

## 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 PowerDI<sup>®</sup>5 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:

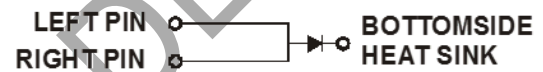
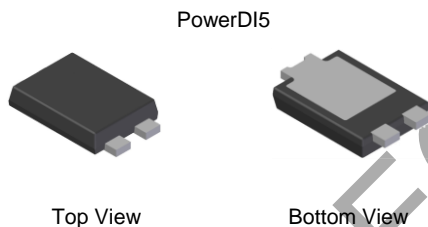
- >10W AC/DC Adaptors/Chargers
- DC/DC Converters

## 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
- Patented Super Barrier Rectifier Technology (SBR<sup>®</sup>)
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please [contact us](mailto:contact@diodes.com) or your local Diodes representative. <https://www.diodes.com/quality/product-definitions/>**

## 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)



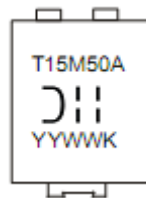
**Note: Pins Left & Right must be electrically connected at the printed circuit board.**

## 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) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
  2. See <https://www.diodes.com/quality/lead-free/> 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 <https://www.diodes.com/design/support/packaging/diodes-packaging/>.
  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

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

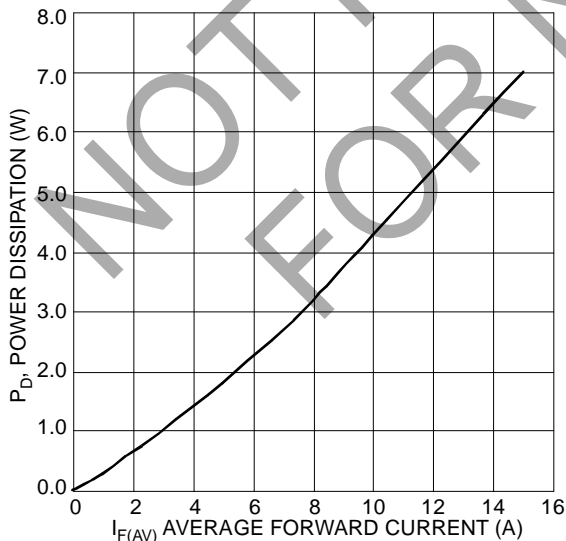


Figure 1 Forward Power Dissipation

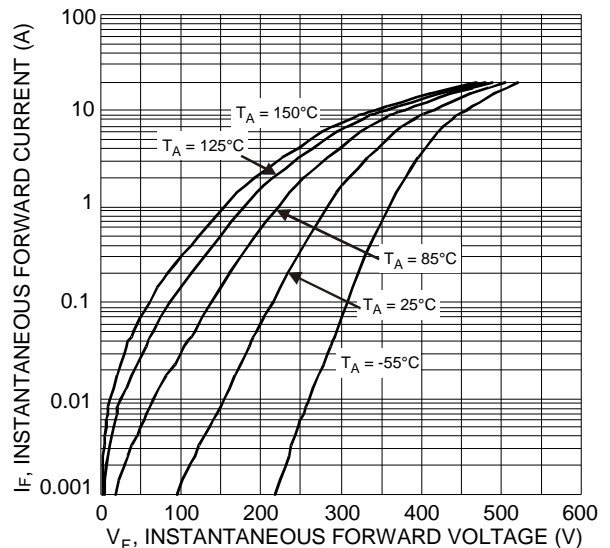
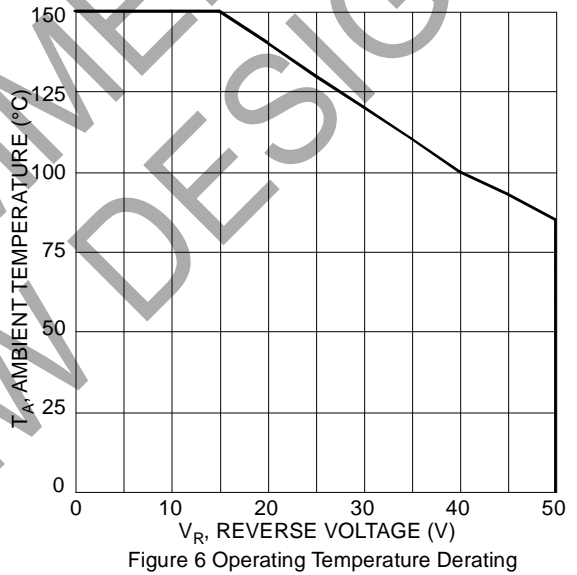
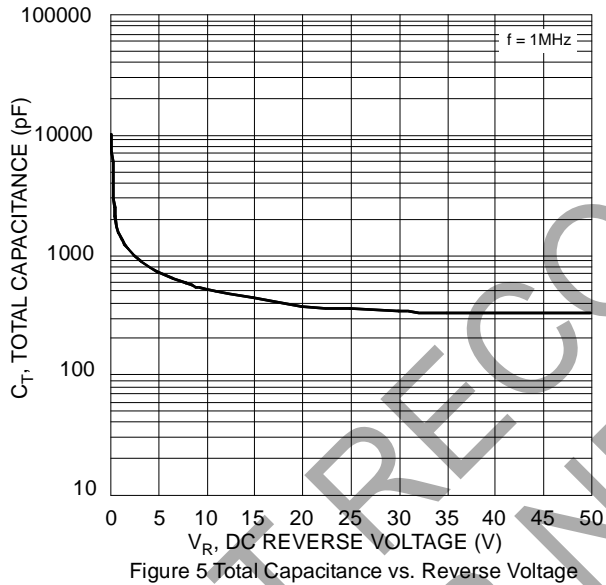
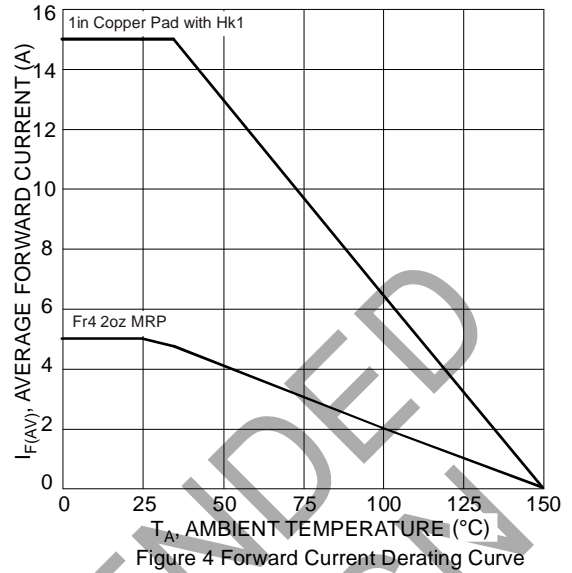
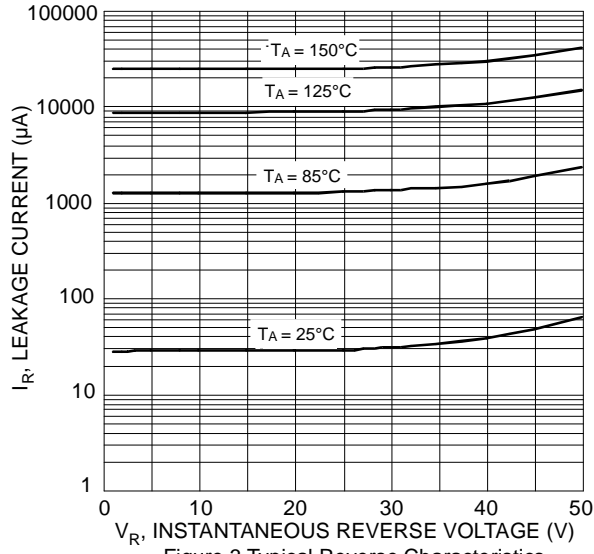


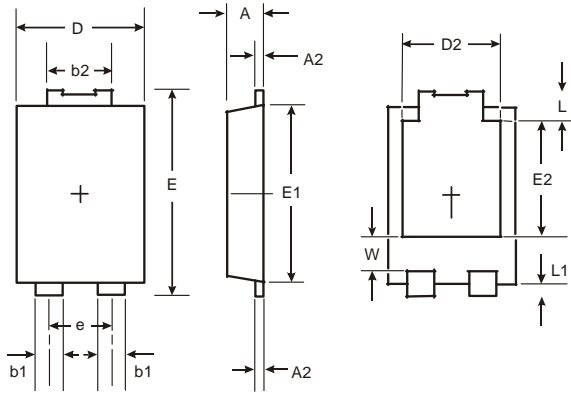
Figure 2 Typical Forward Characteristics



**Package Outline Dimensions**

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

**PowerDI5**

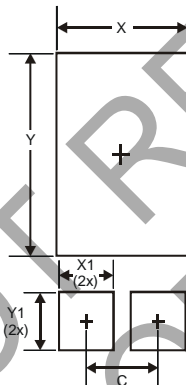


PowerDI5		
Dim	Min	Max
A	1.05	1.15
A2	0.33	0.43
b1	0.80	0.99
b2	1.70	1.88
D	3.90	4.05
D2	3.054 Typ	
E	6.40	6.60
e	1.84 Typ	
E1	5.30	5.45
E2	3.549 Typ	
L	0.75	0.95
L1	0.50	0.65
W	1.10	1.41
All Dimensions in mm		

**Suggested Pad Layout**

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

**PowerDI5**



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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