

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 DIODES™ SBR15A30SP5 provides very low V_F and excellent reverse leakage stability at high temperatures. It is ideal for use as a rectification, freewheeling or polarity protection diode.

Applications

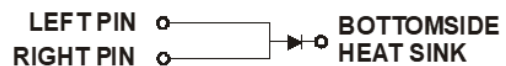
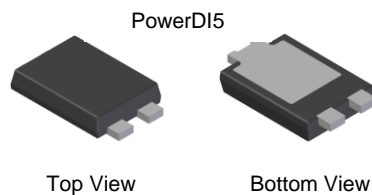
- Solar panels
- DC-DC converters
- AC-DC adaptors

Features and Benefits

- Low Forward Voltage Drop (V_F) Helps Minimize Power Losses
- Patented Super Barrier Rectifier Technology (SBR®)
- 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)**
- **For automotive applications requiring specific change control (i.e.: parts qualified to AEC-Q100/101/104/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please refer to the related automotive grade (Q-suffix) part. A listing can be found at <https://www.diodes.com/products/automotive/automotive-products/>.**
- **This part is qualified to JEDEC standards (as references in AEC-Q) for High Reliability. <https://www.diodes.com/quality/product-definitions/>**

Mechanical Data

- Package: PowerDI®5
- Package Material: Molded Plastic, “Green” Molding compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish – Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 (E3)
- Terminal Connections: See Diagram Below
- Weight: 0.093 grams (Approximate)



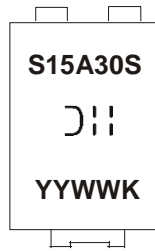
Note: Pins Left & Right must be electrically connected at the printed circuit board.

Ordering Information (Note 4)

Part Number	Package	Packing	
		Qty.	Carrier
SBR15A30SP5-13	PowerDI5	5000	Tape & Reel

- Notes:
1. EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
 2. See <https://www.diodes.com/quality/lead-free/> 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 <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

Marking Information



= Manufacturer's Marking
 S15A30S = Product Type Marking Code
 YYWW = Date Code Marking
 YY = Last Two Digits of Year (ex: 22 = 2022)
 WW = Week (01 to 53)
 K = Factory Designator

Maximum Ratings (@T_A = +25°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°C, I _{AS} = 10A, L = 10mH)	E _{AS}	460	mJ
Repetitive Peak Avalanche Energy (1μs, +25°C)	P _{ARM}	2700	W

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Ambient (Note 5)	R _{θJA}	100	°C/W
Typical Thermal Resistance Junction to Case (Notes 5, 7)	R _{θJC}	25	°C/W
Typical Thermal Resistance Junction to Ambient (Note 6)	R _{θJA}	20	°C/W
Typical Thermal Resistance Junction to Case (Notes 6, 7)	R _{θJC}	3	°C/W
Operating Temperature Range V _R ≤ 80% V _{RRM} V _R ≤ 50% V _{RRM} DC Forward Mode (Note 8)	T _J	-65 to +150 ≤ +180 ≤ +200	°C
Storage Temperature Range	T _{STG}	-65 to +150	°C

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage Drop	V _F	—	0.42	0.52	V	I _F = 7.5A, T _J = +25°C
		—	0.38	—		I _F = 7.5A, T _J = +125°C
		—	0.54	0.59		I _F = 15A, T _J = +25°C
		—	0.51	—		I _F = 15A, T _J = +125°C
Leakage Current (Note 7)	I _R	—	0.03	0.1	mA	V _R = 30V, T _J = +25°C
		—	13	—		V _R = 30V, T _J = +125°C
Junction Capacitance	C _T	—	300	—	pF	V _R = 15V, T _J = +25°C

- Notes:
- Device mounted on FR4 PCB with minimum recommended pad layout per <http://www.diodes.com/package-outlines.html>.
 - Device mounted on FR4 PCB with 1inch pad layout and additional HK2 (45mm x 20mm x 12mm).
 - Short duration pulse test used to minimize self-heating effect.
 - Max junction temperature guaranteed for 2 hours.

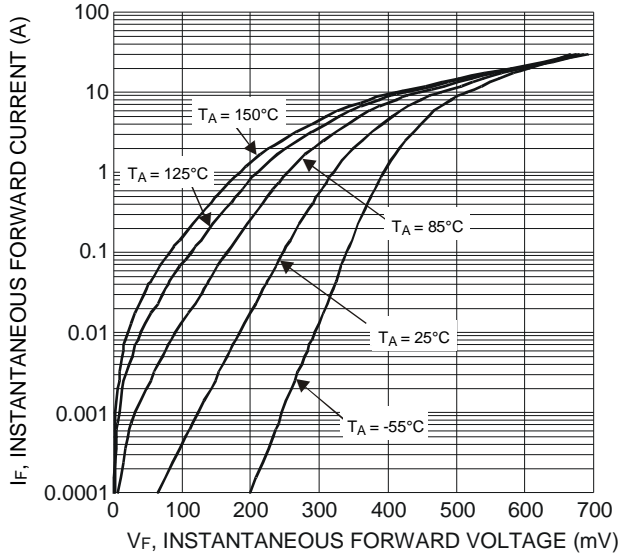


Figure 1 Typical Forward Characteristics

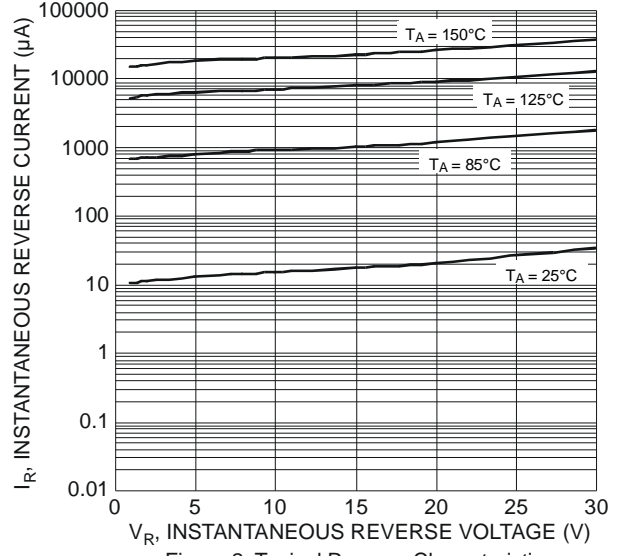


Figure 2 Typical Reverse Characteristics

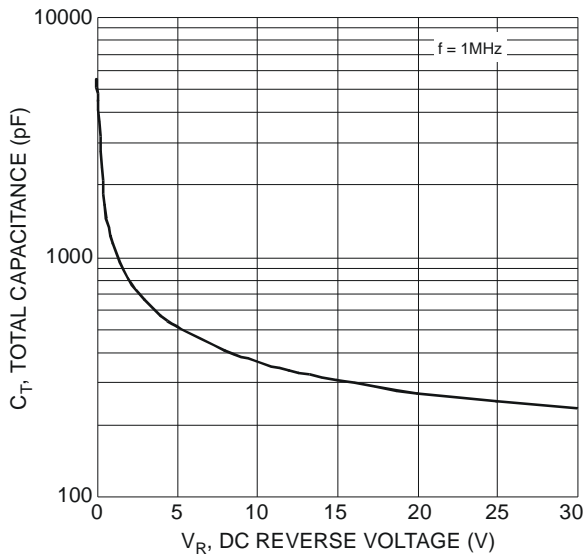


Figure 3 Total Capacitance vs. Reverse Voltage

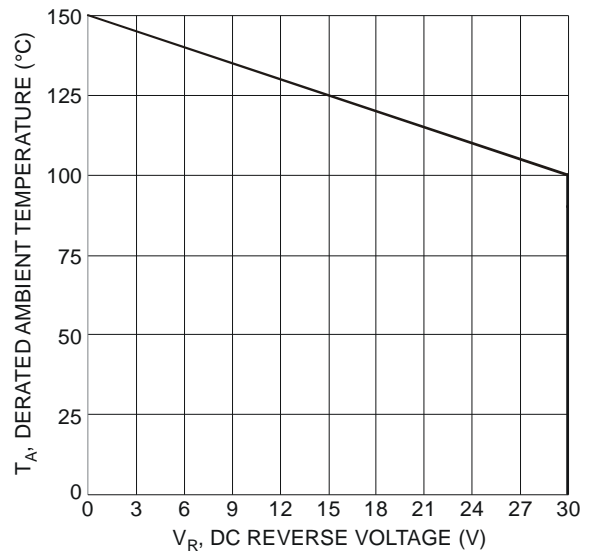


Figure 4 Operating Temperature Derating

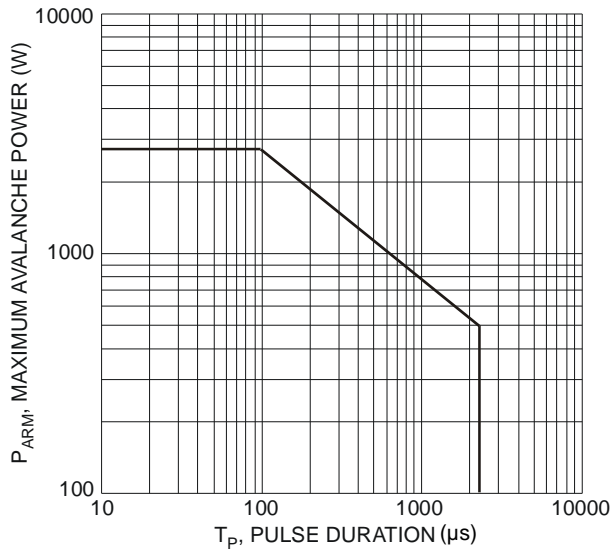


Figure 5 Maximum Avalanche Power Curve

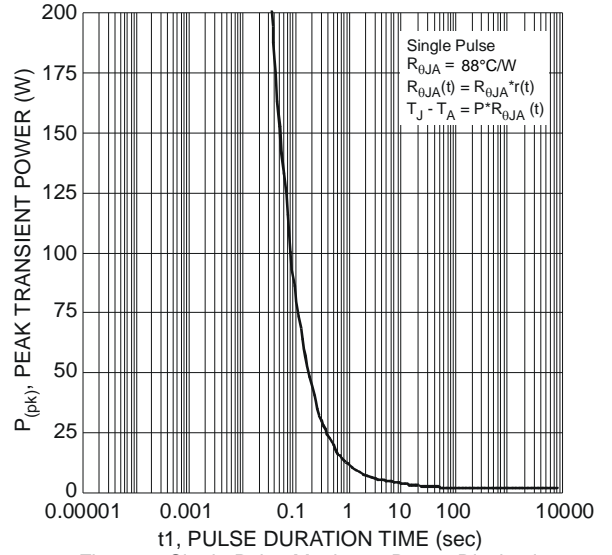


Figure 6 Single Pulse Maximum Power Dissipation

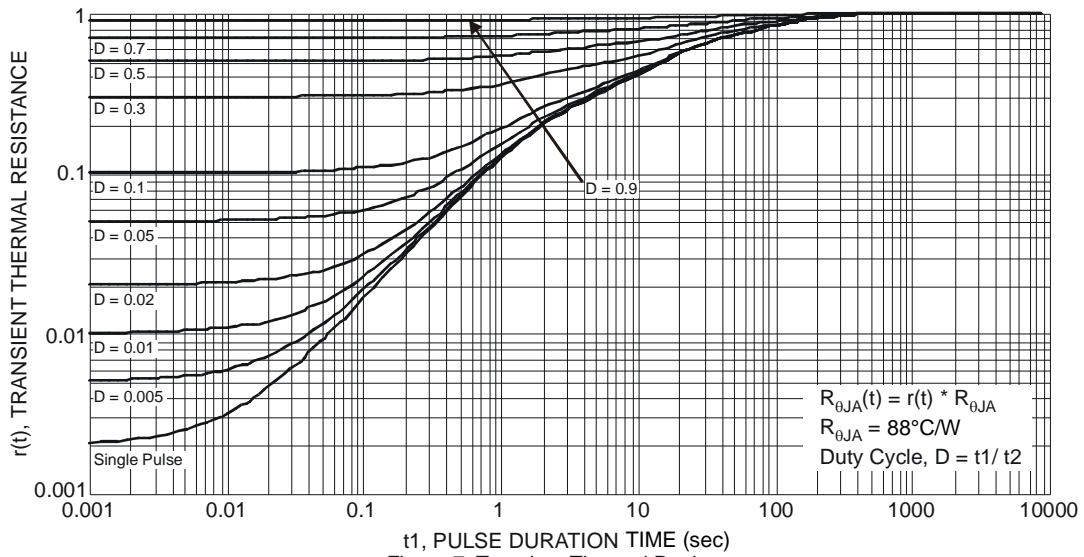
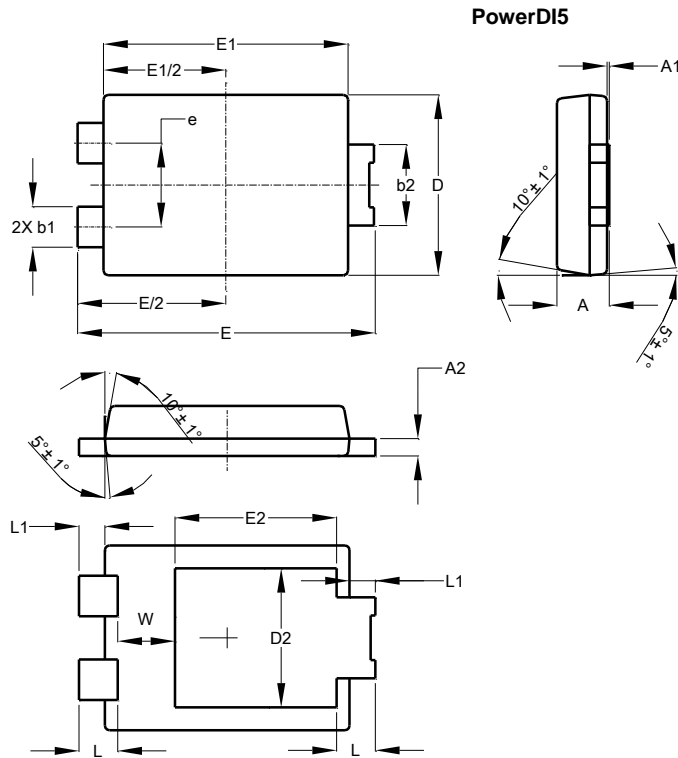


Figure 7 Transient Thermal Resistance

Package Outline Dimensions

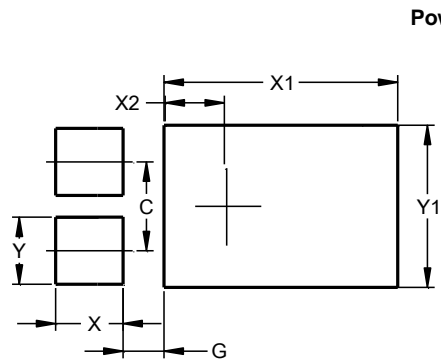
Please see <http://www.diodes.com/package-outlines.html> for the latest version.



PowerDI5			
Dim	Min	Max	Typ
A	1.05	1.15	1.10
A1	0.00	0.05	--
A2	0.33	0.43	0.381
b1	0.80	0.99	0.89
b2	1.70	1.88	1.78
D	3.90	4.05	3.966
D2	--	--	3.054
E	6.40	6.60	6.51
e	--	--	1.84
E1	5.30	5.45	5.37
E2	--	--	3.549
L	0.75	0.95	0.85
L1	0.50	0.65	0.57
W	1.10	1.41	1.255
All Dimensions in mm			

Suggested Pad Layout

Please see <http://www.diodes.com/package-outlines.html> for the latest version.



Dimensions	Value (in mm)
C	1.840
G	0.852
X	1.400
X1	4.860
X2	1.310
Y	1.390
Y1	3.360

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