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## Product Summary (@ $T_A = +25^\circ\text{C}$ )

$V_{RRM}$ (V)	$I_o$ (A)	$V_F$ Max (V)	$I_R$ Max ( $\mu\text{A}$ )
1,000	1	1.3	10

## Description and Applications

The RS1MSWF is a rectifier packaged in the SOD123F package. Providing fast recovery time for high efficiency, this device is ideal for use in general rectification applications such as:

- Switching Mode Power Supply Applications
- DC-DC Converter Applications
- AC-DC Adaptors/Chargers
- Mobile Devices
- LED lighting

## Features and Benefits

- Glass Passivated Die Construction
- Fast Recovery Time For High Efficiency
- Small Form Factor, Low Profile
- Ideally Suited for Automated Assembly
- **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 ([RS1MSWFQ](#))

## Mechanical Data

- Case: SOD123F
- 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 Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 (e3)
- Polarity: Cathode Band
- Weight: 0.0016 grams (Approximate)

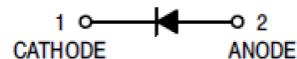
SOD123F



Top View



Bottom View



Schematic View

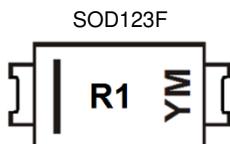
## Ordering Information (Note 4)

Part Number	Compliance	Case	Packaging
RS1MSWF-7	AEC-Q101	SOD123F	3,000/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. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

## Marking Information



R1 = Product Type Marking Code  
 YM = Date Code Marking  
 Y = Year (ex.: C = 2015)  
 M = Month (ex: 9 = September)

Date Code Key

Year	2015	2016	2017	2018	2019	2020	2021	2022
Code	C	D	E	F	G	H	I	J

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	0	N	D

## Maximum Ratings (@ $T_A = +25^\circ\text{C}$ , 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	$V_{RRM}$		
Working Peak Reverse Voltage	$V_{RWM}$	1,000	V
DC Blocking Voltage	$V_{RM}$		
RMS Reverse Voltage	$V_{R(\text{RMS})}$	700	V
Average Rectified Output Current @ $T_T = +75^\circ\text{C}$	$I_O$	1.0	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	$I_{FSM}$	25	A

## Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance, Junction to Case (Note 5)	$R_{\theta JC}$	13	°C/W
Thermal Resistance Junction to Ambient (Note 5)	$R_{\theta JA}$	82	°C/W
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55 to +150	°C

## Electrical Characteristics (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 6)	$V_{(BR)R}$	1,000	—	—	V	$I_R = 5\mu\text{A}$
Forward Voltage Drop	$V_F$	—	1.1 0.95	1.3 —	V	$I_F = 1\text{A}, T_J = +25^\circ\text{C}$ $I_F = 1\text{A}, T_J = +125^\circ\text{C}$
Leakage Current (Note 6)	$I_R$	—	0.2 5	10 200	$\mu\text{A}$	$V_R = 1,000\text{V}, T_J = +25^\circ\text{C}$ $V_R = 1,000\text{V}, T_J = +125^\circ\text{C}$
Reverse Recovery Time	$t_{rr}$	—	240	500	ns	$I_F = 0.5\text{A}, I_R = 1.0\text{A}, I_{rr} = 0.25\text{A}$
Total Capacitance	$C_T$	—	3	—	pF	$V_R = 4.0\text{V}_{\text{DC}}, f = 1\text{MHz}$

Notes: 5. Device mounted on FR4 PCB with 1x recommended pad layout, 1-inch 2oz, please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for the latest version.

6. Short duration pulse test used to minimize self-heating effect.

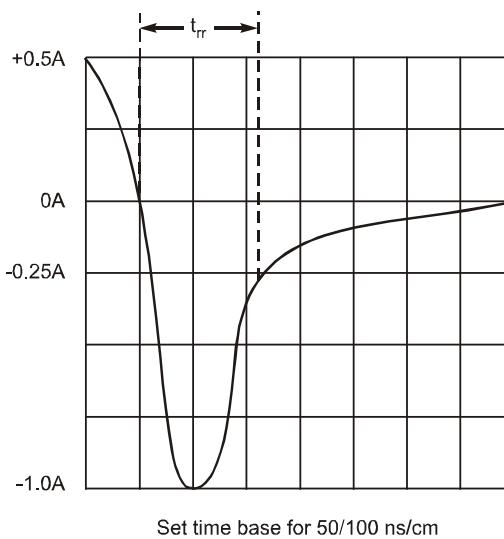
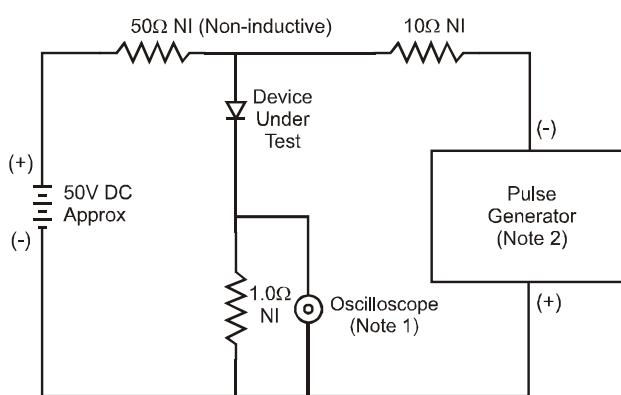
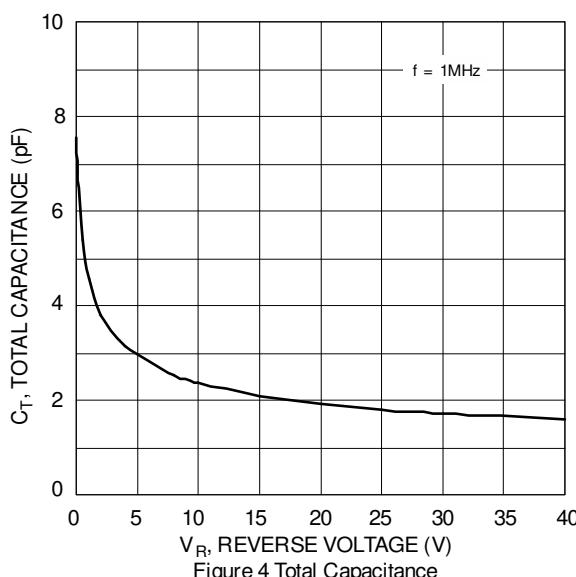
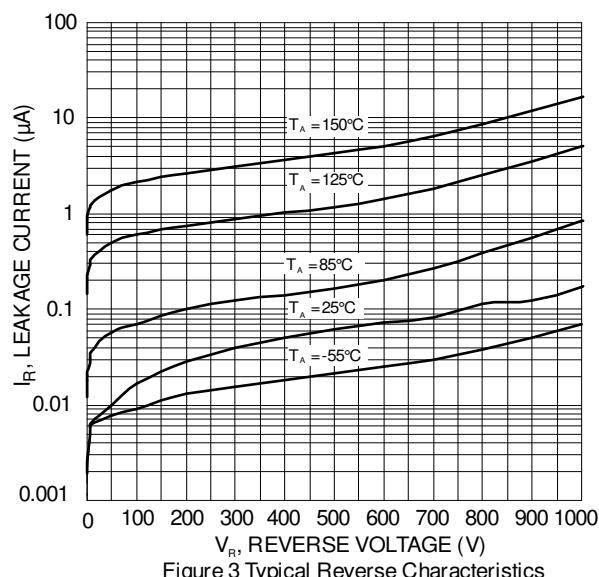
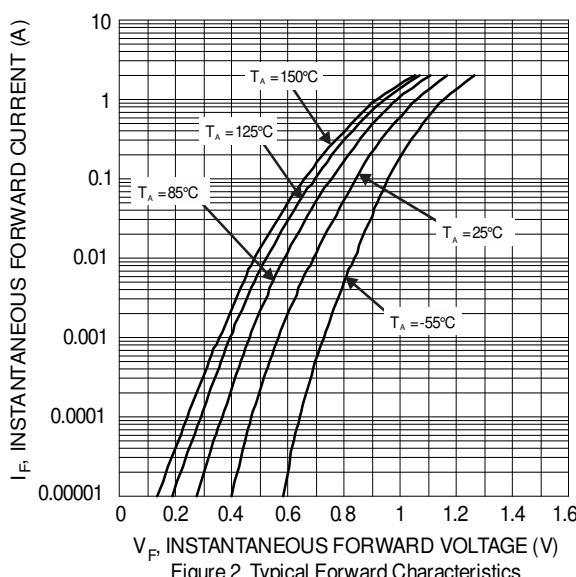
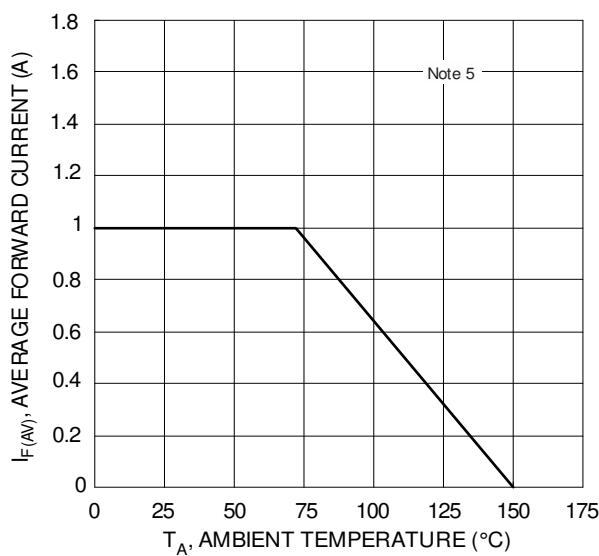
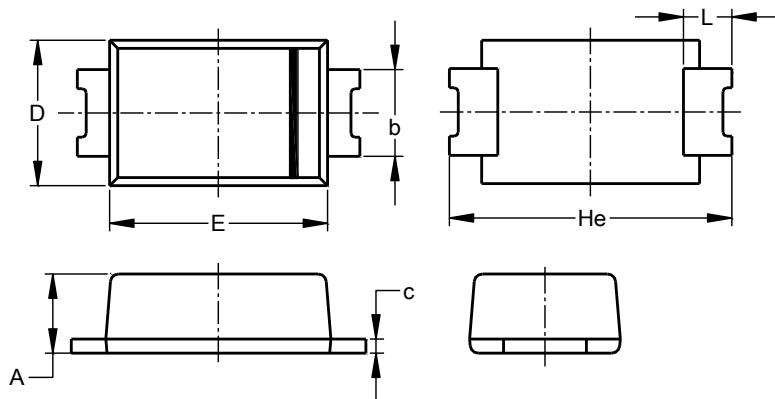


Fig. 5 Reverse Recovery Time Characteristic and Test Circuit

## Package Outline Dimensions

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

SOD123F (Type B)



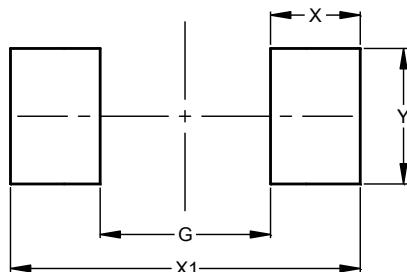
SOD123F (Type B)			
Dim	Min	Max	Typ
<b>A</b>	0.81	1.15	—
<b>b</b>	0.80	1.35	—
<b>c</b>	0.05	0.30	—
<b>D</b>	1.70	1.90	1.80
<b>E</b>	2.60	2.80	2.70
<b>He</b>	3.30	3.70	3.50
<b>L</b>	0.35	0.85	—

All Dimensions in mm

## Suggested Pad Layout

Please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for the latest version.

SOD123F (Type B)



Dimensions	Value (in mm)
<b>G</b>	1.90
<b>X</b>	1.00
<b>X1</b>	3.90
<b>Y</b>	1.50

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