

## Product Summary

$V_{RRM}$ (V)	$I_o$ (A)	$V_F$ Max (V) @ +25°C	$I_R$ Max (mA) @ +25°C
100	15	0.7	0.20

## Description

Packaged in the compact thermally efficient PowerDI®5 package, the SBRT15U100SP5 provides very low  $V_F$  and provides excellent reverse leakage stability at high temperatures.

## Applications

- Rectification Diode
- Freewheeling Diode
- Polarity Protection Diode

## Features and Benefits

- Ultra Low Forward Voltage Drop ( $V_F$ ) Helps – Minimizes Power Losses
- Reduced High Temperature Reverse Leakage; Increased Reliability Against Thermal Runaway Failure in High Temperature Operation
- Patented Trench Super Barrier Rectifier SBR® Technology
- 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)**
- **Qualified to AEC-Q101 Standards for High Reliability**

## 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)

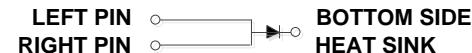
PowerDI5



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
SBRT15U100SP5-13	PowerDI5	5,000/Tape & Reel
SBRT15U100SP5-13D (Note 5)	PowerDI5	5,000/Tape & Reel
SBRT15U100SP5-7	PowerDI5	1,500/Tape & Reel
SBRT15U100SP5-7D (Note 5)	PowerDI5	1,500/Tape & Reel

Notes:

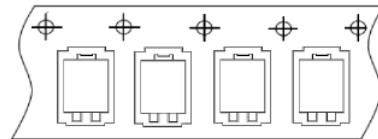
1. EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. All applicable RoHS exemptions applied.
2. See [http://www.diodes.com/quality/lead\\_free.html](http://www.diodes.com/quality/lead_free.html) for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "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 <https://www.diodes.com/design/support/packaging/diodes-packaging/>.
5. PowerDI5 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 Incorporated also provides 12mm tape with 7-inch reel, part number suffix "7D".

## Marking Information

PowerDI5



T15U100S = Product Type Marking Code  
 JII = Manufacturer's Code Marking  
 YYWW = Date Code Marking  
 YY = Last Two Digits of Year (ex: 17 = 2017)  
 WW = Week Code (01 to 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	$V_{RRM}$	100	V
DC Blocking Voltage			
Average Rectified Output Current	$I_O$	15	A
Non-Repetitive Peak Forward Surge Current 8.3mS	$I_{FSM}$	250	A

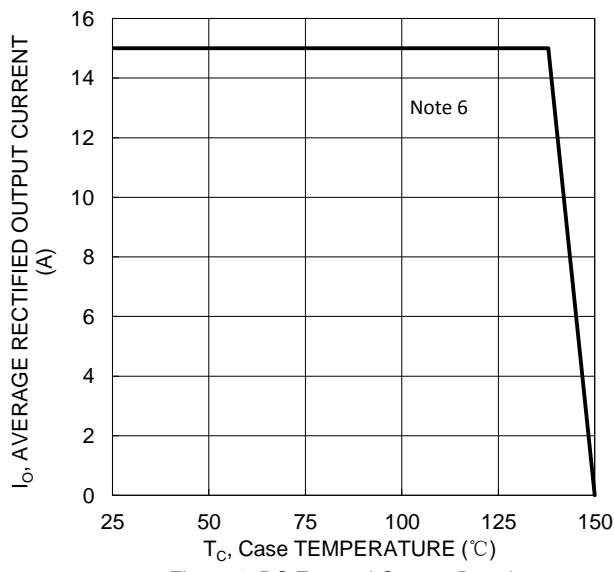
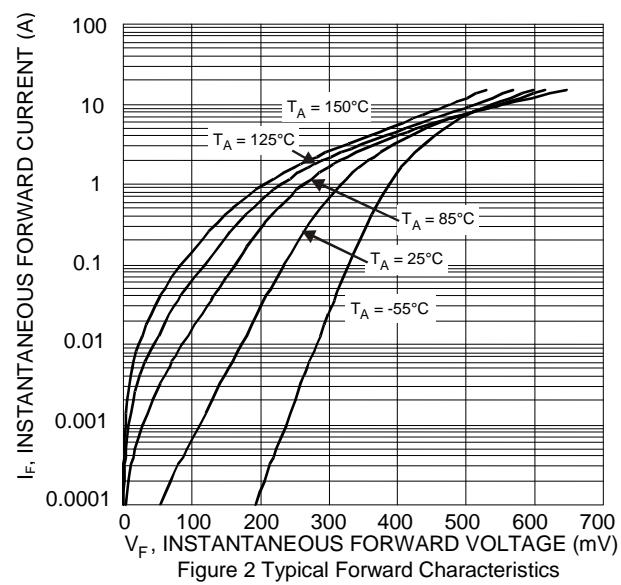
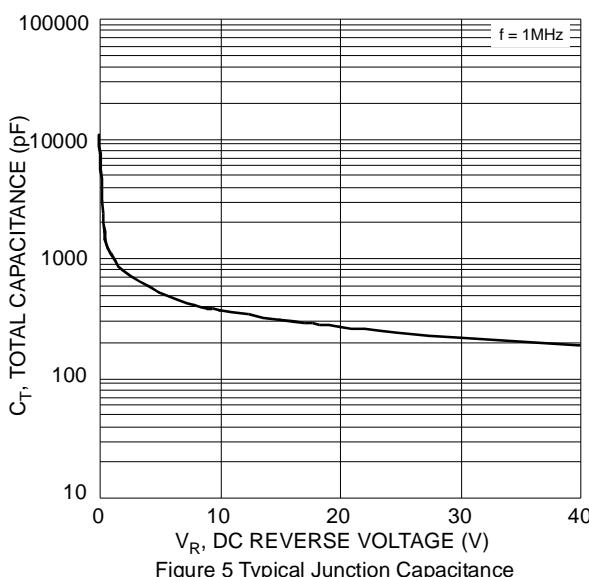
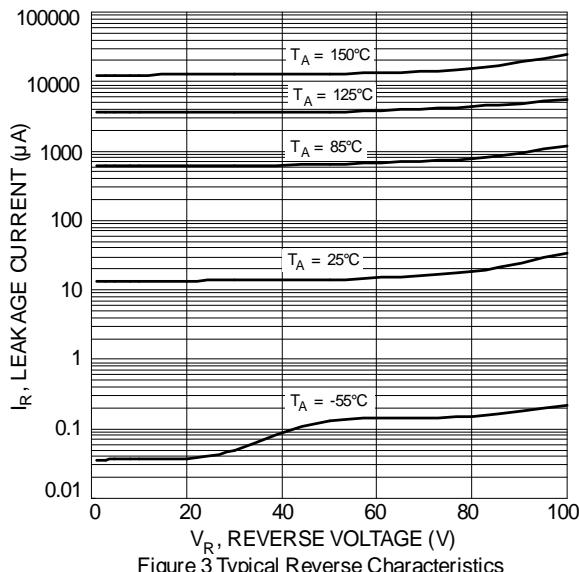
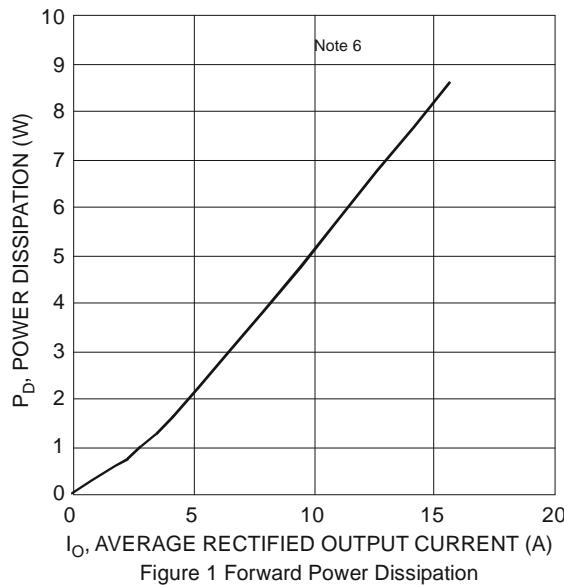
## Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Ambient (Note 6)	$R_{\theta JA}$	15	$^\circ\text{C/W}$
Typical Thermal Resistance Junction to Case (Note 6)	$R_{\theta JC}$	1	$^\circ\text{C/W}$
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	$I_F = 5\text{A}, T_J = +25^\circ\text{C}$
		—	0.59	0.65		$I_F = 12\text{A}, T_J = +25^\circ\text{C}$
		—	0.64	0.70		$I_F = 15\text{A}, T_J = +25^\circ\text{C}$
		—	0.56	0.64		$I_F = 15\text{A}, T_J = +125^\circ\text{C}$
Leakage Current (Note 7)	$I_R$	—	40	200	$\mu\text{A}$	$V_R = 100\text{V}, T_J = +25^\circ\text{C}$
		—	—	30	$\text{mA}$	$V_R = 100\text{V}, T_J = +125^\circ\text{C}$

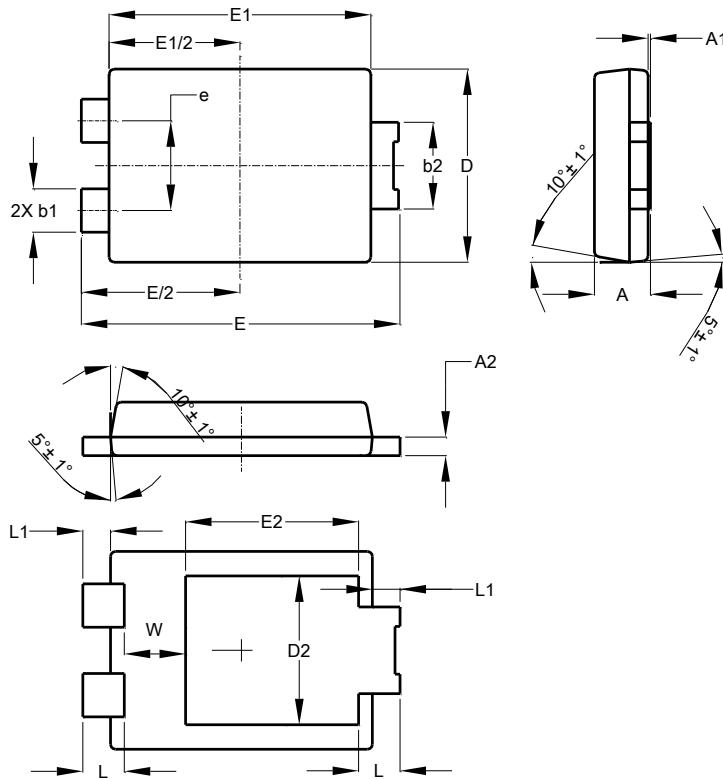
Notes: 6. Device with additional heatsink, (copper pad on aluminum substrate 30mm\*30mm + Aluminum heatsink 50mm\*50mm\*22mm).  
 7. Short duration pulse test used to minimize self-heating effect.



## Package Outline Dimensions

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

**PowerDI5**



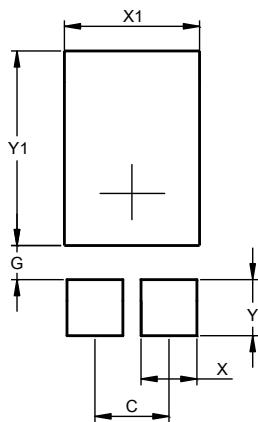
PowerDI5			
Dim	Min	Max	Typ
<b>A</b>	1.05	1.15	1.10
<b>A1</b>	0.00	0.05	--
<b>A2</b>	0.33	0.43	0.381
<b>b1</b>	0.80	0.99	0.89
<b>b2</b>	1.70	1.88	1.78
<b>D</b>	3.90	4.05	3.966
<b>D2</b>	--	--	3.054
<b>E</b>	6.40	6.60	6.504
<b>e</b>	--	--	1.84
<b>E1</b>	5.30	5.45	5.37
<b>E2</b>	--	--	3.549
<b>L</b>	0.75	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 <http://www.diodes.com/package-outlines.html> for the latest version.

**PowerDI5**



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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