

Product Summary

V _{RRM} (V)	I _o (mA)	V _F Max (V) @ +25°C	I _R Max (μA) @ +25°C
30	500	0.71	9

Description

The SDM05A30CP3 is a 30V 0.5A Schottky barrier diode optimized for low forward-voltage drop and low leakage current. The device is in a compact Chip Scale package (CSP) that occupies only 0.18mm² of 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

- 0.18mm² Footprint, Offboard Profile of 0.28mm
- 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)**

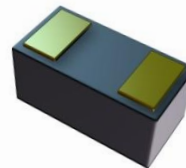
Mechanical Data

- 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

X3-WLB0603-2



Top View



Bottom View

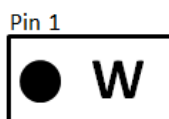
Ordering Information (Note 4)

Part Number	Case	Packaging
SDM05A30CP3-7	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



W = 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	0.5	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I _{FSM}	4.8	A
Repetitive Peak Forward Current (Pulse Wave = 10 msec, Duty Cycle = 25%)	I _{FRM}	1.5	A
ESD Rating	Human Body Model	8	KV
	Machine Model	400	V

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Ambient (Note 5)	R _{θJA}	200	°C/W
Total Power Dissipation (Note 5)	P _{TOT}	600	mW
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 Drop	V _F	—	0.31	0.36	V	I _F = 10mA, T _J = +25°C
		—	0.40	0.47		I _F = 100mA, T _J = +25°C
		—	0.46	0.52		I _F = 200mA, T _J = +25°C
		—	0.60	0.71		I _F = 500mA, T _J = +25°C
Leakage Current (Note 6)	I _R	—	0.3	1.5	μA	V _R = 10V, T _J = +25°C
		—	2	9	μA	V _R = 30V, T _J = +25°C
		—	0.7	—	mA	V _R = 30V, T _J = +125°C
Junction Capacitance	C _T	—	7	—	pF	V _R = 10V, T _J = +25°C, f = 1MHz
Reverse Recovery Time	t _{RR}	—	4.8	—	ns	I _F =10mA, I _{RR} =0.1*I _R

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

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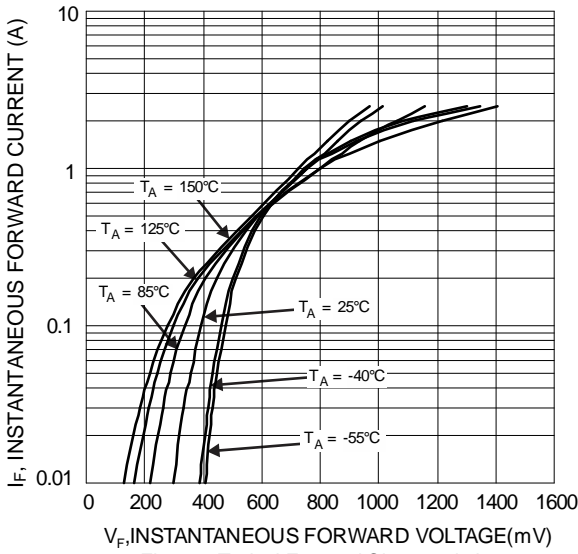


Figure 1 Typical Forward Characteristics

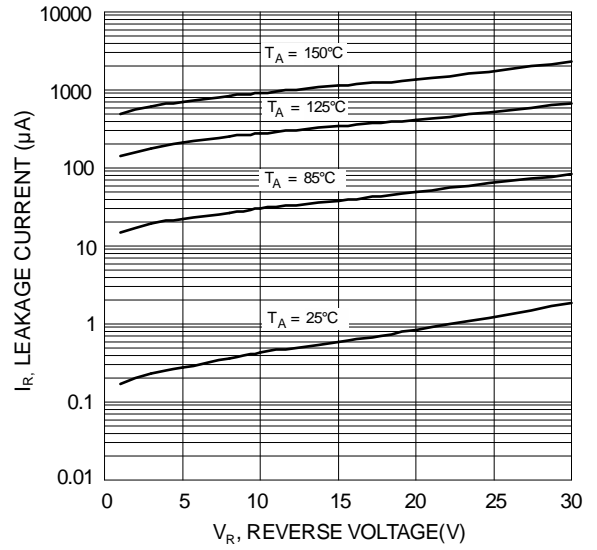


Figure 2 Typical Reverse Characteristics

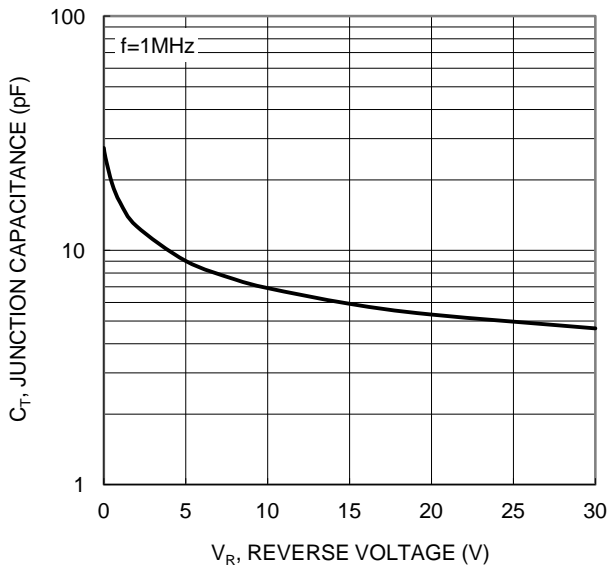


Figure 3. Typical Junction Capacitance

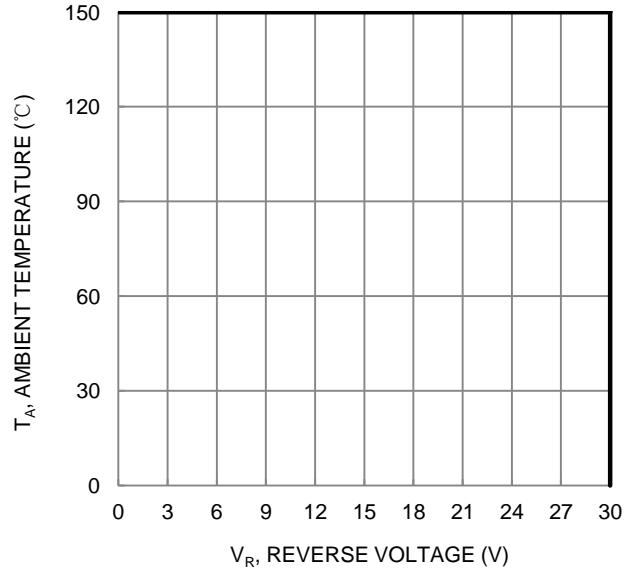
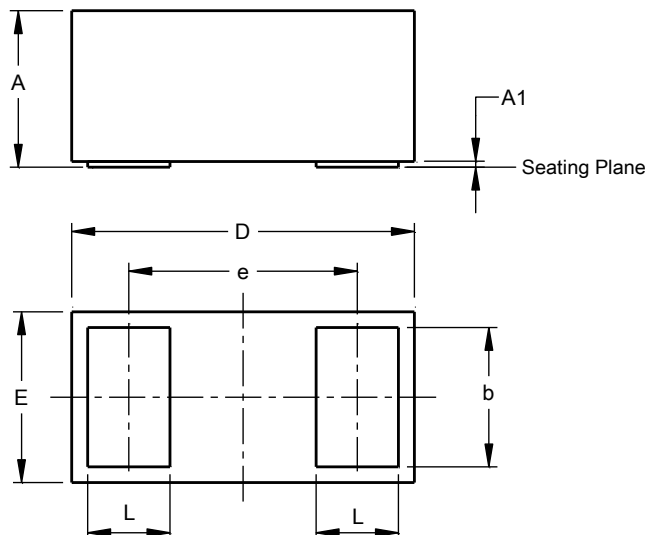


Figure 4. Operating Temperature Derating

Package Outline Dimensions (Note 7)

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

X3-WLB0603-2



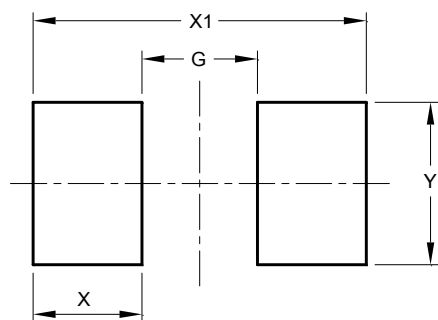
X3-WLB0603-2			
Dim	Min	Max	Typ
A	0.250	0.300	0.275
A1	0.00	0.01	-
b	0.220	0.280	0.245
D	0.575	0.625	0.600
E	0.275	0.325	0.300
e	-	-	0.400
L	0.120	0.180	0.144
All Dimensions in mm			

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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