

Product Summary (@ T_A = +25°C)

V _{RRM} (V)	I _O (A)	V _{F(MAX)} (V) @ +25°C	I _{R(MAX)} (mA) @ +25°C
30	15	0.59	0.1

Description

Packaged in the compact thermally efficient POWERDI5 package, the SBR15A30SP5 provides very low V_F and provides excellent reverse leakage stability at high temperatures. It is ideal for use as a rectification, freewheeling or polarity protection diode.

Applications

- Solar Panels
- DC/DC Converters
- AC/DC Adaptors

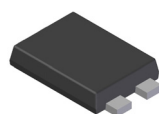
Features and Benefits

- Low forward voltage drop (V_F) helps – minimizes power losses
- Excellent stability at higher temperatures
- Thermally efficient package for cooler running applications
- Less than 1.1mm package profile ideal for thin applications
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

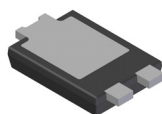
Mechanical Data

- Case: POWERDI5
- Case Material: Molded Plastic, "Green" Molding compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections: See Diagram Below
- Weight: 0.093 grams (approximate)

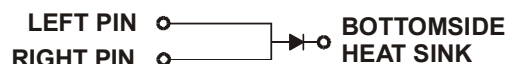
POWERDI5



Top View



Bottom View

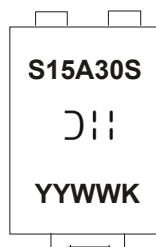


Note: Pins Left & Right must be electrically connected at the printed circuit board.

Ordering Information

Part Number	Case	Packaging
SBR15A30SP5-13	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/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.

Marking Information


S15A30S = Product Type Marking Code
 YYWW = Date Code Marking
 YY = Last Two Digits of Year (ex: 13 = 2013)
 K = Factory Designator

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

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM}	30	V
Average Rectified Output Current	I_o	15	A
Non-Repetitive Peak Forward Surge Current 8.3mS	I_{FSM}	136	A
Non-Repetitive Avalanche Energy ($T_J = +25^\circ\text{C}$, $I_{AS} = 10\text{A}$, $L = 10\text{mH}$)	E_{AS}	460	mJ
Repetitive Peak Avalanche Energy (1 μs , +25 $^\circ\text{C}$)	P_{ARM}	2700	W

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Ambient (Note 4)	$R_{\theta JA}$	100	$^\circ\text{C/W}$
Typical Thermal Resistance Junction to Case (Notes 4, 6)	$R_{\theta JC}$	25	$^\circ\text{C/W}$
Typical Thermal Resistance Junction to Ambient (Note 5)	$R_{\theta JA}$	20	$^\circ\text{C/W}$
Typical Thermal Resistance Junction to Case (Notes 5, 6)	$R_{\theta JC}$	3	$^\circ\text{C/W}$
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +150	$^\circ\text{C}$

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage Drop	V_F	—	0.42 0.38 0.54 0.51	0.52 — 0.59 —	V	$I_F = 7.5\text{A}$, $T_J = +25^\circ\text{C}$ $I_F = 7.5\text{A}$, $T_J = +125^\circ\text{C}$ $I_F = 15\text{A}$, $T_J = +25^\circ\text{C}$ $I_F = 15\text{A}$, $T_J = +125^\circ\text{C}$
Leakage Current (Note 8)	I_R	—	0.03 13	0.1 —	mA	$V_R = 30\text{V}$, $T_J = +25^\circ\text{C}$ $V_R = 30\text{V}$, $T_J = +125^\circ\text{C}$
Junction Capacitance	C_T	—	300	—	pF	$V_R = 15\text{V}$, $T_J = +25^\circ\text{C}$

Notes: 4. Device mounted on FR4 PCB with minimum recommended pad layout per <http://www.diodes.com>.
 5. Device mounted on FR4 PCB with 1inch pad layout and additional HK2 (45mm x 20mm x 12mm)
 6. Short duration pulse test used to minimize self-heating effect.

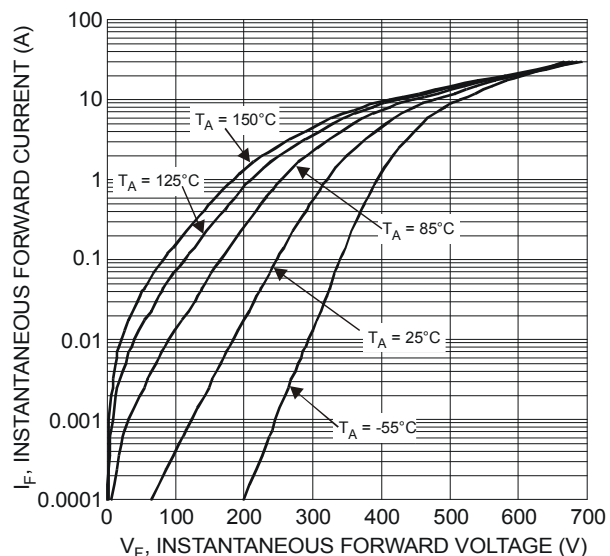


Figure 1 Typical Forward Characteristics

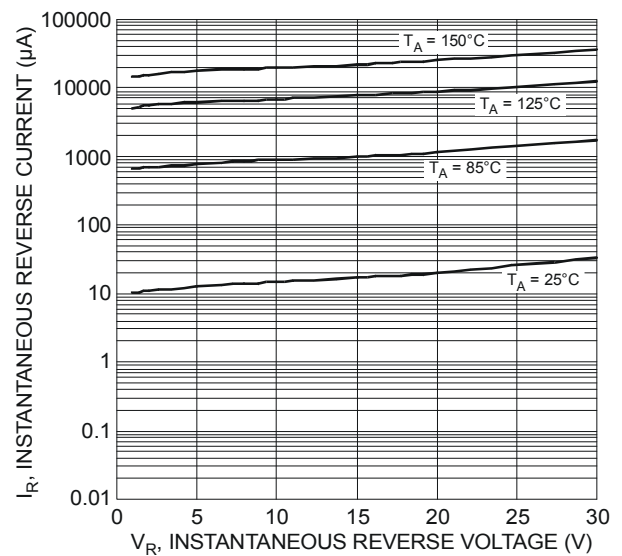


Figure 2 Typical Reverse Characteristics

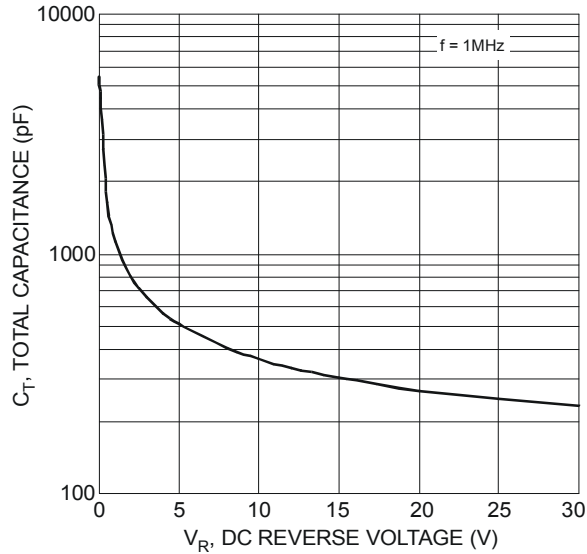


Figure 3 Total Capacitance vs. Reverse Voltage

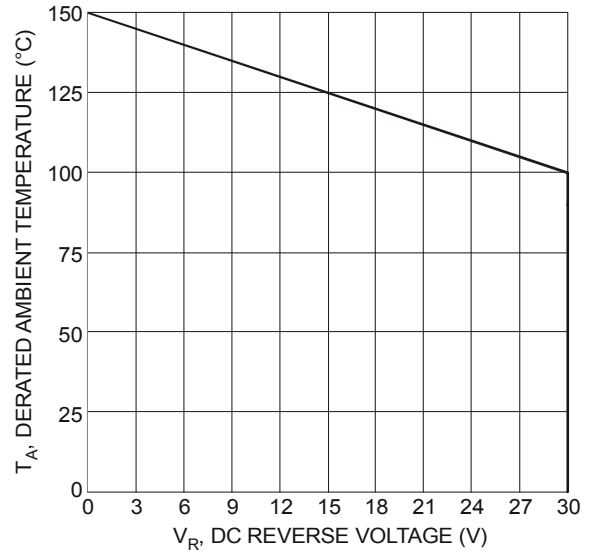


Figure 4 Operating Temperature Derating

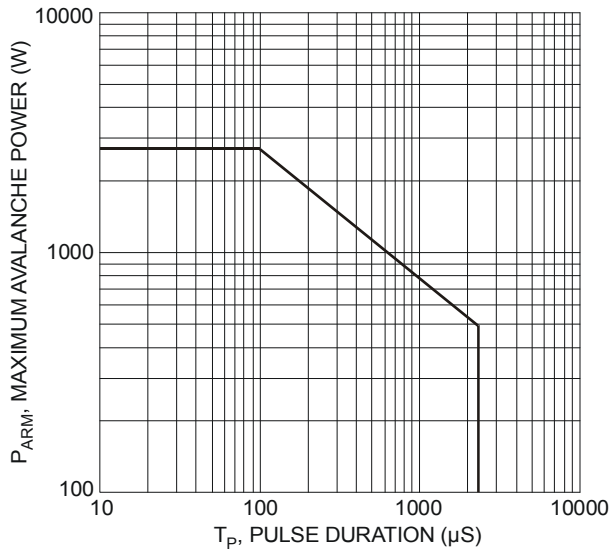


Figure 5 Maximum Avalanche Power Curve

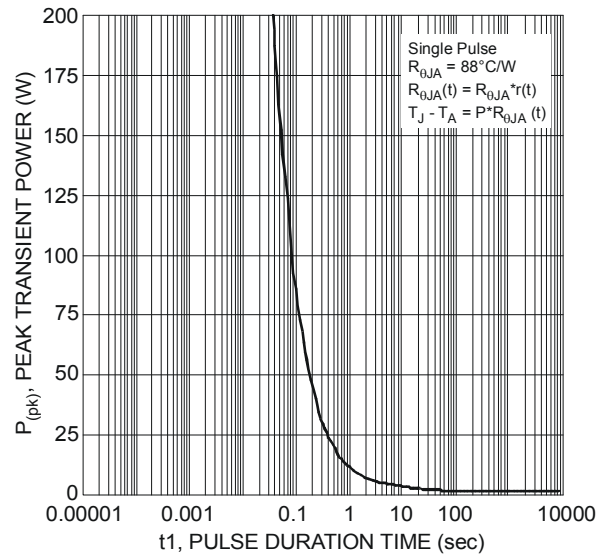


Figure 6 Single Pulse Maximum Power Dissipation

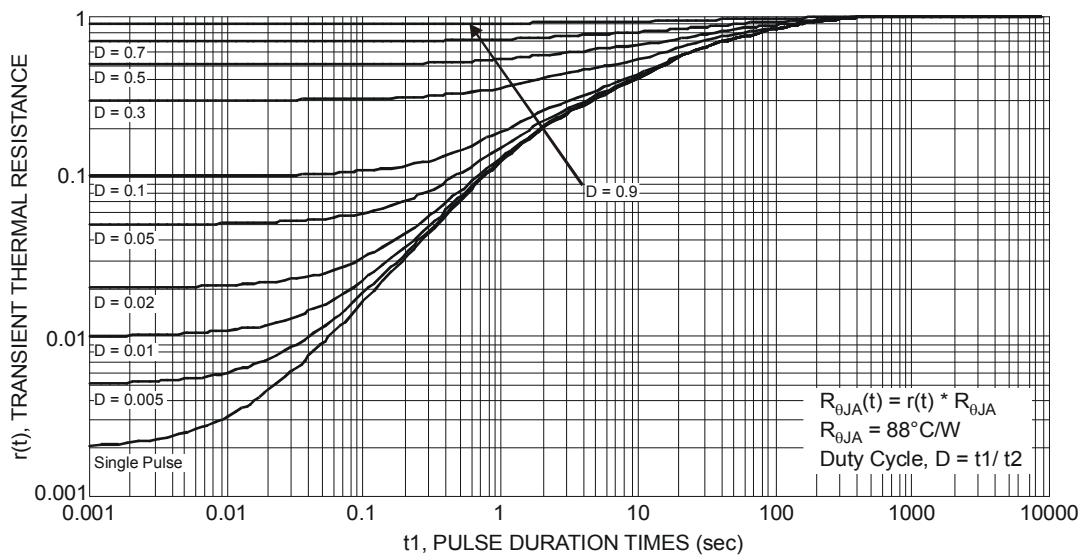
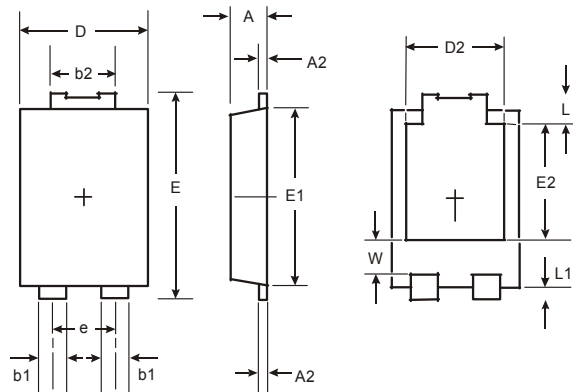


Figure 7 Transient Thermal Resistance

Package Outline Dimensions

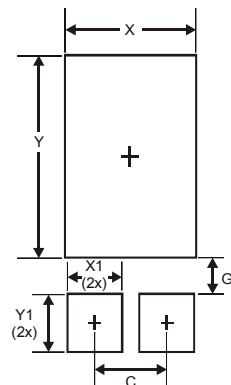
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.



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	3.054 Typ	
E	6.40	6.60
e	1.84 Typ	
E1	5.30	5.45
E2	3.549 Typ	
L	0.75	0.95
L1	0.50	0.65
W	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)
C	1.840
G	0.852
X	3.360
X1	1.390
Y	4.860
Y1	1.400

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