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**SBRT15M50AP5**

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

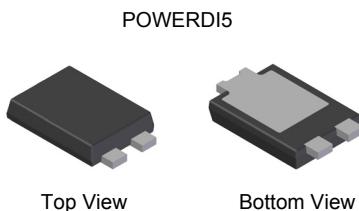
## Product Summary

$V_{RRM}$ (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

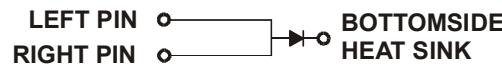


## Features and Benefits

- 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.**

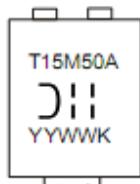
## Ordering Information (Note 4)

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:

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. 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

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

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage			
Working Peak Reverse Voltage	$V_{RRM}$	50	V
DC Blocking Voltage			
Average Rectified Output Current	$I_o$	15	A
Non-Repetitive Peak Forward Surge Current 8.3mS Single Half Sine-Wave Superimposed on Rated Load	$I_{FSM}$	290	A

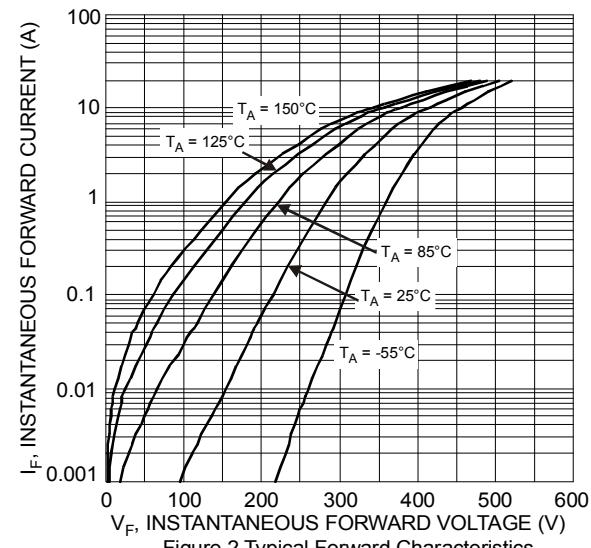
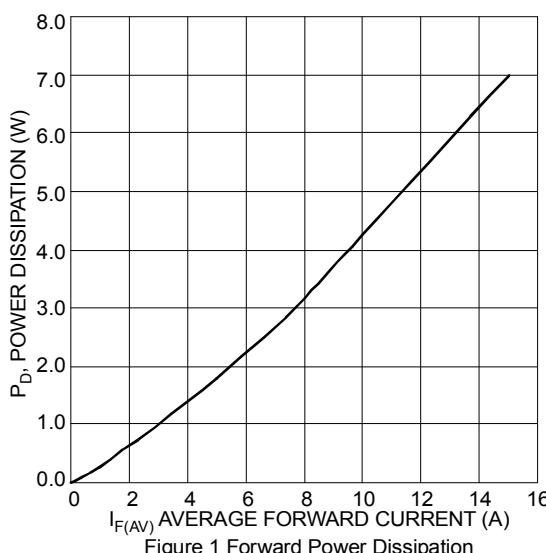
### Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Ambient (Note 6)	$R_{\theta JA}$	18	$^\circ\text{C}/\text{W}$
Typical Thermal Resistance Junction to Case (Note 6)	$R_{\theta JC}$	2	$^\circ\text{C}/\text{W}$
Typical Thermal Resistance Junction to Lead (Notes 6, 7)	$R_{\theta JL}$	4	$^\circ\text{C}/\text{W}$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55 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	0.50	V	$I_F = 10\text{A}, T_J = +25^\circ\text{C}$
		—	0.37	0.44		$I_F = 10\text{A}, T_J = +125^\circ\text{C}$
		—	0.47	0.54		$I_F = 15\text{A}, T_J = +25^\circ\text{C}$
		—	0.43	0.50		$I_F = 15\text{A}, T_J = +125^\circ\text{C}$
Leakage Current (Note 8)	$I_R$	—	0.1	0.15	mA	$V_R = 50\text{V}, T_J = +25^\circ\text{C}$
Junction Capacitance	$C_J$	—	16	45	pF	$V_R = 50\text{V}, T_J = +125^\circ\text{C}$
		—	440	—		$V_R = 25\text{V}, T_J = +25^\circ\text{C}$

Notes:  
6. Device mounted on FR4 PCB with 1inch copper pad layout with AL substrate and additional HK1(37mm x 55mm x 15mm).  
7. Junction to Lead (Cathode Terminal)  
8. Short duration pulse test used to minimize self-heating effect.





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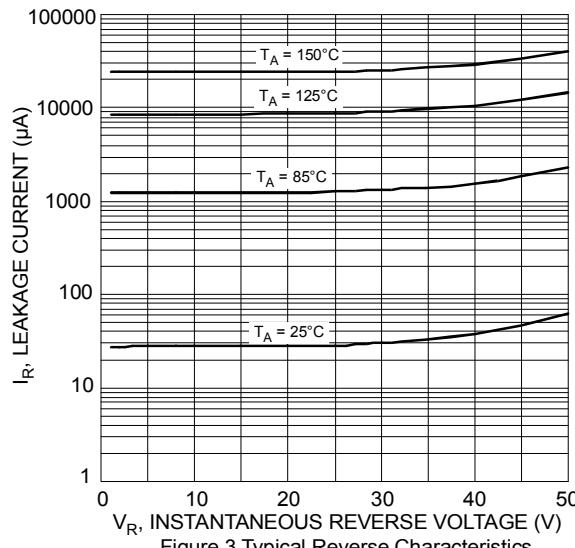


Figure 3 Typical Reverse Characteristics

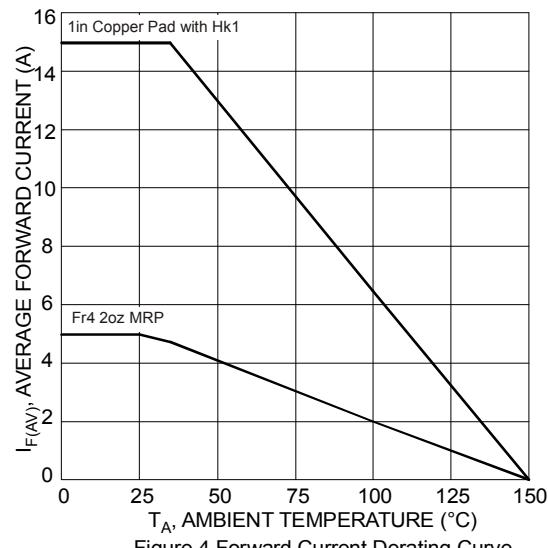


Figure 4 Forward Current Derating Curve

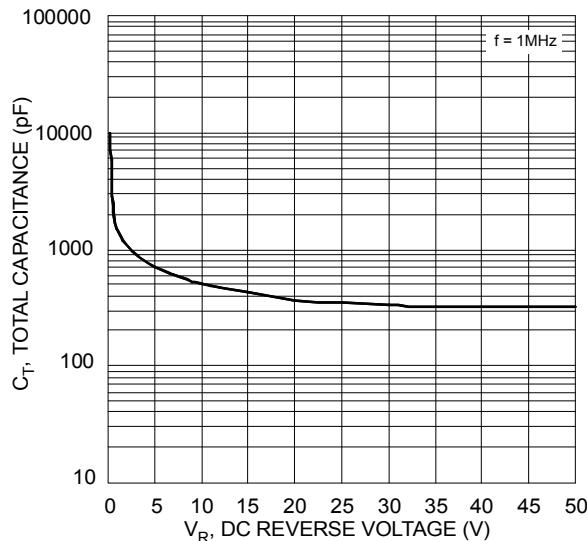


Figure 5 Total Capacitance vs. Reverse Voltage

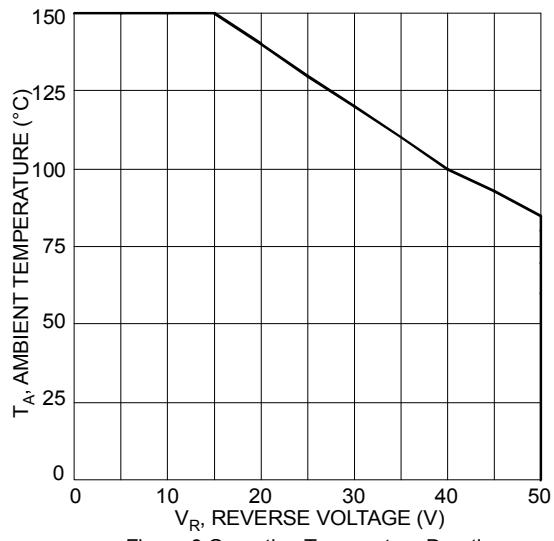
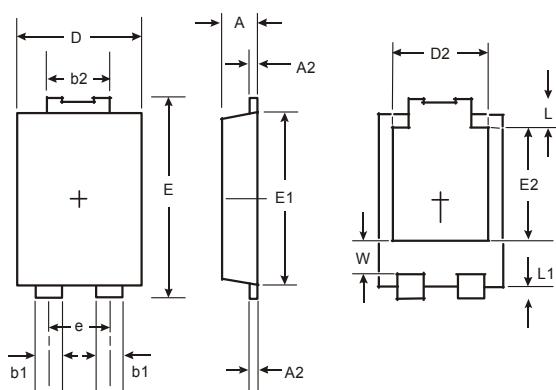


Figure 6 Operating Temperature Derating

## Package Outline Dimensions

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



POWERDI <sup>®</sup> 5		
Dim	Min	Max
<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

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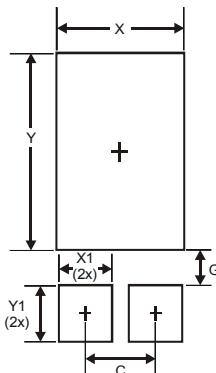
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## **Suggested Pad Layout**

Please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for the latest version.



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

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