

## 1.0A SURFACE MOUNT GLASS PASSIVATED RECTIFIER

### Product Summary (@T<sub>A</sub> = +25°C)

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

### Description and Applications

The S1MDFQ 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 applications such as:

- Reverse Protection
- Switching
- Blocking

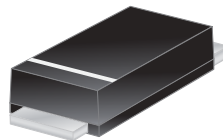
### Features and Benefits

- 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**
- **PPAP Capable (Note 4)**

### 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 (e3)
- Polarity: Cathode Band
- Weight: 0.035 grams (Approximate)

D-FLAT



Top View

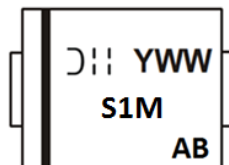
### Ordering Information (Note 5)

Part Number	Compliance	Case	Packaging
S1MDFQ-13	Automotive	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](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

D-FLAT



- S1M = Product Type Marking Code
- D = 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	V <sub>R(RM)</sub>	1,000	V
Working Peak Reverse Voltage	V <sub>R(WM)</sub>		
DC Blocking Voltage (Note 8)	V <sub>R</sub>		
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	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I <sub>FSM</sub>	30	A

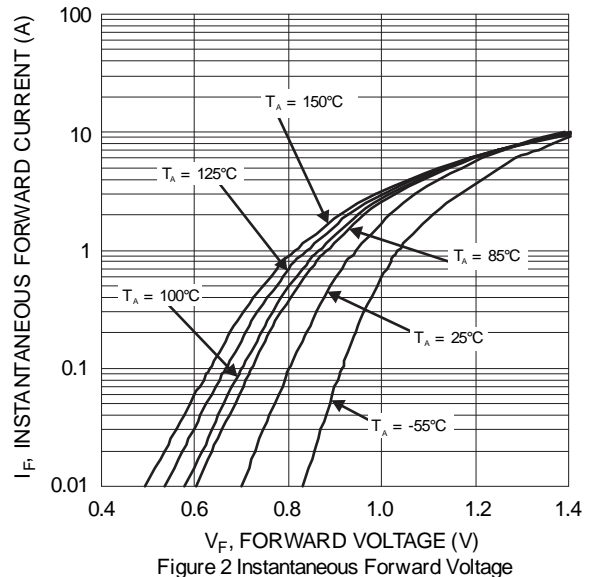
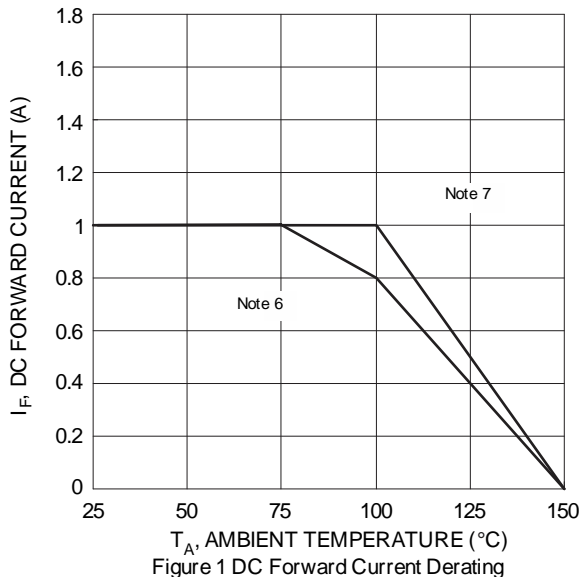
### Thermal Characteristics

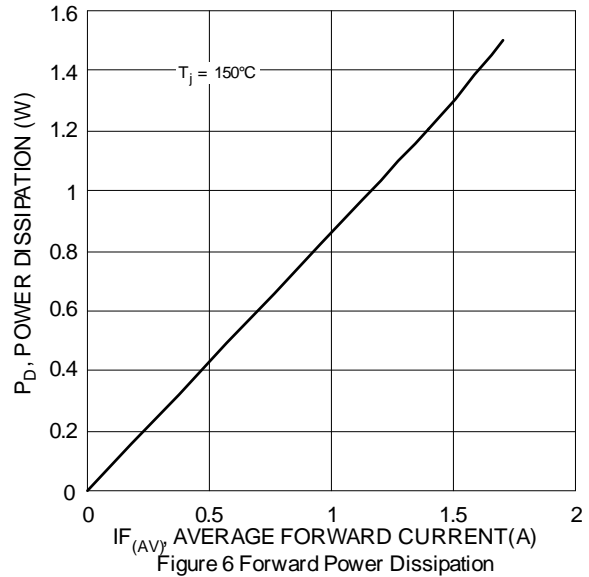
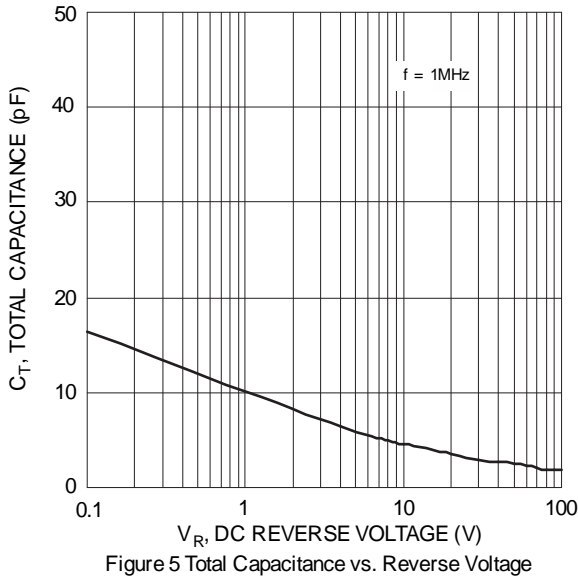
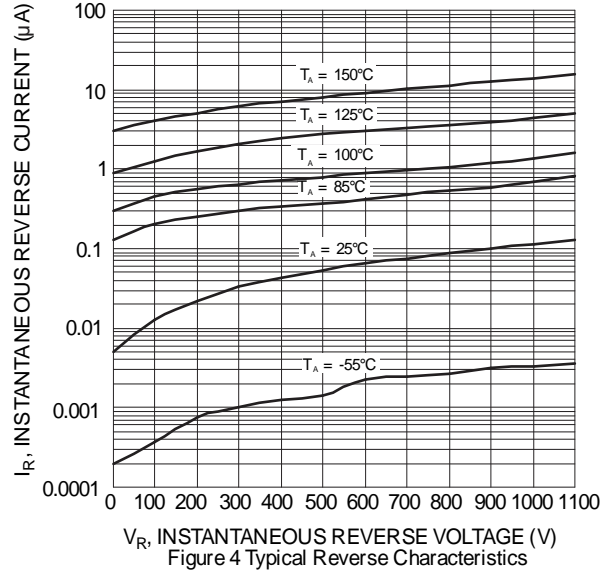
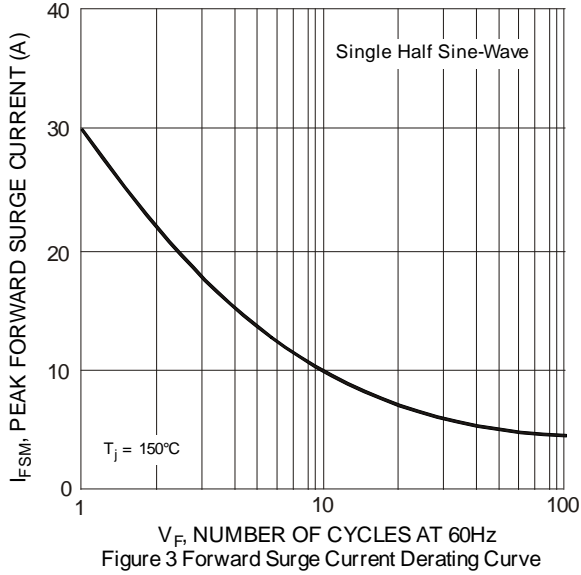
Characteristic	Symbol	Value	Unit
Typical Thermal Resistance, Junction to Terminal (Note 7)	R <sub>θJT</sub>	34	°C/W
Typical Thermal Resistance, Junction to Air (Note 7)	R <sub>θJA</sub>	88	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 8)	V <sub>(BR)R</sub>	1,000	—	—	V	I <sub>R</sub> = 5μA
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 8)	I <sub>R</sub>	—	0.11 0.004	5	μA mA	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	C <sub>T</sub>	—	6	—	pF	V <sub>R</sub> = 4V <sub>DC</sub> , f = 1MHz

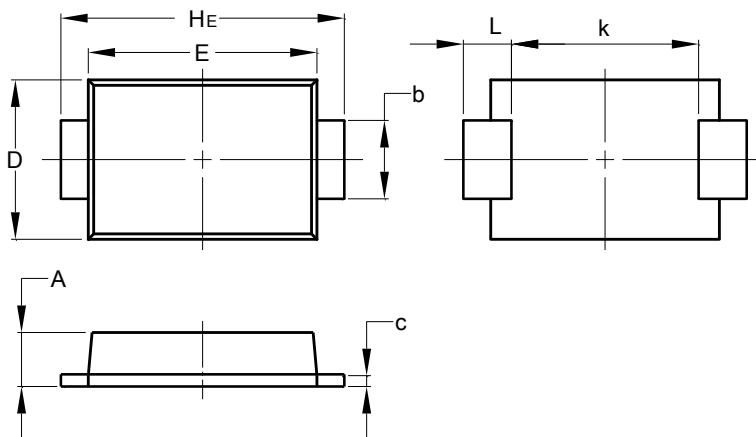
- Notes:
- 6. Device mounted on FR-4 substrate, 1" x 1", 2oz., single-sided, PC boards with 0.1" x 0.15" copper pads.
  - 7. Device mounted on FR-4 substrate, 0.4" x 0.5", 2oz., single-sided, PC boards with 0.2" x 0.25" copper pads.
  - 8. Short duration pulse test used to minimize self-heating effect.





## Package Outline Dimensions

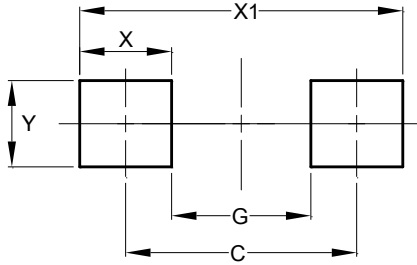
Please see <http://www.diodes.com/package-outlines.html> for the latest version.



D-FLAT		
Dim	Min	Max
A	0.90	1.10
b	1.25	1.65
c	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)
<b>C</b>	4.65
<b>G</b>	2.80
<b>X</b>	1.85
<b>X1</b>	6.50
<b>Y</b>	1.70

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