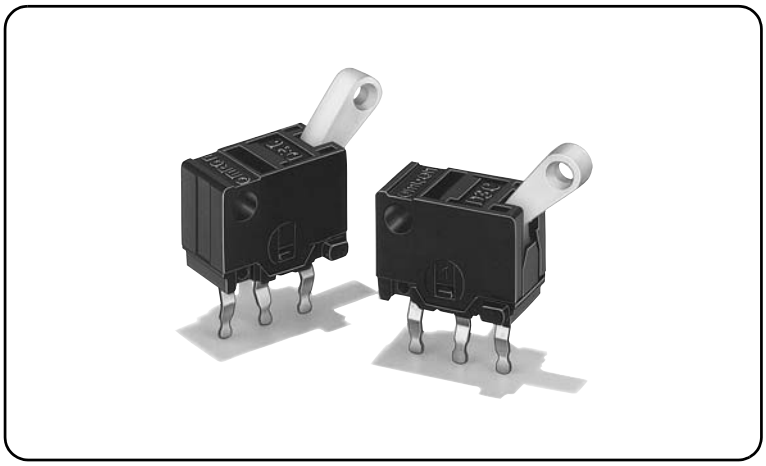
# D3C

## Ultra Subminiature Detection Switch

# Ultra Subminiature Detection Switch with Slide Mechanism and Lever Actuator

- **Compact and light weight with 3-mm long stroke.**
- **Built-in slide mechanism allows selection of shorting or non-shorting switching timing to match the application.**





## Model Number Legend

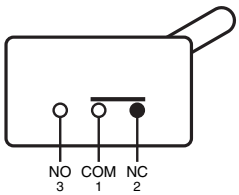
D3C-[1] 2 [2] 0

**1. Switching timing**
1 : Non-shorting Model
2 : Shorting Model

**2. Maximum Operating Force (OF)**
1 : 1.28N {130 gf}
2 : 0.39N {40 gf}

## Contact Form

**●SPDT**




## List of models

| Operating Force (OF) / Switching timing / Actuator | 1.28 N {130 gf} (Standard) | | 0.39 N {40 gf} (Low force) | |
|---|---|---|---|---|
| | Non-shorting | Shorting | Non-shorting | Shorting |
| Rotary lever  | **D3C-1210** | **D3C-2210** | **D3C-1220** | **D3C-2220** |

## Contact Specifications

| | | |
|---|---|---|
| Contact | Specification | Slide |
| | Material | Silver plated |
| Minimum applicable load (reference value) * | | 5 VDC 1 mA |

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

## Ratings

| Rated voltage | Resistive load |
|---|---|
| 30 VDC | 0.1 A |

Note. The above rating values were applied under the following test conditions.
(1) Ambient temperature: 20±2°C
(2) Ambient humidity: 65±5% RH
(3) Operating frequency: 30 operations/min

## Characteristics

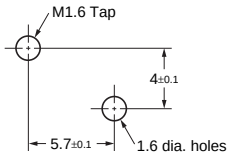
| | | |
|---|---|---|
| Permissible operating speed | | 1 mm to 500 mm/s |
| Permissible operating frequency | Mechanical | 200 operations/min |
| | Electrical | 30 operations/min |
| Insulation resistance | | 100 MΩ min. (at 250 VDC with insulation tester) |
| Contact resistance (initial value) | | 50 mΩ max. |
| Dielectric strength | Between terminals of the same polarity | 250 VAC 50/60 Hz for 1 min |
| | Between current-carrying metal parts and ground | 250 VAC 50/60 Hz for 1 min |
| Vibration resistance *1 | Malfunction | 10 to 55 Hz, 1.5 mm double amplitude |
| Shock resistance | Durability | 1,000 m/s² {approx. 100G} max. |
| | Malfunction *1 | 300 m/s² {approx. 30G}max. |
| Durability *2 | | 50,000 operations min. (30 operations/min) |
| Degree of protection | | IEC IP00 |
| Ambient operating temperature | | -20 to +80°C (at ambient humidity 60% max.) (with no icing or condensation) |
| Ambient operating humidity | | 85% max. (for +5 to +35°C) |
| Weight | | Approx. 0.3g |

Note. The data given above are initial values.
*1. The given values apply for Total Travel Position. Close or open circuit of the contact is 1 ms max.
*2. For testing conditions, consult your OMRON sales representative.



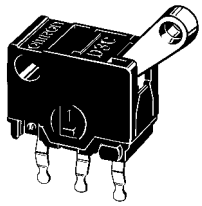
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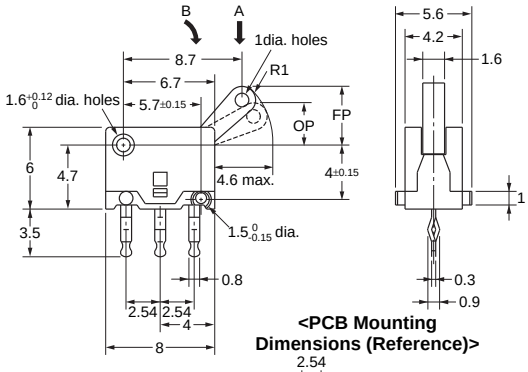
## Mounting Holes (Unit: mm)



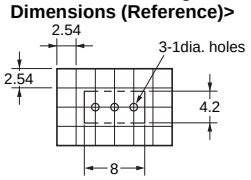

## Dimensions (Unit: mm) and Operating Characteristics

**D3C-1210, D3C-2210**
**D3C-1220, D3C-2220**



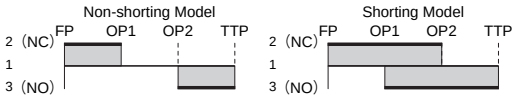



**<PCB Mounting Dimensions (Reference)>**




| Operating Characteristics | Type / Model | Non-Shorting D3C-1210 | Non-Shorting D3C-1220 | Shorting D3C-2210 | Shorting D3C-2220 |
|---|---|---|---|---|---|
| Operating Force | OF Max. | 1.28 N {130 gf} (0.98 N {100 gf}) | 0.39 N {40 gf} (0.29 N {30 gf}) | 1.28 N {130 gf} (0.98 N {100 gf}) | 0.39 N {40 gf} (0.29 N {30 gf}) |
| Releasing Force | RF Min. | 0.10 N {10 gf} (0.15 N {15 gf}) | 0.03 N {3 gf} (0.05 N {5 gf}) | 0.10 N {10 gf} (0.15 N) {15 gf} | 0.03 N {3 gf} (0.05 N {5 gf}) |
| Free Position | FP Max. | 4.8 mm | | 4.8 mm | |
| Operating Position | OP1 | 3.5±0.3 mm | | 3.4±0.3 mm | |
| | OP2 | 2.5±0.3 mm | | 2.6±0.3 mm | |
| Total Travel Position | TTP | 1.3±0.4 mm | | 1.3±0.4 mm | |

Switching timing




Note 1. Unless otherwise specified, a tolerance of ±0.4 mm applies to all dimensions.
Note 2. The values for operating characteristics apply for operation in the A direction (straight line), and the values in parentheses indicate those for operation in the B (rotary) direction for reference.

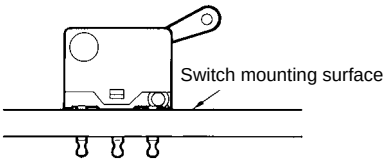
## Precautions

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

### Cautions

**●Soldering**

For soldering time, we recommend to solder within 3 s at a soldering iron temperature of under 350°C. Soldering at a temperature exceeding 350°C, soldering for more than 3 s, or repeated soldering will degrade the Switch characteristics.
Make sure that flux and liquid surface of the solder does not flow over the edge of the board when soldering. Please complete soldering at a temperature of 260°C within 5 s.
It is also recommended that you apply flux guard to the mounting surface of the Switch.



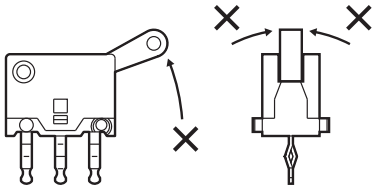

### Correct Use

**●Mounting**

Use M1.6 mounting screw with plane washers or spring washers to securely mount the Switch. Tighten the screws to a torque of 4.9 to 9.8×10$^{-2}$ N·m {0.5 to 1 kgf·cm}.

**●Application of Operation Force to the Lever**

Do not apply loads from any other directions other than operating direction of the lever as shown in the following figure.
It may damage the Switch or cause malfunction.

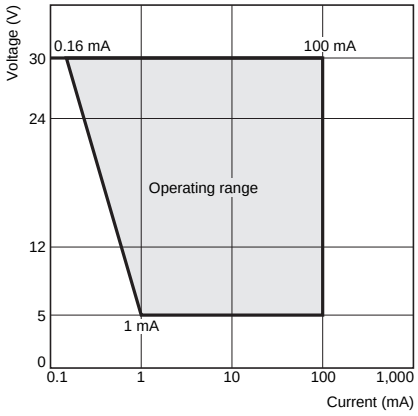


**●Mounting Plate**

Use materials other than ABS or polycarbonate for the mounting plate. Since grease is used for the Switch, it may cause cracks if grease from the Switch comes in contact with such materials.

**●Using Micro Loads**

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% ($\lambda_{60}$). (JIS C5003)
The equation, $\lambda_{60}$=0.5×10$^{-6}$/operation indicates that the estimated malfunction rate is less than $\frac{1}{2{,}000{,}000}$ operations with a reliability level of 60%.






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