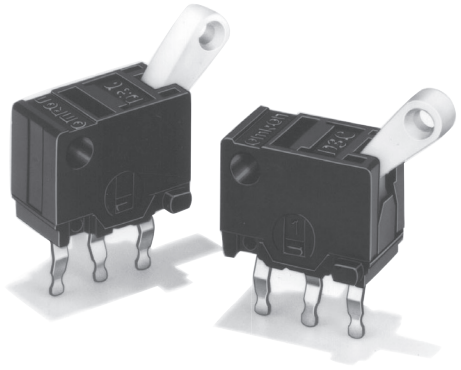
Detection Switch
D3C

Subminiature Detection Switch

- Built-in slide mechanism provides reliable contact
- Choose from shorting or non-shorting switch timing models
- PCB mount switch with 100 milliamp capacity
- Ideal for household appliances, sound equipment, office equipment, communications equipment, etc.
- Compact size
- RoHS Compliant



Ordering Information

Actuator	General Purpose		Low Operating Force	
	Non-shorting Model	Shorting Model	Non-shorting Model	Shorting Model
Pivoting Hinge lever	D3C-1210	D3C-2210	D3C-1220	D3C-2220

Model Number Legend

D3C-□2□0
1 2

1. Switching Timing
   1: Non-shorting (Break-before-make)
   2: Shorting (Make-before-break)

2. Maximum Oprating Force
   1: 130 gf
   2: 40 gf

Specifications

■ Characteristics

Electrical rating	100 mA, 30 VDC (resistive load)
Operating speed	1 to 500 mm/s
Operating frequency	Mechanical: 200 operations per minute, max. Electrical: 30 operations per minute, max.
Contact resistance	50 mΩ max.
Insulation resistance	100 MΩ min. at 250 VDC
Dielectric strength	250 VAC, 50/60 Hz for 1 minute between terminals of same polarity 250 VAC, 50/60 Hz for 1 minute between current-carrying metal parts and ground
Vibration resistance	Malfunction: 10 to 55 Hz, 1.5 mm double amplitude
Shock resistance	Destruction: 1,000 m/s^2 (approx 100G) max. Malfunction: 300 m/s^2 (approx. 30G) max.
Degree of protection	IEC IP00
Degree of protection against electric shock	Class III
Proof tracking index (PTI)	175
Ambient operating temperature	-20° to 80°C (at 60% RH max) with no icing
Ambient operating humidity	85% max. (for 5° to 35°C)
Service life	50,000 operations min. at 30 operations per minute
Weight	Approx. 0.3 g

Note: 1. Data shown are of initial value.

2. The electrical rating applies under the following test conditions:
Ambient Temperature = 20±2°C, Ambient Humidity = 65±5%, Operating frequency = 30 operations/min.

Engineering Data

■ Contact Specifications

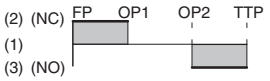
Item	Specification
Specification	Slide
Material	Silver plated
Minimum applicable load (see note)	1 mA at 5 VDC

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).

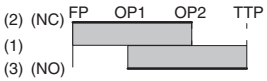
The equation λ_{60}=0.5 x 10^{-6}/operations indicates that a failure rate of 1/2,000,000 operations can be expected at a reliability level of 60%.

■ Switching Timing

Non-shorting Model

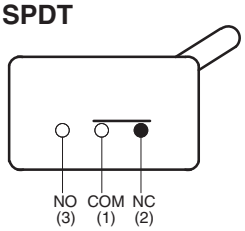


Shorting Model



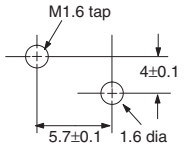
■ Contact Form

SPDT

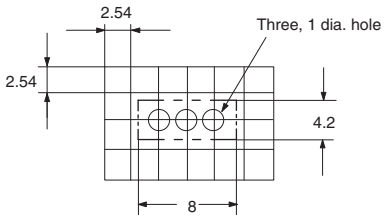


■ Mounting

All D3C switches may be panel mounted using M1.6 mounting screws with plane washers or spring washers to securely mount the switch. Tighten the screws to a torque of 4.9 to 9.8 x 10^{-2} N·m.



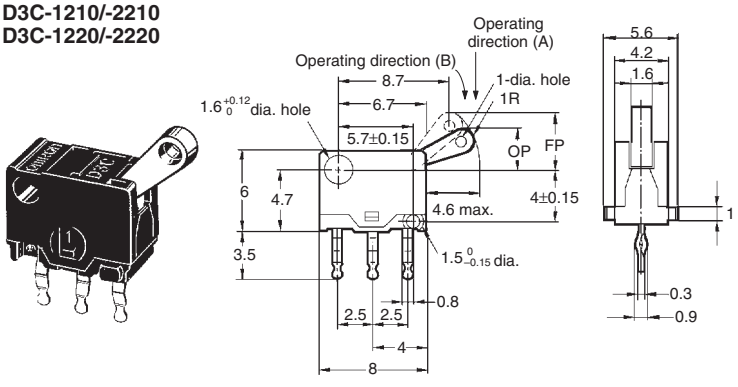
■ PCB Layout (reference)



Dimensions

Note: 1. Unless otherwise specified, all units are in millimeters and a tolerance of ±0.4 mm applies to all dimensions.

D3C-1210/-2210
D3C-1220/-2220



Model	Non-shorting Model		Shorting Model	
	D3C-1210	D3C-1220	D3C-2210	D3C-2220
OF max.	130 gf (100 gf)	40 gf (30 gf)	130 gf (100 gf)	40 gf (30 gf)
RF min.	10 gf (15 gf)	3 g (5 gf)	10 gf (15 gf)	3 g (5 gf)
FP max.	4.8 mm		4.8 mm	
OP1	3.5 ± 0.3 mm		3.4 ± 0.3 mm	
OP2	2.5 ± 0.3 mm		2.6 ± 0.3 mm	
TTP	1.3 ± 0.4 mm		1.3 ± 0.4 mm	

Note: The values for operating characteristics apply for operation in the A direction (⬇). The values in parentheses indicate those for operation in the B direction (⬇).

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.

■ Correct Use

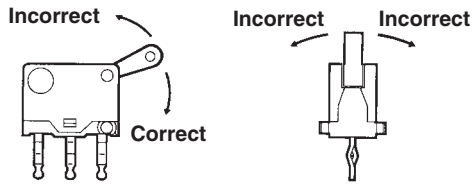
Mounting

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.

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

Application of Operation Force to the Lever

Apply operation forces to the lever in its operating direction. Applying operating force to the lever in any other directions will damage the switch or cause malfunction.

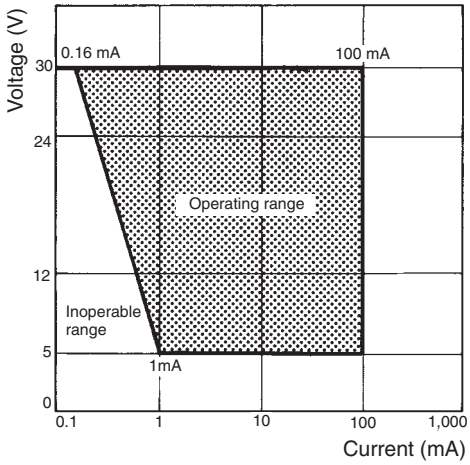


Mounting Plate

Use materials other than ABS or polycarbonate for the mounting plate. Since grease is used within the switch, cracks may be caused if grease from the switch comes in contact with such materials.

Using Microloads

Using a model for ordinary loads to switch microloads may result in faulty operation. Instead, use the models that are designed for microloads and that operate in the following range;



However, even when using microload models within the operating range shown above, if inrush current or inductive voltage spikes occur when the contact is opened or closed, then contact wear may increase and so decrease the service life. Therefore, insert a contact protection circuit where necessary.

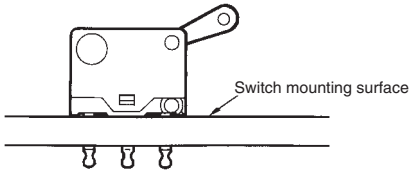
■ Cautions

Terminal Connection

When soldering the lead wire to the terminals, first bind the lead wire to the terminal and then apply the 60(Sn):40(Pb) solder to the terminals. Complete soldering within 5s at a soldering iron temperature of 260°C. Soldering at a temperature exceeding 260°C, soldering for more than 5 s, or repeated soldering will degrade the switch characteristics.

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.

It is also recommended that you apply flux guard to the mounting surface of the switch.



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