NEW PRODUCT

SDM05U40CSP

0.5A
SCHOTTKY BARRIER RECTIFIER
CHIP SCALE PACKAGE

Product Summary

V_{RRM} (V)	I_O (A)	$V_{F\ MAX}$ (V)	$I_{R\ MAX}$ (µA)
40	0.5	0.46	75

Description

The SDM05U40CSP is a 40-volt 0.5A 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 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:

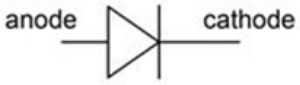
- Blocking Diode
- Boost Diode
- Switching Diode
- Reverse Protection Diode

Features and Benefits

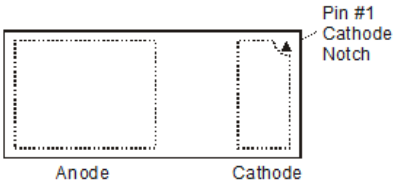
- Off Board Profile of 0.275mm – More than 30% Thinner than DFN1006
- Low Forward Voltage (V_F) Minimizes Conduction Losses and Improves Efficiency
- Reduced High Temperature Reverse Leakage; Increased Reliability Against Thermal Runaway Failure in High Temperature Operation
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

Mechanical Data

- Case: X3-WLB1006-2
- Moisture Sensitivity: Level 1 per J-STD-020
- Polarity: Cathode Dot
- Weight: 0.001 grams



Device Schematic

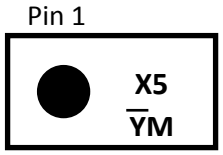


Ordering Information (Note 4)

Part Number	Case	Packaging
SDM05U40CSP-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) compliant.
2. See http://www.diodes.com/quality/lead_free.htmlfor 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 http://www.diodes.com/products/packages.html.

Marking Information



X5= Product Type Marking Code
YM or $\overline{Y}M$ =Date Code Marking
Y= Year (ex: D= 2016)
M=Month (ex: 9= September)
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

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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	0.5	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I_{FSM}	14	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	–	0.305	0.36	V	I_F = 0.1A
		–	0.415	0.46		I_F = 0.5A
		–	0.34	–		I_F = 0.5A, T_J = +125°C
Leakage Current (Note 7)	I_R	–	–	15	μA	V_R = 10V
		–	–	75		V_R = 40V
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.

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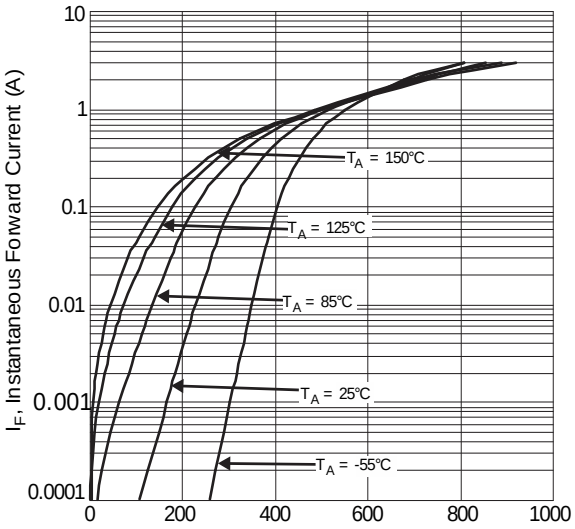

Figure 1 Typical Forward Characteristics

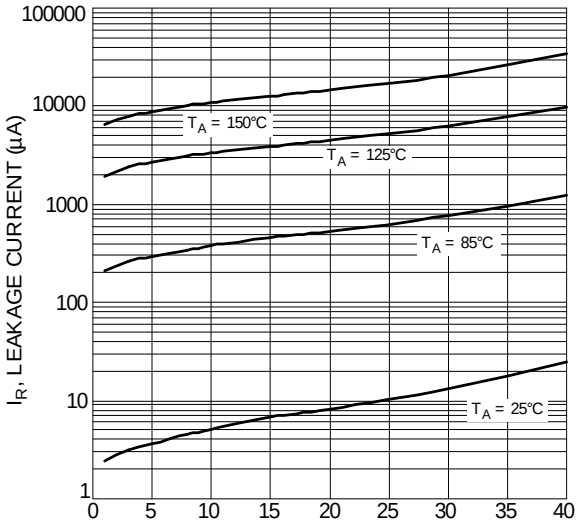

Figure 2 Typical Reverse Characteristics

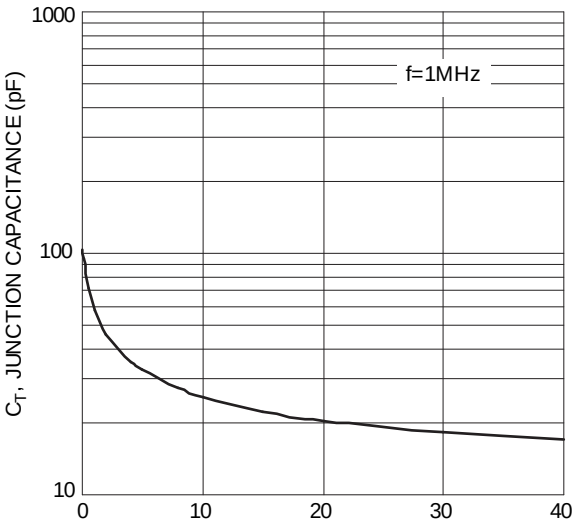

Figure 3 Typical Junction Capacitance

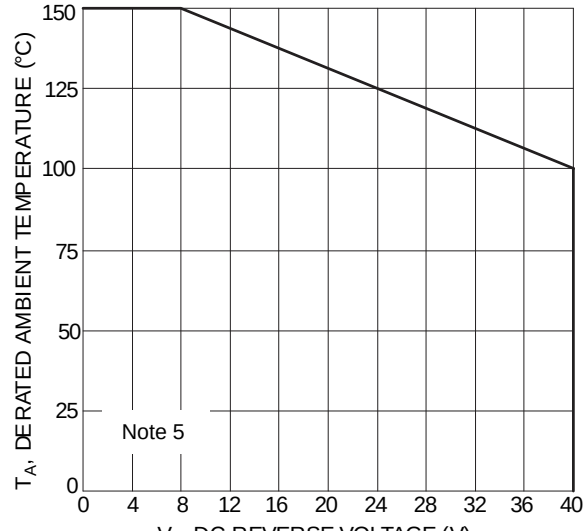

Figure 4 Operating Temperature Derating

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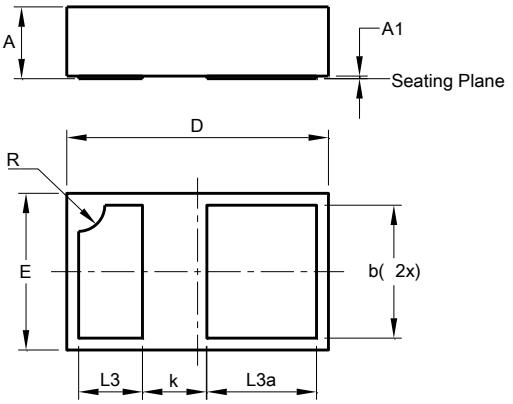
Package Outline Dimensions

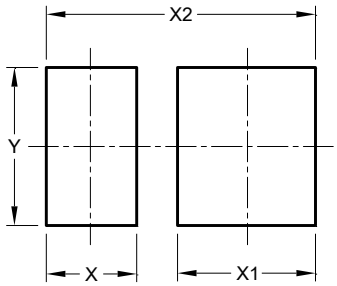
Please see http://www.diodes.com/package-outlines.html for the latest version.



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.



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

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