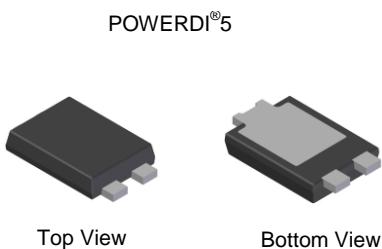


Product Summary

V_{RRM} (V)	I_o (A)	V_F (MAX) (V) @ $+25^\circ C$	I_R (MAX) (mA) @ $+25^\circ C$
80	20	0.66	0.2

Description and Applications

Packaged in the compact thermally efficient POWERDI® 5 package, the SBRT20M80SP5 provides very low V_F and provides excellent reverse leakage stability at high temperatures. It is ideal for use as a rectification, freewheeling or polarity protection diode.



POWERDI®5

Top View

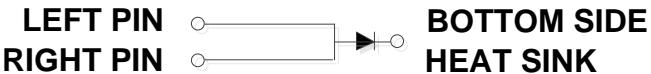
Bottom View

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: POWERDI®5
- 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.

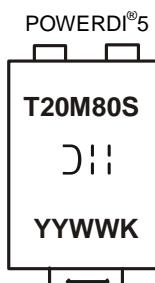
Ordering Information (Note 4)

Part Number	Case	Packaging
SBRT20M80SP5-13	POWERDI®5	5,000/Tape & Reel
SBRT20M80SP5-13D(Note 5)	POWERDI®5	5,000/Tape & Reel

Notes:

- EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. All applicable RoHS exemptions applied.
- 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.
- Halogen- 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 <http://www.diodes.com/products/packages.html>.
- POWERDI®5 available in 5K quantity on 13-inch reel & 12mm tape, part number suffix "13D".

Marking Information



T20M80S = Product Type Marking Code
 YYWW = Date Code Marking
 YY = Last Two Digits of Year (ex: 16 = 2016)
 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}	80	V
DC Blocking Voltage			
Average Rectified Output Current	I_O	20	A
Non-Repetitive Peak Forward Surge Current 8.3ms	I_{FSM}	350	A

Thermal Characteristics

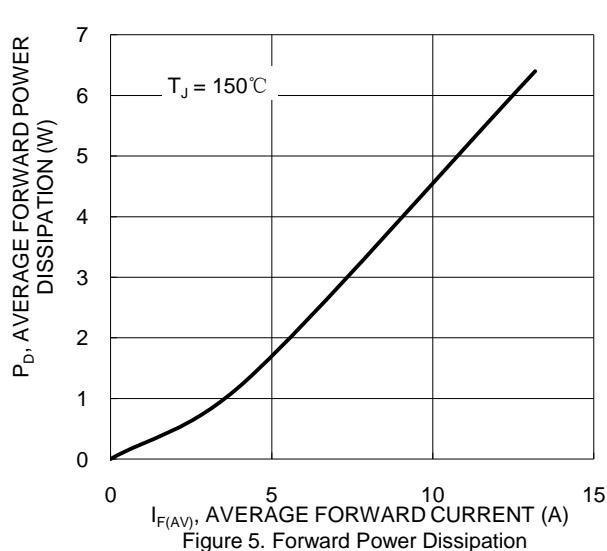
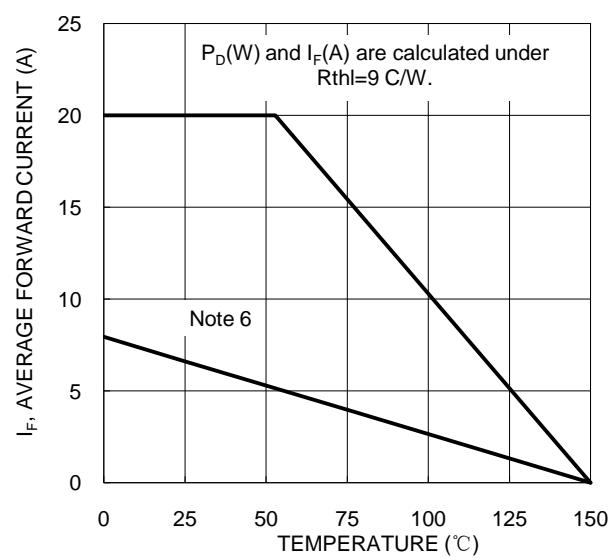
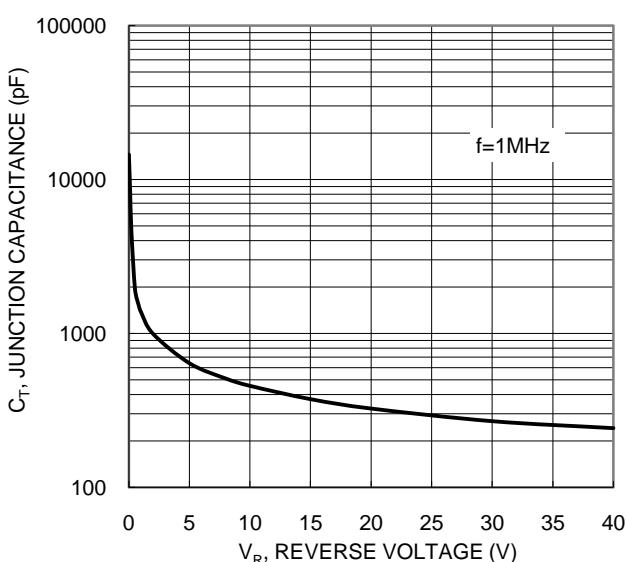
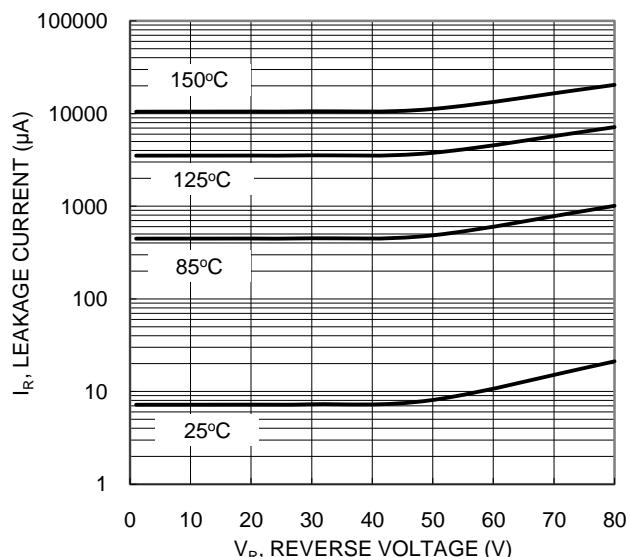
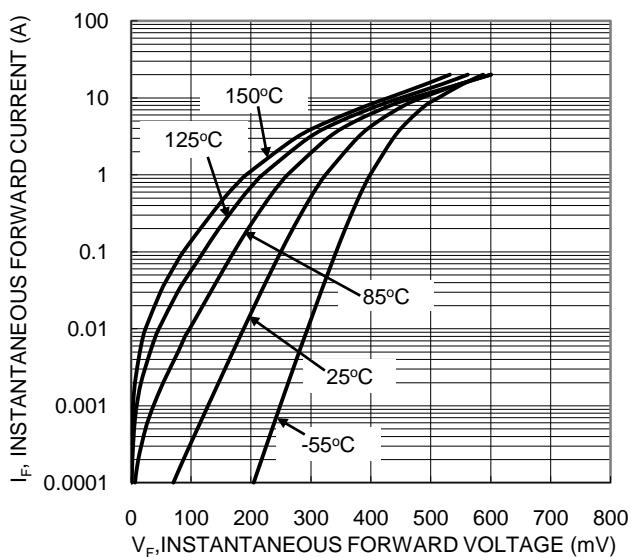
Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Ambient (Note 6)	$R_{\theta JA}$	41	$^\circ\text{C/W}$
Typical Thermal Resistance Junction to Lead (Note 6)	$R_{\theta JL}$	9	$^\circ\text{C/W}$
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage Drop	V_F	—	—	0.53	V	$I_F = 5\text{A}, T_J = +25^\circ\text{C}$
		—	—	0.60		$I_F = 10\text{A}, T_J = +25^\circ\text{C}$
		—	—	0.66		$I_F = 20\text{A}, T_J = +25^\circ\text{C}$
		—	—	0.62		$I_F = 20\text{A}, T_J = +125^\circ\text{C}$
Leakage Current (Note 7)	I_R	—	—	200	μA	$V_R = 80\text{V}, T_J = +25^\circ\text{C}$
		—	—	60	mA	$V_R = 80\text{V}, T_J = +125^\circ\text{C}$

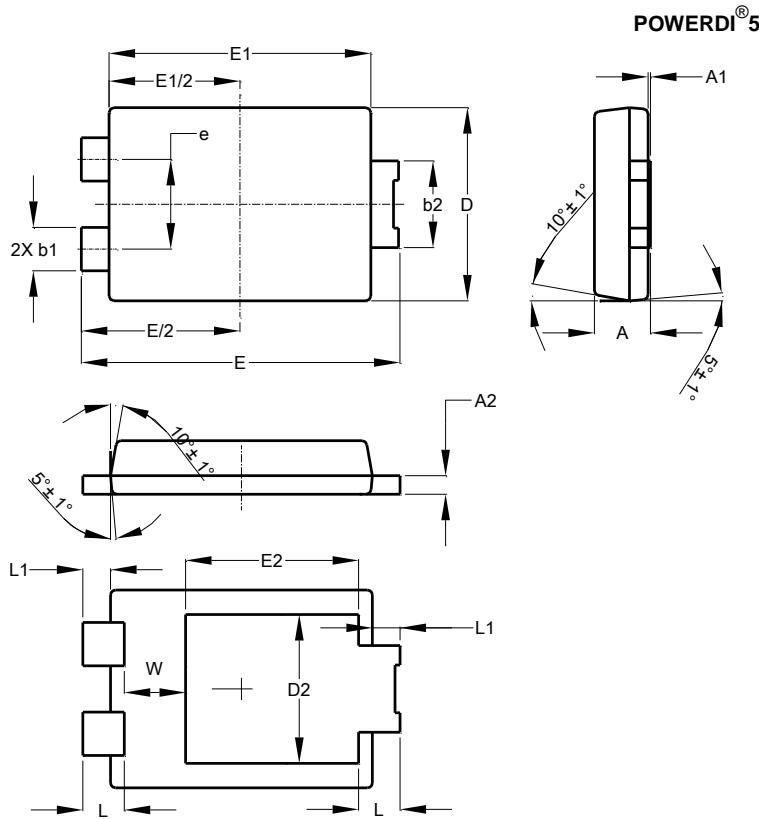
Notes: 6. Device mounted on FR-4 substrate, single-sided, PC boards, with 1inch square pad size.

7. Short duration pulse test used to minimize self-heating effect.



Package Outline Dimensions

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

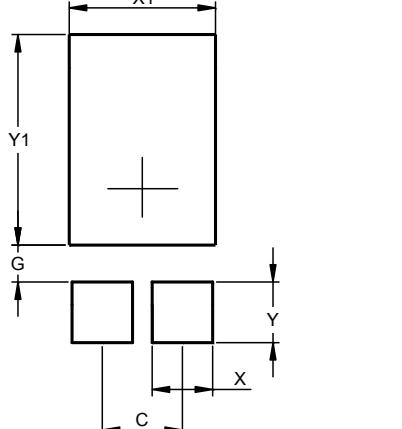


POWERDI®5			
Dim	Min	Max	Typ
A	1.05	1.15	1.10
A1	0.00	0.05	--
A2	0.33	0.43	0.381
b1	0.80	0.99	0.89
b2	1.70	1.88	1.78
D	3.90	4.05	3.966
D2	--	--	3.054
E	6.40	6.60	6.504
e	--	--	1.84
E1	5.30	5.45	5.37
E2	--	--	3.549
L	0.75	0.95	0.85
L1	0.50	0.65	0.57
W	1.10	1.41	1.255

All Dimensions in mm

Suggested Pad Layout

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



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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