



**THE DATASHEET OF  
SBR8M100P5-13**



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

V <sub>R</sub> (V)	I <sub>O</sub> (A)	V <sub>F(MAX)</sub> (V)	I <sub>R(MAX)</sub> (μA)
100	8	0.88	2

## Description and Applications

This super barrier rectifier (SBR) diode is designed to meet the stringent requirements of automotive applications. It is ideally suited for use as:

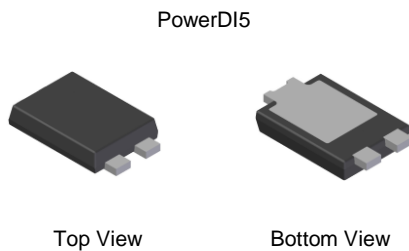
- Polarity Protection Diode
- Re-Circulating Diode
- Switching Diode
- Blocking Diode
- DC-DC Converter
- AC-DC Converter

## Features and Benefits

- Low Forward Voltage Drop
- Excellent High Temperature Stability
- Patented Super Barrier Rectifier SBR<sup>®</sup> Technology
- Soft, Fast Switching Capability
- +175°C Operating Junction Temperature
- Lead-Free Finish; RoHS Compliant (Notes 1 & 2)
- Halogen and Antimony Free. "Green" Device (Note 3)
- For automotive applications requiring specific change control (i.e.: parts qualified to AEC-Q100/101/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please refer to the related automotive grade (Q-suffix) part. A listing can be found at <https://www.diodes.com/products/automotive/automotive-products/>.
- This part is qualified to JEDEC standards (as references in AEC-Q) for High Reliability. <https://www.diodes.com/quality/product-definitions/>
- An Automotive-Compliant Part is Available Under Separate Datasheet ([SBR8M100P5Q](#))

## Mechanical Data

- Case: PowerDI<sup>®</sup>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
- Terminals: Finish – Matte Tin Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208
- Weight: 0.093 grams (Approximate)



**LEFT PIN**       **RIGHT PIN**       **BOTTOM SIDE HEAT SINK**

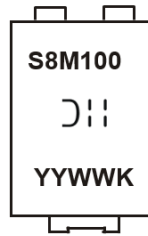
**Note: Pins Left & Right must be electrically connected at the printed circuit board.**

## Ordering Information (Note 4)

Part Number	Compliance	Case	Packaging
SBR8M100P5-13	Commercial	PowerDI5	5000/Tape & Reel
SBR8M100P5-13D (Note 5)	Commercial	PowerDI5	5000/Tape & Reel

- Notes:
1. EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
  2. See <https://www.diodes.com/quality/lead-free/> 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. Suffix -13D is designated for 12mm tape width.

## Marking Information



S8M100 = Product Type Marking Code  
 D||| = Manufacturers' Code Marking  
 YYWW = Date Code Marking  
 YY = Last Two Digits of Year (ex: 21 = 2021)  
 WW = Week Code (01 to 53)  
 K = Factory Designator

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

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V <sub>RRM</sub>	100	V
Average Rectified Output Current	I <sub>o</sub>	8	A
Non-Repetitive Peak Forward Surge Current 8.3ms	I <sub>FSM</sub>	160	A
Non-Repetitive Avalanche Energy at I <sub>AS</sub> = 5.0A, L = 50mH	E <sub>AS</sub>	350	mJ

## Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Ambient (Note 6)	R <sub>θJA</sub>	25	°C/W
Typical Thermal Resistance Junction to Ambient (Note 7)	R <sub>θJA</sub>	90	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +175	°C

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage Drop	V <sub>F</sub>	—	0.72	—	V	I <sub>F</sub> = 4A, T <sub>J</sub> = +25°C
		—	0.78	0.88		I <sub>F</sub> = 8A, T <sub>J</sub> = +25°C
		—	0.59	—		I <sub>F</sub> = 4A, T <sub>J</sub> = +125°C
		—	0.65	0.74		I <sub>F</sub> = 8A, T <sub>J</sub> = +125°C
Leakage Current (Note 8)	I <sub>R</sub>	—	0.08	2.0	μA	V <sub>R</sub> = 100V, T <sub>J</sub> = +25°C
		—	5	100		V <sub>R</sub> = 100V, T <sub>J</sub> = +125°C
Junction Capacitance	C <sub>J</sub>	—	245	—	pF	V <sub>R</sub> = 4V, T <sub>J</sub> = +25°C

Notes: 6. 2inch sq. Al board.  
 7. MRP FR-4 PC board, 2oz.  
 8. Short duration pulse test used to minimize self-heating effect.

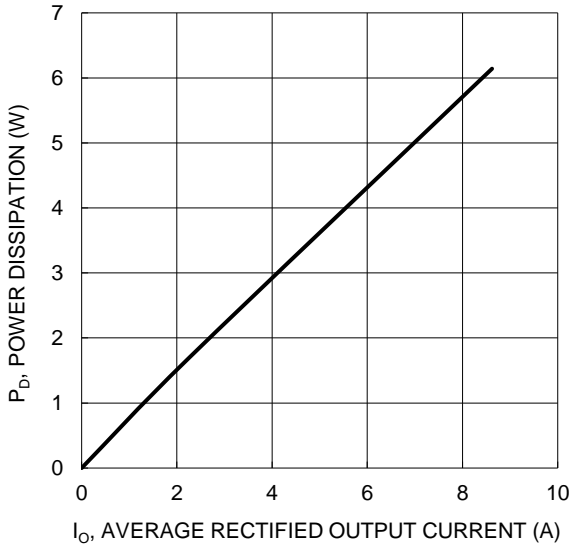


Figure 1. Forward Power Dissipation

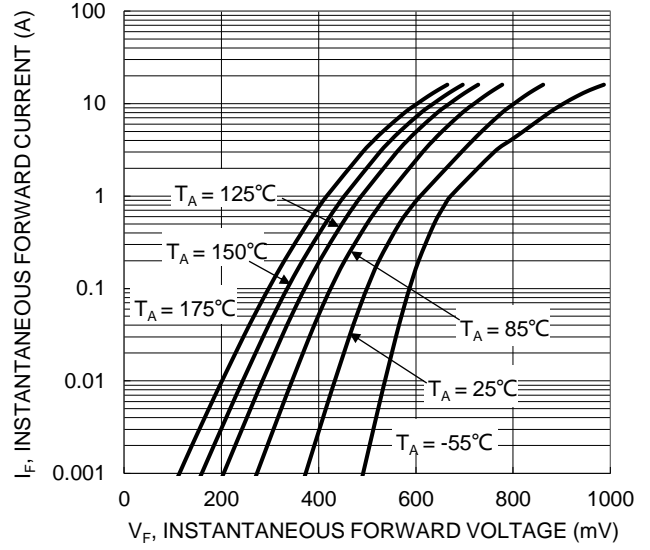


Figure 2. Typical Forward Characteristics

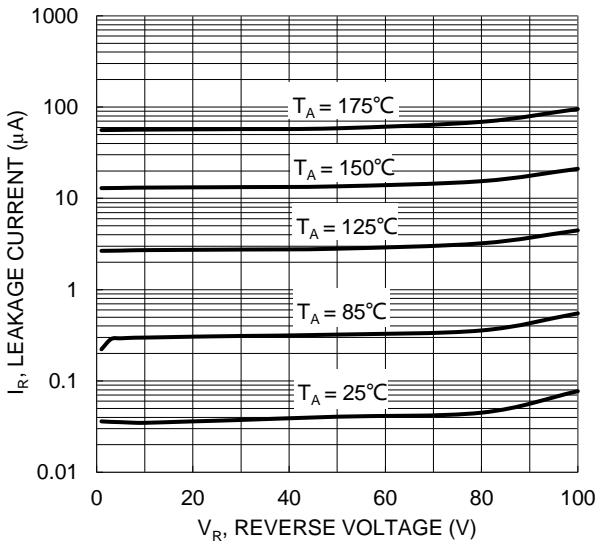


Figure 3. Typical Reverse Characteristics

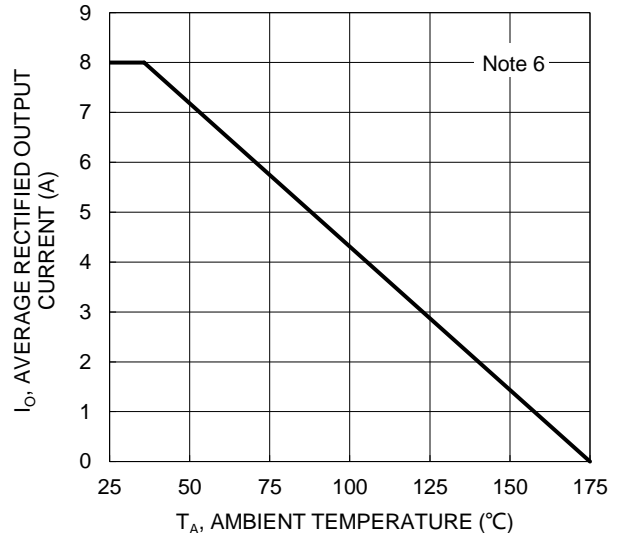


Figure 4. Forward Current Derating Curve

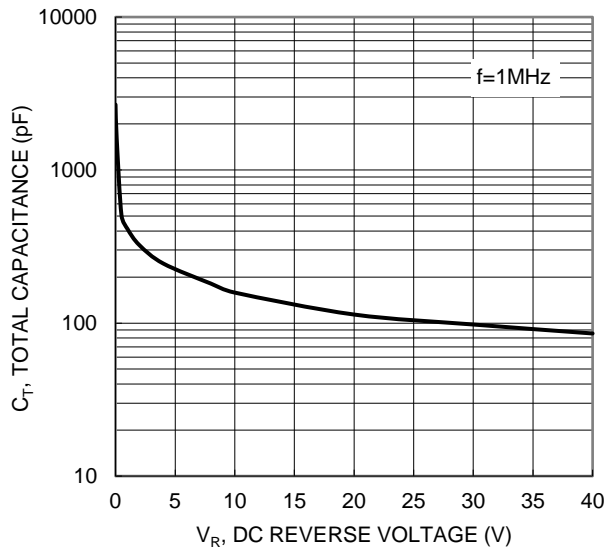
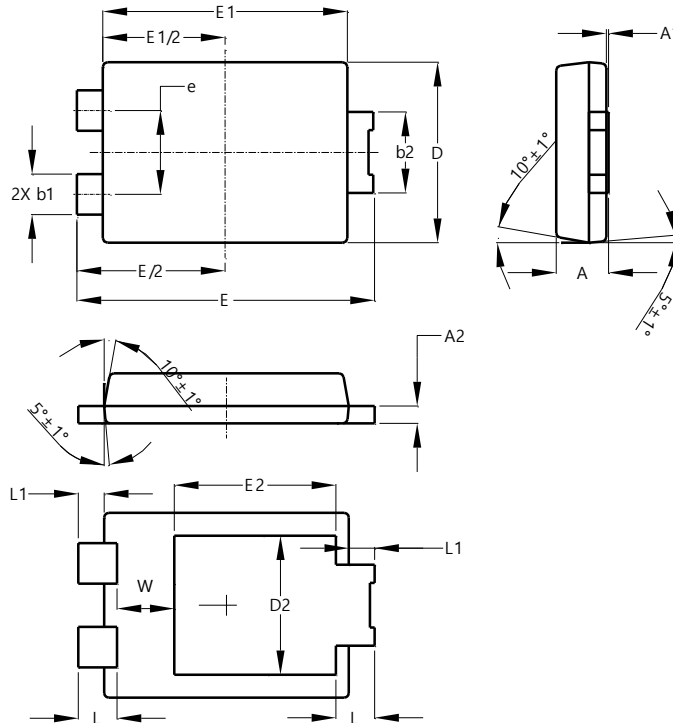


Figure 5. Typical Junction Capacitance

## Package Outline Dimensions

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

**PowerDI5**

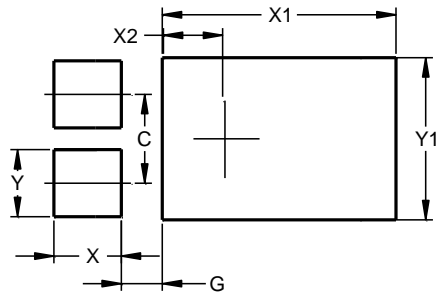


PowerDI5			
Dim	Min	Max	Typ
A	1.05	1.15	1.10
A1	0.00	0.05	--
A2	0.33	0.43	0.381
b1	0.80	0.99	0.89
b2	1.70	1.88	1.78
D	3.90	4.05	3.966
D2	--	--	3.054
E	6.40	6.60	6.51
e	--	--	1.84
E1	5.30	5.45	5.37
E2	--	--	3.549
L	0.75	0.95	0.85
L1	0.50	0.65	0.57
W	1.10	1.41	1.255
All Dimensions in mm			

## 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	1.400
X1	4.860
X2	1.310
Y	1.390
Y1	3.360

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