chanhvinh.com

Lead-free Green

SDM4A30EP3

4A SCHOTTKY BARRIER RECTIFIER SURFACE MOUNT PACKAGE

Product Summary

V_{RRM}	I_O	V_F Max	I_R Max
30V	4A	570mV	250µA

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/**

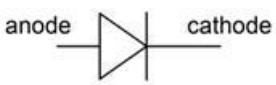
Description and Applications

The SDM4A30EP3 is a 30V 4A Schottky Barrier Rectifier that is optimized for low forward voltage drop and low leakage current, housed in a small surface mount package that occupies only 1.28mm^2 board space with very 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 such as:

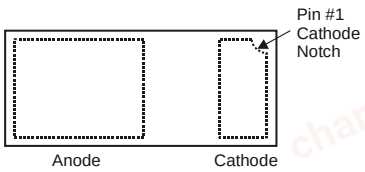
- Blocking Diode
- Boost Diode
- Switching Diode
- Reverse Protection Diode

Mechanical Data

- Case: X3-TSN1608-2
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: NiAu, Solderable per MIL-STD-202, Method 208 e4
- Polarity: Cathode Dot
- Weight: 0.0007 grams (Approximate)



Device Schematic

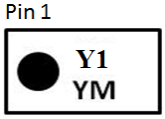


Ordering Information (Note 4)

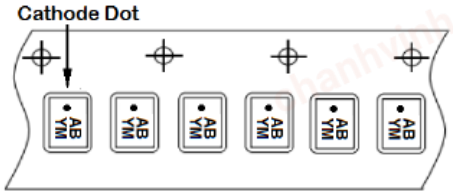
Part Number	Case	Packaging
SDM4A30EP3-7B	X3-TSN1608-2	10,000/Tape & Reel

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



Y1 = Product Type Marking Code
YM = Date Code Marking
Y or $\overline{Y}$ = Year (ex: I = 2021)
M = Month (ex: 9 = September)
Dot Denotes Cathode Pin



Date Code Key

Year	2018	…	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Code	F	…	I	J	K	L	M	N	O	P	R	S

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

© Diodes Incorporated

chanhvinh.com

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 (Note 6)	I_O	4	A
Repetitive Peak Forward Current (Pulse Wave = 1s, Duty Cycle = 66%)	I_{FRM}	6	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I_{FSM}	32	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Ambient (Note 5)	$R_{\theta JA}$	160	°C/W
Total Power Dissipation (Note 5)	P_D	0.8	W
Typical Thermal Resistance Junction to Ambient (Note 6)	$R_{\theta JA}$	60	°C/W
Total Power Dissipation (Note 6)	P_D	2.1	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	— — —	355 400 480	405 470 570	mV	I_F = 1.0A I_F = 2.0A I_F = 4.0A
Reverse Current (Note 7)	I_R	— —	18 65	100 250	µA	V_R = 10V V_R = 30V
Junction Capacitance	C_J	—	107	—	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. copper, 1 inch square copper pad.
7. Short duration pulse test used to minimize self-heating effect.

© Diodes Incorporated

chanhvinh.com

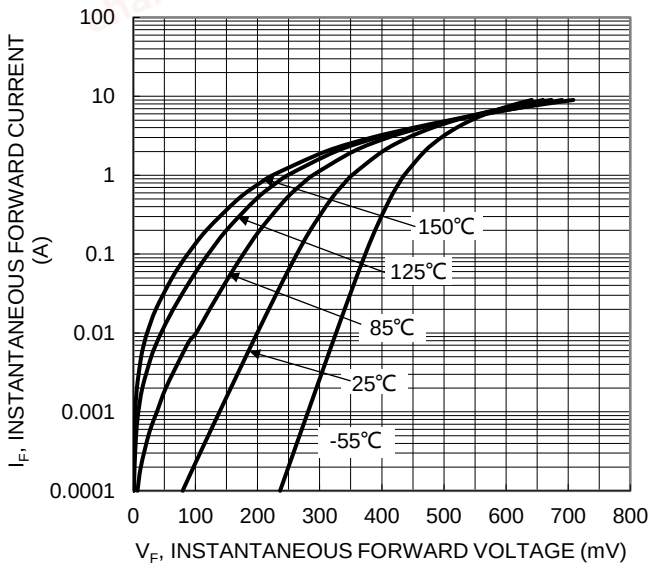


Figure 1. Typical Forward Characteristics

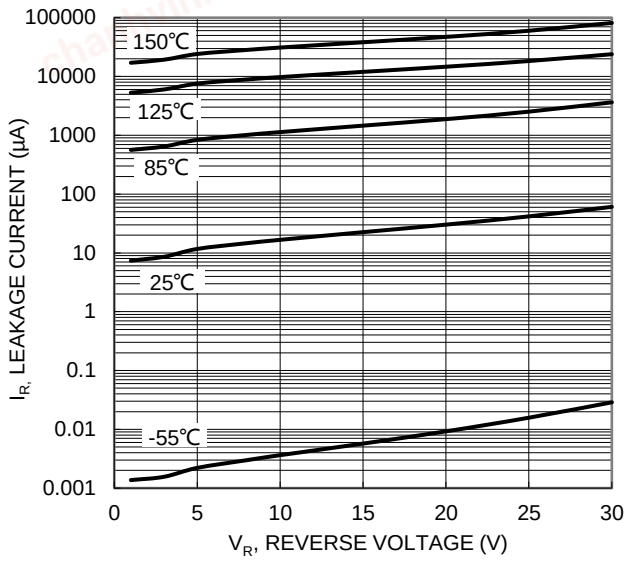


Figure 2. Typical Reverse Characteristics

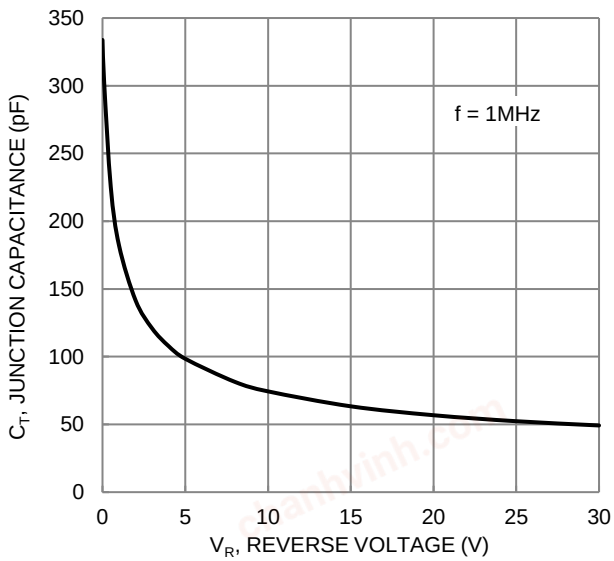


Figure 3. Typical Junction Capacitance

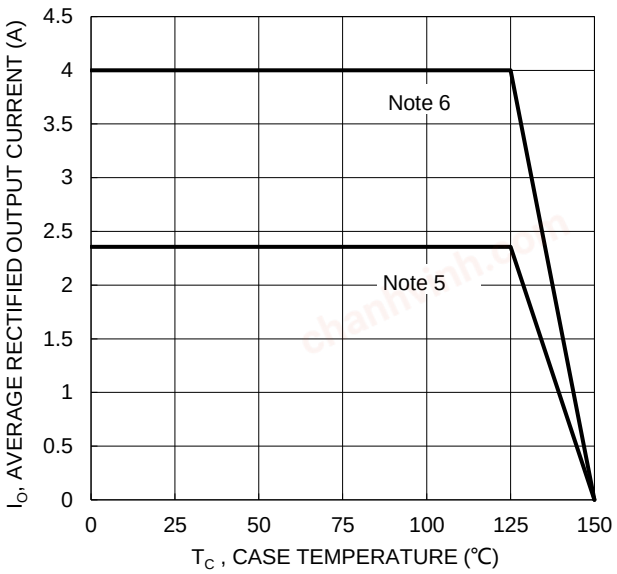


Figure 4. DC Forward Current Derating

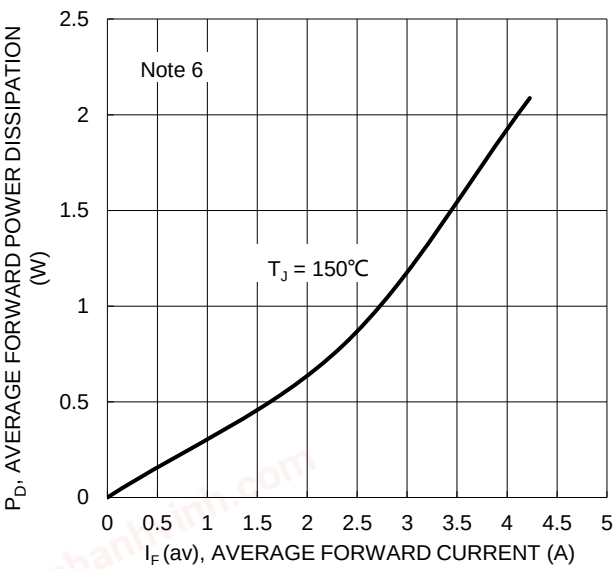


Figure 5. Forward Power Dissipation

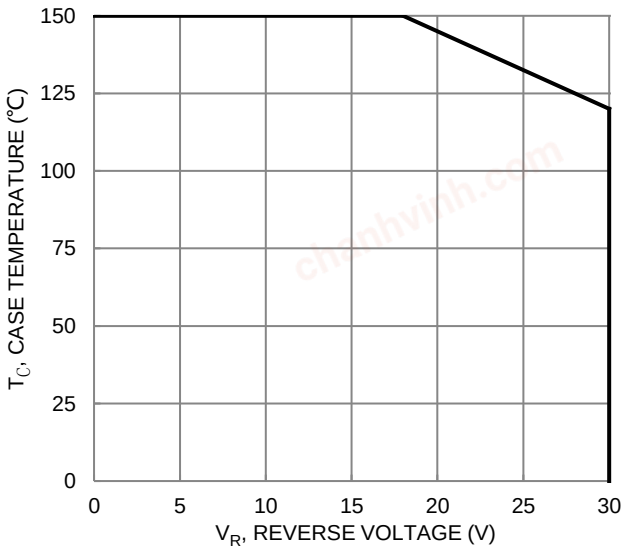


Figure 6. Operating Temperature Derating

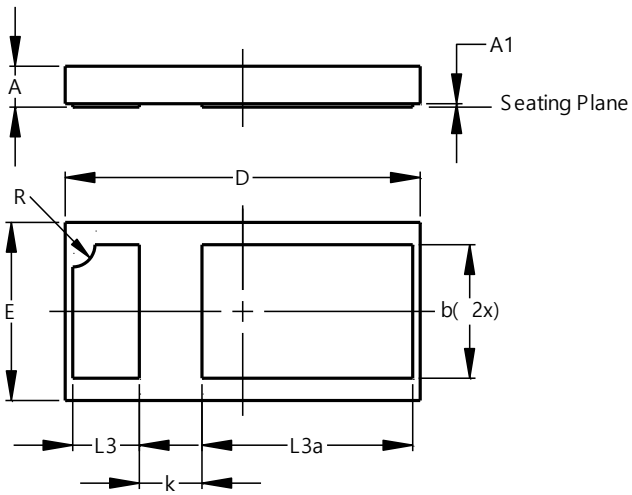
© Diodes Incorporated

chanhvinh.com

Package Outline Dimensions

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

X3-TSN1608-2

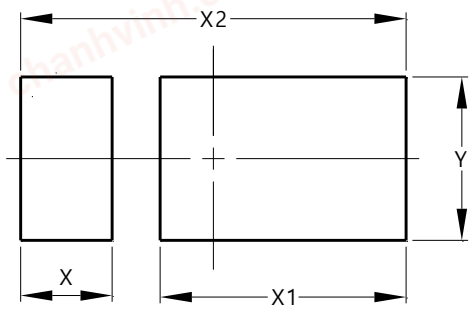


X3-TSN1608-2			
Dim	**Min**	**Max**	**Typ**
A	0.20	0.30	0.25
A1	0.00	0.02	--
b	0.55	0.65	0.60
D	1.56	1.64	1.60
E	0.76	0.84	0.80
k	--	--	0.282
L3	0.25	0.35	0.30
L3a	0.90	1.00	0.95
R	--	--	0.10
All Dimensions in mm			

Suggested Pad Layout

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

X3-TSN1608-2



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

© Diodes Incorporated

chanhvinh.com

IMPORTANT NOTICE

1. DIODES INCORPORATED AND ITS SUBSIDIARIES (“DIODES”) MAKE NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, WITH REGARDS TO ANY INFORMATION CONTAINED IN THIS DOCUMENT, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT OF THIRD PARTY INTELLECTUAL PROPERTY RIGHTS (AND THEIR EQUIVALENTS UNDER THE LAWS OF ANY JURISDICTION).

2. The Information contained herein is for informational purpose only and is provided only to illustrate the operation of Diodes products described herein and application examples. Diodes does not assume any liability arising out of the application or use of this document or any product described herein. This document is intended for skilled and technically trained engineering customers and users who design with Diodes products. Diodes products may be used to facilitate safety-related applications; however, in all instances customers and users are responsible for (a) selecting the appropriate Diodes products for their applications, (b) evaluating the suitability of the Diodes products for their intended applications, (c) ensuring their applications, which incorporate Diodes products, comply the applicable legal and regulatory requirements as well as safety and functional-safety related standards, and (d) ensuring they design with appropriate safeguards (including testing, validation, quality control techniques, redundancy, malfunction prevention, and appropriate treatment for aging degradation) to minimize the risks associated with their applications.

3. Diodes assumes no liability for any application-related information, support, assistance or feedback that may be provided by Diodes from time to time. Any customer or user of this document or products described herein will assume all risks and liabilities associated with such use, and will hold Diodes and all companies whose products are represented herein or on Diodes’ websites, harmless against all damages and liabilities.

4. Products described herein may be covered by one or more United States, international or foreign patents and pending patent applications. Product names and markings noted herein may also be covered by one or more United States, international or foreign trademarks and trademark applications. Diodes does not convey any license under any of its intellectual property rights or the rights of any third parties (including third parties whose products and services may be described in this document or on Diodes’ website) under this document.

5. Diodes products are provided subject to Diodes’ Standard Terms and Conditions of Sale (https://www.diodes.com/about/company/terms-and-conditions/terms-and-conditions-of-sales/) or other applicable terms. This document does not alter or expand the applicable warranties provided by Diodes. Diodes does not warrant or accept any liability whatsoever in respect of any products purchased through unauthorized sales channel.

6. Diodes products and technology may not be used for or incorporated into any products or systems whose manufacture, use or sale is prohibited under any applicable laws and regulations. Should customers or users use Diodes products in contravention of any applicable laws or regulations, or for any unintended or unauthorized application, customers and users will (a) be solely responsible for any damages, losses or penalties arising in connection therewith or as a result thereof, and (b) indemnify and hold Diodes and its representatives and agents harmless against any and all claims, damages, expenses, and attorney fees arising out of, directly or indirectly, any claim relating to any noncompliance with the applicable laws and regulations, as well as any unintended or unauthorized application.

7. While efforts have been made to ensure the information contained in this document is accurate, complete and current, it may contain technical inaccuracies, omissions and typographical errors. Diodes does not warrant that information contained in this document is error-free and Diodes is under no obligation to update or otherwise correct this information. Notwithstanding the foregoing, Diodes reserves the right to make modifications, enhancements, improvements, corrections or other changes without further notice to this document and any product described herein. This document is written in English but may be translated into multiple languages for reference. Only the English version of this document is the final and determinative format released by Diodes.

8. Any unauthorized copying, modification, distribution, transmission, display or other use of this document (or any portion hereof) is prohibited. Diodes assumes no responsibility for any losses incurred by the customers or users or any third parties arising from any such unauthorized use.

Copyright © 2021 Diodes Incorporated

www.diodes.com