

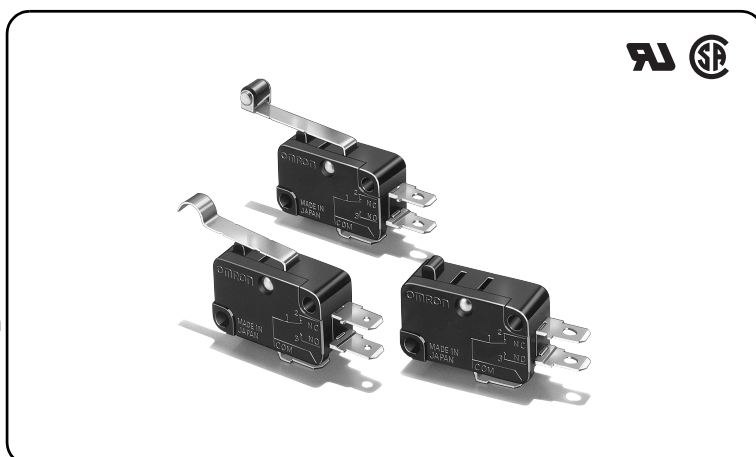


## Miniature Basic Switch

### Miniature Basic Switch that Offers High Reliability and Security

- Wide variation of best-selling microswitches with switching currents of 10 to 21 A.
- Can be used for interrupting current when doors are opened or closed.
- Available in two types of cases: thermoplastic resin and thermosetting resin.
- Indium contact models available for DC load

RoHS Compliant



### Model Number Legend

| V-12-3456                    |  |  |                                                    |  |  |
|------------------------------|--|--|----------------------------------------------------|--|--|
| <b>1. Ratings</b>            |  |  | <b>4. Terminals</b>                                |  |  |
| 21: 21 A at 250 VAC          |  |  | A : Solder terminals                               |  |  |
| 16: 16 A at 250 VAC          |  |  | C2 : Quick-connect terminals (#187)                |  |  |
| 15: 15 A at 250 VAC          |  |  | C : Quick-connect terminals (#250)                 |  |  |
| 10: 10 A at 250 VAC          |  |  | <b>5. Maximum Operating Force</b>                  |  |  |
| <b>2. Actuator</b>           |  |  | 6: 3.92 N {400 gf}                                 |  |  |
| None : Pin plunger           |  |  | 5: 1.96 N {200 gf}                                 |  |  |
| 1 : Short hinge lever        |  |  | 4: 0.98 N {100 gf}                                 |  |  |
| 2 : Hinge lever              |  |  | Note: These values are for the pin plunger models. |  |  |
| 3 : Long hinge lever         |  |  | <b>6. Heat Resistance</b>                          |  |  |
| 4 : Simulated roller lever   |  |  | None : Standard (80°C)                             |  |  |
| 5 : Short hinge roller lever |  |  | -T : Heat-resistive (150°C)                        |  |  |
| 6 : Hinge roller lever       |  |  |                                                    |  |  |
| <b>3. Contact Form</b>       |  |  |                                                    |  |  |
| 1: SPDT                      |  |  |                                                    |  |  |
| 2: SPST-NC                   |  |  |                                                    |  |  |
| 3: SPST-NO                   |  |  |                                                    |  |  |

List of Models

Thermoplastic Case

| Actuator                                                                                         | Terminals                           | Contact form | Maximum operating force (OF) | Ratings  |           |
|--------------------------------------------------------------------------------------------------|-------------------------------------|--------------|------------------------------|----------|-----------|
|                                                                                                  |                                     |              |                              | 21A      | 16A       |
| Pin plunger<br> | Solder terminals (A)                | SPDT         | 3.92N                        | ---      | V-16-1A6  |
|                                                                                                  |                                     | SPST-NC      |                              | ---      | V-16-2A6  |
|                                                                                                  |                                     | SPST-NO      |                              | ---      | V-16-3A6  |
|                                                                                                  |                                     | SPDT         | 1.96N                        | ---      | V-16-1A5  |
|                                                                                                  |                                     | SPST-NC      |                              | ---      | V-16-2A5  |
|                                                                                                  |                                     | SPST-NO      |                              | ---      | V-16-3A5  |
|                                                                                                  |                                     | SPDT         | 0.98N                        | ---      | ---       |
|                                                                                                  |                                     | SPST-NC      |                              | ---      | ---       |
|                                                                                                  |                                     | SPST-NO      |                              | ---      | ---       |
|                                                                                                  | Quick-connect terminals (#187) (C2) | SPDT         | 3.92N                        | ---      | V-16-1C26 |
|                                                                                                  |                                     | SPST-NC      |                              | ---      | V-16-2C26 |
|                                                                                                  |                                     | SPST-NO      |                              | ---      | V-16-3C26 |
|                                                                                                  |                                     | SPDT         | 1.96N                        | ---      | V-16-1C25 |
|                                                                                                  |                                     | SPST-NC      |                              | ---      | V-16-2C25 |
|                                                                                                  |                                     | SPST-NO      |                              | ---      | V-16-3C25 |
|                                                                                                  |                                     | SPDT         | 0.98N                        | ---      | ---       |
|                                                                                                  |                                     | SPST-NC      |                              | ---      | ---       |
|                                                                                                  |                                     | SPST-NO      |                              | ---      | ---       |
|                                                                                                  | Quick-connect terminals (#250) (C)  | SPDT         | 3.92N                        | V-21-1C6 | V-16-1C6  |
|                                                                                                  |                                     | SPST-NC      |                              | V-21-2C6 | V-16-2C6  |
|                                                                                                  |                                     | SPST-NO      |                              | V-21-3C6 | V-16-3C6  |
|                                                                                                  |                                     | SPDT         | 1.96N                        | ---      | V-16-1C5  |
|                                                                                                  |                                     | SPST-NC      |                              | ---      | V-16-2C5  |
|                                                                                                  |                                     | SPST-NO      |                              | ---      | V-16-3C5  |
|                                                                                                  |                                     | SPDT         | 0.98N                        | ---      | ---       |
|                                                                                                  |                                     | SPST-NC      |                              | ---      | ---       |
|                                                                                                  |                                     | SPST-NO      |                              | ---      | ---       |

Refer to "Micro Switch Common Accessories" for Separators (sold separately), Actuators (sold separately) and Terminal Connectors (sold separately).

| Actuator                                                                                                       | Terminals                                 | Contact form | Maximum operating force (OF) | Ratings | 21A       | 16A        |
|----------------------------------------------------------------------------------------------------------------|-------------------------------------------|--------------|------------------------------|---------|-----------|------------|
| <div>Short hinge lever</div>  | Solder terminals<br>(A)                   | SPDT         | 3.92N                        |         | ---       | V-161-1A6  |
|                                                                                                                |                                           | SPST-NC      |                              |         | ---       | V-161-2A6  |
|                                                                                                                |                                           | SPST-NO      |                              |         | ---       | V-161-3A6  |
|                                                                                                                |                                           | SPDT         | 1.96N                        |         | ---       | V-161-1A5  |
|                                                                                                                |                                           | SPST-NC      |                              |         | ---       | V-161-2A5  |
|                                                                                                                |                                           | SPST-NO      |                              |         | ---       | V-161-3A5  |
|                                                                                                                |                                           | SPDT         | 0.98N                        |         | ---       | ---        |
|                                                                                                                |                                           | SPST-NC      |                              |         | ---       | ---        |
|                                                                                                                |                                           | SPST-NO      |                              |         | ---       | ---        |
|                                                                                                                | Quick-connect<br>terminals (#187)<br>(C2) | SPDT         | 3.92N                        |         | ---       | V-161-1C26 |
|                                                                                                                |                                           | SPST-NC      |                              |         | ---       | V-161-2C26 |
|                                                                                                                |                                           | SPST-NO      |                              |         | ---       | V-161-3C26 |
|                                                                                                                |                                           | SPDT         | 1.96N                        |         | ---       | V-161-1C25 |
|                                                                                                                |                                           | SPST-NC      |                              |         | ---       | V-161-2C25 |
|                                                                                                                |                                           | SPST-NO      |                              |         | ---       | V-161-3C25 |
|                                                                                                                |                                           | SPDT         | 0.98N                        |         | ---       | ---        |
|                                                                                                                |                                           | SPST-NC      |                              |         | ---       | ---        |
|                                                                                                                |                                           | SPST-NO      |                              |         | ---       | ---        |
|                                                                                                                | Quick-connect<br>terminals (#250)<br>(C)  | SPDT         | 3.92N                        |         | V-211-1C6 | V-161-1C6  |
|                                                                                                                |                                           | SPST-NC      |                              |         | V-211-2C6 | V-161-2C6  |
|                                                                                                                |                                           | SPST-NO      |                              |         | V-211-3C6 | V-161-3C6  |
|                                                                                                                |                                           | SPDT         | 1.96N                        |         | ---       | V-161-1C5  |
|                                                                                                                |                                           | SPST-NC      |                              |         | ---       | V-161-2C5  |
|                                                                                                                |                                           | SPST-NO      |                              |         | ---       | V-161-3C5  |
|                                                                                                                |                                           | SPDT         | 0.98N                        |         | ---       | ---        |
|                                                                                                                |                                           | SPST-NC      |                              |         | ---       | ---        |
|                                                                                                                |                                           | SPST-NO      |                              |         | ---       | ---        |
| <div>Hinge lever</div>      | Solder terminals<br>(A)                   | SPDT         | 2.45N                        |         | ---       | V-162-1A6  |
|                                                                                                                |                                           | SPST-NC      |                              |         | ---       | V-162-2A6  |
|                                                                                                                |                                           | SPST-NO      |                              |         | ---       | V-162-3A6  |
|                                                                                                                |                                           | SPDT         | 1.23N                        |         | ---       | V-162-1A5  |
|                                                                                                                |                                           | SPST-NC      |                              |         | ---       | V-162-2A5  |
|                                                                                                                |                                           | SPST-NO      |                              |         | ---       | V-162-3A5  |
|                                                                                                                |                                           | SPDT         | 0.59N                        |         | ---       | ---        |
|                                                                                                                |                                           | SPST-NC      |                              |         | ---       | ---        |
|                                                                                                                |                                           | SPST-NO      |                              |         | ---       | ---        |
|                                                                                                                | Quick-connect<br>terminals (#187)<br>(C2) | SPDT         | 2.45N                        |         | ---       | V-162-1C26 |
|                                                                                                                |                                           | SPST-NC      |                              |         | ---       | V-162-2C26 |
|                                                                                                                |                                           | SPST-NO      |                              |         | ---       | V-162-3C26 |
|                                                                                                                |                                           | SPDT         | 1.23N                        |         | ---       | V-162-1C25 |
|                                                                                                                |                                           | SPST-NC      |                              |         | ---       | V-162-2C25 |
|                                                                                                                |                                           | SPST-NO      |                              |         | ---       | V-162-3C25 |
|                                                                                                                |                                           | SPDT         | 0.59N                        |         | ---       | ---        |
|                                                                                                                |                                           | SPST-NC      |                              |         | ---       | ---        |
|                                                                                                                |                                           | SPST-NO      |                              |         | ---       | ---        |
|                                                                                                                | Quick-connect<br>terminals (#250)<br>(C)  | SPDT         | 2.45N                        |         | V-212-1C6 | V-162-1C6  |
|                                                                                                                |                                           | SPST-NC      |                              |         | V-212-2C6 | V-162-2C6  |
|                                                                                                                |                                           | SPST-NO      |                              |         | V-212-3C6 | V-162-3C6  |
|                                                                                                                |                                           | SPDT         | 1.23N                        |         | ---       | V-162-1C5  |
|                                                                                                                |                                           | SPST-NC      |                              |         | ---       | V-162-2C5  |
|                                                                                                                |                                           | SPST-NO      |                              |         | ---       | V-162-3C5  |
|                                                                                                                |                                           | SPDT         | 0.59N                        |         | ---       | ---        |
|                                                                                                                |                                           | SPST-NC      |                              |         | ---       | ---        |
|                                                                                                                |                                           | SPST-NO      |                              |         | ---       | ---        |

Refer to "Micro Switch Common Accessories" for Separators (sold separately), Actuators (sold separately) and Terminal Connectors (sold separately).

| Actuator                                                                                                      | Terminals                           | Contact form | Maximum operating force (OF) | Ratings   |            |
|---------------------------------------------------------------------------------------------------------------|-------------------------------------|--------------|------------------------------|-----------|------------|
|                                                                                                               |                                     |              |                              | 21A       | 16A        |
| Long hinge lever<br>         | Solder terminals (A)                | SPDT         | 1.27N                        | ---       | V-163-1A6  |
|                                                                                                               |                                     | SPST-NC      |                              | ---       | V-163-2A6  |
|                                                                                                               |                                     | SPST-NO      |                              | ---       | V-163-3A6  |
|                                                                                                               |                                     | SPDT         | 0.69N                        | ---       | V-163-1A5  |
|                                                                                                               |                                     | SPST-NC      |                              | ---       | V-163-2A5  |
|                                                                                                               |                                     | SPST-NO      |                              | ---       | V-163-3A5  |
|                                                                                                               |                                     | SPDT         | 0.34N                        | ---       | ---        |
|                                                                                                               |                                     | SPST-NC      |                              | ---       | ---        |
|                                                                                                               |                                     | SPST-NO      |                              | ---       | ---        |
|                                                                                                               | Quick-connect terminals (#187) (C2) | SPDT         | 1.27N                        | ---       | V-163-1C26 |
|                                                                                                               |                                     | SPST-NC      |                              | ---       | V-163-2C26 |
|                                                                                                               |                                     | SPST-NO      |                              | ---       | V-163-3C26 |
|                                                                                                               |                                     | SPDT         | 0.69N                        | ---       | V-163-1C25 |
|                                                                                                               |                                     | SPST-NC      |                              | ---       | V-163-2C25 |
|                                                                                                               |                                     | SPST-NO      |                              | ---       | V-163-3C25 |
|                                                                                                               |                                     | SPDT         | 0.34N                        | ---       | ---        |
|                                                                                                               |                                     | SPST-NC      |                              | ---       | ---        |
|                                                                                                               |                                     | SPST-NO      |                              | ---       | ---        |
|                                                                                                               | Quick-connect terminals (#250) (C)  | SPDT         | 1.27N                        | V-213-1C6 | V-163-1C6  |
|                                                                                                               |                                     | SPST-NC      |                              | V-213-2C6 | V-163-2C6  |
|                                                                                                               |                                     | SPST-NO      |                              | V-213-3C6 | V-163-3C6  |
|                                                                                                               |                                     | SPDT         | 0.69N                        | ---       | V-163-1C5  |
|                                                                                                               |                                     | SPST-NC      |                              | ---       | V-163-2C5  |
|                                                                                                               |                                     | SPST-NO      |                              | ---       | V-163-3C5  |
|                                                                                                               |                                     | SPDT         | 0.34N                        | ---       | ---        |
|                                                                                                               |                                     | SPST-NC      |                              | ---       | ---        |
|                                                                                                               |                                     | SPST-NO      |                              | ---       | ---        |
| Simulated roller lever<br> | Solder terminals (A)                | SPDT         | 2.45N                        | ---       | V-164-1A6  |
|                                                                                                               |                                     | SPST-NC      |                              | ---       | V-164-2A6  |
|                                                                                                               |                                     | SPST-NO      |                              | ---       | V-164-3A6  |
|                                                                                                               |                                     | SPDT         | 1.23N                        | ---       | V-164-1A5  |
|                                                                                                               |                                     | SPST-NC      |                              | ---       | V-164-2A5  |
|                                                                                                               |                                     | SPST-NO      |                              | ---       | V-164-3A5  |
|                                                                                                               |                                     | SPDT         | 0.59N                        | ---       | ---        |
|                                                                                                               |                                     | SPST-NC      |                              | ---       | ---        |
|                                                                                                               |                                     | SPST-NO      |                              | ---       | ---        |
|                                                                                                               | Quick-connect terminals (#187) (C2) | SPDT         | 2.45N                        | ---       | V-164-1C26 |
|                                                                                                               |                                     | SPST-NC      |                              | ---       | V-164-2C26 |
|                                                                                                               |                                     | SPST-NO      |                              | ---       | V-164-3C26 |
|                                                                                                               |                                     | SPDT         | 1.23N                        | ---       | V-164-1C25 |
|                                                                                                               |                                     | SPST-NC      |                              | ---       | V-164-2C25 |
|                                                                                                               |                                     | SPST-NO      |                              | ---       | V-164-3C25 |
|                                                                                                               |                                     | SPDT         | 0.59N                        | ---       | ---        |
|                                                                                                               |                                     | SPST-NC      |                              | ---       | ---        |
|                                                                                                               |                                     | SPST-NO      |                              | ---       | ---        |
|                                                                                                               | Quick-connect terminals (#250) (C)  | SPDT         | 2.45N                        | V-214-1C6 | V-164-1C6  |
|                                                                                                               |                                     | SPST-NC      |                              | V-214-2C6 | V-164-2C6  |
|                                                                                                               |                                     | SPST-NO      |                              | V-214-3C6 | V-164-3C6  |
|                                                                                                               |                                     | SPDT         | 1.23N                        | ---       | V-164-1C5  |
|                                                                                                               |                                     | SPST-NC      |                              | ---       | V-164-2C5  |
|                                                                                                               |                                     | SPST-NO      |                              | ---       | V-164-3C5  |
|                                                                                                               |                                     | SPDT         | 0.59N                        | ---       | ---        |
|                                                                                                               |                                     | SPST-NC      |                              | ---       | ---        |
|                                                                                                               |                                     | SPST-NO      |                              | ---       | ---        |

Refer to "Micro Switch Common Accessories" for Separators (sold separately), Actuators (sold separately) and Terminal Connectors (sold separately).

| Actuator                                                                                                              | Terminals                           | Contact form | Maximum operating force (OF) | Ratings | 21A       | 16A        |
|-----------------------------------------------------------------------------------------------------------------------|-------------------------------------|--------------|------------------------------|---------|-----------|------------|
| <div>Short hinge roller lever</div>  | Solder terminals (A)                | SPDT         | 4.71N                        |         | ---       | V-165-1A6  |
|                                                                                                                       |                                     | SPST-NC      |                              |         | ---       | V-165-2A6  |
|                                                                                                                       |                                     | SPST-NO      |                              |         | ---       | V-165-3A6  |
|                                                                                                                       |                                     | SPDT         | 2.35N                        |         | ---       | V-165-1A5  |
|                                                                                                                       |                                     | SPST-NC      |                              |         | ---       | V-165-2A5  |
|                                                                                                                       |                                     | SPST-NO      |                              |         | ---       | V-165-3A5  |
|                                                                                                                       |                                     | SPDT         | 1.18N                        |         | ---       | ---        |
|                                                                                                                       |                                     | SPST-NC      |                              |         | ---       | ---        |
|                                                                                                                       |                                     | SPST-NO      |                              |         | ---       | ---        |
|                                                                                                                       | Quick-connect terminals (#187) (C2) | SPDT         | 4.71N                        |         | ---       | V-165-1C26 |
|                                                                                                                       |                                     | SPST-NC      |                              |         | ---       | V-165-2C26 |
|                                                                                                                       |                                     | SPST-NO      |                              |         | ---       | V-165-3C26 |
|                                                                                                                       |                                     | SPDT         | 2.35N                        |         | ---       | V-165-1C25 |
|                                                                                                                       |                                     | SPST-NC      |                              |         | ---       | V-165-2C25 |
|                                                                                                                       |                                     | SPST-NO      |                              |         | ---       | V-165-3C25 |
|                                                                                                                       |                                     | SPDT         | 1.18N                        |         | ---       | ---        |
|                                                                                                                       |                                     | SPST-NC      |                              |         | ---       | ---        |
|                                                                                                                       |                                     | SPST-NO      |                              |         | ---       | ---        |
|                                                                                                                       | Quick-connect terminals (#250) (C)  | SPDT         | 4.71N                        |         | V-215-1C6 | V-165-1C6  |
|                                                                                                                       |                                     | SPST-NC      |                              |         | V-215-2C6 | V-165-2C6  |
|                                                                                                                       |                                     | SPST-NO      |                              |         | V-215-3C6 | V-165-3C6  |
|                                                                                                                       |                                     | SPDT         | 2.35N                        |         | ---       | V-165-1C5  |
|                                                                                                                       |                                     | SPST-NC      |                              |         | ---       | V-165-2C5  |
|                                                                                                                       |                                     | SPST-NO      |                              |         | ---       | V-165-3C5  |
|                                                                                                                       |                                     | SPDT         | 1.18N                        |         | ---       | ---        |
|                                                                                                                       |                                     | SPST-NC      |                              |         | ---       | ---        |
|                                                                                                                       |                                     | SPST-NO      |                              |         | ---       | ---        |
| <div>Hinge roller lever</div>      | Solder terminals (A)                | SPDT         | 2.45N                        |         | ---       | V-166-1A6  |
|                                                                                                                       |                                     | SPST-NC      |                              |         | ---       | V-166-2A6  |
|                                                                                                                       |                                     | SPST-NO      |                              |         | ---       | V-166-3A6  |
|                                                                                                                       |                                     | SPDT         | 1.23N                        |         | ---       | V-166-1A5  |
|                                                                                                                       |                                     | SPST-NC      |                              |         | ---       | V-166-2A5  |
|                                                                                                                       |                                     | SPST-NO      |                              |         | ---       | V-166-3A5  |
|                                                                                                                       |                                     | SPDT         | 0.59N                        |         | ---       | ---        |
|                                                                                                                       |                                     | SPST-NC      |                              |         | ---       | ---        |
|                                                                                                                       |                                     | SPST-NO      |                              |         | ---       | ---        |
|                                                                                                                       | Quick-connect terminals (#187) (C2) | SPDT         | 2.45N                        |         | ---       | V-166-1C26 |
|                                                                                                                       |                                     | SPST-NC      |                              |         | ---       | V-166-2C26 |
|                                                                                                                       |                                     | SPST-NO      |                              |         | ---       | V-166-3C26 |
|                                                                                                                       |                                     | SPDT         | 1.23N                        |         | ---       | V-166-1C25 |
|                                                                                                                       |                                     | SPST-NC      |                              |         | ---       | V-166-2C25 |
|                                                                                                                       |                                     | SPST-NO      |                              |         | ---       | V-166-3C25 |
|                                                                                                                       |                                     | SPDT         | 0.59N                        |         | ---       | ---        |
|                                                                                                                       |                                     | SPST-NC      |                              |         | ---       | ---        |
|                                                                                                                       |                                     | SPST-NO      |                              |         | ---       | ---        |
|                                                                                                                       | Quick-connect terminals (#250) (C)  | SPDT         | 2.45N                        |         | V-216-1C6 | V-166-1C6  |
|                                                                                                                       |                                     | SPST-NC      |                              |         | V-216-2C6 | V-166-2C6  |
|                                                                                                                       |                                     | SPST-NO      |                              |         | V-216-3C6 | V-166-3C6  |
|                                                                                                                       |                                     | SPDT         | 1.23N                        |         | ---       | V-166-1C5  |
|                                                                                                                       |                                     | SPST-NC      |                              |         | ---       | V-166-2C5  |
|                                                                                                                       |                                     | SPST-NO      |                              |         | ---       | V-166-3C5  |
|                                                                                                                       |                                     | SPDT         | 0.59N                        |         | ---       | ---        |
|                                                                                                                       |                                     | SPST-NC      |                              |         | ---       | ---        |
|                                                                                                                       |                                     | SPST-NO      |                              |         | ---       | ---        |

Refer to "Micro Switch Common Accessories" for Separators (sold separately), Actuators (sold separately) and Terminal Connectors (sold separately).

## Thermosetting case

| Actuator                                                                                                 | Terminals                           | Contact form | Maximum operating force (OF) | Ratings    |            | Heat-resistive |              |
|----------------------------------------------------------------------------------------------------------|-------------------------------------|--------------|------------------------------|------------|------------|----------------|--------------|
|                                                                                                          |                                     |              |                              | 15A        | 10A        | 15A            | 10A          |
| Pin plunger<br>         | Solder terminals (A)                | SPDT         | 3.92N                        | V-15-1A6   | ---        | V-15-1A6-T     | ---          |
|                                                                                                          |                                     | SPST-NC      |                              | V-15-2A6   | ---        | ---            | ---          |
|                                                                                                          |                                     | SPST-NO      |                              | V-15-3A6   | ---        | ---            | ---          |
|                                                                                                          |                                     | SPDT         | 1.96N                        | V-15-1A5   | V-10-1A5   | V-15-1A5-T     | V-10-1A5-T   |
|                                                                                                          |                                     | SPST-NC      |                              | V-15-2A5   | V-10-2A5   | ---            | ---          |
|                                                                                                          |                                     | SPST-NO      |                              | V-15-3A5   | V-10-3A5   | ---            | ---          |
|                                                                                                          |                                     | SPDT         | 0.98N                        | ---        | V-10-1A4   | ---            | V-10-1A4-T   |
|                                                                                                          |                                     | SPST-NC      |                              | ---        | V-10-2A4   | ---            | V-10-2A4-T   |
|                                                                                                          |                                     | SPST-NO      |                              | ---        | V-10-3A4   | ---            | V-10-3A4-T   |
|                                                                                                          | Quick-connect terminals (#187) (C2) | SPDT         | 3.92N                        | V-15-1C26  | ---        | V-15-1C26-T    | ---          |
|                                                                                                          |                                     | SPST-NC      |                              | V-15-2C26  | ---        | ---            | ---          |
|                                                                                                          |                                     | SPST-NO      |                              | V-15-3C26  | ---        | ---            | ---          |
|                                                                                                          |                                     | SPDT         | 1.96N                        | V-15-1C25  | V-10-1C25  | V-15-1C25-T    | V-10-1C25-T  |
|                                                                                                          |                                     | SPST-NC      |                              | V-15-2C25  | V-10-2C25  | ---            | ---          |
|                                                                                                          |                                     | SPST-NO      |                              | V-15-3C25  | V-10-3C25  | ---            | ---          |
|                                                                                                          |                                     | SPDT         | 0.98N                        | ---        | V-10-1C24  | ---            | V-10-1C24-T  |
|                                                                                                          |                                     | SPST-NC      |                              | ---        | V-10-2C24  | ---            | ---          |
|                                                                                                          |                                     | SPST-NO      |                              | ---        | V-10-3C24  | ---            | ---          |
|                                                                                                          | Quick-connect terminals (#250) (C)  | SPDT         | 3.92N                        | V-15-1C6   | ---        | V-15-1C6-T     | ---          |
|                                                                                                          |                                     | SPST-NC      |                              | V-15-2C6   | ---        | ---            | ---          |
|                                                                                                          |                                     | SPST-NO      |                              | V-15-3C6   | ---        | ---            | ---          |
|                                                                                                          |                                     | SPDT         | 1.96N                        | V-15-1C5   | V-10-1C5   | V-15-1C5-T     | V-10-1C5-T   |
|                                                                                                          |                                     | SPST-NC      |                              | V-15-2C5   | V-10-2C5   | ---            | ---          |
|                                                                                                          |                                     | SPST-NO      |                              | V-15-3C5   | V-10-3C5   | ---            | ---          |
|                                                                                                          |                                     | SPDT         | 0.98N                        | ---        | V-10-1C4   | ---            | V-10-1C4-T   |
|                                                                                                          |                                     | SPST-NC      |                              | ---        | V-10-2C4   | ---            | ---          |
|                                                                                                          |                                     | SPST-NO      |                              | ---        | V-10-3C4   | ---            | ---          |
| Short hinge lever<br> | Solder terminals (A)                | SPDT         | 3.92N                        | V-151-1A6  | ---        | V-151-1A6-T    | ---          |
|                                                                                                          |                                     | SPST-NC      |                              | V-151-2A6  | ---        | ---            | ---          |
|                                                                                                          |                                     | SPST-NO      |                              | V-151-3A6  | ---        | ---            | ---          |
|                                                                                                          |                                     | SPDT         | 1.96N                        | V-151-1A5  | V-101-1A5  | V-151-1A5-T    | V-101-1A5-T  |
|                                                                                                          |                                     | SPST-NC      |                              | V-151-2A5  | V-101-2A5  | ---            | ---          |
|                                                                                                          |                                     | SPST-NO      |                              | V-151-3A5  | V-101-3A5  | ---            | ---          |
|                                                                                                          |                                     | SPDT         | 0.98N                        | ---        | V-101-1A4  | ---            | V-101-1A4-T  |
|                                                                                                          |                                     | SPST-NC      |                              | ---        | V-101-2A4  | ---            | ---          |
|                                                                                                          |                                     | SPST-NO      |                              | ---        | V-101-3A4  | ---            | ---          |
|                                                                                                          | Quick-connect terminals (#187) (C2) | SPDT         | 3.92N                        | V-151-1C26 | ---        | V-151-1C26-T   | ---          |
|                                                                                                          |                                     | SPST-NC      |                              | V-151-2C26 | ---        | ---            | ---          |
|                                                                                                          |                                     | SPST-NO      |                              | V-151-3C26 | ---        | ---            | ---          |
|                                                                                                          |                                     | SPDT         | 1.96N                        | V-151-1C25 | V-101-1C25 | V-151-1C25-T   | V-101-1C25-T |
|                                                                                                          |                                     | SPST-NC      |                              | V-151-2C25 | V-101-2C25 | ---            | ---          |
|                                                                                                          |                                     | SPST-NO      |                              | V-151-3C25 | V-101-3C25 | ---            | ---          |
|                                                                                                          |                                     | SPDT         | 0.98N                        | ---        | V-101-1C24 | ---            | V-101-1C24-T |
|                                                                                                          |                                     | SPST-NC      |                              | ---        | V-101-2C24 | ---            | ---          |
|                                                                                                          |                                     | SPST-NO      |                              | ---        | V-101-3C24 | ---            | ---          |
|                                                                                                          | Quick-connect terminals (#250) (C)  | SPDT         | 3.92N                        | V-151-1C6  | ---        | V-151-1C6-T    | ---          |
|                                                                                                          |                                     | SPST-NC      |                              | V-151-2C6  | ---        | ---            | ---          |
|                                                                                                          |                                     | SPST-NO      |                              | V-151-3C6  | ---        | ---            | ---          |
|                                                                                                          |                                     | SPDT         | 1.96N                        | V-151-1C5  | V-101-1C5  | V-151-1C5-T    | V-101-1C5-T  |
|                                                                                                          |                                     | SPST-NC      |                              | V-151-2C5  | V-101-2C5  | ---            | ---          |
|                                                                                                          |                                     | SPST-NO      |                              | V-151-3C5  | V-101-3C5  | ---            | ---          |
|                                                                                                          |                                     | SPDT         | 0.98N                        | ---        | V-101-1C4  | ---            | V-101-1C4-T  |
|                                                                                                          |                                     | SPST-NC      |                              | ---        | V-101-2C4  | ---            | ---          |
|                                                                                                          |                                     | SPST-NO      |                              | ---        | V-101-3C4  | ---            | ---          |

Refer to "Micro Switch Common Accessories" for Separators (sold separately), Actuators (sold separately) and Terminal Connectors (sold separately).

| Actuator                                                                                                | Terminals                           | Contact form | Maximum operating force (OF) | Ratings    |            | Heat-resistive |              |
|---------------------------------------------------------------------------------------------------------|-------------------------------------|--------------|------------------------------|------------|------------|----------------|--------------|
|                                                                                                         |                                     |              |                              | 15A        | 10A        | 15A            | 10A          |
| Hinge lever<br>        | Solder terminals (A)                | SPDT         | 2.45N                        | V-152-1A6  | ---        | V-152-1A6-T    | ---          |
|                                                                                                         |                                     | SPST-NC      |                              | V-152-2A6  | ---        | ---            | ---          |
|                                                                                                         |                                     | SPST-NO      |                              | V-152-3A6  | ---        | ---            | ---          |
|                                                                                                         |                                     | SPDT         | 1.23N                        | V-152-1A5  | V-102-1A5  | V-152-1A5-T    | V-102-1A5-T  |
|                                                                                                         |                                     | SPST-NC      |                              | V-152-2A5  | V-102-2A5  | ---            | ---          |
|                                                                                                         |                                     | SPST-NO      |                              | V-152-3A5  | V-102-3A5  | ---            | ---          |
|                                                                                                         |                                     | SPDT         | 0.59N                        | ---        | V-102-1A4  | ---            | V-102-1A4-T  |
|                                                                                                         |                                     | SPST-NC      |                              | ---        | V-102-2A4  | ---            | ---          |
|                                                                                                         |                                     | SPST-NO      |                              | ---        | V-102-3A4  | ---            | ---          |
|                                                                                                         | Quick-connect terminals (#187) (C2) | SPDT         | 2.45N                        | V-152-1C26 | ---        | V-152-1C26-T   | ---          |
|                                                                                                         |                                     | SPST-NC      |                              | V-152-2C26 | ---        | ---            | ---          |
|                                                                                                         |                                     | SPST-NO      |                              | V-152-3C26 | ---        | ---            | ---          |
|                                                                                                         |                                     | SPDT         | 1.23N                        | V-152-1C25 | V-102-1C25 | V-152-1C25-T   | V-102-1C25-T |
|                                                                                                         |                                     | SPST-NC      |                              | V-152-2C25 | V-102-2C25 | ---            | ---          |
|                                                                                                         |                                     | SPST-NO      |                              | V-152-3C25 | V-102-3C25 | ---            | ---          |
|                                                                                                         |                                     | SPDT         | 0.59N                        | ---        | V-102-1C24 | ---            | V-102-1C24-T |
|                                                                                                         |                                     | SPST-NC      |                              | ---        | V-102-2C24 | ---            | ---          |
|                                                                                                         |                                     | SPST-NO      |                              | ---        | V-102-3C24 | ---            | ---          |
|                                                                                                         | Quick-connect terminals (#250) (C)  | SPDT         | 2.45N                        | V-152-1C6  | ---        | V-152-1C6-T    | ---          |
|                                                                                                         |                                     | SPST-NC      |                              | V-152-2C6  | ---        | ---            | ---          |
|                                                                                                         |                                     | SPST-NO      |                              | V-152-3C6  | ---        | ---            | ---          |
|                                                                                                         |                                     | SPDT         | 1.23N                        | V-152-1C5  | V-102-1C5  | V-152-1C5-T    | V-102-1C5-T  |
|                                                                                                         |                                     | SPST-NC      |                              | V-152-2C5  | V-102-2C5  | ---            | ---          |
|                                                                                                         |                                     | SPST-NO      |                              | V-152-3C5  | V-102-3C5  | ---            | ---          |
|                                                                                                         |                                     | SPDT         | 0.59N                        | ---        | V-102-1C4  | ---            | V-102-1C4-T  |
|                                                                                                         |                                     | SPST-NC      |                              | ---        | V-102-2C4  | ---            | ---          |
|                                                                                                         |                                     | SPST-NO      |                              | ---        | V-102-3C4  | ---            | ---          |
| Long hinge lever<br> | Solder terminals (A)                | SPDT         | 1.27N                        | V-153-1A6  | ---        | V-153-1A6-T    | ---          |
|                                                                                                         |                                     | SPST-NC      |                              | V-153-2A6  | ---        | ---            | ---          |
|                                                                                                         |                                     | SPST-NO      |                              | V-153-3A6  | ---        | ---            | ---          |
|                                                                                                         |                                     | SPDT         | 0.69N                        | V-153-1A5  | V-103-1A5  | V-153-1A5-T    | V-103-1A5-T  |
|                                                                                                         |                                     | SPST-NC      |                              | V-153-2A5  | V-103-2A5  | ---            | ---          |
|                                                                                                         |                                     | SPST-NO      |                              | V-153-3A5  | V-103-3A5  | ---            | ---          |
|                                                                                                         |                                     | SPDT         | 0.34N                        | ---        | V-103-1A4  | ---            | V-103-1A4-T  |
|                                                                                                         |                                     | SPST-NC      |                              | ---        | V-103-2A4  | ---            | ---          |
|                                                                                                         |                                     | SPST-NO      |                              | ---        | V-103-3A4  | ---            | ---          |
|                                                                                                         | Quick-connect terminals (#187) (C2) | SPDT         | 1.27N                        | V-153-1C26 | ---        | V-153-1C26-T   | ---          |
|                                                                                                         |                                     | SPST-NC      |                              | V-153-2C26 | ---        | ---            | ---          |
|                                                                                                         |                                     | SPST-NO      |                              | V-153-3C26 | ---        | ---            | ---          |
|                                                                                                         |                                     | SPDT         | 0.69N                        | V-153-1C25 | V-103-1C25 | V-153-1C25-T   | V-103-1C25-T |
|                                                                                                         |                                     | SPST-NC      |                              | V-153-2C25 | V-103-2C25 | ---            | ---          |
|                                                                                                         |                                     | SPST-NO      |                              | V-153-3C25 | V-103-3C25 | ---            | ---          |
|                                                                                                         |                                     | SPDT         | 0.34N                        | ---        | V-103-1C24 | ---            | V-103-1C24-T |
|                                                                                                         |                                     | SPST-NC      |                              | ---        | V-103-2C24 | ---            | ---          |
|                                                                                                         |                                     | SPST-NO      |                              | ---        | V-103-3C24 | ---            | ---          |
|                                                                                                         | Quick-connect terminals (#250) (C)  | SPDT         | 1.27N                        | V-153-1C6  | ---        | V-153-1C6-T    | ---          |
|                                                                                                         |                                     | SPST-NC      |                              | V-153-2C6  | ---        | ---            | ---          |
|                                                                                                         |                                     | SPST-NO      |                              | V-153-3C6  | ---        | ---            | ---          |
|                                                                                                         |                                     | SPDT         | 0.69N                        | V-153-1C5  | V-103-1C5  | V-153-1C5-T    | V-103-1C5-T  |
|                                                                                                         |                                     | SPST-NC      |                              | V-153-2C5  | V-103-2C5  | ---            | ---          |
|                                                                                                         |                                     | SPST-NO      |                              | V-153-3C5  | V-103-3C5  | ---            | ---          |
|                                                                                                         |                                     | SPDT         | 0.34N                        | ---        | V-103-1C4  | ---            | V-103-1C4-T  |
|                                                                                                         |                                     | SPST-NC      |                              | ---        | V-103-2C4  | ---            | ---          |
|                                                                                                         |                                     | SPST-NO      |                              | ---        | V-103-3C4  | ---            | ---          |

Refer to "Micro Switch Common Accessories" for Separators (sold separately), Actuators (sold separately) and Terminal Connectors (sold separately).

| Actuator                                                                                                        | Terminals                           | Contact form | Maximum operating force (OF) | Ratings    |            | Heat-resistive |              |
|-----------------------------------------------------------------------------------------------------------------|-------------------------------------|--------------|------------------------------|------------|------------|----------------|--------------|
|                                                                                                                 |                                     |              |                              | 15A        | 10A        | 15A            | 10A          |
| Simulated roller lever<br>     | Solder terminals (A)                | SPDT         | 2.45N                        | V-154-1A6  | ---        | V-154-1A6-T    | ---          |
|                                                                                                                 |                                     | SPST-NC      |                              | V-154-2A6  | ---        | ---            | ---          |
|                                                                                                                 |                                     | SPST-NO      |                              | V-154-3A6  | ---        | ---            | ---          |
|                                                                                                                 |                                     | SPDT         | 1.23N                        | V-154-1A5  | V-104-1A5  | V-154-1A5-T    | V-104-1A5-T  |
|                                                                                                                 |                                     | SPST-NC      |                              | V-154-2A5  | V-104-2A5  | ---            | ---          |
|                                                                                                                 |                                     | SPST-NO      |                              | V-154-3A5  | V-104-3A5  | ---            | ---          |
|                                                                                                                 |                                     | SPDT         | 0.59N                        | ---        | V-104-1A4  | ---            | V-104-1A4-T  |
|                                                                                                                 |                                     | SPST-NC      |                              | ---        | V-104-2A4  | ---            | ---          |
|                                                                                                                 |                                     | SPST-NO      |                              | ---        | V-104-3A4  | ---            | ---          |
|                                                                                                                 | Quick-connect terminals (#187) (C2) | SPDT         | 2.45N                        | V-154-1C26 | ---        | V-154-1C26-T   | ---          |
|                                                                                                                 |                                     | SPST-NC      |                              | V-154-2C26 | ---        | ---            | ---          |
|                                                                                                                 |                                     | SPST-NO      |                              | V-154-3C26 | ---        | ---            | ---          |
|                                                                                                                 |                                     | SPDT         | 1.23N                        | V-154-1C25 | V-104-1C25 | V-154-1C25-T   | V-104-1C25-T |
|                                                                                                                 |                                     | SPST-NC      |                              | V-154-2C25 | V-104-2C25 | ---            | ---          |
|                                                                                                                 |                                     | SPST-NO      |                              | V-154-3C25 | V-104-3C25 | ---            | ---          |
|                                                                                                                 |                                     | SPDT         | 0.59N                        | ---        | V-104-1C24 | ---            | V-104-1C24-T |
|                                                                                                                 |                                     | SPST-NC      |                              | ---        | V-104-2C24 | ---            | ---          |
|                                                                                                                 |                                     | SPST-NO      |                              | ---        | V-104-3C24 | ---            | ---          |
|                                                                                                                 | Quick-connect terminals (#250) (C)  | SPDT         | 2.45N                        | V-154-1C6  | ---        | V-154-1C6-T    | ---          |
|                                                                                                                 |                                     | SPST-NC      |                              | V-154-2C6  | ---        | ---            | ---          |
|                                                                                                                 |                                     | SPST-NO      |                              | V-154-3C6  | ---        | ---            | ---          |
|                                                                                                                 |                                     | SPDT         | 1.23N                        | V-154-1C5  | V-104-1C5  | V-154-1C5-T    | V-104-1C5-T  |
|                                                                                                                 |                                     | SPST-NC      |                              | V-154-2C5  | V-104-2C5  | ---            | ---          |
|                                                                                                                 |                                     | SPST-NO      |                              | V-154-3C5  | V-104-3C5  | ---            | ---          |
|                                                                                                                 |                                     | SPDT         | 0.59N                        | ---        | V-104-1C4  | ---            | V-104-1C4-T  |
|                                                                                                                 |                                     | SPST-NC      |                              | ---        | V-104-2C4  | ---            | ---          |
|                                                                                                                 |                                     | SPST-NO      |                              | ---        | V-104-3C4  | ---            | ---          |
| Short hinge roller lever<br> | Solder terminals (A)                | SPDT         | 4.71N                        | V-155-1A6  | ---        | V-155-1A6-T    | ---          |
|                                                                                                                 |                                     | SPST-NC      |                              | V-155-2A6  | ---        | ---            | ---          |
|                                                                                                                 |                                     | SPST-NO      |                              | V-155-3A6  | ---        | ---            | ---          |
|                                                                                                                 |                                     | SPDT         | 2.35N                        | V-155-1A5  | V-105-1A5  | V-155-1A5-T    | V-105-1A5-T  |
|                                                                                                                 |                                     | SPST-NC      |                              | V-155-2A5  | V-105-2A5  | ---            | ---          |
|                                                                                                                 |                                     | SPST-NO      |                              | V-155-3A5  | V-105-3A5  | ---            | ---          |
|                                                                                                                 |                                     | SPDT         | 1.18N                        | ---        | V-105-1A4  | ---            | V-105-1A4-T  |
|                                                                                                                 |                                     | SPST-NC      |                              | ---        | V-105-2A4  | ---            | ---          |
|                                                                                                                 |                                     | SPST-NO      |                              | ---        | V-105-3A4  | ---            | ---          |
|                                                                                                                 | Quick-connect terminals (#187) (C2) | SPDT         | 4.71N                        | V-155-1C26 | ---        | V-155-1C26-T   | ---          |
|                                                                                                                 |                                     | SPST-NC      |                              | V-155-2C26 | ---        | ---            | ---          |
|                                                                                                                 |                                     | SPST-NO      |                              | V-155-3C26 | ---        | ---            | ---          |
|                                                                                                                 |                                     | SPDT         | 2.35N                        | V-155-1C25 | V-105-1C25 | V-155-1C25-T   | V-105-1C25-T |
|                                                                                                                 |                                     | SPST-NC      |                              | V-155-2C25 | V-105-2C25 | ---            | ---          |
|                                                                                                                 |                                     | SPST-NO      |                              | V-155-3C25 | V-105-3C25 | ---            | ---          |
|                                                                                                                 |                                     | SPDT         | 1.18N                        | ---        | V-105-1C24 | ---            | V-105-1C24-T |
|                                                                                                                 |                                     | SPST-NC      |                              | ---        | V-105-2C24 | ---            | ---          |
|                                                                                                                 |                                     | SPST-NO      |                              | ---        | V-105-3C24 | ---            | ---          |
|                                                                                                                 | Quick-connect terminals (#250) (C)  | SPDT         | 4.71N                        | V-155-1C6  | ---        | V-155-1C6-T    | ---          |
|                                                                                                                 |                                     | SPST-NC      |                              | V-155-2C6  | ---        | ---            | ---          |
|                                                                                                                 |                                     | SPST-NO      |                              | V-155-3C6  | ---        | ---            | ---          |
|                                                                                                                 |                                     | SPDT         | 2.35N                        | V-155-1C5  | V-105-1C5  | V-155-1C5-T    | V-105-1C5-T  |
|                                                                                                                 |                                     | SPST-NC      |                              | V-155-2C5  | V-105-2C5  | ---            | ---          |
|                                                                                                                 |                                     | SPST-NO      |                              | V-155-3C5  | V-105-3C5  | ---            | ---          |
|                                                                                                                 |                                     | SPDT         | 1.18N                        | ---        | V-105-1C4  | ---            | V-105-1C4-T  |
|                                                                                                                 |                                     | SPST-NC      |                              | ---        | V-105-2C4  | ---            | ---          |
|                                                                                                                 |                                     | SPST-NO      |                              | ---        | V-105-3C4  | ---            | ---          |

Refer to "Micro Switch Common Accessories" for Separators (sold separately), Actuators (sold separately) and Terminal Connectors (sold separately).

| Actuator                                                                                                | Terminals                           | Contact form | Maximum operating force (OF) | Ratings    |            | Heat-resistive |              |
|---------------------------------------------------------------------------------------------------------|-------------------------------------|--------------|------------------------------|------------|------------|----------------|--------------|
|                                                                                                         |                                     |              |                              | 15A        | 10A        | 15A            | 10A          |
| Hinge roller lever<br> | Solder terminals (A)                | SPDT         | 2.45N                        | V-156-1A6  | ---        | V-156-1A6-T    | ---          |
|                                                                                                         |                                     | SPST-NC      |                              | V-156-2A6  | ---        | ---            | ---          |
|                                                                                                         |                                     | SPST-NO      |                              | V-156-3A6  | ---        | ---            | ---          |
|                                                                                                         |                                     | SPDT         | 1.23N                        | V-156-1A5  | V-106-1A5  | V-156-1A5-T    | V-106-1A5-T  |
|                                                                                                         |                                     | SPST-NC      |                              | V-156-2A5  | V-106-2A5  | ---            | ---          |
|                                                                                                         |                                     | SPST-NO      |                              | V-156-3A5  | V-106-3A5  | ---            | ---          |
|                                                                                                         |                                     | SPDT         | 0.59N                        | ---        | V-106-1A4  | ---            | V-106-1A4-T  |
|                                                                                                         |                                     | SPST-NC      |                              | ---        | V-106-2A4  | ---            | ---          |
|                                                                                                         |                                     | SPST-NO      |                              | ---        | V-106-3A4  | ---            | ---          |
|                                                                                                         | Quick-connect terminals (#187) (C2) | SPDT         | 2.45N                        | V-156-1C26 | ---        | V-156-1C26-T   | ---          |
|                                                                                                         |                                     | SPST-NC      |                              | V-156-2C26 | ---        | ---            | ---          |
|                                                                                                         |                                     | SPST-NO      |                              | V-156-3C26 | ---        | ---            | ---          |
|                                                                                                         |                                     | SPDT         | 1.23N                        | V-156-1C25 | V-106-1C25 | V-156-1C25-T   | V-106-1C25-T |
|                                                                                                         |                                     | SPST-NC      |                              | V-156-2C25 | V-106-2C25 | ---            | ---          |
|                                                                                                         |                                     | SPST-NO      |                              | V-156-3C25 | V-106-3C25 | ---            | ---          |
|                                                                                                         |                                     | SPDT         | 0.59N                        | ---        | V-106-1C24 | ---            | V-106-1C24-T |
|                                                                                                         |                                     | SPST-NC      |                              | ---        | V-106-2C24 | ---            | ---          |
|                                                                                                         |                                     | SPST-NO      |                              | ---        | V-106-3C24 | ---            | ---          |
|                                                                                                         | Quick-connect terminals (#250) (C)  | SPDT         | 2.45N                        | V-156-1C6  | ---        | V-156-1C6-T    | ---          |
|                                                                                                         |                                     | SPST-NC      |                              | V-156-2C6  | ---        | ---            | ---          |
|                                                                                                         |                                     | SPST-NO      |                              | V-156-3C6  | ---        | ---            | ---          |
|                                                                                                         |                                     | SPDT         | 1.23N                        | V-156-1C5  | V-106-1C5  | V-156-1C5-T    | V-106-1C5-T  |
|                                                                                                         |                                     | SPST-NC      |                              | V-156-2C5  | V-106-2C5  | ---            | ---          |
|                                                                                                         |                                     | SPST-NO      |                              | V-156-3C5  | V-106-3C5  | ---            | ---          |
|                                                                                                         |                                     | SPDT         | 0.59N                        | ---        | V-106-1C4  | ---            | V-106-1C4-T  |
|                                                                                                         |                                     | SPST-NC      |                              | ---        | V-106-2C4  | ---            | ---          |
|                                                                                                         |                                     | SPST-NO      |                              | ---        | V-106-3C4  | ---            | ---          |

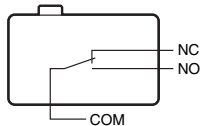
V

## For DC load (V-21(IN) models)

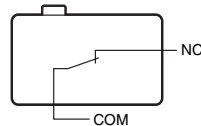
| Actuator                                                                                           | Terminals                          | Contact form | Maximum operating force (OF) | Ratings      |
|----------------------------------------------------------------------------------------------------|------------------------------------|--------------|------------------------------|--------------|
| Pin plunger<br> | Quick-connect terminals (#250) (C) | SPDT         | 3.92N                        | 30VDC 12A    |
|                                                                                                    |                                    |              |                              | V-21-1C6(IN) |

## Contact form

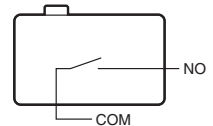
SPDT



SPST-NC



SPST-NO



Refer to "Micro Switch Common Accessories" for Separators (sold separately), Actuators (sold separately) and Terminal Connectors (sold separately).

## Contact Specifications

| Item                                      | Model                | V-21         | V-16      | V-15      | V-10      | V-21(IN)     |
|-------------------------------------------|----------------------|--------------|-----------|-----------|-----------|--------------|
| Contact                                   | Specification        | Rivet        |           |           |           |              |
|                                           | Material             | Silver alloy |           |           | Silver    | Indium alloy |
|                                           | Gap (standard value) | 1 mm         |           |           |           |              |
| Inrush current                            | NC                   | 50 A max.    | 40 A max. | 30 A max. | 24 A max. | 50 A max.    |
|                                           | NO                   |              |           |           |           |              |
| Minimum applicable load (reference value) |                      | DC5V 160mA   |           |           |           |              |

## Ratings

| Model    | Rated voltage | Item | Resistive load |
|----------|---------------|------|----------------|
| V-21     | AC250V        |      | 21 A           |
|          | DC125V        |      | 0.6 A          |
|          | DC250V        |      | 0.3 A          |
| V-16     | AC250V        |      | 16 A           |
|          | DC125V        |      | 0.6 A          |
|          | DC250V        |      | 0.3 A          |
| V-15     | AC250V        |      | 15 A           |
|          | DC125V        |      | 0.6 A          |
|          | DC250V        |      | 0.3 A          |
| V-10     | AC250V        |      | 10 A           |
|          | DC125V        |      | 0.6 A          |
|          | DC250V        |      | 0.3 A          |
| V-21(IN) | DC30V         |      | 12 A           |

Note. The above rating values apply under the following test conditions.

- (1) Ambient temperature: 20±2°C
- (2) Ambient humidity: 65±5% RH
- (3) Operating frequency: 30 operations/min

## Characteristics

| Item                                        | Model                                                       | V-10                                                                                                     | V-15                                                                                                     | V-16                                        | V-21        | V-21(IN) |
|---------------------------------------------|-------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|---------------------------------------------|-------------|----------|
| Permissible operating speed                 |                                                             | 0.1mm to 1 m/s max. (pin plunger models)                                                                 |                                                                                                          |                                             |             |          |
| Permissible operating frequency             | Mechanical                                                  | 600 operations/min max. (pin plunger models)                                                             |                                                                                                          |                                             |             |          |
|                                             | Electrical                                                  | 60 operations/min                                                                                        |                                                                                                          |                                             |             |          |
| Insulation resistance                       |                                                             | 100MΩ min. (at 500 VDC with insulation tester)                                                           |                                                                                                          |                                             |             |          |
| Contact resistance (initial value)          |                                                             | 15mΩ max.                                                                                                |                                                                                                          |                                             |             |          |
| Dielectric strength *1                      | Between terminals of the same polarity                      | AC1,000V 50/60Hz 1min                                                                                    |                                                                                                          |                                             |             |          |
|                                             | Between current-carrying metal parts and ground             | AC1,500V 50/60Hz 1min                                                                                    | AC1,500V 50/60Hz 1min                                                                                    | AC2,000V 50/60Hz 1min                       |             |          |
|                                             | Between each terminals and non-current-carrying metal parts | AC1,500V 50/60Hz 1min                                                                                    | AC1,500V 50/60Hz 1min                                                                                    | AC2,000V 50/60Hz 1min                       |             |          |
| Vibration resistance *2                     | Malfunction                                                 | 10 to 55 Hz, 1.5-mm double amplitude                                                                     |                                                                                                          |                                             |             |          |
| Shock resistance *2                         | Durability                                                  | 1,000 m/s <sup>2</sup> {approx. 100 G} max.                                                              |                                                                                                          |                                             |             |          |
|                                             | Malfunction                                                 | 200 m/s <sup>2</sup> {approx. 20G} max.                                                                  | 300 m/s <sup>2</sup> {approx. 30 G} max.                                                                 |                                             |             |          |
| Durability *3                               | Mechanical                                                  | 50,000,000 operations min. (60 operations/min)                                                           |                                                                                                          |                                             |             |          |
|                                             | Electrical                                                  | 300,000 operations min. (30 operations/min)<br>Heat resistive: 50,000 operations min (30 operations/min) | 100,000 operations min. (30 operations/min)<br>Heat resistive: 20,000 operations min (30 operations/min) | 100,000 operations min. (30 operations/min) |             |          |
| Degree of protection                        |                                                             | IEC IP40                                                                                                 |                                                                                                          |                                             |             |          |
| Degree of protection against electric shock |                                                             | Class I                                                                                                  |                                                                                                          |                                             |             |          |
| Proof tracking index (PTI)                  |                                                             | 175                                                                                                      |                                                                                                          |                                             |             |          |
| Ambient operating temperature               |                                                             | -25 to 105°C<br>(Heat resistive: -25 to 150°C)                                                           |                                                                                                          | -25 to 105°C                                | -25 to 80°C |          |
|                                             |                                                             | (at ambient humidity of 60% max.) (with no icing or condensation)                                        |                                                                                                          |                                             |             |          |
| Ambient operating humidity                  |                                                             | 85% max. (for 5 to 35°C)                                                                                 |                                                                                                          |                                             |             |          |
| Weight                                      |                                                             | Approx. 6.2g (pin plunger models)                                                                        |                                                                                                          |                                             |             |          |

Note. The data given above are initial values.

\*1. The dielectric strength shown in the table indicates a value for models with a Separator.

\*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 shorter than 1 ms.

\*3. For testing conditions, consult your OMRON sales representative.

## Approved Standards

### UL (UL1054)/CSA (CSA C22.2 No.55)

| Rated voltage | Model | V-21      | V-16      | V-15      | V-10      |
|---------------|-------|-----------|-----------|-----------|-----------|
| 125 VAC       |       | 21A 1/2HP | 16A 1/2HP | 15A 1/2HP | 10A 1/2HP |
| 250 VAC       |       |           |           |           |           |
| 125 VDC       |       | 0.6A      |           |           |           |
| 250 VDC       |       | 0.3A      |           |           |           |

### VDE (EN61058-1)

Consult your OMRON sales representative for specific models with VDE approvals.

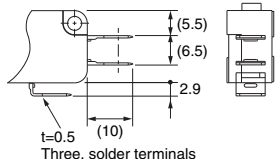
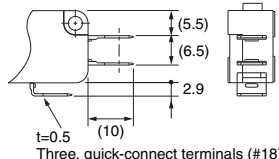
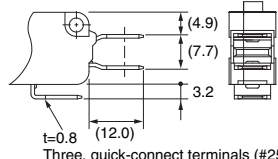
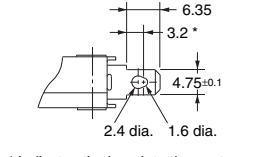
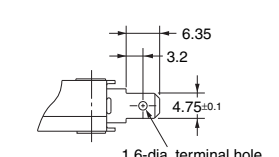
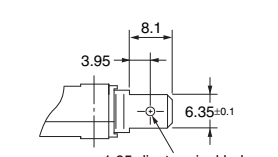
| Rated voltage | Model | V-21   | V-16   |
|---------------|-------|--------|--------|
| AC250V        |       | 20(4)A | 16(4)A |

Testing conditions: 5E4 (50,000 operations), for models of V-21:

T80 (0 to 80°C), for models of V-16: T105 (0 to 105°C)

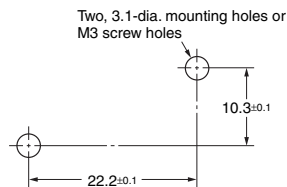
Note. V-21(IN) models are not Safety standard approved.

## Terminals and Apperance (Unit: mm)

| Solder terminals (A)                                                                                                                                | Quick-connect terminals (#187) (C2)                                                                                            | Quick-connect terminals (#250) (C)                                                                                               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
|  <p>Three, solder terminals</p>                                    |  <p>Three, quick-connect terminals (#187)</p> |  <p>Three, quick-connect terminals (#250)</p> |
|  <p>* Indicates the length to the center of the 1.6-dia. holes</p> |  <p>1.6-dia. terminal hole</p>                |  <p>1.65-dia. terminal hole</p>               |

Note. The above is for the SPDT contact specifications. Two terminals will be available for SPST-NO or SPST-NC contact specifications. For terminal positions, refer to Contact form on page 9.

## Mounting Holes (Unit: mm)



## Dimensions and Operating Characteristics

### Thermoplastic Case V-21-16/-21(IN) Models

The following illustrations and drawings are for quick-connect terminals #250 (terminals C). V models with a switching current of 16 A and 11 A incorporate solder terminals (A) and quick-connect terminals #187 (C2). These models are different from #250 models in terminal size only. Dimensions of solder terminals (A) and quick-connect terminal #187 (C2) are omitted. Please refer to the "Terminals and Shapes" on previous page.

The □ is replaced with the code for the terminals. See the "List of Models" for available combinations of shapes.

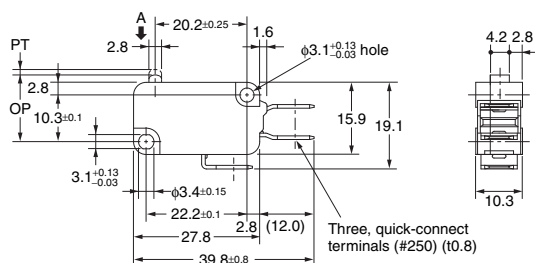
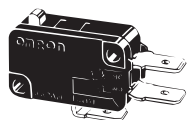
#### ●Pin plunger

V-21-1□6

V-16-1□6

V-16-1□5

V



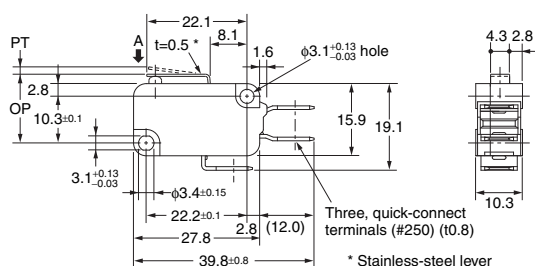
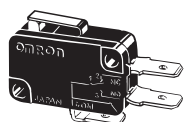
| Operating characteristics | Model | V-21-1□6<br>V-16-1□6 | V-16-1□5 |
|---------------------------|-------|----------------------|----------|
| OF max.                   |       | 3.92N                | 1.96N    |
| RF min.                   |       | 0.78N                | 0.49N    |
| PT max.                   |       | 1.2mm                |          |
| OT min.                   |       | 1.0mm                |          |
| MD max.                   |       | 0.4mm                |          |
| OP                        |       | 14.7±0.4mm           |          |

#### ●Short hinge lever

V-211-1□6

V-161-1□6

V-161-1□5



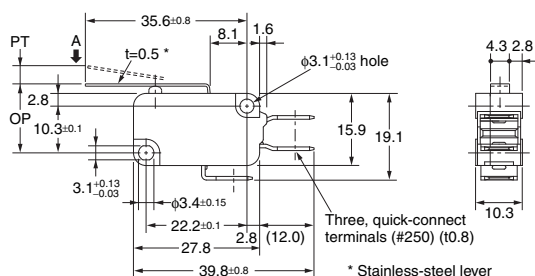
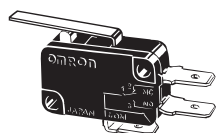
| Operating characteristics | Model | V-211-1□6<br>V-161-1□6 | V-161-1□5 |
|---------------------------|-------|------------------------|-----------|
| OF max.                   |       | 3.92N                  | 1.96N     |
| RF min.                   |       | 0.49N                  | 0.49N     |
| PT max.                   |       | 1.6mm                  |           |
| OT min.                   |       | 0.8mm                  |           |
| MD max.                   |       | 0.6mm                  |           |
| OP                        |       | 15.2±0.5mm             |           |

#### ●Hinge lever

V-212-1□6

V-162-1□6

V-162-1□5



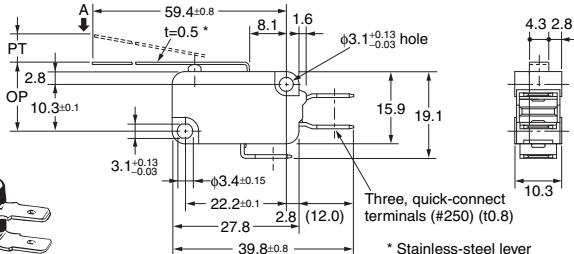
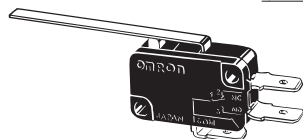
| Operating characteristics | Model | V-212-1□6<br>V-162-1□6 | V-162-1□5 |
|---------------------------|-------|------------------------|-----------|
| OF max.                   |       | 2.45N                  | 1.23N     |
| RF min.                   |       | 0.25N                  | 0.14N     |
| PT max.                   |       | 4.0mm                  |           |
| OT min.                   |       | 1.6mm                  |           |
| MD max.                   |       | 1.5mm                  |           |
| OP                        |       | 15.2±1.2mm             |           |

#### ●Long Hinge Lever Models

V-213-1□6

V-163-1□6

V-163-1□5



| Operating characteristics | Model | V-213-1□6<br>V-163-1□6                  | V-163-1□5 |
|---------------------------|-------|-----------------------------------------|-----------|
| OF max.                   |       | 1.27N                                   | 0.69N     |
| RF min.                   |       | 0.12N                                   | 0.06N     |
| PT max.                   |       | 9.0mm                                   |           |
| OT min.                   |       | 2.0mm                                   |           |
| MD max.                   |       | 2.8mm                                   |           |
| OP                        |       | 15.2 <sup>+2.6</sup> <sub>-3.2</sub> mm |           |

Note 1. Unless otherwise specified, a tolerance of ±0.4 mm applies to all dimensions.

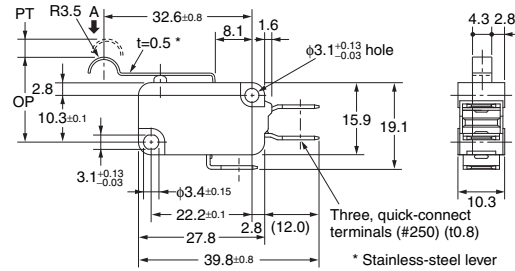
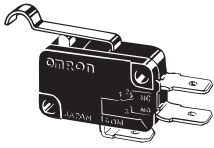
Note 2. The operating characteristics are for operation in the A direction (↓).

### ● Simulated roller lever

V-214-1□6

V-164-1□6

V-164-1□5



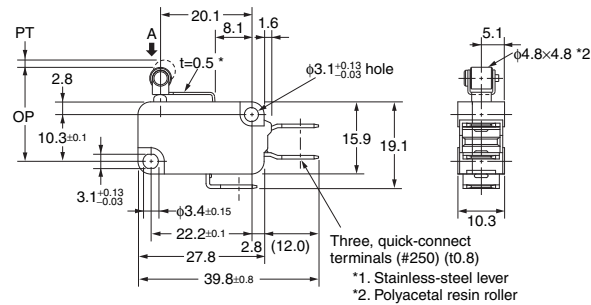
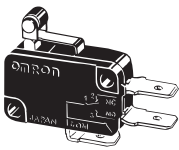
| Operating characteristics | Model | V-214-1□6<br>V-164-1□6 | V-164-1□5 |
|---------------------------|-------|------------------------|-----------|
| OF max.                   |       | 2.45N                  | 1.23N     |
| RF min.                   |       | 0.25N                  | 0.14N     |
| PT max.                   |       | 4.0mm                  |           |
| OT min.                   |       | 1.6mm                  |           |
| MD max.                   |       | 1.5mm                  |           |
| OP                        |       | 18.7±1.2mm             |           |

### ● Short hinge roller lever

V-215-1□6

V-165-1□6

V-165-1□5



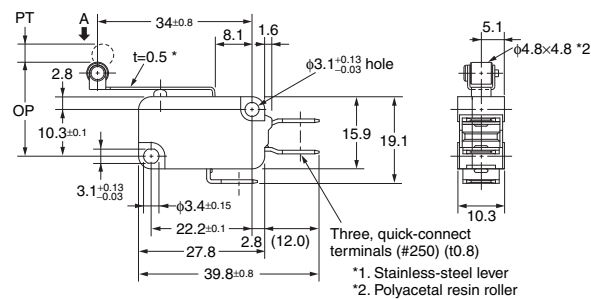
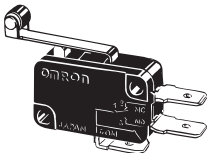
| Operating characteristics | Model | V-215-1□6<br>V-165-1□6 | V-165-1□5 |
|---------------------------|-------|------------------------|-----------|
| OF max.                   |       | 4.71N                  | 2.35N     |
| RF min.                   |       | 0.49N                  | 0.49N     |
| PT max.                   |       | 1.6mm                  |           |
| OT min.                   |       | 0.8mm                  |           |
| MD max.                   |       | 0.6mm                  |           |
| OP                        |       | 20.7±0.6mm             |           |

### ● Hinge roller lever

V-216-1□6

V-166-1□6

V-166-1□5



| Operating characteristics | Model | V-216-1□6<br>V-166-1□6 | V-166-1□5 |
|---------------------------|-------|------------------------|-----------|
| OF max.                   |       | 2.45N                  | 1.23N     |
| RF min.                   |       | 0.25N                  | 0.14N     |
| PT max.                   |       | 4.0mm                  |           |
| OT min.                   |       | 1.6mm                  |           |
| MD max.                   |       | 1.5mm                  |           |
| OP                        |       | 20.7±1.2mm             |           |

Note 1. Unless otherwise specified, a tolerance of  $\pm 0.4$  mm applies to all dimensions.

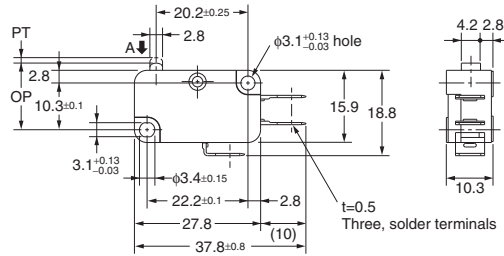
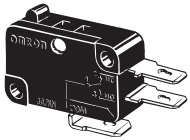
Note 2. The operating characteristics are for operation in the A direction (↓).

**Thermosetting Case (V-15/V-10 Models)** Applicable to both Standard (105°C) and Heat-resistive (150°C) models

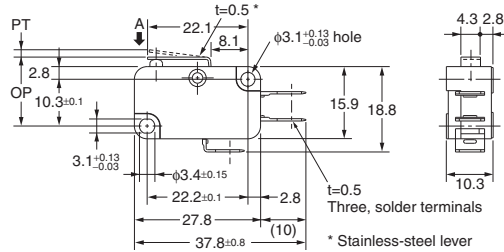
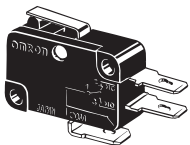
The following dimensions and Operating Characteristics are for both "Not specified: Standard (105°C)" and "-T: Heat-resistive (150°C)" models.

The following illustrations and drawings are for solder terminals (Terminal A). V models with a switching current of 15A and 10A have quick-connect terminals #187 (C2). These models are different from solder terminal models in terminal size only. Illustrations for quick-connect terminals #187 (C2) are omitted. Please refer to "Terminals and Shapes" on page 8.

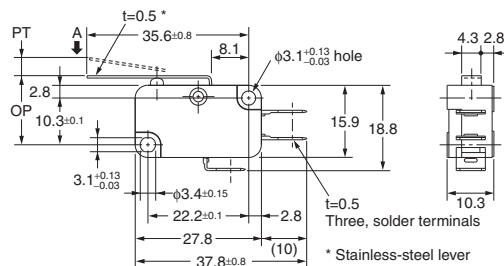
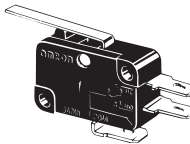
The □ is replaced with the code for the terminals. See the "List of Models" for available combinations of shapes.

**●Pin plunger****V-15-1□6****V-15-1□5****V-10-1□5****V-10-1□4**

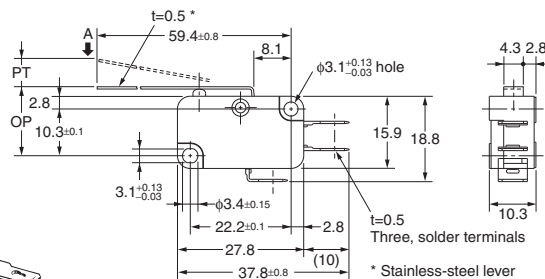
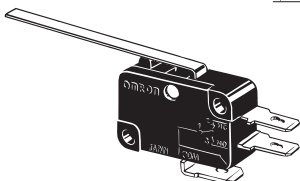
| Operating characteristics | Model | V-15-1□6   | V-15-1□5<br>V-10-1□5 | V-10-1□4 |
|---------------------------|-------|------------|----------------------|----------|
| OF max.                   |       | 3.92N      | 1.96N                | 0.98N    |
| RF min.                   |       | 0.78N      | 0.49N                | 0.20N    |
| PT max.                   |       | 1.2mm      |                      |          |
| OT min.                   |       | 1.0mm      |                      |          |
| MD max.                   |       | 0.4mm      |                      |          |
| OP                        |       | 14.7±0.4mm |                      |          |

**●Short hinge lever****V-151-1□6****V-151-1□5****V-101-1□5****V-101-1□4**

| Operating characteristics | Model | V-151-1□6  | V-151-1□5<br>V-101-1□5 | V-101-1□4 |
|---------------------------|-------|------------|------------------------|-----------|
| OF max.                   |       | 3.92N      | 1.96N                  | 0.98N     |
| RF min.                   |       | 0.49N      | 0.49N                  | 0.15N     |
| PT max.                   |       | 1.6mm      |                        |           |
| OT min.                   |       | 0.8mm      |                        |           |
| MD max.                   |       | 0.6mm      |                        |           |
| OP                        |       | 15.2±0.5mm |                        |           |

**●Hinge lever****V-152-1□6****V-152-1□5****V-102-1□5****V-102-1□4**

| Operating characteristics | Model | V-152-1□6  | V-152-1□5<br>V-102-1□5 | V-102-1□4 |
|---------------------------|-------|------------|------------------------|-----------|
| OF max.                   |       | 2.45N      | 1.23N                  | 0.59N     |
| RF min.                   |       | 0.25N      | 0.14N                  | 0.06N     |
| PT max.                   |       | 4.0mm      |                        |           |
| OT min.                   |       | 1.6mm      |                        |           |
| MD max.                   |       | 1.5mm      |                        |           |
| OP                        |       | 15.2±1.2mm |                        |           |

**●Long Hinge Lever Models****V-153-1□6****V-153-1□5****V-103-1□5****V-103-1□4**

| Operating characteristics | Model | V-153-1□6                               | V-153-1□5<br>V-103-1□5 | V-103-1□4 |
|---------------------------|-------|-----------------------------------------|------------------------|-----------|
| OF max.                   |       | 1.27N                                   | 0.69N                  | 0.34N     |
| RF min.                   |       | 0.12N                                   | 0.06N                  | -         |
| PT max.                   |       | 9.0mm                                   |                        |           |
| OT min.                   |       | 2.0mm                                   |                        |           |
| MD max.                   |       | 2.8mm                                   |                        |           |
| OP                        |       | 15.2 <sup>+2.6</sup> <sub>-3.2</sub> mm |                        |           |

Note 1. Unless otherwise specified, a tolerance of  $\pm 0.4$  mm applies to all dimensions.

Note 2. The operating characteristics are for operation in the A direction (↓).

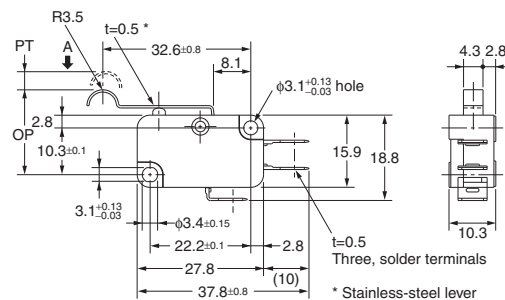
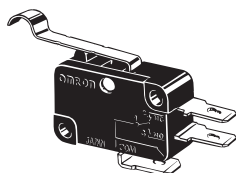
## ●Simulated roller lever

V-154-1□6

V-154-1□5

V-104-1□5

V-104-1□4



| Operating characteristics | Model | V-154-1□6         | V-154-1□5<br>V-104-1□5 | V-104-1□4 |
|---------------------------|-------|-------------------|------------------------|-----------|
| OF max.                   |       | 2.45N             | 1.23N                  | 0.59N     |
| RF min.                   |       | 0.25N             | 0.14N                  | 0.06N     |
| PT max.                   |       | 4.0mm             |                        |           |
| OT min.                   |       | 1.6mm             |                        |           |
| MD max.                   |       | 1.5mm             |                        |           |
| OP                        |       | 18.7 $\pm 1.2$ mm |                        |           |

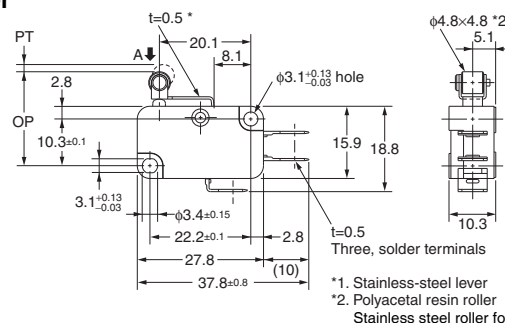
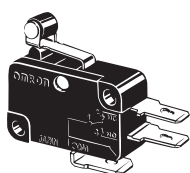
## ●Short hinge roller lever

V-155-1□6

V-155-1□5

V-105-1□5

V-105-1□4



| Operating characteristics | Model | V-155-1□6         | V-155-1□5<br>V-105-1□5 | V-105-1□4 |
|---------------------------|-------|-------------------|------------------------|-----------|
| OF max.                   |       | 4.71N             | 2.35N                  | 1.18N     |
| RF min.                   |       | 0.49N             | 0.49N                  | 0.15N     |
| PT max.                   |       | 1.6mm             |                        |           |
| OT min.                   |       | 0.8mm             |                        |           |
| MD max.                   |       | 0.6mm             |                        |           |
| OP                        |       | 20.7 $\pm 0.6$ mm |                        |           |

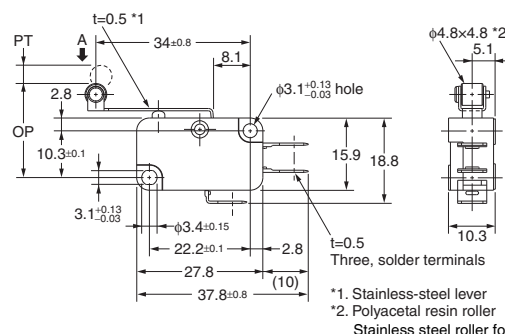
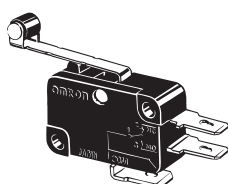
## ●Hinge roller lever

V-156-1□6

V-156-1□5

V-106-1□5

V-106-1□4



| Operating characteristics | Model | V-156-1□6         | V-156-1□5<br>V-106-1□5 | V-106-1□4 |
|---------------------------|-------|-------------------|------------------------|-----------|
| OF max.                   |       | 2.45N             | 1.23N                  | 0.59N     |
| RF min.                   |       | 0.25N             | 0.14N                  | 0.06N     |
| PT max.                   |       | 4.0mm             |                        |           |
| OT min.                   |       | 1.6mm             |                        |           |
| MD max.                   |       | 1.5mm             |                        |           |
| OP                        |       | 20.7 $\pm 1.2$ mm |                        |           |

Note 1. Unless otherwise specified, a tolerance of  $\pm 0.4$  mm applies to all dimensions.

Note 2. The operating characteristics are for operation in the A direction (↓).

## Precautions

★Please read "Common Precautions" for correct use.

## Precautions for Safe Use

## ●Soldering

## • Connecting to Solder Terminals

Complete the soldering at the iron tip temperature of 250 to 350°C (60W) within 5 seconds, and do not apply any external force for 1 minute after soldering.

Be sure to apply only the minimum required amount of flux. It may result in contact failure once the flux penetrates into the internal part of the Switch.

## • Connecting to Quick-connect Terminals #187

Insert the receptacle of quick-connect terminal #187 straight toward the terminal.

Applying excessive external force horizontally or vertically may cause deformation of terminals and may damage the housings.

## • Connecting to Quick-connect Terminals #250

Insert the receptacle of quick-connect terminal #250 straight toward the terminal.

Applying excessive external force horizontally or vertically may cause deformation of terminals and may damage the housings.

## Precautions for Correct Use

## ●Mounting

Use M3 mounting screw with plane washers or spring washers to securely mount the Switch. Tighten the screws to a torque of 0.39 to 0.59N·m {4 to 6 kgf·cm}.

- 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.**

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Electronic and Mechanical Components Company

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**Cat. No. B010-E1-15**  
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