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**SBRT15M50AP5**

**15A TrenchSBR  
TRENCH SUPER BARRIER RECTIFIER  
POWERDI<sup>®</sup>5**

## Product Summary

$V_{RRM}$ (V)	$I_O$ (A)	$V_{F(MAX)}$ (V) @+25°C	$I_{R(MAX)}$ (mA) @+25°C
50	15	0.54	0.15

## Description and Applications

Packaged in the compact thermally efficient POWERDI5 package, the Trench SBR SBRT15M50AP5 provides excellent low reverse leakage stability at high temperatures. It is ideal for use as a rectification, freewheeling or polarity protection diode in applications such as:

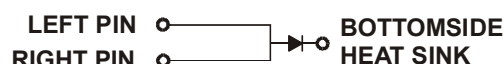
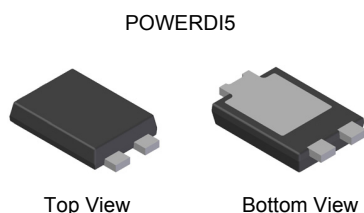
- >10W AC/DC Adaptors/Chargers
- DC/DC Converters

## Features and Benefits

- Excellent reverse leakage ( $I_R$ ) 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)**

## 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)



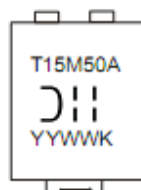
**Note:** Pins Left & Right must be electrically connected at the printed circuit board.

## Ordering Information (Note 4)

Part Number	Case	Packaging
SBRT15M50AP5-13	POWERDI5	5000/Tape & Reel
SBRT15M50AP5-13D (Note 5)	POWERDI5	5000/Tape & Reel
SBRT15M50AP5-7	POWERDI5	1500/Tape & Reel
SBRT15M50AP5-7D (Note 5)	POWERDI5	1500/Tape & Reel

- Notes:
- EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. All applicable RoHS exemptions applied.
  - 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.
  - Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
  - For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.
  - POWERDI5 available in 5K quantity on 13inch reel & 12mm tape, part number suffix "13D"; 1.5K quantity on 7inch reel also, part number suffix "7". Diodes also provides 12mm tape with 7inch reel, part number suffix "7D".

## Marking Information



T15M50A = Product Type Marking Code  
YYWW = Date Code Marking  
YY = Last Two Digits of Year (ex: 14 = 2014)  
WW = Week code (01 - 53)  
K = Factory Designator

## Maximum Ratings (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V <sub>RRM</sub>	50	V
Average Rectified Output Current	I <sub>O</sub>	15	A
Non-Repetitive Peak Forward Surge Current 8.3mS Single Half Sine-Wave Superimposed on Rated Load	I <sub>FSM</sub>	290	A

## Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Ambient (Note 6)	R <sub>θJA</sub>	18	°C/W
Typical Thermal Resistance Junction to Case (Note 6)	R <sub>θJC</sub>	2	°C/W
Typical Thermal Resistance Junction to Lead (Notes 6, 7)	R <sub>θJL</sub>	4	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

## Electrical Characteristics (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage Drop	V <sub>F</sub>	—	0.42	0.50	V	I <sub>F</sub> = 10A, T <sub>J</sub> = +25°C
		—	0.37	0.44		I <sub>F</sub> = 10A, T <sub>J</sub> = +125°C
		—	0.47	0.54		I <sub>F</sub> = 15A, T <sub>J</sub> = +25°C
		—	0.43	0.50		I <sub>F</sub> = 15A, T <sub>J</sub> = +125°C
Leakage Current (Note 8)	I <sub>R</sub>	—	0.1	0.15	mA	V <sub>R</sub> = 50V, T <sub>J</sub> = +25°C
		—	16	45		V <sub>R</sub> = 50V, T <sub>J</sub> = +125°C
Junction Capacitance	C <sub>J</sub>	—	440	—	pF	V <sub>R</sub> = 25V, T <sub>J</sub> = +25°C

Notes: 6. Device mounted on FR4 PCB with 1inch copper pad layout with AL substrate and additional HK1(37mm x 55mm x15mm).  
7. Junction to Lead (Cathode Terminal)  
8. Short duration pulse test used to minimize self-heating effect.

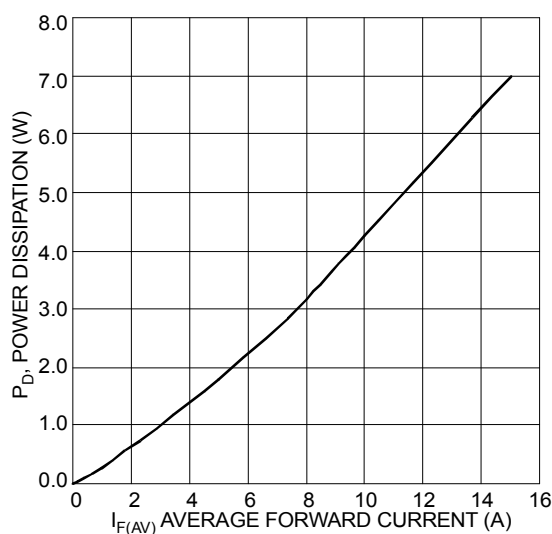


Figure 1 Forward Power Dissipation

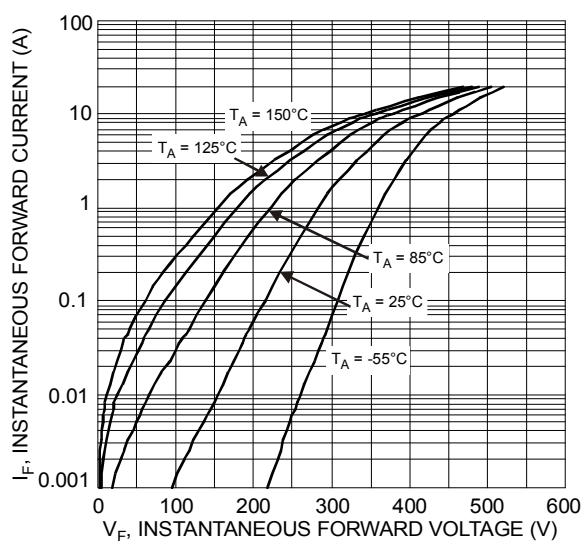


Figure 2 Typical Forward Characteristics



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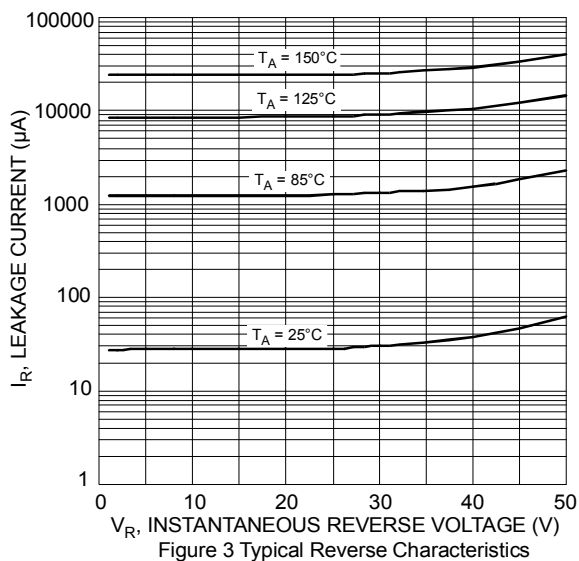


Figure 3 Typical Reverse Characteristics

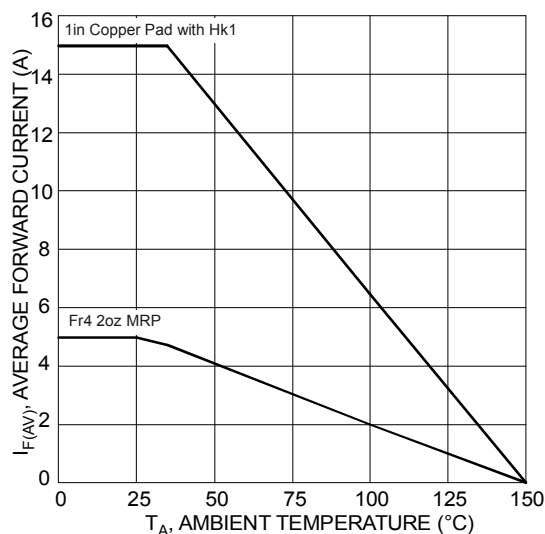


Figure 4 Forward Current Derating Curve

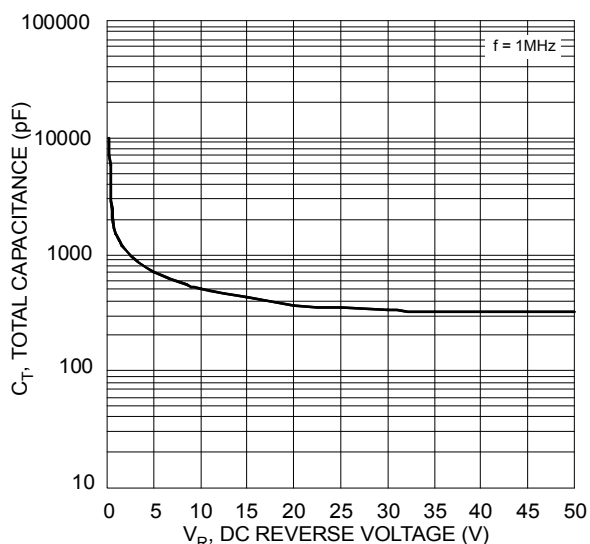


Figure 5 Total Capacitance vs. Reverse Voltage

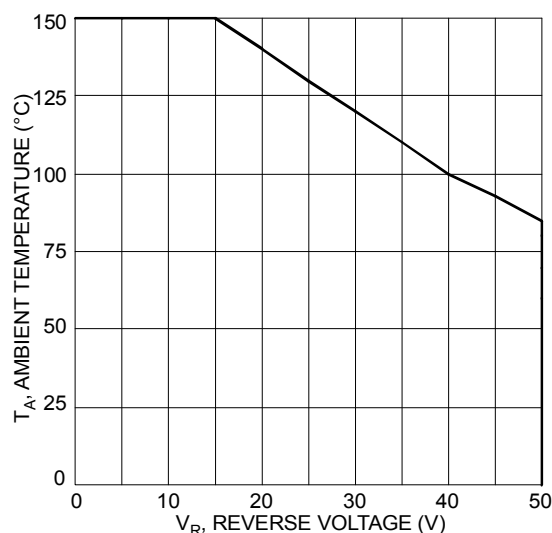
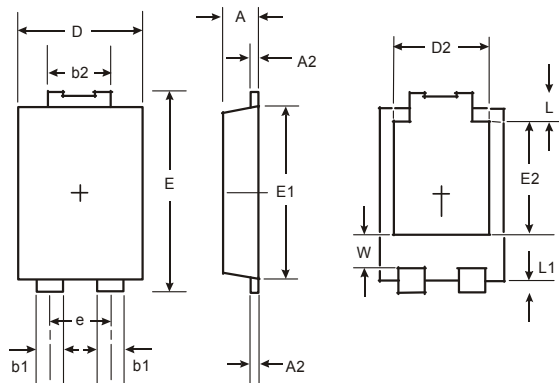


Figure 6 Operating Temperature Derating

## Package Outline Dimensions

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



POWERDI <sup>®</sup> 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		

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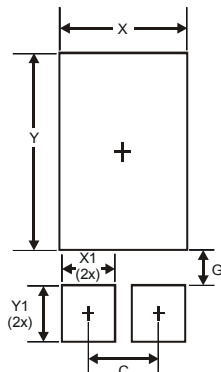
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June 2014

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## 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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