

**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**

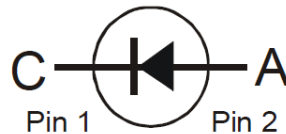
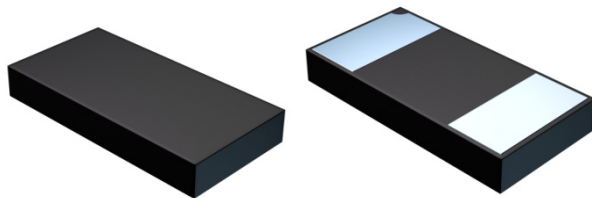
- 2 mm<sup>2</sup> Footprint – 67% smaller than PowerDI123
- Off Board Profile of 0.3mm – 70% thinner than PowerDI123
- Low Forward Voltage Drop reduces Power Dissipation
- Soft switching characteristic ensures that EMI and EFI are minimised
- Guard Ring Die Construction for Transient Protection
- **Totally 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<sup>2</sup> 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 <sup>(e4)</sup>
- 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](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

**Maximum Ratings** (@T<sub>A</sub> = +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 <sub>RRM</sub>	30	V
Average Rectified Output Current	I <sub>O</sub>	1.0	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I <sub>FSM</sub>	25	A

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Ambient (Note 5)	R <sub>θJA</sub>	130	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

**Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage Drop	V <sub>F</sub>	—	0.35	0.40	V	I <sub>F</sub> = 1.0A, T <sub>J</sub> = +25°C
		—	0.29	—		I <sub>F</sub> = 1.0A, T <sub>J</sub> = +85°C
Leakage Current (Note 6)	I <sub>R</sub>	—	0.47	1.0	mA	V <sub>R</sub> = 30V, T <sub>J</sub> = +25°C
		—	17	—	mA	V <sub>R</sub> = 30V, T <sub>J</sub> = +85°C
Total Capacitance	C <sub>T</sub>	—	150	—	pF	V <sub>R</sub> = 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.

**Typical Electrical Characteristics**

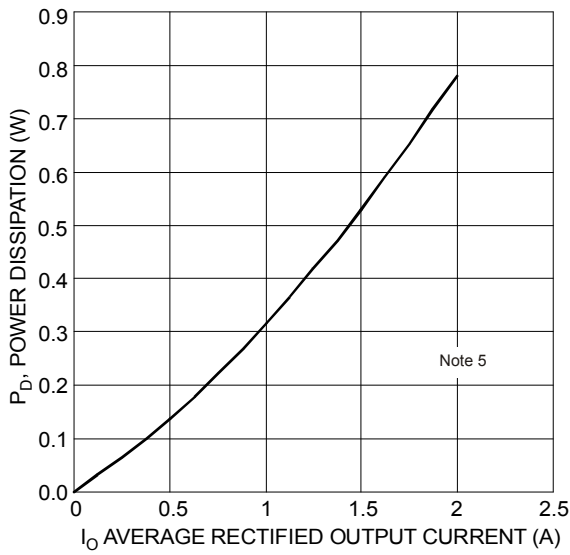


Figure 1 Forward Power Dissipation

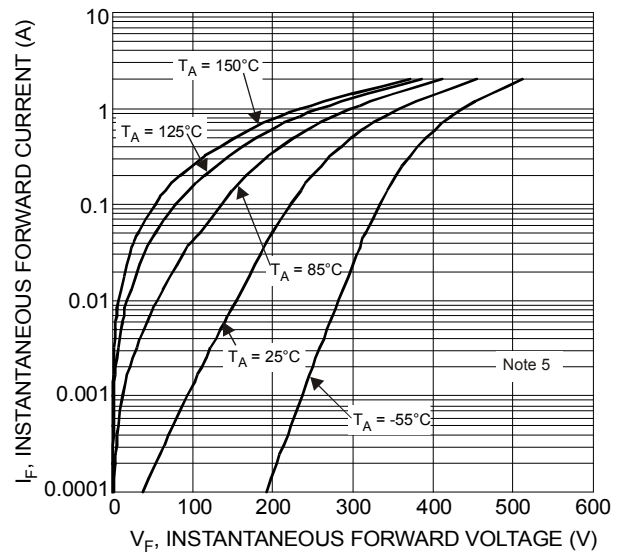


Figure 2 Typical Forward Characteristics

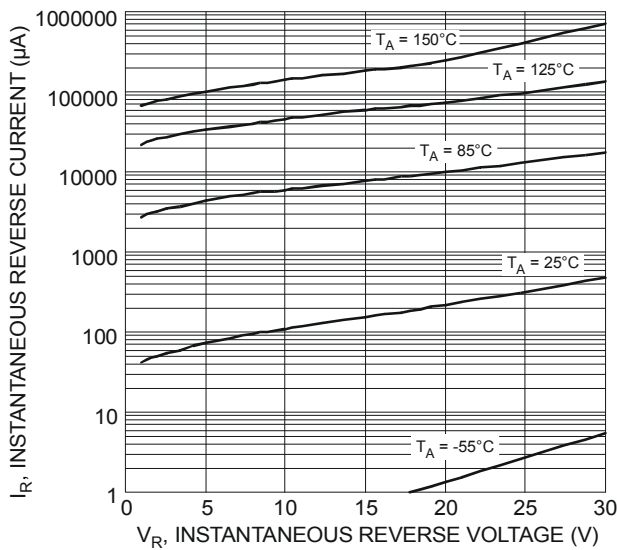


Figure 3 Typical Reverse Characteristics

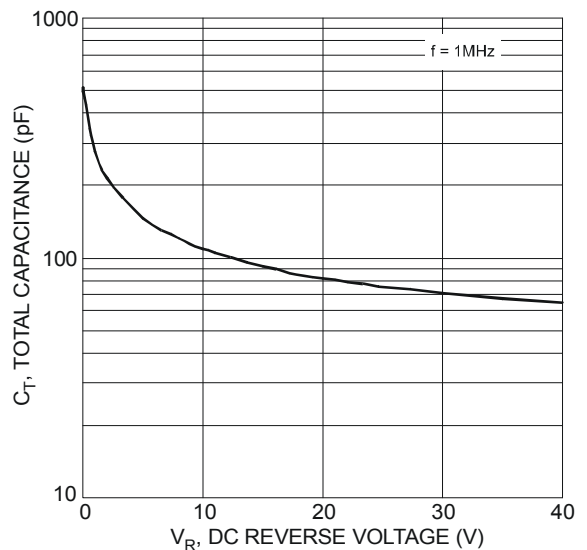


Figure 4 Total Capacitance vs. Reverse Voltage

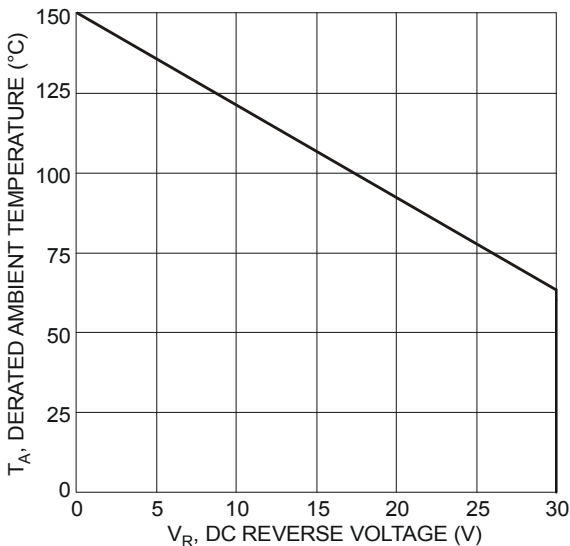
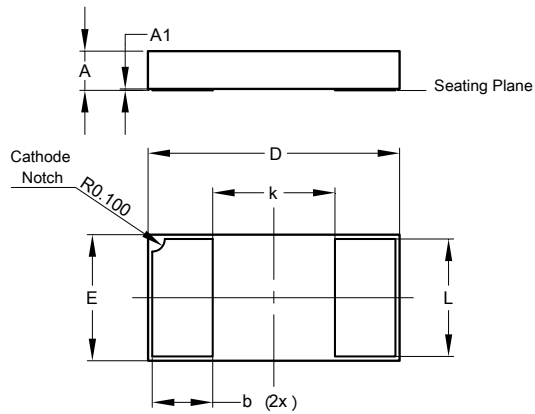


Figure 5 Operating Temperature Derating

## Package Outline Dimensions

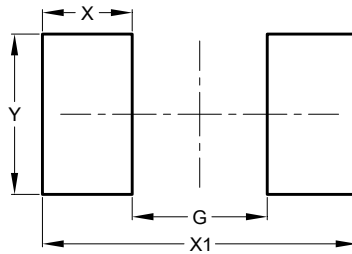
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.



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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