

## Product Summary

$V_R$ (V)	$I_F$ (A)	$V_{F\text{ MAX}}$ (V) @ +25°C	$I_{R\text{ MAX}}$ (mA) @ +25°C
60	3.0	0.62	0.15

## Description

This Schottky Barrier Rectifier has been designed to meet the stringent requirements of Automotive Applications.

## Applications

It is ideally suited to use as :

- Polarity Protection Diode
- Re-circulating Diode
- Switching Diode

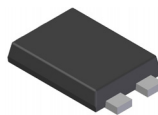
## Features and Benefits

- 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**
- **PPAP Capable (Note 4)**

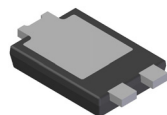
## Mechanical Data

- 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 <sup>(e3)</sup>
- Polarity: See Diagram
- Weight: 0.093 grams (approximate)

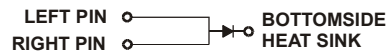
POWERDI5



Top View



Bottom View



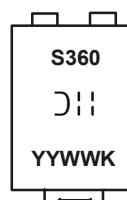
**Note:** Pins Left & Right must be electrically connected at the printed circuit board.

## Ordering Information (Note 4)

Part Number	Compliance	Case	Packaging
PDS360Q-13	Automotive	POWERDI5	5000/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/quality/lead\\_free.html](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. Automotive products are AEC-Q101 qualified and are PPAP capable. Automotive, AEC-Q101 and standard products are electrically and thermally the same, except where specified. For more information, please refer to [http://www.diodes.com/quality/product\\_compliance\\_definitions/](http://www.diodes.com/quality/product_compliance_definitions/).
  5. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

## Marking Information



S360 = Product type marking code  
JII = Manufacturers' code marking  
YYWW = Date code marking  
YY = Last two digits of year (ex: 14 for 2014)  
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>	60	V
Working Peak Reverse Voltage	V <sub>RWM</sub>		
DC Blocking Voltage	V <sub>R</sub>		
RMS Reverse Voltage	V <sub>R(RMS)</sub>	42	V
Average Rectified Output Current (See also Figure 4)	I <sub>O</sub>	3	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single half sine-wave superimposed on rated load	I <sub>FSM</sub>	100	A

## Thermal Characteristics

Characteristic	Symbol	Typ	Max	Unit
Thermal Resistance Junction to Soldering Point	R <sub>θJS</sub>	—	3.0	°C/W
Thermal Resistance Junction to Ambient Air (Note 6) T <sub>A</sub> = +25°C	R <sub>θJA</sub>	95	—	°C/W
Thermal Resistance Junction to Ambient Air (Note 7) T <sub>A</sub> = +25°C	R <sub>θJA</sub>	70	—	°C/W
Thermal Resistance Junction to Ambient Air (Note 8) T <sub>A</sub> = +25°C	R <sub>θJA</sub>	50	—	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150		°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>	60	—	—	V	I <sub>R</sub> = 0.2mA
Forward Voltage	V <sub>F</sub>	—	0.57	0.62	V	I <sub>F</sub> = 3A, T <sub>J</sub> = +25°C
		—	0.53	0.60		I <sub>F</sub> = 3A, T <sub>J</sub> = +100°C
		—	0.51	0.57		I <sub>F</sub> = 3A, T <sub>J</sub> = +125°C
		—	0.70	0.76		I <sub>F</sub> = 6A, T <sub>J</sub> = +25°C
		—	0.62	0.70		I <sub>F</sub> = 6A, T <sub>J</sub> = +100°C
		—	0.60	0.66		I <sub>F</sub> = 6A, T <sub>J</sub> = +125°C
Reverse Leakage Current (Note 8)	I <sub>R</sub>	—	3	150	μA	T <sub>J</sub> = +25°C, V <sub>R</sub> = 60V
		—	—	10	mA	T <sub>J</sub> = +100°C, V <sub>R</sub> = 60V
		—	1.5	15	mA	T <sub>J</sub> = +125°C, V <sub>R</sub> = 60V

- Notes:
6. FR-4 PCB, 2 oz. Copper, minimum recommended pad layout per <http://www.diodes.com>.
  7. Polyimide PCB, 2 oz. Copper, minimum recommended pad layout per <http://www.diodes.com>.
  8. Polyimide PCB, 2 oz. Copper. Cathode pad dimensions 9.4 mm x 7.4 mm. Anode pad dimensions 2.7 mm x 1.6 mm.
  9. Short duration pulse test used to minimize self-heating effect.

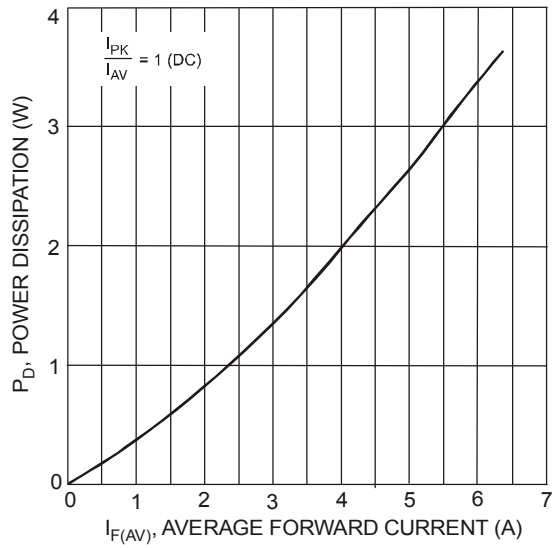


Fig. 1 Forward Power Dissipation

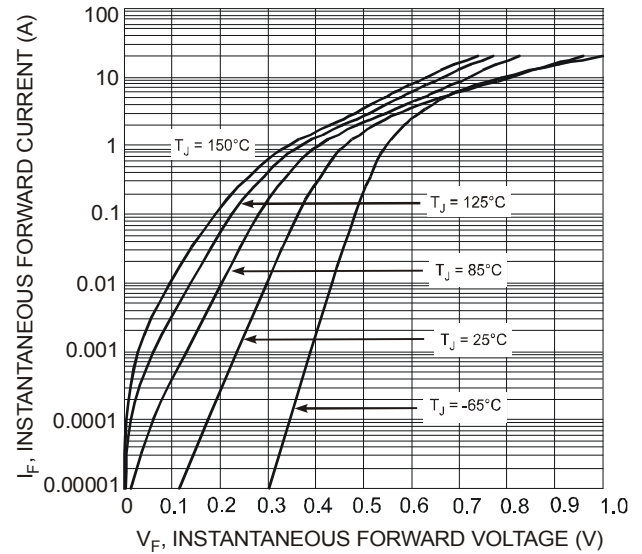


Fig. 2 Typical Forward Characteristics

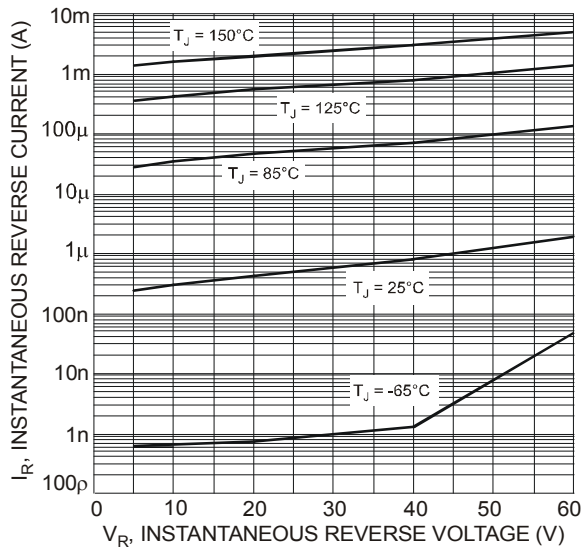


Fig. 3 Typical Reverse Characteristics

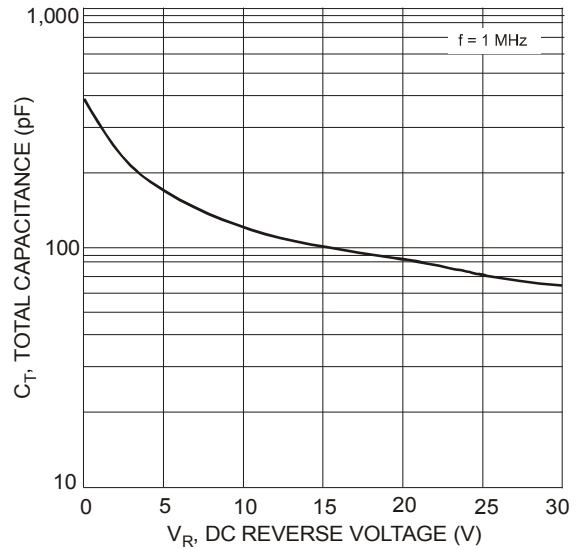


Fig. 4 Total Capacitance vs. Reverse Voltage

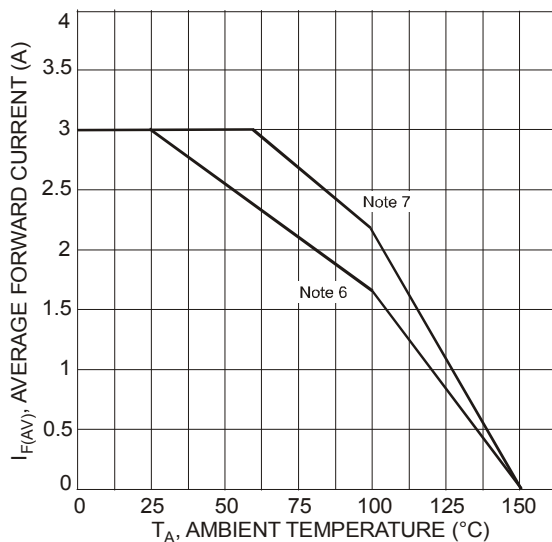


Fig. 5 Forward Current Derating Curve

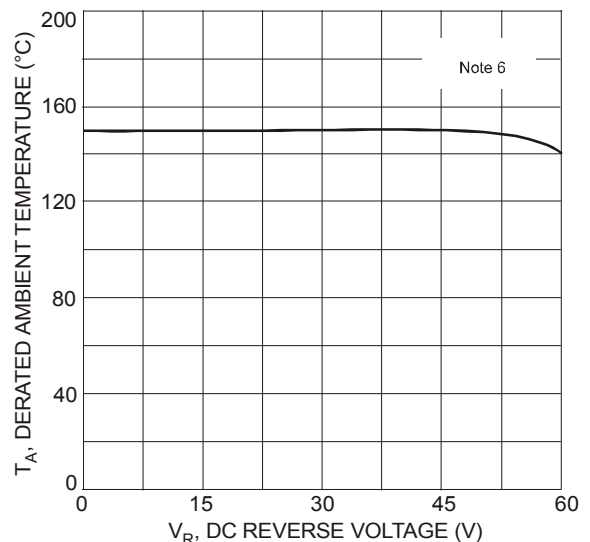
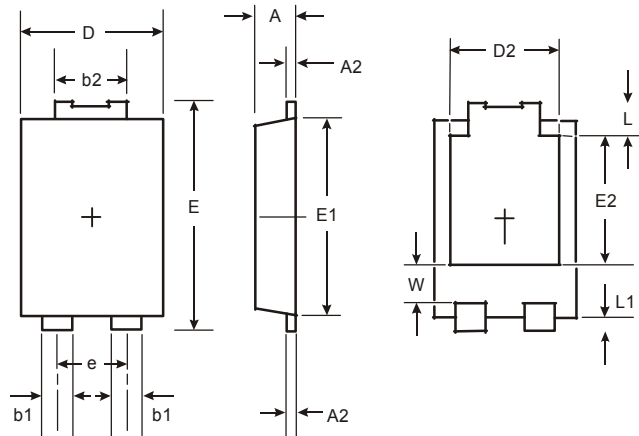


Fig. 6 Operating Temperature Derating

## Package Outline Dimensions

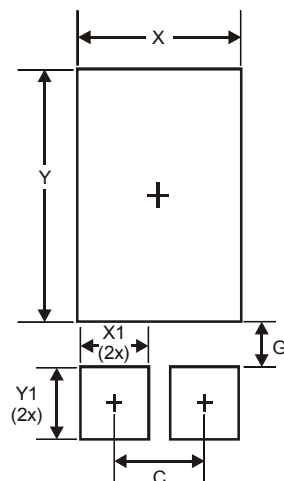
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.



POWERDI5		
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	3.054 Typ	
E	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)
C	1.840
G	0.852
X	3.360
X1	1.390
Y	4.860
Y1	1.400

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