

**4A SCHOTTKY BARRIER RECTIFIER SURFACE MOUNT PACKAGE**

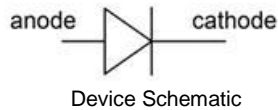
**Product Summary**

<b>V<sub>RRM</sub></b>	<b>I<sub>o</sub></b>	<b>V<sub>F</sub> Max</b>	<b>I<sub>R</sub> Max</b>
30V	4A	570mV	250µA

**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<sup>2</sup> 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

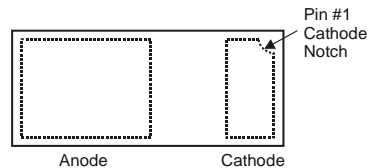


**Features and Benefits**

- 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/>**

**Mechanical Data**

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

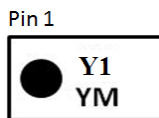


**Ordering Information** (Note 4)

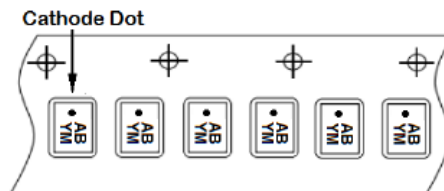
Part Number	Case	Packaging
SDM4A30EP3-7B	X3-TSN1608-2	10,000/Tape & Reel

- 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  $\bar{Y}$  = 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

**Maximum Ratings** (@T<sub>A</sub> = +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 <sub>RRM</sub>	30	V
Average Rectified Output Current (Note 6)	I <sub>o</sub>	4	A
Repetitive Peak Forward Current (Pulse Wave = 1s, Duty Cycle = 66%)	I <sub>FRM</sub>	6	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I <sub>FSM</sub>	32	A

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Ambient (Note 5)	R <sub>θJA</sub>	160	°C/W
Total Power Dissipation (Note 5)	P <sub>D</sub>	0.8	W
Typical Thermal Resistance Junction to Ambient (Note 6)	R <sub>θJA</sub>	60	°C/W
Total Power Dissipation (Note 6)	P <sub>D</sub>	2.1	W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

**Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage Drop	V <sub>F</sub>	—	355	405	mV	I <sub>F</sub> = 1.0A
		—	400	470		I <sub>F</sub> = 2.0A
		—	480	570		I <sub>F</sub> = 4.0A
Reverse Current (Note 7)	I <sub>R</sub>	—	18	100	μA	V <sub>R</sub> = 10V
		—	65	250		V <sub>R</sub> = 30V
Junction Capacitance	C <sub>J</sub>	—	107	—	pF	V <sub>R</sub> = 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.

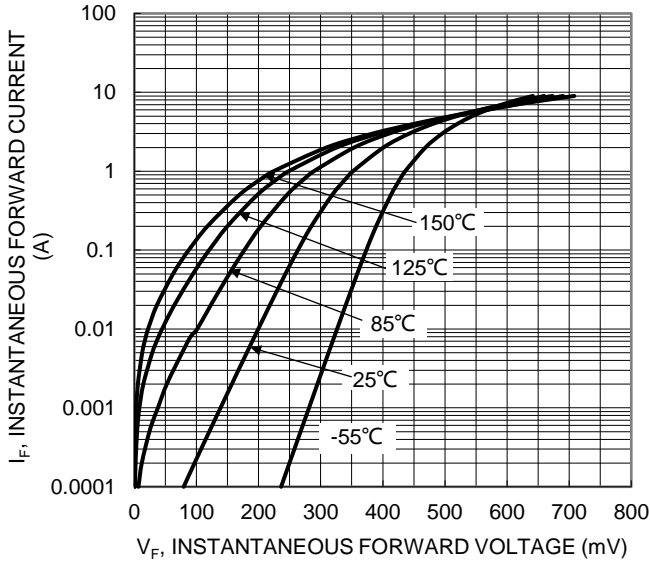


Figure 1. Typical Forward Characteristics

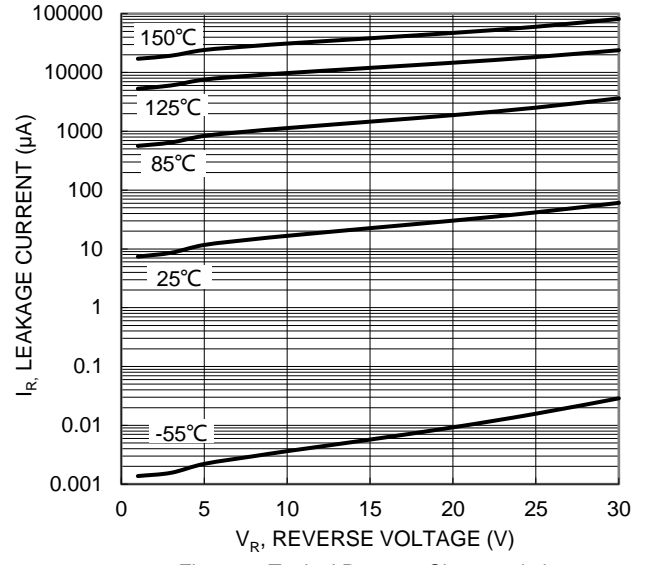


Figure 2. Typical Reverse Characteristics

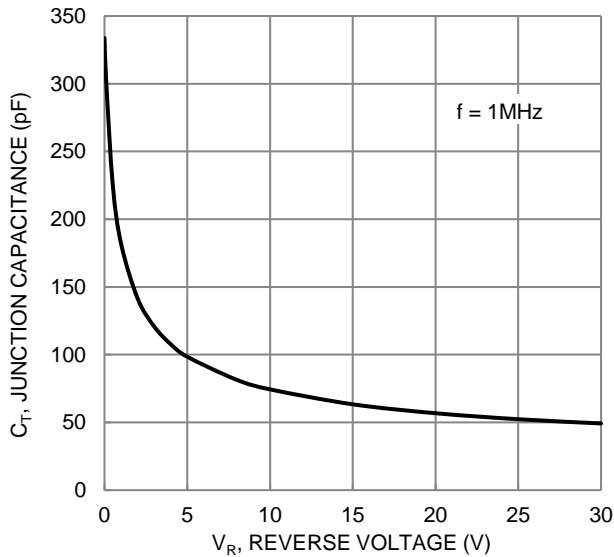


Figure 3. Typical Junction Capacitance

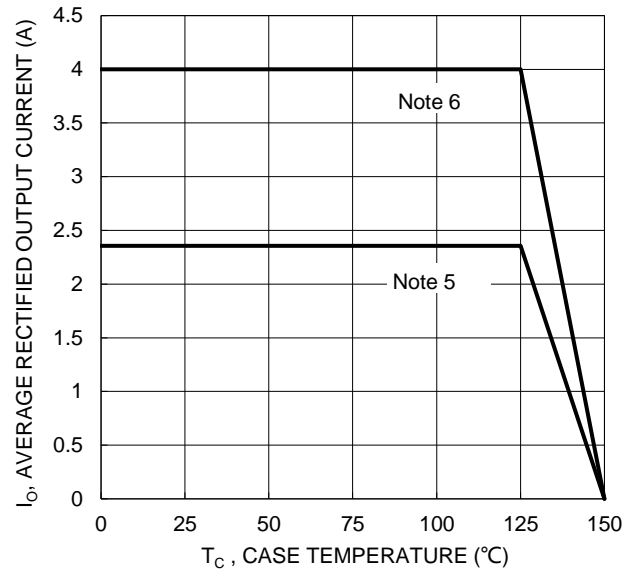


Figure 4. DC Forward Current Derating

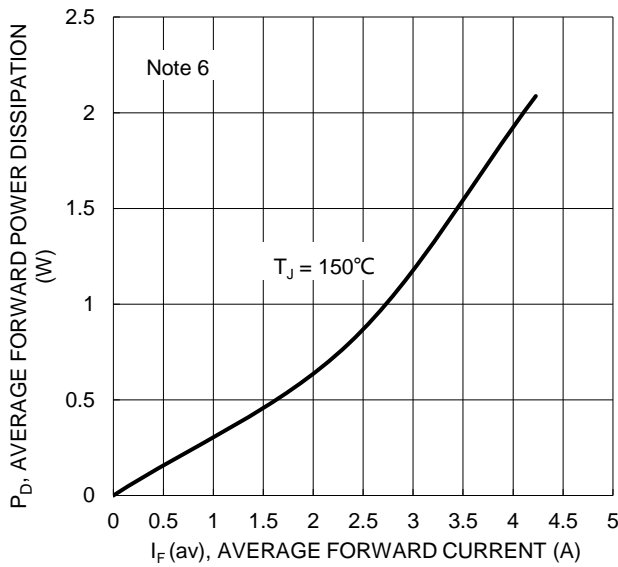


Figure 5. Forward Power Dissipation

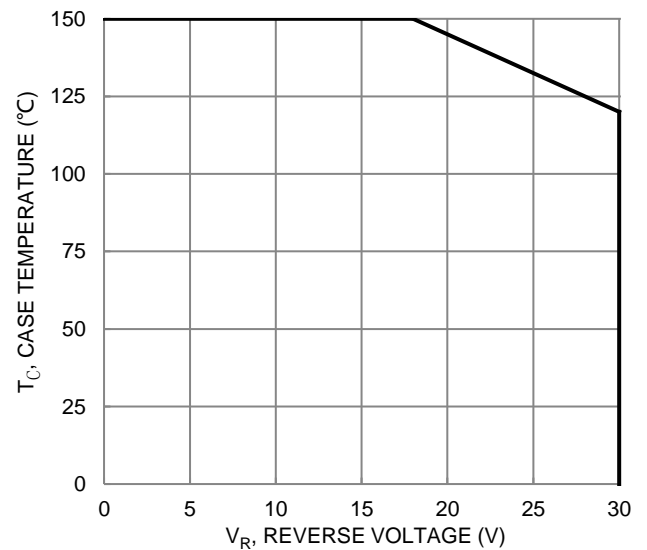
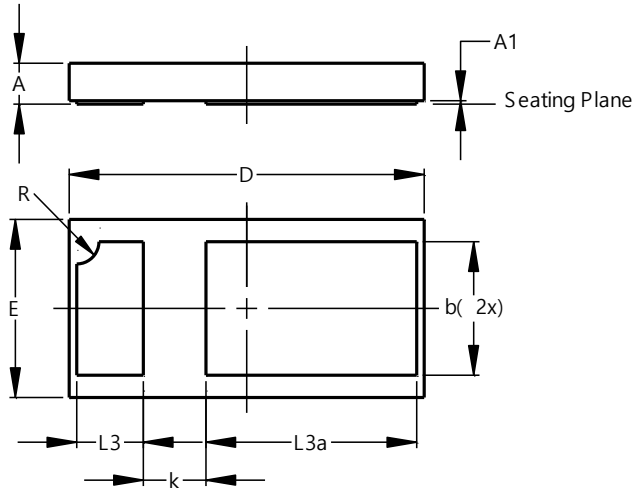


Figure 6. Operating Temperature Derating

**Package Outline Dimensions**

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

**X3-TSN1608-2**

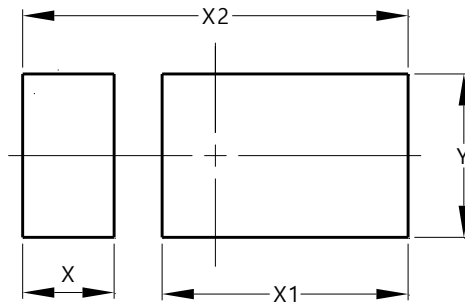


X3-TSN1608-2			
Dim	Min	Max	Typ
A	0.20	0.30	0.25
A1	0.00	0.02	--
b	0.55	0.65	0.60
D	1.56	1.64	1.60
E	0.76	0.84	0.80
k	--	--	0.282
L3	0.25	0.35	0.30
L3a	0.90	1.00	0.95
R	--	--	0.10
All Dimensions in mm			

**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

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