ULTRA-SMALL SURFACE MOUNT SCHOTTKY DIODE

Product Summary

V_{RRM} (V)	I_O (mA)	$V_{F\ Max}$ (V)	$I_{R\ Max}$ (µA)
30	100	0.37	7

Features

- 0.18mm² Footprint – 70% Smaller Than DFN1006/SOD923
- Off Board Profile of 0.35mm – 30% Thinner Than The DFN1006
- Low Forward Voltage of 0.37V (Max) – Minimises Power Dissipation Losses
- Low Leakage – Maximises Battery Power
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **The SDM02U30LP3Q is suitable for automotive applications requiring specific change control; this part is AEC-Q101 qualified, PPAP capable, and manufactured in IATF 16949 certified facilities.**
  https://www.diodes.com/quality/product-definitions/

Description

The SDM02U30LP3Q is a Schottky barrier diode optimized for ultra low-forward voltage drop and low reverse leakage current. Encapsulated in the ultra-small X3-DFN0603-2 with footprint of 0.18mm² and ultra-low package profile, this device is designed for saving PCB space in portable electronic devices.

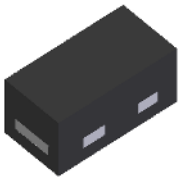
Applications

- Reverse Voltage and Current Protection
- Blocking Diode
- Clamping Protection
- LCD and Key Pad Backlighting
- Freewheeling Diode

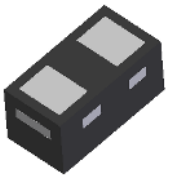
Mechanical Data

- Case: X3-DFN0603-2
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections: Cathode Bar
- Terminals: Finish – Matte Tin Finish over Copper Leadframe (Lead Free Plating). Solderable per MIL-STD-202, Method 208 e3
- Weight: 0.2mg (Approximate)

X3-DFN0603-2



Top View



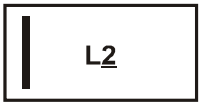
Bottom View

Ordering Information (Note 4)

Part Number	Case	Packaging
SDM02U30LP3Q-7B	X3-DFN0603-2	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



L2 = Product Type Marking Code
Bar Denotes Cathode Side

Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	30	V
RMS Reverse Voltage	$V_{R(RMS)}$	21	V
Average Rectified Output Current	I_O	100	mA
Non-Repetitive Peak Forward Surge Current (8.33ms Half-Sine Waveform)	I_{FSM}	2	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P_D	250	mW
Thermal Resistance Junction to Ambient Air (Note 5)	$R_{\theta JA}$	500	°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	V_F	—	—	0.37	V	I_F = 10mA
		—	0.20	—		I_F = 10mA, T_A = +125°C
Leakage Current (Note 6)	I_R	—	—	7	µA	V_R = 10V
		—	4	—		V_R = 30V

Notes: 5. Part mounted on FR-4 PC board with recommended pad layout, which can be found on our website at http://www.diodes.com/package-outlines.html.
6. Short duration pulse test used to minimize self-heating effect.

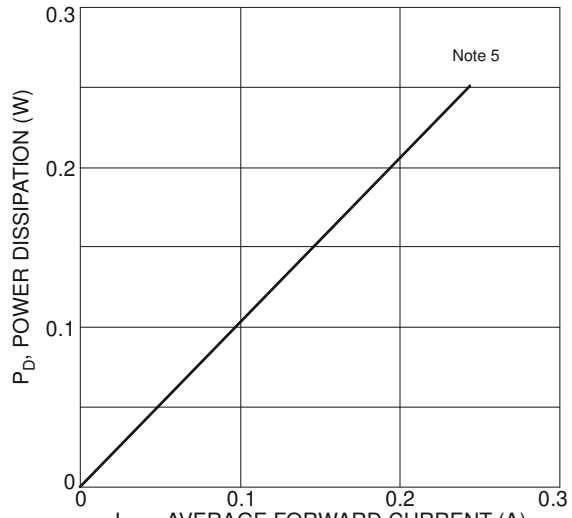


Figure 1 Forward Power Dissipation

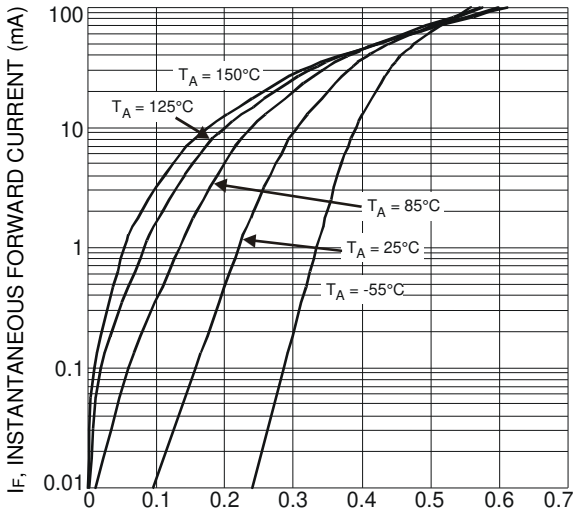


Figure 2 Typical Forward Characteristics

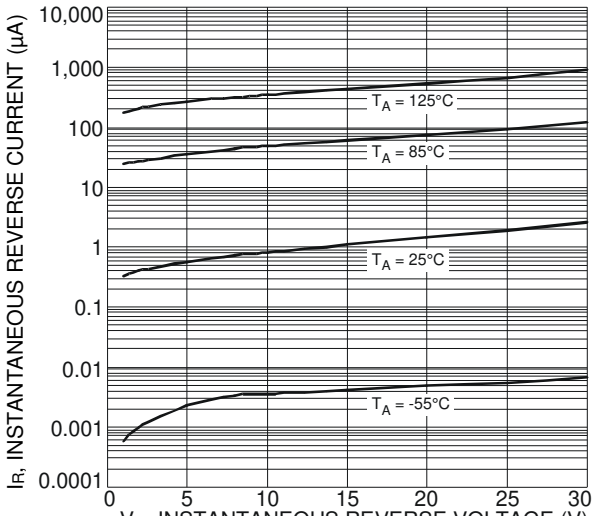


Figure 3 Typical Reverse Characteristics

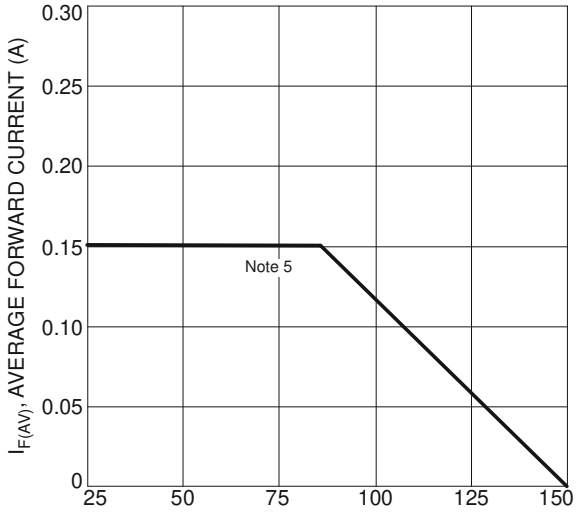


Figure 4 Forward Current Derating Curve

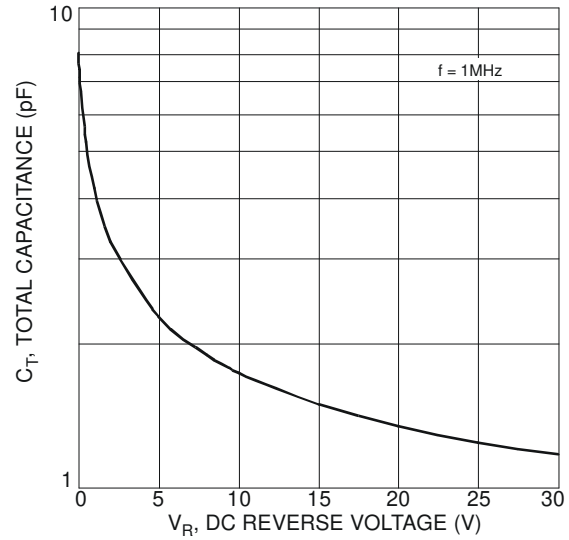
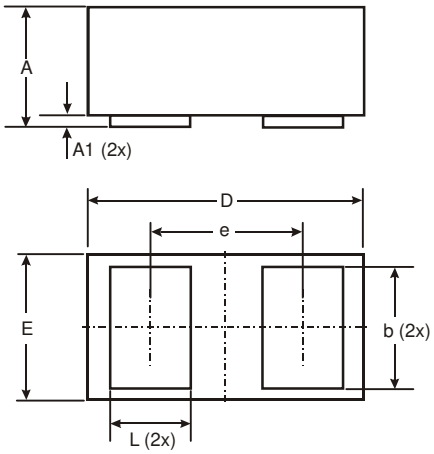


Figure 5 Total Capacitance vs. Reverse Voltage

Package Outline Dimensions

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

X3-DFN0603-2

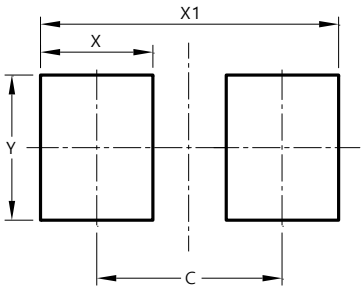


X3-DFN0603-2			
Dim	**Min**	**Max**	**Typ**
A	0.27	0.35	0.30
A1	0.00	0.03	0.02
b	0.19	0.29	0.24
D	0.595	0.645	0.62
E	0.295	0.345	0.32
e	-	-	0.355
L	0.14	0.24	0.19
All Dimensions in mm			

Suggested Pad Layout

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

X3-DFN0603-2



Dimensions	Value (in mm)
C	0.380
X	0.230
X1	0.610
Y	0.300

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