

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

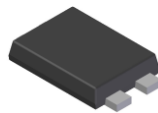
Features and Benefits

- 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**

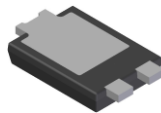
Mechanical Data

- 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)

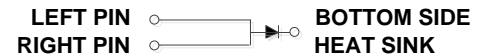
PowerDI5



Top View



Bottom View



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

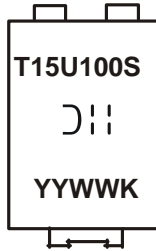
Ordering Information (Note 4)


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

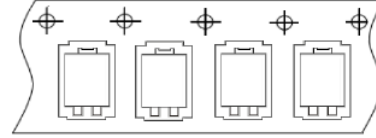
- Notes:
1. EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. All applicable RoHS exemptions applied.
 2. See http://www.diodes.com/quality/lead_free.html for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
 3. Halogen- and 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
 = 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 DC Blocking Voltage	V_{RRM}	100	V
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	$^\circ\text{C}/\text{W}$
Typical Thermal Resistance Junction to Case (Note 6)	$R_{\theta JC}$	1	$^\circ\text{C}/\text{W}$
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	μA	$V_R = 100\text{V}, T_J = +25^\circ\text{C}$
		—	—	30	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.

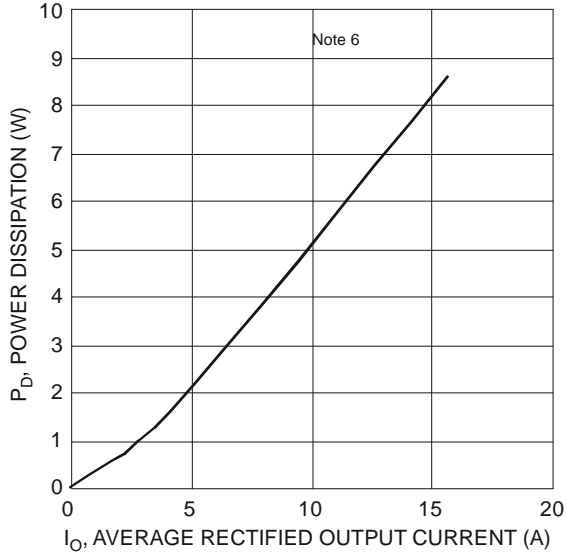


Figure 1 Forward Power Dissipation

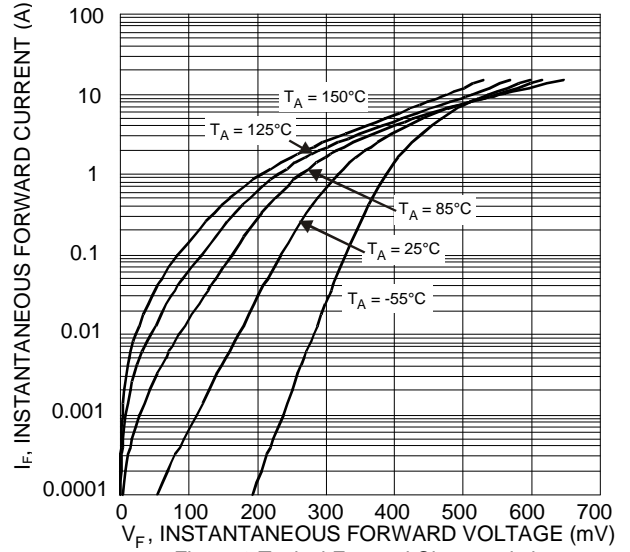


Figure 2 Typical Forward Characteristics

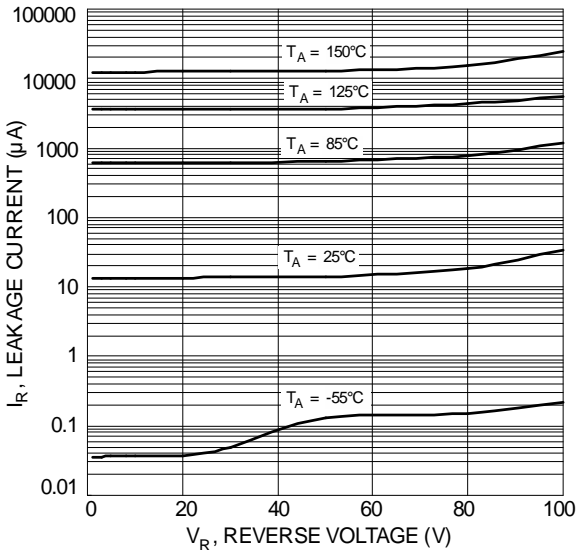


Figure 3 Typical Reverse Characteristics

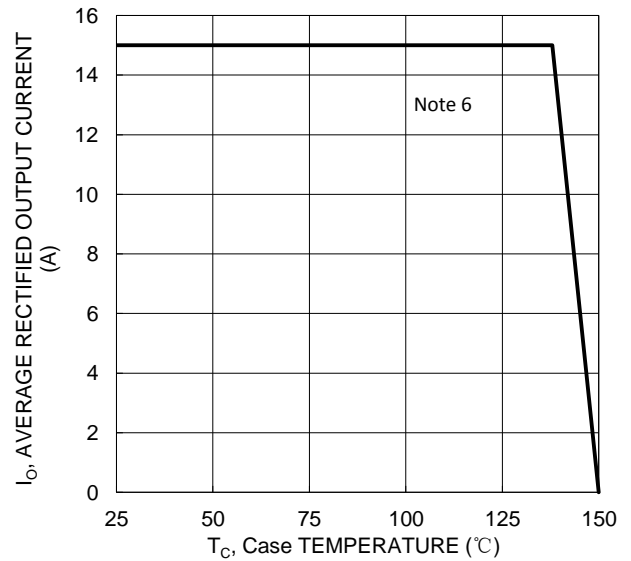


Figure 4. DC Forward Current Derating

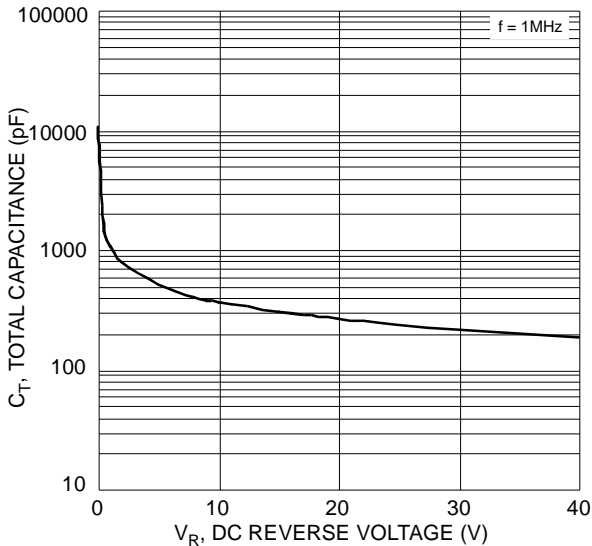
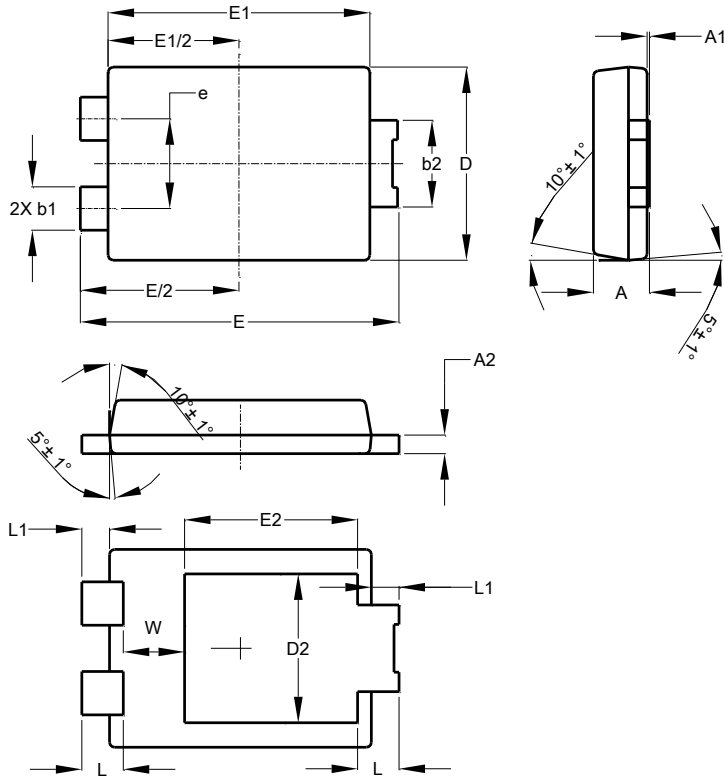


Figure 5 Typical Junction Capacitance

Package Outline Dimensions

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

PowerDI5

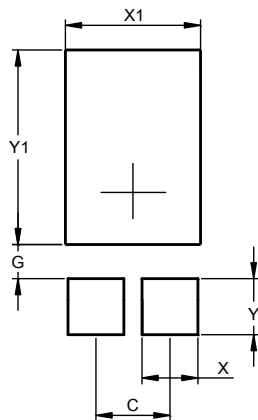


PowerDI5			
Dim	Min	Max	Typ
A	1.05	1.15	1.10
A1	0.00	0.05	--
A2	0.33	0.43	0.381
b1	0.80	0.99	0.89
b2	1.70	1.88	1.78
D	3.90	4.05	3.966
D2	--	--	3.054
E	6.40	6.60	6.504
e	--	--	1.84
E1	5.30	5.45	5.37
E2	--	--	3.549
L	0.75	0.95	0.85
L1	0.50	0.65	0.57
W	1.10	1.41	1.255
All Dimensions in mm			

Suggested Pad Layout

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

PowerDI5



Dimensions	Value (in mm)
C	1.840
G	0.852
X	1.390
X1	3.360
Y	1.400
Y1	4.860

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