

Product Summary (@T_A = +25°C)

V _{RRM} (V)	I _o (A)	V _{F(MAX)} (V)	I _{R(MAX)} (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

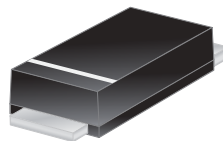
Features and Benefits

- 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 (E3)
- Polarity: Cathode Band
- Weight: 0.035 grams (Approximate)

D-FLAT



Top View

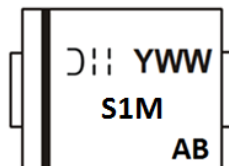
Ordering Information (Note 4)

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
- ⌋⌋⌋ = 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_A = +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 _{R(RM)}	1,000	V
Working Peak Reverse Voltage	V _{R(WM)}		
DC Blocking Voltage (Note 5)	V _R		
RMS Reverse Voltage	V _{R(RMS)}	700	V
Average Rectified Output Current @ T _A = +100°C	I _O	1.0	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I _{FSM}	30	A

Thermal Characteristics

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

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 5)	V _{(BR)R}	1,000	—	—	V	I _R = 5μA
Forward Voltage	V _F	—	0.94 0.84	1.1	V	I _F = 1A, T _J = +25°C I _F = 1A, T _J = +125°C
Reverse Leakage Current (Note 5)	I _R	—	0.11 0.004	5	μA mA	V _R = 1,000V, T _J = +25°C V _R = 1,000V, T _J = +125°C
Total Capacitance	C _T	—	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", 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.

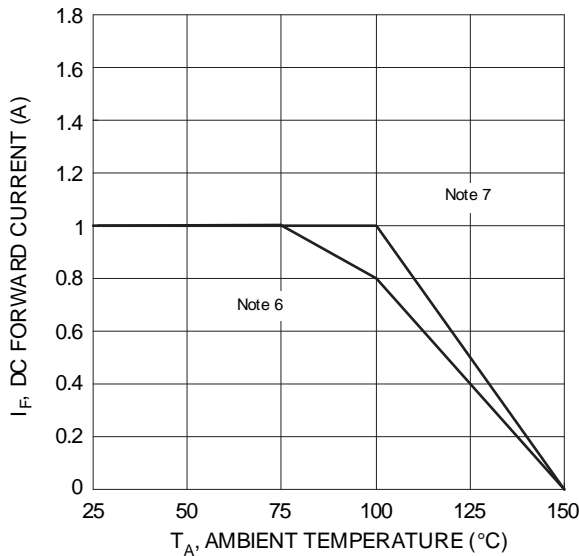


Figure 1 DC Forward Current Derating

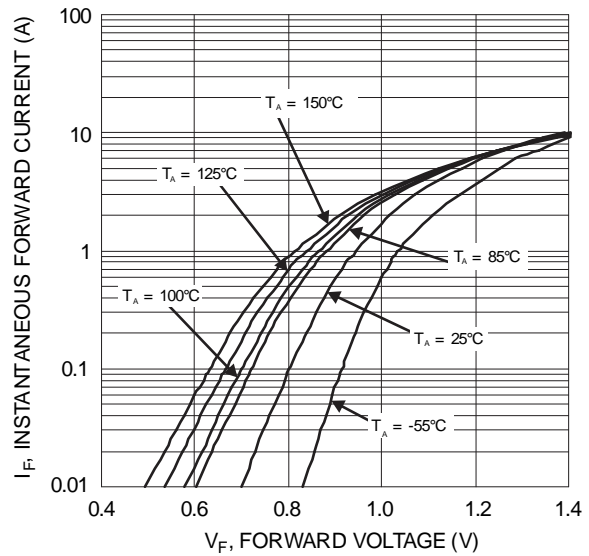
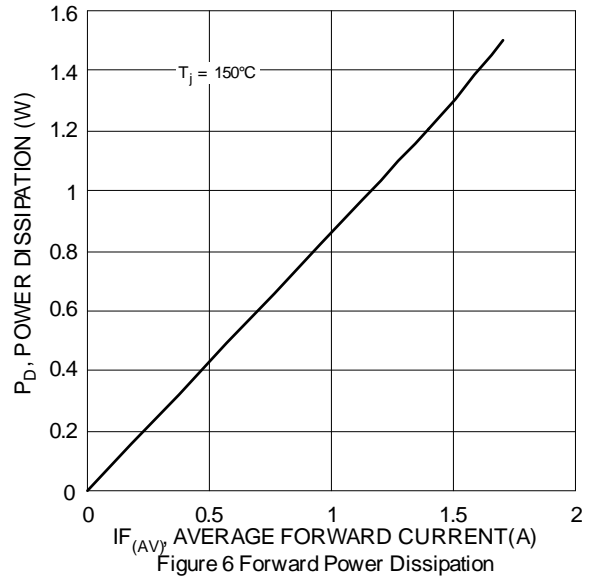
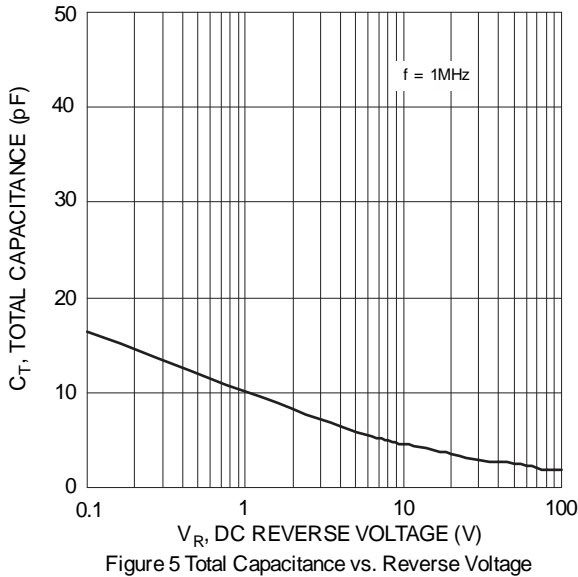
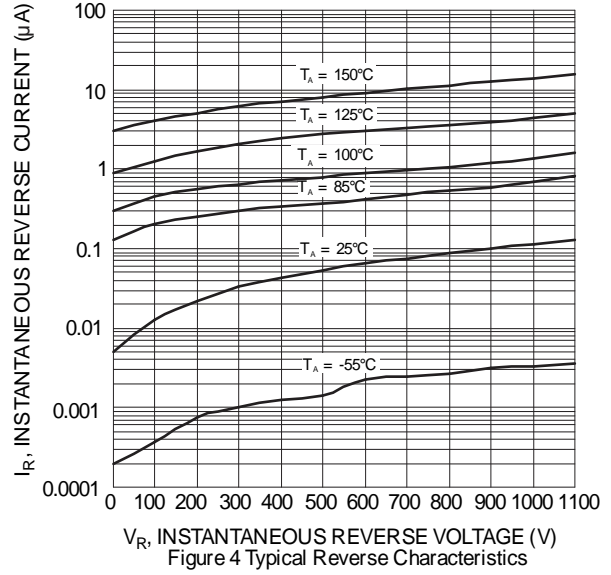
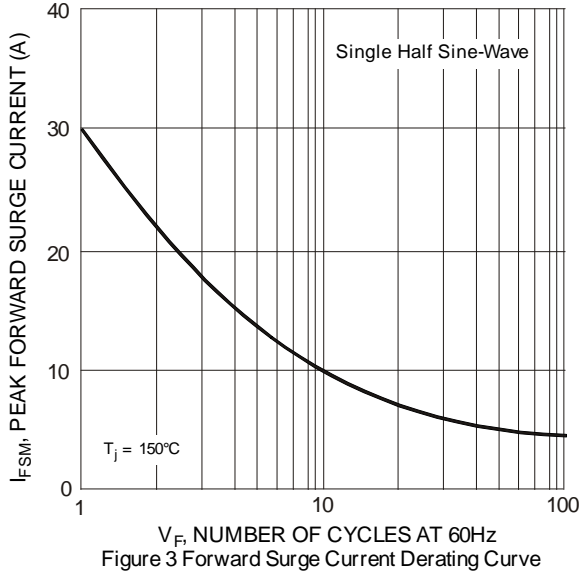
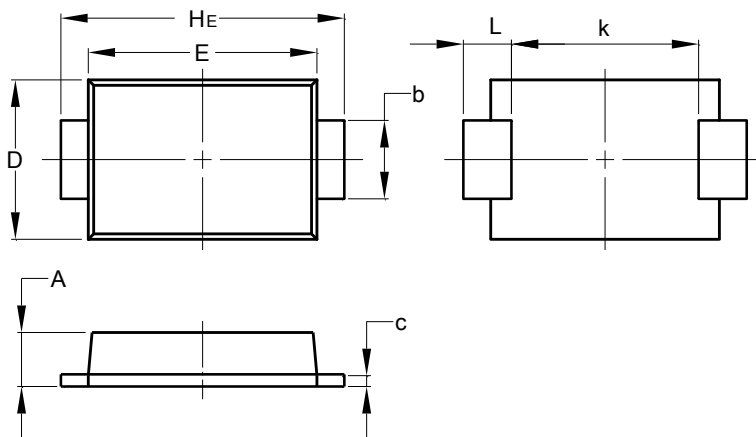


Figure 2 Instantaneous Forward Voltage



Package Outline Dimensions

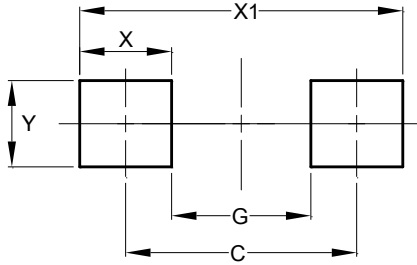
Please see <http://www.diodes.com/package-outlines.html> for the latest version.



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	-
H _E	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)
C	4.65
G	2.80
X	1.85
X1	6.50
Y	1.70

NEW PRODUCT

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