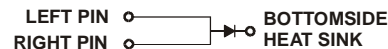
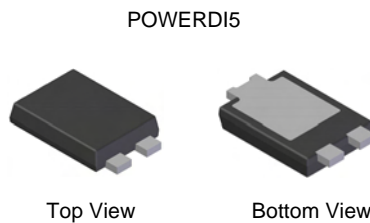


Features

- Designed as Bypass Diodes for Solar Panels
- Selectively Rated for 200°C Maximum Junction Temperature for High Thermal Reliability
- Patented Super Barrier Rectifier Technology
- Low Forward Voltage Drop
- Excellent High Temperature Stability
- **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: Finish – Matte Tin annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208 ③
- Weight: 0.093 grams (approximate)



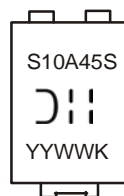
Note: Pins Left & Right must be electrically connected at the printed circuit board.

Ordering Information (Note 4)

| Part Number | Case | Packaging |
|-----------------|----------|------------------|
| SBR10A45SP5-13 | POWERDI5 | 5000/Tape & Reel |
| SBR10A45SP5-7 | POWERDI5 | 1500/Tape & Reel |
| SBR10A45SP5Q-13 | 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> 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



S10A45S = Product Type Marking Code
 J|| = Manufacturers' code marking
 K = Factory designator
 YYWW = Date Code Marking
 YY = Last two digits of year (ex: 08 for 2008)
 WW = Week code (01 - 53)

Maximum Ratings (@T_A = +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 _R RM | 45 | V |
| Working Peak Reverse Voltage | V _R WM | | |
| DC Blocking Voltage | V _R M | | |
| Average Rectified Output Current | I _O | 10 | A |
| Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load | I _{FSM} | 180 | A |

Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
|---|------------------|--|-------------|
| Typical Thermal Resistance | R _{θJA} | 102 | °C/W |
| Thermal Resistance Junction to Ambient (Note 5) | | | |
| Thermal Resistance Junction to Ambient (Note 6) | | | |
| Operating Temperature Range | T _J | V _R ≤ 80% V _R RM | -65 to +150 |
| | | V _R ≤ 50% V _R RM | ≤180 |
| | | DC Forward Mode | ≤200 |
| Storage Temperature Range | T _{STG} | -65 to +175 | °C |

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

| Characteristic | Symbol | Min | Typ | Max | Unit | Test Condition |
|------------------------------------|--------------------|-----|------|------|------|--|
| Reverse Breakdown Voltage (Note 7) | V _{(BR)R} | 45 | - | - | V | I _R = 0.5mA |
| Forward Voltage Drop | V _F | - | 0.39 | - | V | I _F = 5A, T _J = +25°C |
| | | - | 0.46 | 0.53 | | I _F = 10A, T _J = +25°C |
| Leakage Current (Note 7) | I _R | - | - | 400 | μA | V _R = 45V, T _J = +25°C |

- Notes: 5. FR-4 PCB, 2oz. Copper, minimum recommended pad layout per <http://www.diodes.com>.
6. Polyimide PCB, 2oz. Copper, minimum recommended pad layout per <http://www.diodes.com>.
7. Short duration pulse test used to minimize self-heating effect.

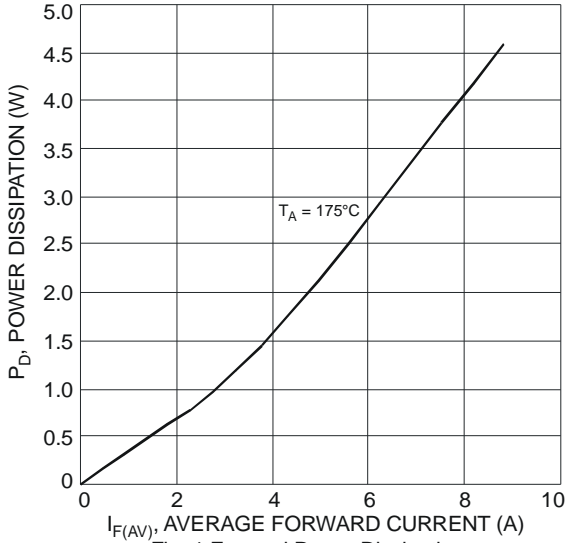


Fig. 1 Forward Power Dissipation

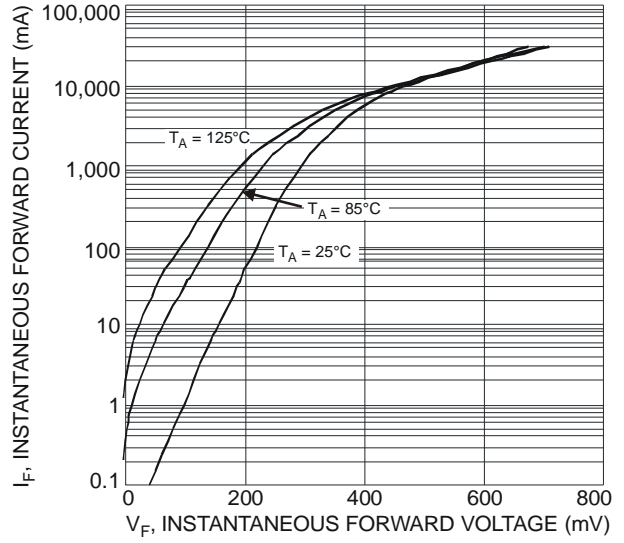


Fig. 2 Typical Forward Characteristics

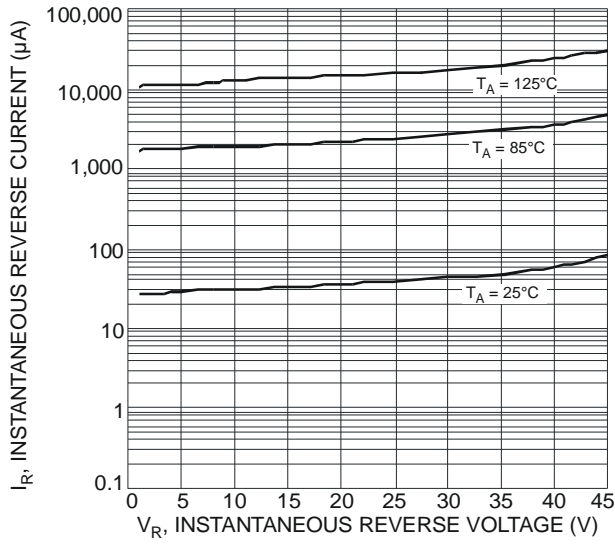


Fig. 3 Typical Reverse Characteristics

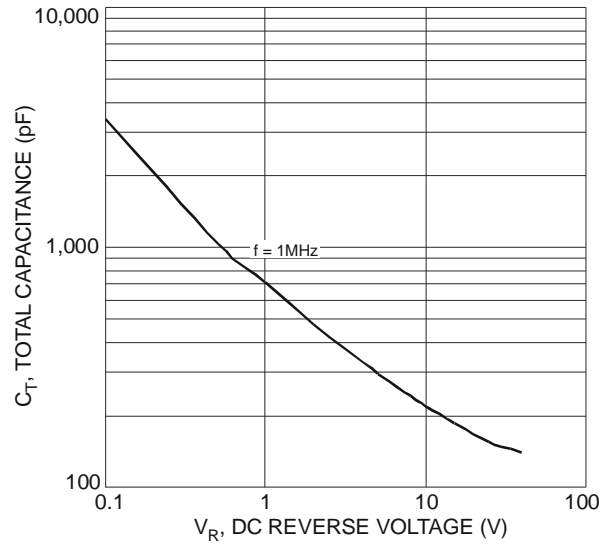


Fig. 4 Total Capacitance vs. Reverse Voltage

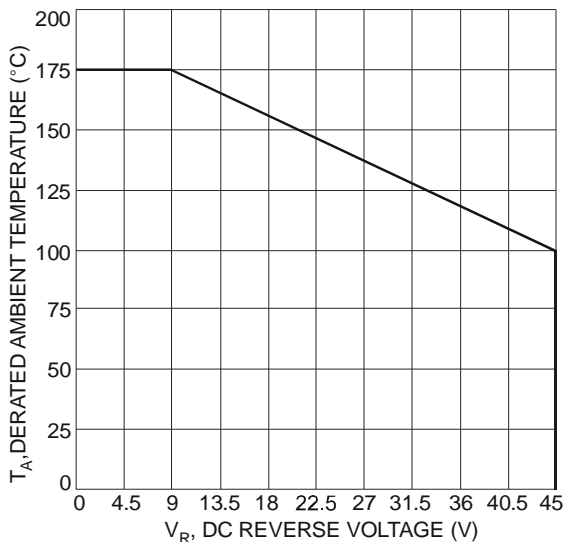


Fig. 5 Operating Temperature Derating

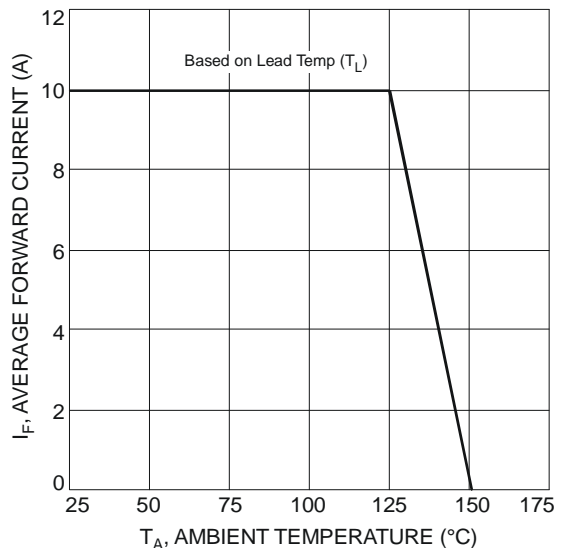
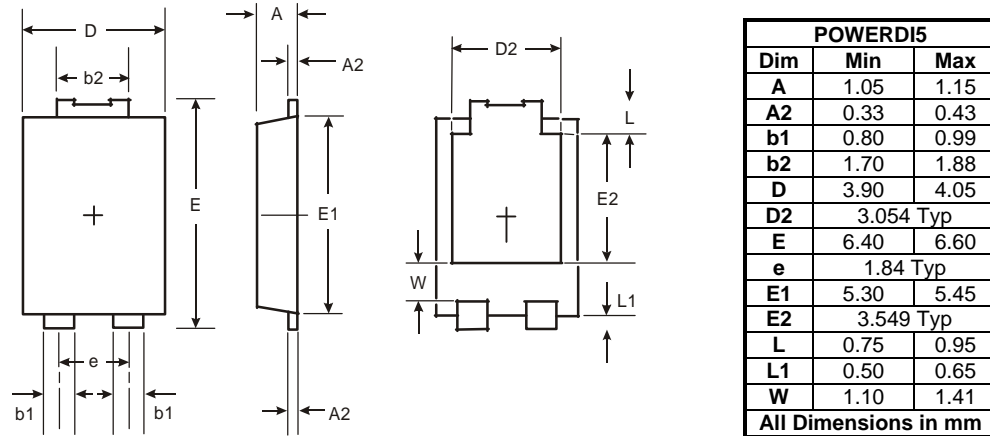


Fig. 6 Forward Current Derating Curve

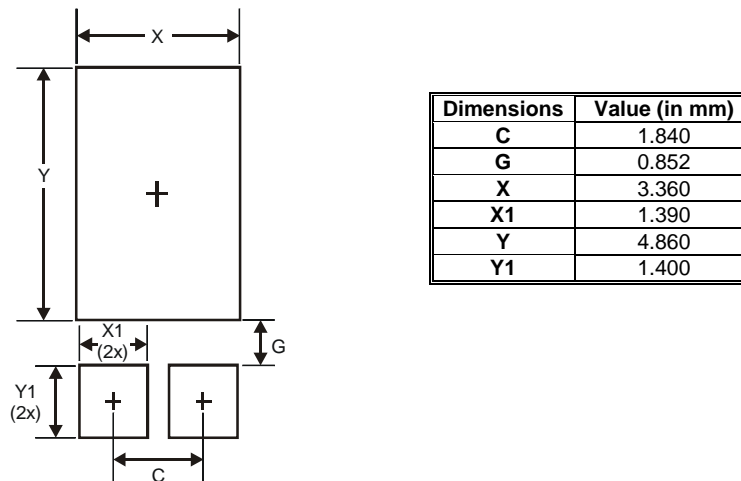
Package Outline Dimensions

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



Suggested Pad Layout

Please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for the latest version.



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