# 1.0A SURFACE MOUNT SCHOTTKY

## 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 |

## 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)**

## Description and Applications

Packaged in the robust industry-standard U-DFN1608-2 package, the SDM1M40LP8 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:

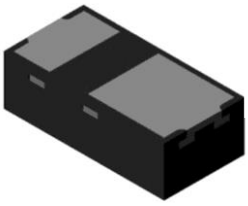
- DC-DC Converters
- AC-DC Adaptors

## 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

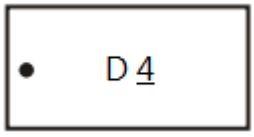
## Ordering Information (Note 4)

| Part Number | Case | Packaging |
|---|---|---|
| SDM1M40LP8-7 | 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 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 http://www.diodes.com/products/packages.html.

## Marking Information

U-DFN1608-2




D4 = Product Type Marking Code

Dot Denotes Cathode Side

## Maximum Ratings (@$T_A$ = +25°C, unless otherwise specified.)

Single phase, half wave, 60Hz, resistive or inductive load.
For capacitance load, derate current by 20%.

| Characteristic | Symbol | Value | Unit |
|---|---|---|---|
| Peak Repetitive Reverse Voltage<br>Working Peak Reverse Voltage<br>DC Blocking Voltage | $V_{RRM}$<br>$V_{RWM}$<br>$V_{RM}$ | 40 | V |
| Average Rectified Output Current | $I_O$ | 1 | A |
| Non-Repetitive Peak Forward Surge Current 8.3ms<br>Single Half Sine-Wave Superimposed on Rated Load | $I_{FSM}$ | 8 | A |
| Repetitive Peak Forward Current (tp = 1ms, duty cycle = 25%) | $I_{FRM}$ | 5 | A |

## Thermal Characteristics (Per Leg)

| Characteristic | Symbol | Value | Unit |
|---|---|---|---|
| Typical Thermal Resistance, Junction to Case (Note 5) | $R_{\theta JA}$ | 130 | °C/W |
| Operating and Storage Temperature Range | $T_J$, $T_{STG}$ | -65 to +150 | °C |

## Electrical Characteristics (Per Leg) (@$T_A$ = +25°C, unless otherwise specified.)

| Characteristic | Symbol | Min | Typ | Max | Unit | Test Condition |
|---|---|---|---|---|---|---|
| Forward Voltage Drop (Note 6) | $V_F$ | —<br>—<br>—<br>— | 0.49<br>0.42<br>0.59<br>0.55 | 0.56<br>—<br>0.66<br>— | V | $I_F$ = 0.5A, $T_J$ = +25°C<br>$I_F$ = 0.5A, $T_J$ = +125°C<br>$I_F$ = 1A, $T_J$ = +25°C<br>$I_F$ = 1A, $T_J$ = +125°C |
| Leakage Current (Note 6) | $I_R$ | —<br>—<br>— | 0.0006<br>0.002<br>0.80 | 0.004<br>0.02<br>— | mA | $V_R$ = 10V, $T_J$ = +25°C<br>$V_R$ = 40V, $T_J$ = +25°C<br>$V_R$ = 40V, $T_J$ = +125°C |
| Reverse Recovery Time | trr | — | 8.4 | — | ns | IF = 10mA, Irrm = 0.1Ir,Ta = +25°C |
| Total Capacitance | $C_T$ | — | 25 | — | pF | VR = 5V, f = 1MHz |

Notes: 5. Test with FR-4 PC board 1-inch sq. copper pad, 2oz.
6. Short duration pulse test used to minimize self-heating effect.

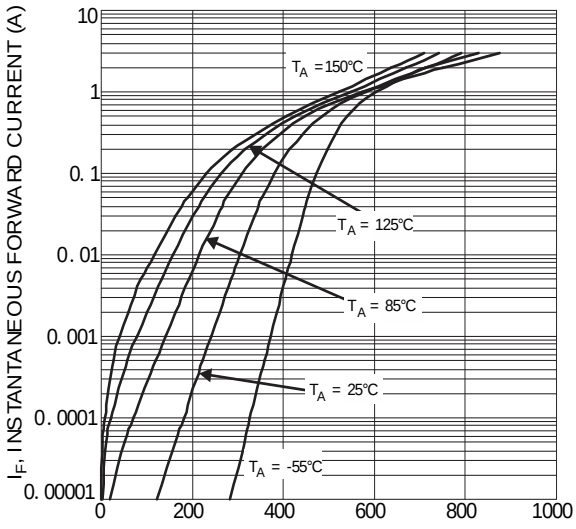



Figure 1 Typical Forward Characteristics

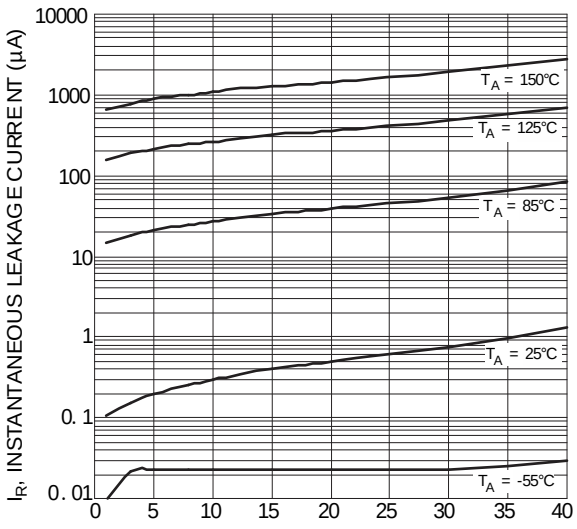



Figure 2 Typical Reverse Characteristics

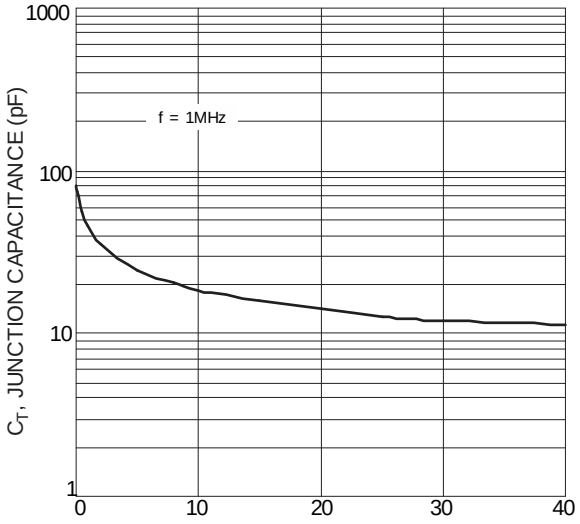



Figure 3 Typical Junction Capacitance

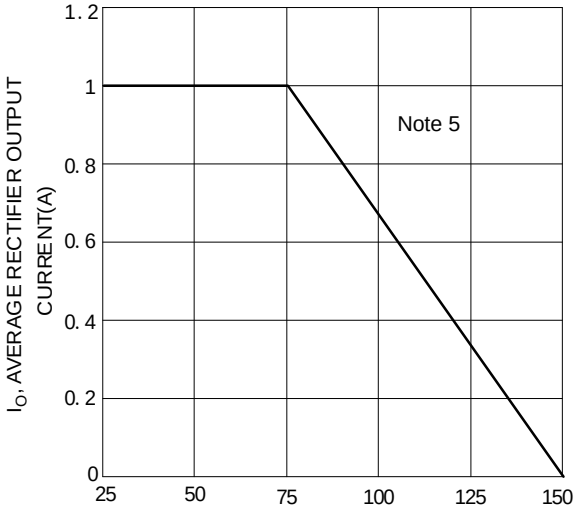
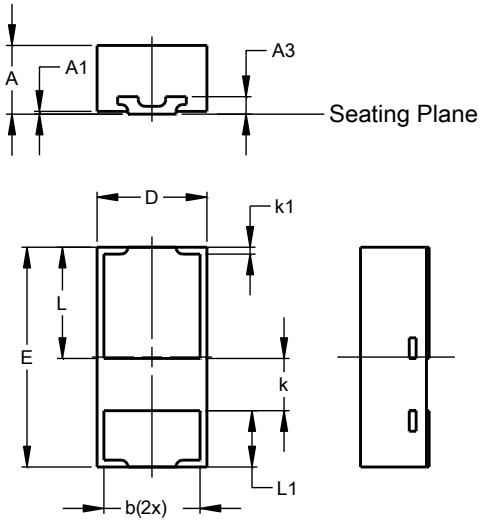



Figure 4 DC Forward Current Derating Curve

## Package Outline Dimensions

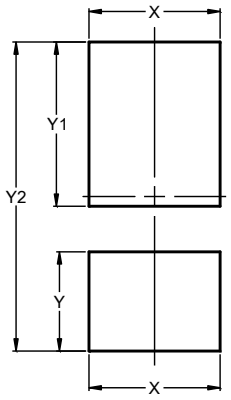
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for the latest version.




| 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 AP02001 at http://www.diodes.com/datasheets/ap02001.pdf for the latest version.




| Dimensions | Value (in mm) |
|---|---|
| **X** | 0.800 |
| **Y** | 0.610 |
| **Y1** | 1.010 |
| **Y2** | 1.900 |

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