

Product Summary (@T_A = +25°C)

V _R (V)	I _F (A)	V _{F(MAX)} (V)	I _{R(MAX)} (μA)
100	8	0.88	2

Description and Applications

This Super Barrier Rectifier (SBR) diode has been 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

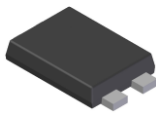
Features and Benefits

- Low Forward Voltage Drop
- Excellent High Temperature Stability
- Patented Super Barrier Rectifier SBR® 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)**
- **Qualified to AEC-Q101 Standards for High Reliability**

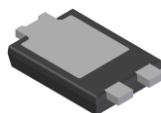
Mechanical Data

- 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
- Terminals: Finish – Matte Tin Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 @3
- Weight: 0.093 grams (Approximate)




PowerDI5



Top View



Bottom View

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

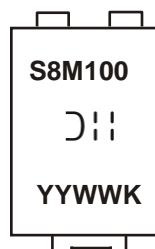
Note: Pins Left & Right must be electrically connected at the printed circuit board.


Ordering Information (Note 4)

Part Number	Compliance	Case	Packaging
SBR8M100P5-13	Commercial	PowerDI5	5,000/Tape & Reel
SBR8M100P5-13D(Note 5)	Commercial	PowerDI5	5,000/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 <http://www.diodes.com/products/packages.html>.
 5. Suffix -13D is designated for 12mm tape width.

Marking Information



S8M100 = Product Type Marking Code
 = Manufacturers' Code Marking
 YYWW = Date Code Marking
 YY = Last Two Digits of Year (ex: 16 for 2016)
 WW = Week Code (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 _{RRM}	100	V
Average Rectified Output Current	I _O	8	A
Non-Repetitive Peak Forward Surge Current 8.3mS	I _{FSM}	130	A
Non-repetitive Avalanche Energy at I _{AS} = 5.0A, L = 50mH	E _{AS}	350	mJ

Thermal Characteristics

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

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

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

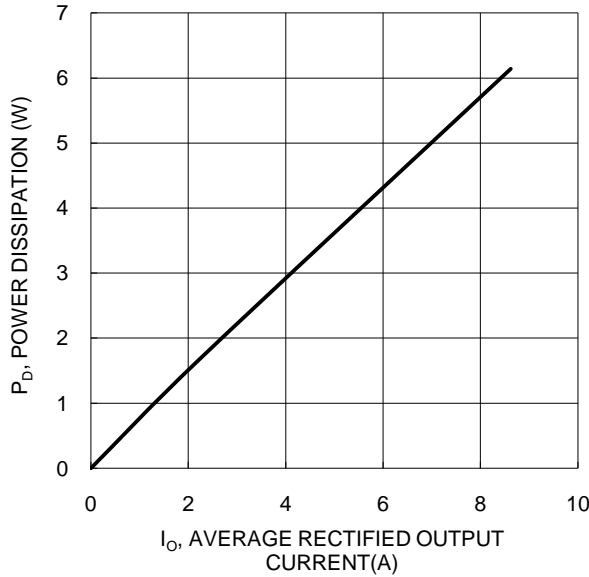


Figure 1. Forward Power Dissipation

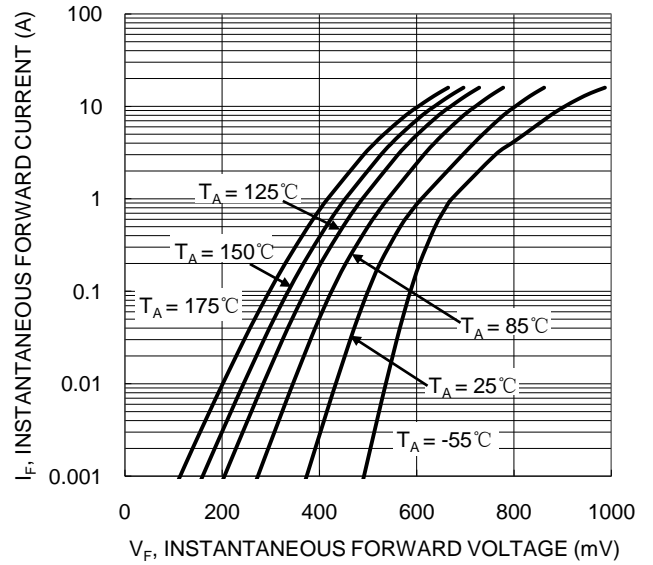


Figure 2. Typical Forward Characteristics

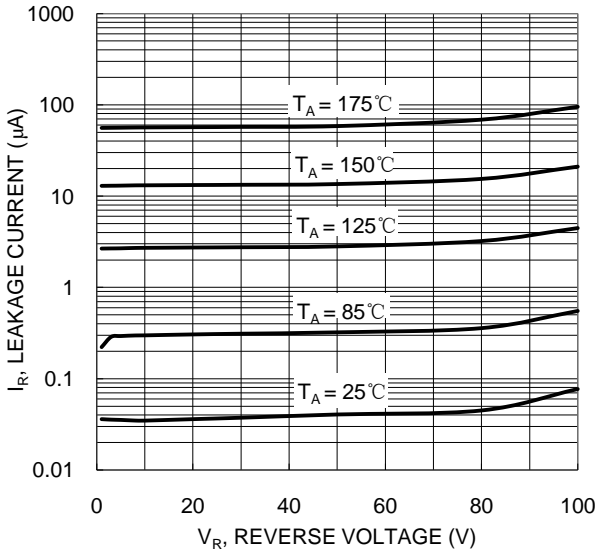


Figure 3. Typical Reverse Characteristics

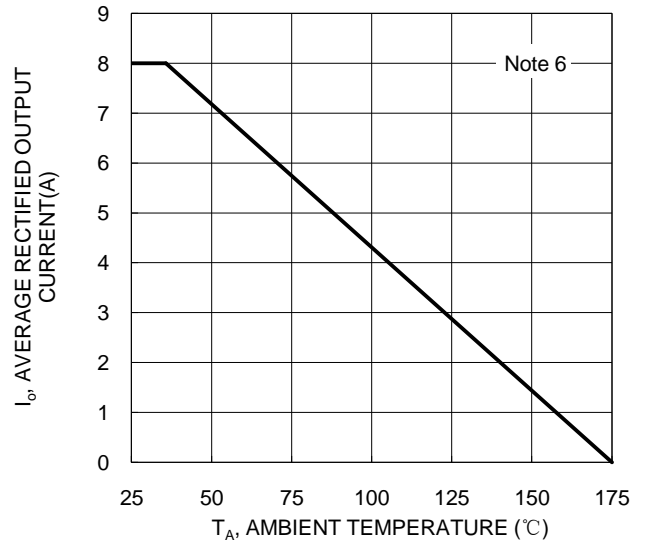


Figure 4. Forward Current Derating Curve

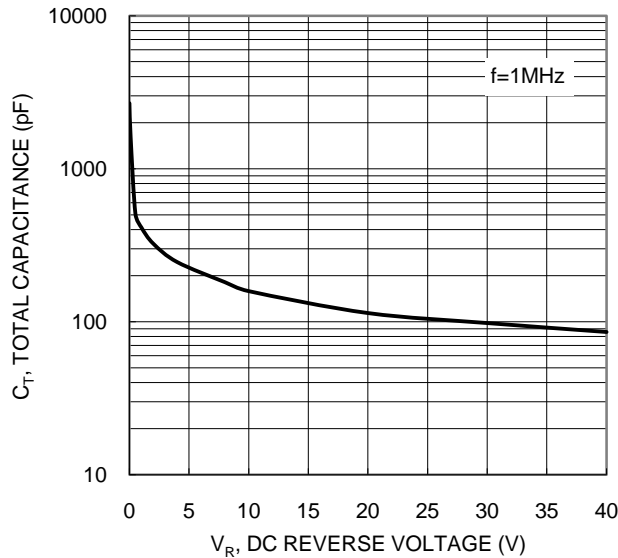
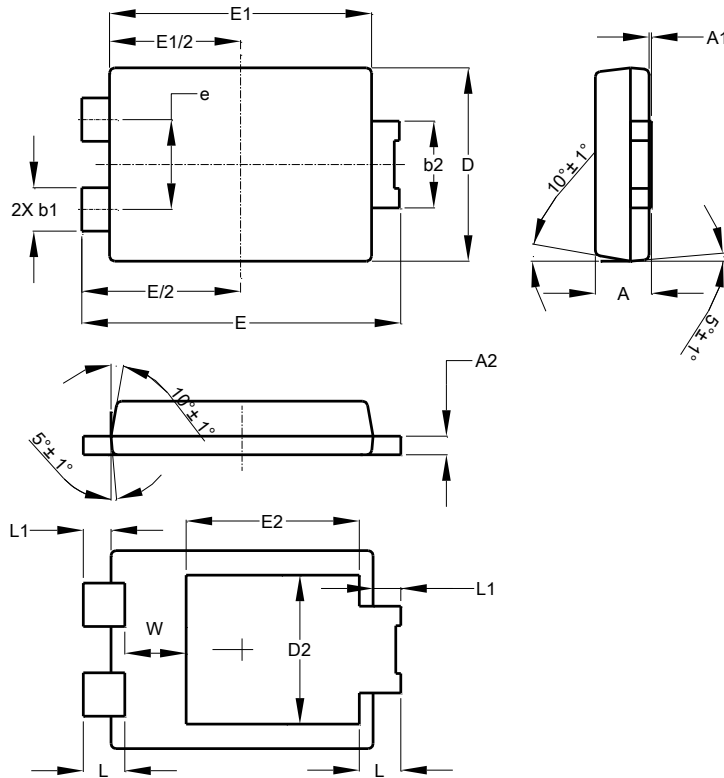


Figure 5. Typical Junction Capacitance

Package Outline Dimensions

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

PowerDI5

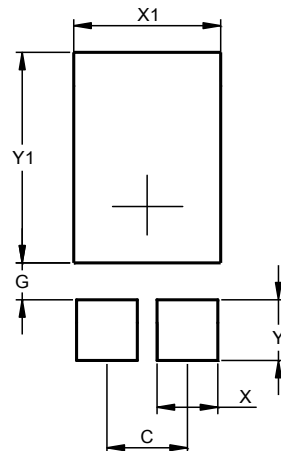


PowerDI5			
Dim	Min	Max	Typ
A	1.05	1.15	1.10
A1	0.00	0.05	--
A2	0.33	0.43	0.381
b1	0.80	0.99	0.89
b2	1.70	1.88	1.78
D	3.90	4.05	3.966
D2	--	--	3.054
E	6.40	6.60	6.504
e	--	--	1.84
E1	5.30	5.45	5.37
E2	--	--	3.549
L	0.75	0.95	0.85
L1	0.50	0.65	0.57
W	1.10	1.41	1.255
All Dimensions in mm			

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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