NOT RECOMMENDED FOR NEW DESIGN
USE SDM1A40CSP

Lead-free Green

SDM1A40CSP-01

1A
SCHOTTKY BARRIER RECTIFIER
CHIP SCALE PACKAGE

Product Summary

BV_{RRM} (V)	I_O (A)	V_F Max (V)	I_R Max (μA) @10V
40	1	0.62	100

Description

The SDM1A40CSP-01 is a 40-volt 1A Schottky barrier rectifier that is optimized for low forward voltage drop and low leakage current, housed in a compact chip scale package (CSP) that occupies only 0.6mm^2 of board space. The low thermal resistance enables designers to meet design challenges of increasing efficiency whilst at the same time reducing board space.

Applications

It is ideally suited for use in portable applications as a:

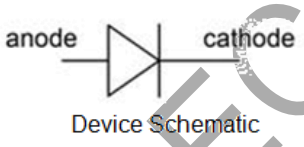
- Blocking Diode
- Boost Diode
- Switching Diode
- Reverse Protection Diode

Features and Benefits

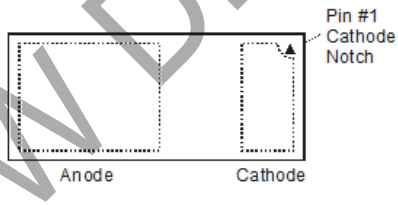
- Off Board Profile of 0.275mm – More than 30% Thinner than DFN1006
- Low Forward Voltage (V_F) Minimizes Conduction Losses and Improves Efficiency
- Reduced High Temperature Reverse Leakage; Increased Reliability Against Thermal Runaway Failure in High Temperature Operation
- **Totally Lead-Free & Fully 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/**

Mechanical Data

- Case: X3-WLB1006-2
- 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

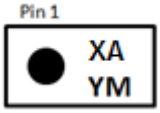


Ordering Information (Note 4)

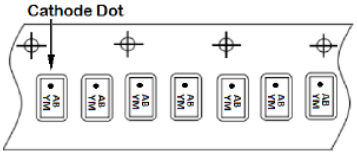
Part Number	Case	Packaging
SDM1A40CSP-01-7	X3-WLB1006-2	5,000/Reel

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



XA = Product Type Marking Code
YM = Date Code Marking
Y or $\overline{Y}$ = Year (ex: D = 2016)
M = Month (ex: 9 = September)
Dot Denotes Cathode Pin



Date Code Key

Year	2016	•••	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Code	D	•••	H	I	J	K	L	M	N	O	P	R

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	1	A
Repetitive peak Forward Current (Pulse Wave = 1msec, Duty Cycle = 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 (Note 5)	$R_{\theta JA}$	135	°C/W
Typical Thermal Resistance Junction to Ambient (Note 6)	$R_{\theta JA}$	80	°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	—	0.51	0.62	V	I_F = 1.0A, T_J = +25°C
Leakage Current (Note 7)	I_R	—	—	100	µA	V_R = 10V, T_J = +25°C
Junction Capacitance	C_T	—	35	—	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.

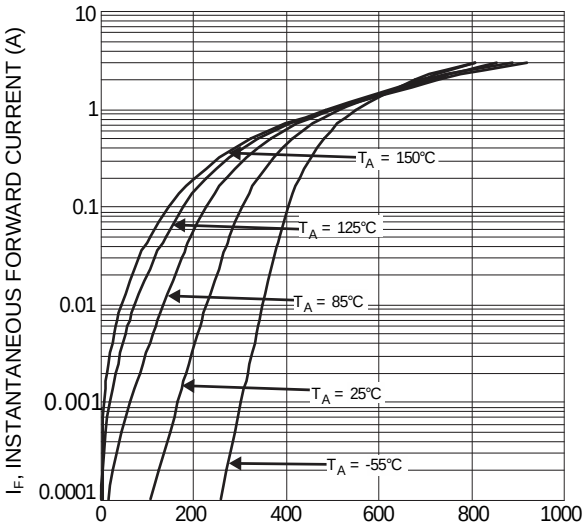


Figure 1 Typical Forward Characteristics

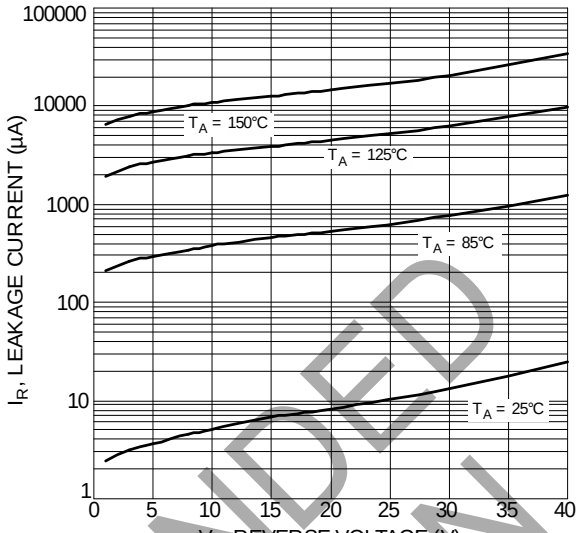


Figure 2 Typical Reverse Characteristics

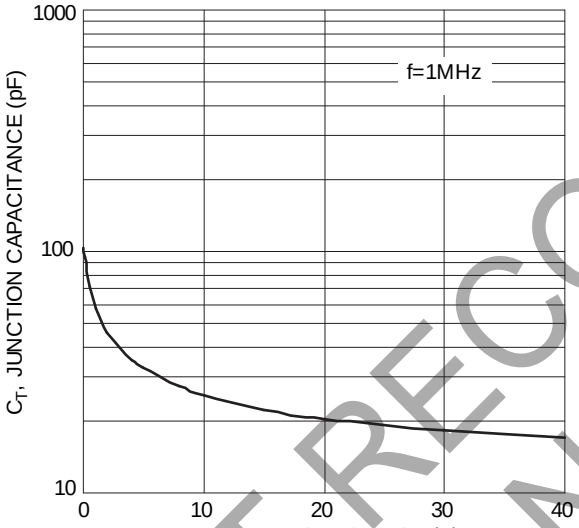


Figure 3 Typical Junction Capacitance

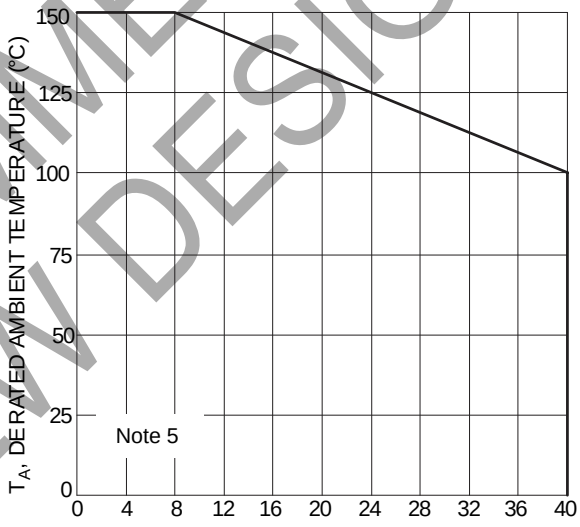
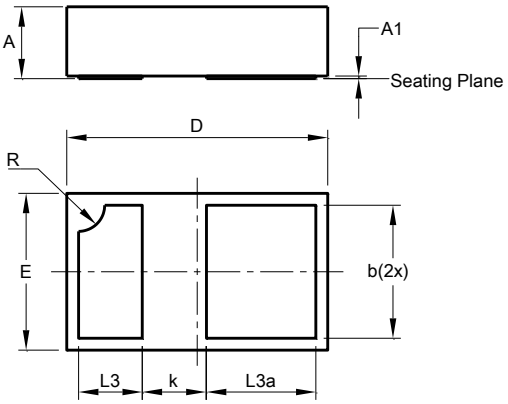


Figure 4 Operating Temperature Derating

Package Outline Dimensions

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

X3-WLB1006-2

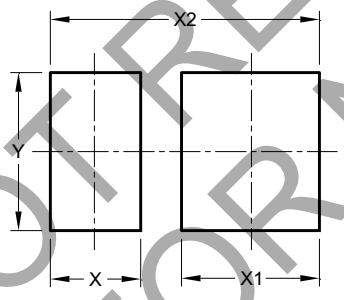


X3-WLB1006-2			
Dim	**Min**	**Max**	**Typ**
A	0.25	0.30	0.275
A1	0.00	0.01	–
b	0.450	0.550	0.500
D	0.95	1.05	1.000
E	0.55	0.65	0.600
k	–	–	0.288
L3	0.194	0.294	0.244
L3a	0.350	0.450	0.400
R	–	–	0.100
All Dimensions in mm			

Suggested Pad Layout

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

X3-WLB1006-2



Dimensions	Value (in mm)
X	0.332
X1	0.507
X2	0.989
Y	0.579

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