

1.0A SURFACE MOUNT GLASS PASSIVATED RECTIFIER
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

Description and Applications

The S1MSWFQ is a rectifier packaged in the SOD123F package. Providing high reverse breakdown voltage and high current capability for standard rectification, this device is ideal for use in applications such as:

- Reverse Protection
- Blocking

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)**
- **Qualified to AEC-Q101 Standards for High Reliability**
- **PPAP capable (Note 4)**

Mechanical Data

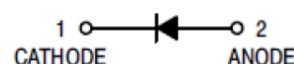
- Case: SOD123F
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 Ⓔ
- Polarity: Cathode Band
- Weight: 0.0016 grams (Approximate)

SOD123F


Top View



Bottom View

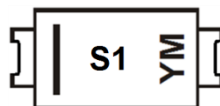


Schematic View

Ordering Information (Note 5)

Part Number	Compliance	Case	Packaging
S1MSWFQ-7	Automotive	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 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/quality/product_compliance_definitions/.
 5. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

Marking Information


S1 = 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	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}	1,000	V
RMS Reverse Voltage	V _{R(RMS)}	700	V
Average Rectified Output Current @ T _A = +75°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 6)	R _{θJC}	13	°C/W
Thermal Resistance Junction to Ambient (Note 6)	R _{θJA}	78	°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	—	0.98 0.88	1.1 —	V	I _F = 1A, T _J = +25°C I _F = 1A, T _J = +125°C
Leakage Current (Note 7)	I _R	—	0.2 11	10 100	μA	V _R = 1,000V, T _J = +25°C V _R = 1,000V, T _J = +125°C
Reverse Recovery Time	t _{RR}	—	1.0	—	μs	I _F = 0.5A, I _R = 1.0A, I _{RR} = 0.25A
Total Capacitance	C _T	—	6	—	pF	V _R = 4.0V _{DC} , f = 1MHz

Notes: 6. Device mounted on FR4 PC board, 1 inch x 1 inch, 2oz. copper traces with 1x recommended pad layout, please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for the latest version.
7. Short duration pulse test used to minimize self-heating effect.

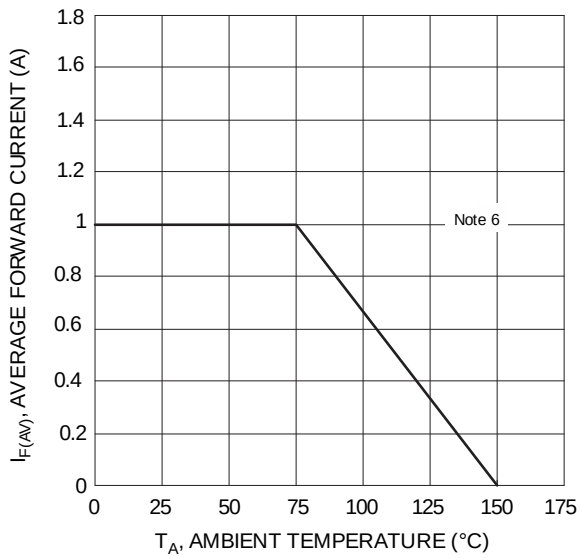


Figure 1 DC Forward Current Derating Curve

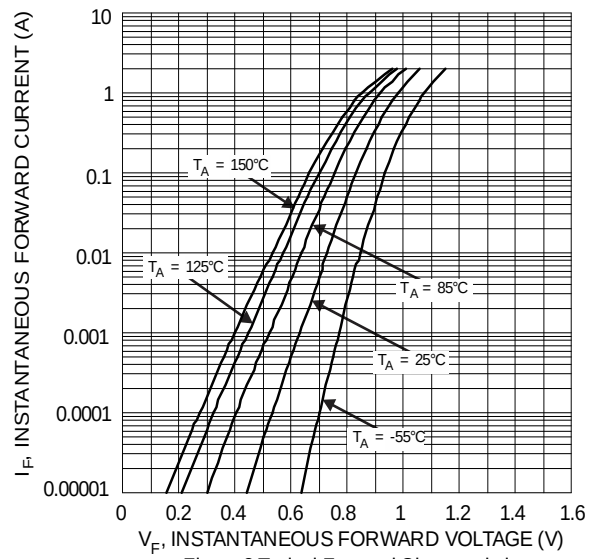


Figure 2 Typical Forward Characteristics

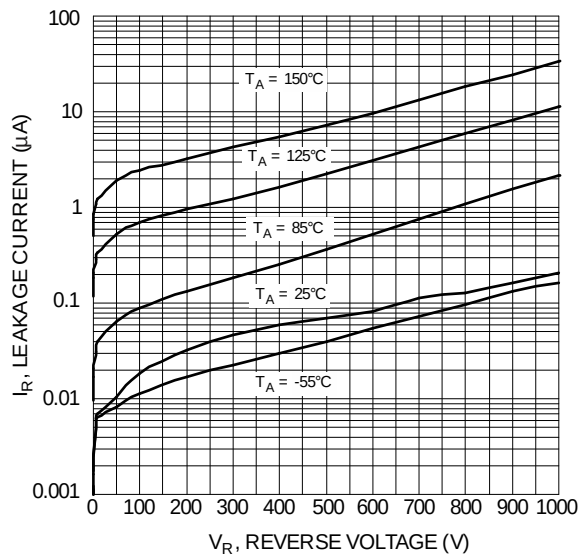


Figure 3 Typical Reverse Characteristics

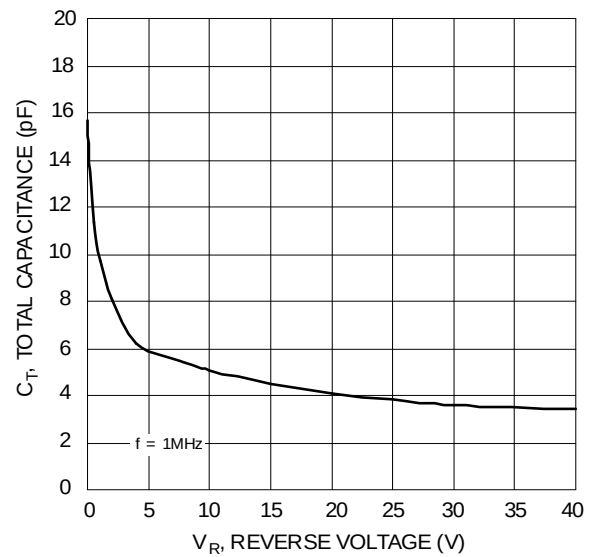
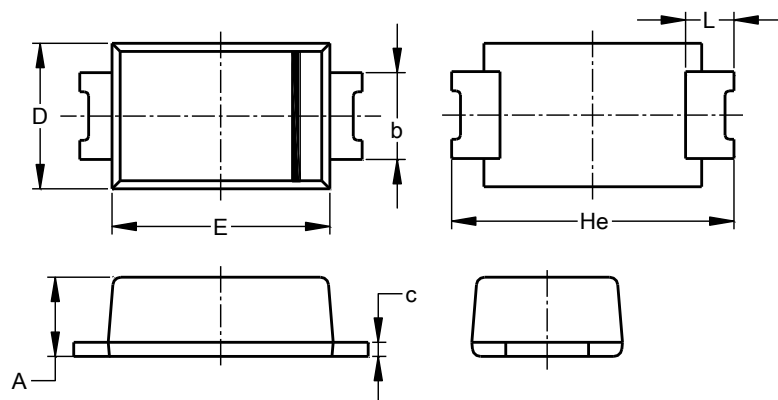


Figure 4 Typical Total Capacitance

Package Outline Dimensions

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

SOD123F (Type B)

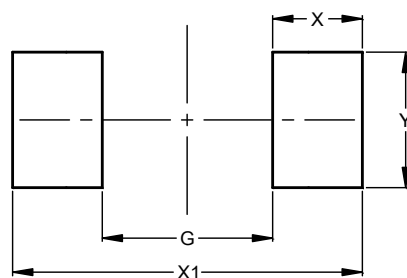


SOD123F (Type B)			
Dim	Min	Max	Typ
A	0.81	1.15	—
b	0.80	1.35	—
c	0.05	0.30	—
D	1.70	1.90	1.80
E	2.60	2.80	2.70
He	3.30	3.70	3.50
L	0.35	0.85	—
All Dimensions in mm			

Suggested Pad Layout

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