



## Product Summary

V <sub>RRM</sub> (V)	I <sub>o</sub> (A)	V <sub>F</sub> MAX (V)	I <sub>R</sub> MAX (μA)
40	1	0.56	75

## Description and Applications

The SDM1A40CP3 is a 40-volt 1A Schottky barrier rectifier that is optimized for low forward voltage drop and low leakage current, housed in a compact die size surface mounted package that occupies only 0.6mm<sup>2</sup> board-space. 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 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<sub>F</sub>) 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

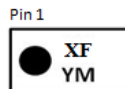
- Case: X3-DSN1006-2
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: NiAu Bump. Solderable per MIL-STD-202, Method 208 **(e4)**
- Polarity: Cathode Dot
- Weight: 0.001 grams (Approximate)

## Ordering Information (Note 4)

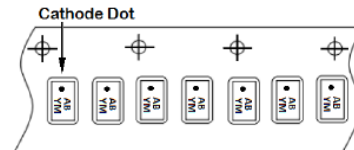
Part Number	Case	Packaging
SDM1A40CP3-7	X3-DSN1006-2	5,000/ Reel

- 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



XF = Product Type Marking Code  
 YM = Date Code Marking  
 Y or  $\bar{Y}$  = Year (ex: G = 2019)  
 M = Month (ex: 9 = September)  
 Dot Denotes Cathode Pin



### Date Code Key

Year	2016	2017	2018	2019	2020	2021	2022
Code	D	E	F	G	H	I	J

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>	40	V
Reverse Voltage	V <sub>R</sub>	40	V
Average Rectified Output Current	I <sub>O</sub>	1	A
Repetitive Peak Forward Current (Pulse Wave = 1ms, Duty Cycle = 25%)	I <sub>FRM</sub>	5	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I <sub>FSM</sub>	14	A

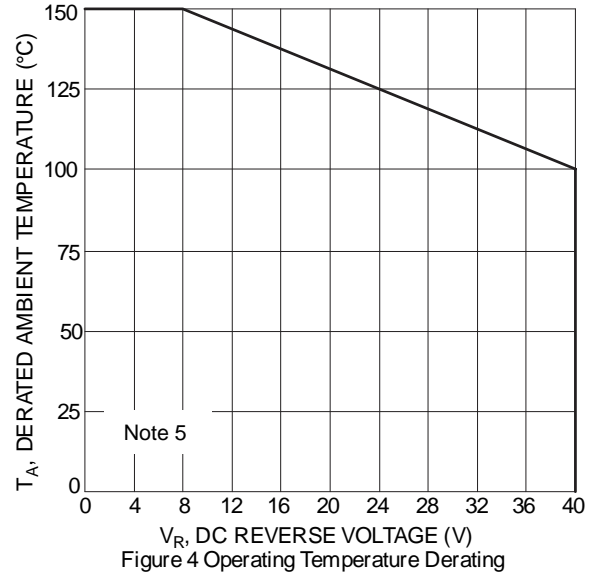
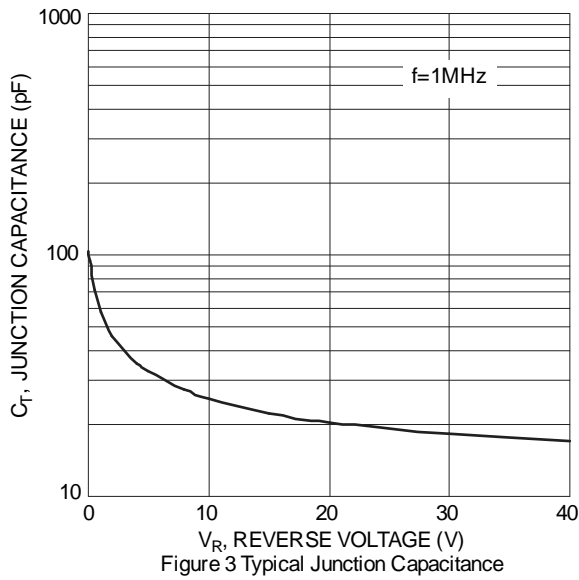
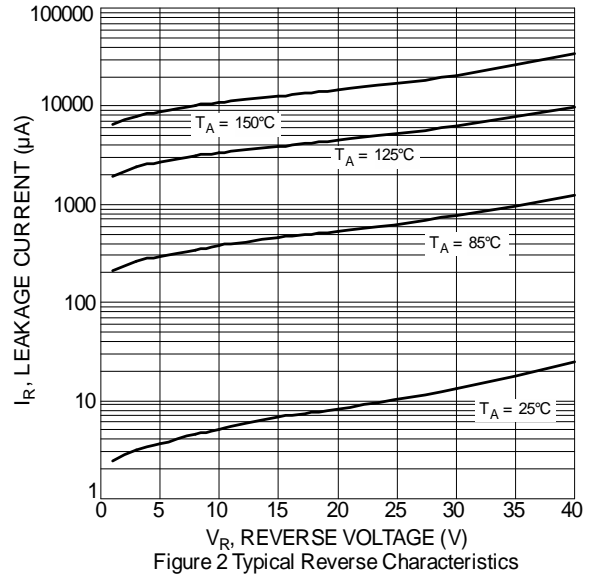
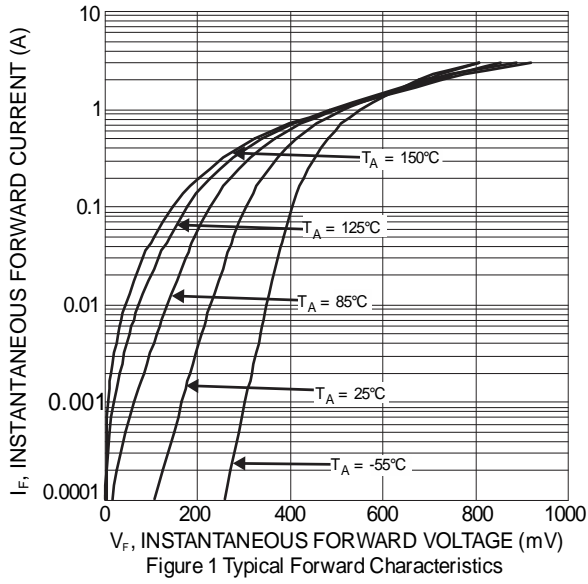
**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Ambient (Note 5)	R <sub>θJA</sub>	150	°C/W
Typical Thermal Resistance Junction to Ambient (Note 6)	R <sub>θJA</sub>	60	°C/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>	—	0.42	0.46	V	I <sub>F</sub> = 0.5A, T <sub>J</sub> = +25°C
		—	0.51	0.56		I <sub>F</sub> = 1.0A, T <sub>J</sub> = +25°C
		—	0.50	—		I <sub>F</sub> = 1.0A, T <sub>J</sub> = +125°C
Leakage Current (Note 7)	I <sub>R</sub>	—	—	15	μA	V <sub>R</sub> = 10V, T <sub>J</sub> = +25°C
		—	—	75		V <sub>R</sub> = 40V, T <sub>J</sub> = +25°C
		—	9	—		V <sub>R</sub> = 40V, T <sub>J</sub> = +125°C
Junction Capacitance	C <sub>T</sub>	—	35	—	pF	V <sub>R</sub> = 4V, f = 1.0MHz

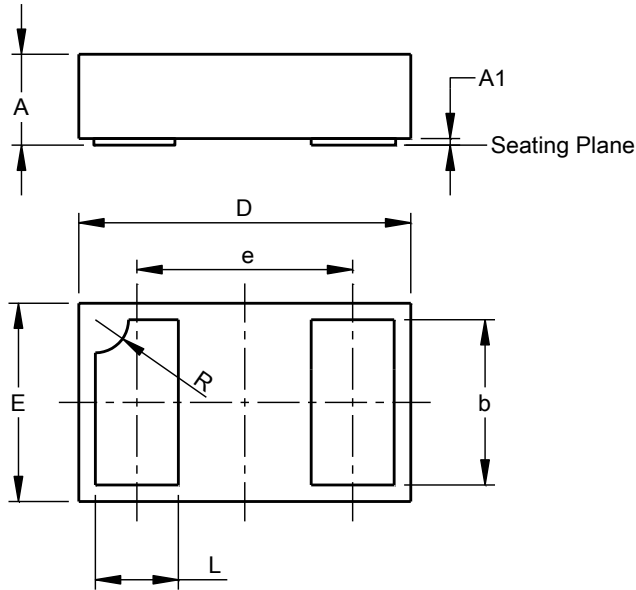
Notes: 5. Device mounted on FR-4 PCB, 2oz. Copper, minimum recommended pad layout per <http://www.diodes.com/package-outlines.html>.  
6. Device mounted on FR-4 PCB, 2oz. 1 square inch Copper.  
7. Short duration pulse test used to minimize self-heating effect.



## Package Outline Dimensions

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

X3-DSN1006-2

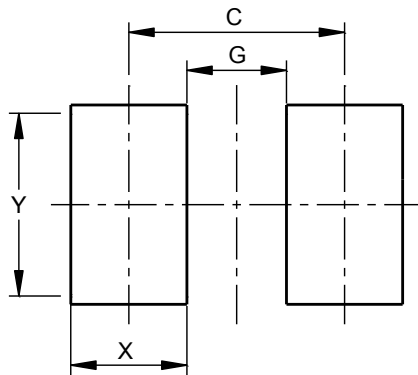


X3-DSN1006-2			
Dim	Min	Max	Typ
A	0.25	0.30	0.275
A1	0.00	0.02	-
b	0.48	0.52	0.50
D	0.95	1.05	1.00
E	0.55	0.65	0.60
e	-	-	0.65
L	0.23	0.27	0.25
R	-	-	0.10
All Dimensions in mm			

## Suggested Pad Layout

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

X3-DSN1006-2



Dimensions	Value (in mm)
C	0.65
G	0.30
X	0.35
Y	0.60

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