

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 0.18mm² 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 diodes
- Reverse protection diodes
- Boost diodes

Features and Benefits

- 0.18mm² 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](mailto:contact@diodes.com) or your local Diodes representative.**
<https://www.diodes.com/quality/product-definitions/>

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)

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Top View



Bottom View

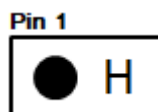
Ordering Information (Note 4)

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 ≤ 1ms; δ ≤ 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

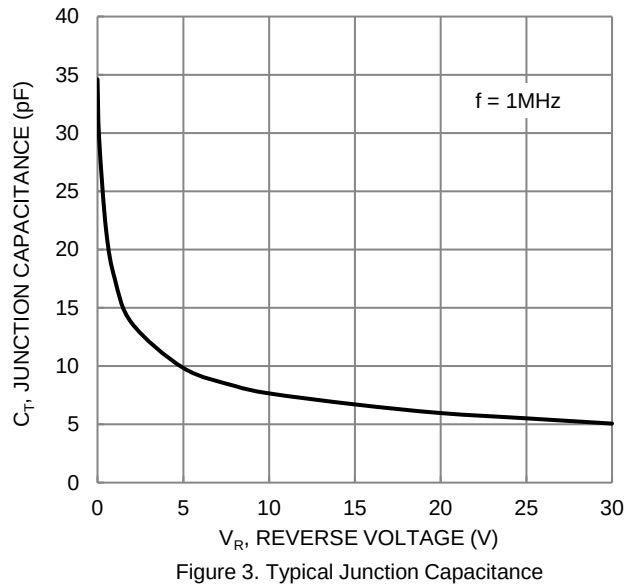
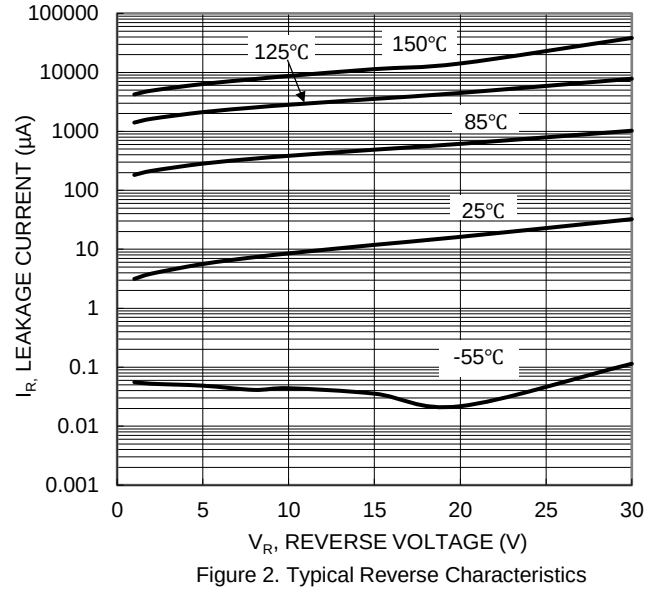
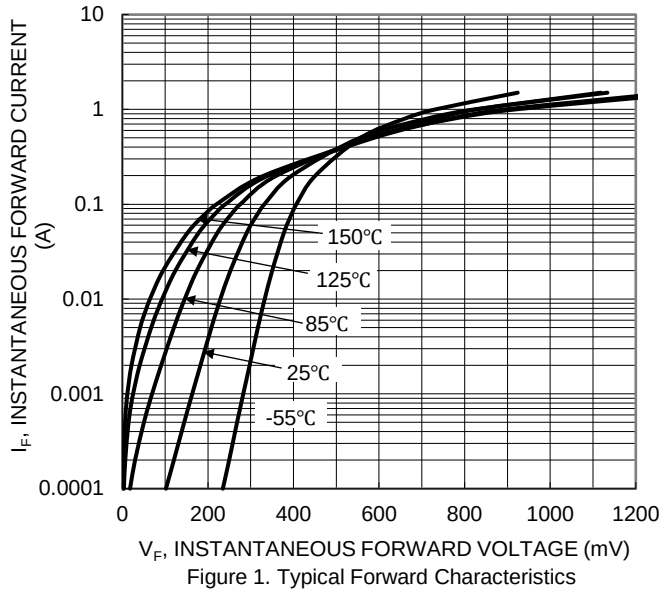
Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Ambient (Notes 5 & 6)	R _{θJA}	250	°C/W
Operating Temperature Range (Note 6)	T _J	-55 to +150	°C
Storage Temperature Range	T _{STG}	-55 to +150	°C

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage Drop	V _F	—	0.24	0.30	V	I _F = 10mA, T _J = +25°C
		—	0.34	0.40		I _F = 100mA, T _J = +25°C
		—	0.40	0.46		I _F = 200mA, T _J = +25°C
		—	0.55	0.62		I _F = 500mA, T _J = +25°C
Leakage Current (Note 7)	I _R	—	10	40	μA	V _R = 10V, T _J = +25°C
		—	20	—		V _R = 20V, T _J = +25°C
		—	30	135		V _R = 30V, T _J = +25°C
Junction Capacitance	C _T	—	10	—	pF	V _R = 5V, T _J = +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_J keeping rising under the operating conditions in applications.
 - Short duration pulse test used to minimize self-heating effect.

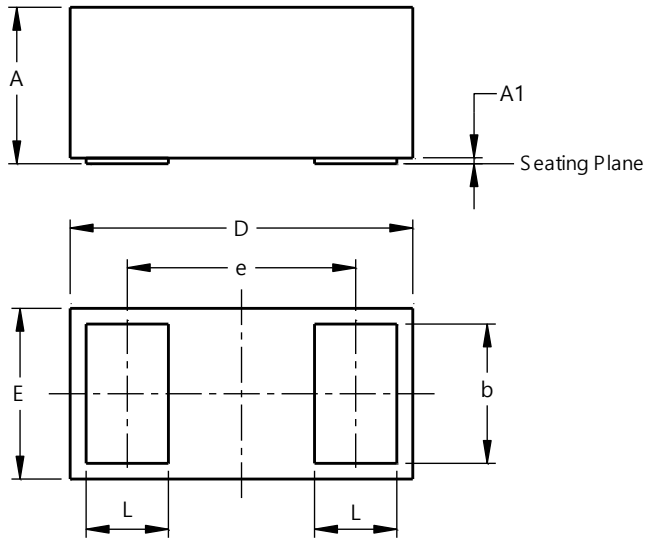
Typical Electrical Characteristics



Package Outline Dimensions

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

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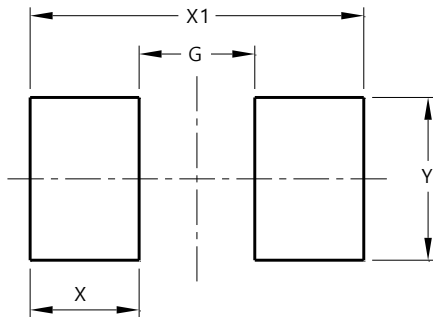


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Dim	Min	Max	Typ
A	0.250	0.300	0.275
A1	0.00	0.01	-
b	0.220	0.280	0.245
D	0.575	0.625	0.600
E	0.275	0.325	0.300
e	-	-	0.400
L	0.120	0.180	0.144
All Dimensions in mm			

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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