

Product Summary

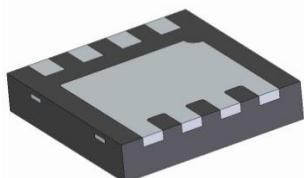
V_{RRM} (V)	I_o (A)	V_F(MAX) (V) @ +25°C	I_R(MAX) (mA) @ +25°C
45	6	0.52	0.15

Description and Applications

The SBRT6U45LP provides very low V_F and excellent reverse leakage stability at high temperatures. It is ideal for use as bypass diode and rectifier, freewheel diode or blocking diode in applications such as:

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

U-DFN3030-8



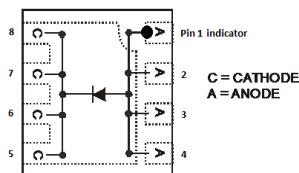
Bottom View

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 Finish & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

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 (e3)
- Polarity: See Below
- Weight: 0.0199 grams (Approximate)


 Top View
 Schematic and Pin Configuration

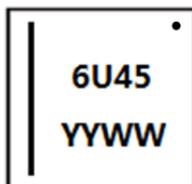
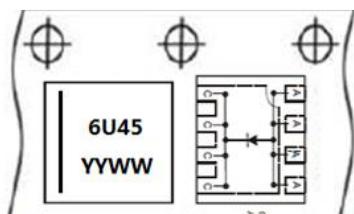
Ordering Information (Note 4)

Part Number	Case	Packaging
SBRT6U45LP-7	U-DFN3030-8	3,000/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, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

Marking Information



6U45 = Product Type Marking Code

YYWW = Date Code Marking

YY = Last Two Digits of Year (ex: 19 = 2019)

WW = Week Code (ex: 01 to 53)

Bar = Cathode

Maximum Ratings (@ $T_A = +25^\circ\text{C}$, 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_{RRM}	45	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

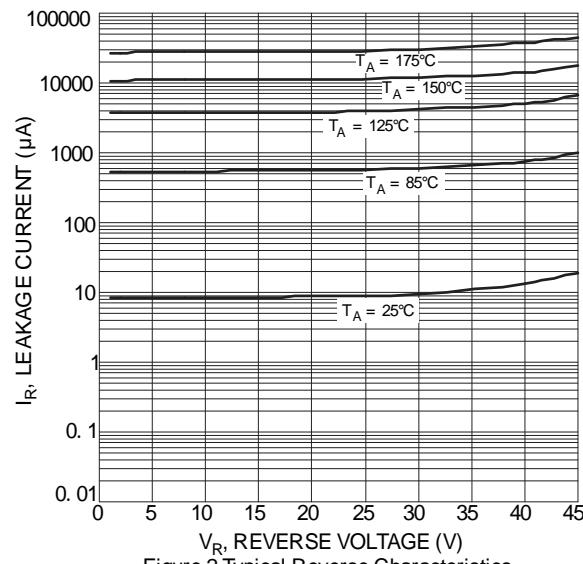
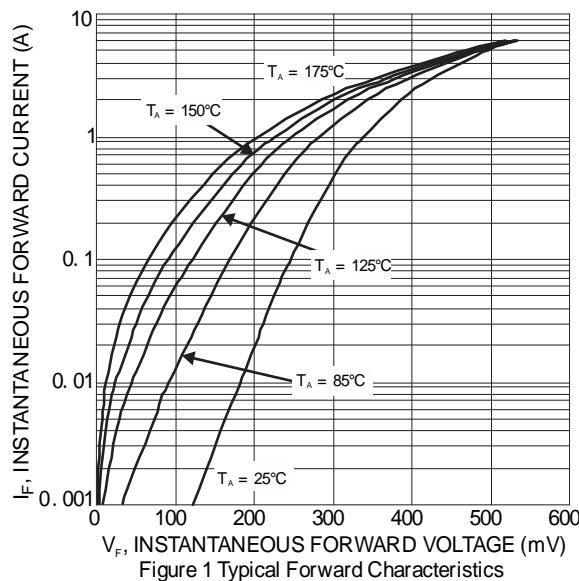
Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Case (Note 5)	$R_{\theta JC}$	5.5	°C/W
Typical Thermal Resistance Junction to Ambient (Note 5)	$R_{\theta JA}$	65	°C/W
Operating Temperature Range $V_R \leq 80\% V_{RRM}$ $V_R \leq 50\% V_{RRM}$ DC Forward Mode (Note 7)	T_J	-55 to +150 ≤+175 ≤+200	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C

Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage Drop (Note 6)	V_F	—	—	0.52	V	$I_F = 6\text{A}$, $T_J = +25^\circ\text{C}$
Leakage Current (Note 6)	I_R	—	—	150	μA	$V_R = 45\text{V}$, $T_J = +25^\circ\text{C}$
		—	6.5	—	mA	$V_R = 45\text{V}$, $T_J = +125^\circ\text{C}$

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. Max junction temperature guaranteed for two hours.



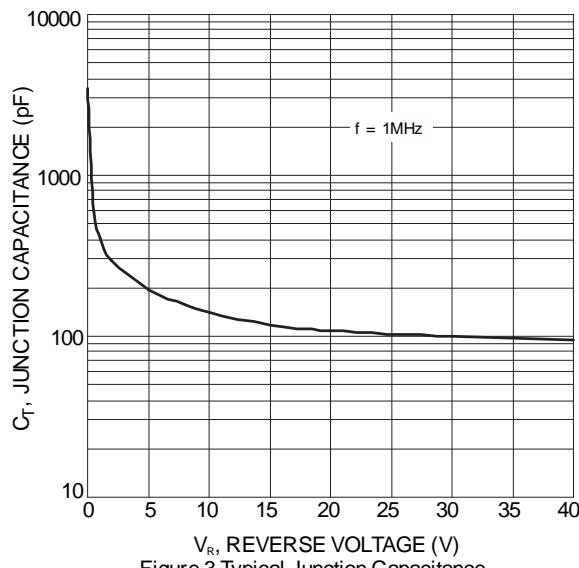


Figure 3 Typical Junction Capacitance

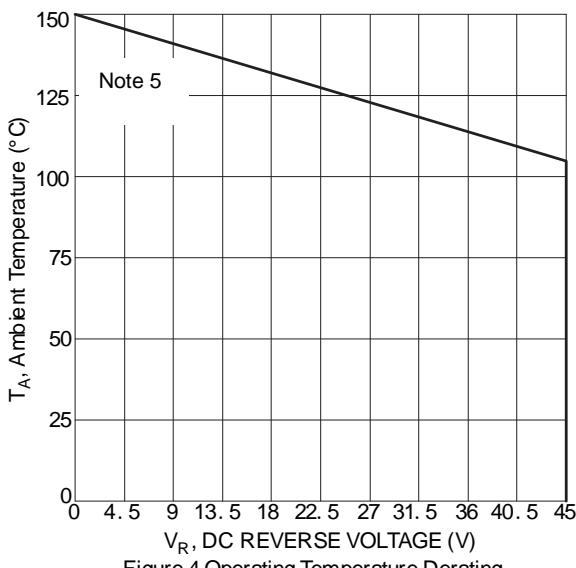


Figure 4 Operating Temperature Derating

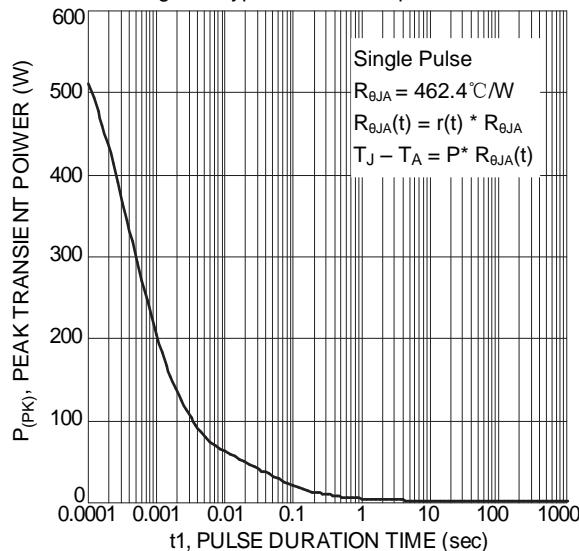


Figure 5 Single Pulse Maximum Power Dissipation

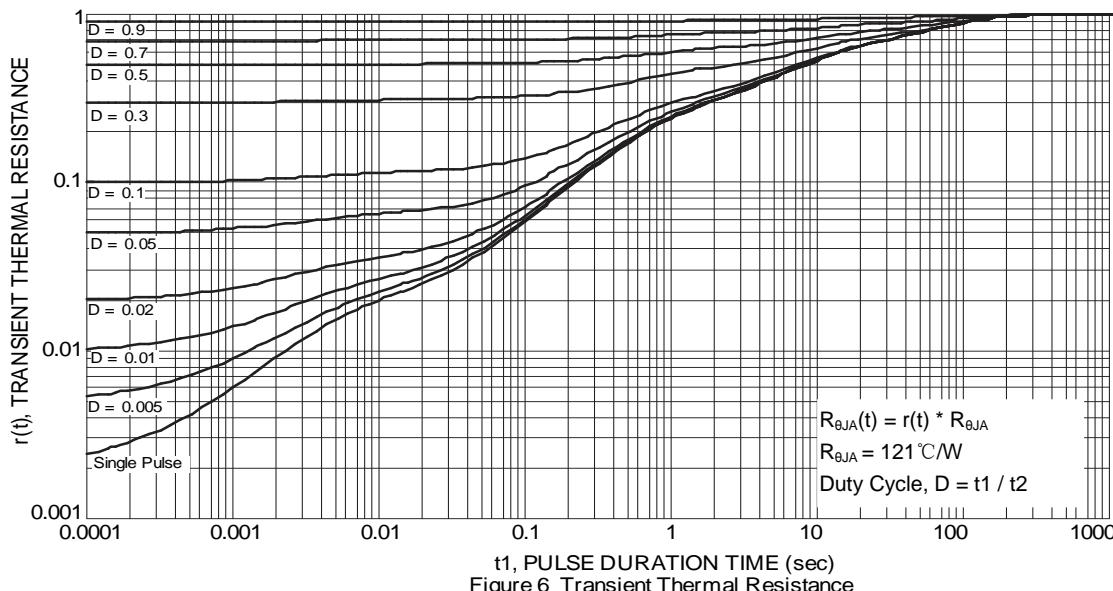
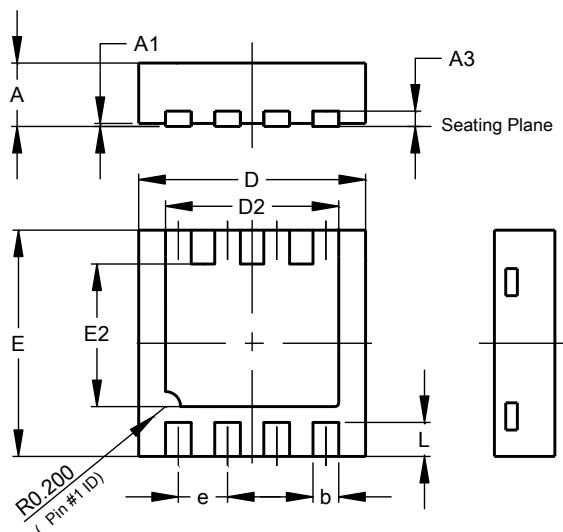


Figure 6 Transient Thermal Resistance

Package Outline Dimensions

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

U-DFN3030-8



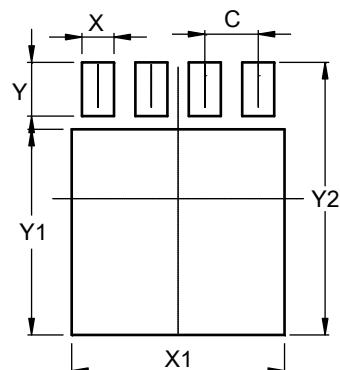
U-DFN3030-8			
Dim	Min	Max	Typ
A	0.57	0.63	0.60
A1	0	0.05	0.02
A3	-	-	0.15
b	0.29	0.39	0.34
D	2.90	3.10	3.00
D2	2.19	2.39	2.29
e	-	-	0.65
E	2.90	3.10	3.00
E2	1.64	1.84	1.74
L	0.30	0.60	0.45

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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