



# 2A TrenchSBR TRENCH SUPER BARRIER RECTIFIER

### **Product Summary**

V <sub>RRM</sub> (V)	I <sub>O</sub> (A)	V <sub>F</sub> (MAX) (V) @ +25°C	I <sub>R(MAX)</sub> (mA) @ +25°C	
10	2	0.4	0.25	

### **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<sub>F</sub>); 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 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

### **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<sup>®</sup>
- · Polarity: See Below
- Weight: 2.35 mg (Approximate)

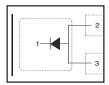
#### X1-DFN1411-3







**Bottom View** 



Top View Internal Schematic

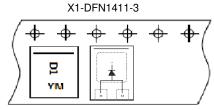
#### **Ordering Information** (Note 4)

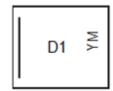
Part Number	Case	Packaging
SBRT2M10LP-7	X1-DFN1411-3	3,000/Tape & Reel

Notes:

- 1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
- 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**





D1 = Product Type Marking Code YM = Date Code Marking Y = Year (ex: C = 2015) M = Month (ex: 6 = June) Bar=Cathode

Date Code Key

Date Code Hoj												
Year	2014	20	015	2016	2017	20	18	2019	2020	20	21	2022
Code	В		С	D	Е		F	G	Н		I	J
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	0	N	D



### **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 Working Peak Reverse Voltage DC Blocking Voltage	V <sub>RRM</sub> V <sub>RWM</sub> V <sub>RM</sub>	10	٧
Average Rectified Output Current	Io	2	Α
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I <sub>FSM</sub>	25	А

### **Thermal Characteristics**

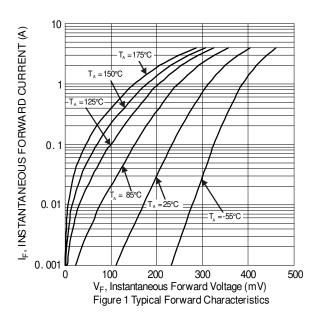
Characteristic			Value	Unit	
Typical Thermal Resistance Junction to Case (Note 5)		ReJC	25	°C/W	
Typical Thermal Resistance Junction to Ambient (Note 5)		$R_{\theta JA}$	100	°C/W	
	V <sub>R</sub> ≤ 80% V <sub>RRM</sub>		-55 to +150		
Operating Temperature Range	V <sub>R</sub> ≤ 50% V <sub>RRM</sub>	$T_J$	≤ +175	°C	
	DC Forward Mode (Note 7)		≤ +200		
Storage Temperature Range		T <sub>STG</sub>	-55 to +150	°C	

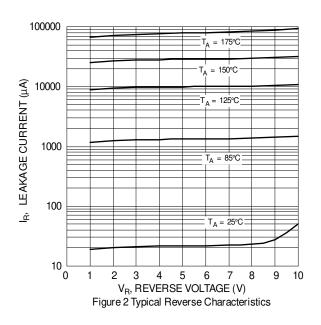
# **Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition
Forward Voltage Drop (Note 6)	V <sub>F</sub>	_	_	0.4	V	I <sub>F</sub> = 2A, T <sub>J</sub> = +25°C
Leakage Current (Note 6)	1-	_	_	250	μΑ	$V_R = 10V, T_J = +25^{\circ}C$
Leakage Guirent (Note 0)	ıR ıR	_	10.8	_	mA	$V_R = 10V, T_J = +125$ °C

Notes:

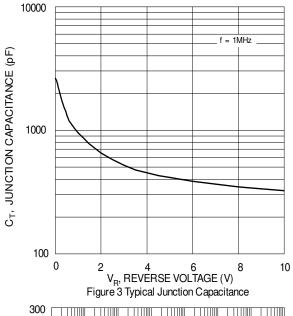
- Device mounted on FR-4 PCB pad layout 1inch 2oz copper.
  Short duration pulse test used to minimize self-heating effect.
  Maximum junction temperature guaranteed for two hours.

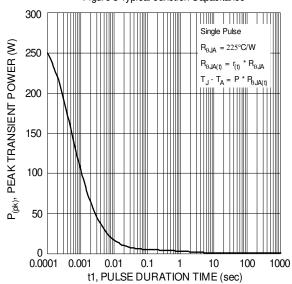


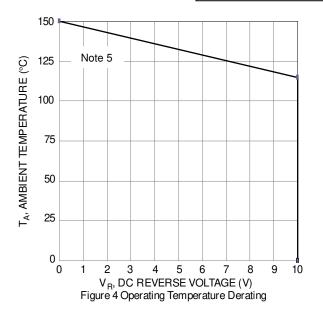


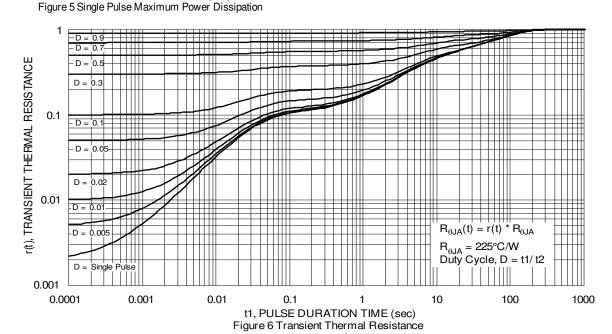








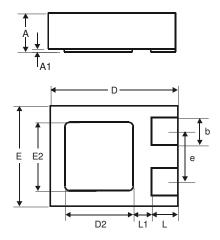






# **Package Outline Dimensions**

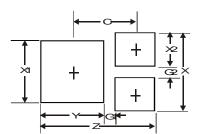
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for the latest version.



X1-DFN1411-3							
Dim	Min	Max	Тур				
Α	0.47	0.53	0.50				
<b>A</b> 1	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				
Е	1.05	1.175	1.10				
E2	0.65	0.85	0.75				
е			0.55				
L	0.225	0.325	0.275				
L1	_	_	0.20				
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)
Z	1.38
G1	0.15
G2	0.15
Х	0.95
X1	0.75
X2	0.40
Υ	0.75
С	0.76



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