



S1MDF

#### 1.0A SURFACE MOUNT GLASS PASSIVATED RECTIFIER

#### Product Summary (@TA = +25°C)

V <sub>RRM</sub> (V)	I <sub>O</sub> (A)	V <sub>F</sub> (MAX) (V)	I <sub>R(MAX)</sub> (μA)
1,000	1	1.1	5

## **Description and Applications**

The S1MDF is a rectifier packaged in the low-profile D-FLAT package. Providing high current capability for standard rectification, this device is ideal for use in general rectification applications such as:

- Switching Mode Power Supplies
- Chargers
- LED lightings
- Inverters
- AC/DC Adapters

#### **Features and Benefits**

- Glass Passivated Die Construction
- Surge Overload Rating to 30A Peak
- High Current Capability
- Low-Profile Design, Package Height Less than 1.1mm
- Lead-Free Finish; RoHS Compliant (Notes 1 & 2)
- Halogen and Antimony Free. "Green" Device (Note 3)
- Qualified to AEC-Q101 Standards for High Reliability
- An Automotive-Compliant Part is Available Under Separate Datasheet (S1MDFQ)

#### **Mechanical Data**

- Case: D-FLAT
- Case Material: Molded Plastic, "Green" Molding Compound;
   UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish Matte Tin Annealed over Copper Leadframe.
   Solderable per MIL-STD-202, Method 208 (3)
- Polarity: Cathode Band
- Weight: 0.035 grams (Approximate)





Top View

### Ordering Information (Note 4)

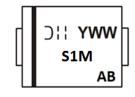
Part Number	Compliance	Case	Packaging
S1MDF-13	AEC-Q101	D-FLAT	10,000/Tape & Reel

Notes:

- 1. EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. All applicable RoHS exemptions applied.
- 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**

D-FLAT



S1M = Product Type Marking Code

| S1M = Manufacturers' Code Marking
| YWW = Date Code Marking
| Y = Last Digit of Year (ex: 5 for 2015)
| WW = Week Code (01 to 53)
| AB = Foundry and Assembly Code



## 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 Working Peak Reverse Voltage DC Blocking Voltage (Note 5)	V <sub>RRM</sub> V <sub>RWM</sub> V <sub>R</sub>	1,000	V
RMS Reverse Voltage	V <sub>R(RMS)</sub>	700	V
Average Rectified Output Current @ T <sub>A</sub> = +100°C	I <sub>O</sub>	1.0	Α
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load		30	Α

## **Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance, Junction to Terminal (Note 7)	$R_{\theta JT}$	34	°C/W
Typical Thermal Resistance, Junction to Air (Note 7)	$R_{\theta JA}$	88	°C/W
Operating and Storage Temperature Range	$T_{J_1}T_{STG}$	-55 to +150	°C

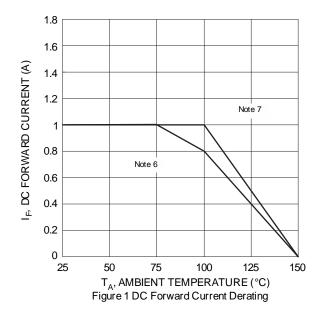
## Electrical Characteristics (@T<sub>A</sub> = +25°C, unless otherwise specified.)

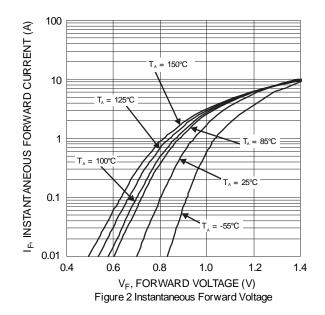
Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 5)	V <sub>(BR)R</sub>	1,000			V	$I_R = 5\mu A$
Forward Voltage	V <sub>F</sub>	_	0.94 0.84	1.1 —	V	I <sub>F</sub> = 1A, T <sub>J</sub> = +25°C I <sub>F</sub> = 1A, T <sub>J</sub> = +125°C
Reverse Leakage Current (Note 5)	I <sub>R</sub>	_	0.11 0.004	5 —		V <sub>R</sub> = 1,000V, T <sub>J</sub> = +25°C V <sub>R</sub> = 1,000V, T <sub>J</sub> = +125°C
Total Capacitance	Ст	_	6		pF	$V_R = 4V_{DC}, f = 1MHz$

Notes:

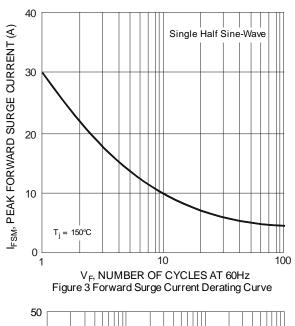
- 5. Short duration pulse test used to minimize self-heating effect.
- 6. Device mounted on FR-4 substrate, 1" x 1", 20z., single-sided, PC boards with 0.1" x 0.15" copper pads.

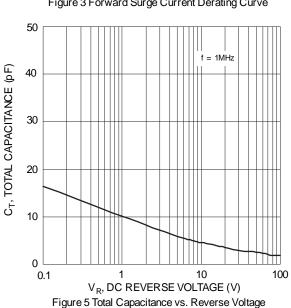
  7. Device mounted on FR-4 substrate, 0.4" x 0.5", 20z., single-sided, PC boards with 0.2" x 0.25" copper pads.

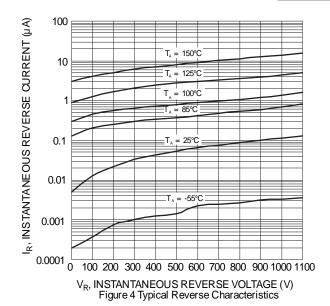


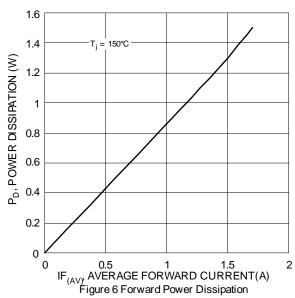






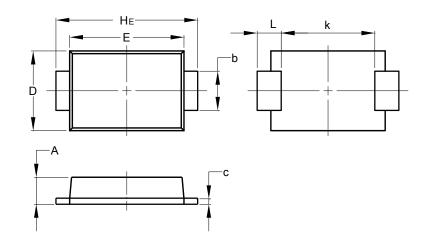






## **Package Outline Dimensions**

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

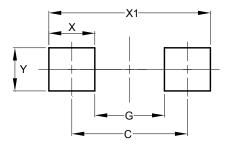


	D-FLAT					
Dim	Min	Max				
Α	0.90	1.10				
b	1.25	1.65				
С	0.10	0.40				
D	2.25	2.95				
E	3.95	4.60				
k	2.80	-				
HE	5.00	5.60				
L	0.50	1.30				
All Dimensions in mm						



### **Suggested Pad Layout**

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



Dimensions	Value (in mm)		
С	4.65		
G	2.80		
Х	1.85		
X1	6.50		
Y	1.70		

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