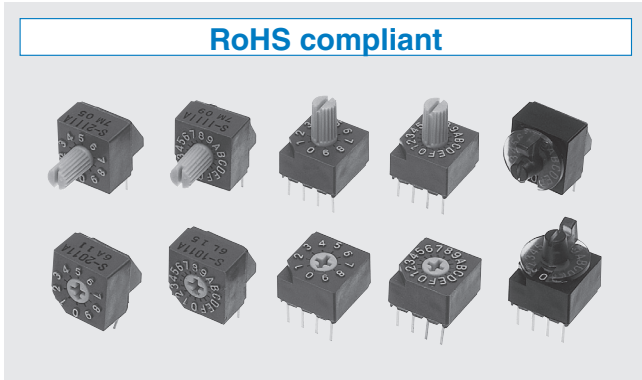


# ROTARY CODED SWITCHES

# S-1000A/2000A

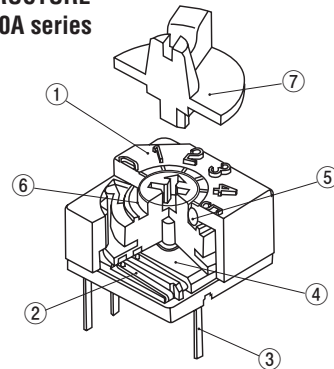
## RoHS compliant



## FEATURES

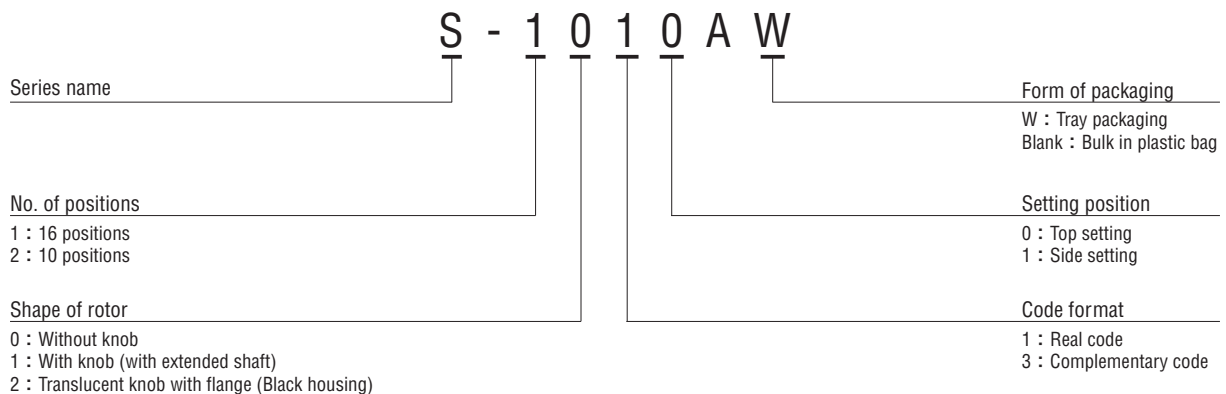
- RoHS compliant
- Protection against dust and whole cleaning after soldering is possible
- Pin compatible with conventional DIP switches
- Translucent knob with flange type (S-1200A/2200A series)
  - Distinguished visibility with translucent flange
  - Settable with fingers or screwdriver

## INTERNAL STRUCTURE S-1000A / 2000A series



| Part name                      | Material   | Flammability |
|--------------------------------|--|--------------|
| ① Housing                      | PBT<br>Polybutyleneterephthalate                                     | UL94HB       |
| ② Contact                      | Copper alloy, Gold-plated  | —            |
| ③ Terminal pin                 |  |              |
| ④ Base                         | PBT<br>Polybutyleneterephthalate                                     | UL94HB       |
| ⑤ "O" ring                     | Silicone rubber  |              |
| ⑥ Insert rotor                 | Rotor : Polyoxymethylene<br>Pattern : Copper alloy, Gold-plated      | UL94V-2      |
| ⑦ Translucent knob with flange | PAR (Polyarylate)<br>※ S-12 □□ A/22 □□ Aのみ<br>S-12 □□ A/22 □□ A only |              |

## PART NUMBER DESIGNATION



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

# S-1000A/2000A ROTARY CODED SWITCHES

## LIST OF PART NUMBERS

| Shape        | Form of packing              | Binary coded decimal |                    | Binary coded hexadecimal |                    | Pieces in package |              |
|--------------|------------------------------|----------------------|--------------------|--------------------------|--------------------|-------------------|--------------|
|              |                              | Real code            | Complementary code | Real code                | Complementary code |                   |              |
| Top setting  | Without knob                 | Tray packaging       | S-2010AW           | S-2030AW                 | S-1010AW           | S-1030AW          | 50 pcs./tray |
|              |                              | Plastic bag          | S-2010A            | S-2030A                  | S-1010A            | S-1030A           | 25 pcs./pack |
|              | With knob                    | Tray packaging       | S-2110AW           | S-2130AW                 | S-1110AW           | S-1130AW          | 50 pcs./tray |
|              |                              | Plastic bag          | S-2110A            | S-2130A                  | S-1110A            | S-1130A           | 25 pcs./pack |
|              | Translucent knob with flange | Tray packaging       | S-2210AW           | S-2230AW                 | S-1210AW           | S-1230AW          | 50 pcs./tray |
|              |                              | Plastic bag          | S-2210A            | S-2230A                  | S-1210A            | S-1230A           | 25 pcs./pack |
| Side setting | Without knob                 | Tray packaging       | S-2011AW           | S-2031AW                 | S-1011AW           | S-1031AW          | 50 pcs./tray |
|              |                              | Plastic bag          | S-2011A            | S-2031A                  | S-1011A            | S-1031A           | 25 pcs./pack |
|              | With knob                    | Tray packaging       | S-2111AW           | S-2131AW                 | S-1111AW           | S-1131AW          | 50 pcs./tray |
|              |                              | Plastic bag          | S-2111A            | S-2131A                  | S-1111A            | S-1131A           | 25 pcs./pack |
|              | Translucent knob with flange | Tray packaging       | S-2211AW           | S-2231AW                 | S-1211AW           | S-1231AW          | 50 pcs./tray |
|              |                              | Plastic bag          | S-2211A            | S-2231A                  | S-1211A            | S-1231A           | 25 pcs./pack |

※ Verify the above part numbers when placing orders.  
Tray version can be supplied only in tray units.

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

|                                   | Top setting                                    | Side setting   |
|-----------------------------------|--|--|
| Terminal pin layout (Bottom view) | <p>Real code: </p> <p>Complementary code: </p> | <p>Operating face of real code: </p> <p>Operating face of complementary code: </p> |
| P.C.B. dimensions (Bottom view)   |  |  |

## CODE FORMAT

| No. of positions |                    | S-1000A series (16 positions) |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|------------------|--------------------|-------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|                  |                    | S-2000A series (10 positions) |   |   |   |   |   |   |   |   |   | A | B | C | D | E | F |   |
| Position         |                    | 0                             | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |   |
| Code             | Real code          | 8                             |   |   |   |   |   |   |   | ● | ● | ● | ● | ● | ● | ● | ● |   |
|                  |                    | 4                             |   |   |   |   | ● | ● | ● | ● |   |   |   | ● | ● | ● | ● |   |
|                  |                    | 2                             |   |   | ● | ● |   |   | ● | ● |   |   | ● | ● |   |   | ● | ● |
|                  | Complementary code | 8                             | ● | ● | ● | ● | ● | ● | ● | ● |   |   |   |   |   | ● |   | ● |
|                  |                    | 4                             | ● | ● | ● | ● |   |   |   |   | ● | ● | ● | ● |   |   |   |   |
|                  |                    | 2                             | ● | ● |   |   | ● | ● |   |   | ● | ● |   |   | ● | ● |   |   |
|                  |                    | ●                             |   | ● |   | ● |   | ● |   | ● |   | ● |   | ● |   | ● |   |   |

● ...Contact closed

# S-1000A/2000A

## ROTARY CODED SWITCHES

### STANDARD SPECIFICATIONS

|                             |  |
|-----------------------------|--|
| Circuit type                | BCD (Real code, complementary code)<br>BCH (Real code, complementary code)   |
| Operating temperature range | - 40 ~ 85 °C   |
| Storage temperature range   |  |
| Sealing                     | Washable by "O" ring<br>※ Please refer to page 150,151   |
| Net weight                  | Approx. 0.87 g<br>(S-1010A, S-1030A, S-2010A, S-2030A)<br>Approx. 1.13 g<br>(S-1011A, S-1031A, S-2011A, S-2031A)<br>Approx. 0.97 g<br>(S-1110A, S-1130A, S-2110A, S-2130A)<br>Approx. 1.23 g<br>(S-1111A, S-1131A, S-2111A, S-2131A)<br>Approx. 1.02 g<br>(S-1210A, S-1230A, S-2210A, S-2230A)<br>Approx. 1.28 g<br>(S-1211A, S-1231A, S-2211A, S-2231A) |

### MECHANICAL CHARACTERISTICS

|                   |  |
|-------------------|--|
| No. of positions  | 16 (S-1000A), 10 (S-2000A)   |
| Adjustment torque | 13 mN·m {133 gf·cm} minimum  |
| Stepping angle    | 22.5° (S-1000A), 36° (S-2000A)   |
| Terminal strength | 15 N {1.53 kgf} minimum  |
| Solderability     | 245 ± 3 °C, 2 ~ 3 s  |
| Soldering heat    | Flow : 260 ± 3 °C as the temperature in a pot of molten solder, immersion from head of terminal to backside of board, 5 ~ 6 s, two times maximum |
|                   | Manual soldering :<br>380 ± 10 °C, 3 ~ 4 s   |

{ } : Reference only

### ELECTRICAL CHARACTERISTICS

|   |  |
|---|--|
| Contact rating<br>Non-switching<br>Switching<br>Minimum | DC50 V 100 mA<br>DC5 V 100 mA<br>DC20 mV 1 μ A |
| Contact resistance                                      | 100 m Ω maximum                                |
| Insulation resistance                                   | 1000 M Ω (DC100 V) minimum                     |
| Dielectric strength                                     | AC300 V, 60 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  |
| Load life                 | 10000 steps<br>DC5 V, 100 mA   |
| Humidity (Steady state)   | Resistance load DC50V 100mA<br>60 °C, Relative humidity 90 ~ 95 %, 1000 h                            |
| High temperature exposure | 85 °C, 1000 h  |
| Low temperature exposure  | - 40 °C, 96 h  |
| Thermal shock             | - 40 (0.5 h) ~ 85 °C ( 0.5 h ), 5 cycles   |

# S-1000A/2000A

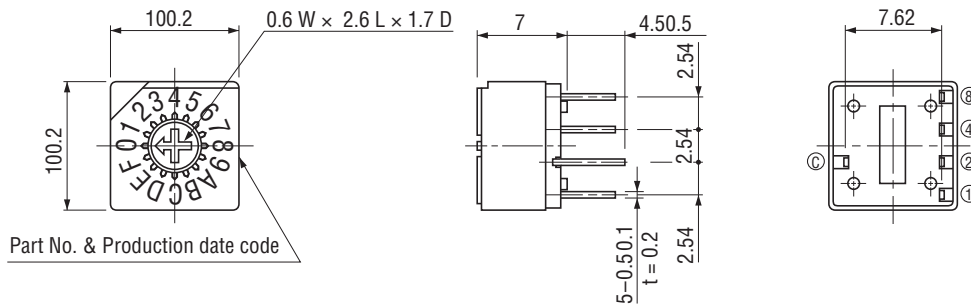
## ROTARY CODED SWITCHES

### OUTLINE DIMENSIONS

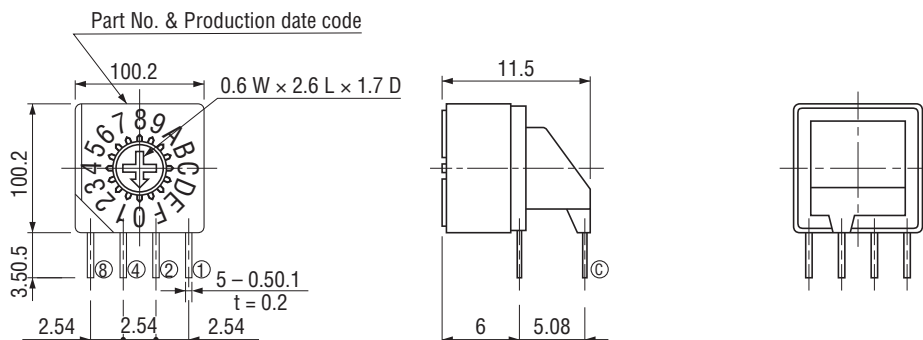
Unless otherwise specified, tolerance:  $\pm 0.3$  (Unit: mm)

(S-1000A series)

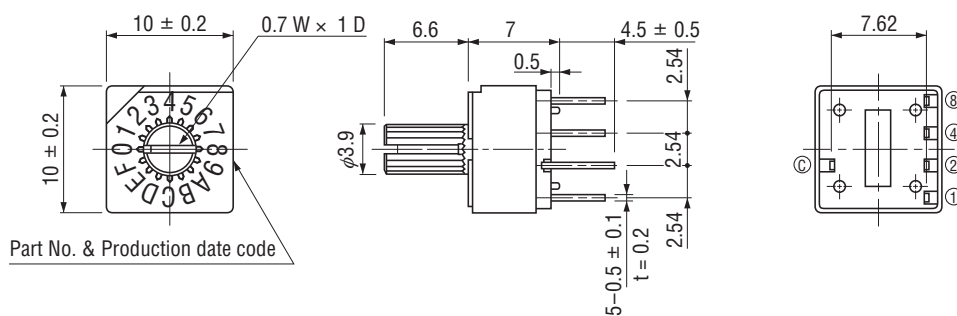
- S-1010A
  - S-1030A
- Top setting



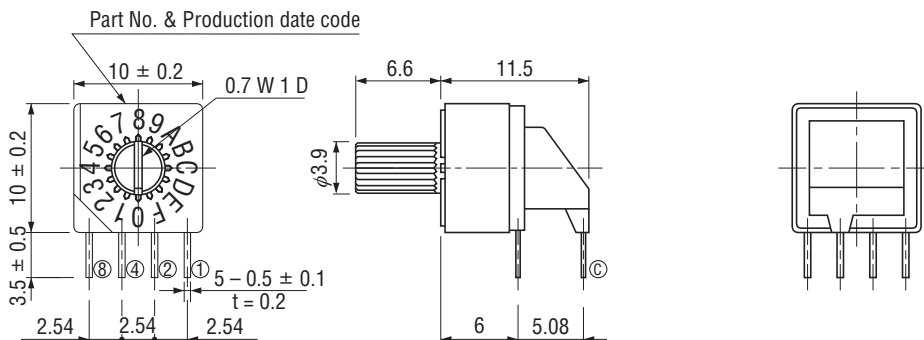
- S-1011A
  - S-1031A
- Side setting



- S-1110A
  - S-1130A
- Top setting



- S-1111A
  - S-1131A
- Side setting



# S-1000A/2000A

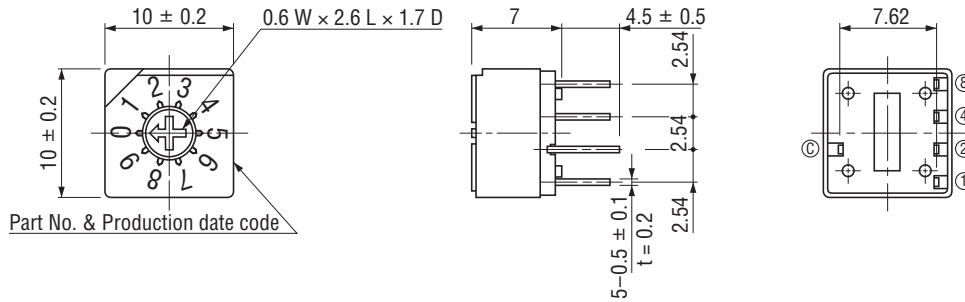
## ROTARY CODED SWITCHES

### OUTLINE DIMENSIONS

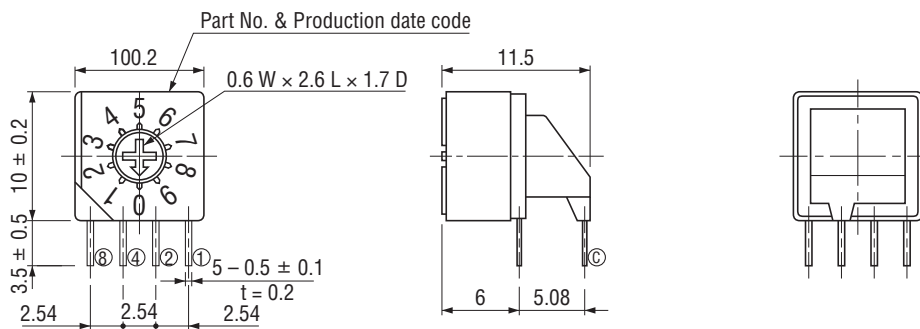
Unless otherwise specified, tolerance:  $\pm 0.3$  (Unit: mm)

(S-2000A series)

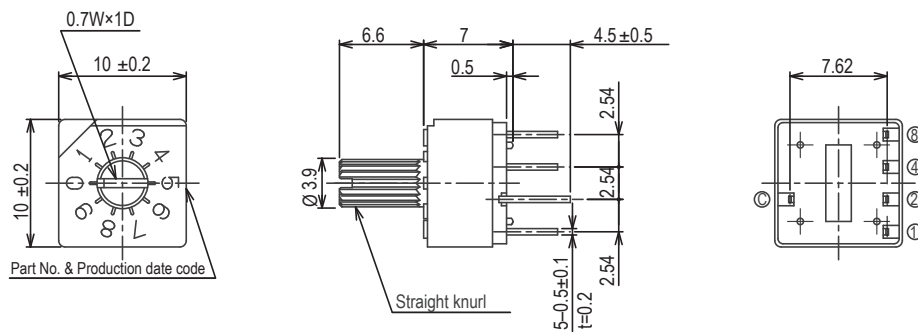
- S-2010A
  - S-2030A
- Top setting



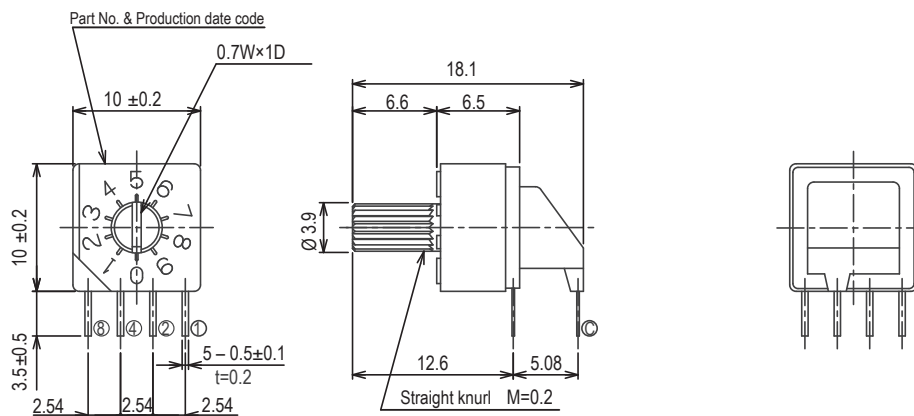
- S-2011A
  - S-2031A
- Side setting



- S-2110A
  - S-2130A
- Top setting



- S-2111A
  - S-2131A
- Side setting



# S-1000A/2000A

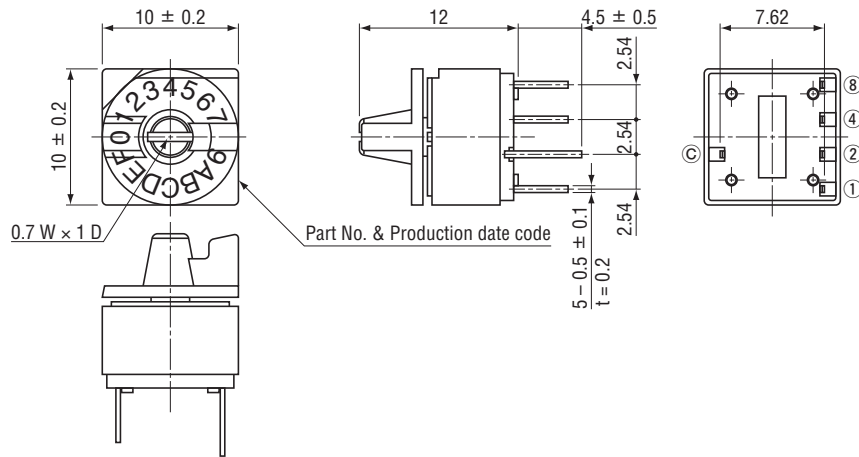
## ROTARY CODED SWITCHES

### OUTLINE DIMENSIONS

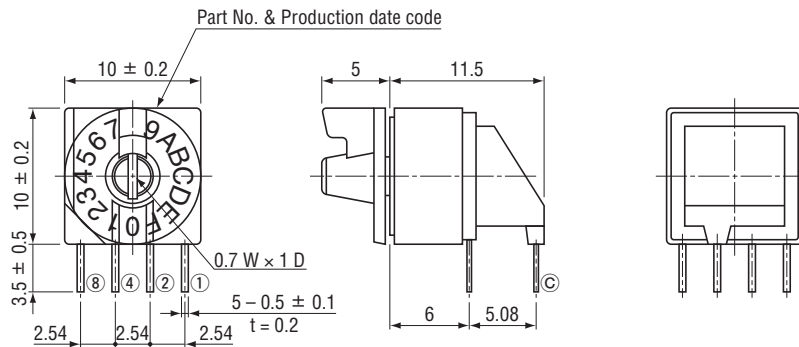
(S-1200A/2200A series)

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

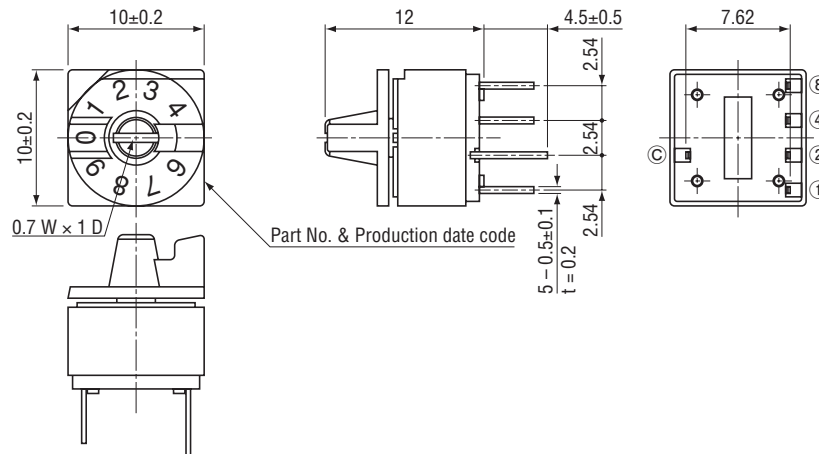
- S-1210A
  - S-1230A
- Top setting



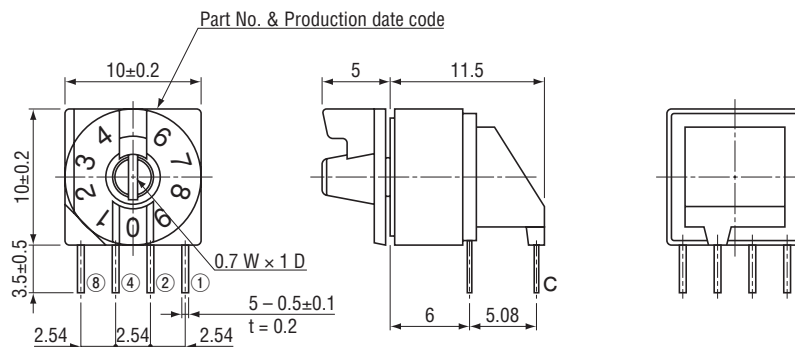
- S-1211A
  - S-1231A
- Side setting



- S-2210A
  - S-2230A
- Top setting



- S-2211A
  - S-2231A
- Side setting

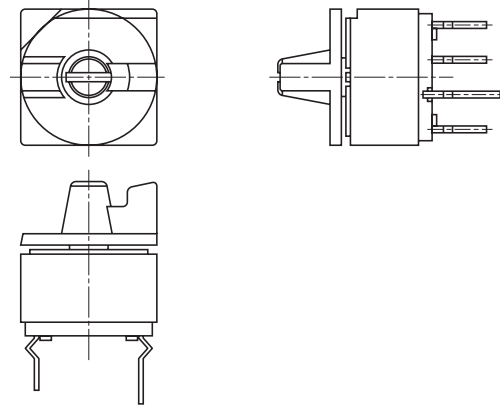
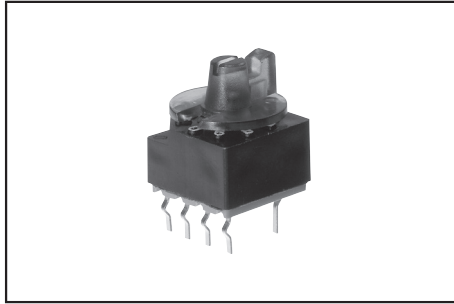


# S-1000A/2000A

## ROTARY CODED SWITCHES

### ■ Snap-in terminal pin with translucent knob with flange (Made to order basis)

#### ● S-1200AK and S-2200AK



### ■ PACKAGING SPECIFICATIONS

#### <Tray packaging specifications>

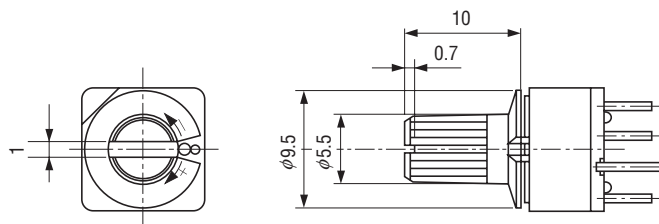
- Tray version is packaged in 50 pcs. per tray. Orders will be accepted for units of 50 pcs., i. e., 50, 100, 150 pcs. etc.
- Tray version is boxed with 10 trays.

#### <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.

### ■ 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.