

Product Summary

V _{RRM} (V)	I _o (A)	V _{F(MAX)} (V) @ +25°C	I _{R(MAX)} (μA) @ +25°C
100	1.5	0.85	50

Description and Applications

This Super Barrier Rectifier (SBR[®]) diode is designed to meet the stringent requirements of Automotive Applications. It is ideally suited for use as a:

- Polarity Protection Diode
- Recirculating Diode
- Switching Diode
- Bypass Diodes

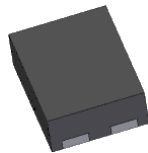
Features and Benefits

- Low Forward Voltage Drop
- Excellent High-Temperature Stability
- Patented Super Barrier Rectifier Technology
- Soft, Fast Switching Capability
- +175°C Operating Junction Temperature
- **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**

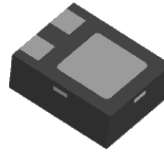
Mechanical Data

- 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@3
- Polarity: See Below
- Weight: 2.35 mg (Approximate)

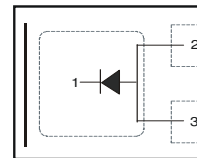
X1-DFN1411-3



Top View



Bottom View



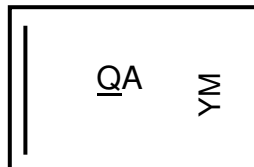
Top View
Internal Schematic

Ordering Information (Note 4)

Part Number	Case	Packaging
SBR2U100LP-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.
 2. 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



QA = Product Type Marking Code
 YM = Date Code Marking
 Y = Year (ex: C = 2015)
 M = Month (ex: 4 = April)
 Bar = Cathode

Date Code Key

Year Code	2015	2016	2017	2018	2019	2020	2021	2022	2023
Code	C	D	E	F	G	H	I	J	K

Month Code	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 (@ $T_A = +25^\circ\text{C}$, 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}	100	V
Working Peak Reverse Voltage	V_{RWM}		
DC Blocking Voltage	V_{RM}		
Average Rectified Output Current	I_O	1.5	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I_{FSM}	18	A

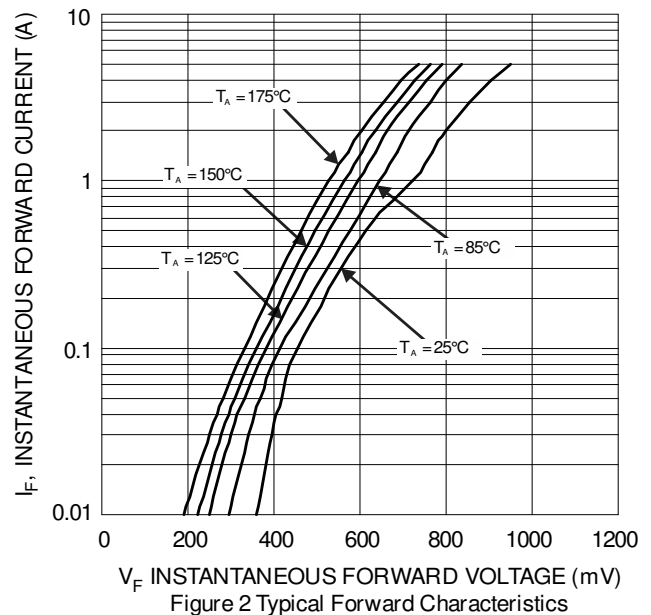
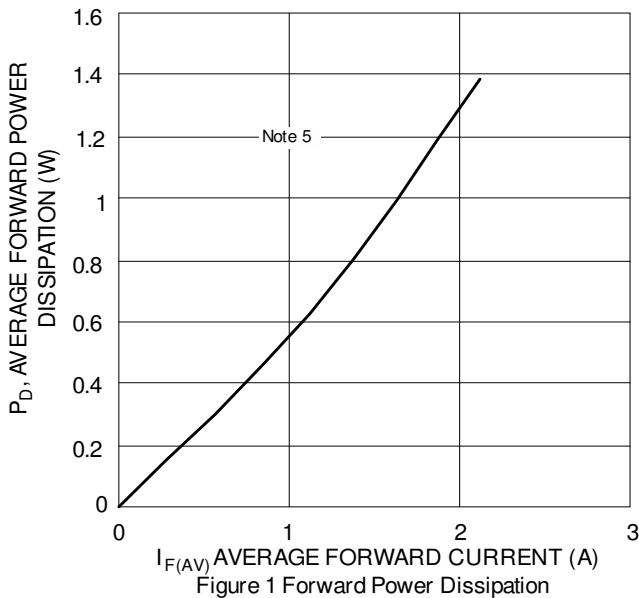
Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Ambient (Note 5)	$R_{\theta JA}$	100	$^\circ\text{C}/\text{W}$
Operating Temperature Range $V_R \leq 80\% V_{RRM}$ $V_R \leq 50\% V_{RRM}$ DC Forward Mode (Note 6)	T_J	-55 to +150 $\leq +175$ $\leq +200$	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55 to +175	$^\circ\text{C}$

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage Drop (Note 7)	V_F	—	0.71	0.78	V	$I_F = 1\text{A}, T_J = +25^\circ\text{C}$
		—	0.76	0.85		$I_F = 1.5\text{A}, T_J = +25^\circ\text{C}$
Leakage Current (Note 7)	I_R	—	—	50	μA	$V_R = 100\text{V}, T_J = +25^\circ\text{C}$
		—	60	—	μA	$V_R = 100\text{V}, T_J = +125^\circ\text{C}$

- Notes:
 5. 1 inch sq. copper pad, 2 oz.
 6. Max junction temperature guaranteed for 2 hours.
 7. Short duration pulse test used to minimize self-heating effect.



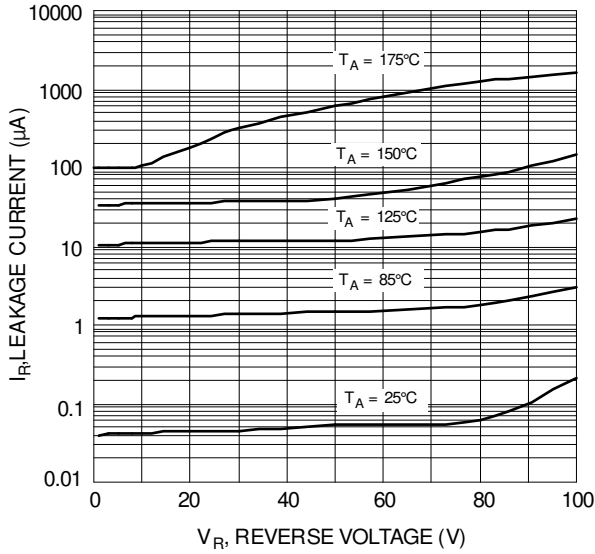


Figure 3 Typical Reverse Characteristics

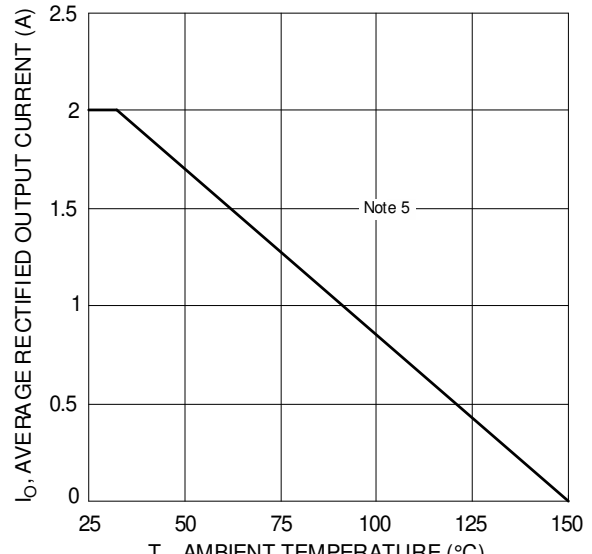
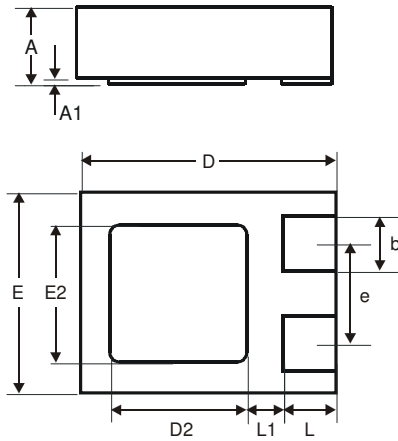


Figure 4 DC Forward Current Derating Curve

Package Outline Dimensions

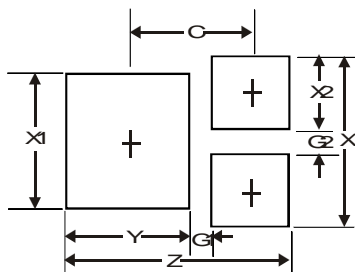
Please see <http://www.diodes.com/package-outlines.html> for the latest version.



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.



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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