



# PDS5100H

## 5A HIGH VOLTAGE SCHOTTKY BARRIER RECTIFIER PowerDI™5

### Features

- Guard Ring Die Construction for Transient Protection
- Low Forward Voltage Drop
- Very Low Leakage Current
- High Junction Temperature Capability
- For Use in Low Voltage, 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)**

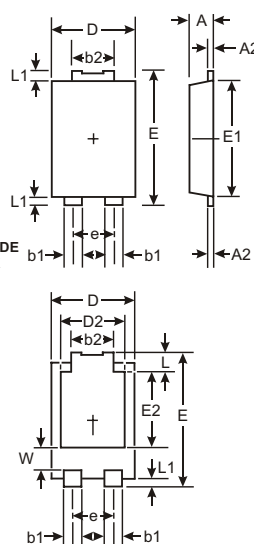
### Mechanical Data

- 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: 0.077 grams (approx.)

LEFT PIN  
RIGHT PIN

BOTTOMSIDE  
HEAT SINK

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



| 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 |
| All Dimensions in mm |          |      |

### 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<br>Working Peak Reverse Voltage<br>DC Blocking Voltage              | $V_{RRM}$<br>$V_{RWM}$<br>$V_R$ | 100         | V    |
| RMS Reverse Voltage                                                                                 | $V_R(RMS)$                      | 71          | V    |
| Average Rectified Output Current (See also figure 5)                                                | $I_O$                           | 5           | A    |
| Non-Repetitive Peak Forward Surge Current<br>8.3ms Single half sine-wave Superimposed on Rated Load | $I_{FSM}$                       | 250         | A    |
| Operating and Storage Temperature Range                                                             | $T_J, T_{STG}$                  | -65 to +150 | °C   |

### Thermal Characteristics @ T<sub>A</sub> = 25°C unless otherwise specified

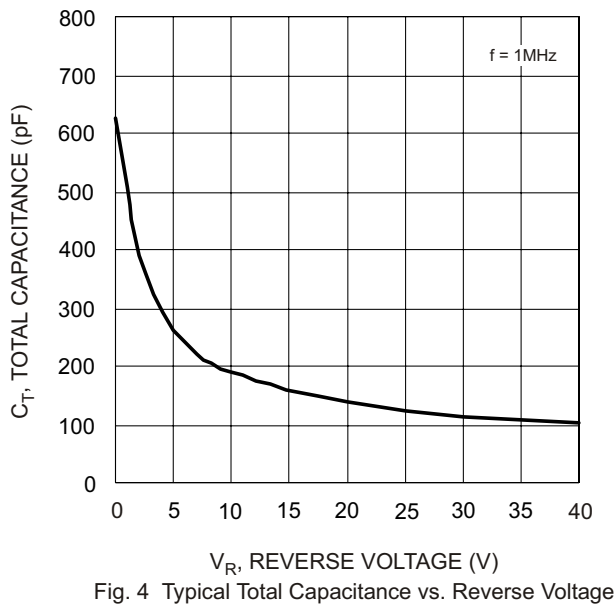
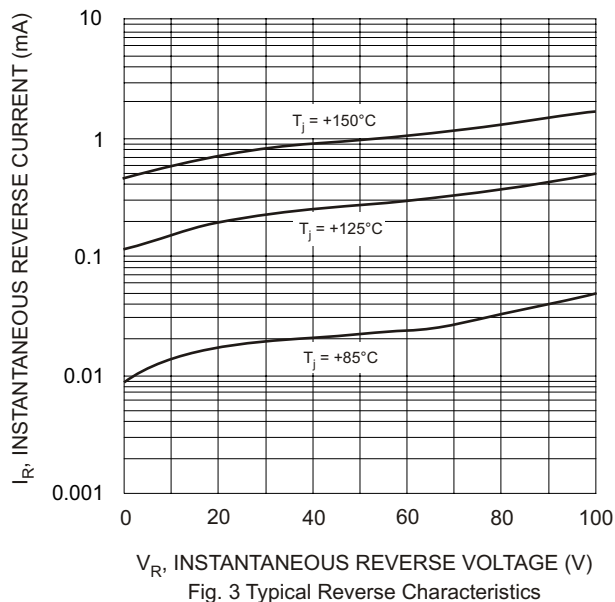
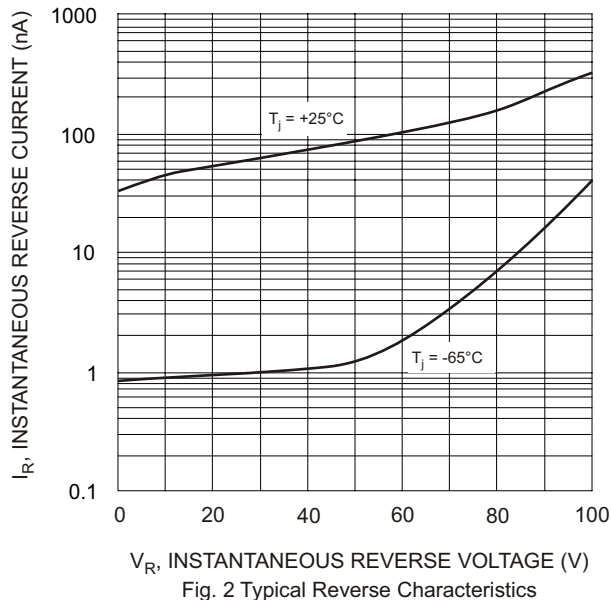
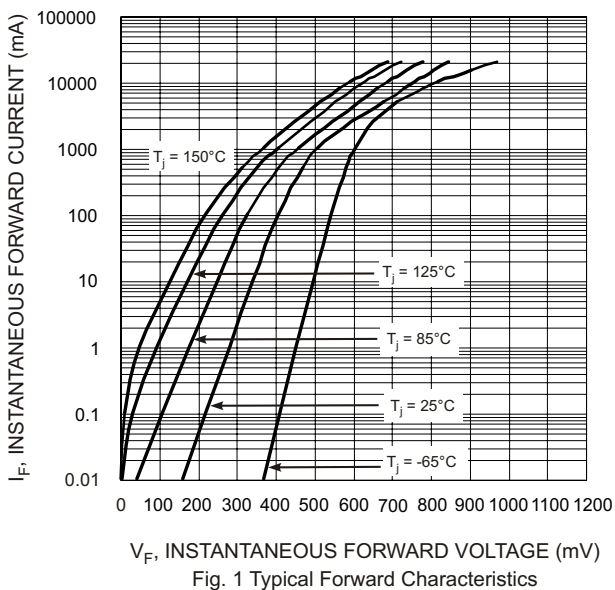
| Characteristic                                      | Symbol          | Typ | Max | Unit |
|-----------------------------------------------------|-----------------|-----|-----|------|
| Thermal Resistance Junction to Soldering Point      | $R_{\theta JS}$ | —   | 2.0 | °C/W |
| Thermal Resistance Junction to Ambient Air (Note 2) | $R_{\theta JA}$ | 95  | 110 | °C/W |

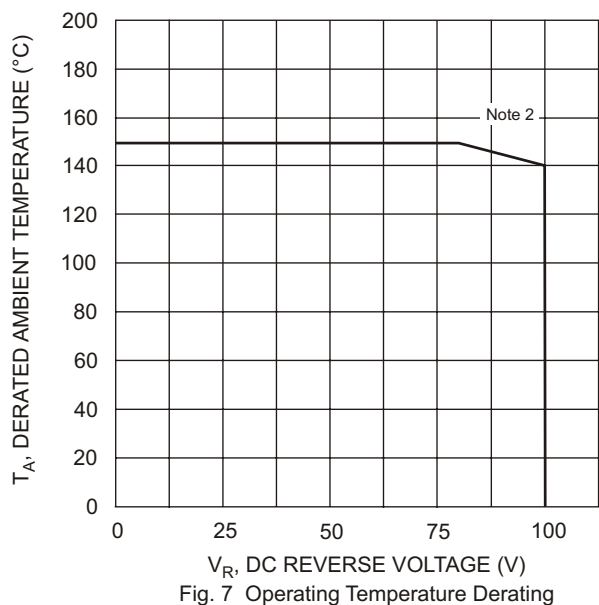
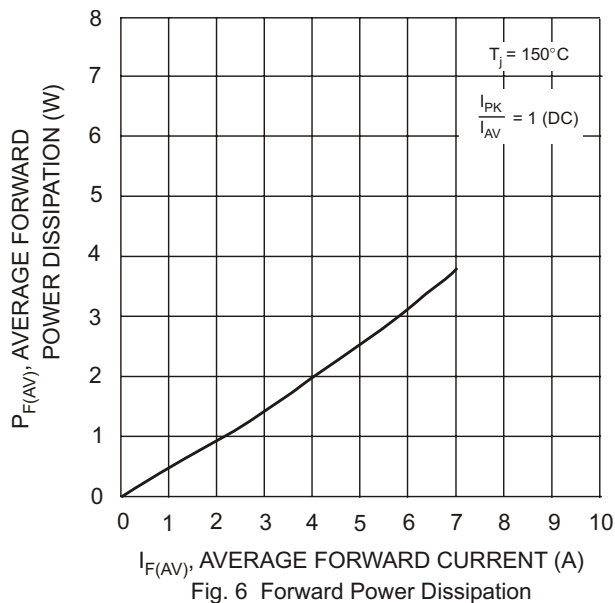
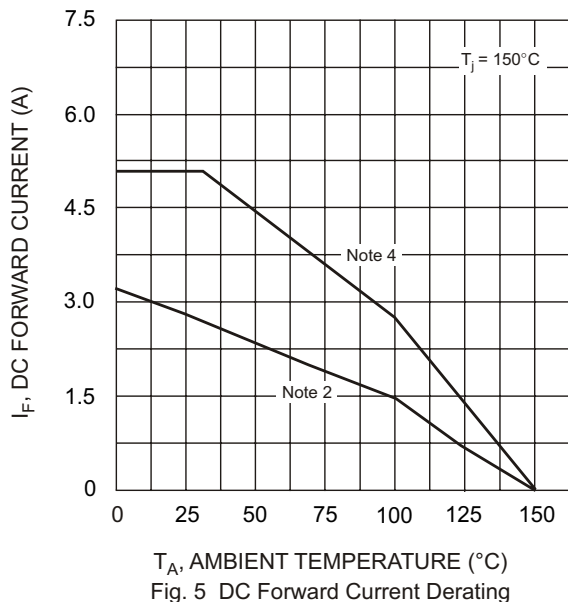
Notes: 1. RoHS revision 13.2.2003. Glass and High Temperature Solder Exemptions Applied, see *EU Directive Annex Notes 5 and 7*.  
2. FR-4 PCB, 2 oz. Copper, minimum recommended pad layout per <http://www.diodes.com/datasheets/ap02001.pdf>.

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

| Characteristic                     | Symbol      | Min | Typ                          | Max                          | Unit                | Test Condition                                                                                                                                                                       |
|------------------------------------|-------------|-----|------------------------------|------------------------------|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Reverse Breakdown Voltage (Note 3) | $V_{(BR)R}$ | 100 | —                            | —                            | V                   | $I_R = 10\mu\text{A}$                                                                                                                                                                |
| Forward Voltage                    | $V_F$       | —   | 0.67<br>0.55<br>0.74<br>0.63 | 0.71<br>0.58<br>0.80<br>0.66 | V                   | $I_F = 5\text{A}, T_S = 25^\circ\text{C}$<br>$I_F = 5\text{A}, T_S = 125^\circ\text{C}$<br>$I_F = 10\text{A}, T_S = 25^\circ\text{C}$<br>$I_F = 10\text{A}, T_S = 125^\circ\text{C}$ |
| Reverse Leakage Current (Note 3)   | $I_R$       | —   | 0.5<br>0.5                   | 10<br>4.5                    | $\mu\text{A}$<br>mA | $T_S = 25^\circ\text{C}, V_R = 100\text{V}$<br>$T_S = 125^\circ\text{C}, V_R = 100\text{V}$                                                                                          |

Notes: 3. Short duration test pulse used to minimize self-heating effect.





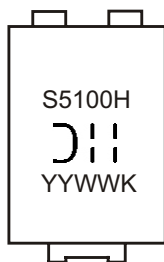
## Ordering Information (Note 5)

| Device      | Packaging | Shipping         |
|-------------|-----------|------------------|
| PDS5100H-13 | PowerDI™5 | 5000/Tape & Reel |

Notes:

- FR-4 PCB, 2 oz. Copper, minimum recommended pad layout per <http://www.diodes.com/datasheets/ap02001.pdf>.
- Short duration test pulse used to minimize self-heating effect.
- Polyimide PCB, 2 oz. Copper. Cathode pad dimensions 9.4mm x 7.2mm. Anode pad dimensions 2.7mm x 1.6mm.
- For Packaging Details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

## Marking Information



S5100H = Product type marking code  
 011 = Manufacturers' code marking  
 YYWW = Date code marking  
 YY = Last digit of year ex: 04 for 2004  
 WW = Week code 01 to 52  
 K = Factory Designator

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