



15A SBR SUPER BARRIER RECTIFIER PowerDI5

Product Summary

V _{RRM} (V)	I ₀ (A)	V _F (MAX) (V)	I _{R(MAX)} (mA)
30	15	0.49	0.3

Description

This Super Barrier Rectifier (SBR®) diode has been designed to meet the stringent requirements of Automotive Applications. It is ideally suited to use as :

- Polarity Protection Diode
- **Re-Circulating Diode**
- Switching Diode

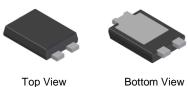
Features and Benefits

- Patented SBR technology provides a superior avalanche capability than Schottky diodes ensuring more rugged and reliable end applications.
- Reduced ultra-low forward voltage drop (V_F); better efficiency and cooler operation.
- Reduced high temperature reverse leakage; Increased reliability against thermal runaway failure in high temperature operation
- Lead-Free Finish; RoHS Compliant (Notes 1 & 2)
- Halogen and Antimony Free. "Green" Device (Note 3)
- Qualified to AEC-Q101 Standards for High Reliability
- PPAP Capable (Note 4)

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-020
- Terminals: Finish Matte Tin Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 @3
- Polarity: See Below
- Weight: 0.093 grams (Approximate)

PowerDI5



Top View

LEFT PIN	• N.o.	BOTTOMSIDE HEAT SINK
right pin	o	HEAT SINK

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

Ordering Information (Note 5)

Part Number	Case	Packaging
SBR15U30SP5Q-13	PowerDI5	5000/Tape & Reel

1. EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. All applicable RoHS exemptions applied. Notes:

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.

- 4. Automotive products are AEC-Q101 qualified and are PPAP capable. Refer to https://www.diodes.com/quality/product-compliance-definitions/.
- 5. For packaging details, go to our website at https://www.diodes.com/design/support/packaging/diodes-packaging/.

Marking Information



S15U30S = Product Type Marking Code D'1' = Manufacturers' Code Marking K = Factory Designator YYWW = Date Code Marking YY = Last Two Digits of Year (ex: 17 for 2017) WW = Week Code (01 to 53)

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Maximum Ratings (@T_A = +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 Working Peak Reverse Voltage DC Blocking Voltage	V _{RRM} Vrwm V _{RM}	30	V
RMS Reverse Voltage	V _{R(RMS)}	21	V
Average Rectified Output Current	lo	15	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I _{FSM}	280	A
Non-Repetitive Avalanche Energy (T _J = +25°C, I _{AS} = 14.5A, L = 8.5mH)	E _{AS}	1074	mJ
Repetitive Peak Avalanche Power (1µs, +25°C)	P _{ARM}	20000	W

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Ambient (Note 6)	R _{0JA}	26	°C/W
Operating Temperature Range	TJ	-55 to +150	°C
Storage Temperature Range	T _{STG}	-55 to +175	°C

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

			1	1	1	
Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition
Forward Voltage Drop (Per Leg) (Note 7)	VF	_	0.42	0.49	V	I _F = 15A, T _J = +25°C
		—	0.35	0.42		I _F = 15A, T _J = +125°C
		_	0.1	0.3	~^^	V _R = 30V, T _J = +25°C
Leakage Current (Note 7)	IR	—	9.5	30	mA	V _R = 30V, T _J = +125°C
Total Capacitance	CT	_	400	_	pF	V _R = 30V, f = 1MHz

Notes: 6. Polymide, 2oz. Copper 16mmx16mm minimum recommended pad layout per http://www.diodes.com/package-outlines.html. 7. Short duration pulse test used to minimize self-heating effect.



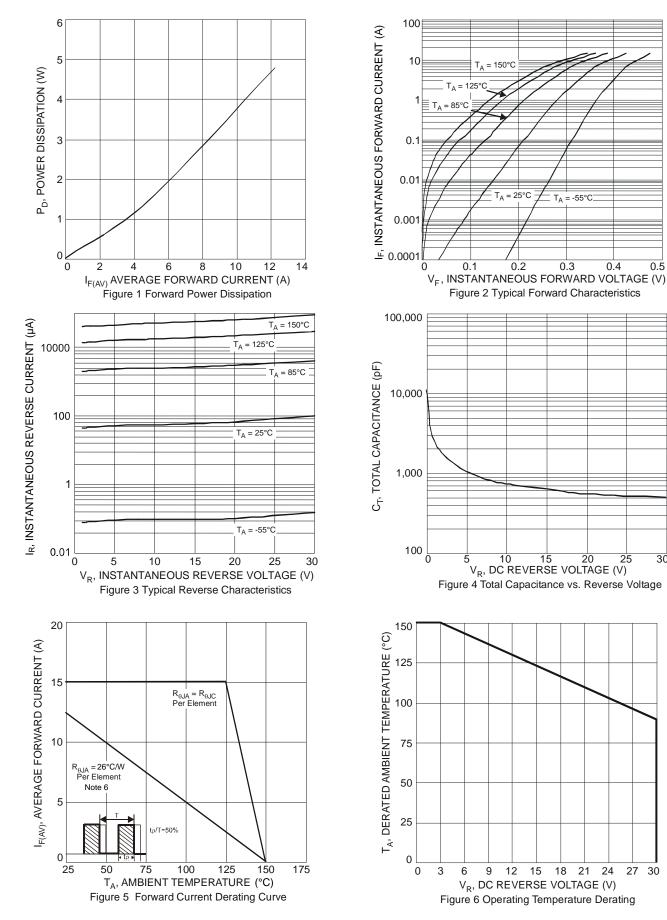
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0.4

25

30

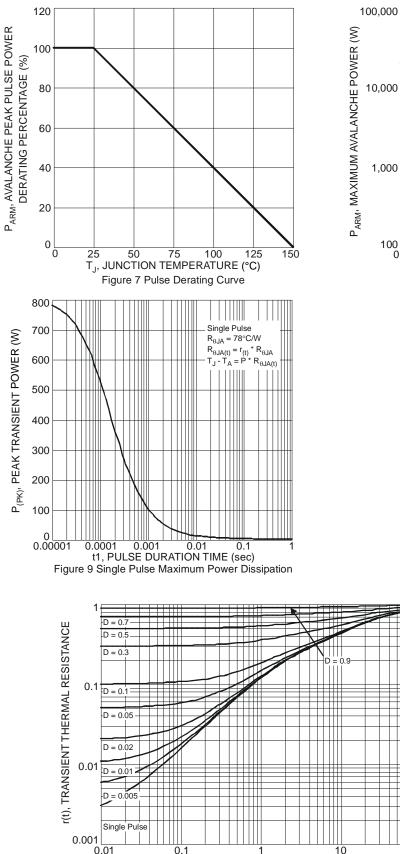
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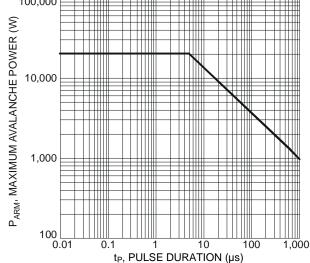
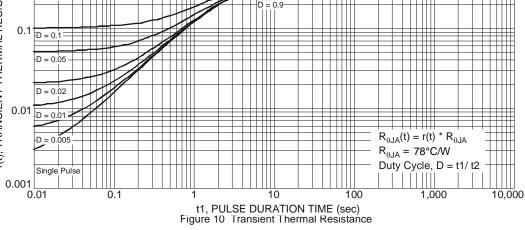


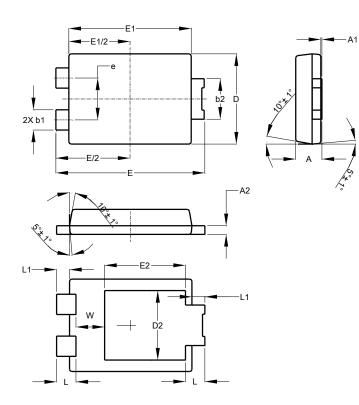
Figure 8 Maximum Avalanche Power Curve





Package Outline Dimensions

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

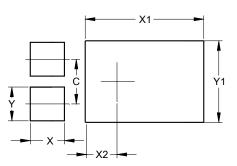


PowerDI5

PowerDI5					
Dim	Min	Max	Тур		
Α	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		
Е	6.40	6.60	6.51		
е		1	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
Х	1.400
X1	4.860
X2	0.852
Y	1.390
Y1	3.360

PowerDI5



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