Lead-free Green

SDM0230CSP

0.2A SCHOTTKY BARRIER DIODE CHIP SCALE PACKAGE

Product Summary

V_{RRM} (V)	I_O (mA)	$V_{F(MAX)}$ (V) @ +25°C	$I_{R(MAX)}$ (mA) @ +25°C
30	200	0.50	0.05

Description

The SDM0230CSP is a 30-volt 0.2A schottky barrier diode that is optimized for low forward voltage drop and low leakage current housed in a compact chip scale package (CSP) that occupies only 0.18mm^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.

Applications

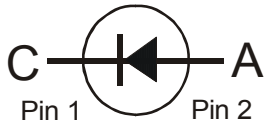
- Blocking Diode
- Switching Diode
- Reverse Protection Diode
- Boost Diode

Features and Benefits

- 0.18mm^2 footprint – 70% smaller than DFN1006/SOD923
- Off board profile of 0.3mm – more than 30% thinner than the DFN1006
- Low forward voltage of 0.50V (max) – minimises power dissipation losses
- Low leakage – maximises battery power
- Soft, Fast Switching Capability
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

Mechanical Data

- Case: X3-WLCUS0603-3
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections: Cathode Dot
- Weight: 0.119mg

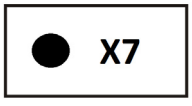


Ordering Information (Note 4)

Part Number	Case	Packaging
SDM0230CSP-7	X3-WLCUS0603-3	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



X7 = Product Type Marking Code
Dot denotes Cathode Pin

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	0.2	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I_{FSM}	4.5	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Ambient (Note 5)	$R_{\theta JA}$	261	°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	—	0.30	0.35	V	I_F = 10mA, T_J = +25°C
		—	0.42	0.50		I_F = 200mA, T_J = +25°C
		—	0.36	—		I_F = 200mA, T_J = +125°C
Leakage Current (Note 6)	I_R	—	—	50	μA	V_R = 30V, T_J = +25°C
		—	1.5	—	mA	V_R = 30V, T_J = +125°C
Junction Capacitance	C_J	—	9	—	pF	V_R = 15V, T_J = +25°C , f = 1MHz

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

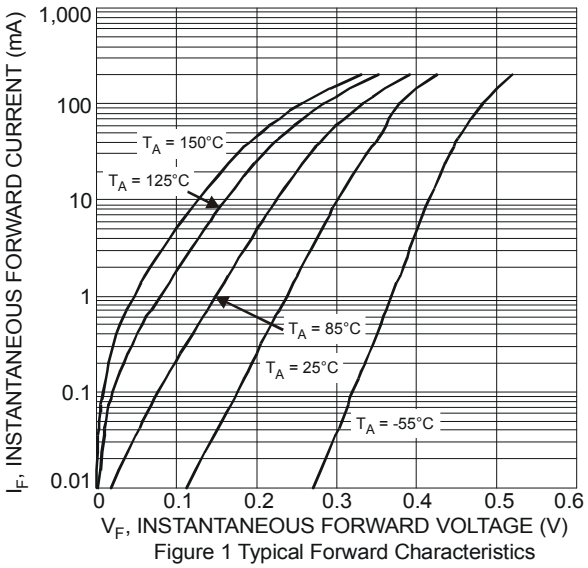


Figure 1 Typical Forward Characteristics

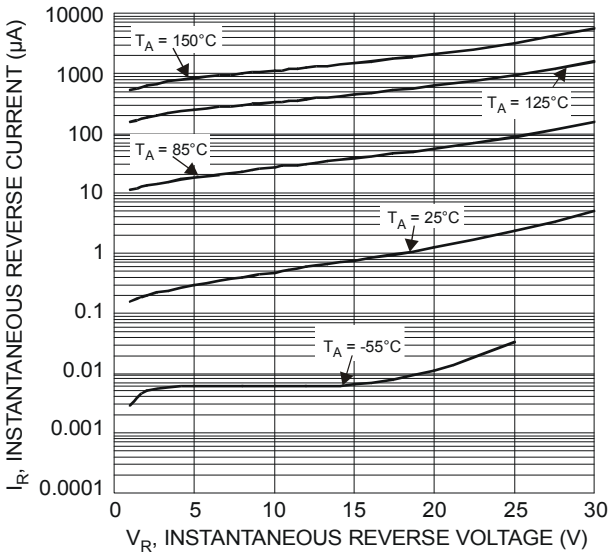


Figure 2 Typical Reverse Characteristics

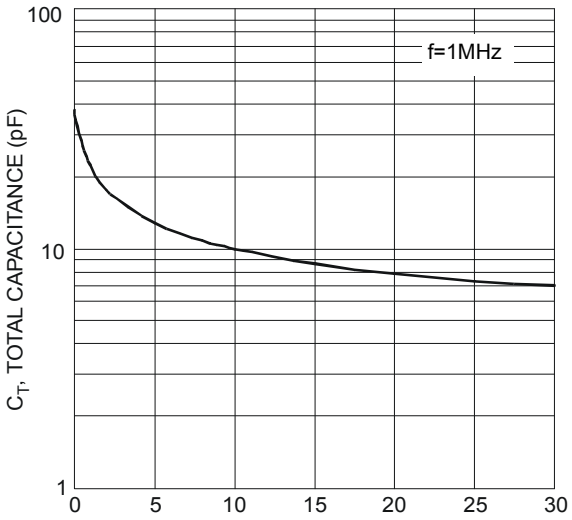
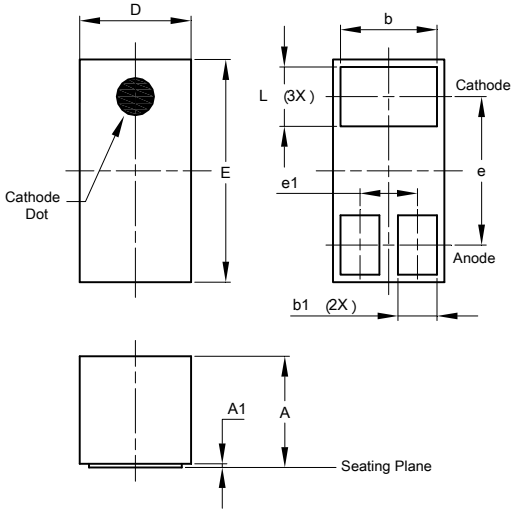


Figure 3 Total Capacitance vs. Reverse Voltage

Package Outline Dimensions

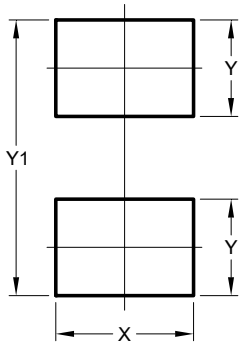
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for latest version.



X3-WLCUS0603-3			
Dim	**Min**	**Max**	**Typ**
A	0.24	0.30	—
A1	0.00	0.01	—
b	0.23	0.29	0.26
b1	0.075	0.135	0.105
D	0.290	0.300	0.295
E	0.590	0.600	0.595
e	—	—	0.40
e1	—	—	0.155
L	0.13	0.19	0.16
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	0.30
Y	0.21
Y1	0.60

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