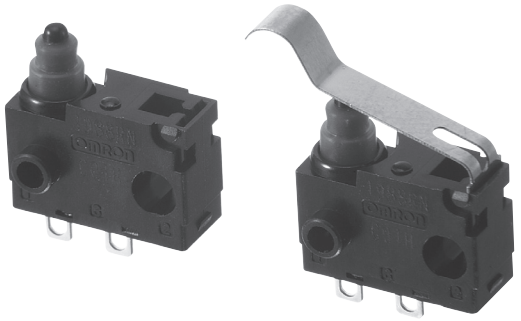
OMRON

Sealed Ultra Subminiature Basic Switch
D2QW

Sealed long stroke sliding contact switch with reliable ON/OFF action in severe environmental conditions.

- Extra-long stroke. (OT: 2.7 mm)
- Clip contacts with highly reliable slide contact mechanism.
- Sliding contact allows for quiet operating sound.
- High temperature resistance and drip-proof structure for wide range of applications and environmental conditions.
- Switch body conforms to IP67
- RoHS Compliant



NEW

Ordering Information

Actuator	Terminals	Contact form	Model
Pin plunger	Solder	SPST-NO	**D2QW-C003H**
Simulated roller leaf lever 			**D2QW-C073H**

Note: Contact Omron for other terminal or lever configuration and for use in automotive applications.

Model Number Legend:

D2QW-□ □□ □ □
1 2 3 4 5

1. **Mounting**
   C: Mounted with M3 screws
2. **Ratings**
   0: 1 mA at 5 VDC to 0.1 A at 30 VDC
3. **Actuator**
   0: Pin Plunger
   7: Simulated roller leaf lever
4. **Contact Form**
   3: SPST-NO
5. **Terminals**
   H: Solder terminals

Specifications

■ Characteristics

Item		Specification
Operating speed		1 mm to 500 m/s
Operating frequency		30 operations/min
Insulation resistance		100 MΩ min. (at 500 VDC)
Contact resistance		100 mΩ max.
Dielectric strength		600 VAC, 50/60 Hz for 1 min between terminals of the same polarity 1,500 VAC, 50/60 Hz for 1 min between current-carrying metal parts and ground, and between each terminal and non-current-carrying metal parts
Vibration resistance (See note 2)		Malfunction: 10 to 55 Hz, 1.5-mm double amplitude
Shock resistance (See note 2)		Destruction: 1,000 m/s^2 max. Malfunction: 300 m/s^2 max.
Ambient operating temperature		–40 to 85 °C (with no icing)
Ambient operating humidity		95% max. (for 5 to 35°C)
Degree of protection		IEC IP67 (excluding the terminals on terminal models)
Degree of protection against electric shock		Class I
Proof tracking index (PTI)		175
Life expectancy	**Mechanical (30 operations/min)**	500,000 operations min.
	Electrical (20 operations/min)	200,000 operations min. (at 30 VDC 0.1 A) 500,000operations min. (at 14 VDC 10 mA)
Weight		Approx. 0.7 g (for pin plunger models with terminals)

Note: 1. Data shown are of initial value.

2. For pin plunger models, the above values apply for use at the free position, operating position, and total travel position. For models with levers, the values apply at the total travel position.

■ Ratings

Rated voltage (V)	Resistive load
30 VDC	0.1 A
14 VDC	10 mA

Note: The resistive load ratings apply under the following test conditions:
Ambient Temperature = 20±2°C,
Ambient Humidity = 65±5%,
Operating frequency = 30 operations/min.

■ Contact Specifications

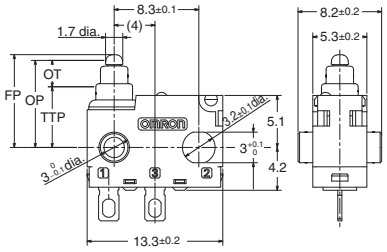
Item	Specification
Specification	Slide
Material	Gold plated
Minimum applicable load (reference value)	1 mA at 5 VDC

Note: Minimum applicable loads are indicated by N standard reference values. This value represents the failure rate at a 60% (λ_{60}) reliability level (JIS C5003).
The equation $\lambda_{60}=0.5 \times 10^{-6}$ / operations indicates that a failure rate of 1/2,000,000 operations can be expected at a reliability level of 60%

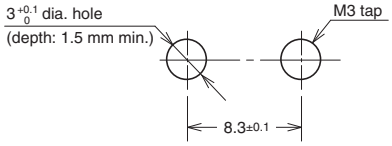
Engineering Data

■ Mounting Structure and Reference Positions for Operating Characteristics

Note: 1. All units are in millimeters unless otherwise indicated.

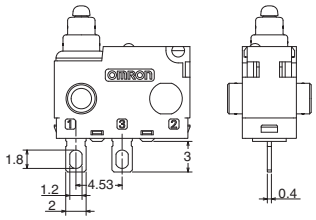


Mounting Hole Dimensions (Reference)



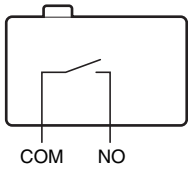
■ Terminals

Terminal (H)



■ Contact Form

SPST-NO

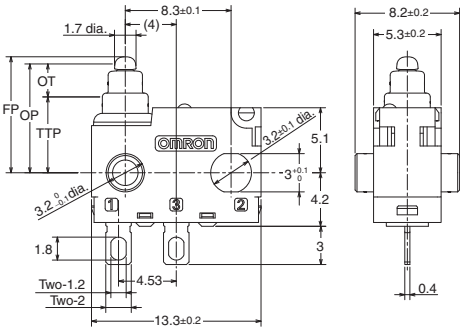


Dimensions and Operating Characteristics

Note: 1. All units are in millimeters unless otherwise indicated.

Pin Plunger Models

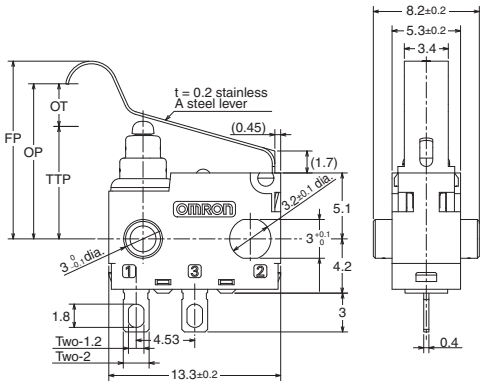
D2QW-C003F



Characteristic	Models with posts
OF max.	1.5 N {153 gf}
OT ref.	(2.7 mm)
FP max. **OP** **TTP max.**	9.2 mm 8.4±0.3 mm 5.9 mm

Simulated Roller Leaf Lever Models

D2QW-C073H



Characteristic	Models with posts
OF max.	1.5 N {153 gf}
OT ref.	(3.5 mm)
FP max. **OP** **TTP max.**	14.4 mm 12.0±0.5 mm 8.7 mm

Precautions

Be sure to read the precautions and information common to all Snap Action and Detection Switches, contained in the Technical User's Guide, "Snap Action Switches, Technical Information" for correct use.

■ Cautions

Degree of Protection

IEC Publication 529, degree of protection IP67.

Do not use this product in water. Although molded lead wire models satisfy the test conditions for the standard given above, this test is to check the ingress of water into the switch enclosure after submerging the Switch in water for a given time. Satisfying this test condition does not mean that the Switch can be used in water.

Do not operate the Switch when it is exposed to water spray, or when water drops adhere to the Switch surface, or during sudden temperature changes, otherwise water may intrude into the interior of the Switch due to a suction effect.

Prevent the Switch from coming into contact with oil and chemicals. Otherwise, damage to or deterioration of Switch materials may result.

Do not use the Switch in areas where it is exposed to silicon adhesives, oil, or grease, otherwise faulty contact may result due to the generation of silicon oxide.

Soldering

When soldering the lead wire to the terminal, first insert the lead wire conductor through the terminal hole and then conduct soldering.

Complete soldering within 3 s using a soldering iron with a capacity of 50 W max. and a tip temperature of 300 °C max.

Also, do not apply an external force to the Switch for 1 minute after the completion of soldering.

Improper soldering involving an excessively high temperature or excessive soldering time may deteriorate the characteristics of the Switch.

When using automatic soldering, solder at at 260 °C max and complete soldering with 5 seconds.

Side-actuated (Cam/Dog) Operation

When using a cam or dog to operate the Switch, factors such as the operating speed, operating frequency, push-button indentation, and material and shape of the cam or dog will affect the durability of the Switch. Confirm performance specifications under actual operation conditions before using the Switch in applications.

■ Correct Use

Mounting

Turn OFF the power supply before mounting or removing the Switch, wiring, or performing maintenance or inspection. Failure to do so may result in electric shock or burning.

For M3-screw mounting models, use M3 mounting screws with plane washers or spring washers to securely mount the Switch. Tighten the screws to a torque of 0.29 N·m {3 kgf·cm}. Exceeding the specified torque may result in deterioration of the sealing or damage.

For models with posts, secure the posts by thermal caulking or by pressing into an attached device. When pressed into an attached device, provide guides on the opposite ends of the posts to ensure that they do not fall out or rattle.

Mount the Switch onto a flat surface. Mounting on an uneven surface may cause deformation of the Switch, resulting in faulty operation or damage.

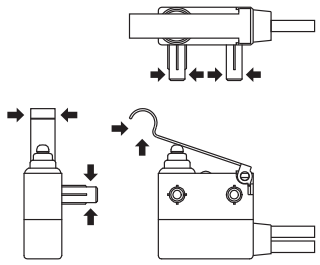
Operating Body

Use an operating body with low frictional resistance and of a shape that will not interfere with the sealing rubber, otherwise the plunger may be damaged or the sealing may deteriorate.

Handling

Do not handle the Switch in a way that may cause damage to the sealing rubber.

When handling the Switch, ensure that pressure is not applied to the posts in the directions shown in the following diagram. Also, ensure that uneven pressure or pressure in a direction other than the operating direction is not applied to the Actuator as shown in the following diagram. Otherwise, the post, Actuator, or Switch may be damaged, or the service life may be reduced.



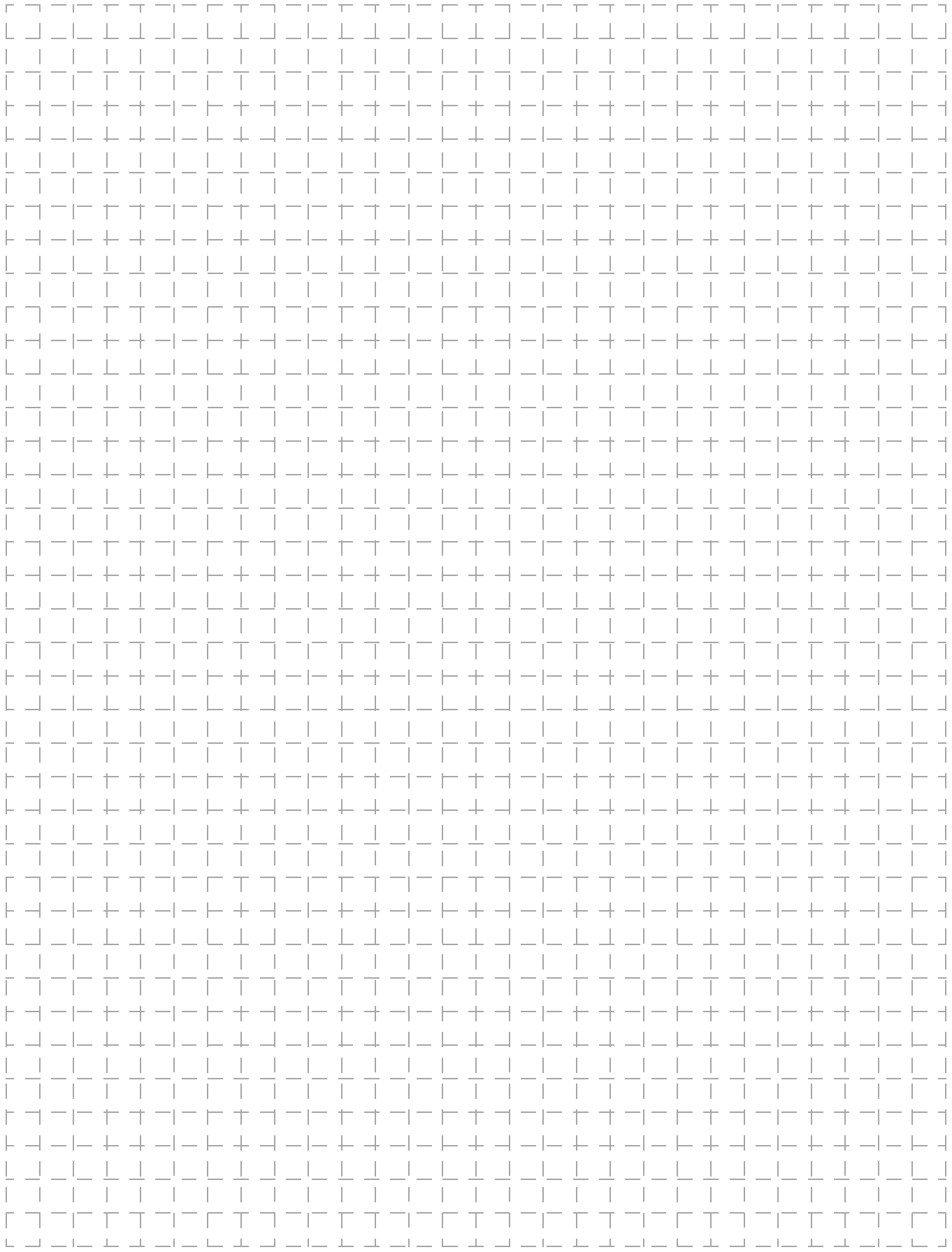
Wiring Molded Lead Wire Models

When wiring molded lead wire models, ensure that there is no weight on the wire or that there are no sharp bends near the parts where the wire is drawn out. Otherwise, damage to the Switch or deterioration in the sealing may result.

Using Micro Loads

Even when using micro load models within the operating range, inrush currents or surges may decrease the life expectancy of the Switch. Therefore, insert a contact protection circuit where necessary.

MEMO



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ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.
To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

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