

6A TRENCH SBR TRENCH SUPER BARRIER RECTIFIER

Product Summary

V_{RRM} (V)	I_o (A)	V_F Max (V) @ +25°C	I_R Max (mA) @ +25°C
20	6	0.45	0.25

Features and Benefits

- Patented Trench SBR® Technology Provides Superior Avalanche Capability Versus Schottky Diodes, Ensuring More Rugged and Reliable End Applications
- Reduced Ultra-Low Forward Voltage Drop (V_F); Better Efficiency and Cooler Operation
- Reduced High Temperature Reverse Leakage; Increased Reliability Against Thermal Runaway Failure in High Temperature Operation
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

Description and Applications

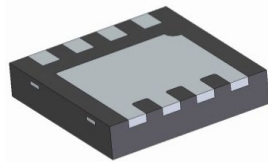
The SBRT6U20LP provides very low V_F and excellent reverse leakage stability at high temperatures. It is ideal for use as a bypass diode and rectifier, freewheel diode, or blocking diode in applications such as:

- Solar Panels
- Blocking Diode
- Bypass Diode
- Boost Diode
- Recirculating Diode

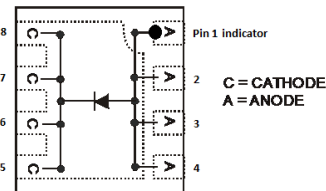
Mechanical Data

- Case: U-DFN3030-8
- 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: 0.0199 grams (Approximate)

U-DFN3030-8



Bottom View



Schematic and Pin Configuration

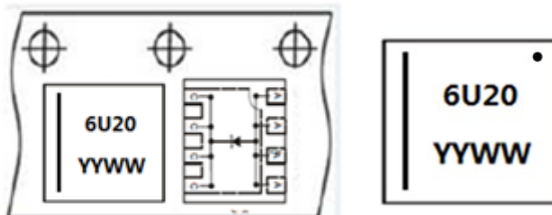
Ordering Information (Note 4)

Part Number	Case	Packaging
SBRT6U20LP-7	U-DFN3030-8	3000/Tape & Reel

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
 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, see <http://www.diodes.com/products/packages.html>.

Marking Information

U-DFN3030-8



6U20 = Product Type Marking Code
 YYWW = Date Code Marking
 YY = Last Digit of Year (ex: 18 = 2018)
 WW = Week Code (ex: 01 to 53)
 Bar = Cathode

Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

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

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	V _{RRM}	20	V
Working Peak Reverse Voltage	V _{RWM}		
DC Blocking Voltage	V _{RM}		
Average Rectified Output Current	I _O	6	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I _{FSM}	55	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Case (Note 5)	R _{θJC}	5.5	°C/W
Typical Thermal Resistance Junction to Ambient (Note 5)	R _{θJA}	65	°C/W
Operating Temperature Range	V _R ≤ 80% V _{RRM}	-55 to +150	°C
	V _R ≤ 50% V _{RRM}	≤ +175	
	DC Forward Mode (Note 7)	≤ +200	
Storage Temperature Range	T _{STG}	-55 to +150	°C

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage Drop (Note 6)	V _F	—	—	0.45	V	I _F = 6A, T _J = +25°C
Leakage Current (Note 6)	I _R	—	—	250	μA	V _R = 20V, T _J = +25°C
		—	24	—	mA	V _R = 20V, T _J = +125°C

- Notes:
- 5. Device mounted on FR-4 PCB pad layout 1-inch 2oz copper.
 - 6. Short duration pulse test used to minimize self-heating effect.
 - 7. Maximum junction temperature guaranteed for two hours.

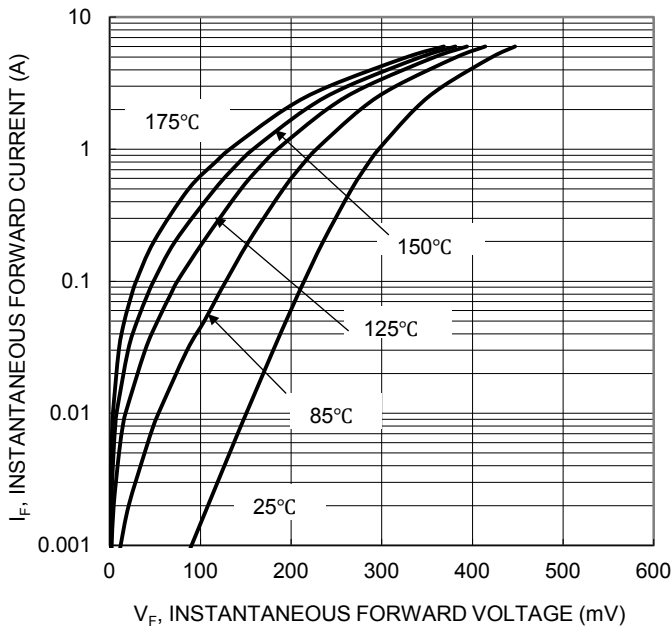


Figure 1. Typical Forward Characteristics

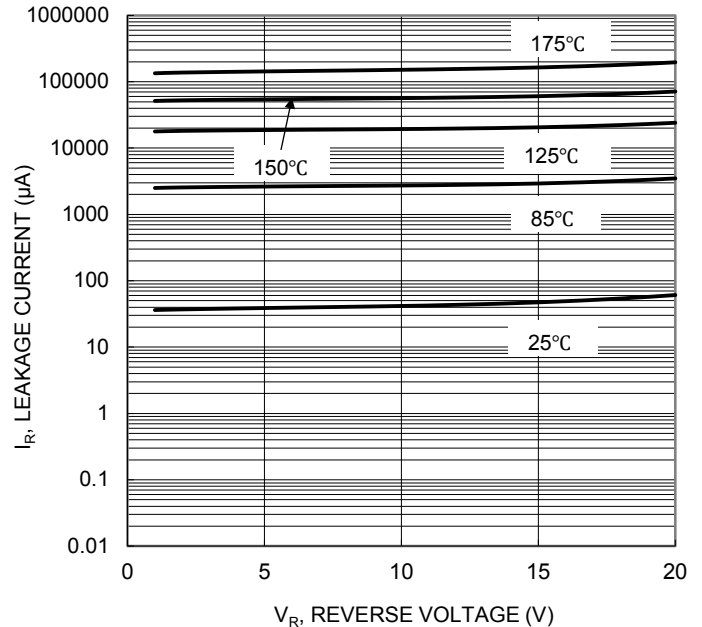
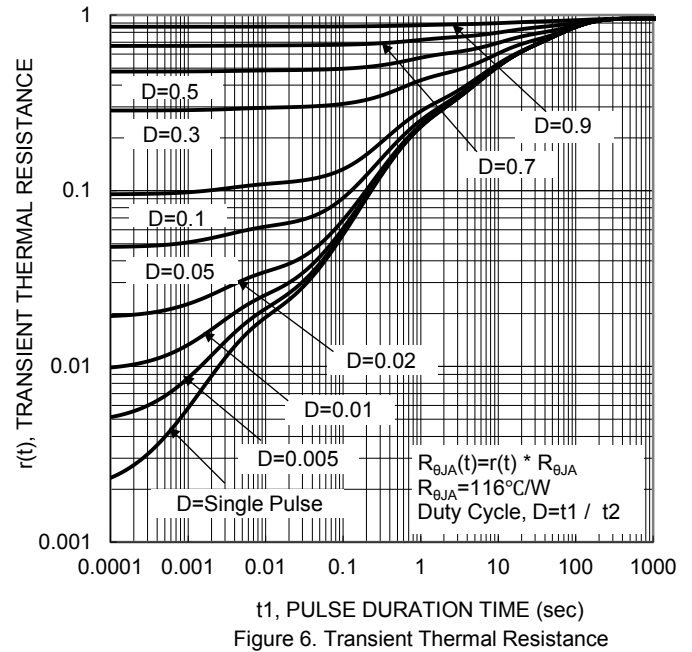
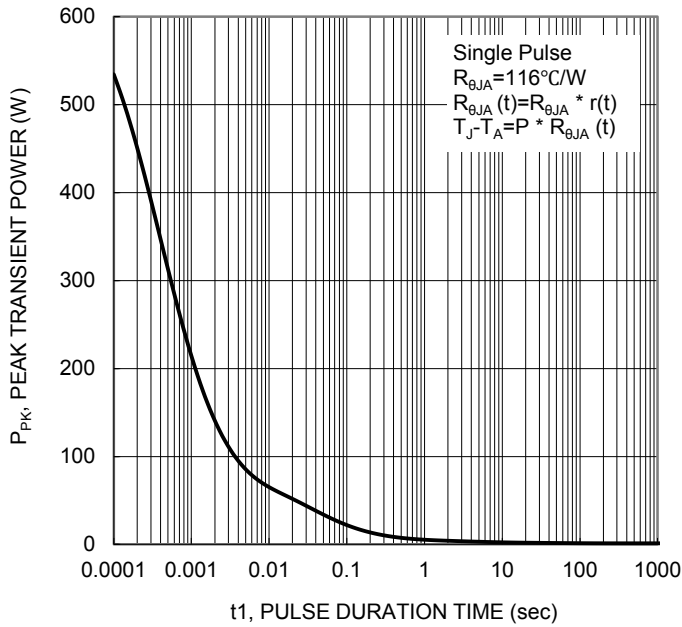
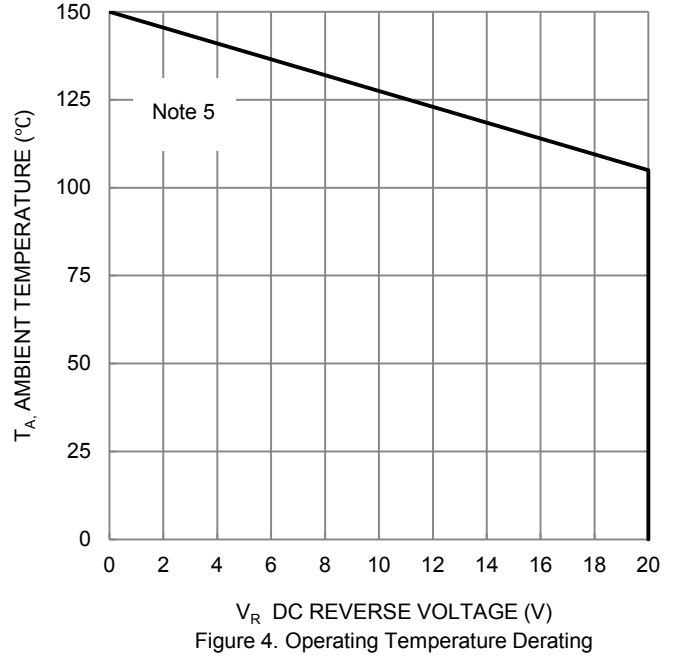
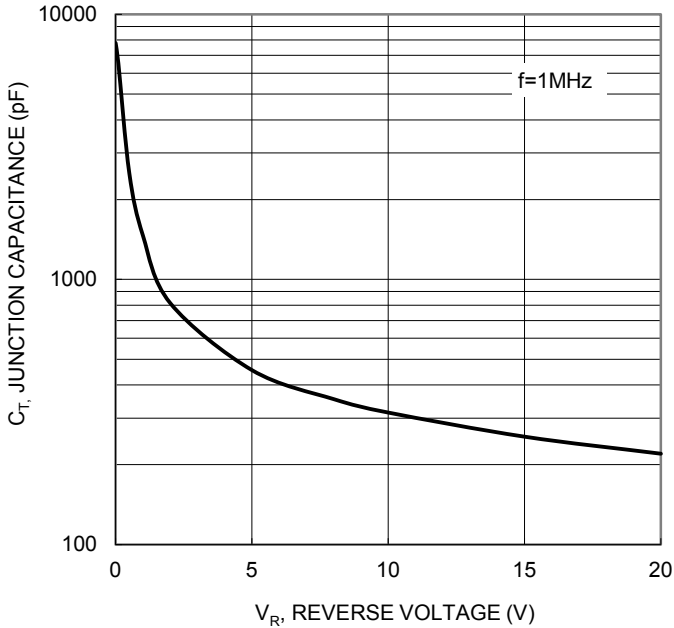


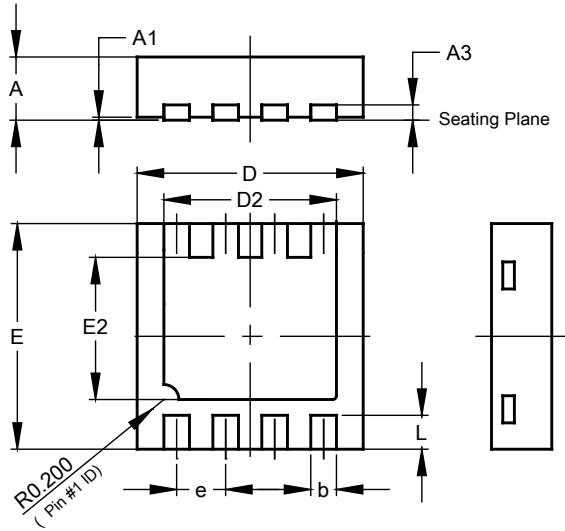
Figure 2. Typical Reverse Characteristics



Package Outline Dimensions

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

U-DFN3030-8

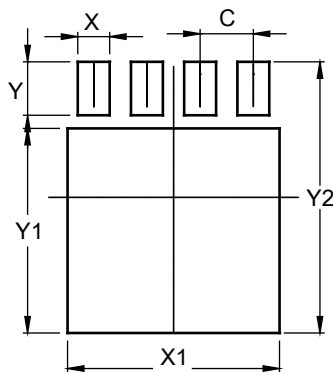


U-DFN3030-8			
Dim	Min	Max	Typ
A	0.57	0.63	0.60
A1	0	0.05	0.02
A3	-	-	0.15
b	0.29	0.39	0.34
D	2.90	3.10	3.00
D2	2.19	2.39	2.29
e	-	-	0.65
E	2.90	3.10	3.00
E2	1.64	1.84	1.74
L	0.30	0.60	0.45
All Dimensions in mm			

Suggested Pad Layout

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

U-DFN3030-8



Dimensions	Value (in mm)
C	0.650
X	0.390
X1	2.590
Y	0.650
Y1	2.490
Y2	3.300

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