

#### NOT RECOMMENDED FOR NEW DESIGN -NO ALTERNATE PART



## SBRT15M50AP5

#### 15A TrenchSBR TRENCH SUPER BARRIER RECTIFIER PowerDI5

### **Product Summary**

V <sub>RRM</sub> (V)	Io (A)	V <sub>F(MAX)</sub> (V) @+25°C	I <sub>R(MAX)</sub> (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<sub>R</sub>) 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 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)



Top View

**Bottom View** 



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. Hallogen- 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 https://www.diodes.com/design/support/packaging/diodes-packaging/.
  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".
- 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** (@TA = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	Vrrm	50	V
Average Rectified Output Current	lo	15	A
Non-Repetitive Peak Forward Surge Current 8.3mS Single Half Sine-Wave Superimposed on Rated Load	IFSM	290	А

## **Thermal Characteristics**

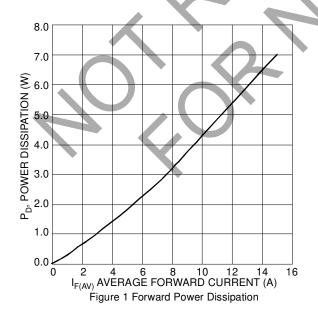
Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Ambient (Note 6)	$R_{ heta JA}$	18	°C/W
Typical Thermal Resistance Junction to Case (Note 6)	Rejc	2	°C/W
Typical Thermal Resistance Junction to Lead (Notes 6, 7)	$R_{ heta JL}$	4	°C/W
Operating and Storage Temperature Range	$T_{J}, T_{STG}$	-55 to +150	ŷ

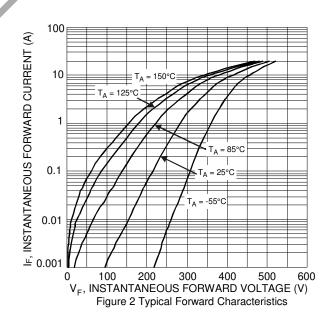
## Electrical Characteristics (@TA = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition
Forward Voltage Drop	VF		0.42 0.37 0.47 0.43	0.50 0.44 0.54 0.50	v	$I_F = 10A$ , $T_J = +25^{\circ}C$ $I_F = 10A$ , $T_J = +125^{\circ}C$ $I_F = 15A$ , $T_J = +25^{\circ}C$ $I_F = 15A$ , $T_J = +125^{\circ}C$
Leakage Current (Note 8)	lR		0.1 16	0.15 45	mA	$V_R = 50V$ , $T_J = +25$ °C $V_R = 50V$ , $T_J = +125$ °C
Junction Capacitance	Cl	)	440	_	pF	$V_R = 25V$ , $T_J = +25^{\circ}C$

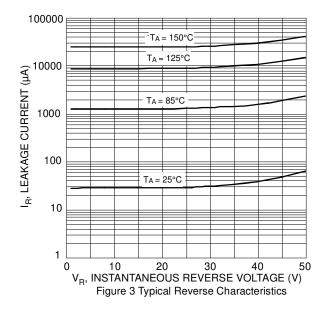
Notes:

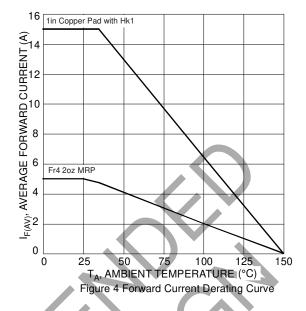
- 6. Device mounted on FR4 PCB with 1inch copper pad layout with AL substrate and additional HK1(37mm x 55mm x15mm).
- Junction to Lead (Cathode Terminal)
  Short duration pulse test used to minimize self-heating effect

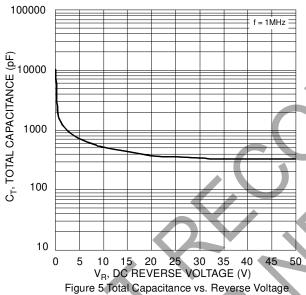


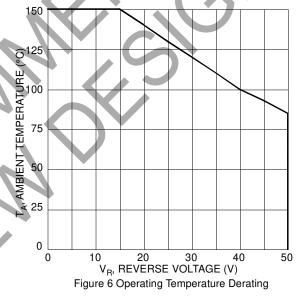










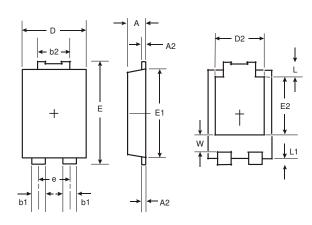




## **Package Outline Dimensions**

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

#### PowerDI5

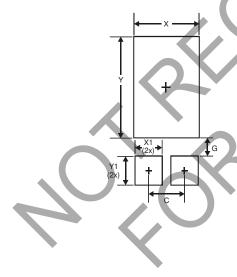


PowerDI5				
Dim	Min	Max		
Α	1.05	1.15		
A2	0.33	0.43		
b1	0.80	0.99		
b2	1.70	1.88		
D	3.90	4.05		
D2	3.054 Typ			
Е	6.40	6.60		
е	1.84 Typ			
E1 1	5.30	5.45		
E2	3.549 Typ			
L	0.75	0.95		
L1	0.50	0.65		
W	1.10	1.41		
All Dimensions in mm				

# **Suggested Pad Layout**

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

### PowerDI5



Dimensions	Value (in mm)
С	1.840
G	0.852
Х	3.360
X1	1.390
Υ	4.860
Y1	1 400



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