0.1A SCHOTTKY BARRIER DIODE CHIP SCALE PACKAGE

Product Summary

V_{RRM} (V)	I_O (mA)	V_F Max (mV) @ +25°C	I_R 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^2 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

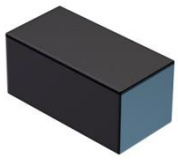
Features and Benefits

- 0.18mm^2 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 or your local Diodes representative.**
  https://www.diodes.com/quality/product-definitions/

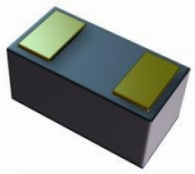
Mechanical Data

- 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 e4
- Weight: 0.1mg (Approximate)

X3-WLB0603-2



Top View



Bottom View

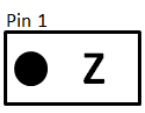
Ordering Information (Note 4)

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_A = +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_{RRM}	50	V
Average Rectified Output Current	I_O	100	mA
Repetitive Peak Forward Current, $t_P \le 1ms$; $\delta \le 0.25$	I_{FRM}	3	A
Non-Repetitive Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I_{FSM}	4	A
ESD Rating: Human Body Model Machine Model	ESD	8 0.4	kV

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Ambient (Notes 5 & 6)	$R_{\theta JA}$	220	°C/W
Operating Temperature Range (Note 6)	T_J	-55 to +150	°C
Storage Temperature Range	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	— — —	240 305 420	300 380 500	mV	I_F = 1mA, T_J = +25°C I_F = 10mA, T_J = +25°C I_F = 100mA, T_J = +25°C
Leakage Current (Note 7)	I_R	— —	1 4	8 25	µA	V_R = 30V, T_J = +25°C V_R = 50V, T_J = +25°C
Junction Capacitance	C_J	—	7.5	—	pF	V_R = 5V, 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/package-outlines.html.
6. For Schottky barrier diodes, thermal runaway must be avoided with adequate thermal dissipation in design to prevent T_J keeping rising under the operating conditions in applications.
7. Short duration pulse test used to minimize self-heating effect.

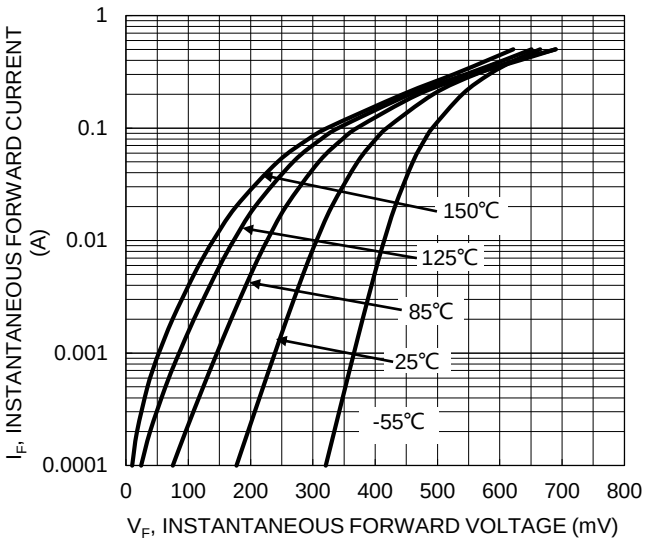


Figure 1. Typical Forward Characteristics

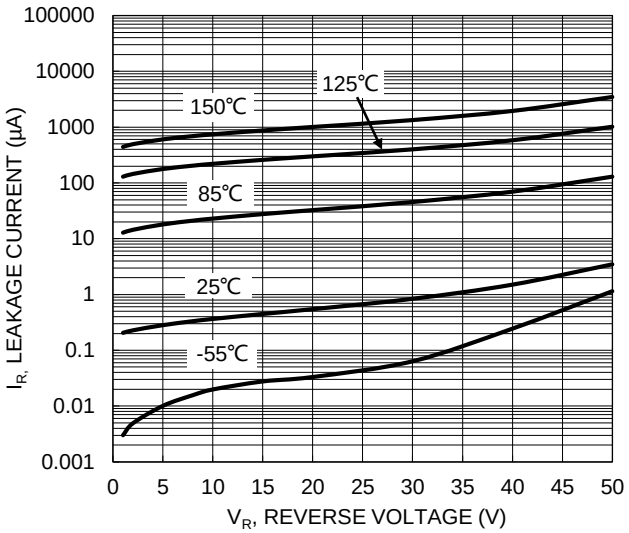


Figure 2. Typical Reverse Characteristics

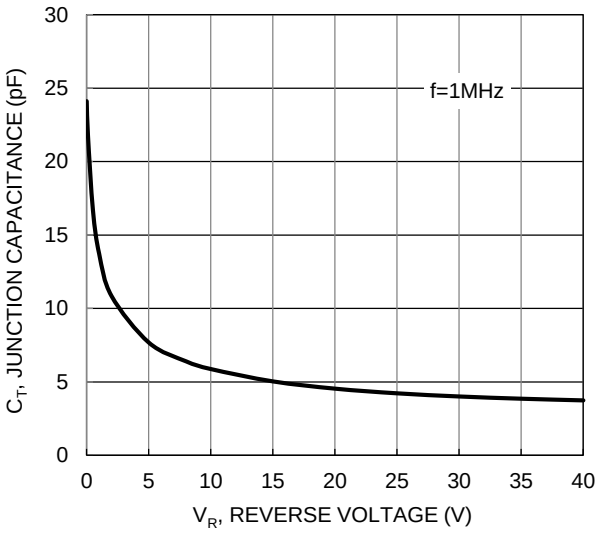


Figure 3.Typical Junction Capacitance

Package Outline Dimensions (Note 8)

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

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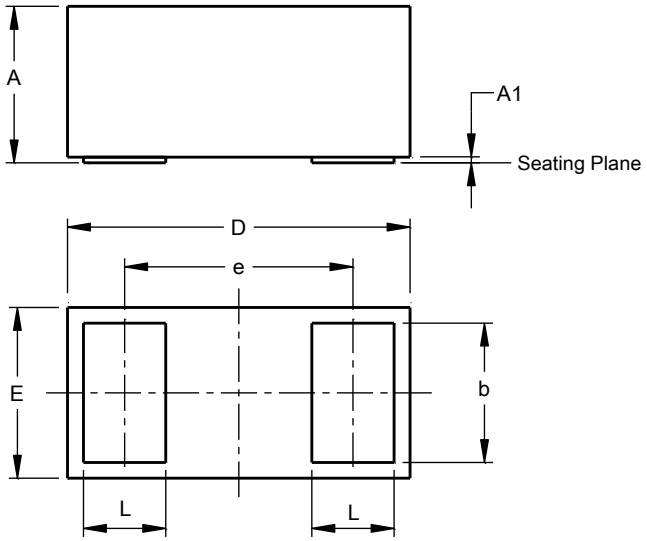

X3-WLB0603-2			
Dim	**Min**	**Max**	**Typ**
A	0.250	0.300	0.275
A1	0.00	0.01	-
b	0.220	0.280	0.245
D	0.575	0.625	0.600
E	0.275	0.325	0.300
e	-	-	0.400
L	0.120	0.180	0.144
All Dimensions in mm			

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.

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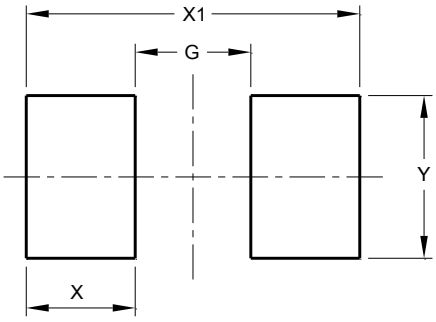

Dimensions	Value (in mm)
G	0.206
X	0.194
Y	0.291
X1	0.594

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