

## Product Summary

V <sub>RRM</sub> (V)	I <sub>o</sub> (mA)	V <sub>F</sub> Max (V) @ +25°C	I <sub>R</sub> Max (μA) @ +25°C
30	200	0.50	9

## Description

The SDM02U30CSP is a 30-Volt 0.2A Schottky Barrier Diode that is optimized for low forward voltage drop and low leakage current. It's housed in a compact Chip Scale Package (CSP) that occupies only 0.18mm<sup>2</sup> board space. The low thermal resistance enables designers to meet design challenges of increasing efficiency while reducing board space. It is ideally suited for use in portable applications.

## Applications

- Blocking Diode
- Reverse Protection Diode
- Boost Diode

## Features and Benefits

- 0.18mm<sup>2</sup> Footprint, Off Board Profile of 0.28mm
- Low Forward Voltage of 0.50V (Max) – Minimizes Power Dissipation Losses
- Low Leakage – Maximizes Battery Power
- Soft, Fast Switching Capability
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

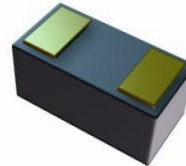
## Mechanical Data

- Case: X3-WLB0603-2
- Moisture Sensitivity: Level 1 per J-STD-020
- Polarity Indicator: Cathode Dot
- Terminals: NiAu Bump. Solderable per MIL-STD-202, Method 208 <sup>(4)</sup>
- Weight: 0.1mg (Approximate)

X3-WLB0603-2



Top View



Bottom View

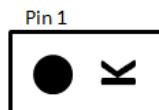
## Ordering Information (Note 4)

Part Number	Case	Packaging
SDM02U30CSP-7	X3-WLB0603-2	10,000/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

X3-WLB0603-2



K = Product Type Marking Code  
Dot Denotes Cathode Pin

**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>	0.2	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I <sub>FSM</sub>	4.5	A

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Ambient (Note 5)	R <sub>θJA</sub>	215	°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>	—	0.24	0.29	V	I <sub>F</sub> = 1mA, T <sub>J</sub> = +25°C
		—	0.30	0.34		I <sub>F</sub> = 10mA, T <sub>J</sub> = +25°C
		—	0.40	0.46		I <sub>F</sub> = 100mA, T <sub>J</sub> = +25°C
		—	0.45	0.50		I <sub>F</sub> = 200mA, T <sub>J</sub> = +25°C
		—	0.39	—		I <sub>F</sub> = 200mA, T <sub>J</sub> = +125°C
Leakage Current (Note 6)	I <sub>R</sub>	—	0.4	2.0	μA	V <sub>R</sub> = 10V, T <sub>J</sub> = +25°C
		—	1.5	9	μA	V <sub>R</sub> = 30V, T <sub>J</sub> = +25°C
		—	0.7	—	mA	V <sub>R</sub> = 30V, T <sub>J</sub> = +125°C
Junction Capacitance	C <sub>T</sub>	—	7	—	pF	V <sub>R</sub> = 10V, T <sub>J</sub> = +25°C, f = 1MHz

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

**Typical Electrical Characteristics**

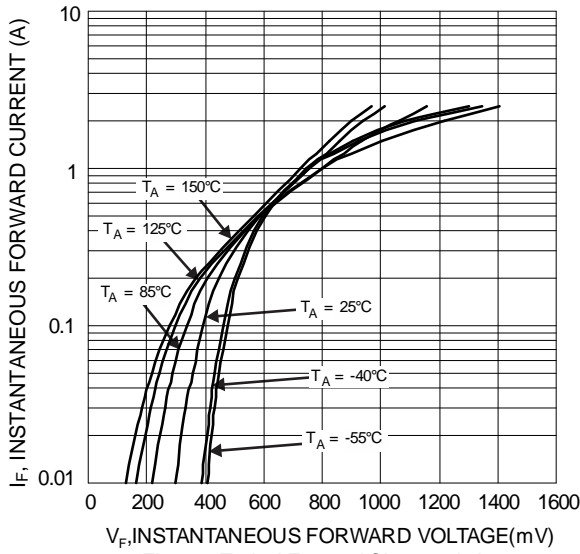


Figure 1 Typical Forward Characteristics

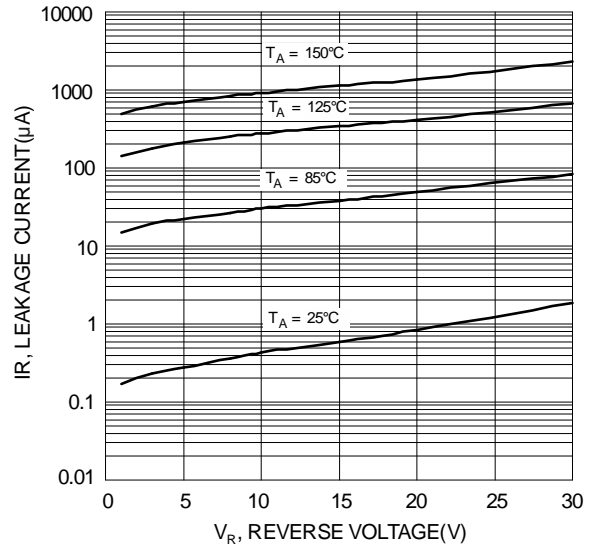


Figure 2 Typical Reverse Characteristics

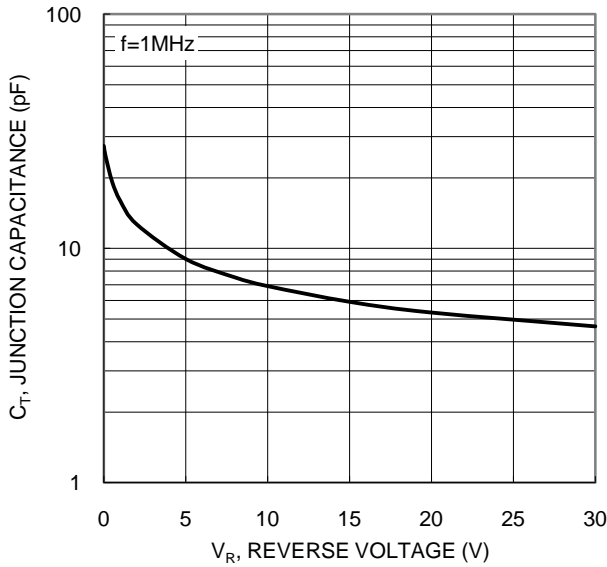


Figure 3. Typical Junction Capacitance

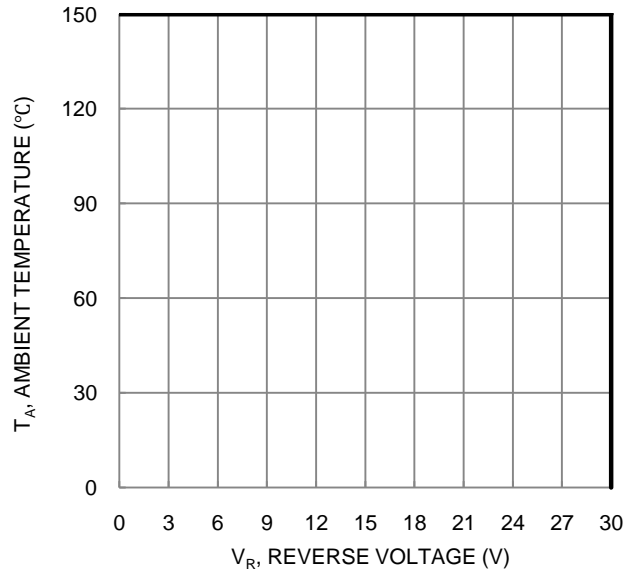
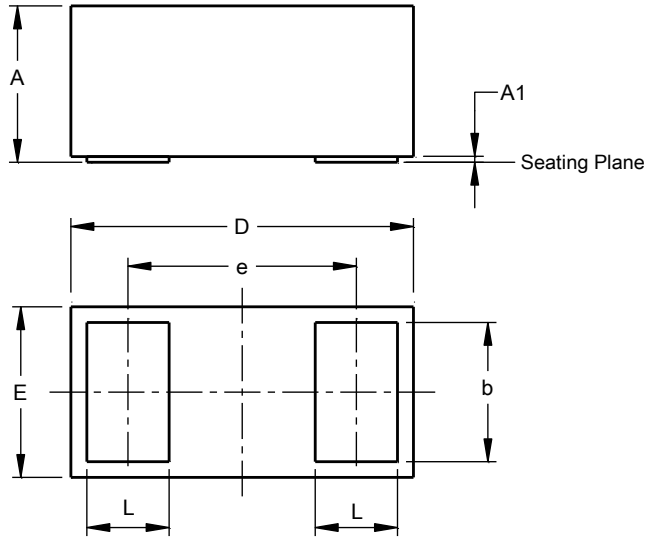


Figure 4. Operating Temperature Derating

**Package Outline Dimensions (Note 7)**

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

**X3-WLB0603-2**



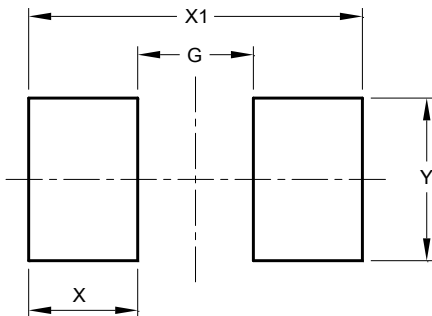
X3-WLB0603-2			
Dim	Min	Max	Typ
A	0.250	0.300	0.275
A1	0.00	0.01	—
b	0.220	0.280	0.245
D	0.575	0.625	0.600
E	0.275	0.325	0.300
e	—	—	0.400
L	0.120	0.180	0.144
All Dimensions in mm			

Note 7: Device side walls are electrically active bare silicon. Avoid contact of solder or flux on the side walls during the PCB assembly process.

**Suggested Pad Layout**

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

**X3-WLB0603-2**



Dimensions	Value (in mm)
G	0.206
X	0.194
Y	0.291
X1	0.594

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