermal Resistance Junction to Ambient Air (Note 6)	$R_{ hetaJA}$	65	_	°C/W
Thermal Resistance Junction to Ambient Air (Note 7)	$R_{ hetaJA}$	50	_	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-65 to +150		°C

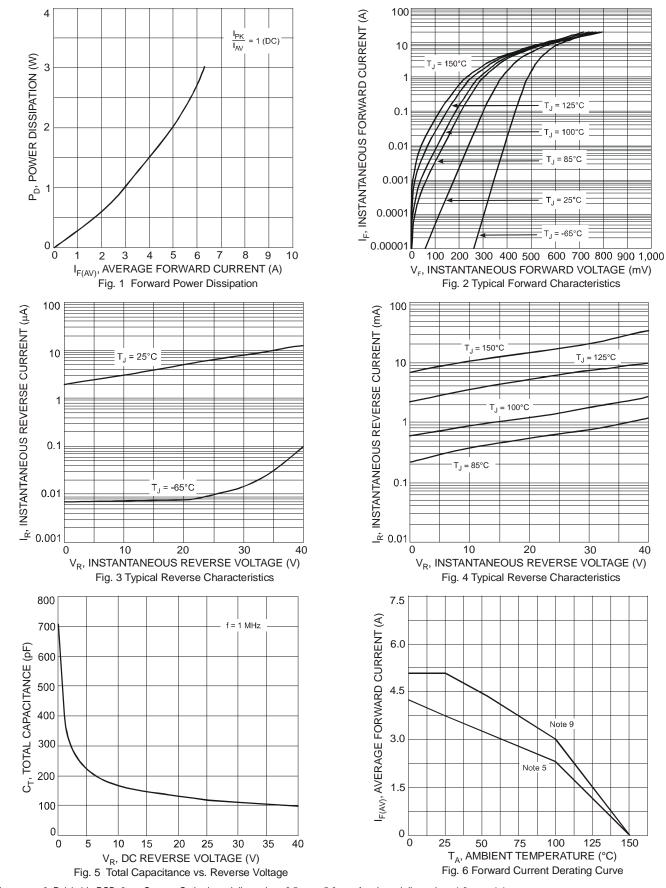
# **Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 8)	$V_{(BR)R}$	40	_	_	V	$I_R = 0.5 \text{mA}$
Forward Voltage	V <sub>F</sub>		0.48 0.43 0.57 0.55	0.52 0.47 0.65 0.59	V	I <sub>F</sub> = 5A, T <sub>S</sub> = +25°C I <sub>F</sub> = 5A, T <sub>S</sub> = +125°C I <sub>F</sub> = 10A, T <sub>S</sub> = +25°C I <sub>F</sub> = 10A, T <sub>S</sub> = +125°C
Reverse Leakage Current (Note 8)	I <sub>R</sub>		0.015 3 10	0.25 15 40	mA	$T_S = +25^{\circ}C$ , $V_R = 40V$ $T_S = +100^{\circ}C$ , $V_R = 40V$ $T_S = +125^{\circ}C$ , $V_R = 40V$

Notes:

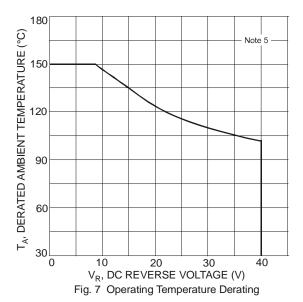
- 5. FR-4 PCB, 2 oz. Copper, minimum recommended pad layout per http://www.diodes.com.
- Nolymide PCB, 2 oz. Copper, minimum recommended pad layout per http://www.diodes.com.
   Polymide PCB, 2 oz. Copper, minimum recommended pad layout per http://www.diodes.com.
   Polymide PCB, 2 oz. Copper. Cathode pad dimensions 9.4mm x 7.2mm. Anode pad dimensions 2.7mm x 1.6mm.
   Short duration pulse test used to minimize self-heating effect.





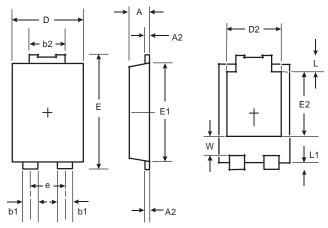
Notes: 9. Polyimide PCB, 2 oz. Copper. Cathode pad dimensions 6.5mm x 5.0mm. Anode pad dimensions 1.8mm x 1.1mm.





# **Package Outline Dimensions**

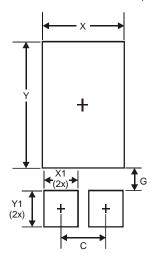
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for latest version.



POWERDI5				
Dim	Min	Max		
Α	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	3.054 Typ			
Е	6.40	6.60		
e	1.84 Typ			
E1	5.30	5.45		
E2	3.549 Typ			
L	0.75	0.95		
L1	0.50	0.65		
W	1.10	1.41		
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	3.360
X1	1.390
Y	4.860
Y1	1.400



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многоканальный

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