

D2HW



Sealed Subminiature Basic Switch

- Conforms to IP67
- Case dimensions 22% smaller than conventional models
- Extra-long stroke, even without levers. Overtravel: 1.4 mm
- All models are lead-free, including lead wire models
- Post or screw mounting options
- Straight or angled PCB, quick-connect, solder, and lead wire terminal types available
- ROHS Compliant

| Part | Rated Resistive Load - Switch | Actuator types | Contact form | Operating Force | Seal type | Termination Style | Service Life - Electrical (Min. @ Rated Loads) |
|---------------------|-------------------------------|----------------|--------------|-----------------|-----------|----------------------------------|--|
| D2HW-A201D | 1A @ 24VDC | Pin plunger | SPDT | 76g | IP67 | Through-Hole PCB - Straight | 100,000 ops |
| D2HW-BL201DL | 1A @ 24VDC | Pin plunger | SPDT | 76g | IP67 | Through-Hole PCB - parallel left | 100,000 ops |
| D2HW-BL201H | 1A @ 24VDC | Pin plunger | SPDT | 76g | IP67 | Solder | 100,000 ops |
| D2HW-BL201M | 1A @ 24VDC | Pin plunger | SPDT | 76g | IP67 | Lead Wires - Bottom exit | 100,000 ops |
| D2HW-BL202M | 1A @ 24VDC | Pin plunger | SPST-NC | 76g | IP67 | Lead Wires - Bottom exit | 100,000 ops |
| D2HW-BL202ML | 1A @ 24VDC | Pin plunger | SPST-NC | 76g | IP67 | Lead Wires - Left Side Exit | 100,000 ops |
| D2HW-BL202MR | 1A @ 24VDC | Pin plunger | SPST-NC | 76g | IP67 | Lead Wires - Right Side Exit | 100,000 ops |
| D2HW-BL203M | 1A @ 24VDC | Pin plunger | SPST-NO | 76g | IP67 | Lead Wires - Bottom exit | 100,000 ops |
| D2HW-BL203ML | 1A @ 24VDC | Pin plunger | SPST-NO | 76g | IP67 | Lead Wires - Left Side Exit | 100,000 ops |
| D2HW-BL203MR | 1A @ 24VDC | Pin plunger | SPST-NO | 76g | IP67 | Lead Wires - Right Side Exit | 100,000 ops |

| | | | | | | | |
|---------------------|------------|-------------|---------|-----|------|-----------------------------------|-------------|
| D2HW-BR201DR | 1A @ 24VDC | Pin plunger | SPDT | 76g | IP67 | Through-Hole PCB - parallel right | 100,000 ops |
| D2HW-BR201H | 1A @ 24VDC | Pin plunger | SPDT | 76g | IP67 | Solder | 100,000 ops |
| D2HW-BR201M | 1A @ 24VDC | Pin plunger | SPDT | 76g | IP67 | Lead Wires - Bottom exit | 100,000 ops |
| D2HW-BR202M | 1A @ 24VDC | Pin plunger | SPST-NC | 76g | IP67 | Lead Wires - Bottom exit | 100,000 ops |
| D2HW-BR202ML | 1A @ 24VDC | Pin plunger | SPST-NC | 76g | IP67 | Lead Wires - Left Side Exit | 100,000 ops |
| D2HW-BR202MR | 1A @ 24VDC | Pin plunger | SPST-NC | 76g | IP67 | Lead Wires - Right Side Exit | 100,000 ops |
| D2HW-BR203M | 1A @ 24VDC | Pin plunger | SPST-NO | 76g | IP67 | Lead Wires - Bottom exit | 100,000 ops |
| D2HW-BR203ML | 1A @ 24VDC | Pin plunger | SPST-NO | 76g | IP67 | Lead Wires - Left Side Exit | 100,000 ops |
| D2HW-BR203MR | 1A @ 24VDC | Pin plunger | SPST-NO | 76g | IP67 | Lead Wires - Right Side Exit | 100,000 ops |
| D2HW-C201H | 1A @ 24VDC | Pin plunger | SPDT | 76g | IP67 | Solder | 100,000 ops |
| D2HW-C201M | 1A @ 24VDC | Pin plunger | SPDT | 76g | IP67 | Lead Wires - Bottom exit | 100,000 ops |
| D2HW-C202M | 1A @ 24VDC | Pin plunger | SPST-NC | 76g | IP67 | Lead Wires - Bottom exit | 100,000 ops |

| Part | Rated Resistive Load - Switch | Actuator types | Contact form | Operating Force | Seal type | Termination Style | Service Life - Electrical (Min. @ Rated Loads) |
|--------------------|-------------------------------|----------------|--------------|-----------------|-----------|------------------------------|--|
| D2HW-C202MR | 1A @ 24VDC | Pin plunger | SPST-NC | 76g | IP67 | Lead Wires - Right Side Exit | 100,000 ops |
| D2HW-C203M | 1A @ 24VDC | Pin plunger | SPST-NO | 76g | IP67 | Lead Wires - Bottom exit | 100,000 ops |
| D2HW-C203MR | 1A @ 24VDC | Pin plunger | SPST-NO | 76g | IP67 | Lead Wires - Right Side Exit | 100,000 ops |
| D2HW-A211D | 1A @ 24VDC | Hinge lever | SPDT | 76g | IP67 | Through-Hole PCB - Straight | 100,000 ops |
| D2HW- | 1A @ | Hinge | SPDT | 76g | IP67 | Through- | 100,000 |

Sealed Subminiature Snap Action Switch D2HW








Smallest Sealed Snap-Action Switch in the Industry With a Long Stroke For Reliable ON/OFF Action

- Conforms to IP67 (lead wire type) and IP50 (terminal type)
- Case dimensions 22% smaller than conventional models
- Extra-long stroke even without levers (OT: 1.4 mm)
- All models are lead-free, including lead wire models
- RoHS Compliant







Ordering Information

■ PCB-MOUNTED MODELS










| Actuator | Terminals | | Contact form | Model | | |
|---|-----------|----------|--------------|---|---|--|
| | | | | With posts on right  | With posts on left  | Without posts  |
| Pin plunger  | For PCB | Straight | SPDT | --- | --- | D2HW-A201D |
| | | Angled | | D2HW-BR201DR | D2HW-BL201DL | --- |
| Hinge lever  | | Straight | | --- | --- | D2HW-A211D |
| | | Angled | | D2HW-BR211DR | D2HW-BL211DL | --- |
| Long hinge lever  | | Straight | | --- | --- | D2HW-A221D |
| | | Angled | | D2HW-BR221DR | D2HW-BL221DL | --- |
| Simulated roller lever  | | Straight | | --- | --- | D2HW-A231D |
| | | Angled | | D2HW-BR231DR | D2HW-BL231DL | --- |

■ MODELS WITH SOLDER TERMINALS OR LEAD WIRE TERMINALS

| Actuator | Terminals | | Contact form | Model | | |
|--|-----------|-----------|--------------|---|---|--|
| | | | | With posts on right  | With posts on left  | M3-screw mounting  |
| Pin plunger  | Solder | | SPDT | D2HW-BR201H | D2HW-BL201H | D2HW-C201H |
| | Lead wire | Downwards | SPDT | D2HW-BR201M | D2HW-BL201M | D2HW-C201M |
| | | | SPST-NC | D2HW-BR202M | D2HW-BL202M | D2HW-C202M |
| | | | SPST-NO | D2HW-BR203M | D2HW-BL203M | D2HW-C203M |





(This table continues on the next page.)

Ordering Information - continued from previous page

| Actuator | Terminals | | Contact form | Model | | |
|---|-----------|------------|--------------|--|---|--|
| | | | | With posts on right  | With posts on left  | M3-screw mounting  |
| Pin plunger  | Lead wire | Right-side | SPST-NC | D2HW-BR202MR | D2HW-BL202MR | D2HW-C202MR |
| | | | SPST-NO | D2HW-BR203MR | D2HW-BL203MR | D2HW-C203MR |
| | | Left-side | SPST-NC | D2HW-BR202ML | D2HW-BL202ML | --- |
| | | | SPST-NO | D2HW-BR203ML | D2HW-BL203ML | --- |
| Hinge lever  | Solder | | SPDT | D2HW-BR211H | D2HW-BL211H | D2HW-C211H |
| | Lead wire | Downwards | SPDT | D2HW-BR211M | D2HW-BL211M | D2HW-C211M |
| | | | SPST-NC | D2HW-BR212M | D2HW-BL212M | D2HW-C212M |
| | | | SPST-NO | D2HW-BR213M | D2HW-BL213M | D2HW-C213M |
| | | Right-side | SPST-NC | D2HW-BR212MR | D2HW-BL212MR | D2HW-C212MR |
| | | | SPST-NO | D2HW-BR213MR | D2HW-BL213MR | D2HW-C213MR |
| | | Left-side | SPST-NC | D2HW-BR212ML | D2HW-BL212ML | --- |
| | SPST-NO | | D2HW-BR213ML | D2HW-BL213ML | --- | |
| Long hinge lever  | Solder | | SPDT | D2HW-BR221H | D2HW-BL221H | D2HW-C221H |
| | Lead wire | Downwards | SPDT | D2HW-BR221M | D2HW-BL221M | D2HW-C221M |
| | | | SPST-NC | D2HW-BR222M | D2HW-BL222M | D2HW-C222M |
| | | | SPST-NO | D2HW-BR223M | D2HW-BL223M | D2HW-C223M |
| | | Right-side | SPST-NC | D2HW-BR222MR | D2HW-BL222MR | D2HW-C222MR |
| | | | SPST-NO | D2HW-BR223MR | D2HW-BL223MR | D2HW-C223MR |
| | | Left-side | SPST-NC | D2HW-BR222ML | D2HW-BL222ML | --- |
| | SPST-NO | | D2HW-BR223ML | D2HW-BL223ML | --- | |
| Simulated roller lever  | Solder | | SPDT | D2HW-BR231H | D2HW-BL231H | D2HW-C231H |
| | Lead wire | Downwards | SPDT | D2HW-BR231M | D2HW-BL231M | D2HW-C231M |
| | | | SPST-NC | D2HW-BR232M | D2HW-BL232M | D2HW-C232M |
| | | | SPST-NO | D2HW-BR233M | D2HW-BL233M | D2HW-C233M |
| | | Right-side | SPST-NC | D2HW-BR232MR | D2HW-BL232MR | D2HW-C232MR |
| | | | SPST-NO | D2HW-BR233MR | D2HW-BL233MR | D2HW-C233MR |
| | | Left-side | SPST-NC | D2HW-BR232ML | D2HW-BL232ML | --- |
| | SPST-NO | | D2HW-BR233ML | D2HW-BL233ML | --- | |
| Leaf lever  | Solder | | SPDT | D2HW-BR261H | D2HW-BL261H | D2HW-C261H |
| | Lead wire | Downwards | SPDT | D2HW-BR261M | D2HW-BL261M | D2HW-C261M |
| | | | SPST-NC | D2HW-BR262M | D2HW-BL262M | D2HW-C262M |
| | | | SPST-NO | D2HW-BR263M | D2HW-BL263M | D2HW-C263M |
| | | Right-side | SPST-NC | D2HW-BR262MR | D2HW-BL262MR | D2HW-C262MR |
| | | | SPST-NO | D2HW-BR263MR | D2HW-BL263MR | D2HW-C263MR |
| | | Left-side | SPST-NC | D2HW-BR262ML | D2HW-BL262ML | --- |
| | SPST-NO | | D2HW-BR263ML | D2HW-BL263ML | --- | |
| Simulated leaf lever  | Solder | | SPDT | D2HW-BR271H | D2HW-BL271H | D2HW-C271H |
| | Lead wire | Downwards | SPDT | D2HW-BR271M | D2HW-BL271M | D2HW-C271M |
| | | | SPST-NC | D2HW-BR272M | D2HW-BL272M | D2HW-C272M |
| | | | SPST-NO | D2HW-BR273M | D2HW-BL273M | D2HW-C273M |
| | | Right-side | SPST-NC | D2HW-BR272MR | D2HW-BL272MR | D2HW-C272MR |
| | | | SPST-NO | D2HW-BR273MR | D2HW-BL273MR | D2HW-C273MR |
| | | Left-side | SPST-NC | D2HW-BR272ML | D2HW-BL272ML | --- |
| | SPST-NO | | D2HW-BR273ML | D2HW-BL273ML | --- | |

(This table continues on the next page.)

Ordering Information - continued from previous page

| Actuator | Terminals | | Contact form | Model | | |
|--|-----------|------------|--------------|---|---|--|
| | | | | With posts on right  | With posts on left  | M3-screw mounting  |
| Long leaf lever  | Lead wire | Downwards | SPDT | D2HW-BR281M | D2HW-BL281M | D2HW-C281M |
| | | | SPST-NC | D2HW-BR282M | D2HW-BL282M | D2HW-C282M |
| | | | SPST-NO | D2HW-BR283M | D2HW-BL283M | D2HW-C283M |
| | | Right-side | SPST-NC | --- | --- | D2HW-C282MR |
| | | | SPST-NO | --- | --- | D2HW-C283MR |

Note: 1. The length of standard lead wires (AWG20) for lead wire models is 30 cm (12 in).

Note: 2. Optional post length (1.5 mm on left or right) also available. Contact your Omron representative for more information.

Specifications

CHARACTERISTICS

| Item | Specification |
|---|---|
| Operating speed | 1 mm to 500 mm/s (for pin plunger models) |
| Operating frequency | 30 operations/min |
| Insulation resistance | 100 MΩ min. (at 500 VDC) |
| Contact resistance (initial value) | 100 mΩ max. (lead wire models: 150 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 | Malfunction: 10 to 55 Hz, 1.5-mm double amplitude |
| Shock resistance | Malfunction: 300 m/s ² max. |
| Life expectancy | Mechanical: 1,000,000 operations min. (30 operations/min) Electrical: 100,000 operations min. (20 operations/min) |
| Degree of protection | IP67 for lead wire type, IP50 for terminal type |
| Degree of protection against electric shock | Class I |
| Proof tracking index (PTI) | 175 |
| Switch category | A (IEC 335) |
| Ambient operating temperature | -40 to 85°C (with no icing) |
| Ambient operating humidity | 95% max. (in temperature range 5° to 35°C) |
| Weight | Approx. 0.7 g (for pin plunger models with terminals) |

OPERATING CHARACTERISTICS

| Part number | D2HW-□20□□ | | D2HW-□21□□ | | D2HW-□22□□ | |
|-------------|----------------------|--|----------------------|--|----------------------|--|
| | Models without posts | Models with posts and M3-mounting models | Models without posts | Models with posts and M3-mounting models | Models without posts | Models with posts and M3-mounting models |
| OF max. | 76 gf | | 76 gf | | 50 g | |
| RF min. | 10 gf | | 7 gf | | 3 gf | |
| MD max. | 0.25 mm | | 0.5 mm | | 0.8 mm | |
| OT ref. | 1.4 mm | | 1.6 mm | | 2.5 mm | |
| FP max. | 11.2 mm | 7.2 mm | 12.8 mm | 8.8 mm | 15.5 mm | 11.5 mm |
| OP | 10.4±0.2 mm | 6.4±0.2 mm | 11.5±0.5 mm | 7.5±0.5 mm | 13.3±0.8 mm | 9.3±0.8 mm |
| TTP max. | 9.1 mm | 5.1 mm | 10 mm | 6 mm | 11 mm | 7 mm |

Operating Characteristics - continued from previous page

| Part number | D2HW-□23□□ | | D2HW-□26□□ | D2HW-□27□□ | D2HW-□28□□ |
|----------------|----------------------|--|--|--|--|
| Characteristic | Models without posts | Models with posts and M3-mounting models | Models with posts and M3-mounting models | Models with posts and M3-mounting models | Models with posts and M3-mounting models |
| OF max. | 66 gf | | 183 gf | 183 gf | 92 gf |
| RF min. | 5 gf | | 20 gf | 20 gf | 5 gf |
| MD max. | 0.5 mm | | 0.2 mm | 0.5 mm | 0.7 mm |
| OT ref. | 1.9 mm | | 1.8 mm | 2.0 mm | 2.8 mm |
| FP max. | 16.5 mm | 12.5 mm | 9.3 mm | 12.5 mm | 19 mm |
| OP | 15.2±0.5 mm | 11.2±0.5 mm | 7.4±0.5 mm | 10.8±0.5 mm | 15.4±1.5 mm |
| TTP max. | 13.5 mm | 9.5 mm | 5.8 mm | 8.9 mm | 12.8 mm |

RATINGS

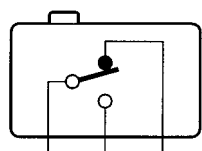
| Rated voltage (V) | Resistive load |
|-------------------|----------------|
| 12 VDC | 2 A |
| 24 VDC | 1 A |
| 42 VDC | 0.5 A |

| | |
|------------------------------------|---------------|
| 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 $\lambda_{60}=0.5 \times 10^{-6}/\text{operations}$ indicates that a failure rate of 1/2,000,000 operations can be expected at a reliability level of 60%.

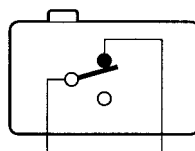
CONTACT FORM

SPDT Contacts



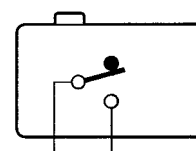
COM (Black) NO (Blue) NC (Red)

SPST-NC Contacts (Lead Wire Models)



COM (Black) NC (Red)

SPST-NO Contacts (Lead Wire Models)



COM (Black) NO (Blue)

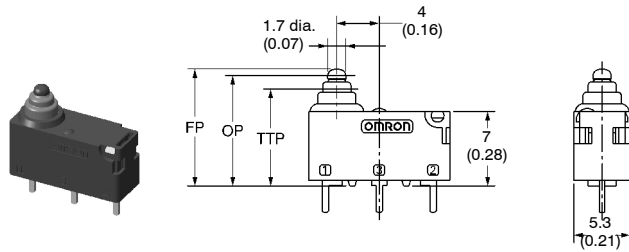
Note: Lead wire colors are indicated in parentheses.

Dimensions

Unit: mm (inch)

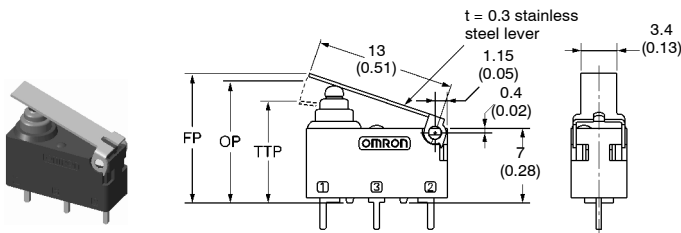
■ PIN PLUNGER

D2HW-□20□□



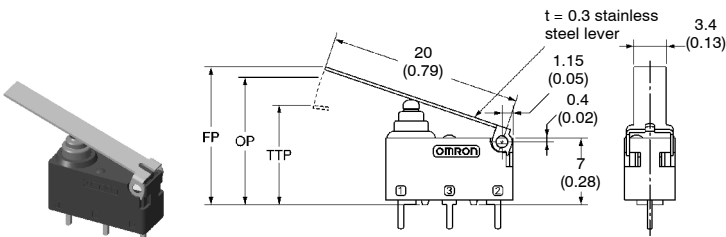
■ HINGE LEVER

D2HW-□21□□



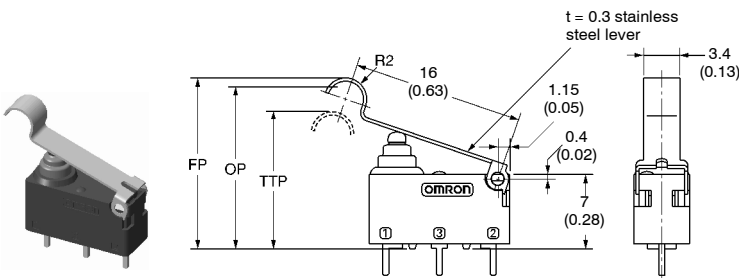
■ LONG HINGE LEVER

D2HW-□22□□



■ SIMULATED ROLLER LEVER

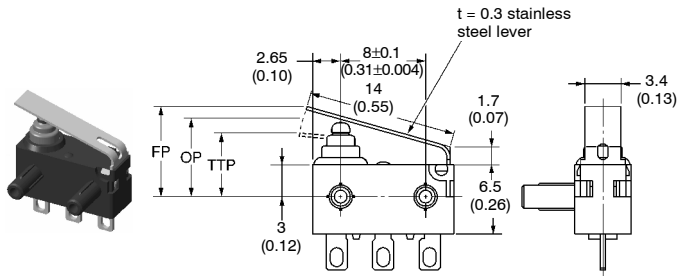
D2HW-□23□□



Unit: mm (inch)

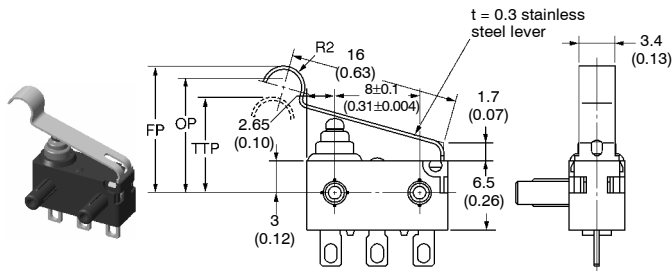
■ LEAF LEVER

D2HW-□26□□



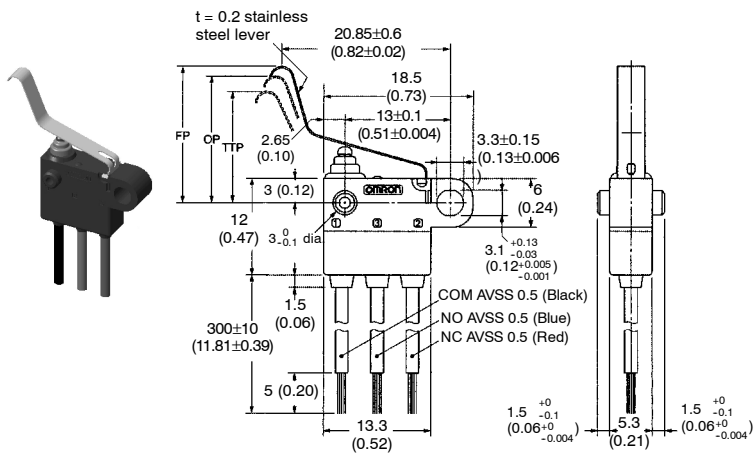
■ SIMULATED LEAF LEVER

D2HW-□27□□



■ LONG LEAF LEVER

D2HW-□28□□

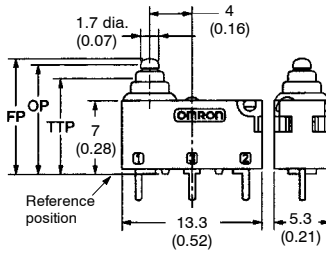


Note: Dimensions not indicated in the above diagrams have a tolerance of ± 0.2 mm.

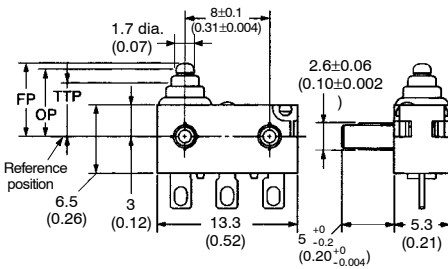
■ MOUNTING STRUCTURE AND REFERENCE POSITIONS

The reference positions used for FP, OP, and TTP values are as shown below for each type of mounting.

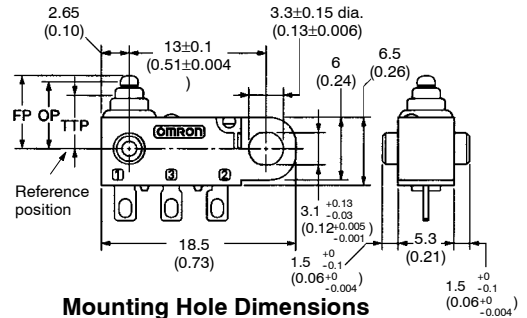
D2HW-A □ Models without Posts



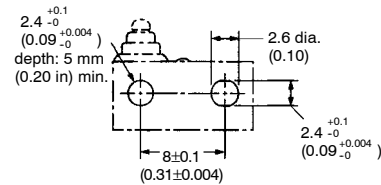
D2HW-B □ Models with Posts



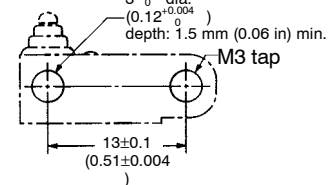
D2HW-C □ M3-screw Mounting Models



Mounting Hole Dimensions (Reference)

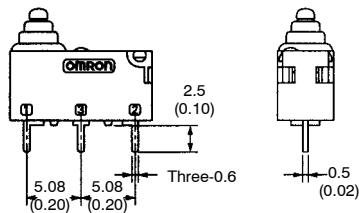


Mounting Hole Dimensions (Reference)

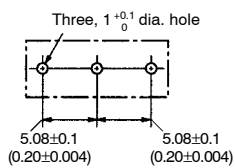


■ TERMINALS

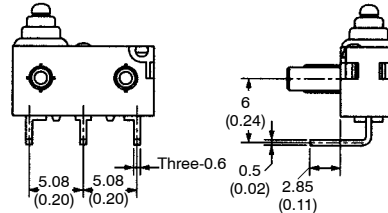
Straight PCB Terminals



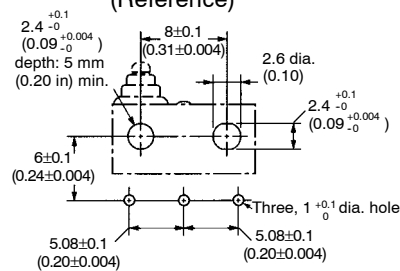
PCB Cutout Dimensions (Reference)



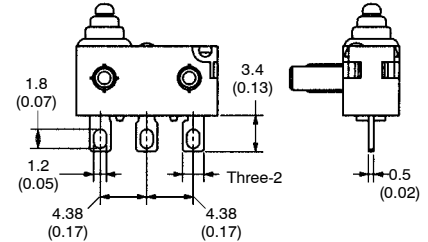
Angled PCB Terminals



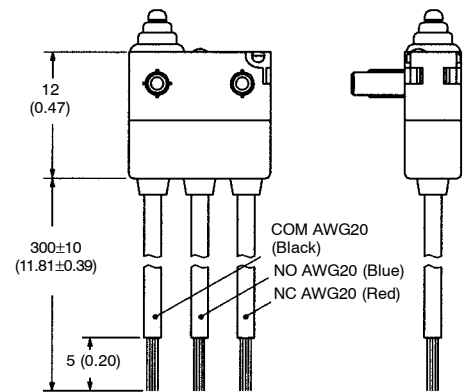
PCB Cutout Dimensions (Reference)



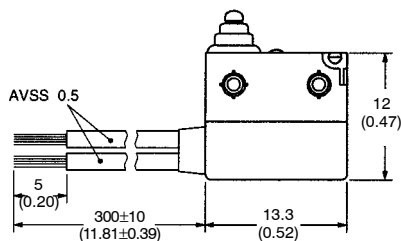
Solder Terminals



Lead Wires Downwards



Lead Wires on Left-side



Lead Wires on Right-side

