Product Summary

V_{RRM} (V)	I_O (A)	$V_{F\ (MAX)}$ (V) @ +25°C	$I_{R\ (MAX)}$ (mA) @ +25°C
40	0.2	0.59	0.01

Features and Benefits

- Patented Trench Super Barrier Rectifier SBR® Technology
- With Visible And Solderable Side Pads
- Ultra-Low Forward Voltage Drop
- Superior Reverse Avalanche Capability
- Patented Super Barrier Rectifier Technology
- Soft, Fast Switching Capability
- **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/**

Description and Applications

Packaged in the X1-DFN1006-2 (SWP) (Type C) package, the SBR0240LPW provides very low V_F and excellent reverse-leakage stability at high temperatures. It is ideal for use as a rectifier, freewheel diode, or blocking diode in:

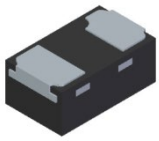
- DC-DC Converters
- AC-DC Adaptors

Mechanical Data

- Case: X1-DFN1006-2
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish. Solderable per MIL-STD-202, Method 208 (e3)
- Weight: 0.0854mg (Approximate)

X1-DFN1006-2 (SWP) (Type C)

Top View



Bottom View

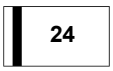
Ordering Information (Note 4)

Part Number	Case	Packaging
SBR0240LPW-7B	X1-DFN1006-2 (SWP) (Type C)	10,000/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/.

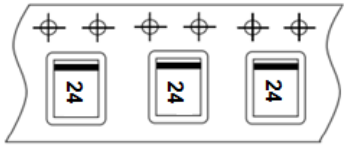
Marking Information

Cathode



Anode

24 = Product Type Marking Code
Bar Denotes Cathode



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}	40	V
Average Rectified Output Current (See Figure 1)	I_O	200	mA
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I_{FSM}	5	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance, Junction to Ambient T_A = +25°C (Note 5)	$R_{\theta JA}$	320	°C/W
Typical Power Dissipation (Note 5)	P_D	390	mW
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +150	°C

Electrical Characteristics (@ T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage Drop	V_F	— — — — — —	0.15 0.22 0.29 0.38 0.45 0.42	0.21 0.28 0.35 0.49 0.59 0.56	V	I_F = 0.1mA, T_J = +25°C I_F = 1.0mA, T_J = +25°C I_F = 10mA, T_J = +25°C I_F = 100mA, T_J = +25°C I_F = 200mA, T_J = +25°C I_F = 200mA, T_J = +125°C
Leakage Current (Note 6)	I_R	—	1.5 2.5 500	— 10 —	µA	V_R = 25V, T_J = +25°C V_R = 40V, T_J = +25°C V_R = 40V, T_J = +125°C
Total Capacitance	C_T	—	8	—	pF	V_R = 5V, f = 1MHz
Reverse Recovery Time	t_{RR}	—	3.8	—	ns	I_F = 10mA, I_{RRM} = 0.1I_R, T_A = +25°C

Notes: 5. 1*MRP FR-4 PC board 2oz. copper, minimum recommended pad layout per http://www.diodes.com/package-outlines.html.
6. Short duration pulse test used to minimize self-heating effect.

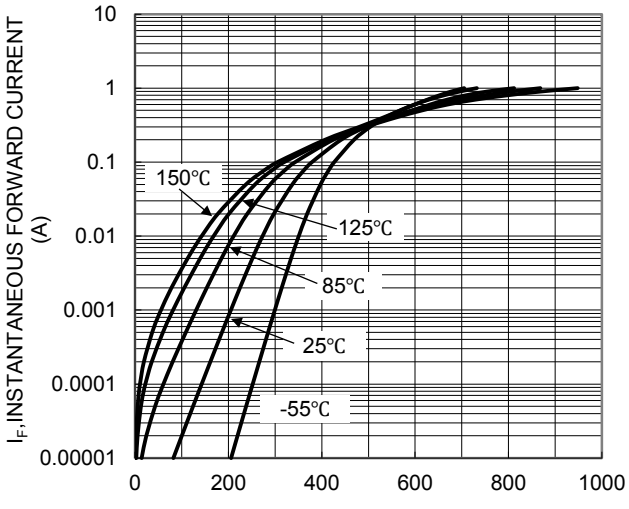


Fig. 1 Typical Forward Characteristics

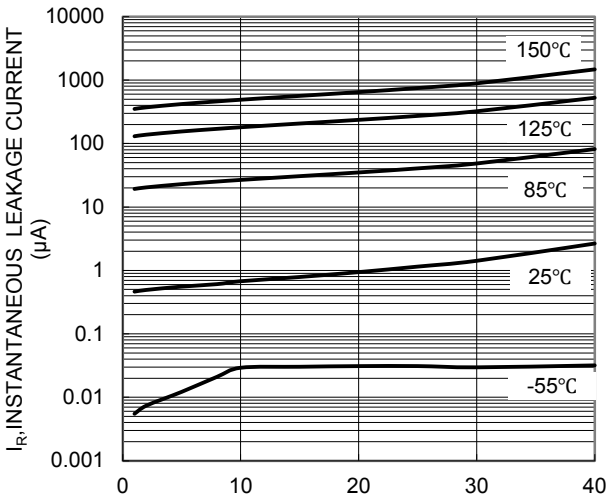


Fig. 2 Typical Reverse Characteristics

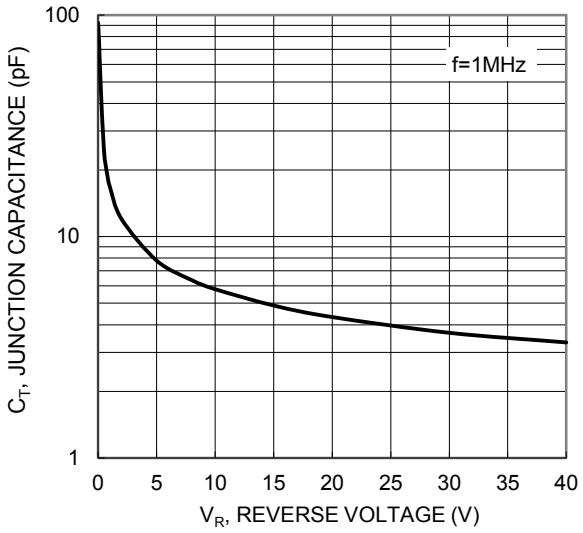


Fig. 3 Typical Junction Capacitance

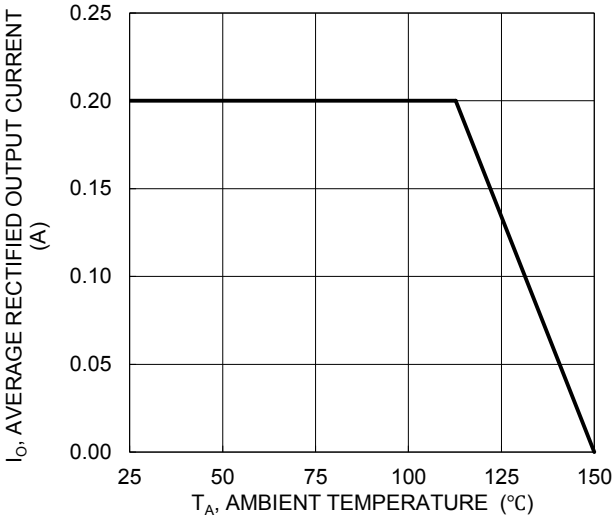


Fig. 4 DC Forward Current Derating

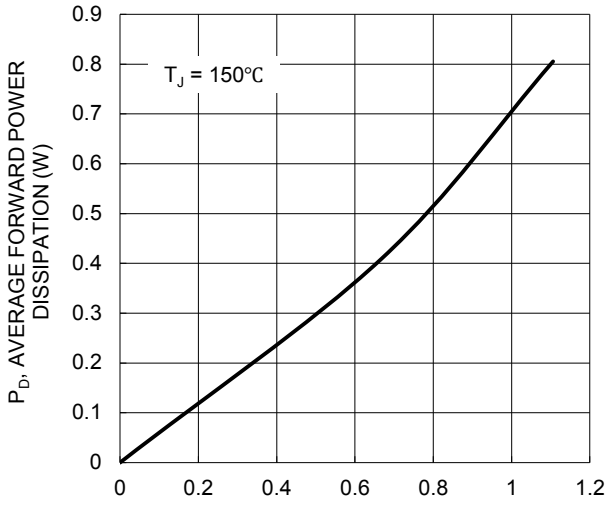
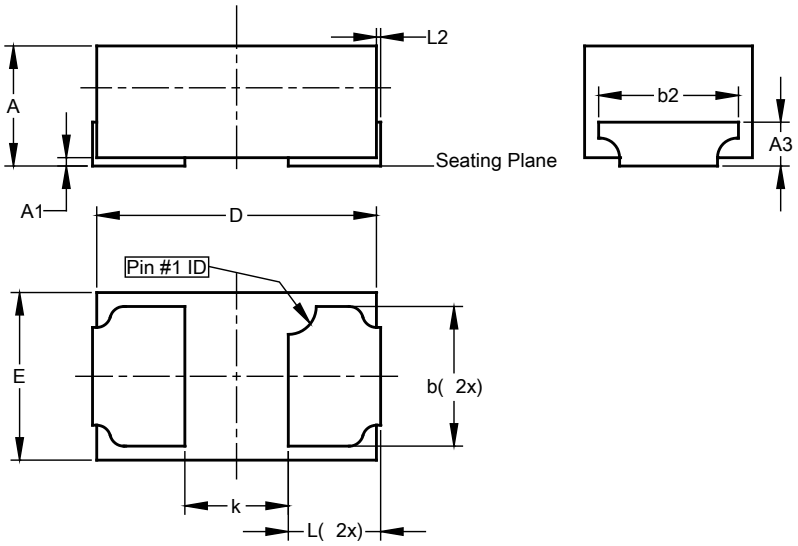


Fig. 5 Forward Power Dissipation

Package Outline Dimensions

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

X1-DFN1006-2 (SWP) (Type C)

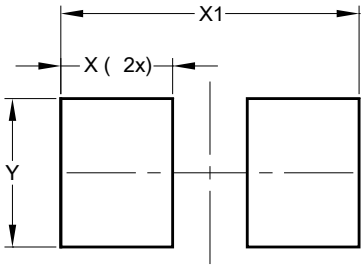


X1-DFN1006-2 (SWP) (Type C)			
Dim	**Min**	**Max**	**Typ**
A	0.37	0.47	0.42
A1	0.00	0.05	0.03
A3	0.17 REF		
b	0.47	0.57	0.52
b2	0.55 REF		
D	0.95	1.05	1.00
E	0.55	0.65	0.60
k	0.37 REF		
L	0.28	0.38	0.33
L2	0.15 REF		
All Dimensions in mm			

Suggested Pad Layout

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

X1-DFN1006-2 (SWP) (Type C)



Dimensions	Value (in mm)
X	0.45
X1	1.20
Y	0.60

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