Product Summary

V_{RRM} (V)	I_O (A)	$V_{F\ Max}$ (V)	$I_{R\ Max}$ (µA)
40	2	0.58	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)**

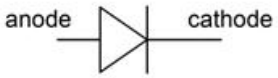
Description and Applications

The SDM2A40CSP is a 40V 2A Schottky barrier rectifier optimized for low forward voltage drop and low leakage current housed in a compact chip scale package (CSP) that occupies only 1.28mm^2 board space with a 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 a:

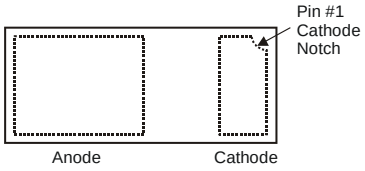
- Blocking Diode
- Boost Diode
- Switching Diode
- Reverse Protection Diode

Mechanical Data

- Case: X3-WLB1608-2
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: NiAu Bump. Solderable per MIL-STD-202, Method 208 e4
- Polarity: Cathode Dot
- Weight: 0.001 grams (Approximate)



Device Schematic

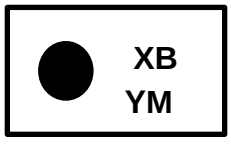


Ordering Information (Note 4)

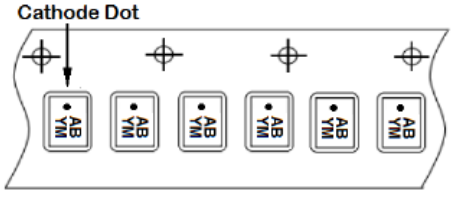
Part Number	Case	Packaging
SDM2A40CSP-7B	X3-WLB1608-2	10,000/Tape & Reel

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



XB= Product Type Marking Code
YM=Date Code Marking
Y or $\overline{Y}$= Year (ex: F = 2018)
M=Month (ex: 9= September)
Dot Denotes Cathode Pin



Date Code Key

Year	2018	2019	2020	2021	2022	2023	2024
Code	F	G	H	I	J	K	L

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}	40	V
Average Rectified Output Current	I_O	2	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I_{FSM}	28	A
Repetitive Peak Forward Current (Pulse Wave = 1 sec, Duty Cycle = 66%)	I_{FRM}	4	A
ESD Rating Human Body Model Charged Device Model	ESD	8 1	KV

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Ambient (Note 5)	$R_{\Theta JA}$	137	°C/W
Total Power Dissipation (Note 5)	P_{TOT}	900	mW
Typical Thermal Resistance Junction to Ambient (Note 6)	$R_{\Theta JA}$	50	°C/W
Total Power Dissipation (Note 6)	P_{TOT}	2	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	—	0.43	0.47	V	I_F = 1.0A, T_J = +25°C
		—	0.52	0.58		I_F = 2.0A, T_J = +25°C
Reverse Current (Note 7)	I_R	— — —	2 13 600	18 100 2000	μA	V_R = 10V, T_J = +25°C V_R = 40V, T_J = +25°C V_R = 32V, T_J = +85°C
Junction Capacitance	C_T	—	81	—	pF	V_R = 5V, f = 1.0MHz
Reverse Recovery Time	trr	—	14	—	ns	I_F=0.5A, I_R=1.0A, I_{rr}=0.25A

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

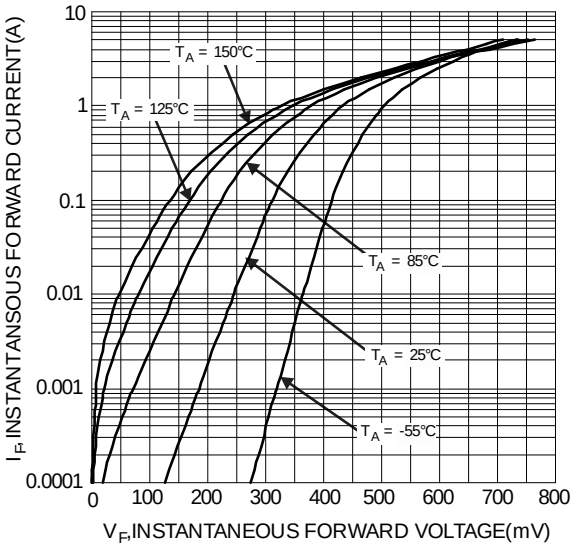


Figure 1 Typical Forward Characteristics

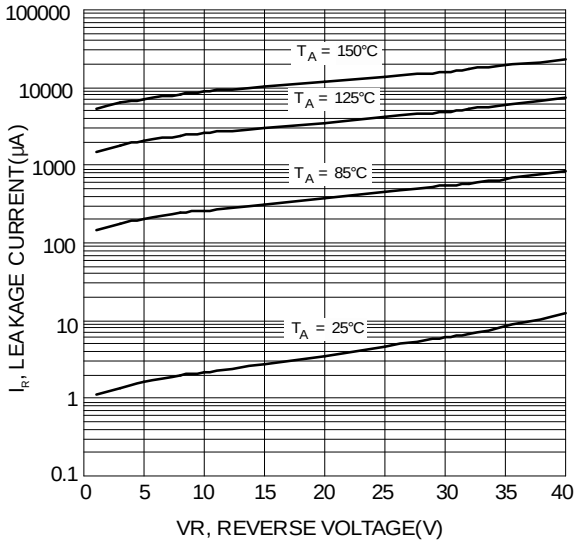


Figure 2 Typical Reverse Characteristics

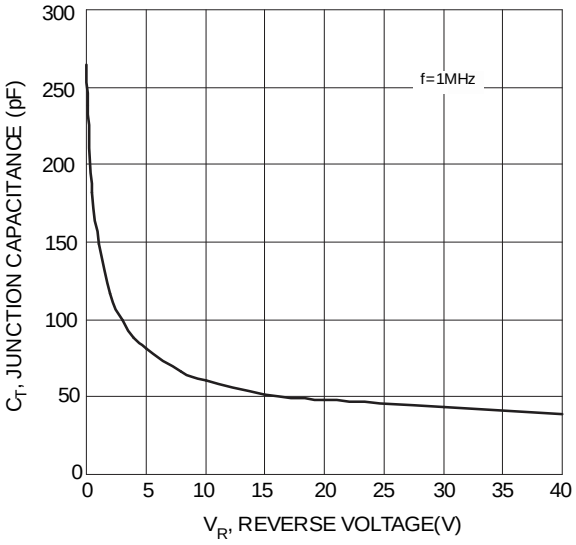
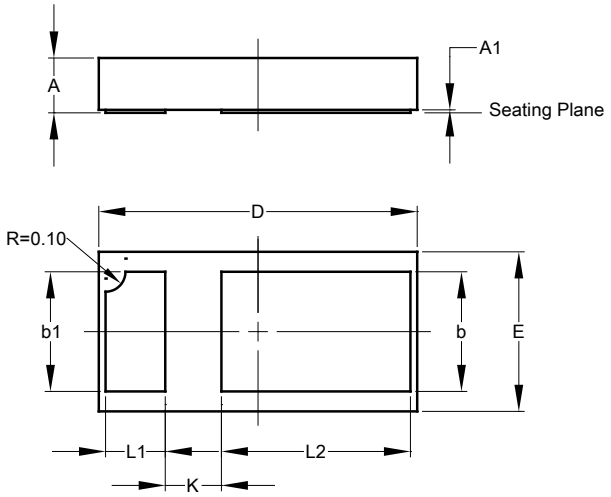


Figure 3 Typical Junction Capacitance

Package Outline Dimensions (Note 8)

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

X3-WLB1608-2



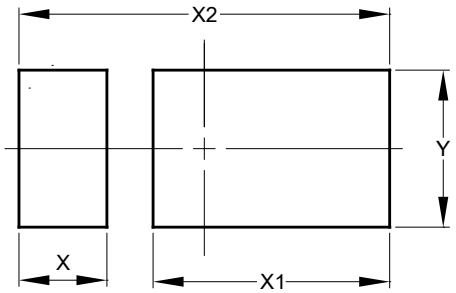
X3-WLB1608-2			
Dim	**Min**	**Max**	**Typ**
A	0.250	0.300	0.275
A1	—	0.015	—
b	—	—	0.600
b1	—	—	0.600
D	1.57	1.63	1.60
E	0.77	0.83	0.80
K	—	—	0.282
L1	0.25	0.35	0.30
L2	0.90	1.00	0.95
All Dimensions in mm			

Note: 8. 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-WLB1608-2



Dimensions	Value (in mm)
X	0.385
X1	1.035
X2	1.622
Y	0.690

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