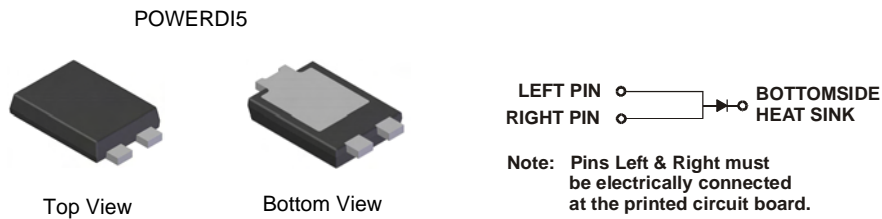


**4A HIGH VOLTAGE SCHOTTKY BARRIER RECTIFIER  
POWERDI®**
**Features**

- Guard Ring Die Construction for Transient Protection
- Low Forward Voltage Drop
- Very Low Leakage Current
- High Maximum Junction Temperature Capability
- Highly Stable Oxide Passivated Junction
- 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**

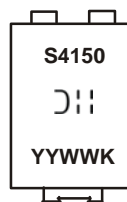
**Mechanical Data**

- 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 ⑥3
- Polarity: See Diagram
- Weight: 0.096 grams (approximate)


**Ordering Information** (Note 4)

Part Number	Case	Packaging
PDS4150-13	POWERDI5	5000/Tape & Reel
PDS4150Q-13	POWERDI5	5000/Tape & Reel
PDS4150-7	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**


- S4150 = Product type marking code
- DII = Manufacturers' code marking
- YYWW = Date code marking
- YY = Last two digits of year (ex: 05 for 2005)
- 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	V <sub>RRM</sub>	150	V
Working Peak Reverse Voltage	V <sub>RWM</sub>		
DC Blocking Voltage	V <sub>R</sub>		
RMS Reverse Voltage	V <sub>R(RMS)</sub>	106	V
Average Rectified Output Current (See also figure 4)	I <sub>O</sub>	4	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single half sine-wave Superimposed on Rated Load	I <sub>FSM</sub>	180	A

### Thermal Characteristics

Characteristic	Symbol	Typ	Max	Unit
Thermal Resistance Junction to Soldering Point	R <sub>θJS</sub>	—	2.0	°C/W
Thermal Resistance Junction to Ambient Air (Note 5) T <sub>A</sub> = +25°C	R <sub>θJA</sub>	90	—	°C/W
Thermal Resistance Junction to Ambient Air (Note 6) T <sub>A</sub> = +25°C	R <sub>θJA</sub>	60	—	°C/W
Thermal Resistance Junction to Ambient Air (Note 7) T <sub>A</sub> = +25°C	R <sub>θJA</sub>	40	—	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-65 to +175		°C

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 8)	V <sub>(BR)R</sub>	150	—	—	V	I <sub>R</sub> = 10μA
Forward Voltage	V <sub>F</sub>	—	0.71	0.76	V	I <sub>F</sub> = 4A, T <sub>S</sub> = +25°C
		—	0.57	0.64		I <sub>F</sub> = 4A, T <sub>S</sub> = +125°C
		—	0.77	0.81		I <sub>F</sub> = 8A, T <sub>S</sub> = +25°C
		—	0.63	0.70		I <sub>F</sub> = 8A, T <sub>S</sub> = +125°C
Reverse Leakage Current (Note 8)	I <sub>R</sub>	—	0.3	10	μA mA	T <sub>S</sub> = +25°C, V <sub>R</sub> = 150V
		—	0.4	4.5		T <sub>S</sub> = +125°C, V <sub>R</sub> = 150V

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

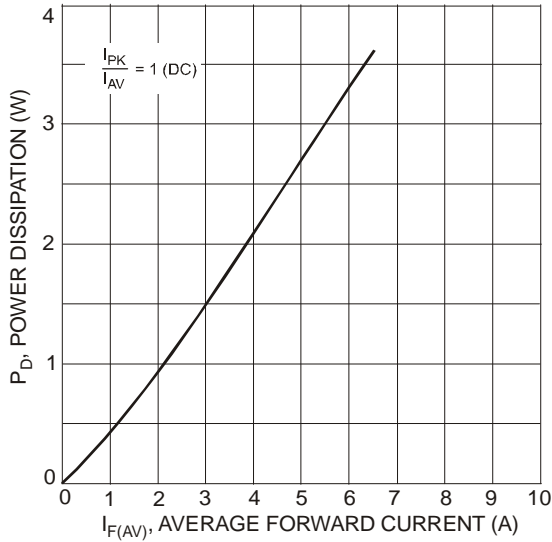


Fig. 1 Forward Power Dissipation

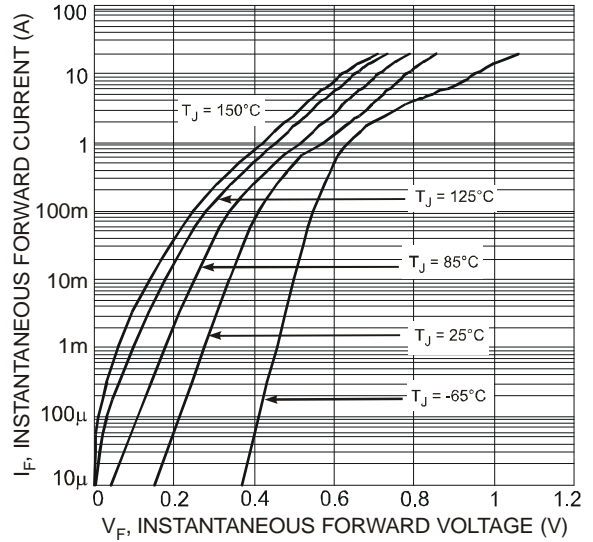


Fig. 2 Typical Forward Characteristics

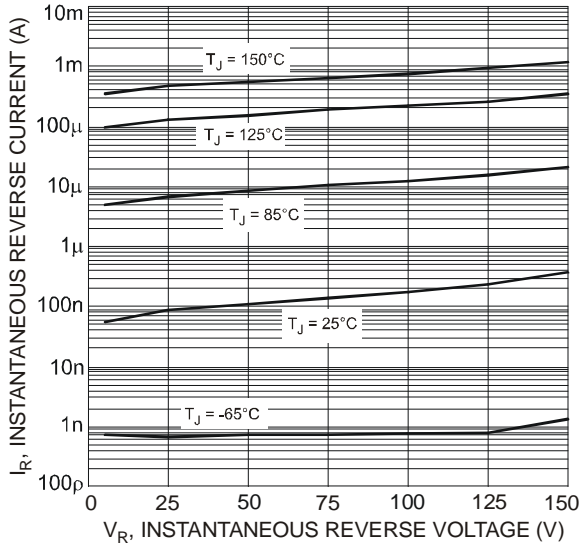


Fig. 3 Typical Reverse Characteristics

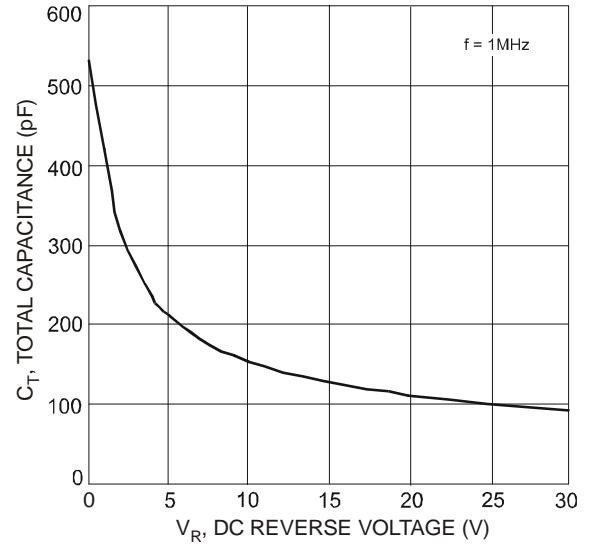


Fig. 4 Total Capacitance vs. Reverse Voltage

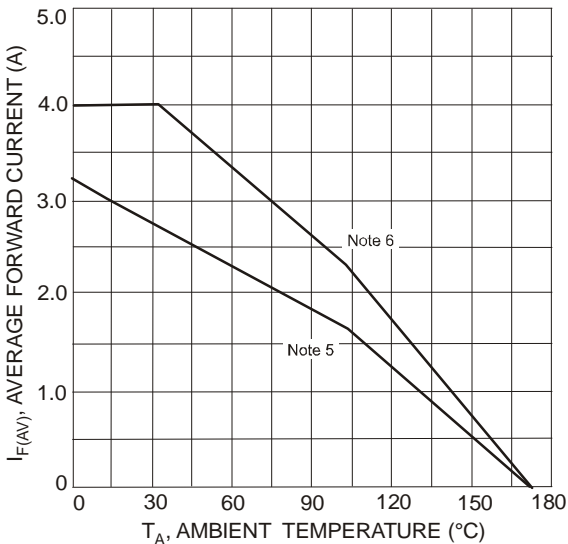


Fig. 5 Forward Current Derating Curve

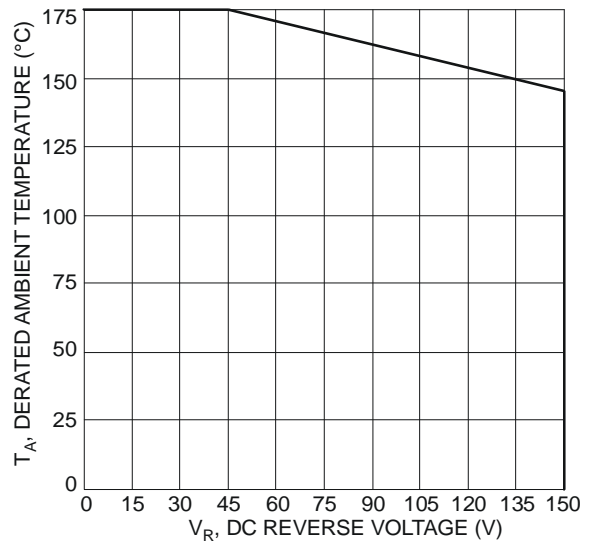
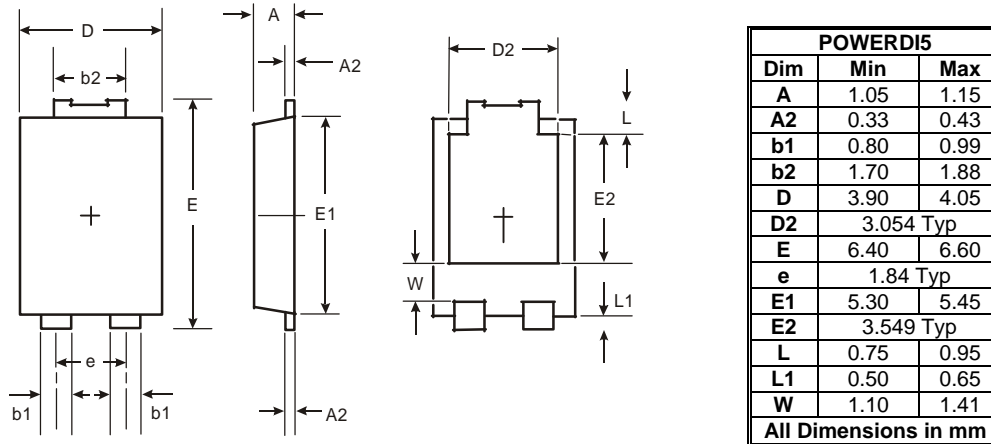


Fig. 6 Operating Temperature Derating

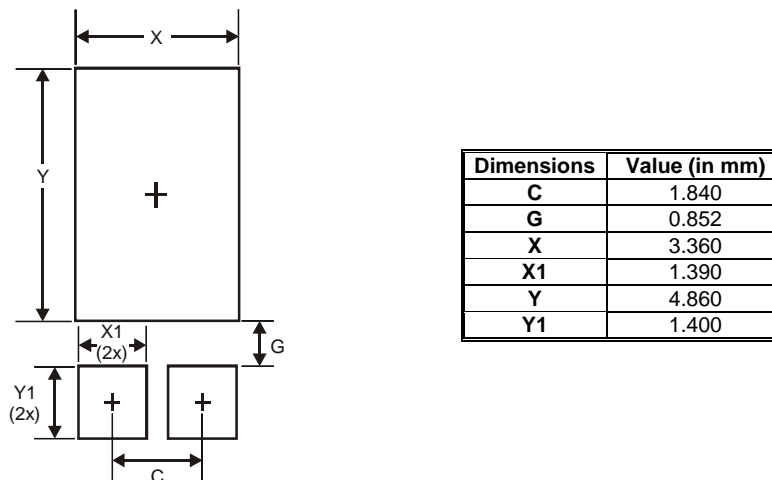
## Package Outline Dimensions

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



## Suggested Pad Layout

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



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