4A SCHOTTKY BARRIER RECTIFIER SURFACE MOUNT PACKAGE

Product Summary

V_{RRM} (V)	I_O (A)	$V_{F\ max}$ (V)	$I_{R\ max}$ (μA)
40	4.0	0.61	150

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, Antimony and Beryllium 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

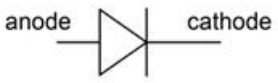
The SDM4A40EP3 is a 40V 4A Schottky Barrier Rectifier that is optimized for low forward voltage drop and low leakage current, housed in a small surface mount package that occupies only 1.28mm^2 board space with very low profile. The low thermal resistance enables designers to meet design challenges of increasing efficiency while at the same time reducing board space. It is ideally suited for use in portable applications such as:

- Blocking Diodes
- Boost Diodes
- Switching Diodes
- Reverse Protection Diodes

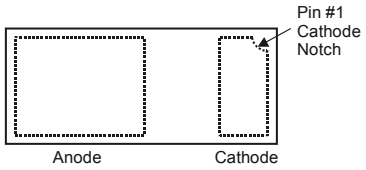
Mechanical Data

- 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)

X3-TSN1608-2



Device Schematic



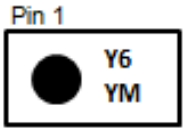
Ordering Information (Note 4)

Part Number	Case	Packaging
SDM4A40EP3-7B	X3-TSN1608-2	10,000/Tape & Reel

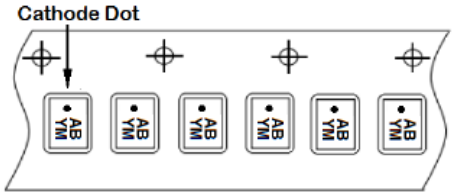
Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
2. See https://www.diodes.com/quality/lead-free/ for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
3. Halogen, Antimony and Beryllium-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl), <1000ppm antimony compounds and <1000ppm Beryllium.
4. For packaging details, go to our website at https://www.diodes.com/design/support/packaging/diodes-packaging/.

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Marking Information



Y6 = Product Type Marking Code
YM = Date Code Marking
Y or $\overline{Y}$ = Year (ex: H = 2020)
M = Month (ex: 9 = September)
Dot Denotes Cathode Pin



Date Code Key

Year	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Code	G	H	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_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 (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	0.9	W
Typical Thermal Resistance Junction to Case (Note 5)	$R_{\theta JC}$	30	°C/W
Typical Thermal Resistance Junction to Ambient (Note 6)	$R_{\theta JA}$	60	°C/W
Total Power Dissipation (Note 6)	P_D	2.2	W
Typical Thermal Resistance Junction to Case (Note 6)	$R_{\theta JC}$	10	°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	— — —	375 440 555	420 490 610	mV	I_F = 1.0A I_F = 2.0A I_F = 4.0A
Reverse Current (Note 7)	I_R	— —	10 45	50 150	μA	V_R = 10V V_R = 40V
Junction Capacitance	C_T	—	88	—	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.

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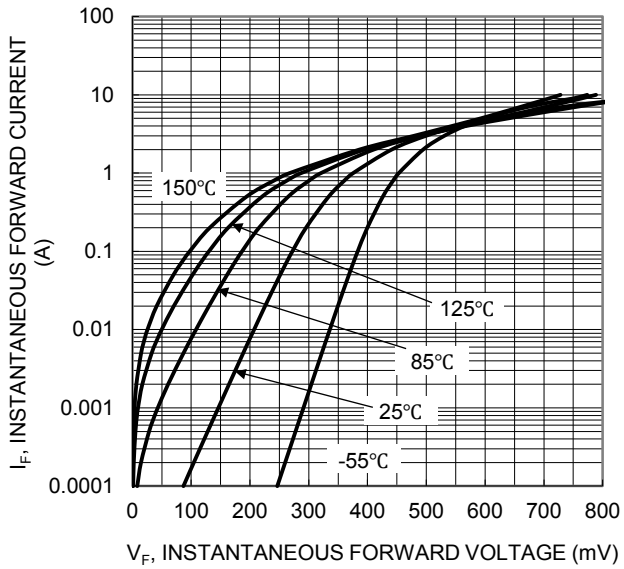


Figure 1. Typical Forward Characteristics

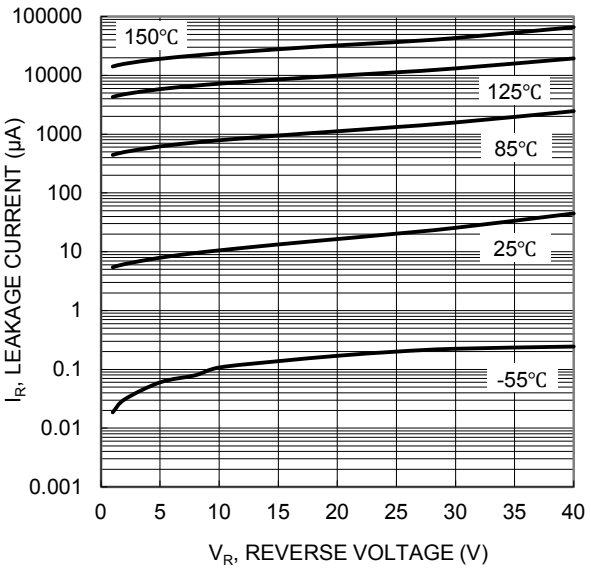


Figure 2. Typical Reverse Characteristics

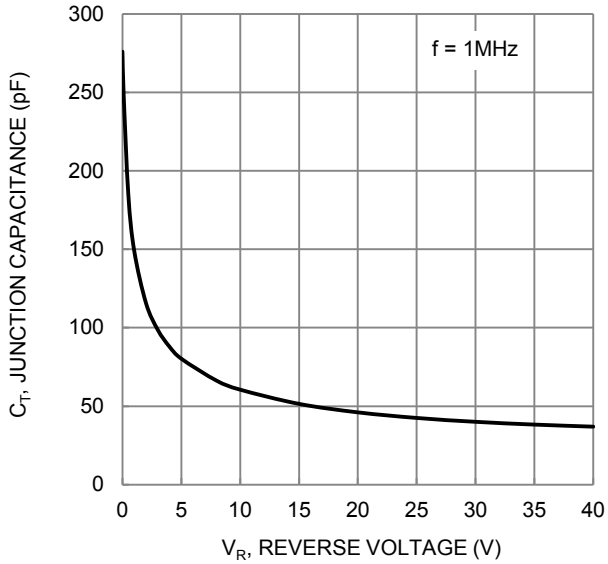


Figure 3. Typical Junction Capacitance

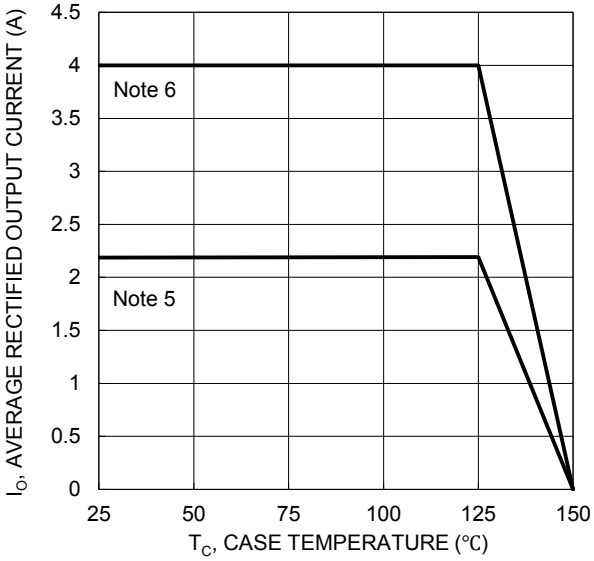


Figure 4. DC Forward Current Derating

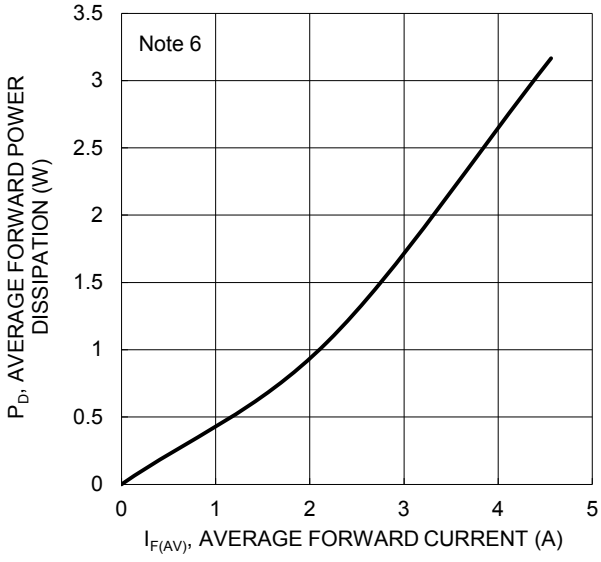


Figure 5. Forward Power Dissipation

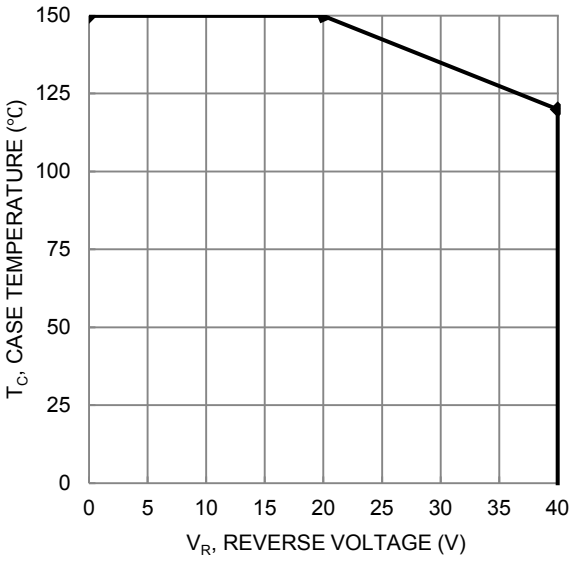


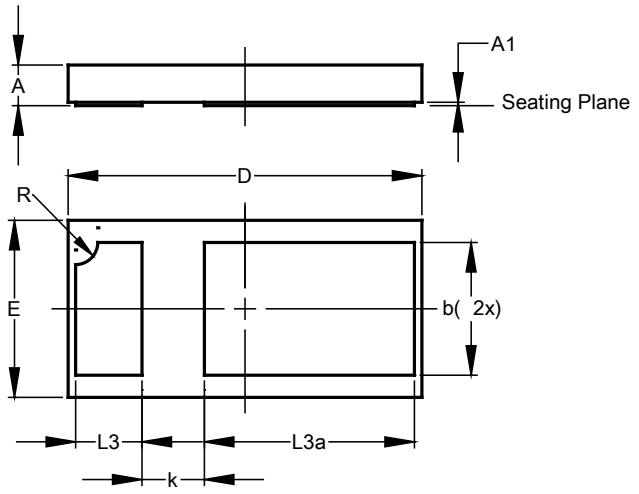
Figure 6. Operating Temperature Derating

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Package Outline Dimensions (Note 8)

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

X3-TSN1608-2



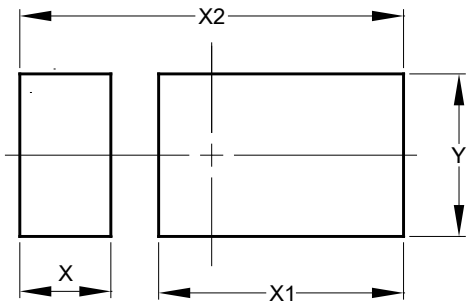
X3-TSN1608-2			
Dim	**Min**	**Max**	**Typ**
A	0.20	0.30	0.25
A1	0.00	0.02	--
b	0.55	0.65	0.60
D	1.56	1.64	1.60
E	0.76	0.84	0.80
k	--	--	0.282
L3	0.25	0.35	0.30
L3a	0.90	1.00	0.95
R	--	--	0.10
All Dimensions in mm			

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-TSN1608-2



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

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