

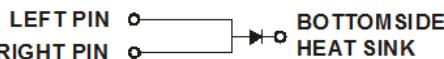
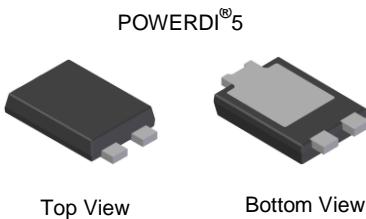
## Product Summary (@ $T_A = +25^\circ\text{C}$ )

$V_{\text{RRM}} (\text{V})$	$I_{\text{o}} (\text{A})$	$V_{\text{F}(\text{MAX})} (\text{V})$	$I_{\text{R}(\text{MAX})} (\text{mA})$
50	15	0.47	0.5

## Description and Applications

Packaged in the compact, thermally efficient POWERDI®5, the TrenchSBR SBRT15U50SP5 provides ultra-low forward voltage drop ( $V_F$ ) and 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 Adapters/Chargers
- DC-DC Converters



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

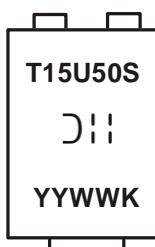
## Ordering Information (Note 4)

Part Number	Case	Packaging
SBRT15U50SP5-13	POWERDI®5	5,000/Tape & Reel
SBRT15U50SP5-13D (Note 5)	POWERDI®5	5,000/Tape & Reel
SBRT15U50SP5-7	POWERDI®5	1,500/Tape & Reel
SBRT15U50SP5-7D (Note 5)	POWERDI®5	1,500/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. POWERDI®5 available in 5K quantity on 13-inch reel & 12mm tape, part number suffix "13D"; 1.5K quantity on 7-inch reel also, part number suffix "7". Diodes also provides 12mm tape with 7-inch reel, part number suffix "7D".

## Marking Information



T15U50S = Product Type Marking Code  
 YYWW = Date Code Marking  
 YY = Last Two Digits of Year (ex: 14 = 2014)  
 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	$V_{RRM}$	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**

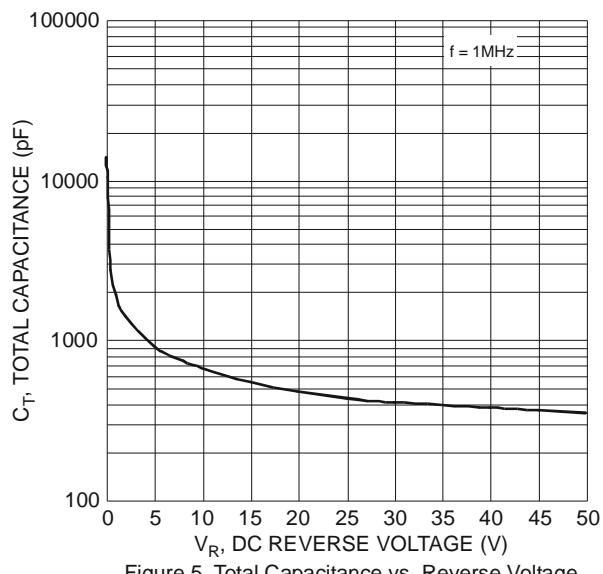
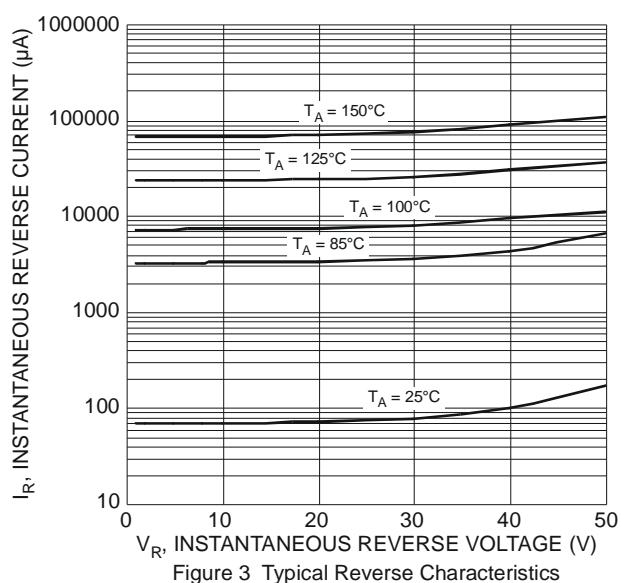
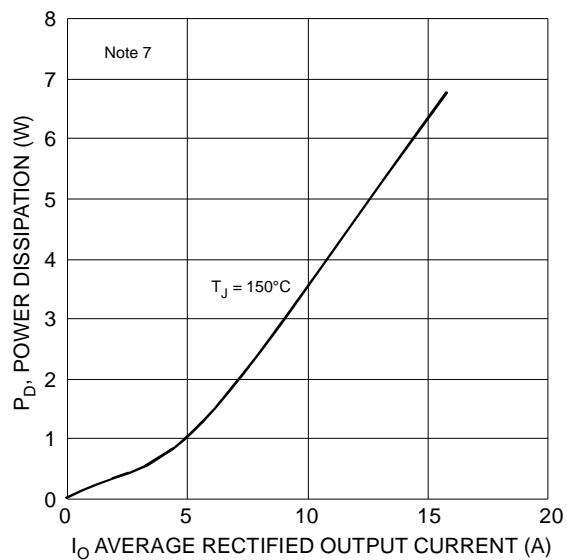
Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Ambient (Note 6)	$R_{\theta JA}$	101	$^\circ\text{C/W}$
Typical Thermal Resistance Junction to Ambient (Note 7)	$R_{\theta JA}$	20	$^\circ\text{C/W}$
Typical Thermal Resistance Junction to Lead (Notes 7 & 8)	$R_{\theta JL}$	4	$^\circ\text{C/W}$
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	$V_F$	—	—	0.44	V	$I_F = 10\text{A}, T_J = +25^\circ\text{C}$
		—	0.310	—		$I_F = 10\text{A}, T_J = +125^\circ\text{C}$
		—	0.410	0.47		$I_F = 15\text{A}, T_J = +25^\circ\text{C}$
		—	0.365	—		$I_F = 15\text{A}, T_J = +125^\circ\text{C}$
Leakage Current (Note 9)	$I_R$	—	0.08	0.3	mA	$V_R = 30\text{V}, T_J = +25^\circ\text{C}$
		—	0.17	0.5		$V_R = 50\text{V}, T_J = +25^\circ\text{C}$
		—	3.5	—		$V_R = 30\text{V}, T_J = +85^\circ\text{C}$
		—	35	105		$V_R = 50\text{V}, T_J = +125^\circ\text{C}$
Junction Capacitance	$C_J$	—	440	—	pF	$V_R = 25\text{V}, T_J = +25^\circ\text{C}$

Notes:

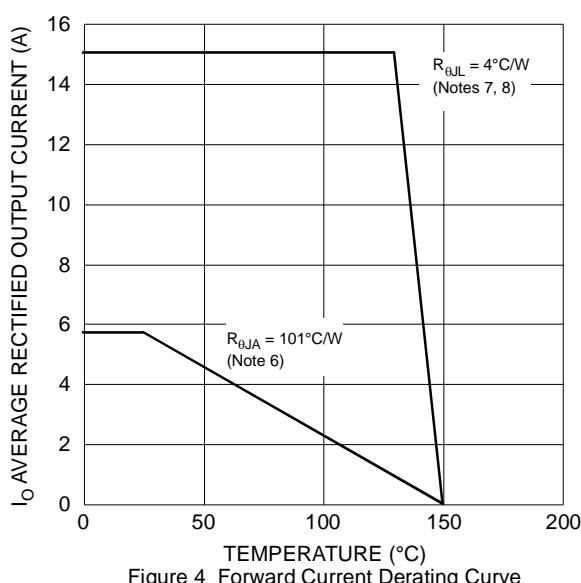
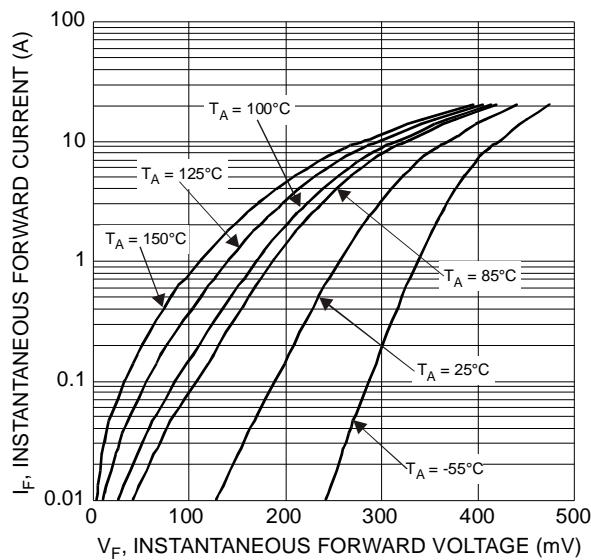
6. FR-4 PCB, 2oz. Copper, minimum recommended pad layout per <http://www.diodes.com>.
7. Aluminum substrate PCB with 30mm x 30mm, full of 2oz. Copper pad and additional heatsink 42mm x 20mm x 12mm.
8. Junction to Lead (Cathode Terminal)
9. Short duration pulse test used to minimize self-heating effect.



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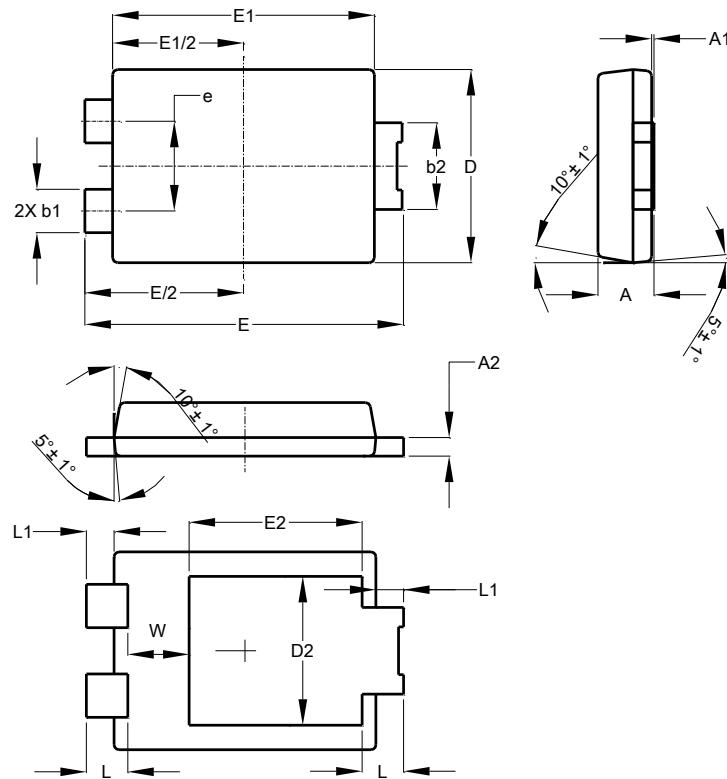
**SBRT15U50SP5**

Document number: DS36244 Rev. 6 - 2



## Package Outline Dimensions

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

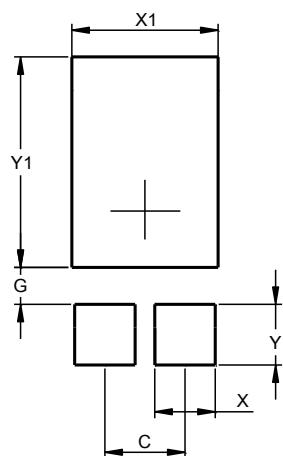


POWERDI <sup>®</sup> 5			
Dim	Min	Max	Typ
<b>A</b>	1.05	1.15	1.10
<b>A1</b>	0.00	0.05	--
<b>A2</b>	0.33	0.43	0.381
<b>b1</b>	0.80	0.99	0.89
<b>b2</b>	1.70	1.88	1.78
<b>D</b>	3.90	4.05	3.966
<b>D2</b>	--	--	3.054
<b>E</b>	6.40	6.60	6.504
<b>e</b>	--	--	1.84
<b>E1</b>	5.30	5.45	5.37
<b>E2</b>	--	--	3.549
<b>L</b>	0.75	0.95	0.85
<b>L1</b>	0.50	0.65	0.57
<b>W</b>	1.10	1.41	1.255

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)
<b>C</b>	1.840
<b>G</b>	0.852
<b>X</b>	1.390
<b>X1</b>	3.360
<b>Y</b>	1.400
<b>Y1</b>	4.860

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