

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	10

Features and Benefits

- Glass Passivated Die Construction
- Ideally Suited for Automated Assembly
- Small Form Factor, Low Profile
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- The S1MSWFMQ is suitable for automotive applications requiring specific change control; this part is AEC-Q101 qualified, PPAP capable, and manufactured in IATF16949 certified facilities.

<https://www.diodes.com/quality/product-definitions/>

Description and Applications

The S1MSWFMQ is a rectifier packaged in the SOD123F (Type B) package. Providing high reverse breakdown voltage and high current capability for standard rectification, this device is ideal for use in applications such as:

- Reverse protections
- Blocking

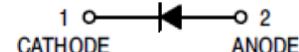
SOD123F (Type B)



Top View



Bottom View



Schematic View

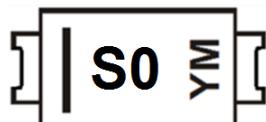
Ordering Information (Note 4)

Part Number	Package	Packing	
		Qty.	Carrier
S1MSWFMQ-7	SOD123F (Type B)	3,000	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



S0 = Product Type Marking Code

YM = Date Code Marking

Y = Year (ex: L = 2024)

M = Month (ex: 9 = September)

Date Code Key

Year	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Code	J	K	L	M	N	P	R	S	T	U	V	W
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 (@ $T_A = +25^\circ\text{C}$, 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_{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 @ $T_A = +75^\circ\text{C}$	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

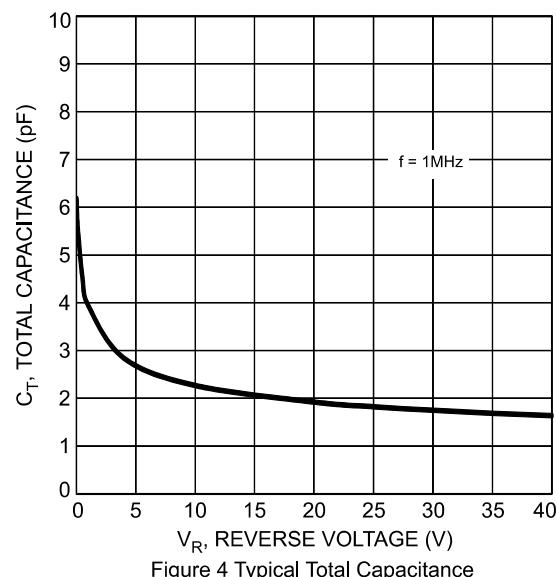
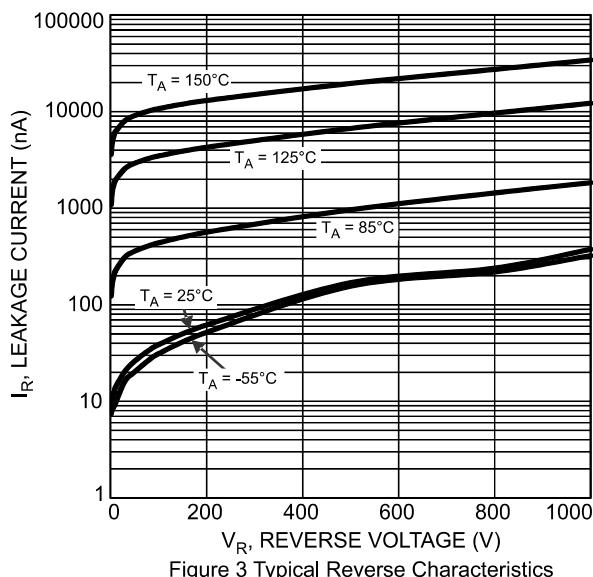
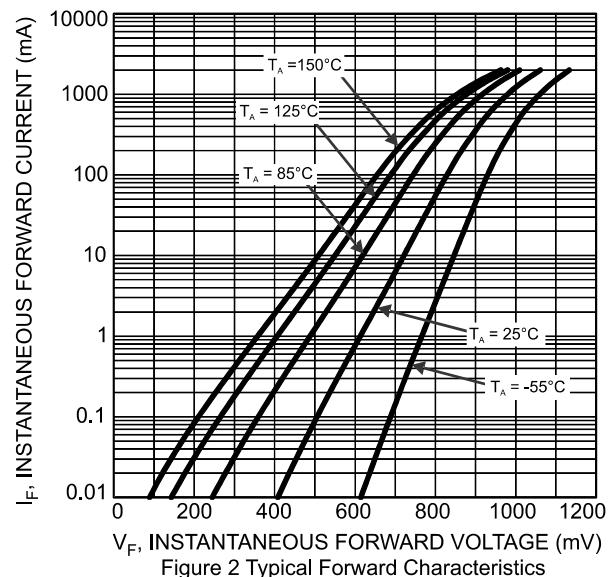
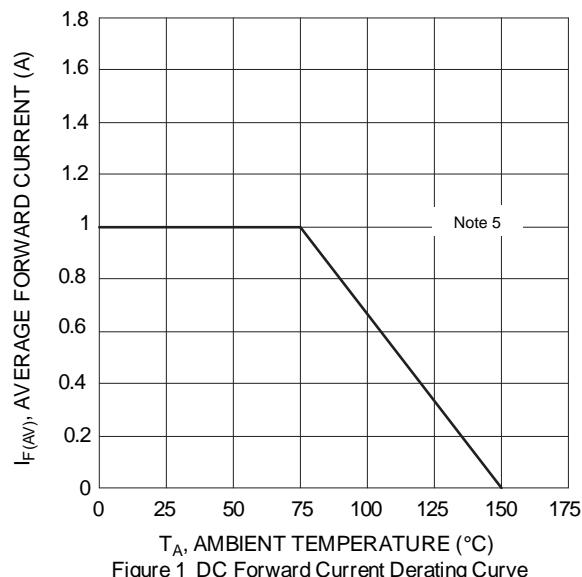
Thermal Characteristics

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)	$R_{\theta JA}$	78	°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	—	0.98 0.88	1.1 —	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	—	0.4 12	10 100	μA	$V_R = 1,000\text{V}, T_J = +25^\circ\text{C}$ $V_R = 1,000\text{V}, T_J = +125^\circ\text{C}$
Reverse Recovery Time	t_{rr}	—	1.2	—	μs	$I_F = 0.5\text{A}, I_R = 1.0\text{A}, I_{RR} = 0.25\text{A}$
Total Capacitance	C_T	—	2.8	—	pF	$V_R = 4.0\text{V}_{\text{DC}}, f = 1\text{MHz}$

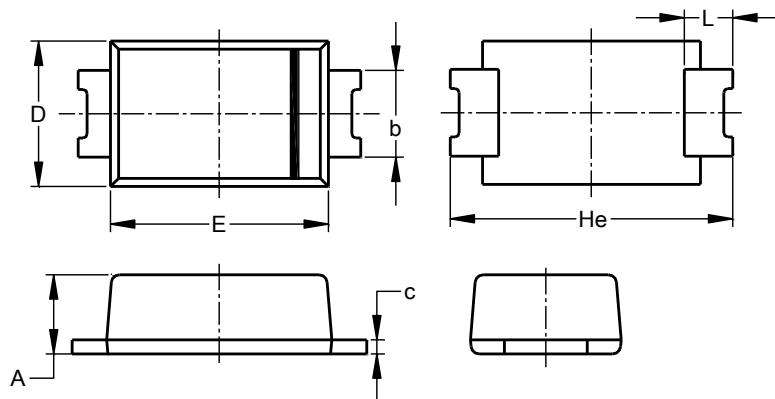
Notes: 5. Device mounted on FR4 PC board, 1 inch x 1 inch, 2oz. copper traces with 1x recommended pad layout, as shown on Diodes Incorporated's website at <http://www.diodes.com/package-outlines.html>.
6. Short duration pulse test used to minimize self-heating effect.



Package Outline Dimensions

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

SOD123F (Type B)



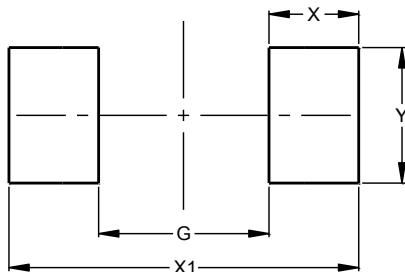
SOD123F (Type B)			
Dim	Min	Max	Typ
A	0.81	1.15	--
b	0.80	1.35	--
c	0.05	0.30	--
D	1.70	1.90	1.80
E	2.60	2.80	2.70
He	3.30	3.70	3.50
L	0.35	0.85	--

All Dimensions in mm

Suggested Pad Layout

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

SOD123F (Type B)



Dimensions	Value (in mm)
G	1.90
X	1.00
X1	3.90
Y	1.50

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