1.0A SURFACE MOUNT FAST RECOVERY RECTIFIER

Product Summary (@ T_A = +25°C)

V_{RRM} (V)	I_O (A)	V_F Max (V)	I_R Max (μA)
1000	1	1.3	5

Features and Benefits

- Glass Passivated Die Construction
- Small Form Factor, Low Profile
- Fast Recovery Time for High Efficiency
- Surge Overload Rating to 30A Peak
- Low Reverse Leakage Current
- High Reverse Breakdown Voltage
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **The RS1MEWFQ is suitable for automotive applications requiring specific change control; this part is AEC-Q101 qualified, PPAP capable, and manufactured in IATF 16949 certified facilities.**
  https://www.diodes.com/quality/product-definitions/

Description and Applications

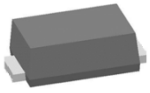
The RS1MEWFQ is a rectifier packaged in the small form factor, low profile SOD123F. Providing fast recovery time for high efficiency, low reverse leakage current, and high surge current capability, this device is ideal for use in general rectification applications such as:

- Switching mode power supplies
- DC-DC converters
- AC-DC adaptors/chargers

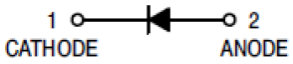
Mechanical Data

- Package: SOD123F
- Package 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 Lead-Frame. Solderable per MIL-STD-202, Method 208 e3
- Polarity: Cathode Band
- Weight: 0.016 grams (Approximate)

SOD123F



Top View



Schematic View

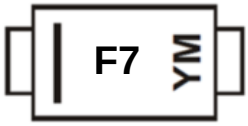
Ordering Information (Note 4)

Part Number	Compliance	Package	Packing	
			Qty.	Carrier
RS1MEWFQ-7	Automotive	SOD123F	3000	Tape & Reel

Notes:
1. EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
2. See https://www.diodes.com/quality/lead-free/ 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 https://www.diodes.com/design/support/packaging/diodes-packaging/.

Marking Information

SOD123F



F7 = Product Type Marking Code
YM = Date Code Marking
Y = Year (ex.: J = 2022)
M = Month (ex: 1 = Jan)

Date Code Key

Year	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Code	J	K	L	M	N	O	P	R	S	T	U	V

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

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 Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_{RM}	1000	V
RMS Reverse Voltage	$V_{R(RMS)}$	700	V
Average Rectified Output Current (@ T_T = +88°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 Case (Note 5)	$R_{\theta JC}$	40	°C/W
Typical Thermal Resistance, Junction to Ambient (Note 5)	$R_{\theta JA}$	90	°C/W
Typical Thermal Resistance, Junction to Case (Note 6)	$R_{\theta JC}$	50	°C/W
Typical Thermal Resistance, Junction to Ambient (Note 6)	$R_{\theta JA}$	100	°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 7)	$V_{(BR)R}$	1,000	—	—	V	I_R = 5μA
Forward Voltage Drop	V_F	—	1.1 0.95	1.3 —	V	I_F = 1A, T_J = +25°C I_F = 1A, T_J = +125°C
Leakage Current (Note 7)	I_R	—	0.2 15	5.0 200	μA	V_R = 1,000V, T_J = +25°C V_R = 1,000V, T_J = +125°C
Reverse Recovery Time	t_{RR}	—	240	500	ns	I_F = 0.5A, I_R = 1.0A, I_{RR} = 0.25A
Total Capacitance	C_T	—	7	—	pF	V_R = 4.0V_{DC}, f = 1MHz

Notes: 5. Device mounted on FR-4 substrate, 0.4" x 0.5", 2oz, single-sided, PC boards with 0.2" x 0.25" copper pad.
6. Device mounted on FR-4 substrate, 25.4*25.4mm, 2oz, single-sided, PC boards with 2.1*2.1mm copper pad.
7. Short duration pulse test used to minimize self-heating effect.

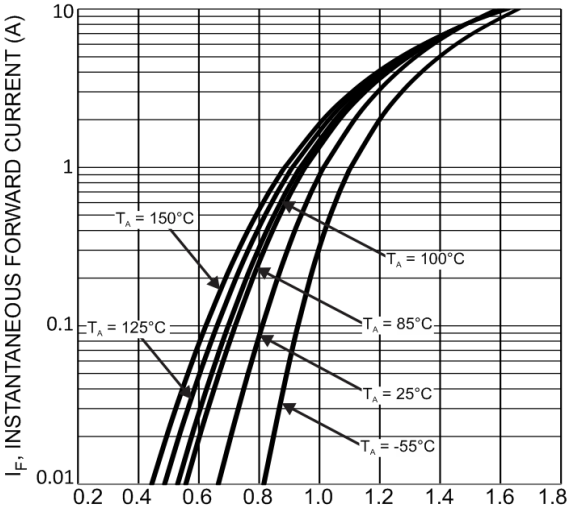


Fig. 1 Typical Forward Characteristics

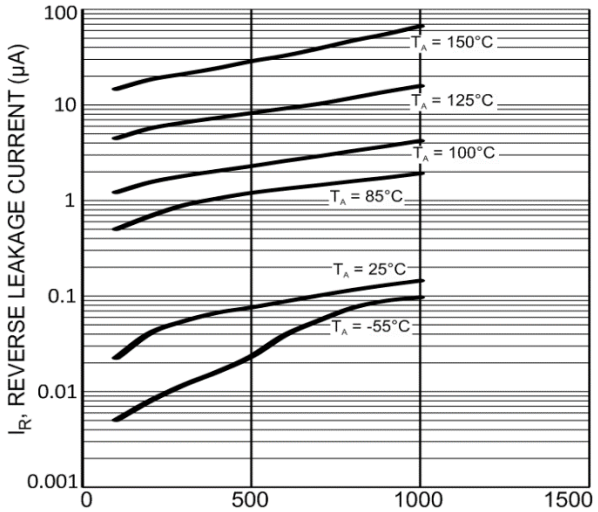


Fig. 2 Typical Reverse Characteristics

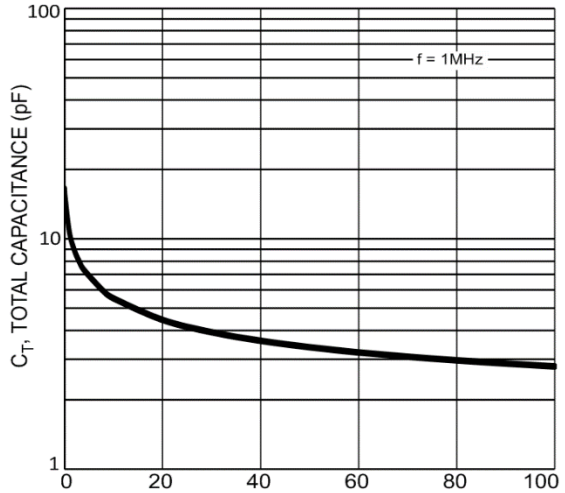


Fig. 3 Total Capacitance vs. Reverse Voltage

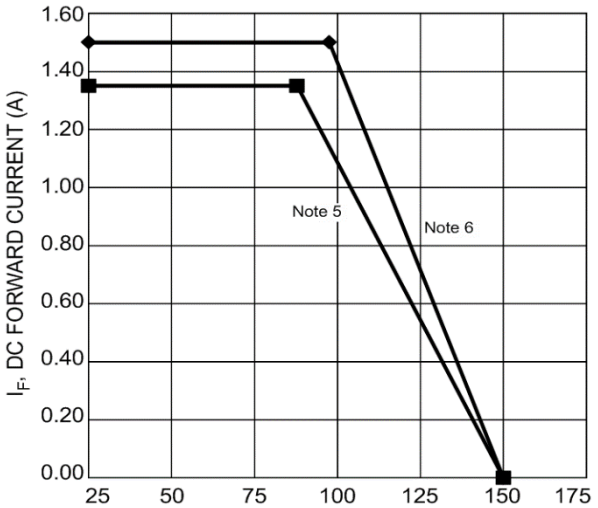
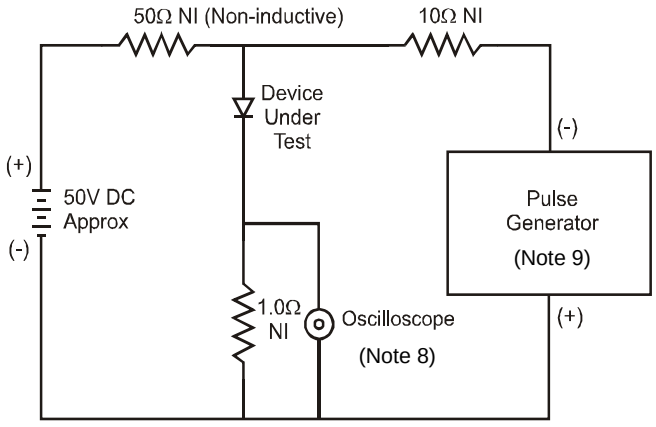
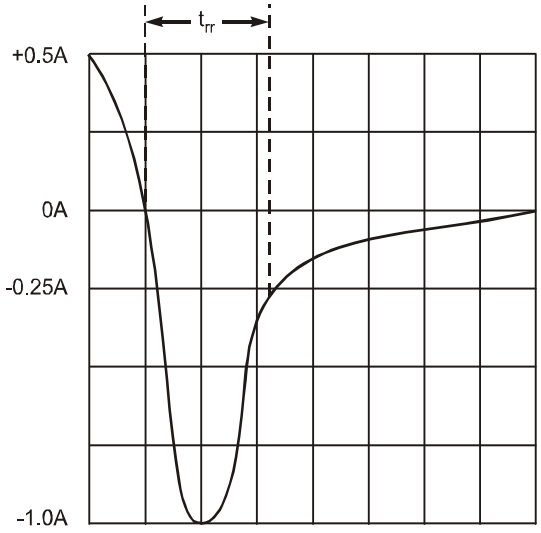


Fig. 4 DC Forward Current Derating





Set Time Base for 50/100 ns/cm

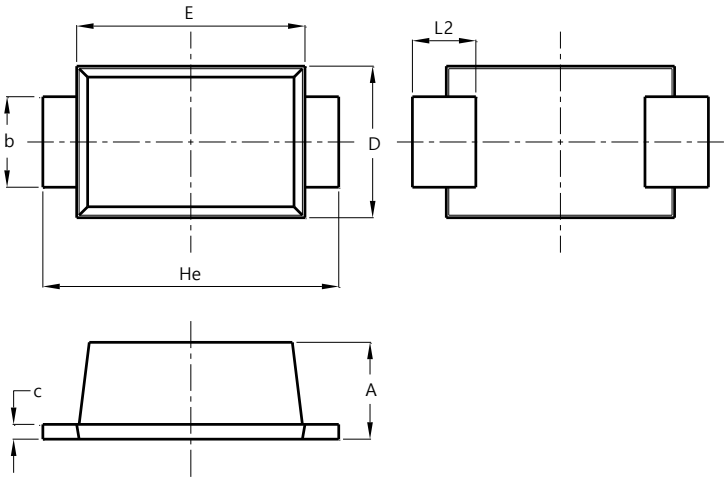
Notes: 8. Rise Time = 7.0ns max. Input Impedance = 1.0MΩ, 22pF.
9. Rise Time = 10ns max. Input Impedance = 50MΩ.

Fig. 5 Reverse Recovery Time Characteristic and Test Circuit

Package Outline Dimensions

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

SOD123F

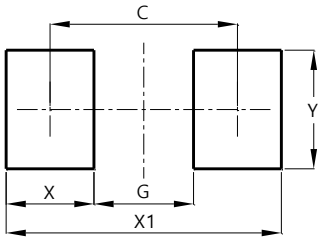


SOD123F			
Dim	**Min**	**Max**	**Typ**
A	0.81	1.15	-
b	0.80	1.05	-
c	0.05	0.30	-
D	1.70	1.90	1.80
E	2.60	2.80	2.70
He	3.30	3.70	3.50
L2	0.35	0.85	-
All Dimensions in mm			

Suggested Pad Layout

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

SOD123F



Dimensions	Value (in mm)
C	2.86
G	1.52
X	1.34
X1	4.20
Y	1.80

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