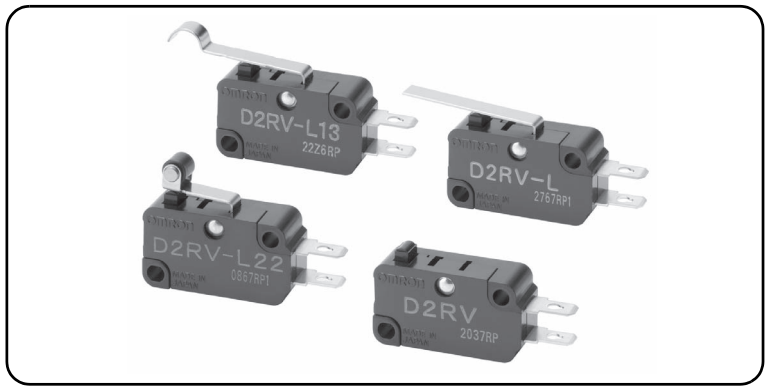
# D2RV

## Miniature Basic Switch

# High Reliability for Micro Load Applications, Even in Adverse Atmospheres (Dust, High Humidity, Silicon Gas, etc.)




- **The reed switch offers exceptional contact reliability in micro load applications.**
- **Same mounting pitch as for the V Miniature Basic Switch.**
- **High durability with a bounce time of 1 ms max.**

**RoHS Compliant**



## Model Number Legend

D2RV-[1][2]

**1. Actuator**

None : Pin plunger model
L11 : Short hinge lever
L : Hinge lever
L13 : Simulated roller lever
L22 : Short hinge roller lever
L2 : Hinge roller lever

**2. Maximum Operating Force (OF)**

None : 0.49 N {50 gf}
E : 0.25 N {25 gf}
(for pin plungers only)
G : 0.98 N {100 gf}

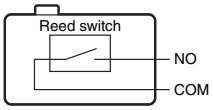
Note. These values are for the pin plunger models.

## List of Models

| Actuator | Maximum Operating Force (OF) | Model |
|---|---|---|
| Pin plunger | 0.25 N {25 gf} | **D2RV-E** |
| | 0.49 N {50 gf} | **D2RV** |
| | 0.98 N {100 gf} | **D2RV-G** |
| Short hinge lever | 0.49 N {50 gf} | **D2RV-L11** |
| | 0.98 N {100 gf} | **D2RV-L11G** |
| Hinge lever | 0.25 N {25 gf} | **D2RV-L** |
| | 0.49 N {50 gf} | **D2RV-LG** |
| Simulated roller lever | 0.25 N {25 gf} | **D2RV-L13** |
| | 0.49 N {50 gf} | **D2RV-L13G** |
| Short hinge roller lever | 0.49 N {50 gf} | **D2RV-L22** |
| | 0.98 N {100 gf} | **D2RV-L22G** |
| Hinge roller lever | 0.25 N {25 gf} | **D2RV-L2** |
| | 0.49 N {50 gf} | **D2RV-L2G** |

## Contact Form

**●SPST-NO**




## Ratings

| | |
|---|---|
| Switching voltage | 100 VDC (max.) |
| Switching current | 0.25 ADC (max.) |
| Contact capacity | 10 WDC (max.) |

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

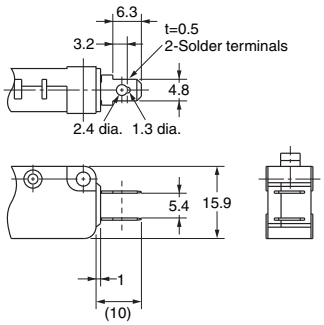
## Characteristics

| | | |
|---|---|---|
| Permissible operating speed | | 0.1mm to 1 m/s (for pin plunger models) |
| Permissible operating frequency | Mechanical | 200 operations/min |
| | Electrical | 200 operations/min |
| Insulation resistance | | 100 MΩ min. (at 500 VDC with insulation tester) |
| Contact resistance (initial value) | | 150 mΩ max. |
| Dielectric strength * 1 | Between terminals of the same polarity | 200 VDC 1 min |
| | Between current-carrying metal parts and ground | 500 VAC 50/60 Hz for 1 min |
| | Between each terminal and non-current-carrying metal parts | 500 VAC 50/60 Hz for 1 min |
| Vibration resistance * 2 | Malfunction | 10 to 55 Hz, 1.5 mm double amplitude |
| Shock resistance | Destruction | 500 m/s² {approx. 50G} max. |
| | Malfunction * 2 | 200 m/s² {approx. 20G} max. |
| Durability * 3 | Mechanical | 10,000,000 operations min. (60 operations/min) |
| | Electrical | 3,000,000 operations min. (30 operations/min) |
| Degree of protection | | IEC IP40 |
| Ambient operating temperature | | −10°C to +60°C (at ambient humidity of 60% max.) (with no icing or condensation) |
| Ambient operating humidity | | 80% max. (for +5°C to +35°C) |
| Weight | | Approx. 7g (for pin plunger models) |

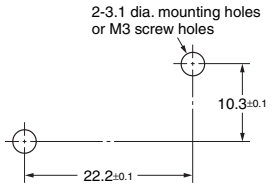
Note. The data given above are initial values.
*1. The values for dielectric strength shown are for models with a Separator (refer to "**Basic Switch Common Accessories**").
*2. For the pin plunger models, the above values apply for use at the free position and total travel position. For the lever models, they apply at the total travel position. Close or open circuit of the contact is 1ms max.
*3. For testing conditions, consult your OMRON sales representative.

Separator (Sold Separately), Actuator (Sold Separately), Terminal Connector (Sold Separately) ➡ Refer to **"Basic Switch Common Accessories"**

## Terminals/Appearances (Unit:mm)



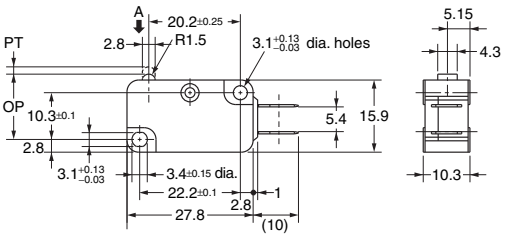

## Mounting Holes (Unit: mm)





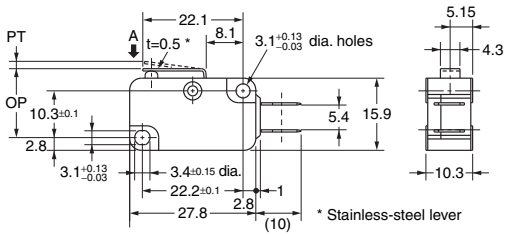

## Dimensions (Unit: mm) /Operating Characteristics

### ●Pin Plunger
**D2RV-E**
**D2RV**
**D2RV-G**

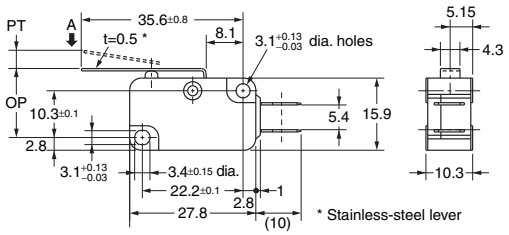

| Operating characteristics \ Model | | D2RV-E | D2RV | D2RV-G |
|---|---|---|---|---|
| Operating Force | OF Max. | 0.25 N {25 gf} | 0.49 N {50 gf} | 0.98 N {100 gf} |
| Pretravel | PT Max. | 1.6 mm | | |
| Overtravel | OT Min. | 0.6 mm | | |
| Movement Differential | MD Max. | 0.8 mm | | |
| Operating Position | OP | 14.4±0.6 mm | | |

### ●Short Hinge Lever
**D2RV-L11**
**D2RV-L11G**

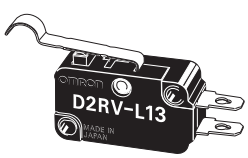

| Operating characteristics \ Model | | D2RV-L11 | D2RV-L11G |
|---|---|---|---|
| Operating Force | OF Max. | 0.49 N {50 gf} | 0.98 N {100 gf} |
| Pretravel | PT Max. | 1.8 mm | |
| Overtravel | OT Min. | 0.4 mm | |
| Movement Differential | MD Max. | 1.0 mm | |
| Operating Position | OP | 15.0±0.6 mm | |

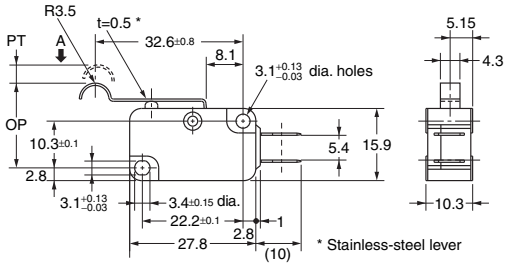
### ●Hinge Lever Models
**D2RV-L**
**D2RV-LG**


| Operating characteristics \ Model | | D2RV-L | D2RV-LG |
|---|---|---|---|
| Operating Force | OF Max. | 0.25 N {25 gf} | 0.49 N {50 gf} |
| Pretravel | PT Max. | 4.0 mm | |
| Overtravel | OT Min. | 1.0 mm | |
| Movement Differential | MD Max. | 1.6 mm | |
| Operating Position | OP | 14.4±1.2 mm | |

### ●Simulated Roller Lever Models
**D2RV-L13**
**D2RV-L13G**



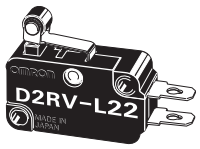



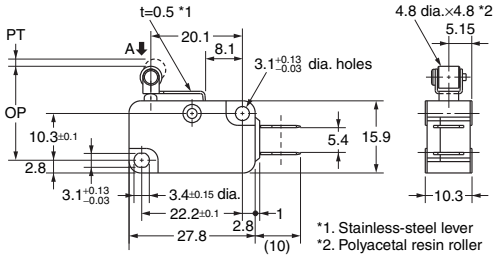

| Operating characteristics \ Model | | D2RV-L13 | D2RV-L13G |
|---|---|---|---|
| Operating Force | OF Max. | 0.25 N {25 gf} | 0.49 N {50 gf} |
| Pretravel | PT Max. | 4.0 mm | |
| Overtravel | OT Min. | 1.0 mm | |
| Movement Differential | MD Max. | 1.6 mm | |
| Operating Position | OP | 18.1±1.2 mm | |

Note 1. Unless otherwise specified, a tolerance of ±0.4 mm applies to all dimensions.
Note 2. The operating characteristics are for operation in the A direction ( ⬇ ).

### ●Short Hinge Roller Lever Models

**D2RV-L22**
**D2RV-L22G**

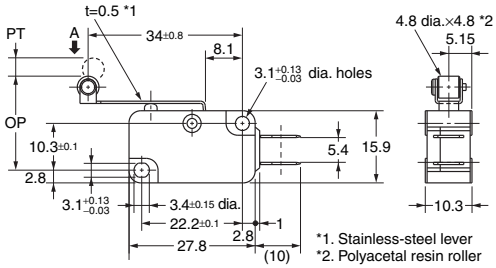



| Operating characteristics \ Model | | | D2RV-L22 | D2RV-L22G |
|---|---|---|---|---|
| Operating Force | OF | Max. | 0.49 N {50 gf} | 0.98 N {100 gf} |
| Pretravel | PT | Max. | 1.8 mm | |
| Overtravel | OT | Min. | 0.4 mm | |
| Movement Differential | MD | Max. | 1.0 mm | |
| Operating Position | OP | | 20.4±0.6 mm | |

### ●Hinge Roller Lever Models

**D2RV-L2**
**D2RV-L2G**


| Operating characteristics \ Model | | | D2RV-L2 | D2RV-L2G |
|---|---|---|---|---|
| Operating Force | OF | Max. | 0.25 N {25 gf} | 0.49 N {50 gf} |
| Pretravel | PT | Max. | 4.0 mm | |
| Overtravel | OT | Min. | 1.0 mm | |
| Movement Differential | MD | Max. | 1.6 mm | |
| Operating Position | OP | | 19.9±1.2 mm | |

Note 1. Unless otherwise specified, a tolerance of ±0.4 mm applies to all dimensions.
Note 2. The operating characteristics are for operation in the A direction (⬇).

## Precautions

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

### Cautions

**●Handling**

Do not drop the Switch or apply strong shock. It may result in internal mechanism damages and may deteriorate the characteristics of the inner Reed Switch.

**●Effect of the External Vibration**

When a vibration of 1 kHz or higher is applied, note that false switching operations may occur due to resonant frequency, even with a low acceleration.

**●Soldering**

- Terminal connections
  Complete the soldering at the iron tip temperature between 250 to 350°C (60W) within 5 seconds, and do not apply any external force for 1 minute after soldering.
  Apply minimum amount of flux required. It may result in contact failure once the flux penetrates into the internal part of the Switch.

### Correct Use

**●Effect of the External Magnetic Fields**

- If two or more switch units are closely installed, mutual interference due to the fringing field will occur, resulting in malfunction. Be sure to keep the gap between the switch units 8 mm or more.
- If you install the switch unit on the iron plate, each operating characteristic will change. Therefore, confirm that the interval between the switch units should be 2 mm or more.
- Do not use the switch in some area where a strong external magnetic field would be applied, otherwise malfunction will be caused.
- Use nonmagnetic brass or stainless steel (SUS304 alloy) screws for installation. Do not use any iron screw.

- Application examples provided in this document are for reference only. In actual applications, confirm equipment functions and safety before using the product.
- Consult your OMRON representative before using the product under conditions which are not described in the manual or applying the product to nuclear control systems, railroad systems, aviation systems, vehicles, combustion systems, medical equipment, amusement machines, safety equipment, and other systems or equipment that may have a serious influence on lives and property if used improperly. Make sure that the ratings and performance characteristics of the product provide a margin of safety for the system or equipment, and be sure to provide the system or equipment with double safety mechanisms.

**Note: Do not use this document to operate the Unit.**

**OMRON Corporation**
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