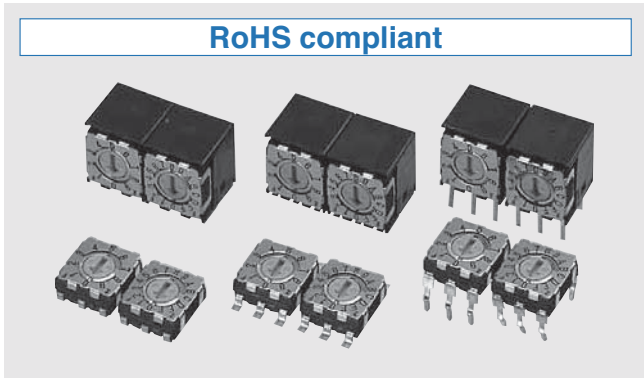


ROTARY CODED SWITCHES (SMD)

S-7000

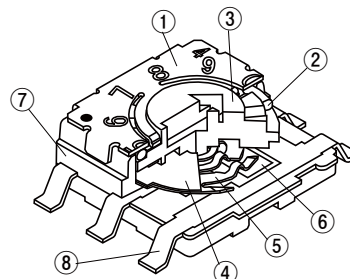
RoHS compliant



FEATURES

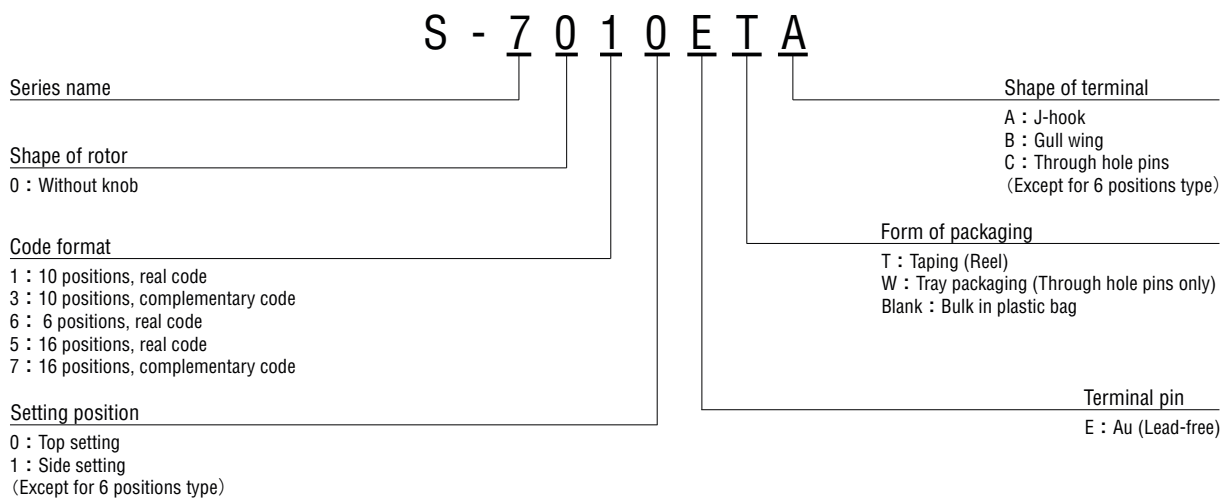
- RoHS compliant
- Low profile of 2.9 mm
- Wide variety (top or side setting, 6, 10 or 16 positions, J-hook, gull wing or through hole pins) to choose from
- Compatible with flow (top setting only) / reflow soldering
- Washable

INTERNAL STRUCTURE



| Part name | Material | Flammability |
|------------------|---------------------------|--------------|
| ① Cover | Stainless steel (SUS 304) | — |
| ② “O” ring | Silicone rubber | UL94HB |
| ③ Rotor | Polyphenylenesulphide | UL94V-0 |
| ④ Spacer | Stainless steel (SUS 304) | — |
| ⑤ Moving contact | Copper alloy, Gold-plated | |
| ⑥ Fixed contact | | |
| ⑦ Housing | Epoxy | UL94V-0 |
| ⑧ Terminal pin | Copper alloy, Gold-plated | — |

PART NUMBER DESIGNATION



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

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ROTARY CODED SWITCHES (SMD)

CODE FORMAT

| No. of positions | | 16 positions | | | | | | | | | | | | | | | |
|------------------|--------------------|--------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 10 positions | | | | | | | | | | | | | | | |
| Position | | 6 positions | | | | | | | | | | | | | | | |
| | | 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 | 8 | ● | ● | ● | ● | ● | ● | ● | | | | | | | | |
| | | 4 | ● | ● | ● | ● | | | | | ● | ● | ● | ● | | | |
| | | 2 | ● | ● | | | ● | ● | | | ● | ● | | | ● | ● | |
| | | 1 | ● | | ● | | ● | | ● | | ● | | ● | | ● | | ● |

● ... Contact closed

LIST OF PART NUMBERS

| Setting position | Shape of terminal | Form of packaging | Binary coded hexal | Binary coded decimal | | Binary coded hexadecimal | | Pieces in package | |
|------------------|-------------------------|-------------------|--------------------|----------------------|--------------------|--------------------------|--------------------|-------------------|----------------|
| | | | Real code | Real code | Complementary code | Real code | Complementary code | | |
| Top setting | A (J-hook) | Taping | S-7060ETA | S-7010ETA | S-7030ETA | S-7050ETA | S-7070ETA | 500 pcs. / reel | |
| | | Plastic bag | S-7060EA | S-7010EA | S-7030EA | S-7050EA | S-7070EA | 50 pcs. / pack | |
| | B (Gull wing) | Taping | S-7060ETB | S-7010ETB | S-7030ETB | S-7050ETB | S-7070ETB | 500 pcs. / reel | |
| | | Plastic bag | S-7060EB | S-7010EB | S-7030EB | S-7050EB | S-7070EB | 50 pcs. / pack | |
| | C (Through hole pin) | Tray packaging | | | S-7010EWC | S-7030EWC | S-7050EWC | S-7070EWC | 50 pcs. / tray |
| | | Plastic bag | | | S-7010EC | S-7030EC | S-7050EC | S-7070EC | 50 pcs. / pack |
| Side setting | A (J-hook) | Taping | | ↻ S-7011ETA | ↻ S-7031ETA | ↻ S-7051ETA | ↻ S-7071ETA | 500 pcs. / reel | |
| | | Plastic bag | | ↻ S-7011EA | ↻ S-7031EA | ↻ S-7051EA | ↻ S-7071EA | 50 pcs. / pack | |
| | B (Gull wing) | Taping | | ↻ S-7011ETB | ↻ S-7031ETB | ↻ S-7051ETB | ↻ S-7071ETB | 500 pcs. / reel | |
| | | Plastic bag | | ↻ S-7011EB | ↻ S-7031EB | ↻ S-7051EB | ↻ S-7071EB | 50 pcs. / pack | |
| | C (Through hole pin) | Tray packaging | | ↻ S-7011EWC | ↻ S-7031EWC | ↻ S-7051EWC | ↻ S-7071EWC | 50 pcs. / tray | |
| | | Plastic bag | | ↻ S-7011EC | ↻ S-7031EC | ↻ S-7051EC | ↻ S-7071EC | 50 pcs. / pack | |

☐ : Not manufactured

※ Verify the above part numbers when placing orders.

Taping and tray version can be supplied only in reel or tray unit.

The products indicated by ↻ mark are manufactured upon receipt of order basis.

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ROTARY CODED SWITCHES (SMD)

STANDARD SPECIFICATIONS

| | |
|-----------------------------|---|
| Circuit type | BCD (Real code, complementary code) BCH (Real code, complementary code) |
| Operating temperature range | -40 ~ 85 °C |
| Storage temperature range | |
| Sealing | Washable by "O" ring ※Please refer to page 150,151 |
| Net weight | Approx. 0.26 g (A or B type in top setting) Approx. 0.28 g (C type in top setting) Approx. 0.62 g (Side setting type) |

ELECTRICAL CHARACTERISTICS

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

MECHANICAL CHARACTERISTICS

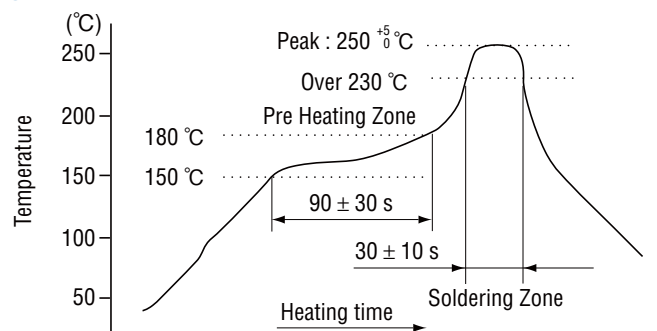
| | |
|-------------------|---|
| No. of positions | 6, 10, 16 |
| Adjustment torque | 20 mN·m {204 gf·cm} maximum |
| Stepping angle | 60° (6 positions) 36° (10 positions) 22.5° (16 positions) |
| Solderability | 245 ± 3 °C, 2 ~ 3 s |
| Soldering heat | Reflow : 255 °C (Peak temperature) (Please refer to the profile below) Flow : 260 ± 3 °C, 5 ~ 6 s, two times maximum Manual soldering : 350 ± 10 °C, 3 ~ 4 s |
| Shear (adhesion) | 5 N {0.51 kgf}, 10 s |
| Substrate bending | Width 90 mm, bend 3 mm, 5 s, 1 time |
| Pull-off strength | 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 |
| Load life | 10000 steps minimum, DC5 V, 100 mA |
| Humidity (Steady state) | 40 °C, Relative humidity 90 ~ 95 %, 240 h |
| High temperature exposure | 85 °C, 96 h |
| Low temperature exposure | -40 °C, 96 h |
| Thermal shock | -40 (0.5 h) ~ 85 °C (0.5 h), 5 cycles |

<Reflow profile for soldering heat evaluation>



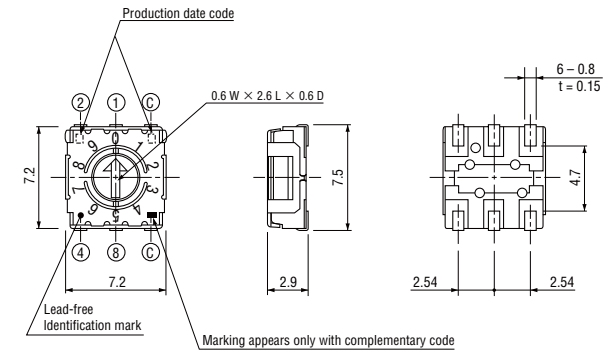
Reflow : two times maximum

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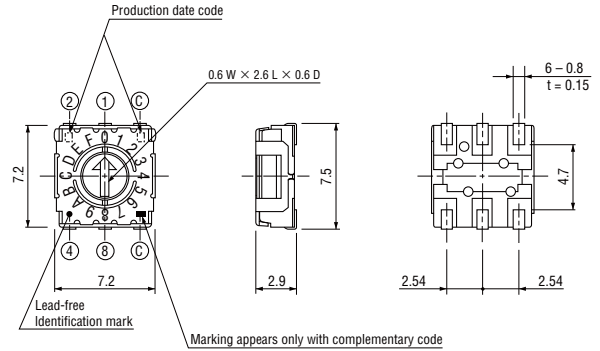
ROTARY CODED SWITCHES (SMD)

OUTLINE DIMENSIONS

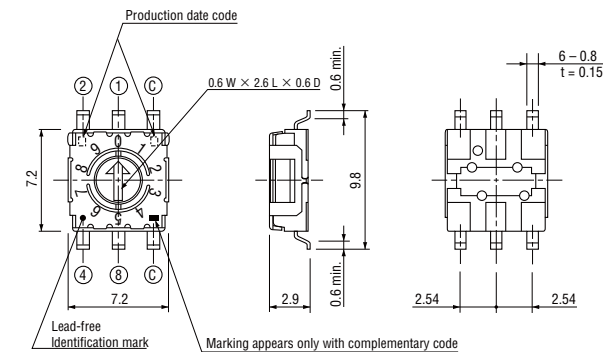
- S-7010EA (Real code)
- S-7030EA (Complementary code)



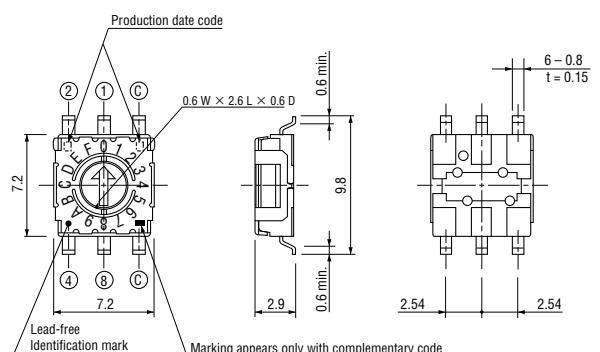
- S-7050EA (Real code)
- S-7070EA (Complementary code)



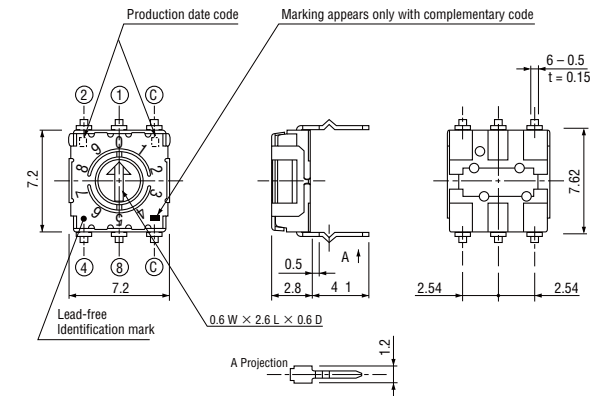
- S-7010EB (Real code)
- S-7030EB (Complementary code)



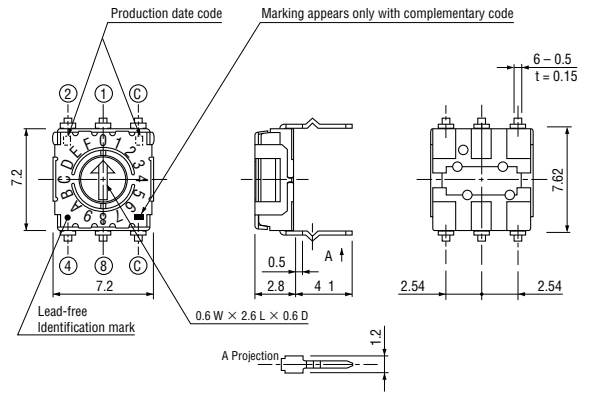
- S-7050EB (Real code)
- S-7070EB (Complementary code)



- S-7010EC (Real code)
- S-7030EC (Complementary code)



- S-7050EC (Real code)
- S-7070EC (Complementary code)

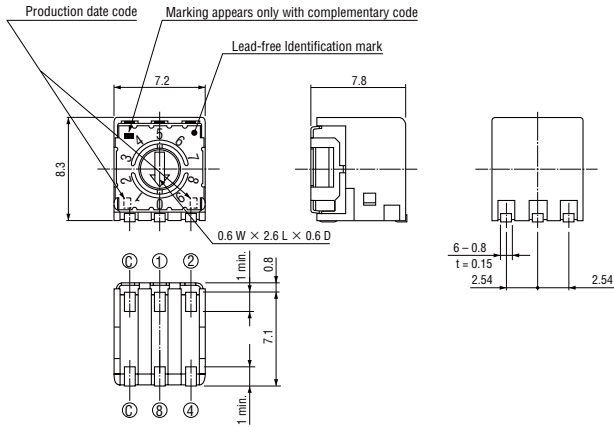


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ROTARY CODED SWITCHES (SMD)

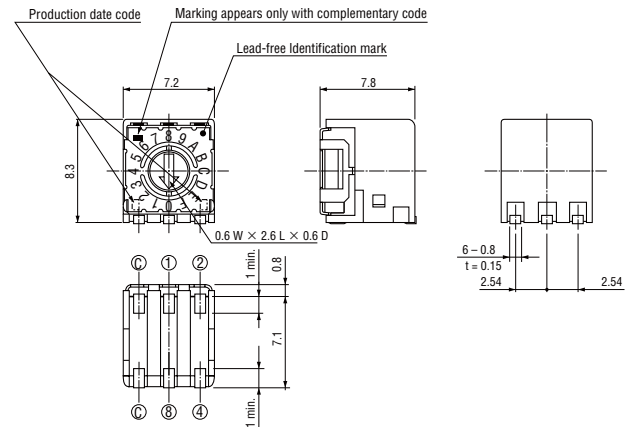
OUTLINE DIMENSIONS

- S-7011EA (Real code)
- S-7031EA (Complementary code)

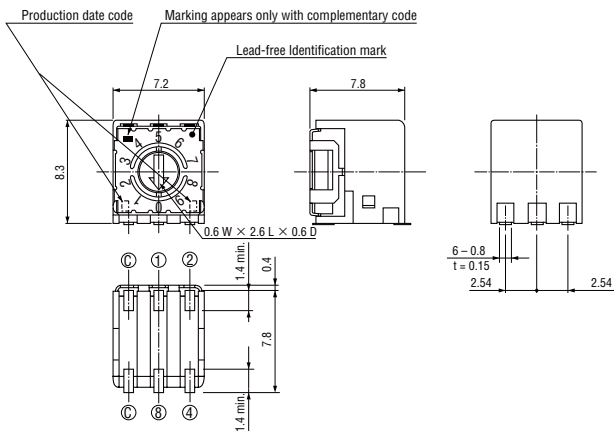


Unless otherwise specified, tolerance: ± 0.3 (Unit: mm)

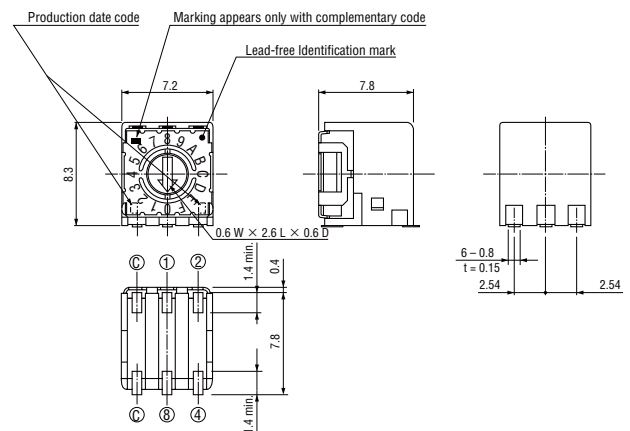
- S-7051EA (Real code)
- S-7071EA (Complementary code)



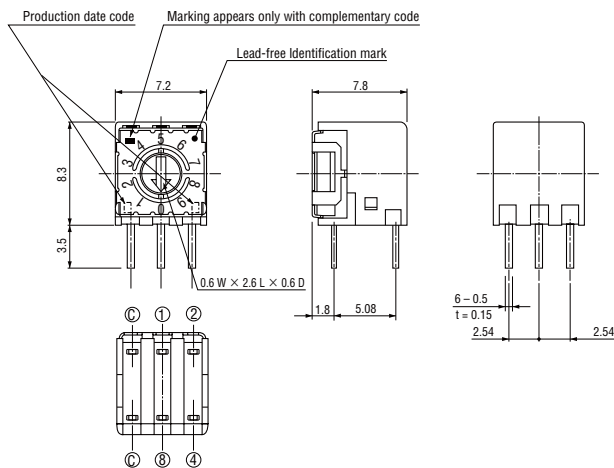
- S-7011EB (Real code)
- S-7031EB (Complementary code)



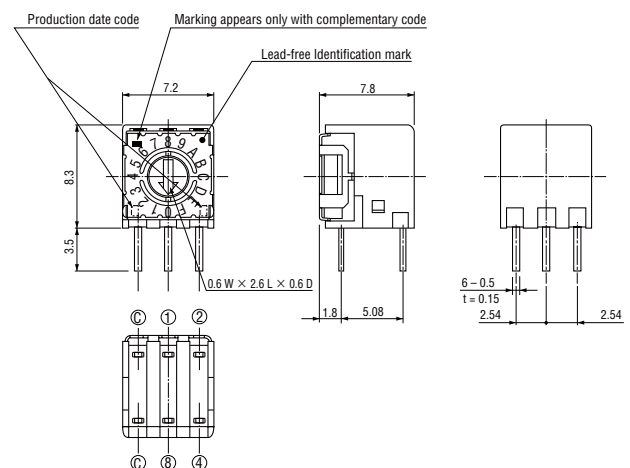
- S-7051EB (Real code)
- S-7071EB (Complementary code)



- S-7011EC (Real code)
- S-7031EC (Complementary code)



- S-7051EC (Real code)
- S-7071EC (Complementary code)

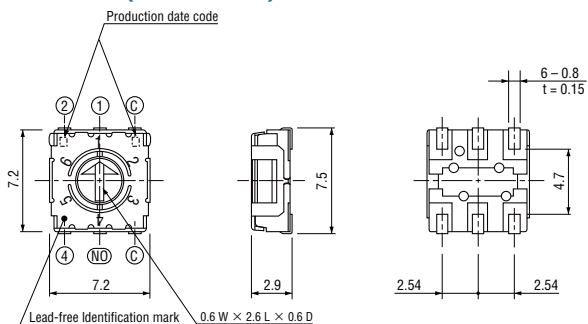


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ROTARY CODED SWITCHES (SMD)

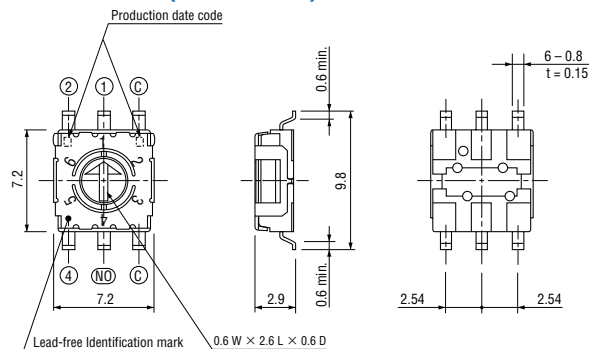
OUTLINE DIMENSIONS

S-7060EA (Real code)



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

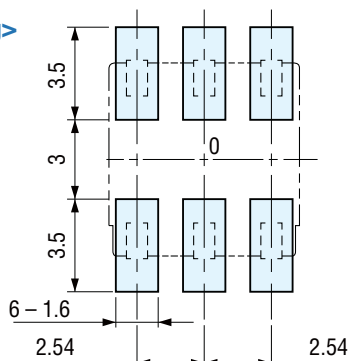
S-7060EB (Real code)



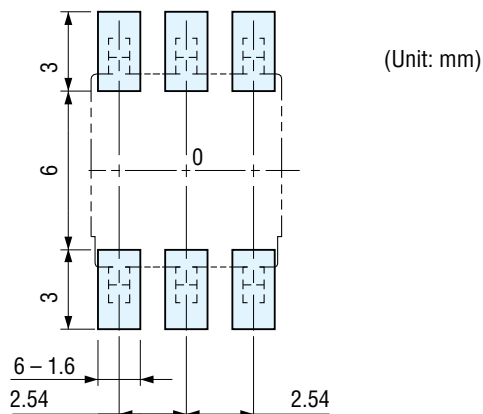
RECOMMENDED P.C.B. PAD OUTLINE DIMENSIONS

<Top setting>

A type

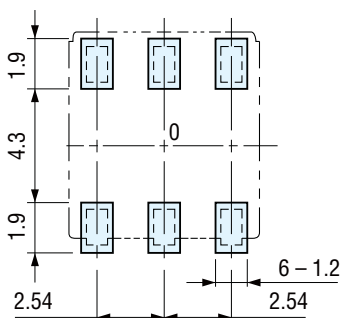


B type

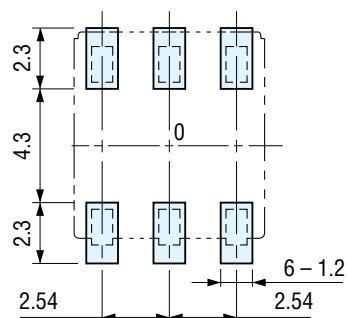


<Side setting>

A type



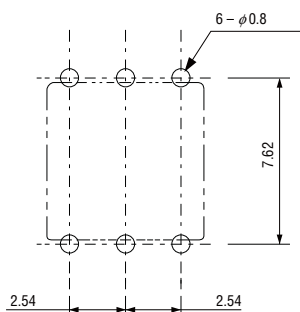
B type



SIZE OF P.C.B. PROCESSING

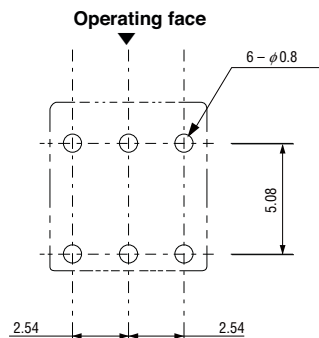
<Top setting>

C type



<Side setting>

C type



S-7000

ROTARY CODED SWITCHES (SMD)

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.).

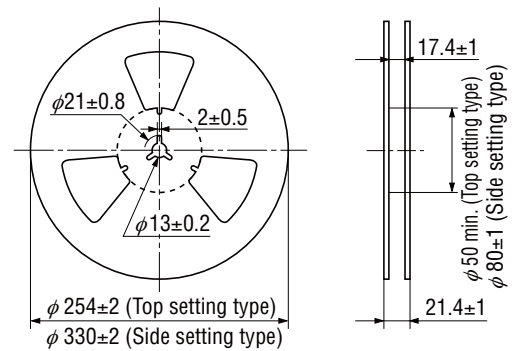
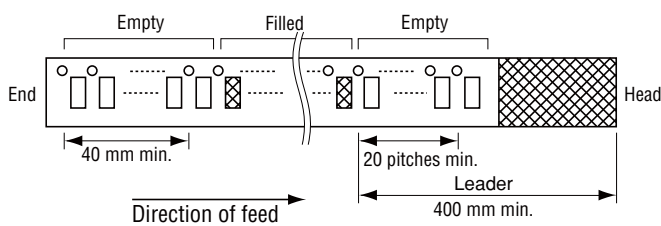
Maximum number of consecutive missing pieces = 2
Leader length and reel dimension are shown in the diagrams below:

● Reel dimensions

(Unit: mm)

(Conforms to JIS C 0806-3)

(In accordance with EIAJ ET-7200A)

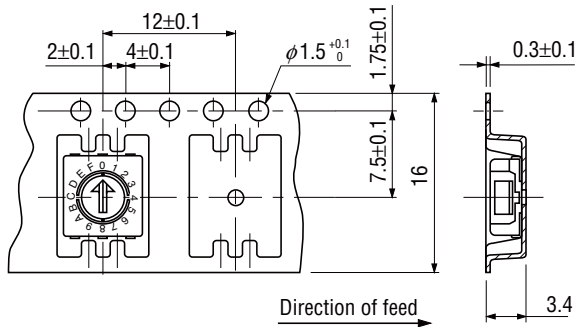


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ROTARY CODED SWITCHES (SMD)

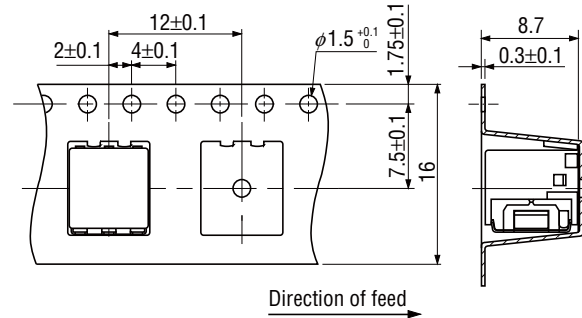
(Conforms to JIS C 0806-3)

● S-70□□ETA <Top setting>

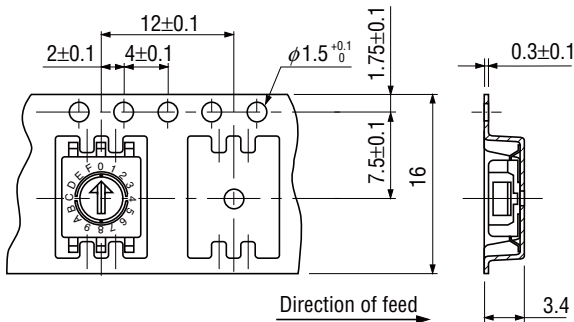


<Side setting>

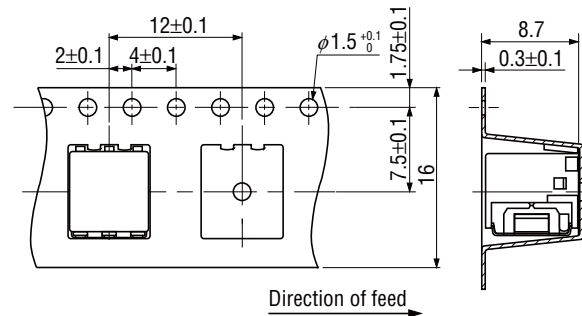
(Unit: mm)



● S-70□□ETB <Top setting>



<Side setting>



<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 (top setting type) is performed with 50 pcs. (standard 200 pcs.) per box. Only that side setting type is 100 pcs. (standard 200 pcs.) per box.