1.0A SBR®
SUPER BARRIER RECTIFIER

Features

- Ultra Low Forward Voltage Drop
- Excellent High Temperature Stability
- Patented Super Barrier Rectifier Technology
- Soft, Fast Switching Capability
- 150ºC Operating Junction Temperature
- **Lead Free By Design, RoHS Compliant (Note 1)**
- **Halogen and Antimony Free "Green" Device (Notes 2 & 3)**

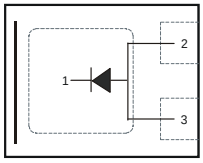
Mechanical Data

- 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
- Terminal Connections: See Diagram
- Terminals: Finish – NiPdAu over Copper Lead Frame. Solderable per MIL-STD-202, Method 208
- Weight: 2.35mg (approximate)

X1-DFN1411-3

Top View

Bottom View



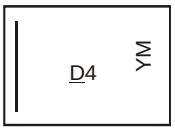
Top View
Internal Schematic

Ordering Information (Note 4)

Part Number	Case	Packaging
SBR1U40LP-7	X1-DFN1411-3	3000/Tape & Reel

Notes:
1. EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. No purposely added lead. Halogen and Antimony free.
2. Halogen and Antimony free "Green” products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
3. Diodes Inc.'s "Green" policy can be found on our website at http://www.diodes.com.
4. For packaging details, go to our website at http://www.diodes.com

Marking Information



D4 = Product Type Marking Code
YM = Date Code Marking
Y = Year (ex: U = 2007)
M = Month (ex: 9 = September)

Date Code Key

Year	2007	2008	2009	2010	2011	2012	2013	2014	2015
Code	U	V	W	X	Y	Z	A	B	C

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

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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 (Note 5) Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_{RM}	40	V
RMS Reverse Voltage	$V_{R(RMS)}$	28	V
Average Rectified Output Current (See Figure 1)	I_O	1.0	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I_{FSM}	5	A
Non-Repetitive Peak Forward Surge Current 15s Single Half Sine-Wave Superimposed on Rated Load	I_{FSM}	2.6	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation	P_D	400	mW
Maximum Thermal Resistance Junction to Ambient (Note 6)	$R_{\theta JA}$	190	ºC/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +150	ºC

Electrical Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage Drop	V_F	-	0.39	0.42	V	I_F = 0.5A, T_J = 25ºC
		-	0.46	0.49		I_F = 1.0A, T_J = 25ºC
		-	0.34	0.37		I_F = 0.5A, T_J = 125ºC
		-	0.43	0.47		I_F = 1.0A, T_J = 125ºC
Leakage Current (Note 7)	I_R	-	-	50	µA	V_R = 40V, T_J = 25ºC
		-	-	100	mA	V_R = 40V, T_J = 125ºC

Notes: 5. V_{RRM} characteristic is base on 1mA leakage current test condition
6. Device mounted on Polymide substrate 1" x 1", 2oz. Copper double sided PCB board.
7. Short duration pulse test used to minimize self-heating effect.

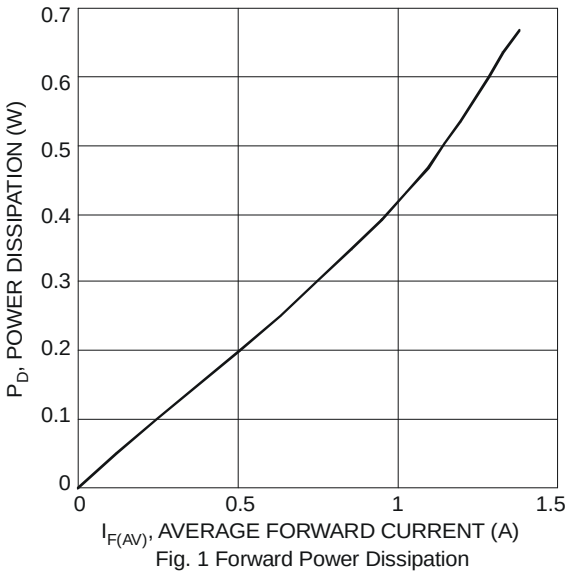

Fig. 1 Forward Power Dissipation

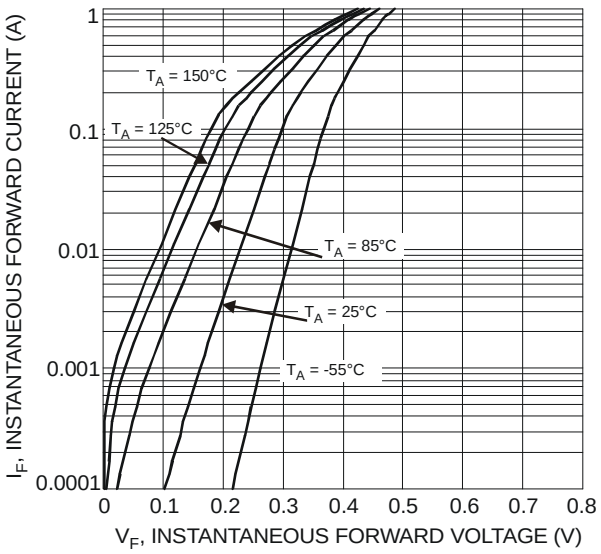

Fig. 2 Typical Forward Characteristics

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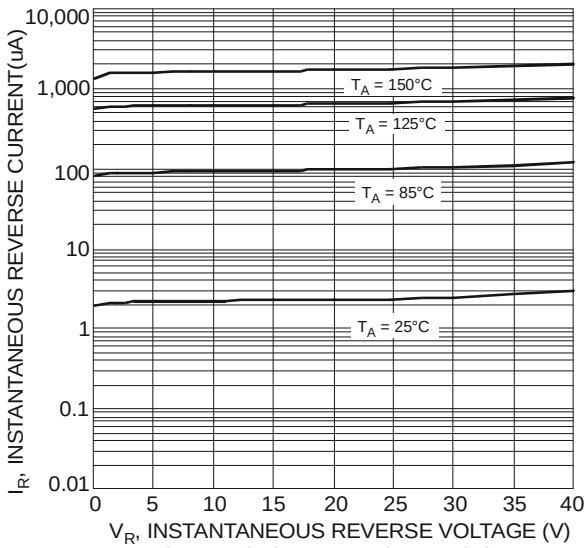

Fig. 3 Typical Reverse Characteristics

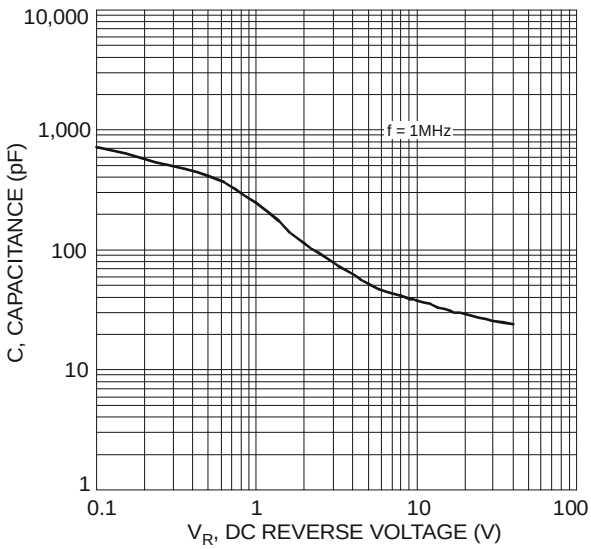

Fig. 4 Total Capacitance vs. Reverse Voltage

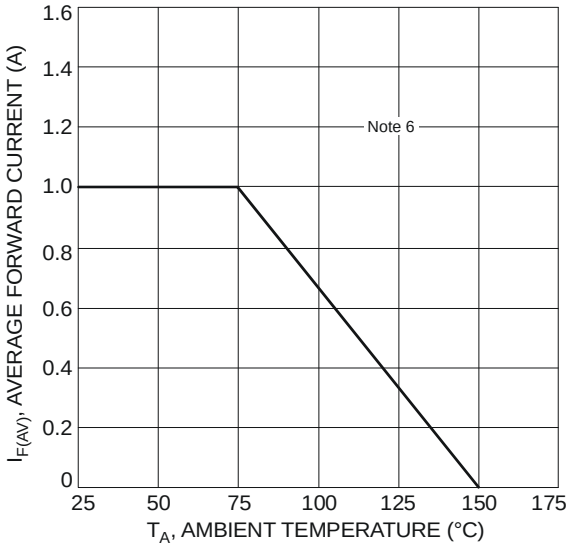

Fig. 5 Forward Current Derating Curve

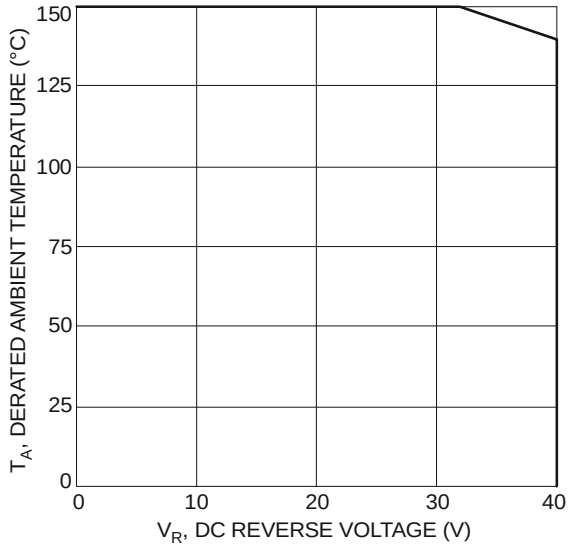

Fig. 6 Operating Temperature Derating

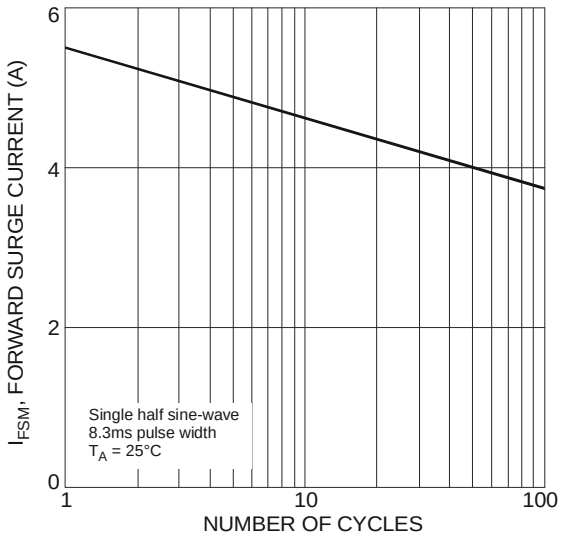

Fig. 7 Forward Surge Current vs. Number of Cycles

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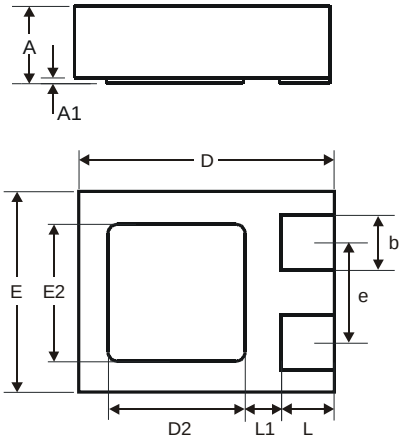
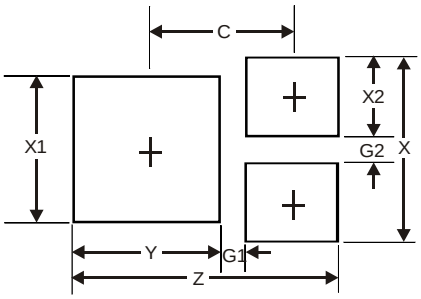
Package Outline Dimensions



X1-DFN1411-3			
Dim	**Min**	**Max**	**Typ**
A	0.47	0.53	0.50
A1	0	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



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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