

# ANTREX Electronics

Electronic Components Sourcing Information

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## Product Reference Information

**Part Number:** PDS560Q-13  
**Manufacturer:** Diodes Incorporated  
**Package:** PowerDI™ 5  
**Availability:** Please confirm with sales

### Product Page:

<https://antrexco.com/product/details/diodes-incorporated/pds560q-13-133897.html>

### Request a Quote:

[Submit RFQ for this part](#)



Scan for product page

## Contact Information

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Website: <https://antrexco.com>

## Quality & Trust

New & Original Components

Supplier verification and packaging condition review

CoC / RoHS / REACH documents available on request

Secure sourcing support for OEM / EMS projects

### Note:

This PDF includes an ANTREX product reference cover page.

The original manufacturer datasheet follows from the next page.

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## Product Summary

| $V_{RRM}$ (V) | $I_O$ (A) | $V_F$ max (V) @ +25°C | $I_{R\ max}$ (μA) @ +25°C |
|---------------|-----------|-----------------------|---------------------------|
| 60            | 5         | 0.60                  | 150                       |

## Description and Applications

Designed to meet the stringent requirements of automotive applications. It is ideally suited to use as:

- Polarity Protection Diode
- Recirculating Diode
- Switching Diode

## Features

- Guard Ring Die Construction for Transient Protection
- High Surge Current Capability
- Low Leakage Current
- Low Power Loss, High Efficiency
- 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: PowerDI5
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 (E3)
- Polarity: See Diagram
- Weight: 0.093 grams (Approximate)

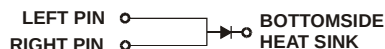
PowerDI<sup>®</sup>5



Top View



Bottom View



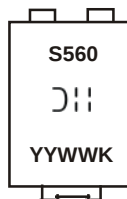
Note: Pins Left & Right must be electrically connected at the printed circuit board.

## Ordering Information (Note 4)

| Part Number | Case     | Packaging        |
|-------------|----------|------------------|
| PDS560-13   | PowerDI5 | 5000/Tape & Reel |

- Notes:
1. EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
  2. See <https://www.diodes.com/quality/lead-free/> 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



S560 = Product Type Marking Code  
 ⌐⌐⌐ = 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<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                                                                    | I <sub>O</sub>      | 5     | A    |
| Non-Repetitive Peak Forward Surge Current<br>8.3ms Single half sine-wave Superimposed on Rated Load | I <sub>FSM</sub>    | 150   | 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>                  | 95          | —   | °C/W |
| Thermal Resistance Junction to Ambient Air (Note 6) T <sub>A</sub> = +25°C | R <sub>θJA</sub>                  | 70          | —   | °C/W |
| Thermal Resistance Junction to Ambient Air (Note 7) 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> | -65 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>     | —   | 0.61 | 0.67 | V    | I <sub>F</sub> = 5A, T <sub>S</sub> = +25°C   |
|                                    |                    | —   | 0.54 | 0.60 |      | I <sub>F</sub> = 5A, T <sub>S</sub> = +125°C  |
|                                    |                    | —   | 0.71 | 0.77 |      | I <sub>F</sub> = 8A, T <sub>S</sub> = +25°C   |
|                                    |                    | —   | —    | 0.68 |      | I <sub>F</sub> = 8A, T <sub>S</sub> = +125°C  |
| Reverse Leakage Current (Note 8)   | I <sub>R</sub>     | —   | 4    | 150  | μA   | T <sub>S</sub> = +25°C, V <sub>R</sub> = 60V  |
|                                    |                    | —   | —    | 15   | mA   | T <sub>S</sub> = +100°C, V <sub>R</sub> = 60V |
|                                    |                    | —   | 2    | 30   | mA   | T <sub>S</sub> = +125°C, V <sub>R</sub> = 60V |

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 × 7.2mm. Anode pad dimensions 2.7mm × 1.6mm.  
8. Short duration pulse test used to minimize self-heating effect.

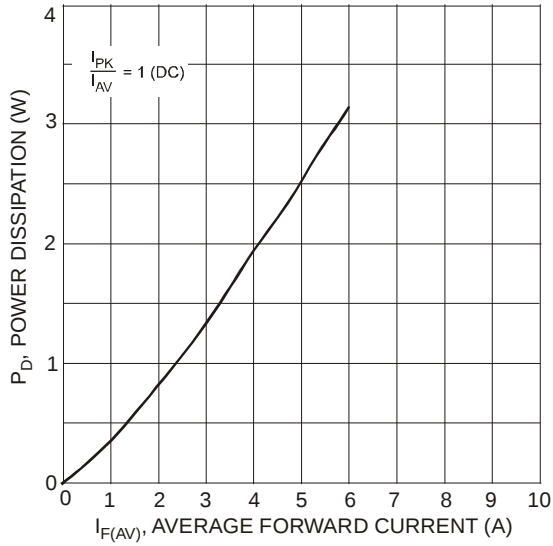


Fig. 1 Forward Power Dissipation

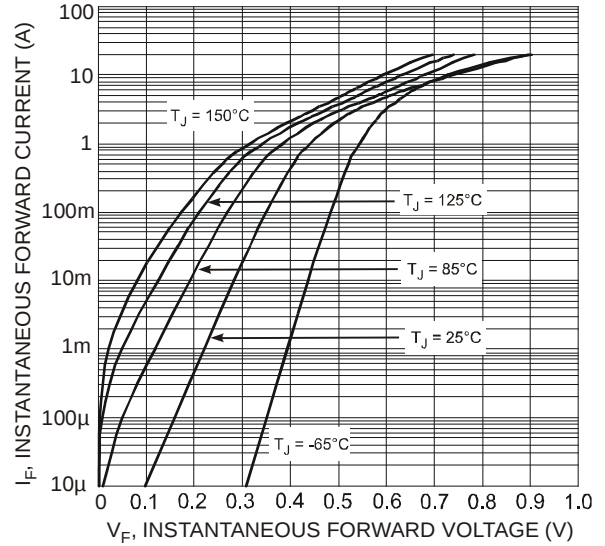


Fig. 2 Typical Forward Characteristics

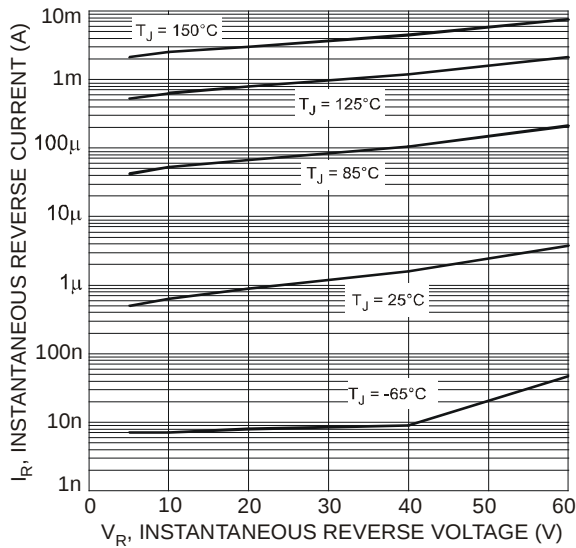


Fig. 3 Typical Reverse Characteristics

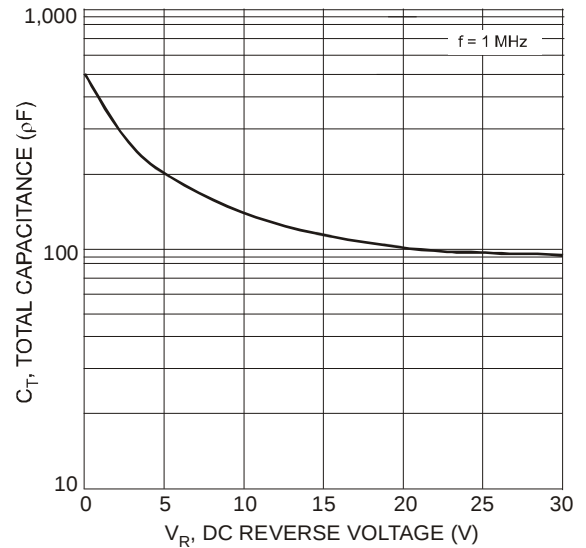


Fig. 4 Total Capacitance vs. Reverse Voltage

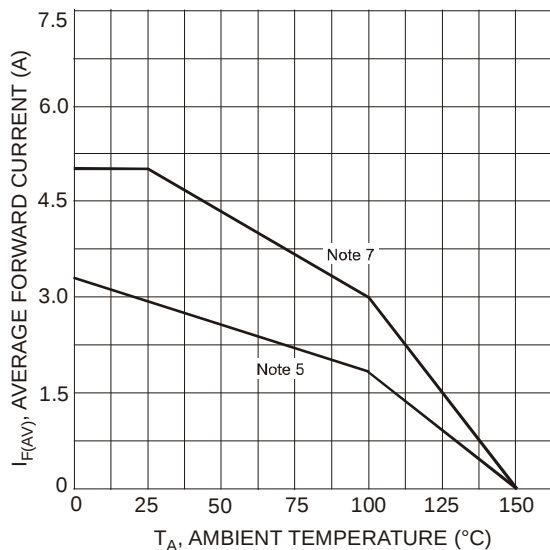


Fig. 5 Forward Current Derating Curve

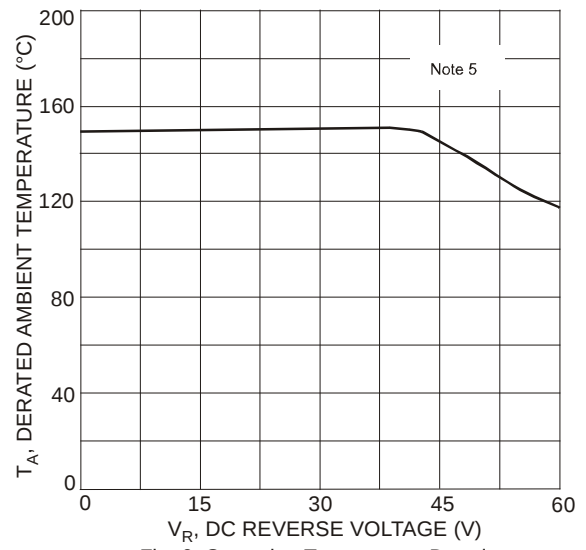
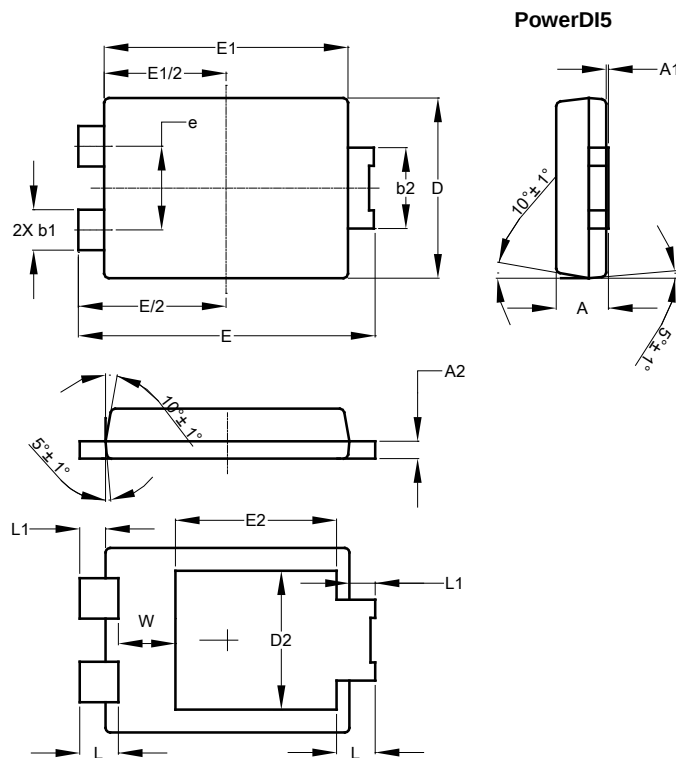


Fig. 6 Operating Temperature Derating

## Package Outline Dimensions

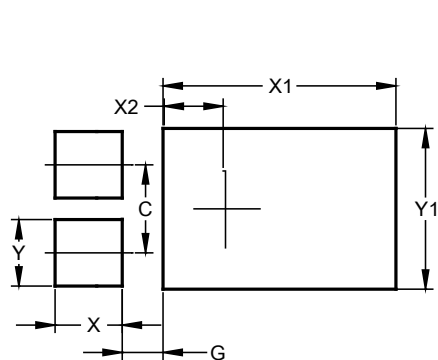
Please see <http://www.diodes.com/package-outlines.html> for the latest version.



| PowerDI5             |      |      |       |
|----------------------|------|------|-------|
| 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 | 6.51  |
| 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 <http://www.diodes.com/package-outlines.html> for the latest version.



| Dimensions | Value (in mm) |
|------------|---------------|
| C          | 1.840         |
| G          | 0.852         |
| X          | 1.400         |
| X1         | 4.860         |
| X2         | 1.310         |
| Y          | 1.390         |
| Y1         | 3.360         |

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