NEW PRODUCT

SBR1U30CSP

1A SBR®
SUPER BARRIER RECTIFIER

Product Summary

V_{RRM} (V)	I_O (A)	$V_{F\ max}$ (V)	$I_{R\ max}$ (μA)
30	1	0.48	75

Description and Applications

The SBR1U30CSP is a 30-volt 1A super barrier rectifier (SBR) that is optimized for low forward voltage drop and low leakage current, housed in a compact chip scale package (CSP) that occupies only 0.84mm^2 board-space. The low thermal resistance enables designers to meet design challenges of increasing efficiency whilst at the same time reducing board space. It is ideally suited for use in portable applications as a:

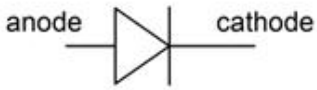
- Blocking Diode
- Boost Diode
- Switching Diode
- Reverse Protection Diode

Features and Benefits

- Low forward voltage (V_F) minimizes conduction losses and improving efficiency
- Reduced high temperature reverse leakage; Increased reliability against thermal runaway failure in high temperature operation
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

Mechanical Data

- Case: X2-WLB1406-2
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Solderable pads per MILSTD-202, Method 208 (e3)
- Polarity: Cathode Dot
- Weight: 0.001 grams

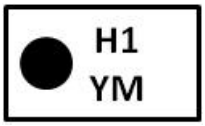


Ordering Information (Note 4)

Part Number	Case	Packaging
SBR1U30CSP-7	X2-WLB1406-2	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.htmlfor 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



H1 = Product Type Marking Code
YM = Date Code Marking
Y = Year (ex: A = 2013)
M = Month (ex: 9 = September)

Date Code Key

Year	2013	2014	2015	2016	2017	2018	2019
Code	A	B	C	D	E	F	G

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	V_{RRM}	30	V
Average Rectified Output Current	I_O	1	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I_{FSM}	12	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Ambient (Note 5)	$R_{\theta JA}$	140	°C/W
Operating and Storage Temperature Range	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	—	—	0.42	V	I_F = 0.5A
		—	—	0.48		I_F = 1 A
		—	0.41	—		I_F = 1 A, T_J = +125°C
Reverse Current (Note 6)	I_R	—	6	15	μA	V_R = 10V
		—	10	75		V_R = 30V
Junction Capacitance	C_j	—	80	—	pF	V_R = 4V, f = 1MHz

Notes: 5. Device mounted on FR-4 PCB, 2oz. Copper, minimum recommended pad layout per http://diodes.com.
6. Short duration pulse test used to minimize self-heating effect.

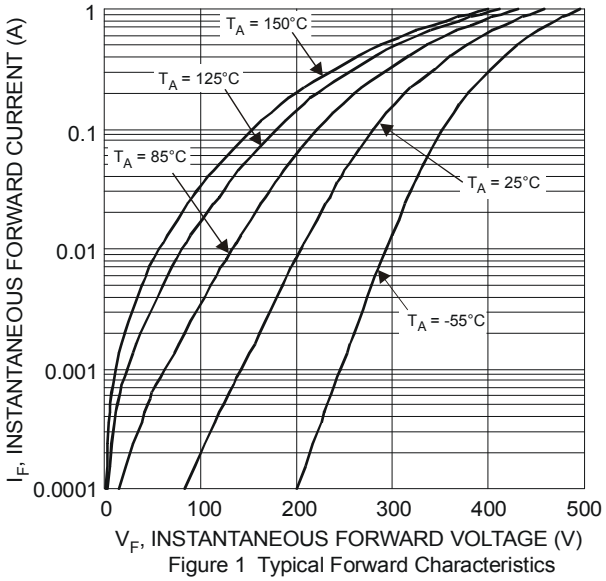

Figure 1 Typical Forward Characteristics

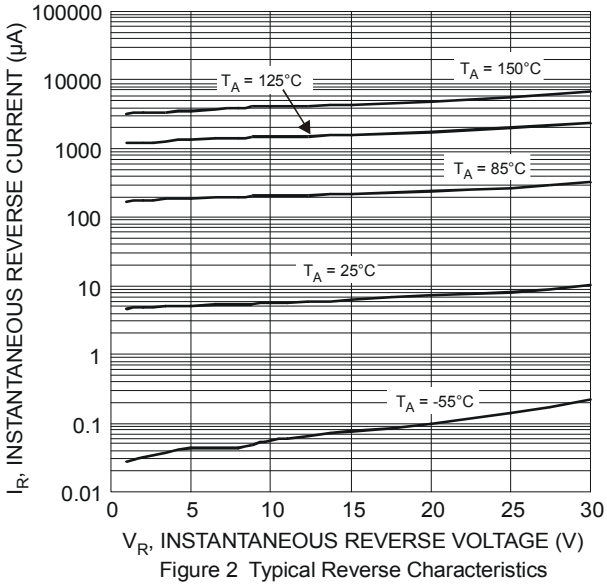

Figure 2 Typical Reverse Characteristics

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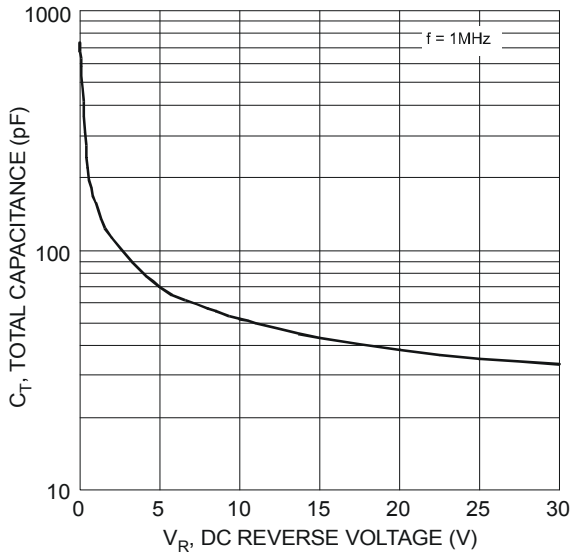


Figure 3 Total Capacitance vs. Reverse Voltage

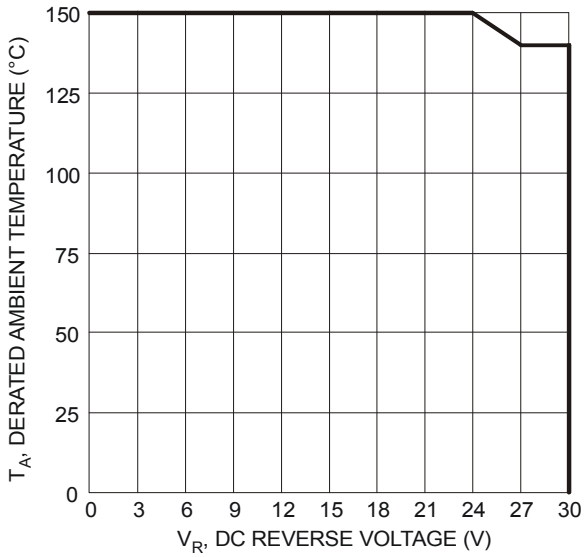
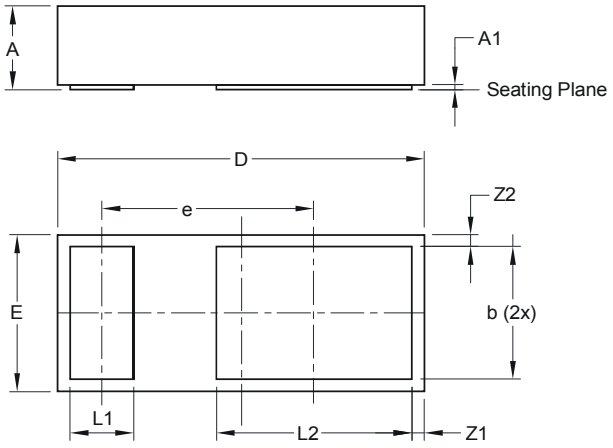


Figure 4 Operating Temperature Derating

Package Outline Dimensions

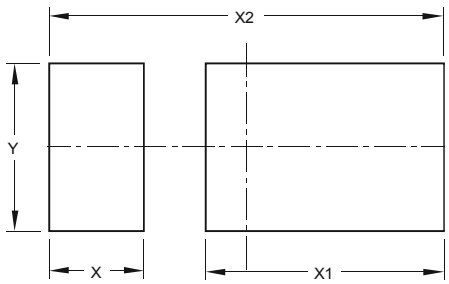
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for latest version.



X2-WLB1406-2			
Dim	**Min**	**Max**	**Typ**
A	0.27	0.35	0.30
A1	00	0.03	0.02
b	0.459	0.559	0.509
D	1.35	1.45	1.40
E	0.55	0.65	0.60
e	-	-	0.812
L1	0.194	0.294	0.244
L2	0.700	0.800	0.750
Z1	0.016	0.076	0.046
Z2	0.016	0.076	0.046
All Dimensions in mm			

Suggested Pad Layout

Please see AP02001 at http://www.diodes.com/datasheets/ap02001.pdf for the latest version.



Dimensions	Value (in mm)
X	0.334
X1	0.840
X2	1.386
Y	0.589

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