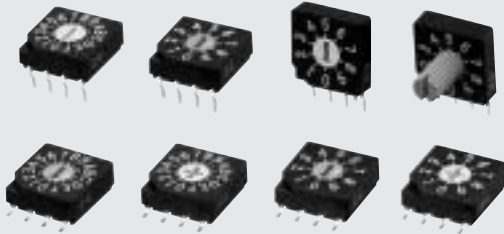


ROTARY CODED SWITCHES

SC-1000/2000

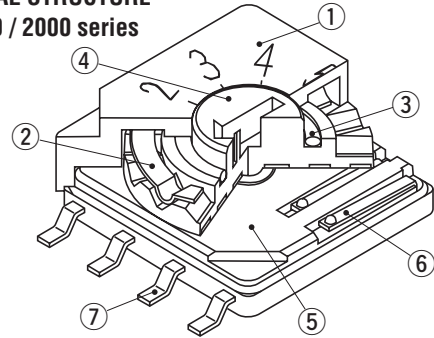
RoHS compliant



FEATURES

- Lead-free soldering
- Fine click with metallic spring
- Low profile of 3.9 mm makes perfect for high density board mounting applications
- Gold plated contact provides excellent reliability
- Cross and minus slot are available
- Terminal pin arrangement 4-1

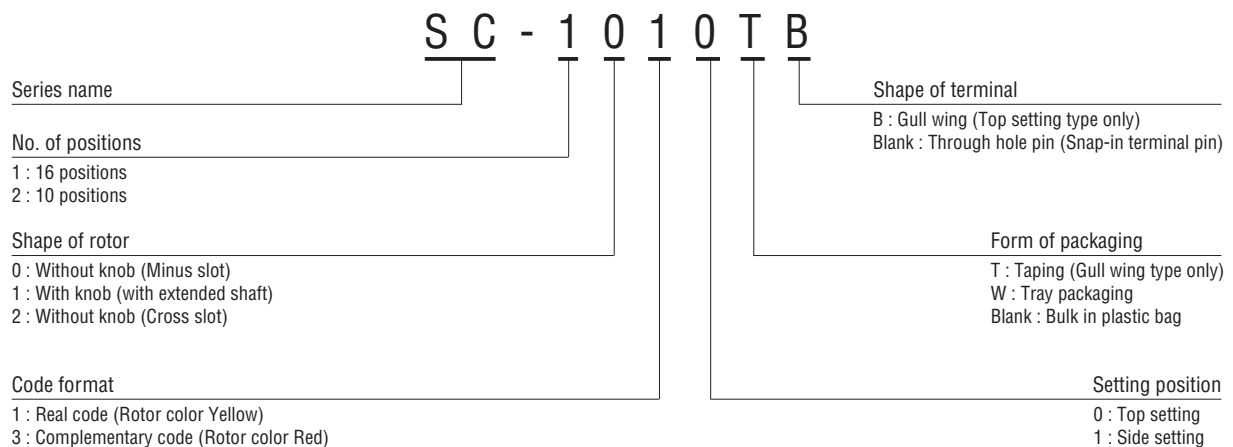
INTERNAL STRUCTURE SC-1000 / 2000 series



| | Part name | Material | Flammability |
|---|-----------------|--|--------------|
| ① | Housing | Polyphenylenesulphide | UL-94V-0 |
| ② | Metallic spring | Stainless (SUS 301) | — |
| ③ | "O" ring | Silicone rubber | UL-94HB |
| ④ | Insert rotor | Rotor : Polyamide Pattern : Copper alloy, Gold-plated | UL-94V-0 |
| ⑤ | Base | Polyphenylenesulphide | UL-94V-0 |
| ⑥ | Contact | Copper alloy, Gold-plated | — |
| ⑦ | Terminal pin | | |

CFCs, Halon, Carbon tetrachloride and designated bromic flame retardant PBBs and PBBs are not used in our products.

PART NUMBER DESIGNATION



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

SC-1000/2000

ROTARY CODED SWITCHES

■ LIST OF PART NUMBERS

| Shape of rotor | | Form of packaging | Binary coded decimal | | Pieces in package |
|------------------------------------|------------------------------|-------------------|----------------------------------|--|-------------------|
| | | | Real code (Rotor : Color Yellow) | Complementary code (Rotor : Color Red) | |
| Top setting (Through hole pin) | Without knob (Minus slot) | Plastic bag | SC-2010 | SC-2030 | 25 pcs./pack |
| | | Tray packaging | SC-2010W | SC-2030W | 50 pcs./tray |
| | With knob | Plastic bag | SC-2110 | SC-2130 | 25 pcs./pack |
| | | Tray packaging | SC-2110W | SC-2130W | 50 pcs./tray |
| | Without knob (Cross slot) | Plastic bag | SC-2210 | SC-2230 | 25 pcs./pack |
| | | Tray packaging | SC-2210W | SC-2230W | 50 pcs./tray |
| Side setting (Through hole pin) | Without knob (Minus slot) | Plastic bag | SC-2011 | SC-2031 | 25 pcs./pack |
| | | Tray packaging | SC-2011W | SC-2031W | 50 pcs./tray |
| | With knob | Plastic bag | SC-2111 | SC-2131 | 25 pcs./pack |
| | | Tray packaging | SC-2111W | SC-2131W | 50 pcs./tray |
| | Without knob (Cross slot) | Plastic bag | SC-2211 | SC-2231 | 25 pcs./pack |
| | | Tray packaging | SC-2211W | SC-2231W | 50 pcs./tray |
| Top setting (Gull wing) | Without knob (Minus slot) | Plastic bag | SC-2010B | SC-2030B | 25 pcs./pack |
| | | Tray packaging | SC-2010WB | SC-2030WB | 50 pcs./tray |
| | | Plastic bag | SC-2010TB | SC-2030TB | 500 pcs./reel |
| | Without knob (Cross slot) | Vinyl pack | SC-2210B | SC-2230B | 25 pcs./pack |
| | | Plastic bag | SC-2210WB | SC-2230WB | 50 pcs./tray |
| | | Taping | SC-2210TB | SC-2230TB | 500 pcs./reel |

| Shape of rotor | | Form of packaging | Binary coded hexadecimal | | Pieces in package |
|------------------------------------|------------------------------|-------------------|----------------------------------|--|-------------------|
| | | | Real code (Rotor : Color Yellow) | Complementary code (Rotor : Color Red) | |
| Top setting (Through hole pin) | Without knob (Minus slot) | Plastic bag | SC-1010 | SC-1030 | 25 pcs./pack |
| | | Tray packaging | SC-1010W | SC-1030W | 50 pcs./tray |
| | With knob | Plastic bag | SC-1110 | SC-1130 | 25 pcs./pack |
| | | Tray packaging | SC-1110W | SC-1130W | 50 pcs./tray |
| | Without knob (Cross slot) | Plastic bag | SC-1210 | SC-1230 | 25 pcs./pack |
| | | Tray packaging | SC-1210W | SC-1230W | 50 pcs./tray |
| Side setting (Through hole pin) | Without knob (Minus slot) | Plastic bag | SC-1011 | SC-1031 | 25 pcs./pack |
| | | Tray packaging | SC-1011W | SC-1031W | 50 pcs./tray |
| | With knob | Plastic bag | SC-1111 | SC-1131 | 25 pcs./pack |
| | | Tray packaging | SC-1111W | SC-1131W | 50 pcs./tray |
| | Without knob (Cross slot) | Plastic bag | SC-1211 | SC-1231 | 25 pcs./pack |
| | | Tray packaging | SC-1211W | SC-1231W | 50 pcs./tray |
| Top setting (Gull wing) | Without knob (Minus slot) | Plastic bag | SC-1010B | SC-1030B | 25 pcs./pack |
| | | Tray packaging | SC-1010WB | SC-1030WB | 50 pcs./tray |
| | | Taping | SC-1010TB | SC-1030TB | 500 pcs./reel |
| | Without knob (Cross slot) | Plastic bag | SC-1210B | SC-1230B | 25 pcs./pack |
| | | Tray packaging | SC-1210WB | SC-1230WB | 50 pcs./tray |
| | | Taping | SC-1210TB | SC-1230TB | 500 pcs./reel |

※ : Verify the above part numbers when placing orders.

※ : Taping and tray version can be supplied only in reel or tray units.

SC-1000/2000

ROTARY CODED SWITCHES

STANDARD SPECIFICATIONS

| | |
|-----------------------------|--|
| Circuit type | BCD (Real code, complementary code) BCH (Real code, complementary code) |
| Operating temperature range | -25 ~ 85 °C |
| Storage temperature range | |
| Sealing | Non washable |
| Net weight | Without knob Top setting 0.63 g With knob Top setting 0.73 g Without knob Side setting 0.76 g With knob Side setting 0.86 g |

ELECTRICAL CHARACTERISTICS

| | |
|---|---|
| Contact rating Non-switching Switching Minimum | DC50 V 100 mA DC5 V 100 mA DC20 mV 1 µA |
| Contact resistance | 100 mΩ maximum |
| Insulation resistance | 1000 MΩ (DC100 V) minimum |
| Dielectric strength | AC250 V, 60 s |

MECHANICAL CHARACTERISTICS

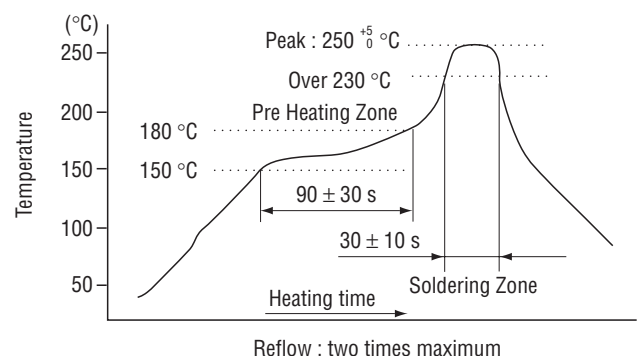
| | |
|--|--|
| No. of positions | 16 (SC-1000), 10 (SC-2000) |
| Adjustment torque | 4 ~ 20 mN·m {41 ~ 204 gf·cm} |
| Stepping angle | 22.5° (SC-1000), 36° (SC-2000) |
| Terminal strength (Through hole pin only) | 10 N {1.02 kgf} minimum |
| Stop strength (With knob only) | 10 N {1.02 kgf}, 10 s |
| Solderability | 245 ± 3 °C, 2 ~ 3 s |
| Soldering heat | Gull wing Reflow : Peak temperature 255 °C (Please refer to the profile below.) Manual soldering : 350 ± 10 °C, 3 ~ 4 s |
| | Through hole pin 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 : 380 ± 10 °C, 3 ~ 4 s |
| Shear (Gull wing only) | 5 N {0.51 kgf}, 10 s |
| Substrate bending (Gull wing only) | Width 90 mm, bend 3 mm, 5 s, 1 time |
| Pull-off strength (Gull wing only) | 5 N {0.51 kgf}, 10 s |

{ } : Reference only

ENVIRONMENTAL CHARACTERISTICS

| | |
|---------------------------|--|
| Vibration | Amplitude 1.5 mm or Acceleration 98 m/s ² , 10-500-10 Hz, 3 directions for 2 h each |
| Shock | 490 m/s ² , 11 ms 6 directions for 3 times each |
| Humidity (Steady state) | 40 °C, Relative humidity 90 ~ 95 %, 240 h |
| Load life | 20000 steps DC5 V, 100 mA |
| High temperature exposure | 85 °C, 96 h |
| Low temperature exposure | -25 °C, 96 h |
| Thermal shock | -25 (0.5 h) ~ 85 °C (0.5 h), 5 cycles |

<Reflow profile for soldering heat evaluation>



SC-1000/2000

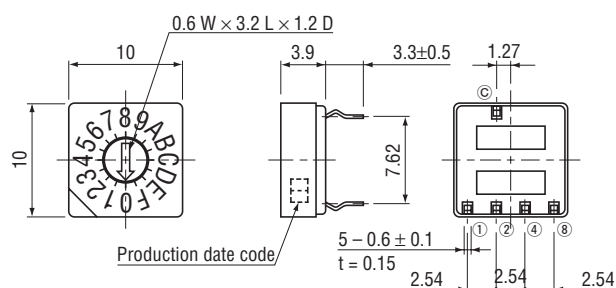
ROTARY CODED SWITCHES

OUTLINE DIMENSIONS

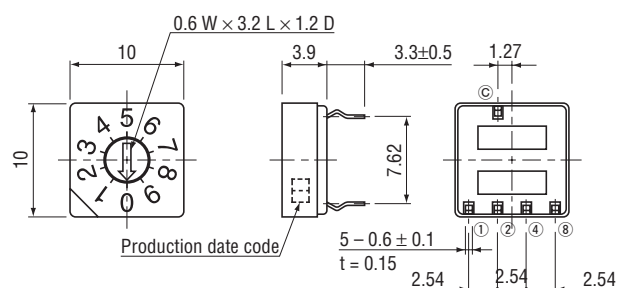
Unless otherwise specified, tolerance: ± 0.3 (Unit: mm)

<Through hole pin, Top setting>

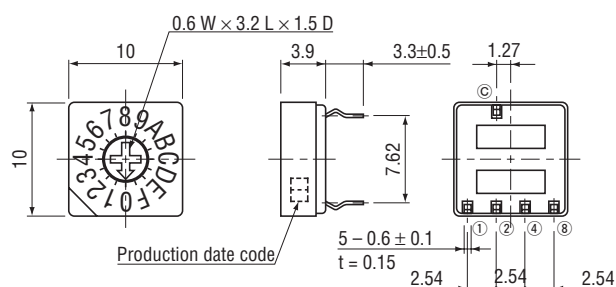
- SC-1010 (Real code)
- SC-1030 (Complementary code)



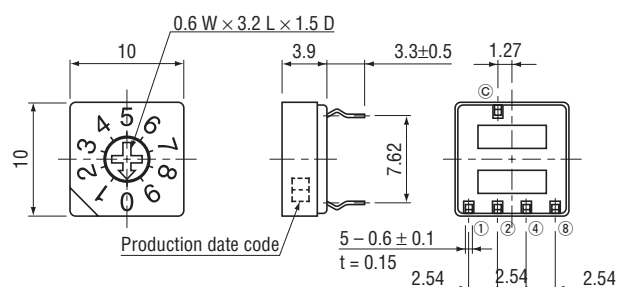
- SC-2010 (Real code)
- SC-2030 (Complementary code)



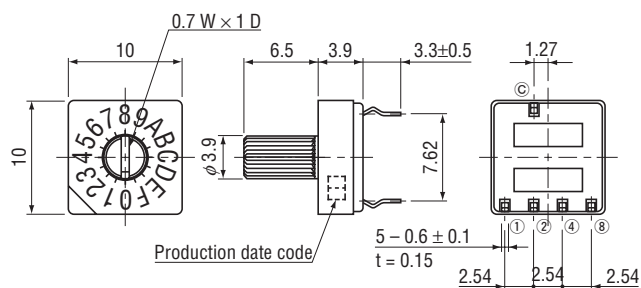
- SC-1210 (Real code)
- SC-1230 (Complementary code)



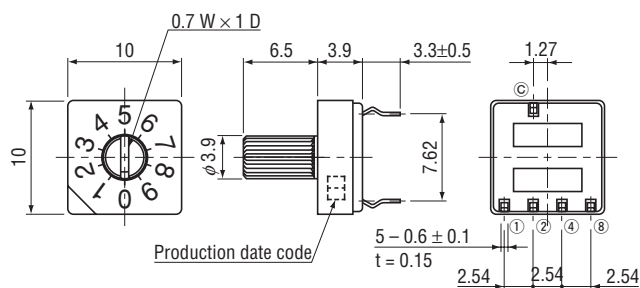
- SC-2210 (Real code)
- SC-2230 (Complementary code)



- SC-1110 (Real code)
- SC-1130 (Complementary code)



- SC-2110 (Real code)
- SC-2130 (Complementary code)



SC-1000/2000

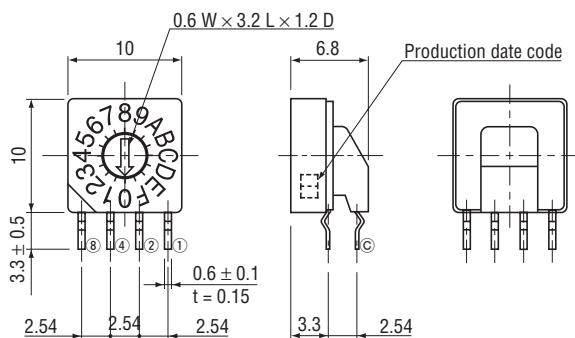
ROTARY CODED SWITCHES

OUTLINE DIMENSIONS

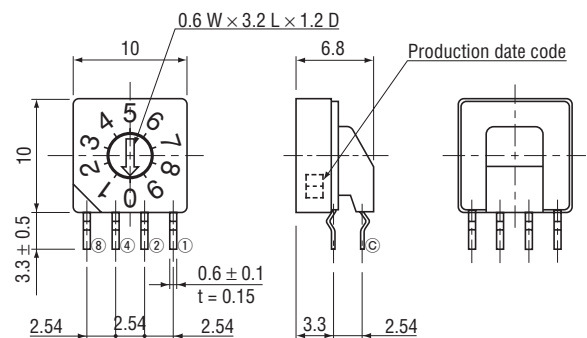
<Through hole pin, Side setting>

Unless otherwise specified, tolerance: ± 0.3 (Unit: mm)

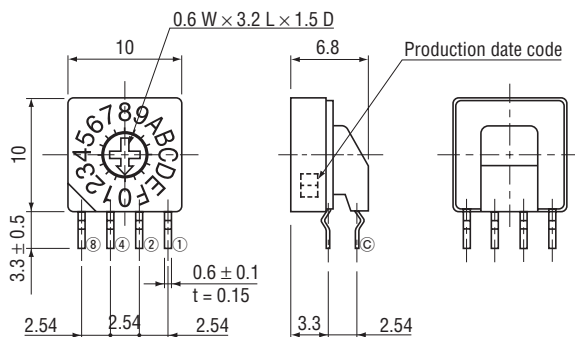
- SC-1011 (Real code)
- SC-1031 (Complementary code)



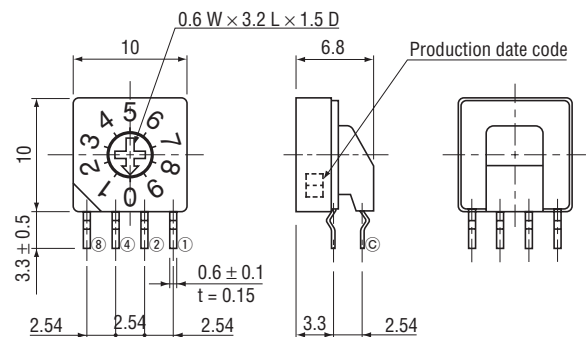
- SC-2011 (Real code)
- SC-2031 (Complementary code)



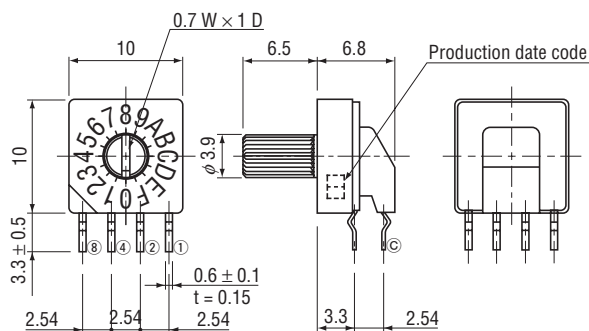
- SC-1211 (Real code)
- SC-1231 (Complementary code)



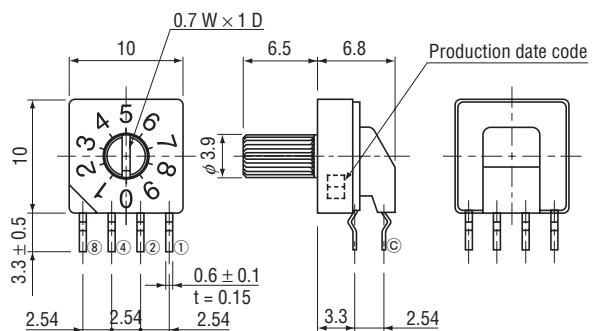
- SC-2211 (Real code)
- SC-2231 (Complementary code)



- SC-1111 (Real code)
- SC-1131 (Complementary code)



- SC-2111 (Real code)
- SC-2131 (Complementary code)



SC-1000/2000

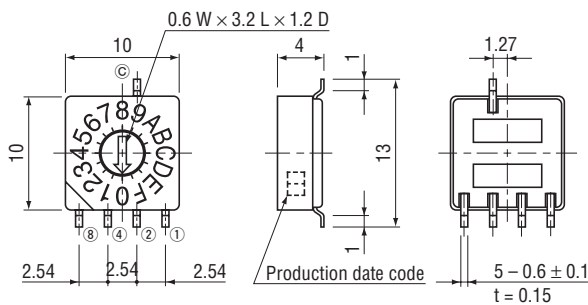
ROTARY CODED SWITCHES

OUTLINE DIMENSIONS

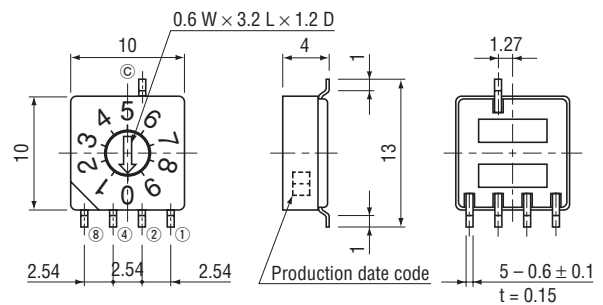
<Gull wing, Top setting>

- SC-1010B (Real code)
- SC-1030B (Complementary code)

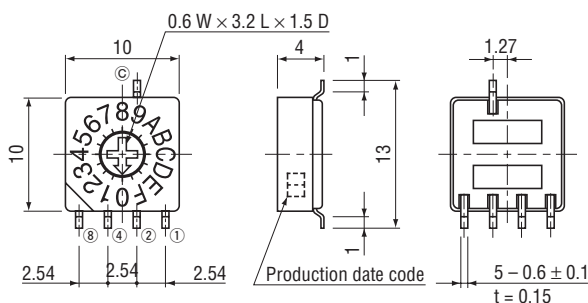
Unless otherwise specified, tolerance: ± 0.3 (Unit: mm)



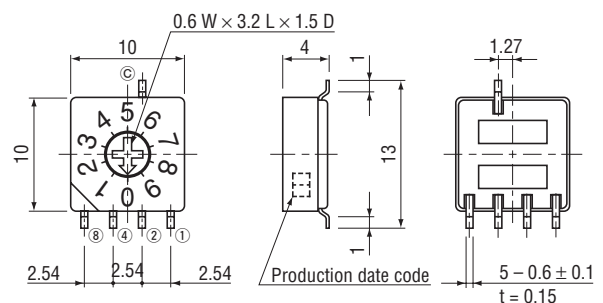
- SC-2010B (Real code)
- SC-2030B (Complementary code)



- SC-1210B (Real code)
- SC-1230B (Complementary code)

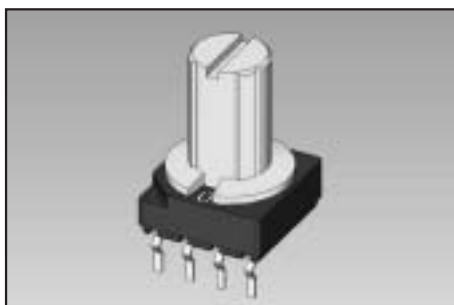


- SC-2210B (Real code)
- SC-2230B (Complementary code)



COLORED KNOB

Yellow, red, white and transparent knob, and translucent thumbwheel type are available as a semi standard item.



Colored knob



Translucent thumbwheel

SC-1000/2000

ROTARY CODED SWITCHES

CODE FORMAT

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

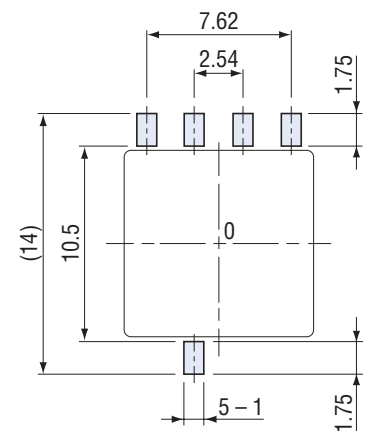
● ... Contact closed

TERMINAL CONNECTION / P.C.B. THROUGH HOLE DIMENSIONS

(Unit: mm)

RECOMMENDED P.C.B. PAD OUTLINE DIMENSIONS

| | Top setting | Side setting |
|--------------------------------------|--|--|
| Terminal pin layout (Bottom view) | <div>Real code</div> <div>Complementary code</div> | <div>Operating face of real code</div> <div>Operating face of complementary code</div> |
| P.C.B. dimensions (Bottom view) | <p>SC-1000/2000 case</p> | <p>SC-1000/2000 case</p> |



SC-1000/2000

ROTARY CODED SWITCHES

■ PACKAGING SPECIFICATIONS

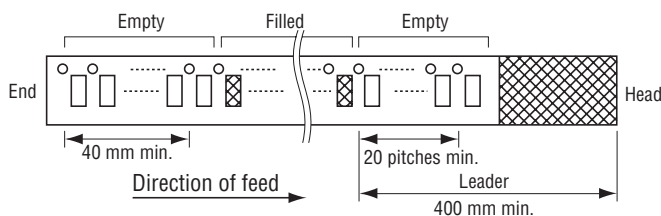
<Taping packaging specifications>

- Taping version is packaged in 500 pcs. per reel.
Orders will be accepted for units of 500 pcs., i.e., 500, 1000, 1500 pcs., etc.
- Taping version is boxed with one reel (500 pcs.).

Maximum number of consecutive missing pieces = 2

Leader length and reel dimension are shown in the dia-grams below:

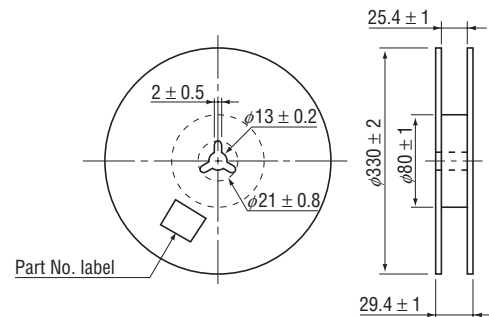
● Embossed tape dimensions



● Reel dimensions

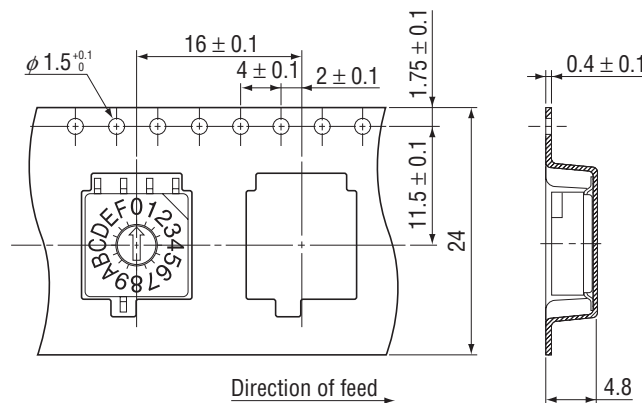
(Unit: mm)

(In accordance with EIAJ ET-7200A)



(Unit: mm)

(In accordance with EIAJ RC-1009B)



<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 pack in a plastic bag is performed with 25 pcs. (standard 50 pcs.) per box.