0.5A SCHOTTKY BARRIER DIODE IN CHIP SCALE PACKAGE

Product Summary

V_{RRM} (V)	I_O (mA)	V_F Max (V) @ +25°C	I_R Max (µA) @ +25°C
30	500	0.62	135

Description

The SDM05U30CP3 is a 30-volt 500mA Schottky Barrier Diode that is optimized for very-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.

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-Q100/101/104/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please contact us or your local Diodes representative.**
  https://www.diodes.com/quality/product-definitions/

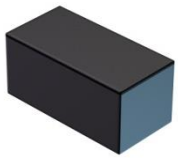
Applications

- Blocking diodes
- Reverse protection diodes
- Boost diodes

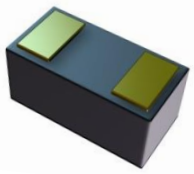
Mechanical Data

- Package: 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

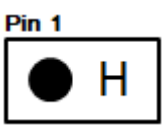
Ordering Information (Note 4)

Orderable Part Number	Package	Packing	
		Qty.	Carrier
SDM05U30CP3-7	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



H = 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}	30	V
Average Rectified Output Current	I_O	500	mA
Repetitive Peak Forward Current, $t_P \le 1ms$; $\delta \le 0.25$	I_{FRM}	5	A
Non-Repetitive Peak Forward Surge Current, 8.3ms Single Half Sine Wave Superimposed on Rated Load	I_{FSM}	7	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Ambient (Notes 5 & 6)	$R_{\theta JA}$	250	°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	— — — —	0.24 0.34 0.40 0.55	0.30 0.40 0.46 0.62	V	I_F = 10mA, T_J = +25°C I_F = 100mA, T_J = +25°C I_F = 200mA, T_J = +25°C I_F = 500mA, T_J = +25°C
Leakage Current (Note 7)	I_R	— — —	10 20 30	40 — 135	µA	V_R = 10V, T_J = +25°C V_R = 20V, T_J = +25°C V_R = 30V, T_J = +25°C
Junction Capacitance	C_T	—	10	—	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.

Typical Electrical Characteristics

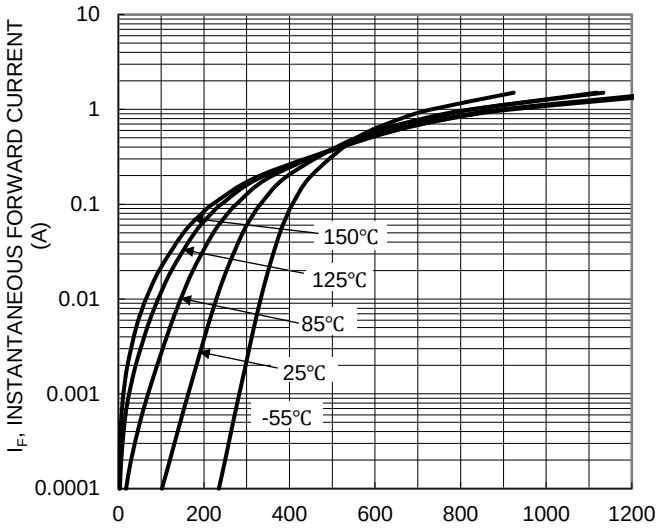


Figure 1. Typical Forward Characteristics

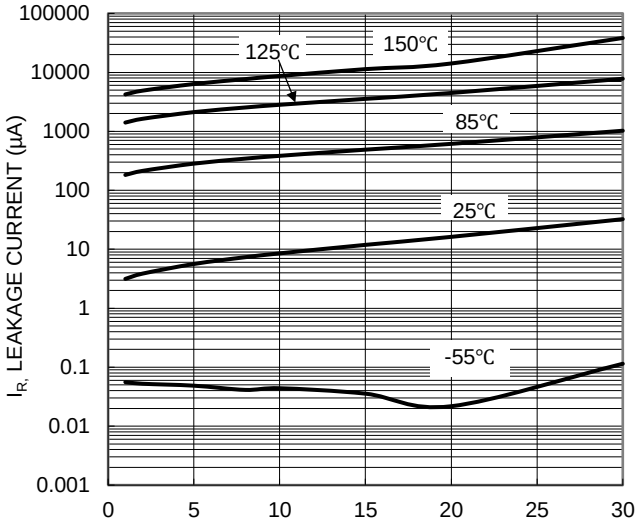


Figure 2. Typical Reverse Characteristics

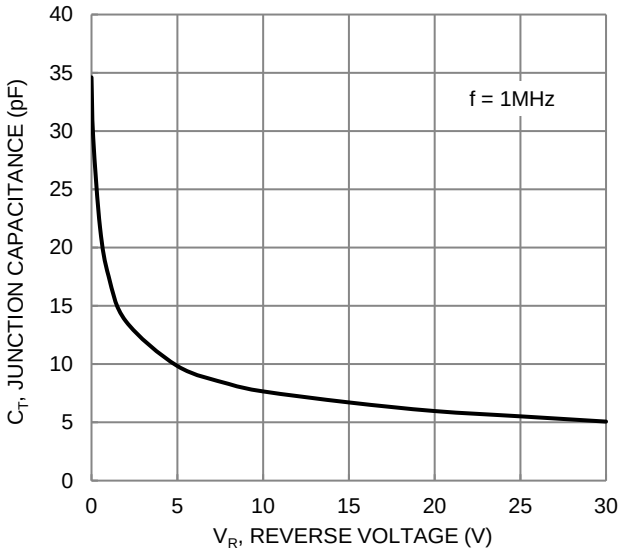


Figure 3. Typical Junction Capacitance

Package Outline Dimensions

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

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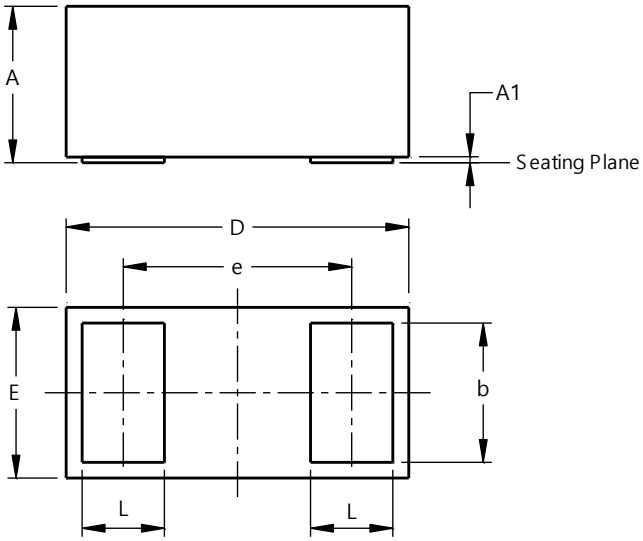

X3-WLB0603-2			
Dim	**Min**	**Max**	**Typ**
A	0.250	0.300	0.275
A1	0.00	0.01	-
b	0.220	0.280	0.245
D	0.575	0.625	0.600
E	0.275	0.325	0.300
e	-	-	0.400
L	0.120	0.180	0.144
All Dimensions in mm			

Suggested Pad Layout

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

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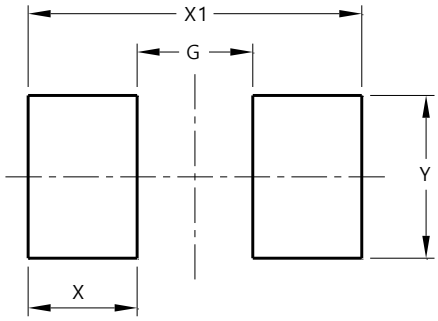

Dimensions	Value (in mm)
G	0.206
X	0.194
Y	0.291
X1	0.594

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