

## Product Summary

V <sub>RRM</sub> (V)	I <sub>o</sub> (mA)	V <sub>F</sub> Max (mV) @ +25°C	I <sub>R</sub> Max (μA) @ +25°C
50	100	500	25

## Description

The SDM01U50CP3 is a 50-volt 100mA 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 0.275mm
- Very Low Forward Voltage – 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)**
- **For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please [contact us](mailto:contact@diodes.com) or your local Diodes representative.**  
<https://www.diodes.com/quality/product-definitions/>

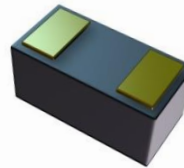
## Mechanical Data

- 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 @4
- Weight: 0.1mg (Approximate)

X3-WLB0603-2



Top View



Bottom View

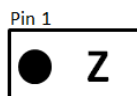
## Ordering Information (Note 4)

Part Number	Case	Packaging
SDM01U50CP3-7	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) & 2015/863/EU (RoHS 3) compliant.
  2. See <https://www.diodes.com/quality/lead-free/> 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 <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

## Marking Information

X3-WLB0603-2



Z= 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 capacitive load, derate current by 20%.

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	V <sub>RRM</sub>	50	V
Average Rectified Output Current	I <sub>O</sub>	100	mA
Repetitive Peak Forward Current, t <sub>P</sub> ≤ 1ms; δ ≤ 0.25	I <sub>FRM</sub>	3	A
Non-Repetitive Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I <sub>FSM</sub>	4	A
ESD Rating:	Human Body Model Machine Model	8 0.4	kV

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Ambient (Notes 5 & 6)	R <sub>θJA</sub>	220	°C/W
Operating Temperature Range (Note 6)	T <sub>J</sub>	-55 to +150	°C
Storage Temperature Range	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>	—	240	300	mV	I <sub>F</sub> = 1mA, T <sub>J</sub> = +25°C
		—	305	380		I <sub>F</sub> = 10mA, T <sub>J</sub> = +25°C
		—	420	500		I <sub>F</sub> = 100mA, T <sub>J</sub> = +25°C
Leakage Current (Note 7)	I <sub>R</sub>	—	1	8	μA	V <sub>R</sub> = 30V, T <sub>J</sub> = +25°C
		—	4	25		V <sub>R</sub> = 50V, T <sub>J</sub> = +25°C
Junction Capacitance	C <sub>J</sub>	—	7.5	—	pF	V <sub>R</sub> = 5V, T <sub>J</sub> = +25°C, f = 1MHz

- Notes:
- Device mounted on FR-4 substrate PC board, with minimum recommended pad layout per <http://www.diodes.com/package-outlines.html>.
  - For Schottky barrier diodes, thermal runaway must be avoided with adequate thermal dissipation in design to prevent T<sub>J</sub> keeping rising under the operating conditions in applications.
  - Short duration pulse test used to minimize self-heating effect.

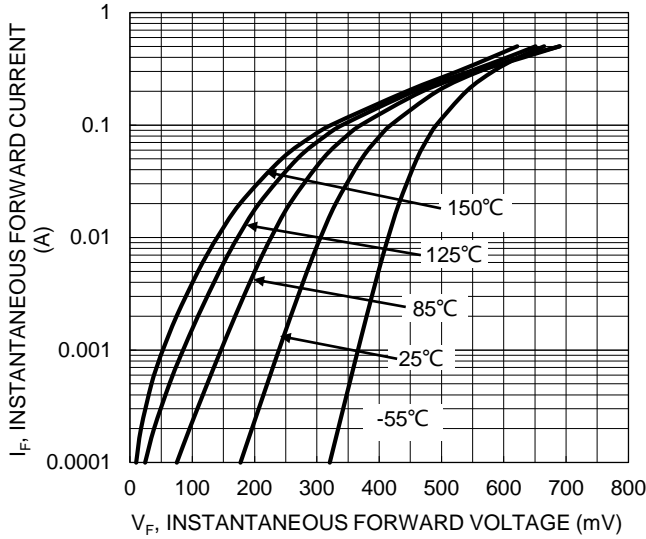


Figure 1. Typical Forward Characteristics

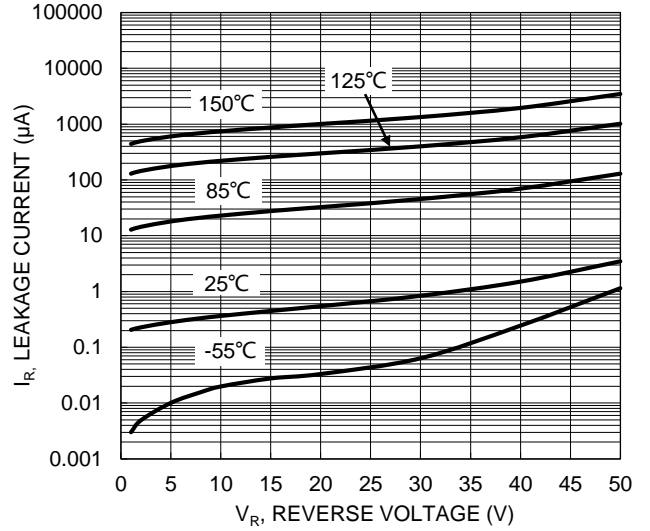


Figure 2. Typical Reverse Characteristics

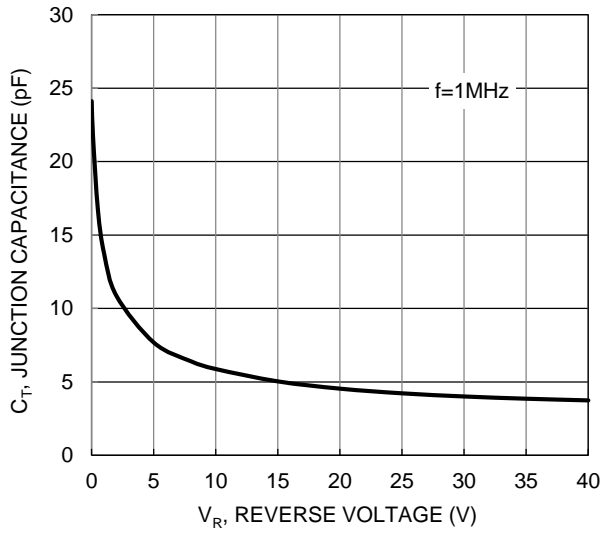
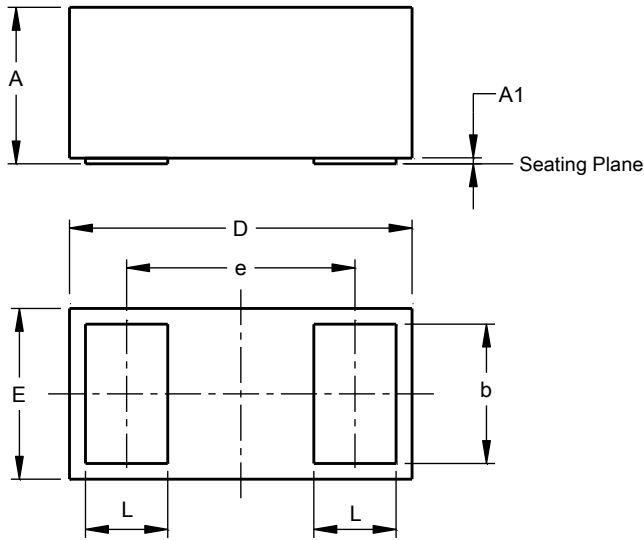


Figure 3. Typical Junction Capacitance

**Package Outline Dimensions** (Note 8)

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

**X3-WLB0603-2**



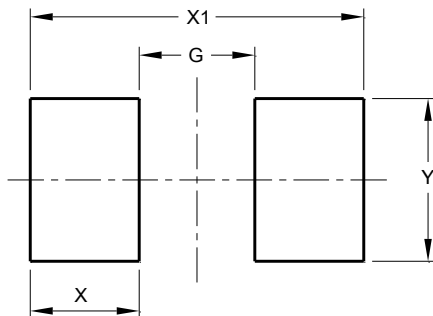
X3-WLB0603-2			
Dim	Min	Max	Typ
A	0.250	0.300	0.275
A1	0.00	0.01	-
b	0.220	0.280	0.245
D	0.575	0.625	0.600
E	0.275	0.325	0.300
e	-	-	0.400
L	0.120	0.180	0.144
All Dimensions in mm			

Note 8. 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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