



**THE DATASHEET OF
SBRT15M50SP5-13**



Product Summary (@ T_A = +25°C)

V _{RRM} (V)	I _O (A)	V _{F(MAX)} (V) @+25°C	I _{R(MAX)} (mA) @+25°C
50	15	0.52	0.15

Description and Applications

Packaged in the compact thermally efficient POWERDI5 package, the TrenchSBR SBRT15M50SP5 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:

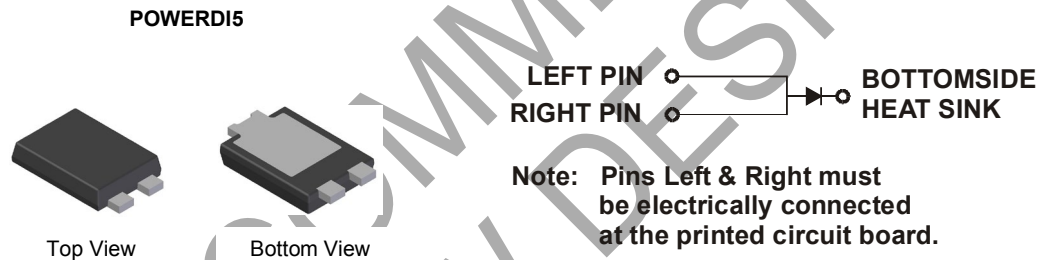
- >10W AC/DC Adaptors/Chargers
- DC/DC Converters

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)



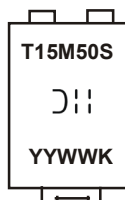
Ordering Information (Notes 4 & 5)

Part Number	Case	Packaging
SBRT15M50SP5-13	POWERDI5	5,000/Tape & Reel
SBRT15M50SP5-13D (Note 5)	POWERDI5	5,000/Tape & Reel
SBRT15M50SP5-7	POWERDI5	1,500/Tape & Reel
SBRT15M50SP5-7D (Note 5)	POWERDI5	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 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 Incorporated also provides 12mm tape with 7inch reel, part number suffix "7D".

Marking Information

POWERDI5



T15M50S = Product Type Marking Code
 YYWW = Date Code Marking
 YY = Last Two Digits of Year (ex: 13 = 2013)
 WW = Week Code (01 - 53)
 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 DC Blocking Voltage	V_{RRM}	50	V
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)	$R_{\theta JA}$	87	$^\circ\text{C/W}$
Typical Thermal Resistance Junction to Ambient (Note 7)	$R_{\theta JA}$	17	$^\circ\text{C/W}$
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	—	0.42	0.48	V	$I_F = 10\text{A}, T_J = +25^\circ\text{C}$
		—	0.36	0.43		$I_F = 10\text{A}, T_J = +125^\circ\text{C}$
		—	0.46	0.52		$I_F = 15\text{A}, T_J = +25^\circ\text{C}$
		—	0.42	0.49		$I_F = 15\text{A}, T_J = +125^\circ\text{C}$
Leakage Current (Note 9)	I_R	—	0.08	0.15	mA	$V_R = 50\text{V}, T_J = +25^\circ\text{C}$
		—	8	50		$V_R = 50\text{V}, T_J = +125^\circ\text{C}$
Junction Capacitance	C_J	—	400	—	pF	$V_R = 25\text{V}, T_J = +25^\circ\text{C}$

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

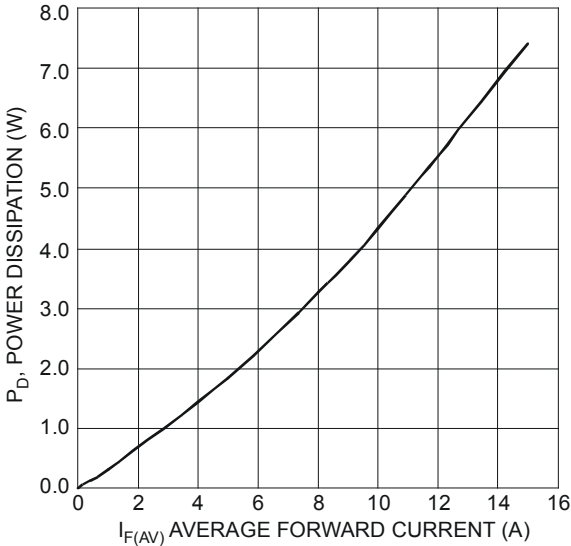


Figure 1 Forward Power Dissipation

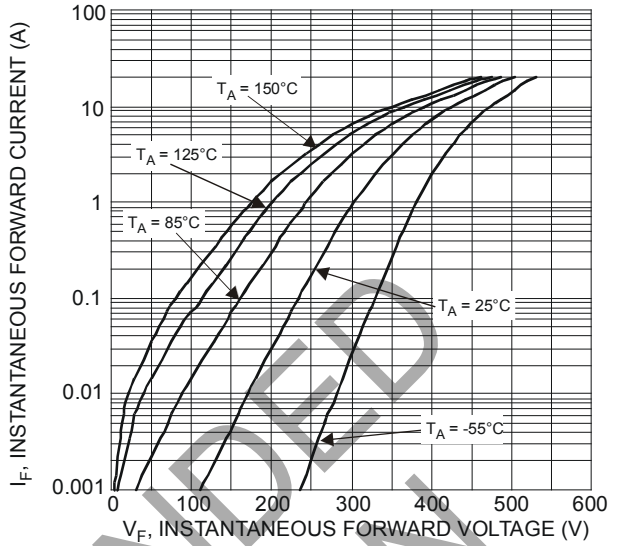


Figure 2 Typical Forward Characteristics

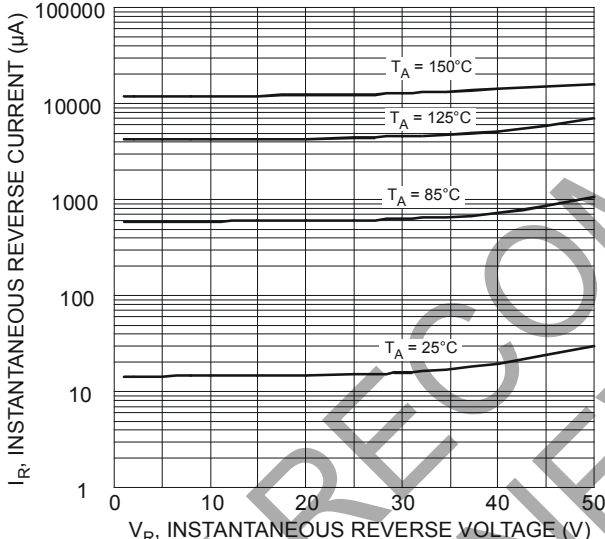


Figure 3 Typical Reverse Characteristics

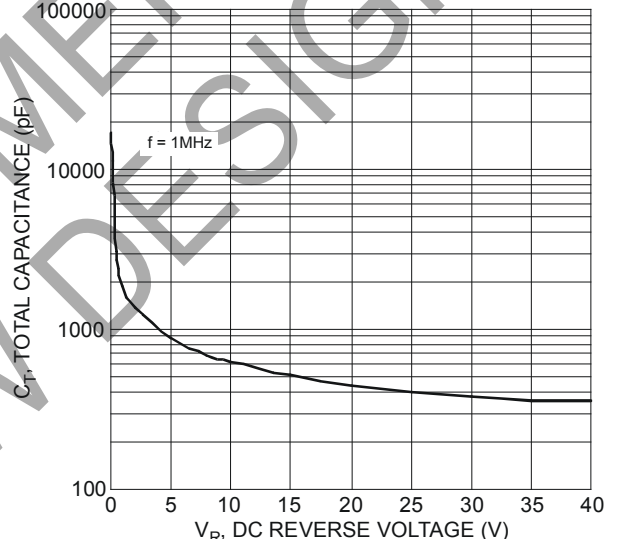


Figure 4 Total Capacitance vs. Reverse Voltage

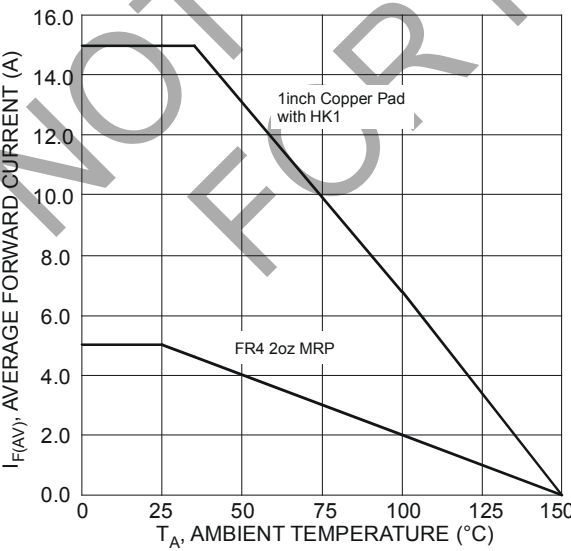
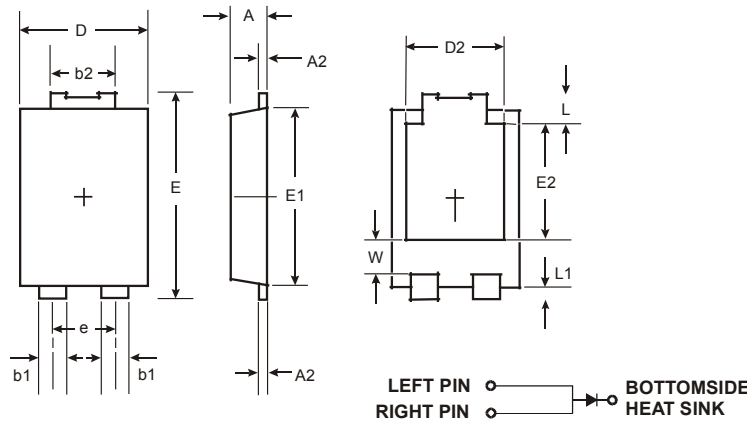


Figure 5 Forward Current Derating Curve

Package Outline Dimensions

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

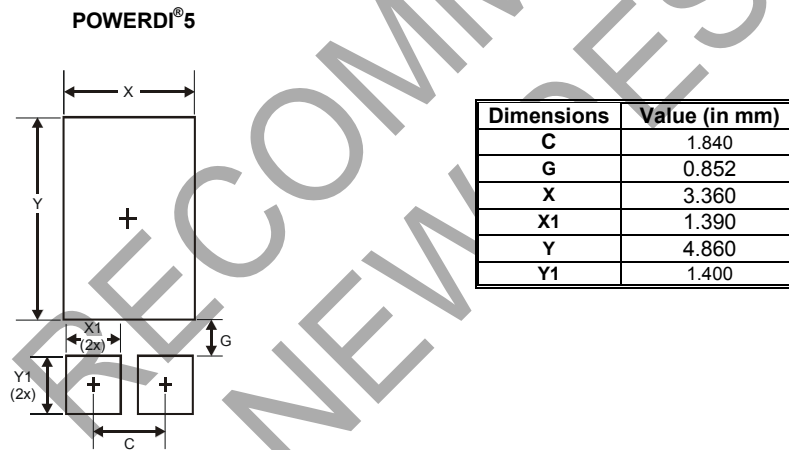


POWERDI [®] 5		
Dim	Min	Max
A	1.05	1.15
A2	0.33	0.43
b1	0.80	0.99
b2	1.70	1.88
D	3.90	4.05
D2	3.054 Typ	
E	6.40	6.60
e	1.84 Typ	
E1	5.30	5.45
E2	3.549 Typ	
L	0.75	0.95
L1	0.50	0.65
W	1.10	1.41
All Dimensions in mm		

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

Suggested Pad Layout

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



NOT FOR NEW DESIGN

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