

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

V <sub>RRM</sub> (V)	I <sub>o</sub> (A)	V <sub>F</sub> Max (V) @ +25°C	I <sub>R</sub> Max (mA) @ +25°C
200	10	0.88	0.1

**Description & Applications**

Packaged in the compact thermally efficient PowerDI<sup>®</sup>5 package, provides low V<sub>F</sub> and low reverse leakage at high temperatures.

It is ideal for use in the following applications:

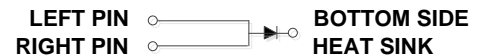
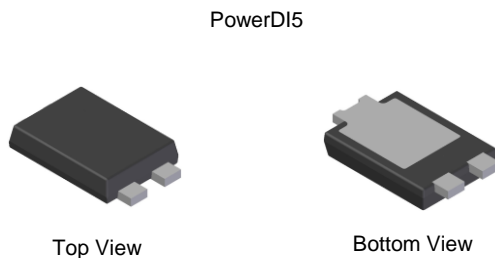
- Bridge Diodes
- Freewheeling Diodes
- Blocking Diodes
- Reverse Protection Diodes

**Features and Benefits**

- Ultra Low Forward Voltage Drop
- Excellent High Temperature Stability
- Patented Super Barrier Rectifier 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)**
- **An Automotive-Compliant Part is Available Under Separate Datasheet ([SBR10U200P5Q](#))**

**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
- Terminals: Matte Tin Finish Annealed over Copper Leadframe; Solderable per MIL-STD-202, Method 208 <sup>Ⓔ</sup>
- Polarity: See Diagram
- Weight: 0.093 grams (Approximate)

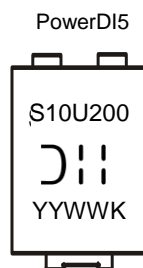


**Note:** Pins Left & Right must be electrically connected at the printed circuit board.

**Ordering Information (Note 4)**

Part Number	Case	Packaging
SBR10U200P5-13	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](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>.

**Marking Information**


S10U200 = 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<sub>A</sub> = +25°C, unless otherwise specified.)

Single phase, half wave, 60Hz, resistive or inductive load.  
For capacitive load, derate current by 20%.

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	V <sub>RRM</sub>	200	V
Working Peak Reverse Voltage	V <sub>RWM</sub>		
DC Blocking Voltage	V <sub>RM</sub>		
Average Rectified Output Current	I <sub>O</sub>	10	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I <sub>FSM</sub>	180	A
Repetitive Peak Avalanche Power (1μs, +25°C)	P <sub>ARM</sub>	3,000	W

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Ambient (Note 5)	R <sub>θJA</sub>	70	°C/W
Typical Thermal Resistance Junction to Case (Note 5)	R <sub>θJC</sub>	14	°C/W
Typical Thermal Resistance Junction to Ambient (Note 6)	R <sub>θJA</sub>	20	°C/W
Typical Thermal Resistance Junction to Case (Note 6)	R <sub>θJC</sub>	3	°C/W
Operating Temperature Range Reverse Mode DC Forward Mode (Note 7)	T <sub>J</sub>	-65 to +175 ≤200	°C
Storage Temperature Range	T <sub>STG</sub>	-65 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>	—	0.75	0.82	V	I <sub>F</sub> = 5A, T <sub>J</sub> = +25°C
		—	0.62	0.67		I <sub>F</sub> = 5A, T <sub>J</sub> = +125°C
		—	0.83	0.88		I <sub>F</sub> = 10A, T <sub>J</sub> = +25°C
Leakage Current (Note 8)	I <sub>R</sub>	—	—	0.1	mA	V <sub>R</sub> = 200V, T <sub>J</sub> = +25°C
		—	0.18	10		V <sub>R</sub> = 200V, T <sub>J</sub> = +125°C

- Notes:
5. Device mounted on FR-4 PCB with minimum recommended pad layout per <http://www.diodes.com/package-outlines.html>.
  6. Device mounted on FR-4 PCB with 1-inch pad layout and additional HK2 (45mm x 20mm x 12mm).
  7. Max junction temperature guaranteed for 2 hours.
  8. Short duration pulse test used to minimize self heat effect.

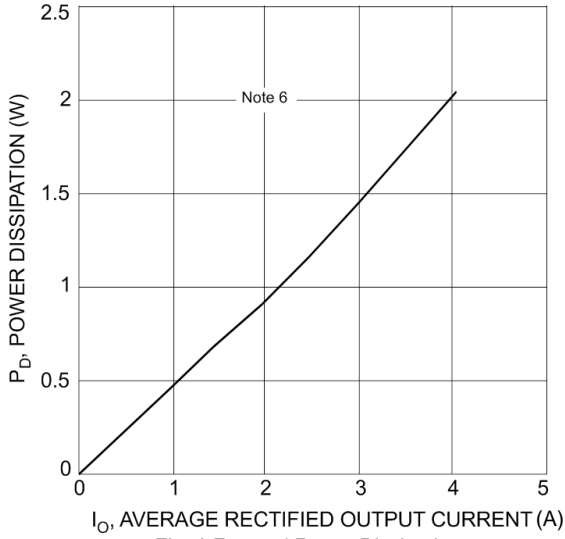


Fig. 1 Forward Power Dissipation

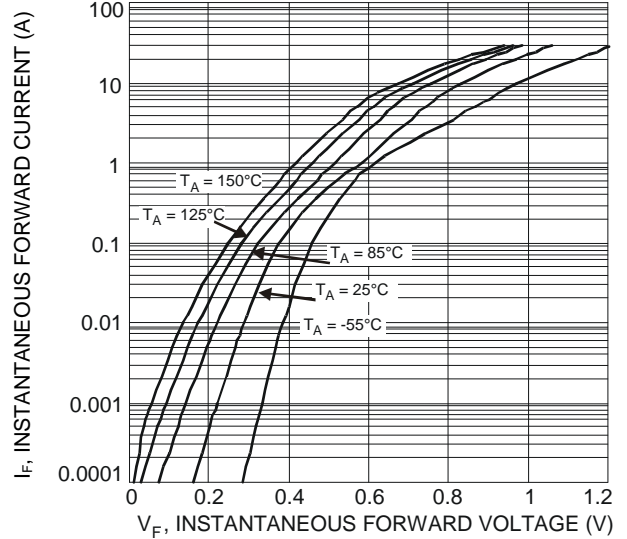


Fig. 2 Typical Forward Characteristics

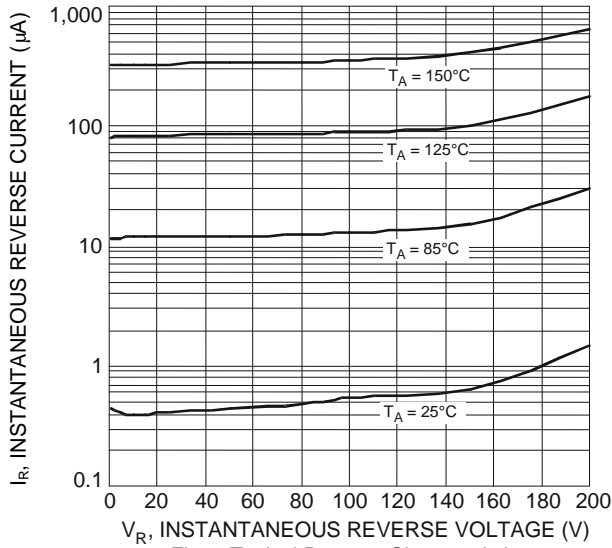


Fig. 3 Typical Reverse Characteristics

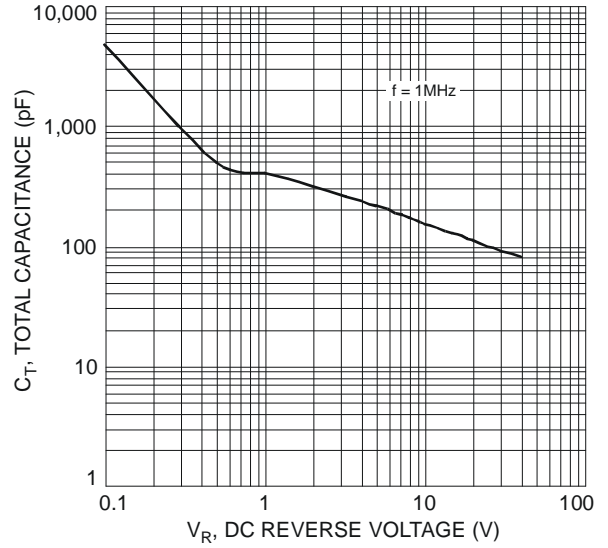


Fig. 4 Total Capacitance vs. Reverse Voltage

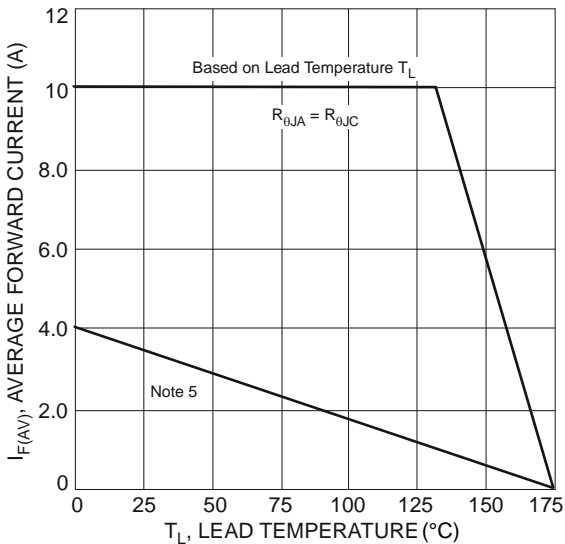


Fig. 5 Forward Current Derating Curve

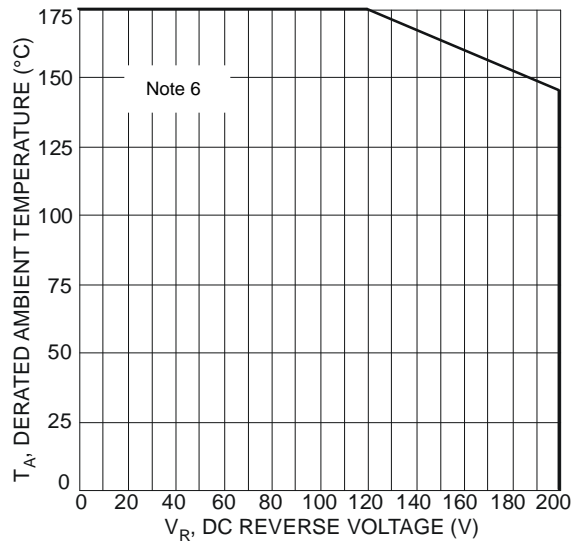


Fig. 6 Operating Temperature Derating

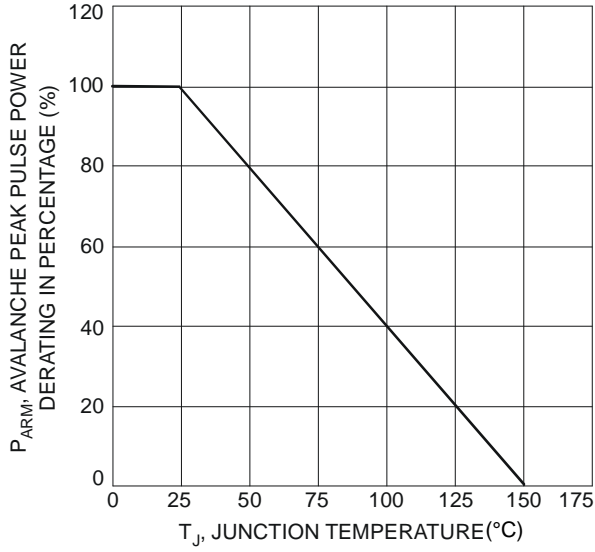


Fig. 7 Pulse Derating Curve

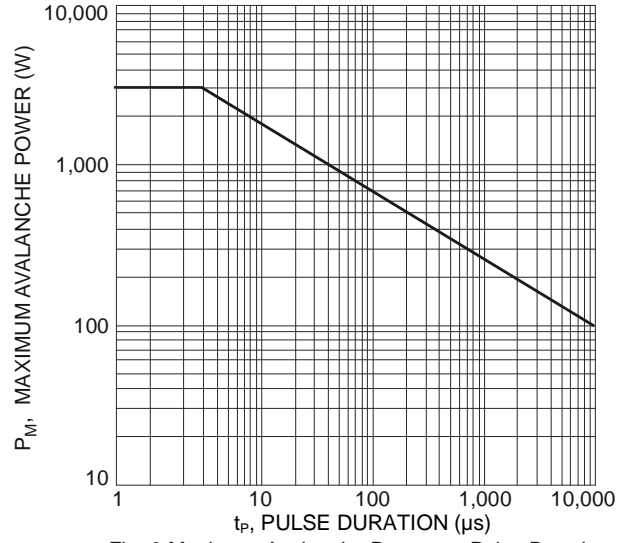
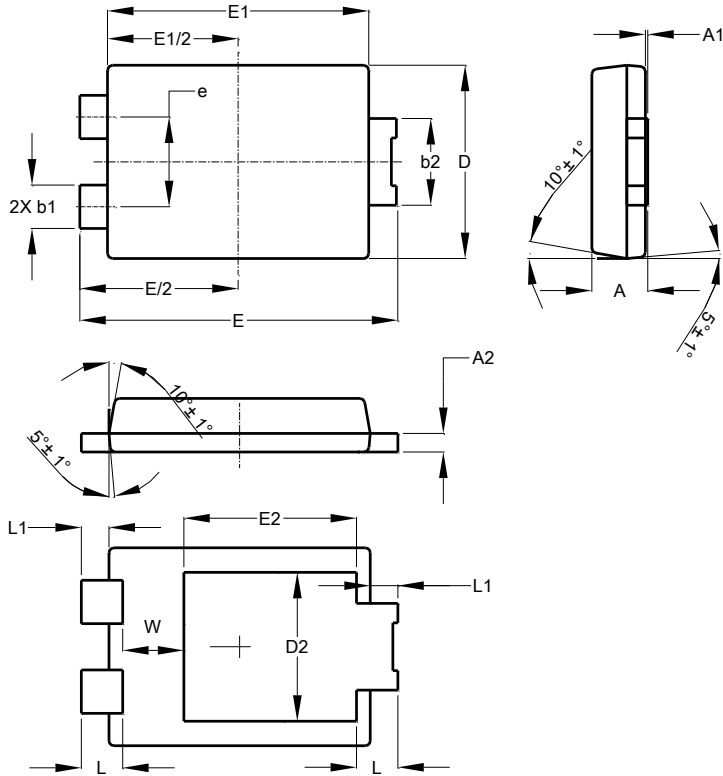


Fig. 8 Maximum Avalanche Power vs. Pulse Duration

**Package Outline Dimensions**

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

**PowerDI5**

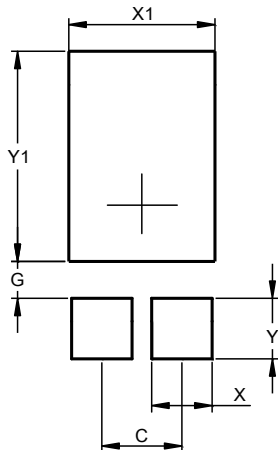


PowerDI5			
Dim	Min	Max	Typ
A	1.05	1.15	1.10
A1	0.00	0.05	--
A2	0.33	0.43	0.381
b1	0.80	0.99	0.89
b2	1.70	1.88	1.78
D	3.90	4.05	3.966
D2	--	--	3.054
E	6.40	6.60	6.504
e	--	--	1.84
E1	5.30	5.45	5.37
E2	--	--	3.549
L	0.75	0.95	0.85
L1	0.50	0.65	0.57
W	1.10	1.41	1.255
All Dimensions in mm			

**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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