SDM1U20CSP

1.0A SCHOTTKY BARRIER RECTIFER
CHIP SCALE PACKAGE

Product Summary

V_{RRM} (V)	I_O (A)	V_F Max (V)	I_R Max (µA)
20	1.0	0.44	100

Features and Benefits

- Low Forward Voltage (V_F) Minimizes Conduction Losses and Improves Efficiency
- Reduced High-Temperature Reverse Leakage
  Increased Reliability against Thermal Runaway Failure in High Temperature Operation
- **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/

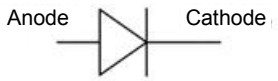
Description and Applications

The SDM1U20CSP is a 20V, 1A Schottky barrier rectifier that is optimized for low, forward-voltage drop and low leakage current. Housed in a compact chip scale package (CSP), the SDM1U20CSP occupies only 0.84 mm^2 board-space with low profile. The low thermal resistance enables designers to meet design challenges of increasing efficiency while at the same time reducing board space. It is ideally suited for use in portable applications as:

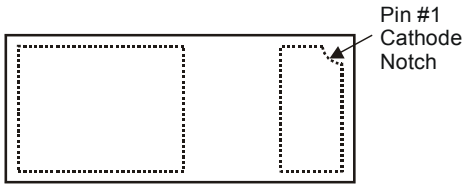
- Blocking Diodes
- Boost Diodes
- Switching Diodes
- Reverse Protection Diodes

Mechanical Data

- Case: X3-WLB1406-2
- Moisture Sensitivity: Level 1 per J-STD-020
- Polarity: Cathode Dot
- Weight: 0.001 grams (Approximate)



Device Schematic



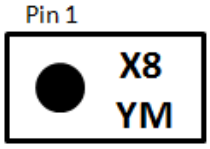
Ordering Information (Note 4)

Part Number	Case	Packaging
SDM1U20CSP-7	X3-WLB1406-2	5,000/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-WLB1406-2



X8=Product Type Marking Code
YM=Date Code Marking
Y=Year (ex: G=2019)
M=Month (ex: N=November)
Dot Denotes Cathode Pin

Date Code Key

Year	2014	2015	2016	2017	2018	2019	2020
Code	B	C	D	E	F	G	H

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

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}	20	V
Average Rectified Output Current	I_O	1.0	A
Repetitive Peak Forward Current (Pulse Wave = 1 Sec, Duty Cycle = 66%)	I_{FRM}	5.0	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I_{FSM}	18	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Ambient (Note 5)	$R_{\theta JA}$	140	°C/W
Typical Thermal Resistance Junction to Ambient (Note 6)	$R_{\theta JA}$	73	°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 Drop	V_F	—	—	0.39	V	I_F = 0.5A
		—	—	0.44		I_F = 1.0A
Reverse Current (Note 7)	I_R	— —	— —	25 100	μA	V_R = 10V V_R = 20V
Junction Capacitance	C_J	—	76	—	pF	V_R = 4V, f = 1.0MHz

Notes: 5. Device mounted on FR-4 PCB, 2oz. Copper, minimum recommended pad layout per http://www.diodes.com/package-outlines.html.
6. Device mounted on FR-4 PCB, 2oz. 1 square inch Copper.
7. Short duration pulse test used to minimize self-heating effect.

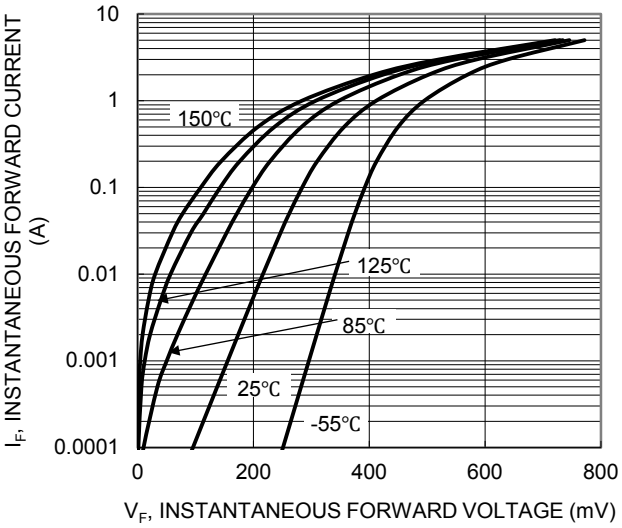


Figure 1. Typical Forward Characteristics

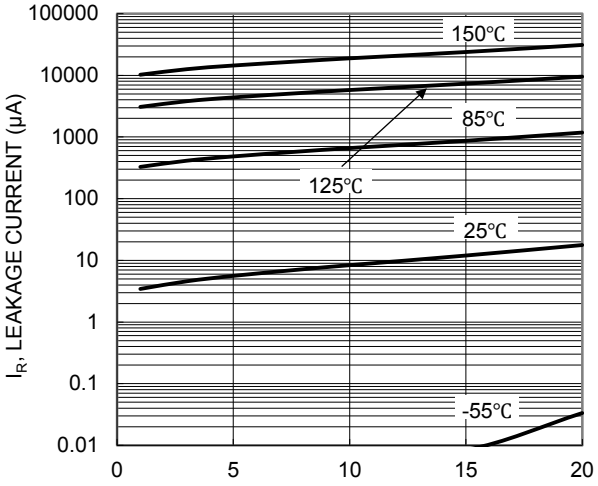


Figure 2. Typical Reverse Characteristics

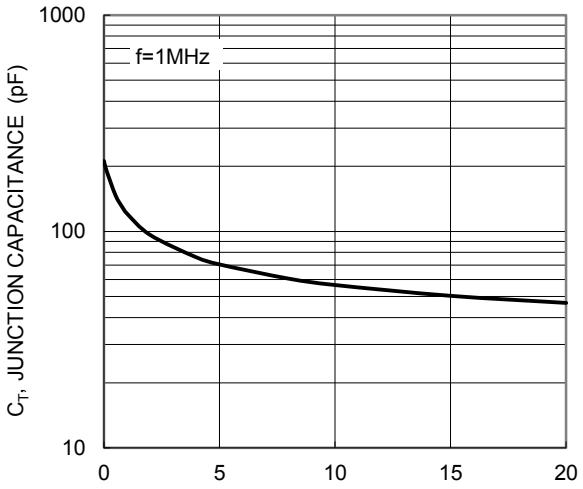


Figure 3. Typical Junction Capacitance

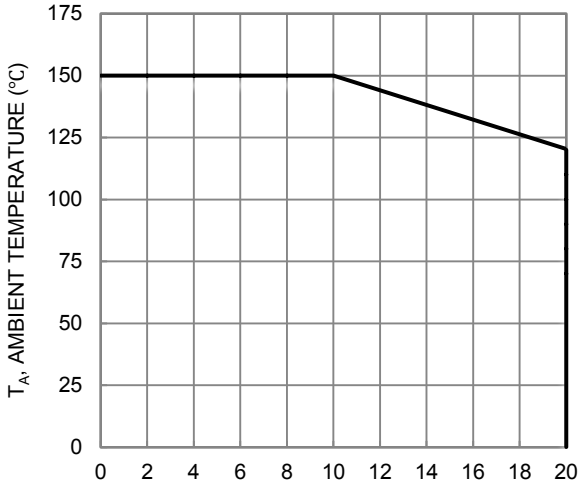
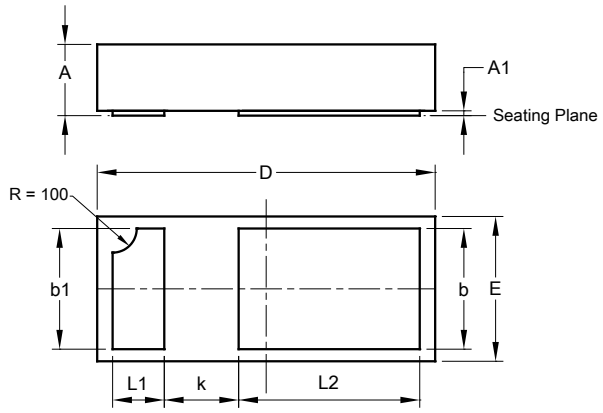


Figure 4. Operating Temperature Derating

Package Outline Dimensions

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

X3-WLB1406-2

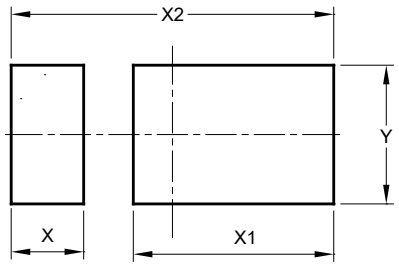


X3-WLB1406-2			
Dim	**Min**	**Max**	**Typ**
A	0.250	0.300	0.275
A1	0.000	0.015	-
b	0.45	0.55	-
b1	0.45	0.55	-
D	1.37	1.43	1.40
E	0.57	0.63	0.60
k	-	-	0.30
L1	0.20	0.26	-
L2	0.70	0.80	-
All Dimensions in mm			

Suggested Pad Layout

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

X3-WLB1406-2



Dimensions	Value (in mm)
X	0.304
X1	0.840
X2	1.352
Y	0.580

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