



**THE DATASHEET OF  
SBR8E20P5-13**



**Product Summary** (@T<sub>A</sub> = +25°C)

V <sub>RRM</sub> (V)	I <sub>O</sub> (A)	V <sub>F</sub> Max (V)	I <sub>R</sub> Max (mA)
20	8	0.45	0.5

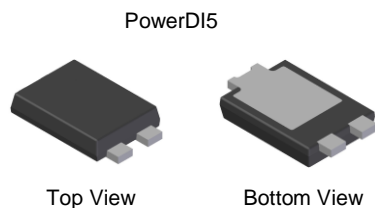
**Features and Benefits**

- Ultra-Low Forward Voltage Drop (V<sub>F</sub>) Helps Minimize Power Losses
- 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 SBR<sup>®</sup> (Super Barrier Rectifier) Technology
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

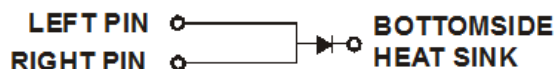
**Description and Applications**

Packaged in the compact thermally efficient PowerDI<sup>®</sup>5, the SBR8E20P5 provides ultra-low forward voltage drop (V<sub>F</sub>) and 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


**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)

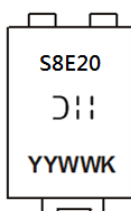


**Note: Pins Left & Right must be electrically connected at the printed circuit board.**

**Ordering Information** (Note 4)

Part Number	Case	Packaging
SBR8E20P5-13	PowerDI5	5,000/Tape & Reel
SBR8E20P5-13D (Note 5)	PowerDI5	5,000/Tape & Reel
SBR8E20P5-7	PowerDI5	1,500/Tape & Reel
SBR8E20P5-7D (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 <http://www.diodes.com/products/packages.html>.
  5. PowerDI5 available in 5K quantity on 13-inch reel & 12mm tape, part number suffix "13D"; 1.5K quantity on 7-inch reel, part number suffix "7". Diodes also provides 12mm tape with 7-inch reel, part number suffix "7D".

**Marking Information**


S8E20 = Product Type Marking Code  
 YYWW = Date Code Marking  
 YY = Last Two Digits of Year (ex: 16 = 2016)  
 WW = Week (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	$V_{RRM}$	20	V
Average Rectified Output Current	$I_O$	8	A
Non-Repetitive Peak Forward Surge Current 8.3ms	$I_{FSM}$	180	A

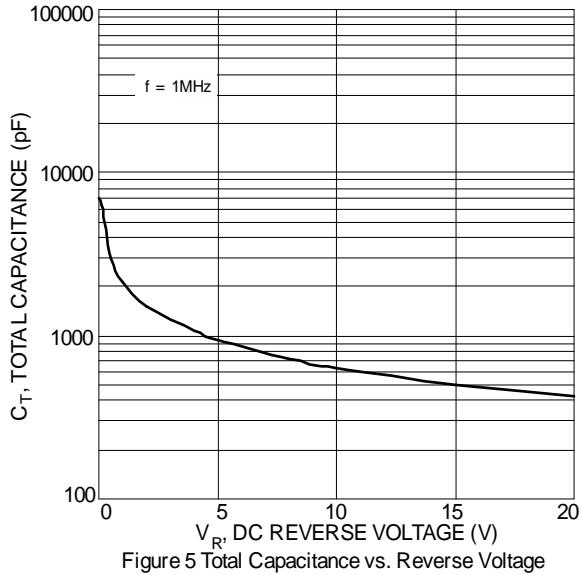
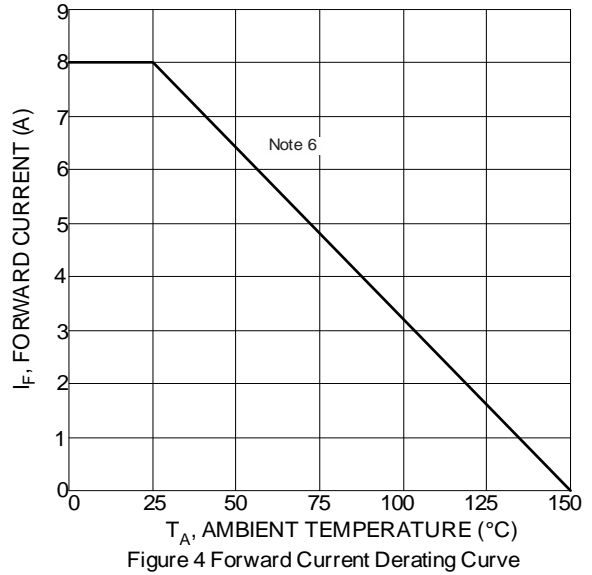
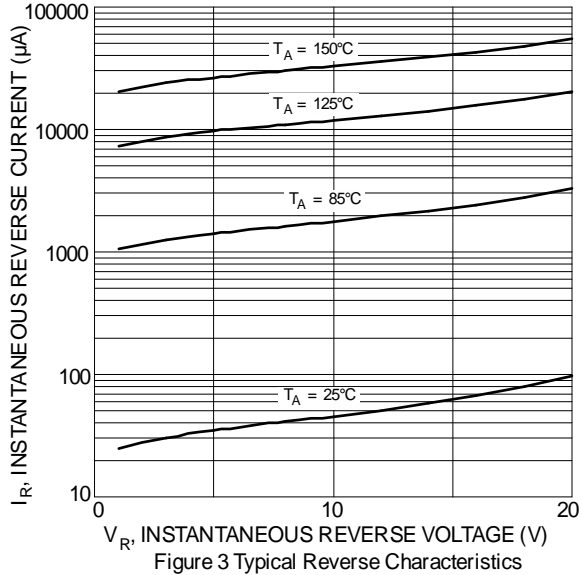
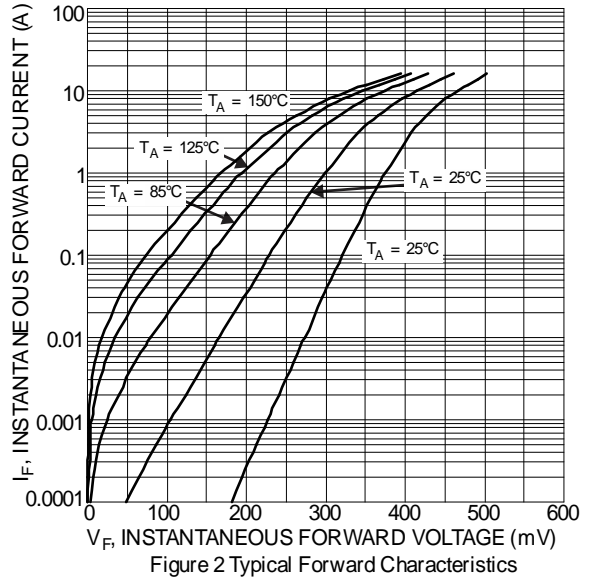
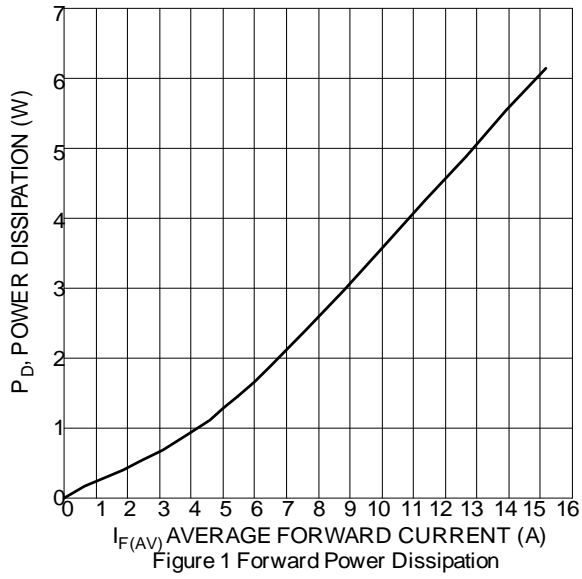
**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Ambient (Note 6)	$R_{\theta JA}$	20	$^\circ\text{C}/\text{W}$
Typical Thermal Resistance Junction to Case (Note 6)	$R_{\theta JC}$	3	$^\circ\text{C}/\text{W}$
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.)

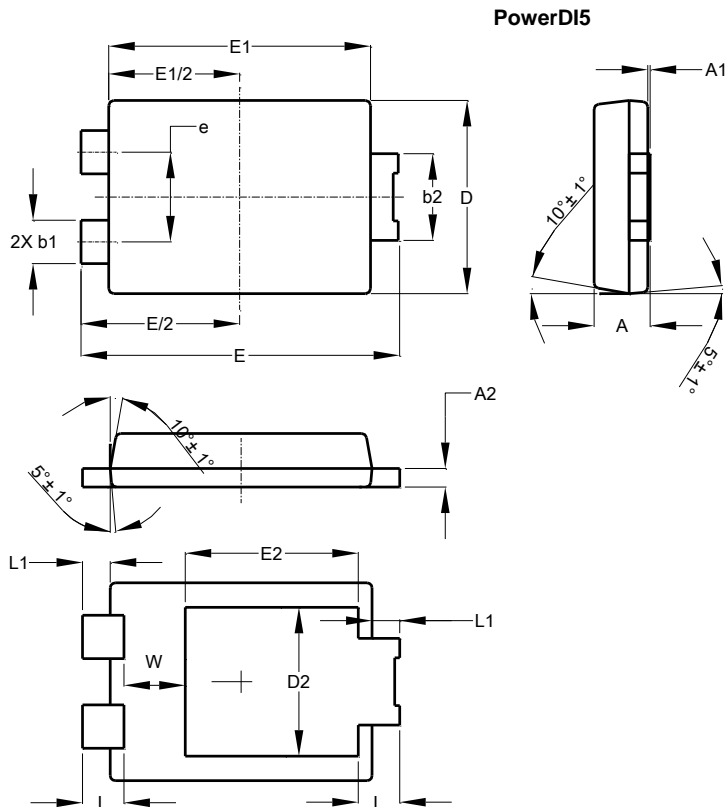
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage Drop	$V_F$	—	0.40	0.45	V	$I_F = 8\text{A}, T_A = +25^\circ\text{C}$
		—	0.32	0.37		$I_F = 8\text{A}, T_A = +125^\circ\text{C}$
Leakage Current (Note 7)	$I_R$	—	—	0.5	mA	$V_R = 20\text{V}, T_A = +25^\circ\text{C}$
		—	—	75		$V_R = 20\text{V}, T_A = +125^\circ\text{C}$

- Notes:
- 6. Device mounted on 2inch x 2inch Al board.
  - 7. Short duration pulse test used to minimize self-heating effect.



**Package Outline Dimensions**

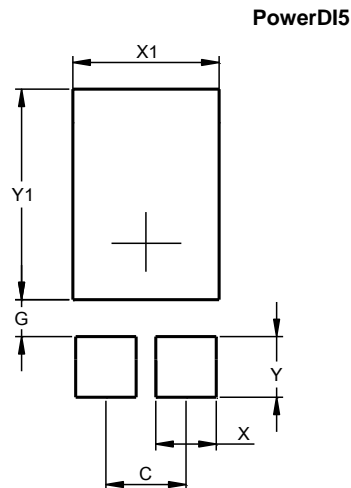
Please see <http://www.diodes.com/package-outlines.html> for the latest version.



PowerDI5			
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.



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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