Product Summary

V_{RRM} (V)	I_O (A)	$V_{F(MAX)}$ (V) @ +25°C	$I_{R(MAX)}$ (mA) @ +25°C
10	2	0.4	0.25

Description and Applications

The SBRT2M10LP provides very low V_F and excellent reverse leakage stability at high temperatures. It is ideal for use as bypass and rectifier, freewheel diode or blocking diode in applications such as:

- Solar panels
- Blocking diodes
- Bypass diodes
- Boost diodes
- Recirculating diodes

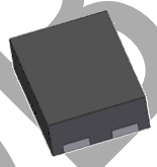
Features and Benefits

- Patented Trench Super Barrier Rectifier Technology (SBR®) 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/**

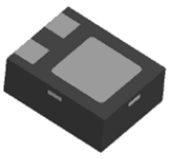
Mechanical Data

- Package: X1-DFN1411-3
- Package 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)

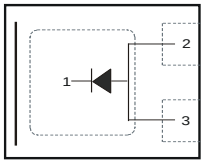
X1-DFN1411-3



Top View



Bottom View



Top View
Internal Schematic

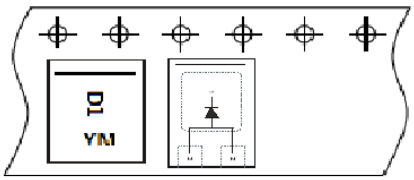
Ordering Information (Note 4)

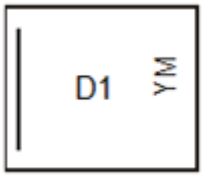
Part Number	Package	Packing	
		Qty.	Carrier
SBRT2M10LP-7	X1-DFN1411-3	3,000	Tape & Reel

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

X1-DFN1411-3





D1 = Product Type Marking Code
YM = Date Code Marking
Y = Year (ex: K = 2023)
M = Month (ex: 6 = June)
Bar = Cathode

Date Code Key

Year	2014	-	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Code	B	-	K	L	M	N	P	R	S	T	U	V

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

Maximum Ratings (@T_A = +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 Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_{RM}	10	V
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	°C/W
Typical Thermal Resistance Junction to Ambient (Note 5)		$R_{\theta JA}$	100	°C/W
Operating Temperature Range	$V_R \le 80\%\ V_{RRM}$	T_J	-55 to +150	°C
	$V_R \le 50\%\ V_{RRM}$		≤ +175	
	DC Forward Mode (Note 6)		≤ +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 7)	V_F	—	—	0.4	V	I_F = 2A, T_J = +25°C
Leakage Current (Note 7)	I_R	— —	— 10.8	250 —	µA mA	V_R = 10V, T_J = +25°C V_R = 10V, T_J = +125°C

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

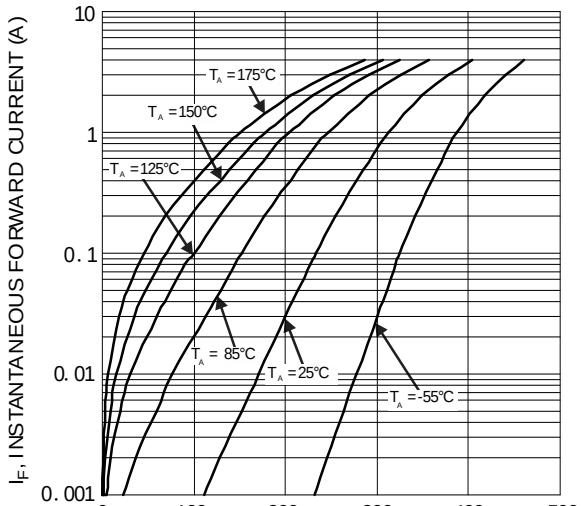


Figure 1 Typical Forward Characteristics

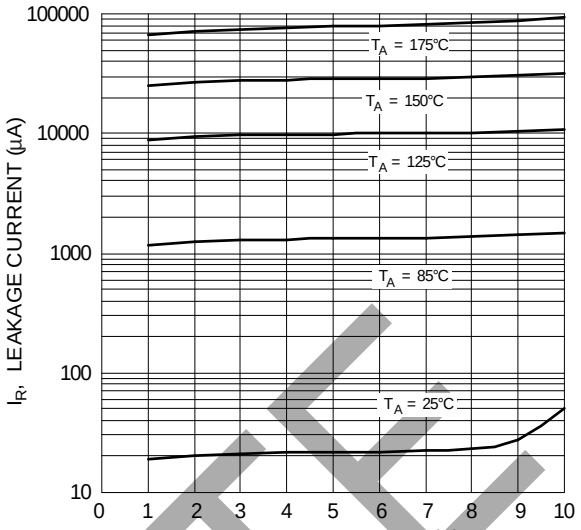


Figure 2 Typical Reverse Characteristics

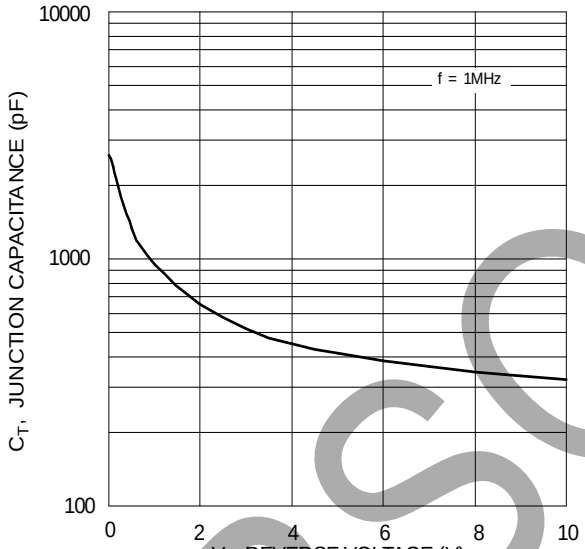


Figure 3 Typical Junction Capacitance

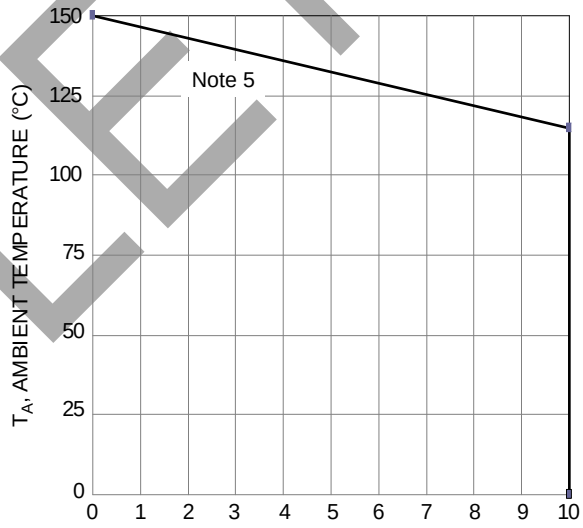


Figure 4 Operating Temperature Derating

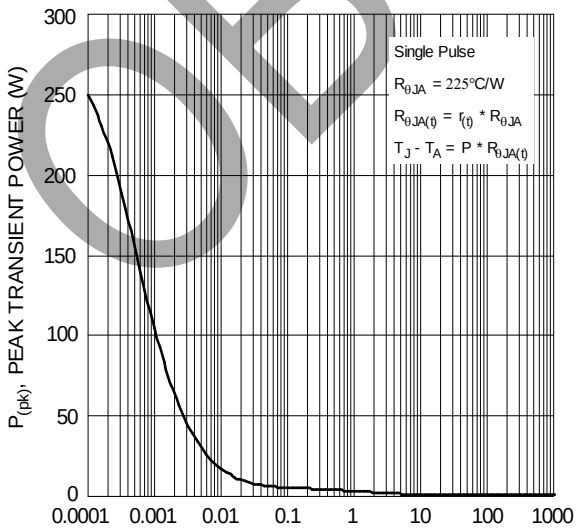


Figure 5 Single Pulse Maximum Power Dissipation

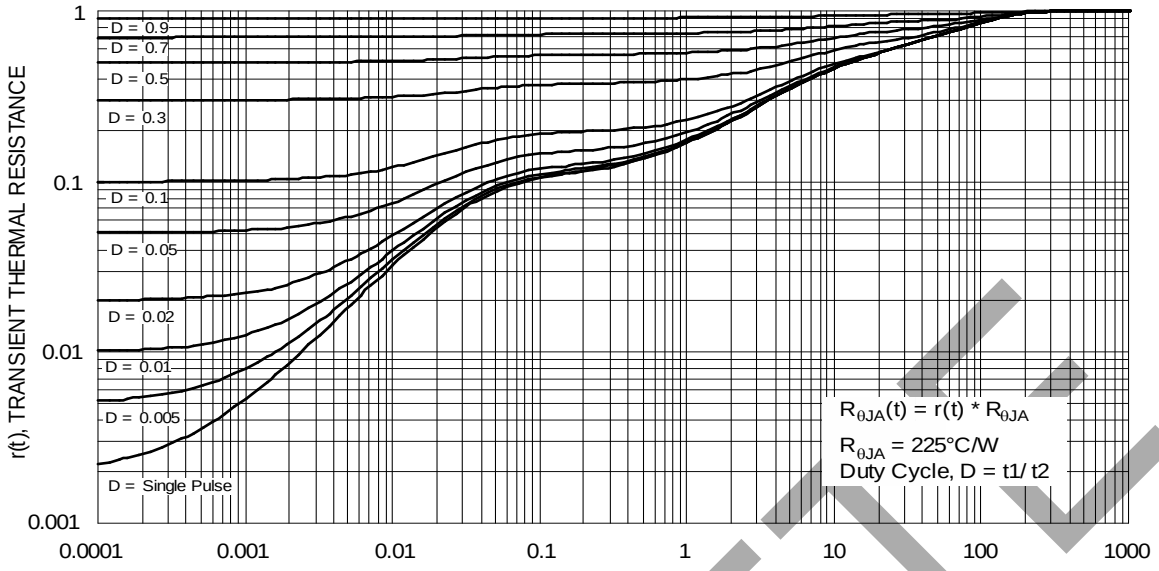
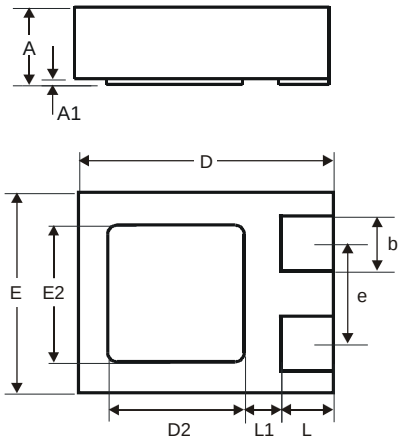


Figure 6 Transient Thermal Resistance

Package Outline Dimensions

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

X1-DFN1411-3

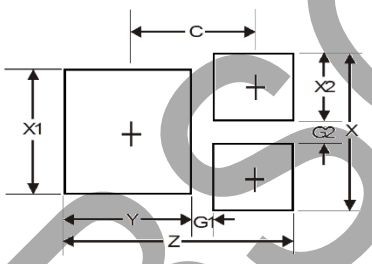


X1-DFN1411-3			
Dim	**Min**	**Max**	**Typ**
A	0.47	0.53	0.50
A1	0.00	0.05	0.02
b	0.25	0.35	0.30
D	1.35	1.475	1.40
D2	0.65	0.85	0.75
E	1.05	1.175	1.10
E2	0.65	0.85	0.75
e	—	—	0.55
L	0.225	0.325	0.275
L1	—	—	0.20
All Dimensions in mm			

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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