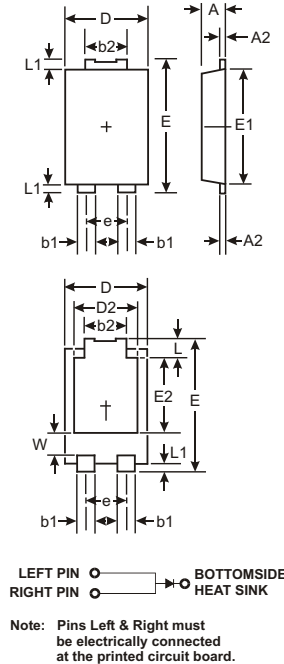


### Features

- 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 (Note 1)**
- "Green" Molding Compound (No Br, Sb)**
- 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-020C
- Terminals: Finish – Matte Tin annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208 (E3)
- Polarity: See Diagram
- Marking: See Page 3
- Weight: 0.093 grams (approximate)



| PowerDI 5                   |          |      |
|-----------------------------|----------|------|
| 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                          | 3.05 NOM |      |
| E                           | 6.40     | 6.60 |
| e                           | 1.84 NOM |      |
| E1                          | 5.30     | 5.45 |
| E2                          | 3.55 NOM |      |
| L                           | 0.75     | 0.95 |
| L1                          | 0.50     | 0.65 |
| W                           | 1.20     | 1.50 |
| <b>All Dimensions in mm</b> |          |      |

### Maximum Ratings @ T<sub>A</sub> = 25 C unless otherwise specified

Single phase, half wave, 60Hz, resistive or inductive load.  
For capacitive 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<br>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>JS</sub>  |             | 3.0 | C/W  |
| Thermal Resistance Junction to Ambient Air (Note 2) T <sub>A</sub> = 25 C | R <sub>JA</sub>  | 95          |     | C/W  |
| Thermal Resistance Junction to Ambient Air (Note 3) T <sub>A</sub> = 25 C | R <sub>JA</sub>  | 70          |     | C/W  |
| Thermal Resistance Junction to Ambient Air (Note 4) T <sub>A</sub> = 25 C | R <sub>JA</sub>  | 50          |     | C/W  |
| Operating Temperature Range   | T <sub>J</sub>   | -65 to +150 |     | C    |
| Storage Temperature Range   | T <sub>STG</sub> | -65 to +150 |     | C    |

- Notes:
1. RoHS revision 13.2.2003. High Temperature Solder Exemption Applied, see *EU Directive Annex Note 7*.
  2. FR-4 PCB, 2 oz. Copper, minimum recommended pad layout per <http://www.diodes.com/datasheets/ap02001.pdf>.
  3. Polyimide PCB, 2 oz. Copper, minimum recommended pad layout per <http://www.diodes.com/datasheets/ap02001.pdf>.
  4. 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.

**Electrical Characteristics** @  $T_A = 25\text{ C}$  unless otherwise specified

| Characteristic                     | Symbol      | Min | Typ  | Max  | Unit          | Test Condition   |
|------------------------------------|-------------|-----|--|--|---------------|--|
| Reverse Breakdown Voltage (Note 5) | $V_{(BR)R}$ | 60  |  |  | V             | $I_R = 0.2\text{mA}$   |
| Forward Voltage                    | $V_F$       |     | 0.57<br>0.53<br>0.51<br>0.70<br>0.62<br>0.60 | 0.62<br>0.60<br>0.57<br>0.76<br>0.70<br>0.66 | V             | $I_F = 3\text{A}, T_j = 25\text{ C}$<br>$I_F = 3\text{A}, T_j = 100\text{ C}$<br>$I_F = 3\text{A}, T_j = 125\text{ C}$<br>$I_F = 6\text{A}, T_j = 25\text{ C}$<br>$I_F = 6\text{A}, T_j = 100\text{ C}$<br>$I_F = 6\text{A}, T_j = 125\text{ C}$ |
| Reverse Leakage Current (Note 5)   | $I_R$       |     | 3<br>1.5                                     | 150<br>10<br>15                              | A<br>mA<br>mA | $T_j = 25\text{ C}, V_R = 60\text{V}$<br>$T_j = 100\text{ C}, V_R = 60\text{V}$<br>$T_j = 125\text{ C}, V_R = 60\text{V}$  |

Notes: 5. Short duration test pulse used to minimize self-heating effect.

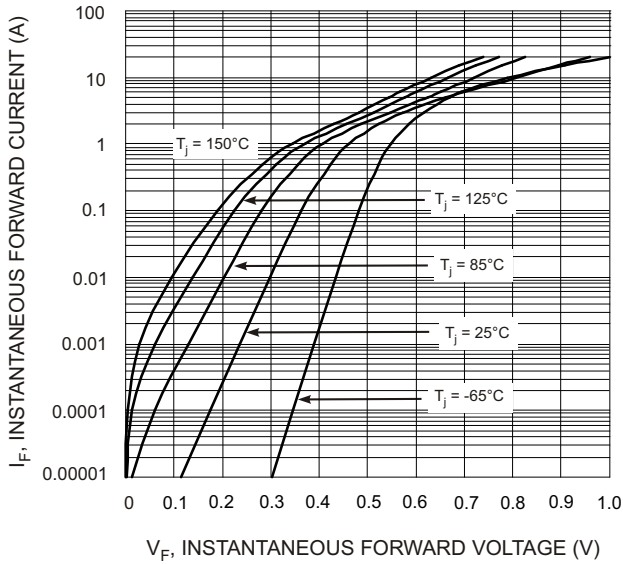


Fig. 1 Typical Forward Characteristics

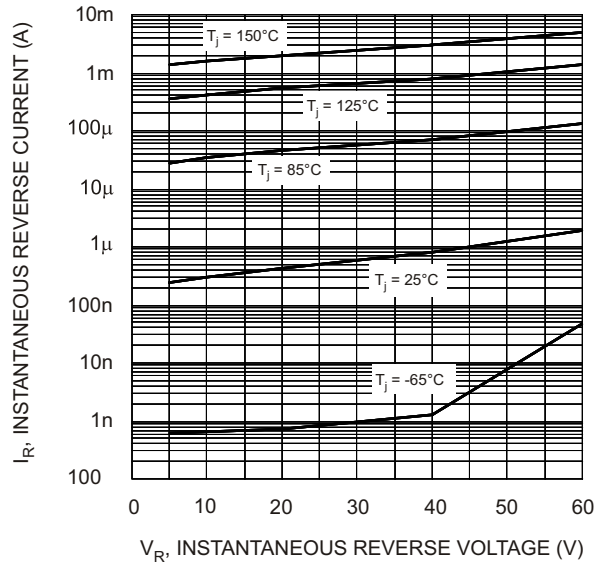


Fig. 2 Typical Reverse Characteristics

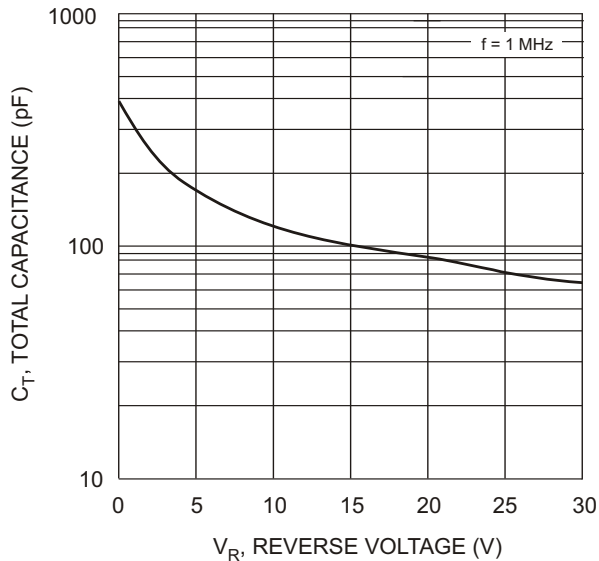


Fig. 3 Typical Capacitance vs. Reverse Voltage

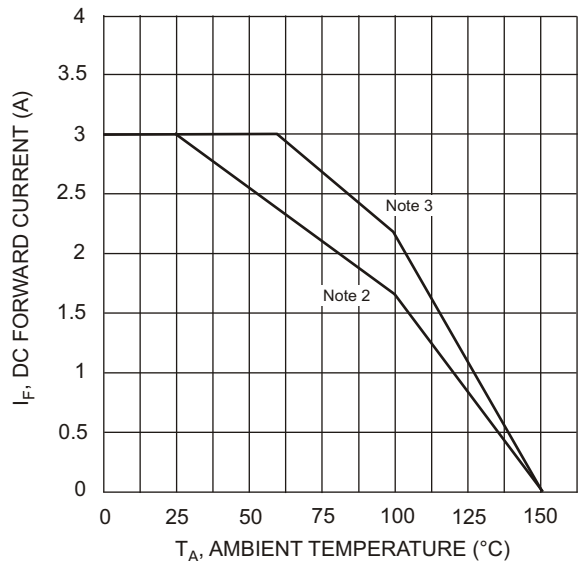
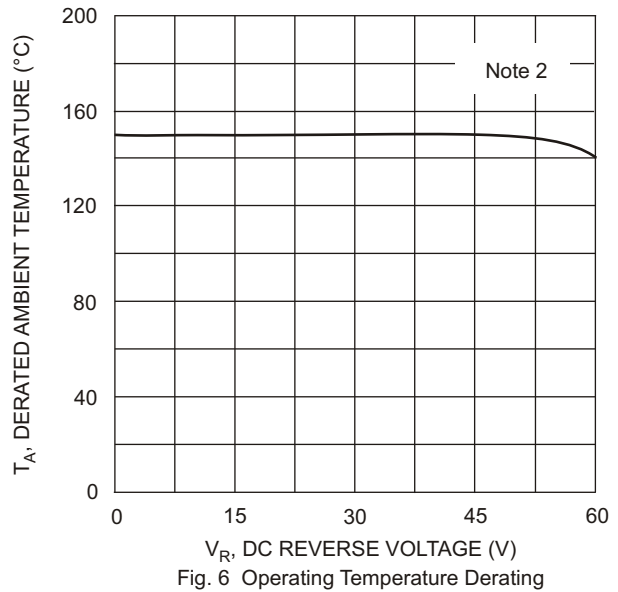
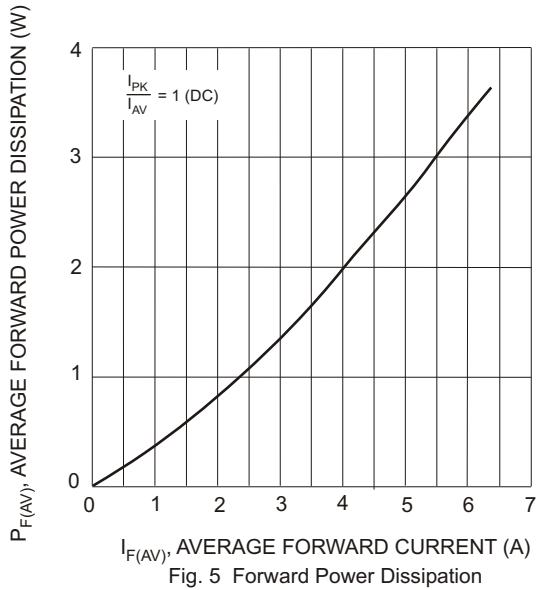


Fig. 4 DC Forward Current Derating

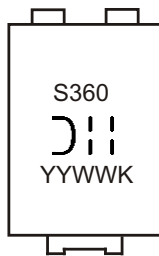


**Ordering Information** (Note 6)

| Device    | Packaging | Shipping         |
|-----------|-----------|------------------|
| PDS360-13 | PowerDI 5 | 5000/Tape & Reel |

Notes: 6. For Packaging Details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

**Marking Information**



S360 = Product type marking code  
 ⎓⎓⎓ = Manufacturers' code marking  
 YYWW = Date code marking  
 YY = Last two digits of year ex: 05 for 2005  
 WW = Week code 01 to 52  
 K = Factory Designator

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