



# Switch

## MICRO SWITCH EJF SERIES



### FEATURES

- 1-piece spring mechanism design offering durable acute operation and nice touch feeling
- Heavy/Light operation force specifications
- High flux-tight structure
- High solder reliability
- RoHS Compliant



### APPLICATIONS

- Communication equipment
- Security systems
- Office automation appliances
- General industrial machines

### SPECIFICATIONS

#### 1. ELECTRICAL

DESCRIPTION		TYPE	EJF-0.05A	EJF-1A	EJF-3A
Contact Rating:	AC 125V		----	1A	3A
	DC 30V		0.05A	0.5A	2A
Contact Resistance: (Initial)	O.F.1.47N (150gf)		100mΩ Max.	100mΩ Max.	100mΩ Max.
	O.F.0.74N (75gf)		100mΩ Max.	100mΩ Max.	----
Insulation Resistance			100 MΩ Min. at 500 VDC		



# Switch

## 2. CHARACTERISTICS

DESCRIPTION		TYPE	EJF-0.05A	EJF-1A	EJF-3A
Mechanical Life (Cycles Operations)			1,000,000 (60 operations / min)	1,000,000 (60 operations / min)	1,000,000 (60 operations / min)
Electrical Life (Cycles Operations)			30,000 (15 operations / min)	30,000 (15 operations / min)	30,000 (15 operations / min)
Ambient Temperature			-25°C to +85°C (60%RH Max.with no icing)		
Ambient Humidity			+5°C to +35°C (85%RH Max.)		
Max. operating cycle rate	Mechanical		200 cycle/min.		
	Electrical		30 cycle/min.		
Allowable Operation speed			1mm to 500mm/sec (without lever)		
Dielectric Strength	Between non-continuous terminal		600 VAC for 1 min		
	Between each terminal and other exposed metal parts		1500 VAC for 1 min		
	Between each terminal and ground		1500 VAC for 1 min		
Vibration Resistance	Malfunction		10 to 55 Hz at single amplitude of 0.75mm		
Unit weight			Approx 0.5g (pin plunger models)		

## 3.CORRECT USE

### 3-1. Terminal Connections:

#### Solder Terminals:

3-1-1. When soldering a lead wire to the terminal, first insert the lead wire conductor into the terminal hole and then perform soldering.

Make sure that the capacity of the soldering iron is 30W maximum and that the temperature of the soldering iron tip is approximately 300°C. Complete the soldering within 3s.

Using a switch with improper soldering may result in abnormal heating, possibly resulting in burn. Applying a soldering iron for more than 3s or using one that is rated at more than 30W may deteriorate the switch characteristics.

3-1-2. Do not apply the load to terminals at soldering. Because electric and mechanical characteristics may deteriorate due to the load.

#### Quick-Connect Terminals:

3-1-3. When soldering the lead wire to the PCB terminal, pay careful attention so that the flux and solder liquid level does not exceed the PCB level.

3-1-4. Do not apply excessive force horizontally or vertically to the terminals,

otherwise the terminal may be deformed or the housing may be damaged.

### 3-2. Operating Condition:

3-2-1. Do not leave a switch with the actuator depressed for a long time, otherwise the parts of the switch may soon deteriorate and its operating characteristics may change.

3-2-2. Do not apply oil, grease, or other lubricants to the sliding parts of a switch. The intrusion of oil, grease, or other lubricants into the internal part may cause operating failure or contact failure.

### 3-3. Operating Stroke Setting:

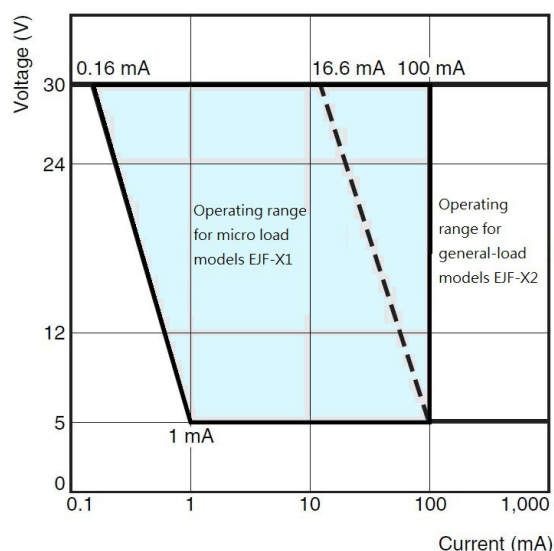
3-3-1. Take particular care in setting the operating stroke for the pin plunger models. Make sure that the operating stroke is 70% to 100% of the rated OT distance. Do not operate the actuator exceeding the OT distance, otherwise the durability of the Switch may be shortened.

### 3-4. Using Micro Loads:

3-4-1. Using a model for ordinary loads to open or close the contact of a micro load circuit may result in faulty contact.

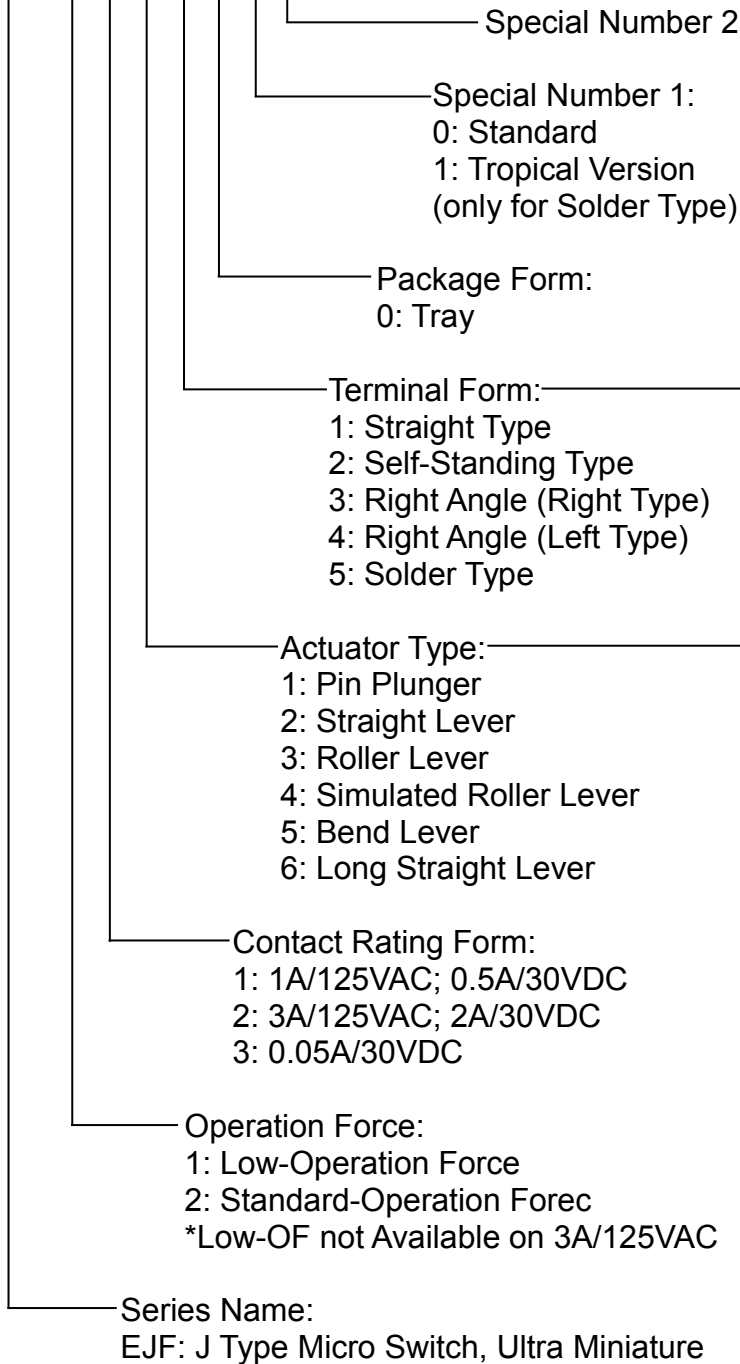
3-4-2. Contact faults may occur if a Switch for a general-load is used to switch a micro load circuit. Use switches in the operating range shown in the following diagram. However, even when using micro load models within the operating range shown here, if inrush current occurs when the contact is opened or closed, it may increase contact wear and so decrease durability. Therefore, insert a contact protection circuit where necessary. The minimum applicable load is the N-level reference value. This value indicates the malfunction reference level for the reliability level of 60% ( $\lambda_{60}$ ).

The equation,  $\lambda_{60} = 0.5 \times 10^{-6} / \text{operations}$  indicates that the estimated malfunction rate is less than 1/2,000,000 operations with a reliability level of 60%.



## ■ PART NUMBERING SYSTEM

EJF - 1 1 1 1 0 X X



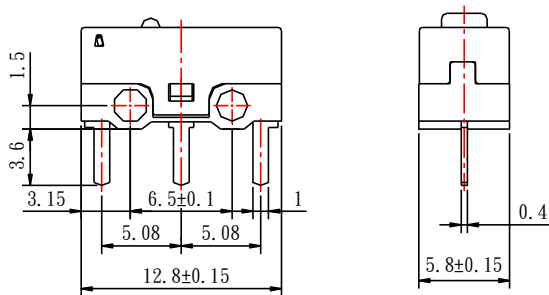
Terminal Form		
1	Straight Type	
2	Self-Standing Type	
3	Right Angle (Right Type)	
4	Right Angle (Left Type)	
5	Solder Type	

Actuator Type		
1	Pin Plunger	
2	Straight Lever	
3	Roller Lever	
4	Simulated Roller Lever	
5	Bend Lever	
6	Long Straight Lever	

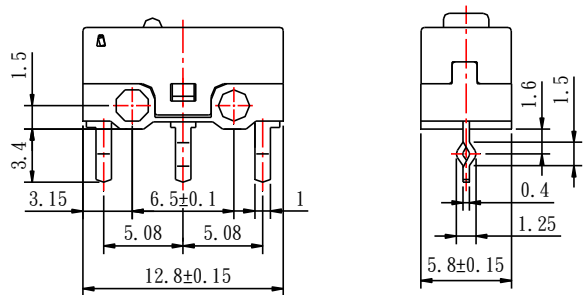
## ■ DIMENSIONS

### Terminals

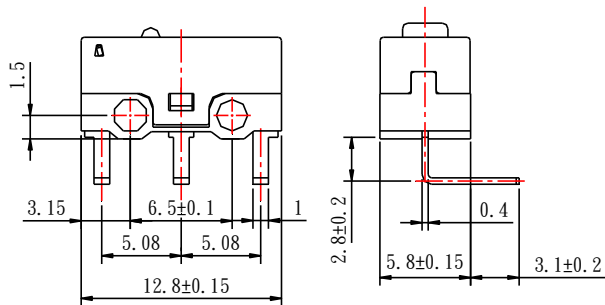
Straight Type



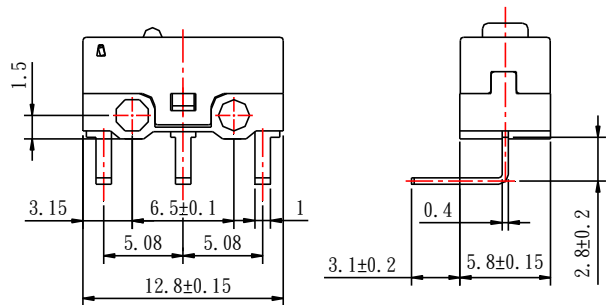
Self-Standing Type



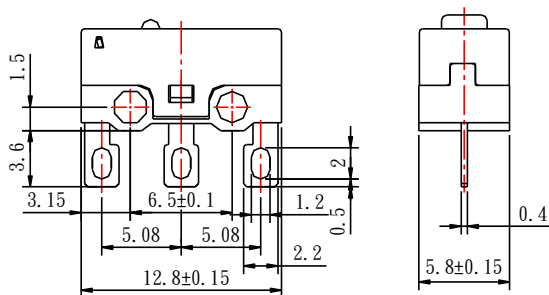
Right Type



Left Type



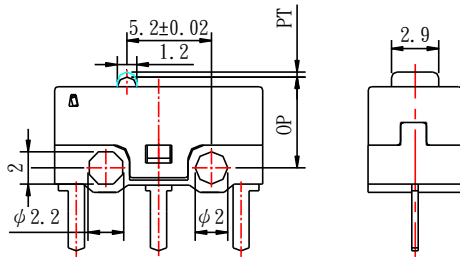
Solder Type



## ■ DIMENSIONS

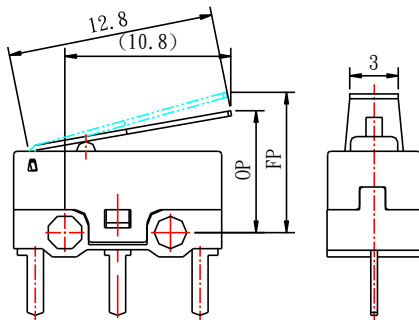
### Actuator

#### Pin Plunger



Operating Characteristics	OF type	
	Low-OF	Standard-OF
1. Operating Force (OF)	75gf (0.74N) Max.	150gf (1.47N) Max.
2. Release Force (RF)	5gf (0.05N) Min.	20gf (0.20N) Min.
3. Pretravel (PT)	0.5mm Max.	
4. Movement Differential (MD)	0.12mm Max.	
5. Operating Position (OP)	5.5±0.3mm	

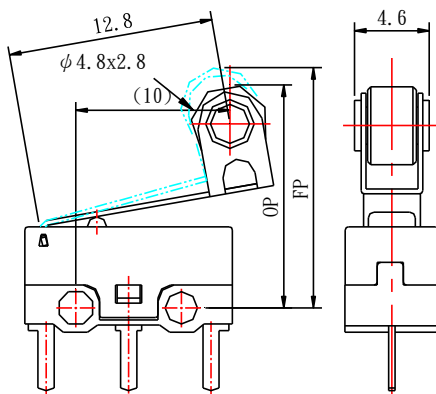
#### Straight Lever



Stainless steel lever t=0.3

Operating Characteristics	OF type	
	Low-OF	Standard-OF
1. Operating Force (OF)	40gf (0.39N) Max.	80gf (0.78N) Max.
2. Release Force (RF)	2gf (0.02N) Min.	5gf (0.05N) Min.
3. Free Position (FP)	10mm Max.	
4. Movement Differential (MD)	0.5mm Max.	
5. Operating Position (OP)	6.8±1.5mm	

#### Roller Lever



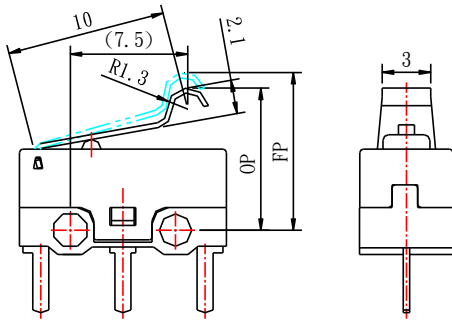
Stainless steel lever t=0.3

Operating Characteristics	OF type	
	Low-OF	Standard-OF
1. Operating Force (OF)	40gf (0.39N) Max.	80gf (0.78N) Max.
2. Release Force (RF)	2gf (0.02N) Min.	5gf (0.05N) Min.
3. Free Position (FP)	16.5mm Max.	
4. Movement Differential (MD)	0.5mm Max.	
5. Operating Position (OP)	13±2.0mm	

## ■ DIMENSIONS

### Actuator

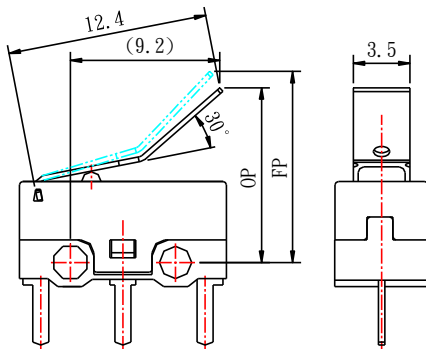
#### Simulated Roller Lever



Stainless steel lever t=0.3

Operating Characteristics	OF type	
	Low-OF	Standard-OF
1. Operating Force (OF)	40gf (0.39N) Max.	80gf (0.78N) Max.
2. Release Force (RF)	2gf (0.02N) Min.	5gf (0.05N) Min.
3. Free Position (FP)	13mm Max.	
4. Movement Differential (MD)	0.45mm Max.	
5. Operating Position (OP)	8.5±1.2mm	

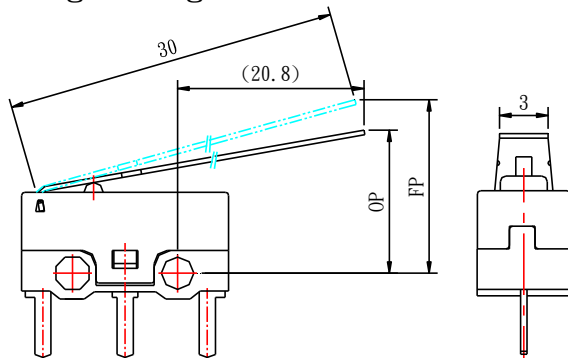
#### Bend Lever



Stainless steel lever t=0.3

Operating Characteristics	OF type	
	Low-OF	Standard-OF
1. Operating Force (OF)	40gf (0.39N) Max.	80gf (0.78N) Max.
2. Release Force (RF)	2gf (0.02N) Min.	5gf (0.05N) Min.
3. Free Position (FP)	14mm Max.	
4. Movement Differential (MD)	0.5mm Max.	
5. Operating Position (OP)	9.5±1.5mm	

#### Long Straight Lever



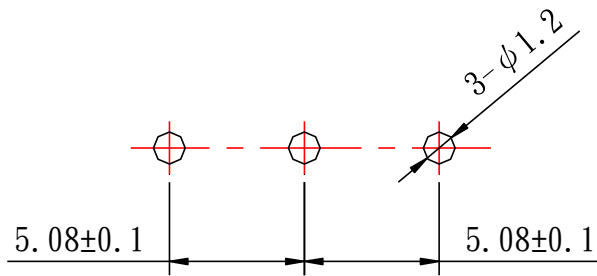
Stainless steel lever t=0.3

Operating Characteristics	OF type	
	Low-OF	Standard-OF
1. Operating Force (OF)	15gf (0.39N) Max.	22gf (0.78N) Max.
2. Release Force (RF)	2gf (0.02N) Min.	3gf (0.03N) Min.
3. Free Position (FP)	15.4mm Max.	
4. Movement Differential (MD)	3.0mm Max.	
5. Operating Position (OP)	7.4±2.1mm	

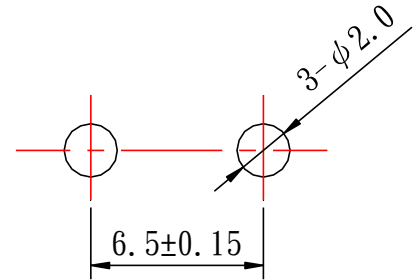
## ■ DIMENSIONS

### Mounting

#### P. C. B LAYOUT



#### Mounting Holes





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