



#### **8A SBR** SUPER BARRIER RECTIFIER PowerDI5

### Product Summary (@TA = +25°C)

I	V <sub>RRM</sub> (V) I <sub>O</sub> (A)		V <sub>F</sub> Max (V)	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
- 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® (Super Barrier Rectifier) Technology
- Lead-Free Finish; RoHS Compliant (Notes 1 & 2)
- Halogen and Antimony Free. "Green" Device (Note 3)

## **Description and Applications**

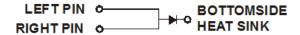
Packaged in the compact thermally efficient PowerDI<sup>®</sup>5, the SBR8E20P5 provides ultra-low forward voltage drop (V<sub>F</sub>) and excellent low reverse leakage stability at high temperatures. It is ideal for use as a rectification, freewheeling or polarity protection diode in applications such 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 for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green"
- 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** (@ $T_A = +25$ °C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V <sub>RRM</sub>	20	V
Average Rectified Output Current	Io	8	Α
Non-Repetitive Peak Forward Surge Current 8.3ms	I <sub>FSM</sub>	180	Α

# **Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Ambient (Note 6)	$R_{\theta JA}$	20	°C/W
Typical Thermal Resistance Junction to Case (Note 6)	$R_{ heta JC}$	3	°C/W
Operating and Storage Temperature Range	$T_{J}, T_{STG}$	-55 to +150	°C

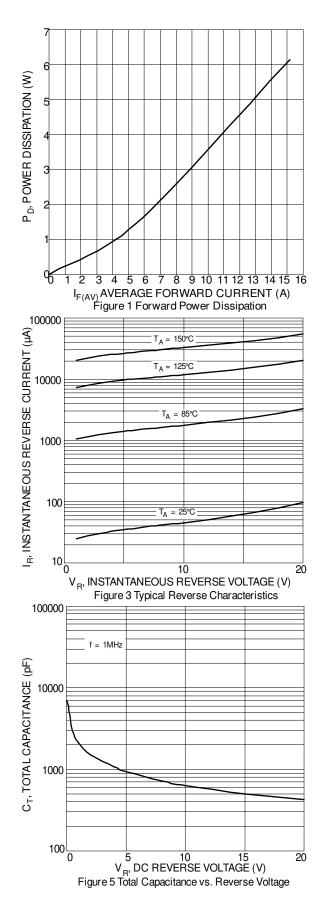
## **Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

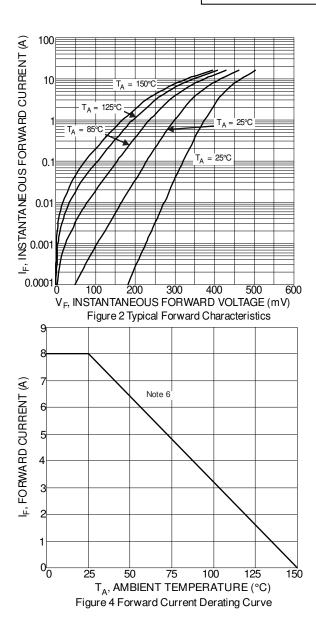
Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition
Forward Voltage Drop	$V_{F}$	1 1	0.40 0.32	0.45 0.37	V	I <sub>F</sub> = 8A, T <sub>A</sub> = +25°C I <sub>F</sub> = 8A, T <sub>A</sub> = +125°C
Leakage Current (Note 7)	I <sub>R</sub>	1 1		0.5 75	l mA	V <sub>R</sub> = 20V, T <sub>A</sub> = +25°C V <sub>R</sub> = 20V, T <sub>A</sub> = +125°C

Notes:

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



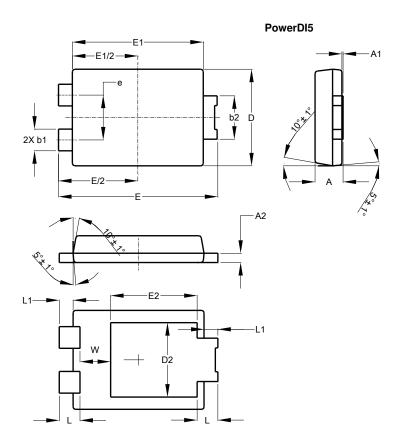






# **Package Outline Dimensions**

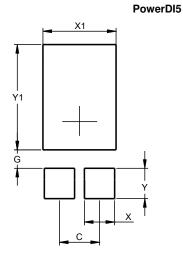
Please see http://www.diodes.com/package-outlines.html for the latest version.



PowerDI5					
Dim	Min	Max	Тур		
Α	1.05	1.15	1.10		
<b>A</b> 1	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		
Е	6.40	6.60	6.504		
е	-	-	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**

 $\label{please} Please see \ http://www.diodes.com/package-outlines.html \ for \ the \ latest \ version.$ 



Dimensions	Value (in mm)		
С	1.840		
G	0.852		
Х	1.390		
X1	3.360		
Υ	1.400		
Y1	4.860		



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