0.2A SBR
SURFACE-MOUNT SUPER BARRIER RECTIFIER

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 Super Barrier Rectifier Technology (SBR®)
- With Visible and Solderable Side Pads
- Ultra-Low Forward Voltage Drop
- Superior Reverse Avalanche Capability
- Soft, Fast Switching Capability
- Package with Side Wall Plating
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **This part is qualified to JEDEC standards (as references in AEC-Q) for High Reliability. https://www.diodes.com/quality/product-definitions/**
- **An automotive-compliant part is available under separate datasheet (SBR0240LPWQ)**

Description and Applications

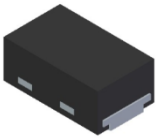
Packaged in the X1-DFN1006-2 (SWP) (Type C) package, the SBR0240LPW provides very low V_F and excellent reverse-leakage stability at high temperatures. It is ideal for use as a rectifier, freewheel diode, or blocking diode in:

- DC-DC converters
- AC-DC adaptors

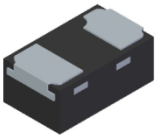
Mechanical Data

- Package: X1-DFN1006-2
- Package 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: 0.854mg (Approximate)

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



Top View



Bottom View

Ordering Information (Note 4)

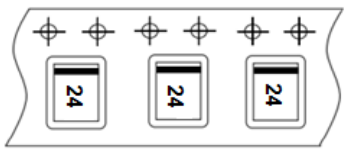
Part Number	Package	Packing	
		Qty.	Carrier
SBR0240LPW-7B	X1-DFN1006-2 (SWP) (Type C)	10,000	Tape & Reel

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 | 24 | 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.

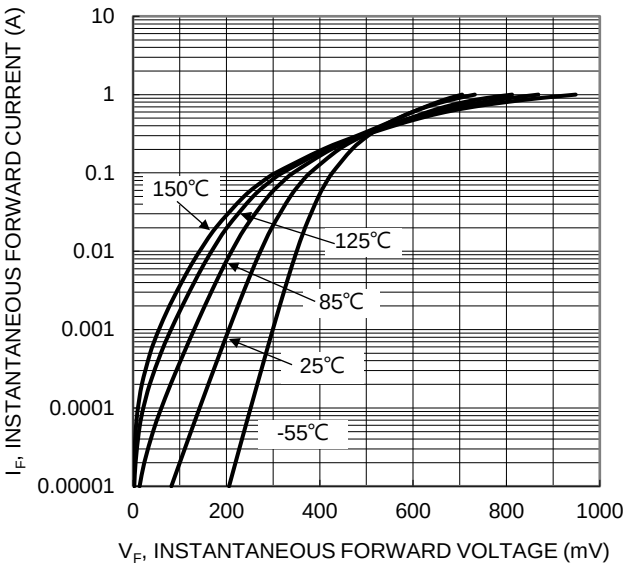


Figure 1. Typical Forward Characteristics

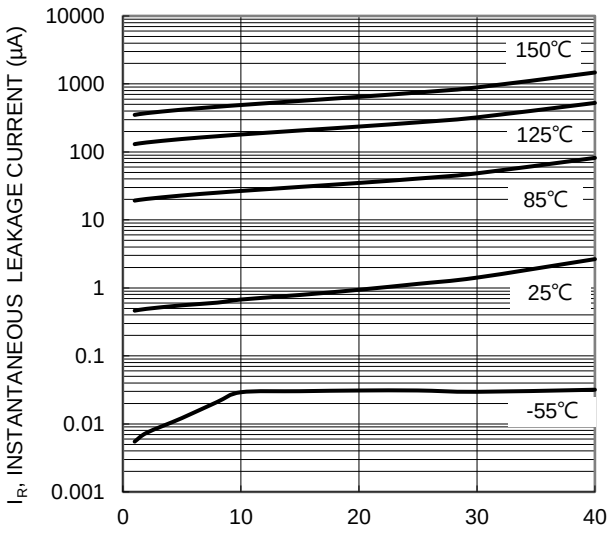


Figure 2. Typical Reverse Characteristics

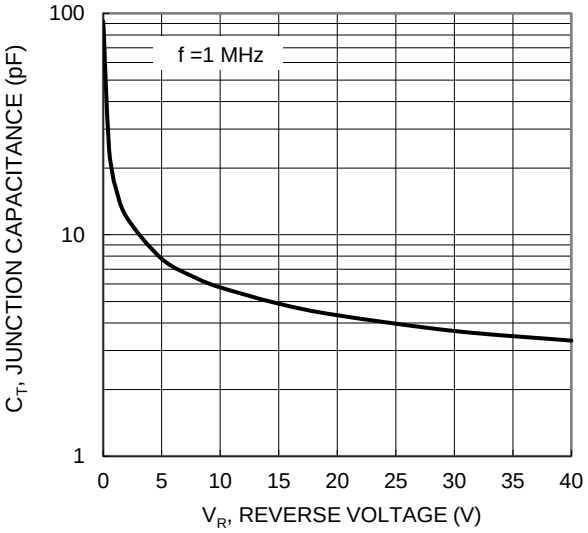


Figure 3. Typical Junction Capacitance

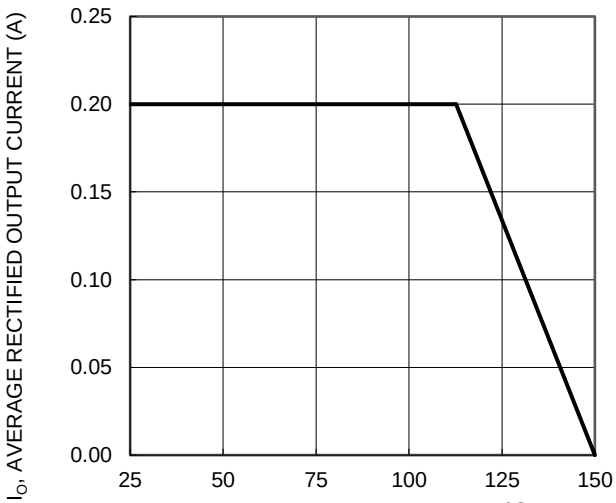


Figure 4. DC Forward Current Derating

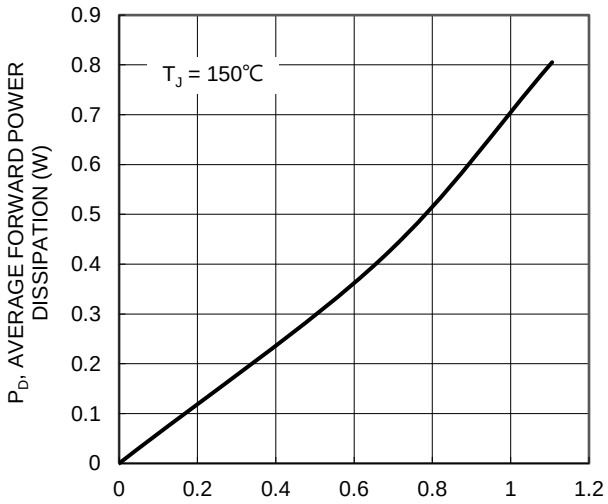
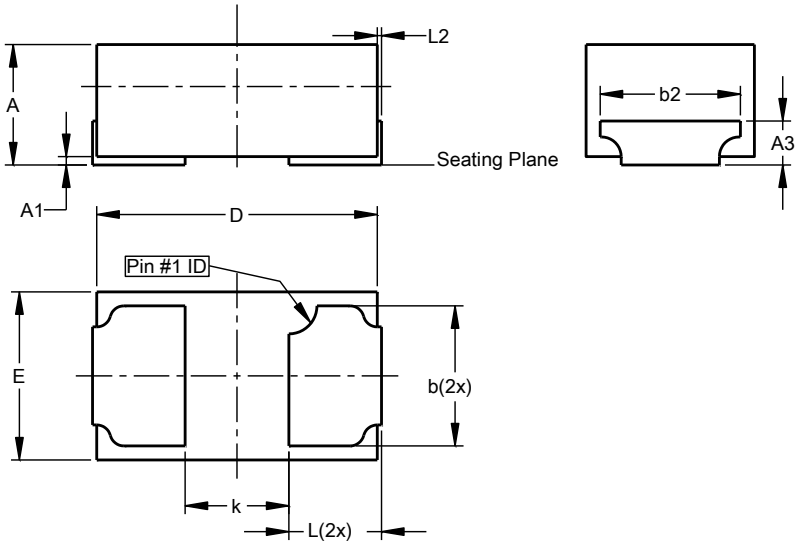


Figure 5. Forward Power Dissipation

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

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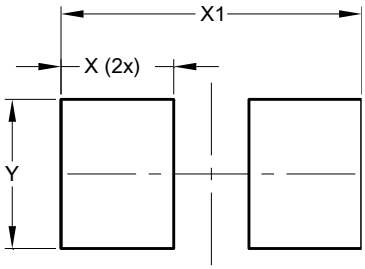
X1-DFN1006-2 (SWP) (Type C)



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

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