THE DATASHEET OF

SS-3GP

www.win-source.net 0086-755-83957316

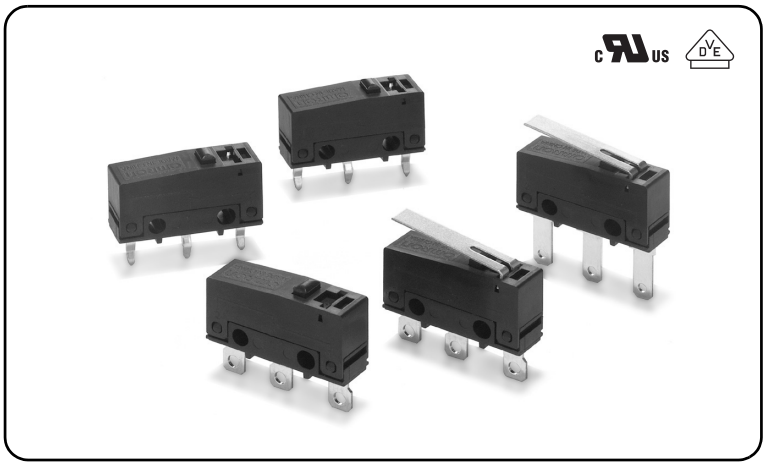
SS-P

Subminiature Basic Switch

SS Series Compatible Mounting with a Simple Construction and Easy-to-Use Design Concept

- **One-piece terminal construction to keep out flux.**
- **A single leaf movable spring construction.**
- **Conforms to North American and European safety Standards.**
- **1 mm MIN Contact Gap Models available for Interlock applications**

RoHS Compliant



Model Number Legend

SS-[1] G [2] P [3]

1. Ratings
- 3 : 125 VAC 3 A
- 01: 30 VDC 0.1 A

2. Actuator
- None : Pin plunger
- L : Hinge lever
- L13 : Simulated roller lever
- L111 : Long hinge lever

3. Terminals
- None : Solder terminals
- T : Quick-connect terminals (#110)
- D : PCB terminals

List of Models

●0.5 mm Contact Gap Models

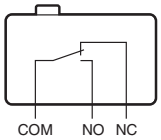
Ratings	Actuator / Terminals	Solder terminals	Quick-connect terminals (#110)	PCB terminals
3A	Pin plunger	**SS-3GP**	**SS-3GPT**	**SS-3GPD**
	Hinge lever	**SS-3GLP**	**SS-3GLPT**	**SS-3GLPD**
	Simulated roller lever	**SS-3GL13P**	**SS-3GL13PT**	**SS-3GL13PD**
0.1A	Pin plunger	**SS-01GP**	**SS-01GPT**	**SS-01GPD**
	Hinge lever	**SS-01GLP**	**SS-01GLPT**	**SS-01GLPD**
	Simulated roller lever	**SS-01GL13P**	**SS-01GL13PT**	**SS-01GL13PD**

●1 mm MIN Contact Gap Models

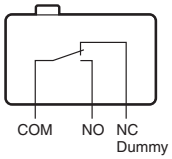
Ratings	Actuator	Terminals Contact form	Solder terminals	Quick-connect terminals (#110)
3A	Long hinge lever	SPST-NO	**SS-3FL111P-3**	**SS-3FL111P-3T**

Contact Form

●SPDT



●SPST-NO (SS-3FP models)



Separator (Sold Separately), Terminal Connector (Sold Separately) ➡ Refer to "**Basic Switch Common Accessories**"

Contact Specifications

Item / Model		SS-3P models	SS-01P models	SS-3FP models
Contact	Specification	Rivet	Crossbar	Rivet
	Material	Silver	Gold alloy	Silver
	Gap (standard value)	0.5 mm	0.5 mm	1 mm min.
Inrush current	NC	9 A max.	-	9 A max.
	NO			
Minimum applicable load (reference value) *		5 VDC 160 mA	5 VDC 1 mA	5 VDC 160 mA

* Please refer to "**Using Micro Loads**" in "**●Precautions**" for more information on the minimum applicable load.

Ratings

Rated voltage / Item	Model: SS-3P / SS-3FP models	SS-01P models
	Resistive load	
125 VAC	3 A	0.1 A
30 VDC	3 A	0.1 A

Note 1. The above rating values apply under the following test conditions.
(1) Ambient temperature: 20±2°C
(2) Ambient humidity: 65±5%
(3) Operating frequency: 20 operations/min
Note 2. Consult your OMRON sales representative for information on models for other loads.

Approved Safety Standards

UL (UL1054/CSA C22.2 No.55)

Rated voltage / Item	Model: SS-3P / SS-3FP	SS-01P
	Resistive load	
125 VAC	3 A	0.1 A
30 VDC	3 A	0.1 A

VDE (EN61058-1)

Rated voltage / Model	SS-3P / SS-3FP	SS-01P
125 VAC	3 A	0.1 A
30 VDC	3 A	0.1 A

Testing conditions: 5E4 (50,000 operations) T55 (0 to 55°C)

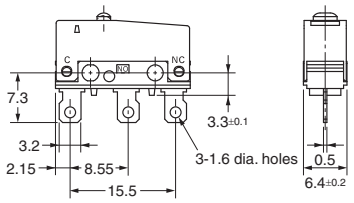
Characteristics

Item / Model		SS-3P models	SS-01P models	SS-3FP models
Permissible operating speed		0.1 mm to 1 m/s (for pin plunger models)		
Permissible operating frequency	Mechanical	300 operations/min		
	Electrical	30 operations/min		
Insulation resistance		100 MΩ min. (at 500 VDC with insulation tester)		
Contact resistance (initial value)		50 mΩ max.	100 mΩ max.	50 mΩ max.
Dielectric strength *1	Between terminals of the same polarity	1,000 VAC 50/60 Hz for 1 min		
	Between current-carrying metal parts and ground	1,500 VAC 50/60 Hz for 1 min		
	Between each terminals and non-current-carrying metal parts	1,500 VAC 50/60 Hz for 1 min		
Vibration resistance *2	Malfunction	10 to 55 Hz, 1.5 mm double amplitude		
Shock resistance	Durability	1,000 m/s² {approx. 100G} max.		
	Malfunction *2	300 m/s² {approx. 30G} max.		
Durability *3	Mechanical	1,000,000 operations min. (60 operations/min)		100,000 operations min. (60 operations/min)
	Electrical	70,000 operations min. (20 operations/min, 125 VAC)	200,000 operations min. (20 operations/min)	100,000 operations min. (20 operations/min, 30 VDC)
		100,000 operations min. (20 operations/min, 30 VDC)		
Degree of protection		IEC IP40		
Degree of protection against electric shock		Class I		
Proof tracking index (PTI)		250		
Ambient operating temperature		-25°C to +85°C (at ambient humidity of 60% max.) (with no icing or condensation)		
Ambient operating humidity		85% max. (for +5 to +35°C)		
Weight		Approx. 1.6 g (pin plunger models)		

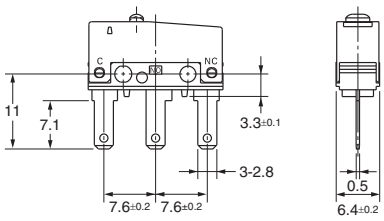
Note. The data given above are initial values.
*1. The values for dielectric strength shown are for models with a Separator (refer to "**Micro Switch Common Accessories**").
*2. The values are at Free Position and Total Travel Position values for pin plunger, and Total Travel Position value for lever. Close or open circuit of the contact is 1 ms max.
*3. For testing conditions, consult your OMRON sales representative.

Terminals/Appearances (Unit: mm)

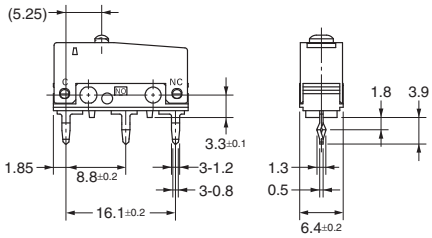
●Solder terminals



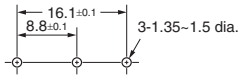
●Quick Connect Terminals (#110)



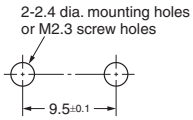
●PCB terminals



<PCB Mounting Dimensions (Reference)>



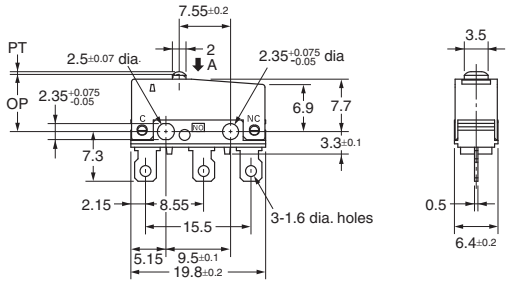
Mounting Holes (Unit: mm)



Dimensions (Unit: mm) and Operating Characteristics

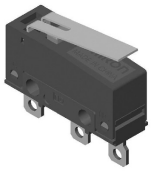
The illustrations and dimensions are for models with solder terminals. Refer to "**Terminals/Appearances**" for details on models with quick connect terminals (#110) or PCB terminals.

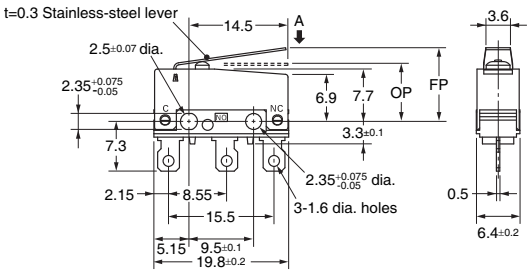
●Pin plunger
SS-3GP
SS-01GP



Operating characteristics		Model	SS-3GP	SS-01GP
Operating Force Releasing Force	OF RF	Max. Min.	1.50 N {153 gf} 0.2 N {20 gf}	
Pretravel Overtravel Movement Differential	PT OT MD	Max. Min. Max.	0.6 mm 0.4 mm 0.15 mm	
Operating Position	OP		8.4±0.3 mm	

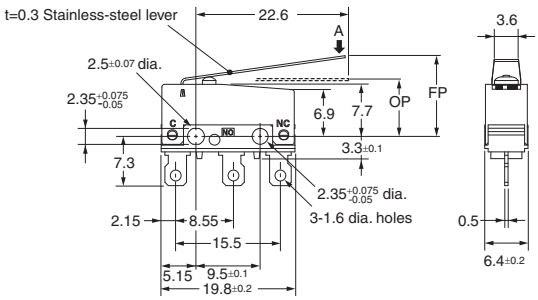
●Hinge lever
SS-3GLP
SS-01GLP





Operating characteristics		Model	SS-3GLP	SS-01GLP
Operating Force Releasing Force	OF RF	Max. Min.	0.5 N {51 gf} 0.05 N {5 gf}	
Overtravel Movement Differential	OT MD	Min. Max.	1.0 mm 0.8 mm	
Free Position Operating Position	FP OP	Max.	13.6 mm 8.8±0.8 mm	

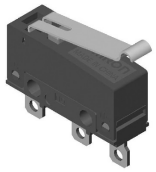
●Long hinge lever
SS-3FL111P-3

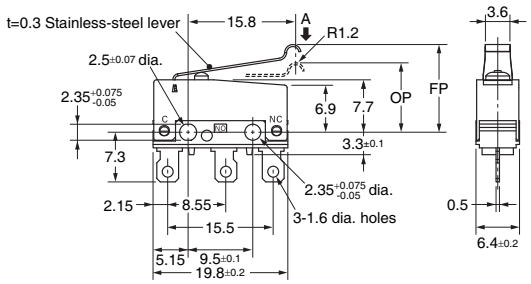


Operating characteristics		Model	SS-3FL111P-3
Operating Force Releasing Force	OF RF	Max. Min.	0.55 N {56 gf} 0.01 N {1 gf}
Overtravel Movement Differential	OT MD	Min. Max.	1.0 mm 3.0 mm
Free Position Operating Position	FP OP	Max.	16.8 mm 8.8±1.5 mm

Note 1. Unless otherwise specified, a tolerance of ±0.4 mm applies to all dimensions.
Note 2. The operating characteristics are for operation in the A direction (⬇).

●Simulated roller lever
SS-3GL13P
SS-01GL13P





Operating characteristics		Model	SS-3GL13P	SS-01GL13P
Operating Force	OF	Max.	0.5 N {51 gf}	
Releasing Force	RF	Min.	0.05 N {5 gf}	
Overtravel	OT	Min.	1.0 mm	
Movement Differential	MD	Max.	0.8 mm	
Free Position	FP	Max.	15.5 mm	
Operating Position	OP		10.7±0.8 mm	

Note 1. Unless otherwise specified, a tolerance of ±0.4 mm applies to all dimensions.
Note 2. The operating characteristics are for operation in the A direction (⬇).

Precautions

★Please refer to "Common Precautions" for correct use.

Cautions

●Soldering

- Connecting to Solder Terminals
  Complete the soldering at the iron tip temperature of 350 to 400°C within 5 seconds, and do not apply any external force for 1 minute after soldering. Soldering at an excessively high temperature or soldering for more than 5 seconds may deteriorate the characteristics of the Switch.
- Connecting to PCB terminals
  When using automatic soldering baths, we recommend soldering at 260±5°C within 5 seconds. Make sure that the liquid surface of the solder does not flow over the edge of the board.
  When soldering terminals manually, complete the soldering at the iron tip temperature between 350 to 400°C within 3 seconds, and do not apply any external force for 1 minute after soldering. When applying solder, keep the solder away from the case of the Switch and do not allow solder or flux to flow into the case.

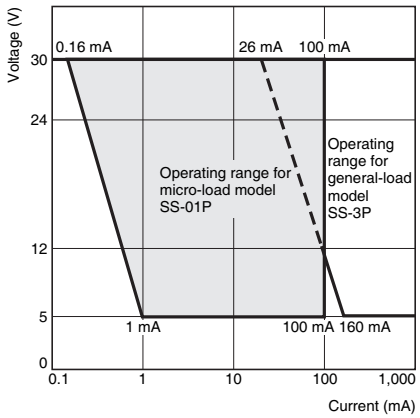
Correct Use

●Mounting

Use M2.3 mounting screw with plane washers or spring washers to securely mount the Switch. Tighten the screws to a torque of 0.23 to 0.26 N·m {2.3 to 2.7 kgf·cm}.

●Using Micro Loads

Using a model for ordinary loads to open or close the contact of a micro load circuit may result in faulty contact. Use models that operate in the following range. However, even when using micro load models within the following operating range, if inrush current occurs when the contact is opened or closed, it may increase the contact wear and so decrease durability. Therefore, insert a contact protection circuit where necessary. The N-level reference value applies for the minimum applicable load. This value indicates the malfunction reference level for the reliability level of 60% (λ_{60}).
(JIS C5003)
The equation, $\lambda_{60}=0.5\times10^{-6}$/operation indicates that the estimated malfunction rate is less than $\frac{1}{2{,}000{,}000}$ operations with a reliability level of 60%.



- Application examples provided in this document are for reference only. In actual applications, confirm equipment functions and safety before using the product.
- Consult your OMRON representative before using the product under conditions which are not described in the manual or applying the product to nuclear control systems, railroad systems, aviation systems, vehicles, combustion systems, medical equipment, amusement machines, safety equipment, and other systems or equipment that may have a serious influence on lives and property if used improperly. Make sure that the ratings and performance characteristics of the product provide a margin of safety for the system or equipment, and be sure to provide the system or equipment with double safety mechanisms.

Note: Do not use this document to operate the Unit.

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