0.2A SBR
SURFACE-MOUNT SUPER BARRIER RECTIFIER

Product Summary

V_{RRM} (V)	I_O (A)	$V_{F\ (MAX)}$ (V) @ +25°C	$I_{R\ (MAX)}$ (µA) @ +25°C
100	0.2	0.81	20

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
- Soft, Fast Switching Capability
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **The SBR02U100LPWQ is suitable for automotive applications requiring specific change control; this part is AEC-Q101 qualified, PPAP capable, and manufactured in IATF 16949 certified facilities.**
  https://www.diodes.com/quality/product-definitions/

Description and Applications

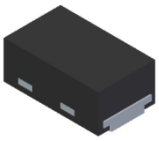
Packaged in X1-DFN1006-2 (SWP) (Type C) package, provides very low V_F and excellent reverse-leakage stability at high temperatures. It is ideal for use as a rectifier, freewheel diode or blocking diode in:

- DC-DC converters
- AC-DC adaptors

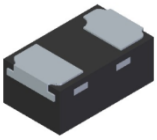
Mechanical Data

- 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: 0.001g (Approximate)

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



Top View



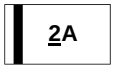
Bottom View

Ordering Information (Note 4)

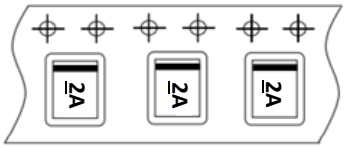
Orderable Part Number	Package	Packing	
		Qty.	Carrier
SBR02U100LPWQ-7B	X1-DFN1006-2 (SWP) (Type C)	10,000	Tape & Reel

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



2A = Product Type Marking Code
Bar Denotes Cathode



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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}	100	V
Average Rectified Output Current	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 Power Dissipation, T_A = +25°C (Note 5)	P_D	500	mW
Typical Power Dissipation, T_A = +25°C (Note 6)	P_D	950	mW
Typical Thermal Resistance, Junction to Ambient, T_A = +25°C (Note 5)	$R_{\theta JA}$	250	°C/W
Typical Thermal Resistance, Junction to Ambient, T_A = +25°C (Note 6)	$R_{\theta JA}$	125	°C/W
Typical Thermal Resistance, Junction to Case, T_A = +25°C (Note 5)	$R_{\theta JC}$	25	°C/W
Typical Thermal Resistance, Junction to Case, T_A = +25°C (Note 6)	$R_{\theta JC}$	15	°C/W
Operating and Storage Temperature Range (Note 7)	T_J, T_{STG}	-55 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	— — —	0.67 0.76 0.61	0.72 0.81 0.66	V	I_F = 100mA, T_J = +25°C I_F = 200mA, T_J = +25°C I_F = 200mA, T_J = +125°C
Leakage Current (Note 8)	I_R	— —	0.1 0.03	20 2	µA mA	V_R = 100V, T_J = +25°C V_R = 100V, T_J = +125°C
Total Capacitance	C_T	—	5	—	pF	V_R = 5V, f = 1MHz
Reverse-Recovery Time	t_{RR}	—	11	—	ns	I_F = 10mA, I_{RR} = 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. One-inch square copper pad 2oz.
7. The heat generated must be less than the thermal conductivity from junction-to-ambient: $dP_D / dT_J < 1 / R_{\theta JA}$.
8. Short duration pulse test used to minimize self-heating effect.

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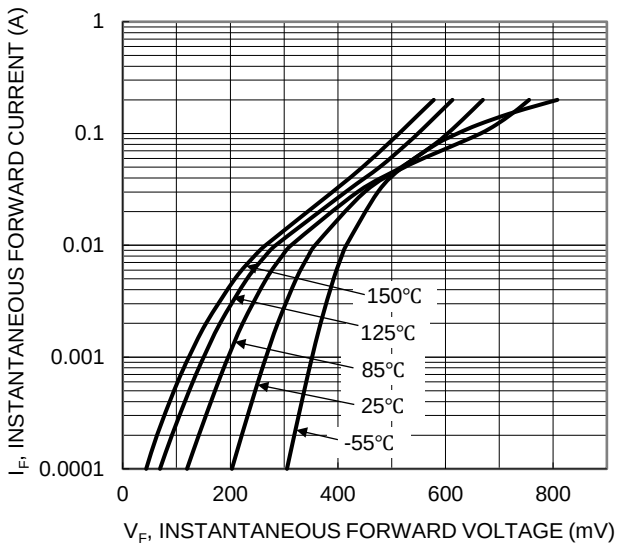


Figure 1. Typical Forward Characteristics

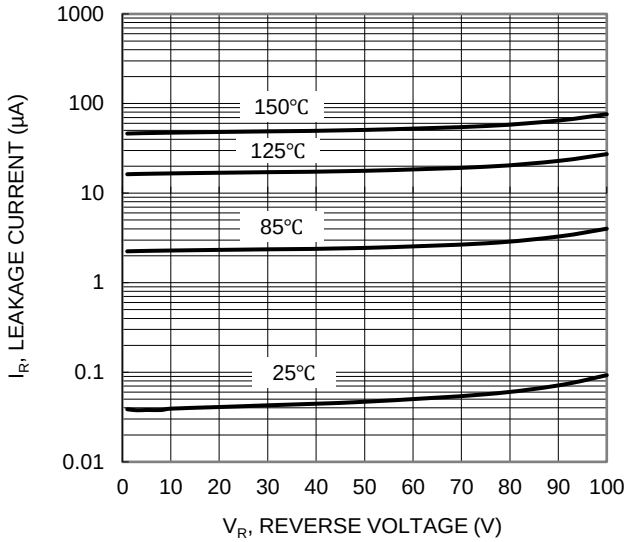


Figure 2. Typical Reverse Characteristics

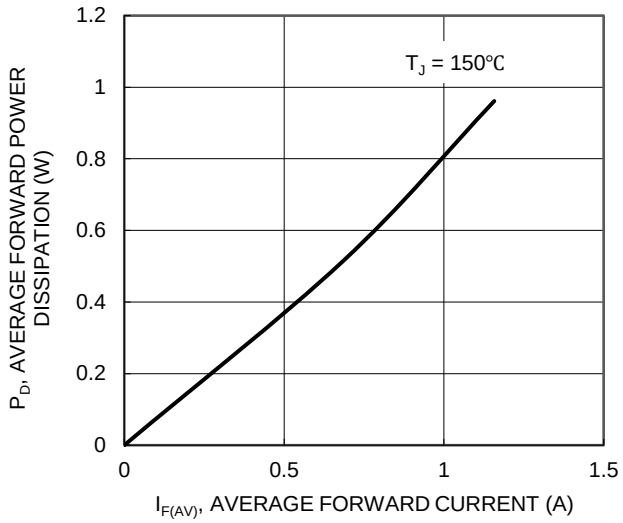


Figure 3. Forward Power Dissipation

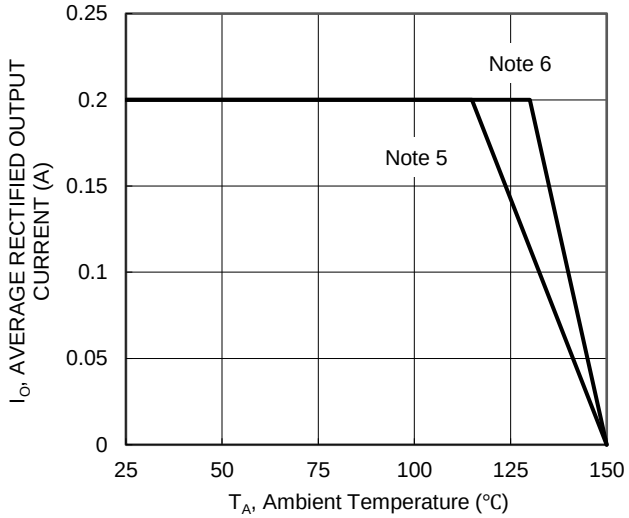


Figure 4. DC Forward Current Derating

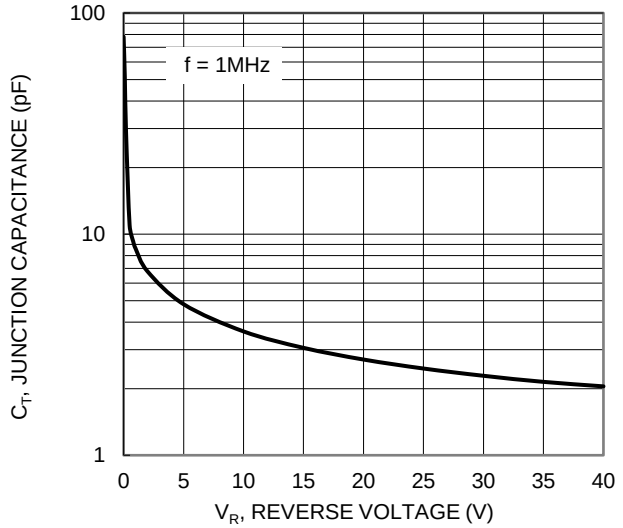


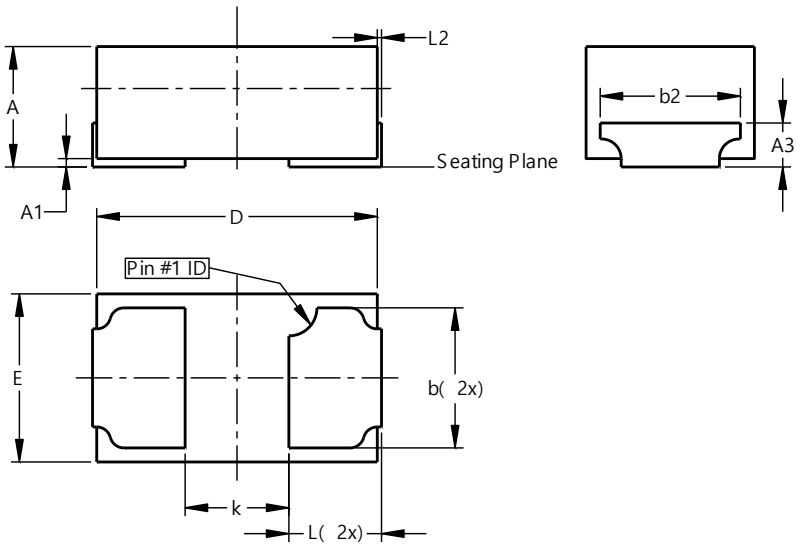
Figure 5. Typical Junction Capacitance

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Package Outline Dimensions

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

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

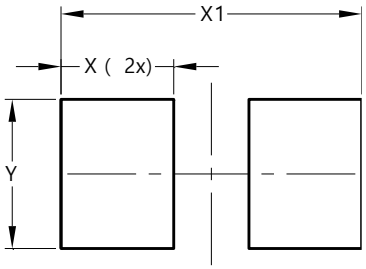


X1-DFN1006-2 (SWP) (Type C)			
Dim	**Min**	**Max**	**Typ**
A	0.37	0.47	0.42
A1	0.00	0.05	0.03
A3	0.17 REF		
b	0.47	0.57	0.52
b2	0.55 REF		
D	0.95	1.05	1.00
E	0.55	0.65	0.60
k	0.37 REF		
L	0.28	0.38	0.33
L2	0.15 REF		
All Dimensions in mm			

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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