

## Product Summary

$V_{RRM}$ (V)	$I_o$ (A)	$V_F$ (MAX) (V) @ +25°C	$I_R$ (MAX) (mA) @ +25°C
40	1	0.66	0.02

## Description and Applications

Packaged in the robust industry-standard U-DFN1608-2 package, the SDM1M40LP8Q provides very low  $V_F$  and excellent reverse-leakage stability at high temperatures. It is ideal for use as a rectifier, freewheel diode or blocking diode in:

- DC-DC Converters
- AC-DC Adaptors

## Features and Benefits

- Reduced ultra-low forward voltage drop ( $V_F$ ). Better efficiency and cooler operation.
- 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)**
- **Qualified to AEC-Q101 Standards for High Reliability**
- **PPAP Capable (Note 4)**

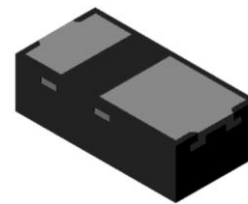
## Mechanical Data

- Case: U-DFN1608-2
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish. Solderable per MIL-STD-202, Method 208 (E3)
- Weight: 0.002 grams (Approximate)

U-DFN1608-2



Top View



Cathode Side

Bottom View

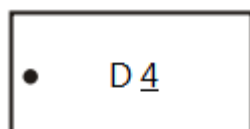
## Ordering Information (Note 5)

Part Number	Case	Packaging
SDM1M40LP8Q-7	U-DFN1608-2	10,000/Tape & 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.html](http://www.diodes.com/quality/lead_free.html) 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. Automotive products are AEC-Q101 qualified and are PPAP capable. Refer to [http://www.diodes.com/product\\_compliance\\_definitions.html](http://www.diodes.com/product_compliance_definitions.html).
  5. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

## Marking Information

U-DFN1608-2



D4 = Product Type Marking Code

Dot Denotes Cathode Side

**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
Working Peak Reverse Voltage	V <sub>RWM</sub>		
DC Blocking Voltage	V <sub>RM</sub>		
Average Rectified Output Current	I <sub>O</sub>	1	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I <sub>FSM</sub>	8	A
Repetitive Peak Forward Current (tp = 1ms, Duty Cycle = 25%)	I <sub>FRM</sub>	5	A

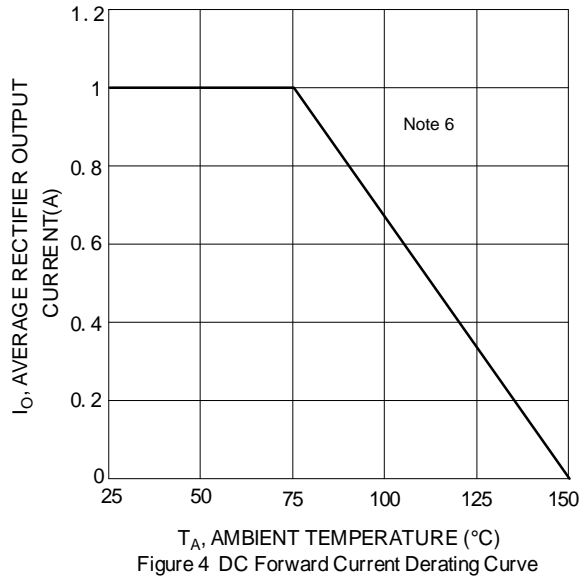
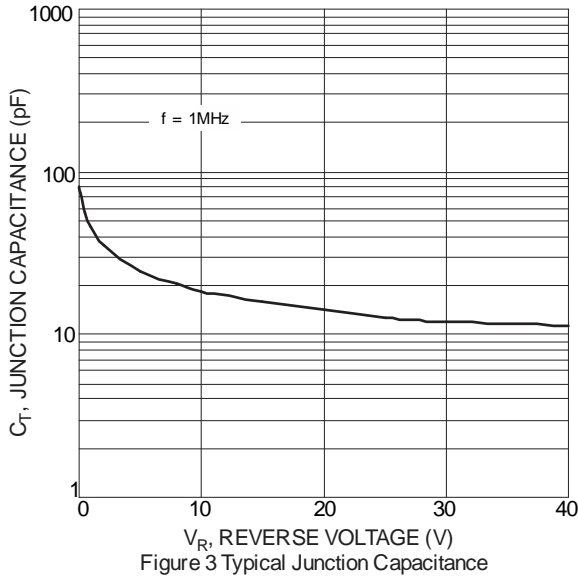
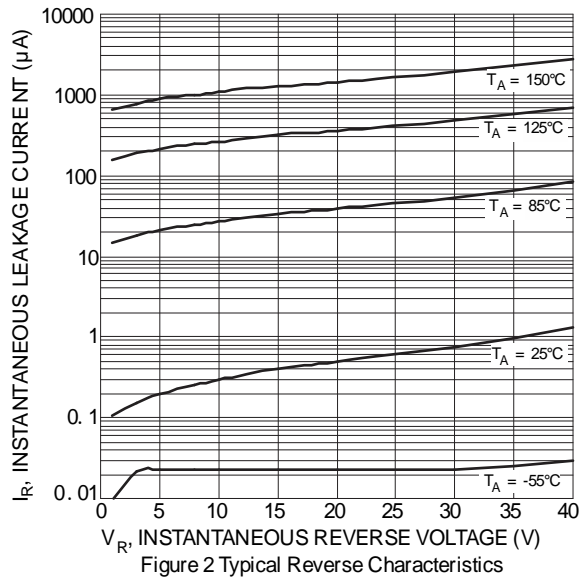
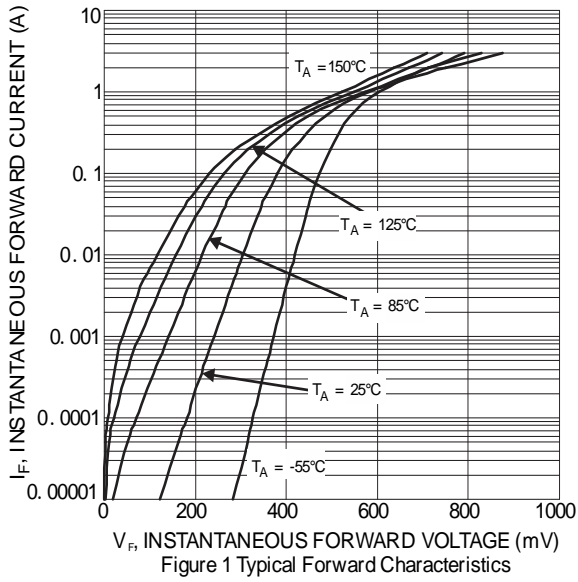
**Thermal Characteristics (Per Leg)**

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance, Junction to Ambient (Note 6)	R <sub>θJA</sub>	130	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-65 to +150	°C

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

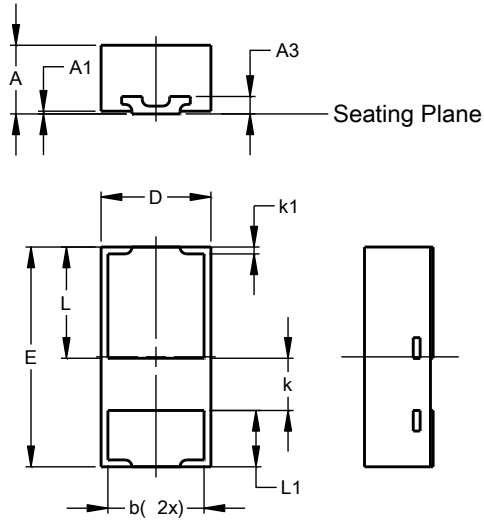
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage Drop (Note 7)	V <sub>F</sub>	—	0.49	0.56	V	I <sub>F</sub> = 0.5A, T <sub>J</sub> = +25°C
		—	0.42	—		I <sub>F</sub> = 0.5A, T <sub>J</sub> = +125°C
		—	0.59	0.66		I <sub>F</sub> = 1A, T <sub>J</sub> = +25°C
		—	0.55	—		I <sub>F</sub> = 1A, T <sub>J</sub> = +125°C
		—	—	—		—
Leakage Current (Note 7)	I <sub>R</sub>	—	0.0006	0.004	mA	V <sub>R</sub> = 10V, T <sub>J</sub> = +25°C
		—	0.002	0.02		V <sub>R</sub> = 40V, T <sub>J</sub> = +25°C
		—	0.80	—		V <sub>R</sub> = 40V, T <sub>J</sub> = +125°C
Reverse Recovery Time	t <sub>RR</sub>	—	8.4	—	ns	I <sub>F</sub> = 10mA, I <sub>RRM</sub> = 0.1I <sub>R</sub> , T <sub>A</sub> = +25°C
Typical Capacitance	C <sub>T</sub>	—	25	—	pF	V <sub>R</sub> = 5V, f = 1MHz

Notes: 6. Test with FR-4 PC board 1-inch sq. copper pad, 2oz.  
7. Short duration pulse test used to minimize self-heating effect.



## Package Outline Dimensions

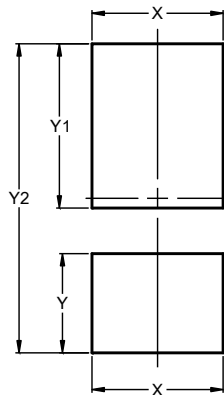
Please see <http://www.diodes.com/package-outlines.html> for the latest version.



U-DFN1608-2			
Dim	Min	Max	Typ
A	0.47	0.53	0.50
A1	0.00	0.05	0.02
A3	-	-	0.127
b	0.65	0.75	0.70
D	0.75	0.85	0.80
E	1.55	1.65	1.60
k	0.38 BSC		
k1	0.05 BSC		
L	0.76	0.86	0.81
L1	0.36	0.46	0.41
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	0.800
Y	0.610
Y1	1.010
Y2	1.900

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