1A SCHOTTKY BARRIER DIODE CHIP SCALE PACKAGE

Product Summary

V_{RRM} (V)	I_O (A)	$V_{F(MAX)}$ (V) @ +25°C	$I_{R(MAX)}$ (mA) @ +25°C
30	1.0	0.40	1.0

Features and Benefits

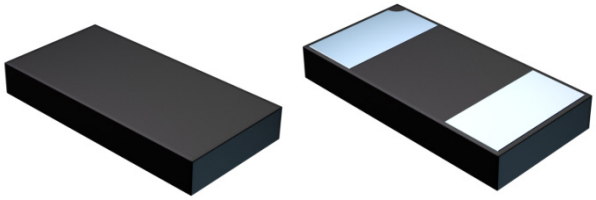
- 2 mm^2 Footprint – 67% smaller than PowerDI123
- Off Board Profile of 0.3mm – 70% thinner than PowerDI123
- Low Forward Voltage Drop reduces Power Dissipation
- Soft switching characteristic ensures that EMI and EFI are minimised
- Guard Ring Die Construction for Transient Protection
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

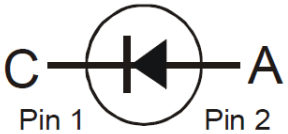
Description and Applications

The SDM1L30CSP is a 30-volt 1A Schottky barrier diode that is optimized for low forward voltage and soft switching characteristics to meet the needs of wireless charging applications. It is housed in a compact chip scale package (CSP) that occupies only 2 mm^2 board-space. It is ideally suited for use in portable applications.

Mechanical Data

- Case: X2-WLB2010-2
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Solderable per MIL-STD-202, Method 208 e4
- Polarity: Cathode Dot
- Weight: 0.15mg



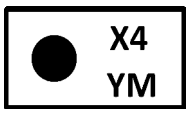


Ordering Information (Note 4)

Part Number	Case	Packaging
SDM1L30CSP-7	X2-WLB2010-2	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.html 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 http://www.diodes.com/products/packages.html.

Marking Information



X4 = Product Type Marking Code
YM = Date Code Marking
Y = Year (ex: B = 2014)
M = Month (ex: 9 = September)
Dot denotes Cathode Pin

Date Code Key

Year	2014	2015	2016	2017	2018	2019	2020
Code	B	C	D	E	F	G	H

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	1.0	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I_{FSM}	25	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Ambient (Note 5)	$R_{\theta JA}$	130	°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	—	0.35	0.40	V	I_F = 1.0A, T_J = +25°C
		—	0.29	—		I_F = 1.0A, T_J = +85°C
Leakage Current (Note 6)	I_R	—	0.47	1.0	mA	V_R = 30V, T_J = +25°C
		—	17	—	mA	V_R = 30V, T_J = +85°C
Total Capacitance	C_T	—	150	—	pF	V_R = 5V, f = 1.0 MHz

Notes: 5. Device mounted on FR-4 substrate PC board, with minimum recommended pad layout per http://www.diodes.com/datsheets/ap02001.pdf.
6. Short duration pulse test used to minimize self-heating effect.

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Typical Electrical Characteristics

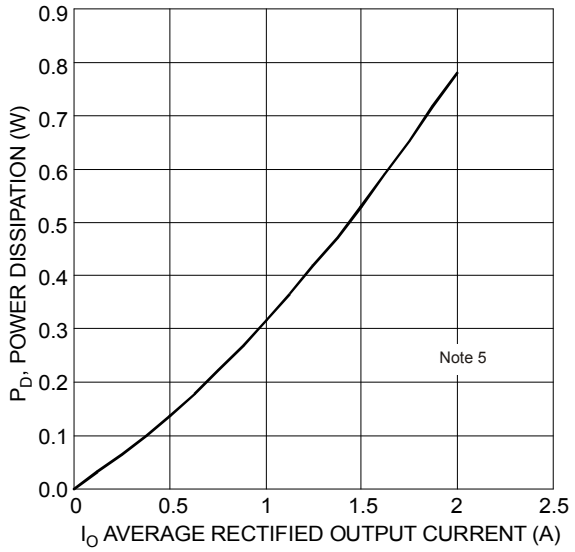

Figure 1 Forward Power Dissipation

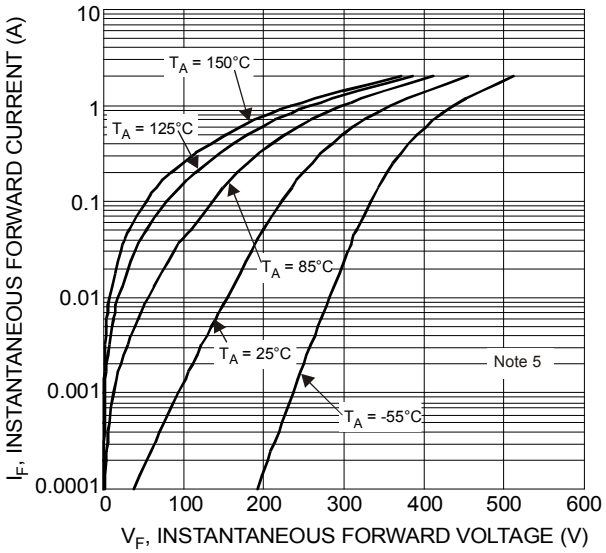

Figure 2 Typical Forward Characteristics

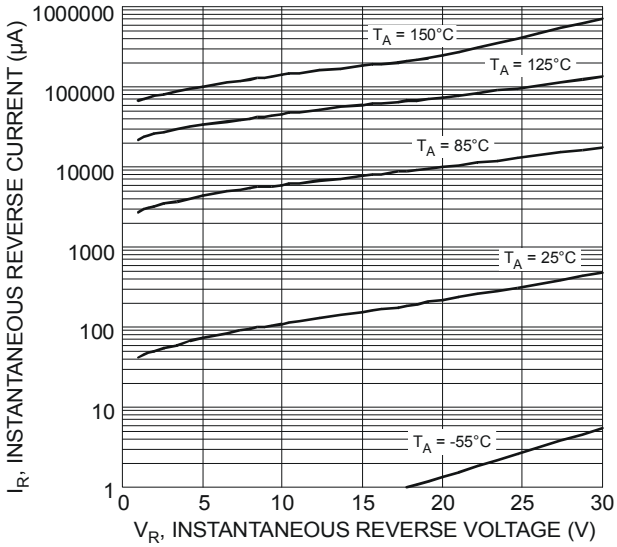

Figure 3 Typical Reverse Characteristics

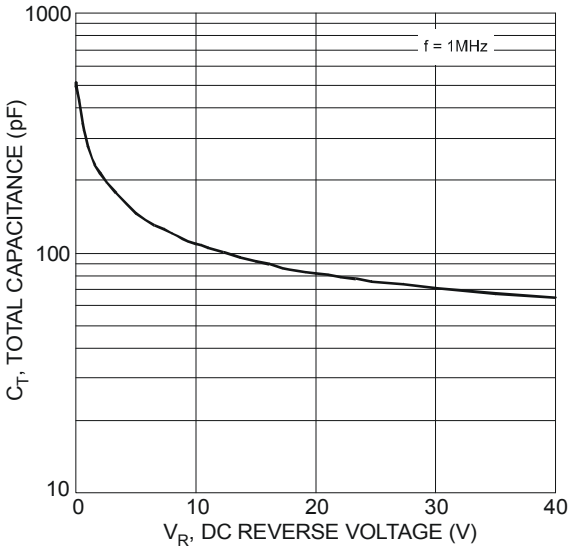

Figure 4 Total Capacitance vs. Reverse Voltage

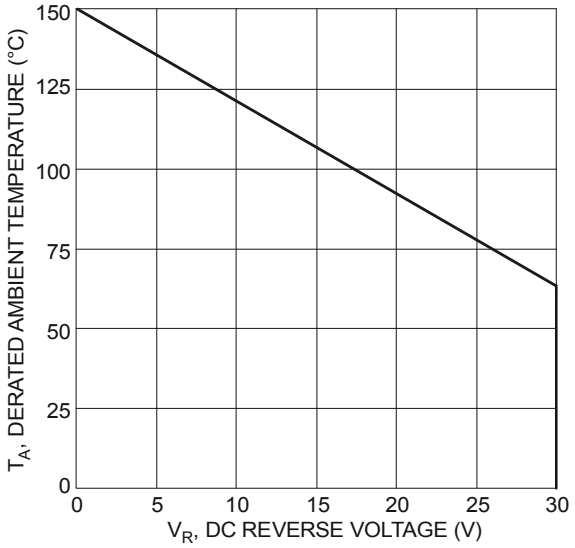

Figure 5 Operating Temperature Derating

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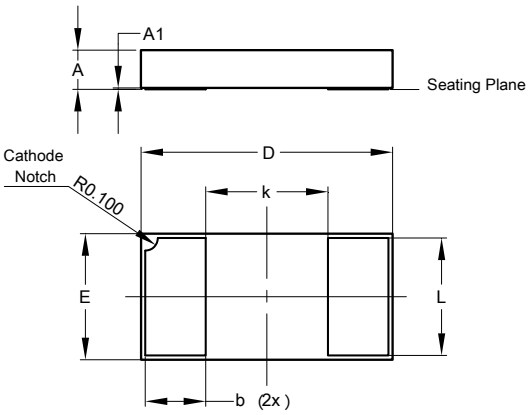
Package Outline Dimensions

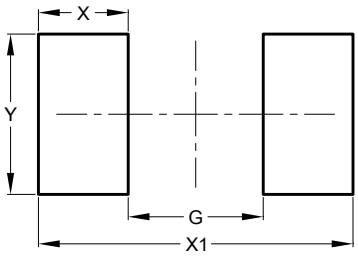
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for latest version.



X2-WLB2010-2			
Dim	**Min**	**Max**	**Typ**
A	–	0.305	0.290
A1	–	0.02	0.011
b	–	–	0.48
D	1.950	2.050	2.000
E	0.950	1.050	1.000
k	–	–	0.972
L	–	–	0.932
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)
G	0.872
X	0.580
X1	2.032
Y	1.032

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