



**THE DATASHEET OF  
PDS360-13**

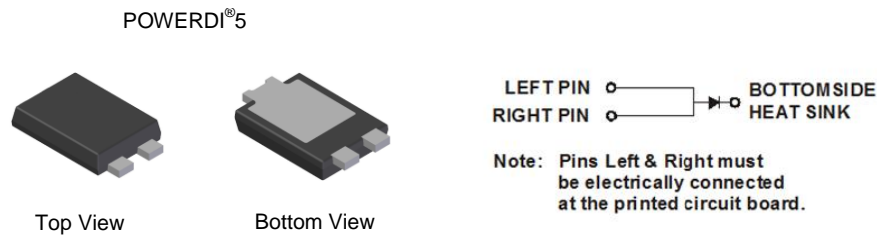


## Features

- Guard-Ring Die Construction for Transient Protection
- Low Power Loss, High Efficiency
- Low Reverse Leakage Current
- For Use in 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: POWERDI® 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 (E3)
- Polarity: See Diagram
- Weight: 0.093 grams (Approximate)



## Ordering Information (Note 4)

Part Number	Case	Packaging
PDS360-13	POWERDI®5	5,000/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



- S360 = Product Type Marking Code
- D11 = Manufacturers' 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** (@ $T_A = +25^\circ\text{C}$ , 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	$V_{RRM}$	60	V
Working Peak Reverse Voltage	$V_{RWM}$		
DC Blocking Voltage	$V_R$		
RMS Reverse Voltage	$V_{R(RMS)}$	42	V
Average Rectified Output Current	$I_O$	3	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single half sine-wave superimposed on rated load	$I_{FSM}$	100	A

**Thermal Characteristics**

Characteristic	Symbol	Typ	Max	Unit
Thermal Resistance Junction to Soldering Point	$R_{\theta JS}$	—	3.0	$^\circ\text{C/W}$
Thermal Resistance Junction to Ambient Air (Note 5) $T_A = +25^\circ\text{C}$	$R_{\theta JA}$	95	—	$^\circ\text{C/W}$
Thermal Resistance Junction to Ambient Air (Note 6) $T_A = +25^\circ\text{C}$	$R_{\theta JA}$	70	—	$^\circ\text{C/W}$
Thermal Resistance Junction to Ambient Air (Note 7) $T_A = +25^\circ\text{C}$	$R_{\theta JA}$	50	—	$^\circ\text{C/W}$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-65 to +150		$^\circ\text{C}$

**Electrical Characteristics** (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 8)	$V_{(BR)R}$	60	—	—	V	$I_R = 0.2\text{mA}$
Forward Voltage	$V_F$	—	0.57	0.62	V	$I_F = 3\text{A}, T_J = +25^\circ\text{C}$
		—	0.53	0.60		$I_F = 3\text{A}, T_J = +100^\circ\text{C}$
		—	0.51	0.57		$I_F = 3\text{A}, T_J = +125^\circ\text{C}$
		—	0.70	0.76		$I_F = 6\text{A}, T_J = +25^\circ\text{C}$
		—	0.62	0.70		$I_F = 6\text{A}, T_J = +100^\circ\text{C}$
		—	0.60	0.66		$I_F = 6\text{A}, T_J = +125^\circ\text{C}$
Reverse Leakage Current (Note 8)	$I_R$	—	3	150	$\mu\text{A}$	$T_J = +25^\circ\text{C}, V_R = 60\text{V}$
		—	—	10	mA	$T_J = +100^\circ\text{C}, V_R = 60\text{V}$
		—	1.5	15	mA	$T_J = +125^\circ\text{C}, V_R = 60\text{V}$

- Notes:
- FR-4 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 9.4 mm x 7.4 mm. Anode pad dimensions 2.7 mm x 1.6 mm.
  - Short duration pulse test used to minimize self-heating effect.

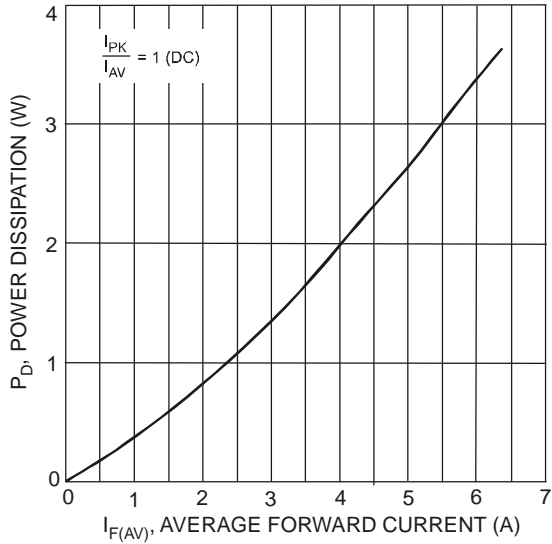


Fig. 1 Forward Power Dissipation

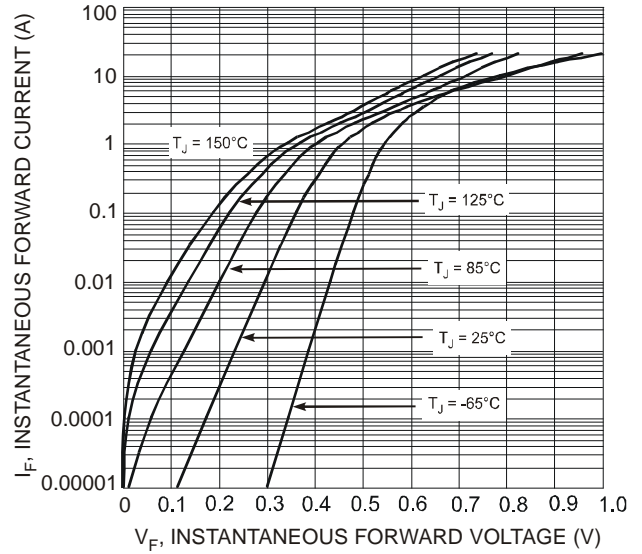


Fig. 2 Typical Forward Characteristics

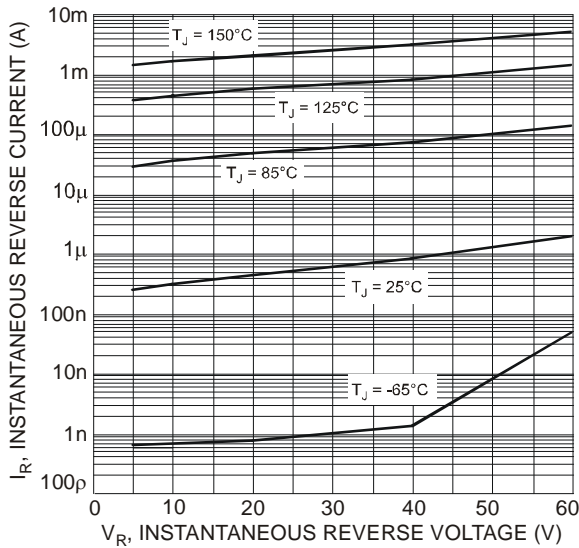


Fig. 3 Typical Reverse Characteristics

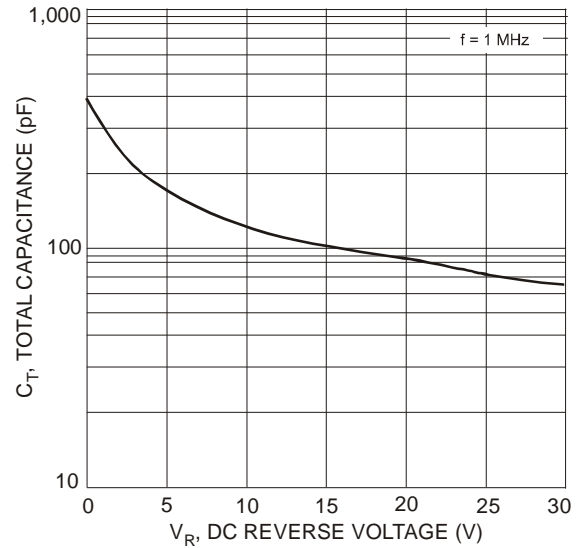


Fig. 4 Total Capacitance vs. Reverse Voltage

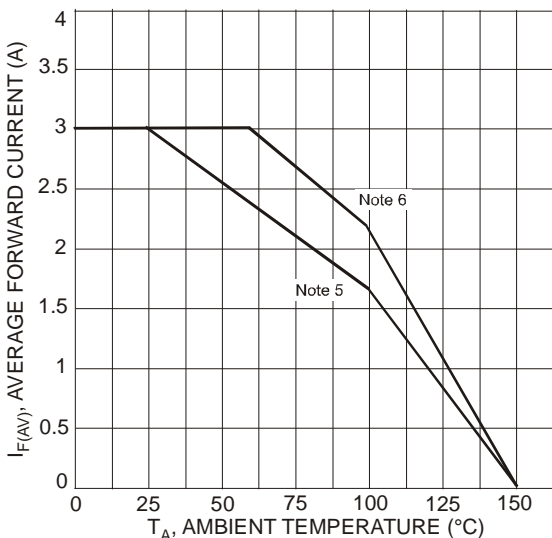


Fig. 5 Forward Current Derating Curve

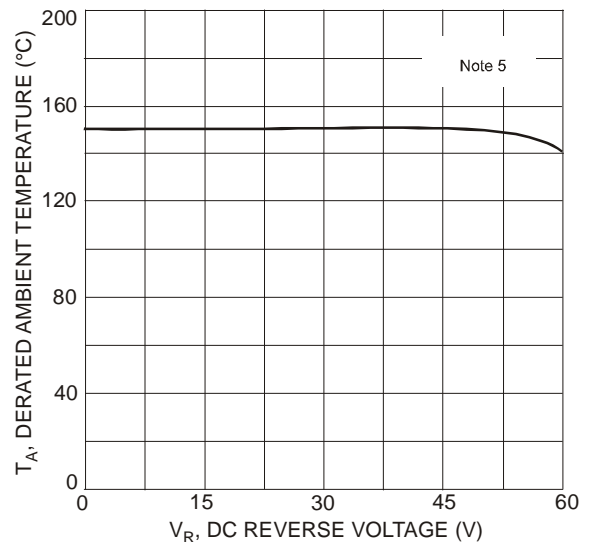
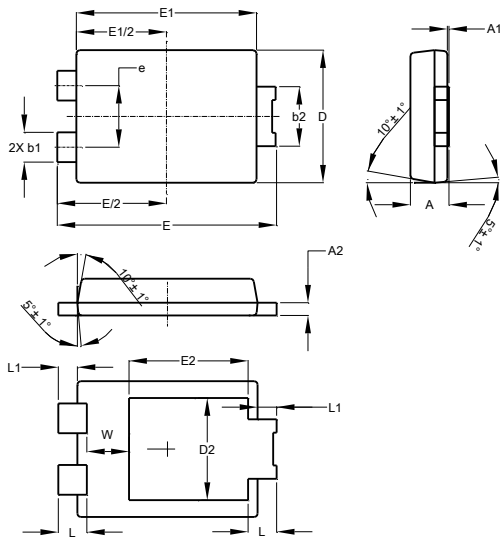


Fig. 6 Operating Temperature Derating

## Package Outline Dimensions

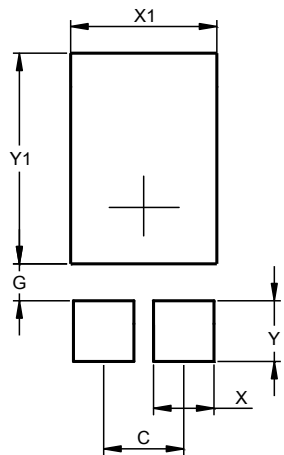
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.



POWERDI <sup>®</sup> 5			
Dim	Min	Max	Typ
A	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
e	-	-	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)
C	1.840
G	0.852
X	1.390
X1	3.360
Y	1.400
Y1	4.860

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