



# SBRT20M80SLP

### 20A TrenchSBR TRENCH SUPER BARRIER RECTIFIER POWERDI<sup>®</sup>5060

## **Product Summary**

V <sub>RRM</sub> (V)	I <sub>0</sub> (A)	V <sub>F</sub> (MAX) (V) @ +25°C	I <sub>R(MAX)</sub> (mA) @ +25°C
80	20	0.61	0.16

## **Description and Applications**

Packaged in the compact thermally efficient POWERDI5060-8 package, the SBRT20M80SLP provides very low  $V_F$  and excellent reverse leakage stability at high temperatures. It is ideal for use as a rectifier, freewheel diode or blocking diode in:

POWERDI5060-8

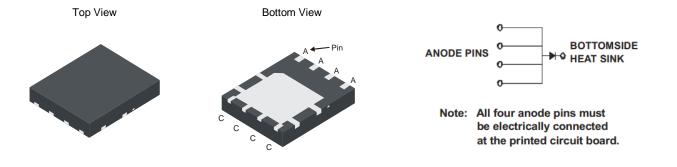
- DC-DC Converters
- AC-DC Adaptors

### **Features and Benefits**

- Reduced ultra-low forward voltage drop (V<sub>F</sub>); Better efficiency and cooler operation.
- Reduced high temperature reverse leakage; Increased reliability against thermal runaway failure in high temperature operation.
- Less than 1.1mm package profile ideal for thin applications.
- Lead-Free Finish; RoHS Compliant (Notes 1 & 2)
- Halogen and Antimony Free "Green" Device (Note 3)

## **Mechanical Data**

- Case: POWERDI5060-8
- Case Material: Molded Plastic, "Green" Molding Compound; UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish Matte Tin Annealed over Copper Leadframe; Solderable per MIL-STD-202, Method 208 (@)
- Polarity: See Below
- Weight: 0.097 grams (Approximate)



## Ordering Information (Note 4)

Part Number	Case	Packaging
SBRT20M80SLP-13	POWERDI5060-8	2,500/Tape & Reel

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.

# **Marking Information**

Notes:



SBRT20M80 = Product Type Marking Code YYWW = Date Code Marking YY = Last Two Digits of Year (ex: 15 = 2015) WW = Week (01-53)

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

Single phase, half wave, 60Hz, resistive or inductive load.

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V <sub>RRM</sub> Vrwm V <sub>RM</sub>	80	V
Average Rectified Output Current	lo	20	А
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	IFSM	210	А

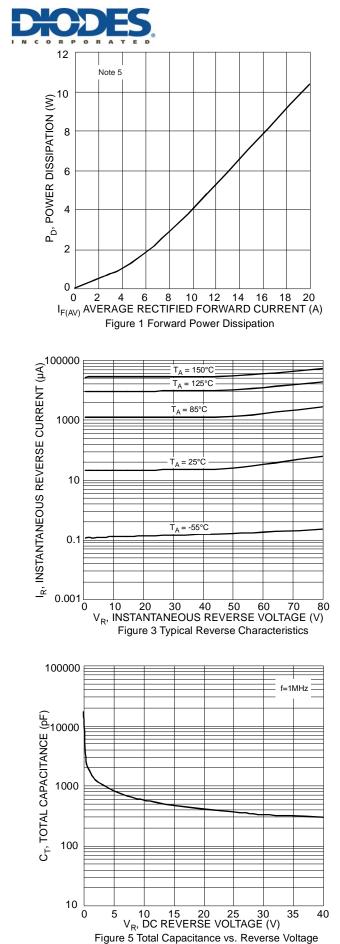
# **Thermal Characteristics**

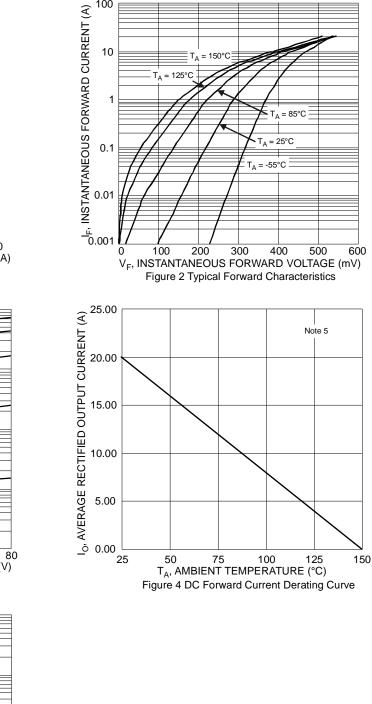
Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Ambient (Note 5)	R <sub>0JA</sub>	12	°C/W
Typical Thermal Resistance Junction to Case (Note 5)	R <sub>θJC</sub>	1	°C/W
Operating and Storage Temperature Range	T <sub>J,</sub> T <sub>STG</sub>	-55 to +150	°C

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

Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition
Forward Voltage Drop (Note 6)	VF		— 0.55 —	0.52 0.61 0.59	V	$\begin{split} I_{F} &= 10A, \ T_{J} = +25^{\circ}C \\ I_{F} &= 20A, \ T_{J} = +25^{\circ}C \\ I_{F} &= 20A, \ T_{J} = +125^{\circ}C \end{split}$
Leakage Current (Note 6)	I <sub>R</sub>		60 —	160 45	μA mA	$V_R = 80V, T_J = +25^{\circ}C$ $V_R = 80V, T_J = +125^{\circ}C$

Notes: 5. Test with Aluminum substrate 2oz, 2-inch sq. copper pad + additional Aluminum heatsink 50mm\*50mm\*23mm. 6. Short duration pulse test used to minimize self-heating effect.





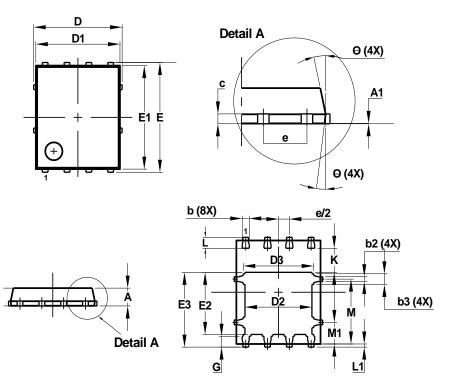
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SBRT20M80SLP



# **Package Outline Dimensions**

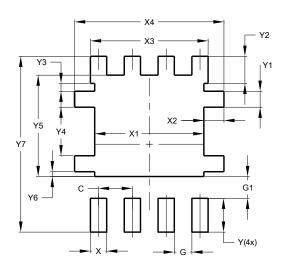
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for the latest version.



F	POWERDI5060-8				
Dim	Min	Max	Тур		
Α	0.90	1.10	1.00		
A1	0.00	0.05	-		
b	0.33	0.51	0.41		
b2	0.200	0.350	0.273		
b3	0.40	0.80	0.60		
c D	0.230	0.330	0.277		
	5	.15 BS(	C		
D1	4.70	5.10	4.90		
D2	3.70	4.10	3.90		
D3	3.90	4.30	4.10		
E	6.15 BSC				
E1	5.60	6.00	5.80		
E2	3.28	3.68	3.48		
E3	3.99	4.39	4.19		
е	1.27 BSC				
G	0.51	0.71	0.61		
ĸ	0.51	_			
L	0.51	0.71	0.61		
L1	0.100	0.20	0.175		
М	3.235	4.035	3.635		
M1	1.00	1.40	1.21		
Θ	10°	12°	11º		
Θ1	6°	8°	7°		
All	All Dimensions in mm				

# **Suggested Pad Layout**

Please see AP02001 at http://www.diodes.com/datasheets/ap02001.pdf for the latest version.



Dimensions	Value (in mm)
С	1.270
G	0.660
G1	0.820
Х	0.610
X1	4.100
X2	0.755
X3	4.420
X4	5.610
Y	1.270
Y1	0.600
Y2	1.020
Y3	0.295
Y4	1.825
Y5	3.810
Y6	0.180
Y7	6.610



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