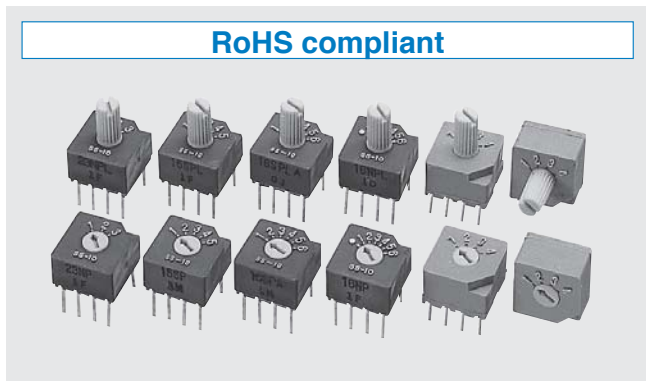


# ROTARY SELECTOR SWITCHES **SS-10/S-2050**



RoHS compliant

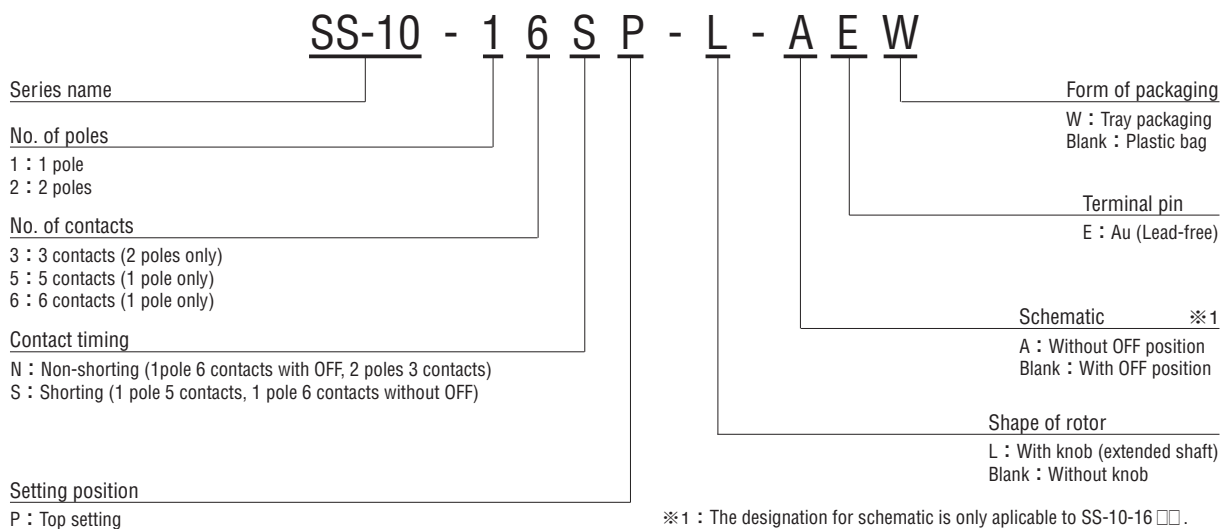
## FEATURES

- RoHS compliant
- Compact-size DIP pin configuration
- Protected against dust and washable after soldering
- Self-cleaning mechanism

### INTERNAL STRUCTURE SS-10 series

| Part name      | Material                  | Flammability |
|----------------|---------------------------|--------------|
| ① Rotor        | Polyoxymethylene          | UL94HB       |
| ② "O" ring     | Silicone rubber           |              |
| ③ Base         | Polybutyleneterephthalate |              |
| ④ Terminal pin | Copper alloy, Gold-plated | —            |
| ⑤ Contact      | Copper alloy, Gold-plated |              |
| ⑥ P.C.B.       | Gold-plated epoxy board   |              |
| ⑦ Housing      | Polybutyleneterephthalate | UL94HB       |

## PART NUMBER DESIGNATION



※1 : The designation for schematic is only applicable to SS-10-16 □□.  
The other partnumbers (ex. S-2050, SS-10-15SPEW) are without OFF position.

※Please refer to the LIST OF PART NUMBERS when placing orders.

# SS-10/S-2050

## ROTARY SELECTOR SWITCHES

### LIST OF PART NUMBERS

| Circuit type       | Shape        |                | Form of packaging | Contact timing   |                 | Pieces in package |
|--------------------|--------------|----------------|-------------------|------------------|-----------------|-------------------|
|                    |              |                |                   | Non-shorting     | Shorting        |                   |
| 1 pole 4 contacts  | Top setting  | Without knob   | Tray packaging    | S-2050W          |                 | 50 pcs./tray      |
|                    |              |                | Plastic bag       | S-2050           |                 | 25 pcs./pack      |
|                    |              | With knob      | Tray packaging    | S-2150W          |                 | 50 pcs./tray      |
|                    |              |                | Plastic bag       | S-2150           |                 | 25 pcs./pack      |
|                    | Side setting | Without knob   | Tray packaging    | S-2051W          |                 | 50 pcs./tray      |
|                    |              |                | Plastic bag       | S-2051           |                 | 25 pcs./pack      |
|                    | With knob    | Tray packaging | S-2151W           |                  | 50 pcs./tray    |                   |
|                    |              | Plastic bag    | S-2151            |                  | 25 pcs./pack    |                   |
| 1 pole 5 contacts  | Top setting  | Without knob   | Tray packaging    |                  | SS-10-15SP-EW   | 50 pcs./tray      |
|                    |              |                | Plastic bag       |                  | SS-10-15S-PE    | 25 pcs./pack      |
|                    |              | With knob      | Tray packaging    |                  | SS-10-15SP-L-EW | 50 pcs./tray      |
|                    |              |                | Plastic bag       |                  | SS-10-15SP-L-E  | 25 pcs./pack      |
| 1 pole 6 contacts  | With OFF     | Without knob   | Tray packaging    | SS-10-16NP-EW    |                 | 50 pcs./tray      |
|                    |              |                | Plastic bag       | SS-10-16NP-E     |                 | 25 pcs./pack      |
|                    |              | With knob      | Tray packaging    | SS-10-16NP-L-EW  |                 | 50 pcs./tray      |
|                    | Plastic bag  |                | SS-10-16NP-L-E    |                  | 25 pcs./pack    |                   |
|                    | Without OFF  | Without knob   | Tray packaging    |                  | SS-10-16SP-AEW  | 50 pcs./tray      |
|                    |              |                | Plastic bag       |                  | SS-10-16SP-AE   | 25 pcs./pack      |
| With knob          |              | Tray packaging |                   | SS-10-16SP-L-AEW | 50 pcs./tray    |                   |
|                    | Plastic bag  |                | SS-10-16SP-L-AE   | 25 pcs./pack     |                 |                   |
| 2 poles 3 contacts | Top setting  | Without knob   | Tray packaging    | SS-10-23NP-EW    |                 | 50 pcs./tray      |
|                    |              |                | Plastic bag       | SS-10-23NP-E     |                 | 25 pcs./pack      |
|                    |              | With knob      | Tray packaging    | SS-10-23NP-L-EW  |                 | 50 pcs./tray      |
|                    |              |                | Plastic bag       | SS-10-23NP-L-E   |                 | 25 pcs./pack      |



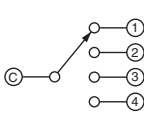
☐: Not manufactured

※ Verify the above part numbers when placing orders.



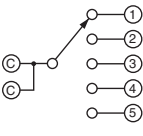
Tray version can be supplied only in tray nuts.

### SCHEMATIC DIAGRAMS



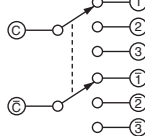
#### 1 pole 4 contacts

| Series                               | Switching specifications   | Schematic   |
|--------------------------------------|--|---|
| S-2050<br>S-2051<br>S-2150<br>S-2151 | <br> |  |



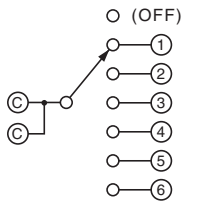
#### 1 pole 5 contacts

| Series                         | Switching specifications   | Schematic  |
|--------------------------------|--|--|
| SS-10-15SP-E<br>SS-10-15SP-L-E | <br> |  |



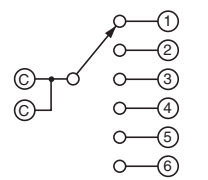
#### 2 poles 3 contacts

| Series                         | Switching specifications   | Schematic   |
|--------------------------------|--|---|
| SS-10-23NP-E<br>SS-10-23NP-L-E | <br> |  |

#### 1 pole 6 contacts (With OFF)

| Series                         | Switching specifications   | Schematic   |
|--------------------------------|--|---|
| SS-10-16NP-E<br>SS-10-16NP-L-E | <br> |  |

#### 1 pole 6 contacts (Without OFF)

| Series                           | Switching specifications   | Schematic   |
|----------------------------------|--|---|
| SS-10-16SP-AE<br>SS-10-16SP-L-AE | <br> |  |

# SS-10/S-2050

## ROTARY SELECTOR SWITCHES

### ■ TERMINAL CONNECTION / P.C.B. THROUGH HOLE DIMENSIONS (Unit: mm)

|                                      | SS-10-15   | SS-10-16 | SS-10-23 | S-2050<br>S-2150 | S-2051<br>S-2151 |  |
|--------------------------------------|--|----------|----------|------------------|------------------|--|
| Terminal pin layout<br>(Bottom view) |  |          |          |                  |                  |  |
| P.C.B. dimensions<br>(Bottom view)   | Dimension is common to SS-10-15, SS-10-16 and SS-10-23 series. |          |          |                  |                  |  |

### ■ STANDARD SPECIFICATIONS

|                             |   |
|-----------------------------|---|
| Circuit type                | 1 pole 4 contacts<br>1 pole 5 contacts<br>1 pole 6 contacts<br>2 poles 3 contacts |
| Operating temperature range | -25 ~ 70 °C   |
| Storage temperature range   |   |
| Sealing                     | Washable by "O" ring<br>※Please refer to page 150, 151                            |
| Net weight                  | Approx. 0.84 g (without knob)<br>Approx. 0.94 g (with knob)                       |

### ■ ELECTRICAL CHARACTERISTICS

|   |   |
|---|---|
| Contact rating<br>Non-switching<br>Switching<br>Minimum | DC50 V 100 mA<br>DC5 V 100 mA<br>DC20 mV 1 μA |
| Contact timing  | Shorting<br>Non-shorting                      |
| Contact resistance                                      | 100 mΩ maximum                                |
| Insulation resistance                                   | 100 MΩ (DC100 V) minimum                      |
| Dielectric strength                                     | AC300 V, 60 s                                 |

### ■ MECHANICAL CHARACTERISTICS

|                   |   |
|-------------------|---|
| No. of positions  | 3, 4, 5, 6  |
| Adjustment torque | 40 mN·m {408 gf·cm} maximum   |
| Stopper strength  | 50 mN·m {510 gf·cm} minimum   |
| Stepping angle    | 36° (1 pole 4 contacts)<br>30° (2 poles 3 contacts)<br>30° (1 pole 5 contacts)<br>22.5° (1 pole 6 contacts, with OFF)<br>28° (1 pole 6 contacts, without OFF) |
| Terminal strength | 15 N {1.53 kgf} minimum   |
| Solderability     | 245 ± 3 °C, 2 ~ 3 s   |
| Soldering heat    | Flow soldering<br>260 ± 3 °C, 5 ~ 6 s, two times maximum<br>Manual soldering<br>380 ± 10 °C, 3 ~ 4 s  |

### ■ ENVIRONMENTAL CHARACTERISTICS

|                           |  |
|---------------------------|--|
| Vibration                 | Amplitude 1.5 mm or<br>Acceleration 98 m/s <sup>2</sup> ,<br>10-500-10 Hz, 3 directions for 2 h each |
| Shock                     | 490 m/s <sup>2</sup> , 11 ms<br>6 directions for 3 times each  |
| Humidity (Steady state)   | 40 °C, Relative humidity 90 ~ 95 %, 240 h  |
| Load life                 | 500 cycles minimum<br>DC5 V, 100 mA  |
| High temperature exposure | 70 °C, 240 h   |
| Low temperature exposure  | -25 °C, 96 h   |
| Thermal shock             | -25 (0.5 h) ~ 70 °C (0.5 h), 5 cycles  |

{ } : Reference only

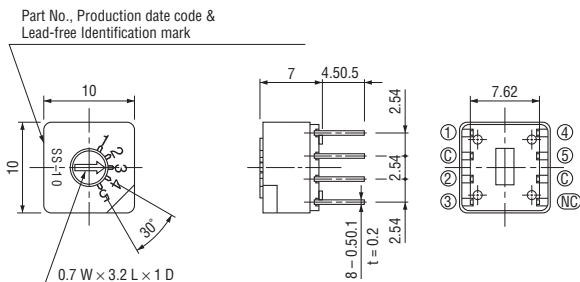
# SS-10/S-2050

## ROTARY SELECTOR SWITCHES

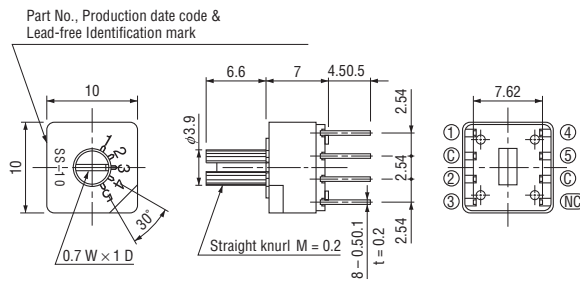
### OUTLINE DIMENSIONS

Unless otherwise specified, tolerance:  $\pm 0.3$  (Unit: mm)

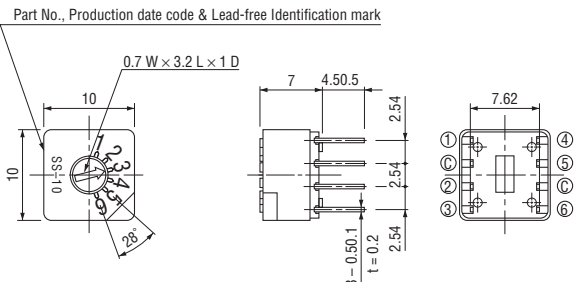
#### SS-10-15SP-E



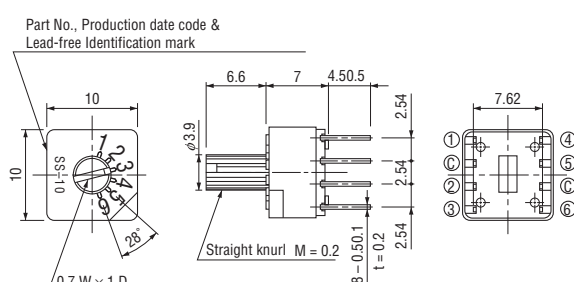
#### SS-10-15SP-L-E



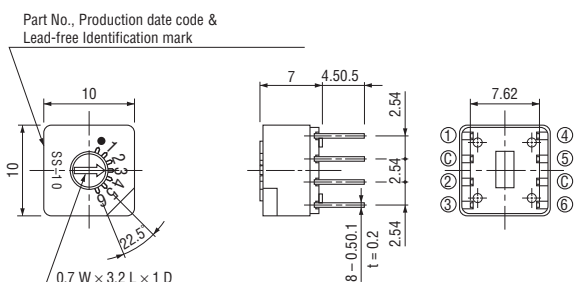
#### SS-10-16SP-AE



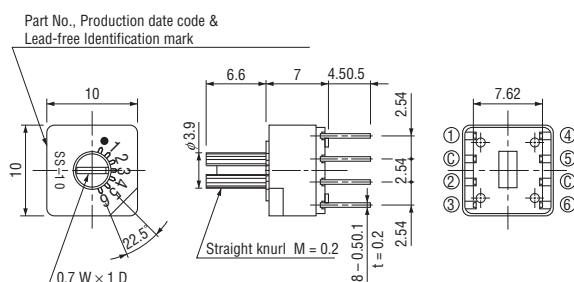
#### SS-10-16SP-L-AE



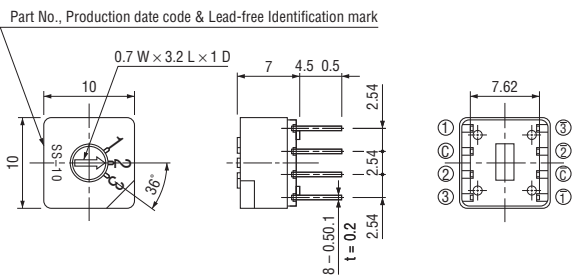
#### SS-10-16NP-E



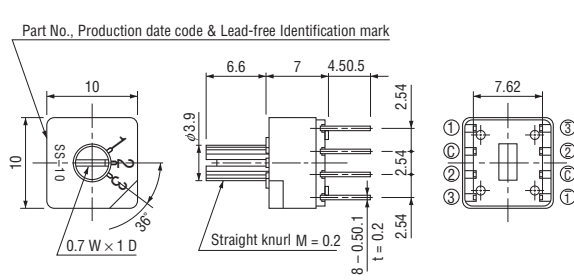
#### SS-10-16NP-L-E



#### SS-10-23NP-E



#### SS-10-23NP-L-E



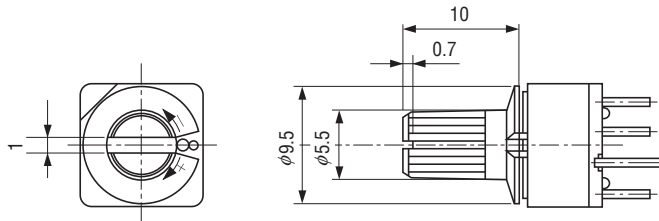


# SS-10/S-2050

## ROTARY SELECTOR SWITCHES

### SWITCHES WITH KNOB AS EXTENDED SHAFT

(Unit: mm)



The large knob is common to S-1000A, S-2000A, SA-5000, and SS-10 series.

※ Knob can't be detached due to being fixed. Simple knob can't be sold.

### PACKAGING SPECIFICATIONS

#### <Tray packaging specifications>

- Tray version is packaged in 50 pcs. per tray. Orders will be accepted for units of 50 pcs., i. e., 50, 100, 150 pcs. etc.
- Tray version is boxed with 10 trays.

#### <Bulk pack specifications>

- The smallest unit of bulk pack in a plastic bag is 10 pcs. per pack. Orders will be accepted for unit of minimum 10 pcs., i.e., 10, 20, 30 pcs., etc.
- Boxing of bulk in a plastic bag is performed with 25 pcs. (standard 50 pcs.) per box.

<Note> : The switch with a large knob for manual adjustment is available as a semi-standard item.