

Product Summary

V _{RRM} (V)	I _o (A)	V _{F(MAX)} (V) @ +25°C	I _{R(MAX)} (mA) @ +25°C
45	2	0.55	0.1

Description and Applications

The SBRT2U45LP 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

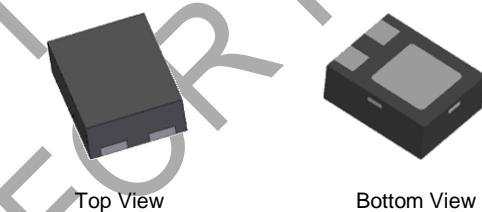
Features and Benefits

- Patented TrenchSBR[®] 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)
- For automotive applications requiring specific change control (i.e.: parts qualified to AEC-Q100/101/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please refer to the related automotive grade (Q-suffix) part. A listing can be found at <https://www.diodes.com/products/automotive/automotive-products/>.
- This part is qualified to JEDEC standards (as references in AEC-Q) for High Reliability. <https://www.diodes.com/quality/product-definitions/>

Mechanical Data

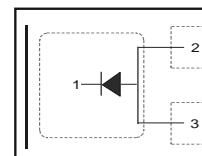
- Case: X1-DFN1411-3
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 (e3)
- Polarity: See Below
- Weight: 2.35 mg (Approximate)

X1-DFN1411-3



Top View

Bottom View

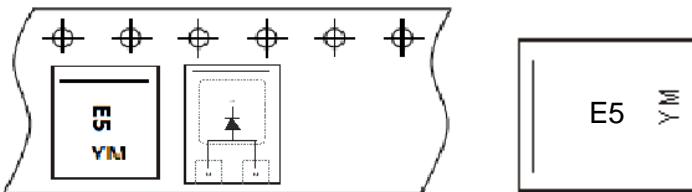
Top View
Internal Schematic**Ordering Information** (Note 4)

Part Number	Case	Packaging
SBRT2U45LP-7	X1-DFN1411-3	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, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

Marking Information



E5 = Product Type Marking Code
 YM = Date Code Marking
 Y = Year (ex: I = 2021)
 M = Month (ex: 6 = June)
 Bar = Cathode

Date Code Key

Year	2014	...	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Code	B	...	I	J	K	L	M	N	O	P	R	S
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	Q	N	D

Maximum Ratings (@ $T_A = +25^\circ\text{C}$, 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}		
Working Peak Reverse Voltage	V_{RWM}	45	V
DC Blocking Voltage	V_{RM}		
Average Rectified Output Current	I_O	2	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I_{FSM}	25	A

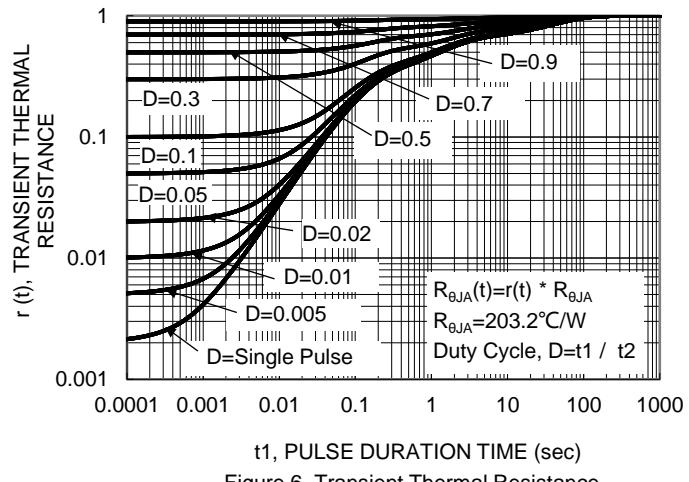
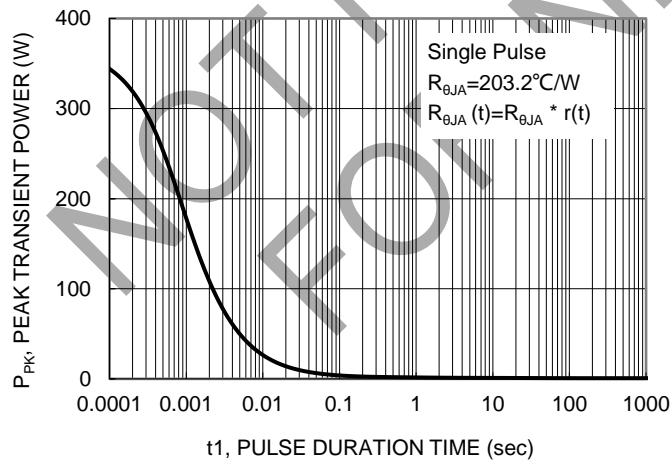
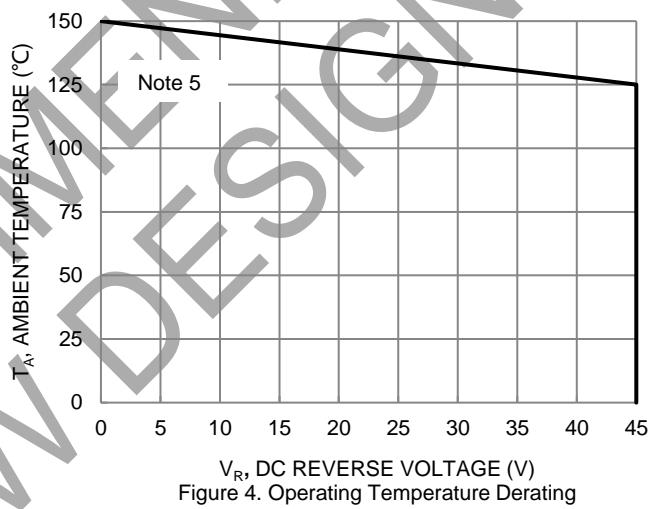
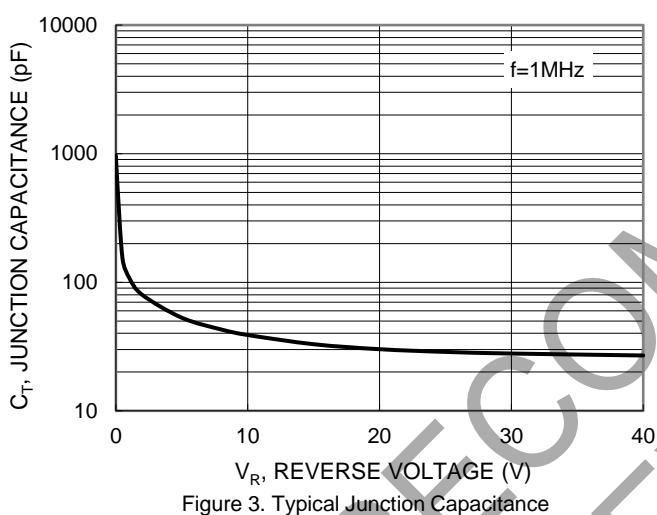
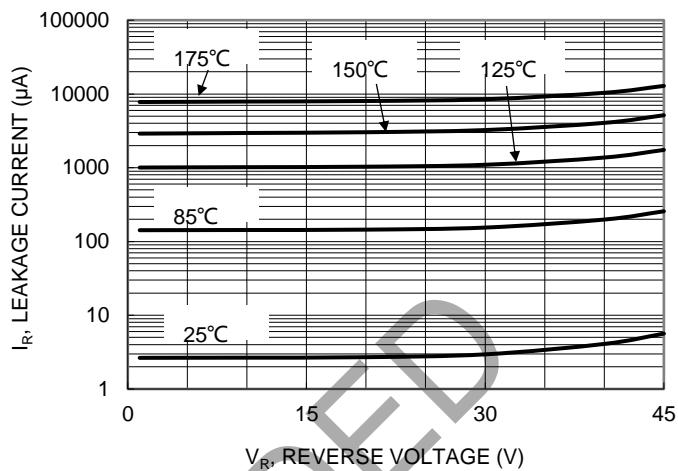
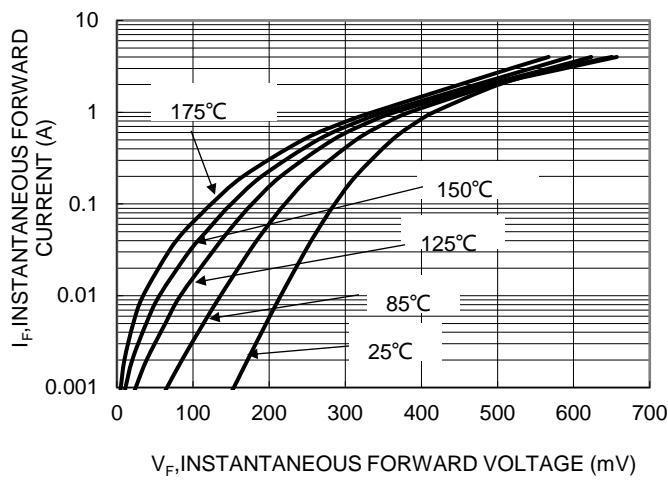
Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Case (Note 5)	$R_{\theta JC}$	25	$^\circ\text{C/W}$
Typical Thermal Resistance Junction to Ambient (Note 5)	$R_{\theta JA}$	100	$^\circ\text{C/W}$
Operating Temperature Range	T_J	-55 to +150	$^\circ\text{C}$
		≤ 175	
		≤ 200	
Storage Temperature Range	T_{STG}	-55 to +150	$^\circ\text{C}$

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	—	—	0.55	V	$I_F = 2\text{A}, T_J = +25^\circ\text{C}$
Leakage Current (Note 6)	I_R	—	—	100	μA	$V_R = 45\text{V}, T_J = +25^\circ\text{C}$
			2	—	mA	$V_R = 45\text{V}, T_J = +125^\circ\text{C}$

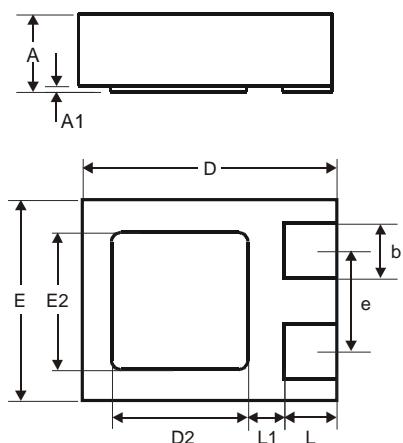
Notes:
 5. Device mounted on FR-4 PCB pad layout 1inch 2oz copper.
 6. Short duration pulse test used to minimize self-heating effect.
 7. Maximum junction temperature guaranteed for 2 hours.



Package Outline Dimensions

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

X1-DFN1411-3



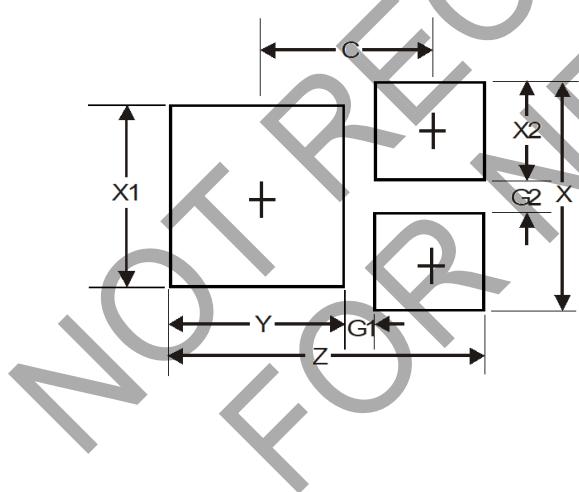
X1-DFN1411-3			
Dim	Min	Max	Typ
A	0.47	0.53	0.50
A1	0.00	0.05	0.02
b	0.25	0.35	0.30
D	1.35	1.475	1.40
D2	0.65	0.85	0.75
E	1.05	1.175	1.10
E2	0.65	0.85	0.75
e	—	—	0.55
L	0.225	0.325	0.275
L1	—	—	0.20

All Dimensions in mm

Suggested Pad Layout

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

X1-DFN1411-3



Dimensions	Value (in mm)
Z	1.38
G1	0.15
G2	0.15
X	0.95
X1	0.75
X2	0.40
Y	0.75
C	0.76

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