

## 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
- High Forward Surge Capability
- Ultra Low Forward Voltage Drop
- Excellent High Temperature Stability
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

## 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 e3
- Weight: 0.093 grams (approximate)

POWERDI5



Top View



Bottom View

LEFT PIN o ——————> BOTTOMSIDE  
RIGHT PIN o ——————> o HEAT SINK

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

## Ordering Information (Note 4)

Part Number	Case	Packaging
SBR15U30SP5-13	POWERDI5	5000/Tape & Reel
SBR15U30SP5-13D (Note 5)	POWERDI5	5000/Tape & Reel
SBR15U30SP5-7	POWERDI5	1500/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. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.
5. "D" suffix designate for the 12mm Tape and Reel option.

## Marking Information



S15U30S = Product Type Marking Code

D = Manufacturers' Code Marking

K = Factory Designator

YYWW = Date Code Marking

YY = Last Two Digits of Year (ex: 11 for 2011)

WW = Week code (01 - 53)

**Maximum Ratings** (@ $T_A = +25^\circ\text{C}$ , 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	$V_{RRM}$		
Working Peak Reverse Voltage	$V_{RWM}$	30	V
DC Blocking Voltage	$V_{RM}$		
RMS Reverse Voltage	$V_{R(\text{RMS})}$	21	V
Average Rectified Output Current	$I_O$	15	A
Non-Repetitive Peak Forward Surge Current 8.3ms	$I_{FSM}$	280	A
Single Half Sine-Wave Superimposed on Rated Load			

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Maximum Thermal Resistance			
Thermal Resistance Junction to Ambient (Note 4)	$R_{\theta JA}$	26	$^\circ\text{C}/\text{W}$
Operating Temperature Range	$V_R \leq 80\% V_{RRM}$	-65 to +150	$^\circ\text{C}$
	$V_R \leq 50\% V_{RRM}$	$\leq 180$	
	DC Forward Mode	$\leq 200$	
Storage Temperature Range	$T_{STG}$	-65 to +175	$^\circ\text{C}$

**Electrical Characteristics** (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage Drop (Per Leg)	$V_F$	—	—	0.49 0.42	V	$I_F = 15\text{A}, T_J = +25^\circ\text{C}$ $I_F = 15\text{A}, T_J = +125^\circ\text{C}$
Leakage Current (Note 5)	$I_R$	—	—	0.5 100	mA	$V_R = 30\text{V}, T_J = +25^\circ\text{C}$ $V_R = 30\text{V}, T_J = +125^\circ\text{C}$

 Notes: 4. Polymide, 2oz. Copper 16x minimum recommended pad layout per <http://www.diodes.com>

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

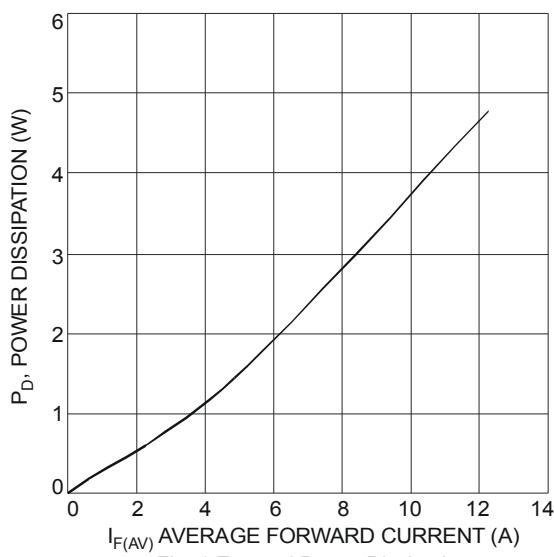


Fig. 1 Forward Power Dissipation

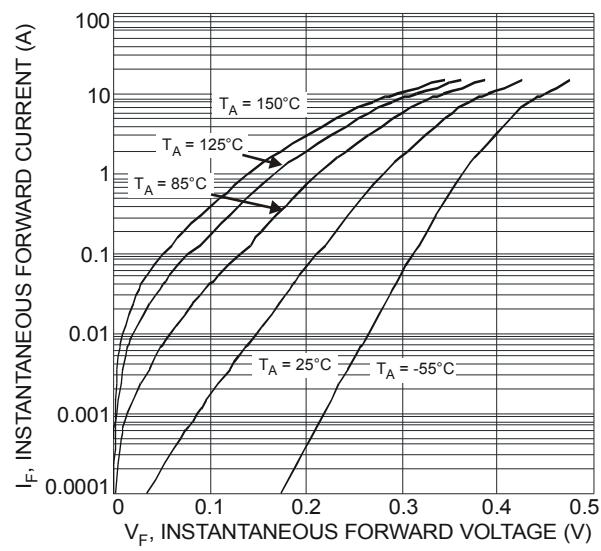
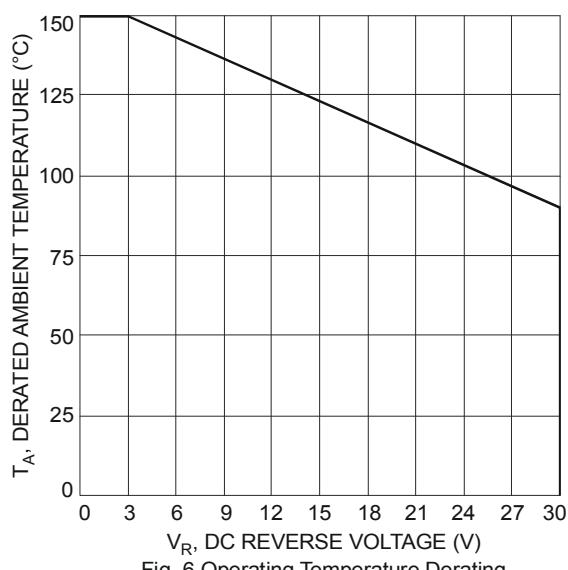
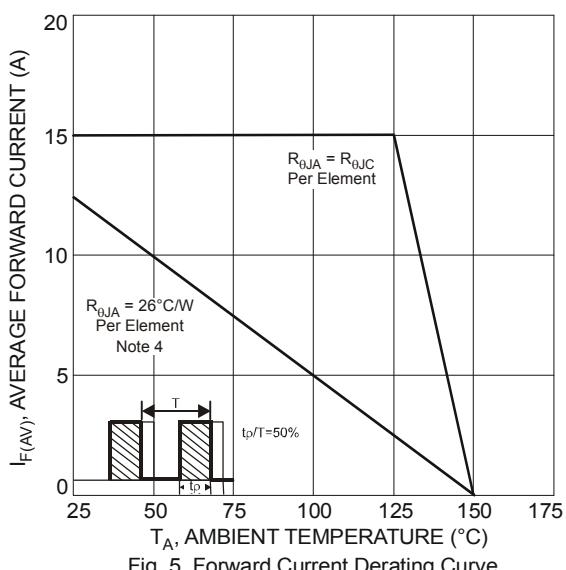
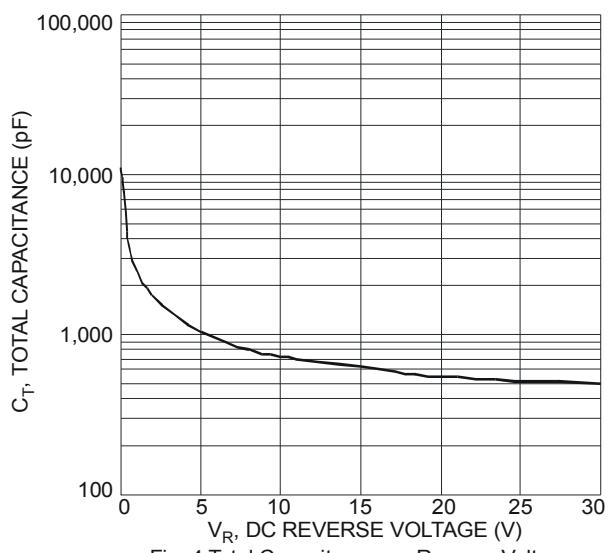
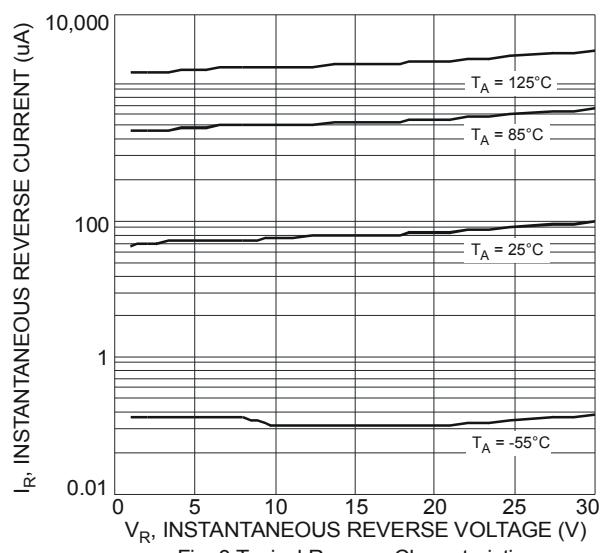
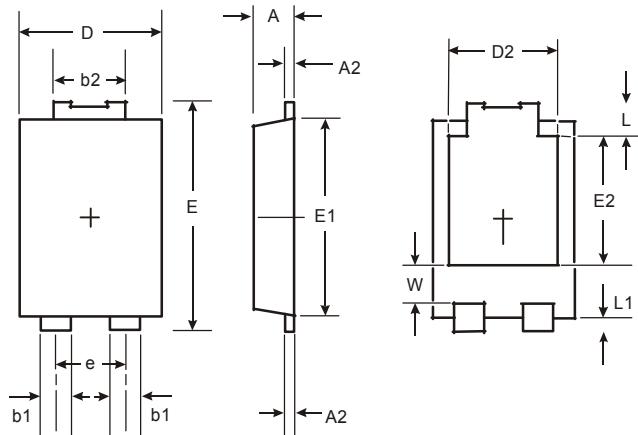


Fig. 2 Typical Forward Characteristics



## Package Outline Dimensions

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

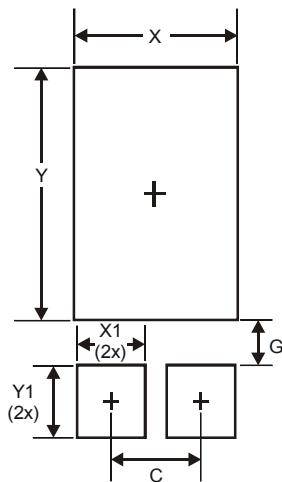


POWERDI5		
Dim	Min	Max
<b>A</b>	1.05	1.15
<b>A2</b>	0.33	0.43
<b>b1</b>	0.80	0.99
<b>b2</b>	1.70	1.88
<b>D</b>	3.90	4.05
<b>D2</b>	3.054 Typ	
<b>E</b>	6.40	6.60
<b>e</b>	1.84 Typ	
<b>E1</b>	5.30	5.45
<b>E2</b>	3.549 Typ	
<b>L</b>	0.75	0.95
<b>L1</b>	0.50	0.65
<b>W</b>	1.10	1.41

**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)
<b>C</b>	1.840
<b>G</b>	0.852
<b>X</b>	3.360
<b>X1</b>	1.390
<b>Y</b>	4.860
<b>Y1</b>	1.400

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