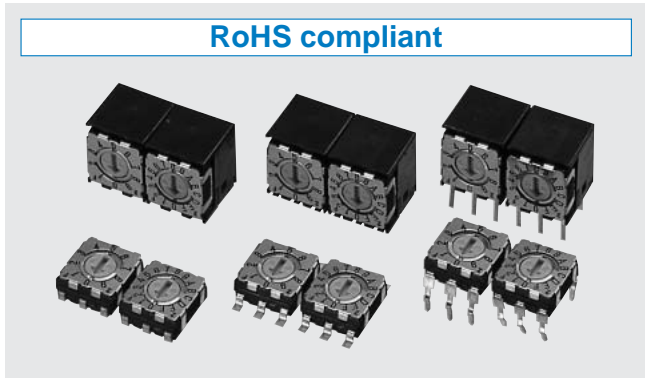


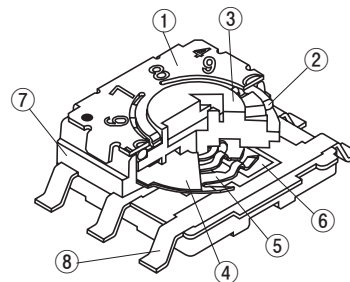
# ROTARY CODED SWITCHES (SMD)

# S-7000

## RoHS compliant



## INTERNAL STRUCTURE

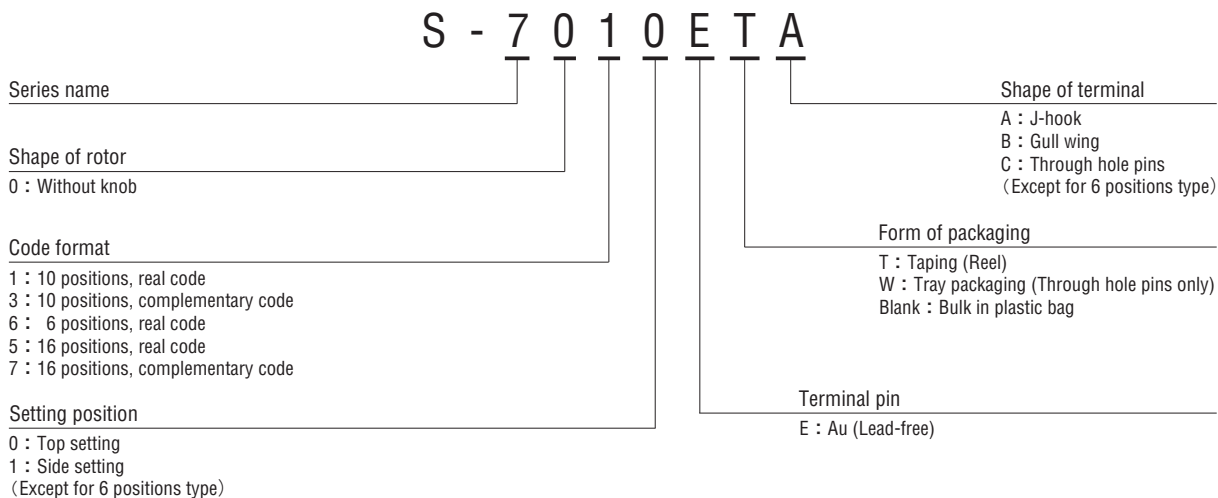


## FEATURES

- 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

Part name	Material	Flammability
① Cover	Stainless steel (SUS 304)	—
② “O” ring	Silicone rubber	UL-94HB
③ Rotor	PPS(Polyphenylenesulphide)	UL-94V-0
④ Spacer	Stainless steel (SUS 304)	—
⑤ Moving contact	Copper alloy, Gold-plated	
⑥ Fixed contact		
⑦ Housing	Epoxy	UL-94V-0
⑧ Terminal pin	Copper alloy, Gold-plated	—

## PART NUMBER DESIGNATION



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



# S-7000

## 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
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

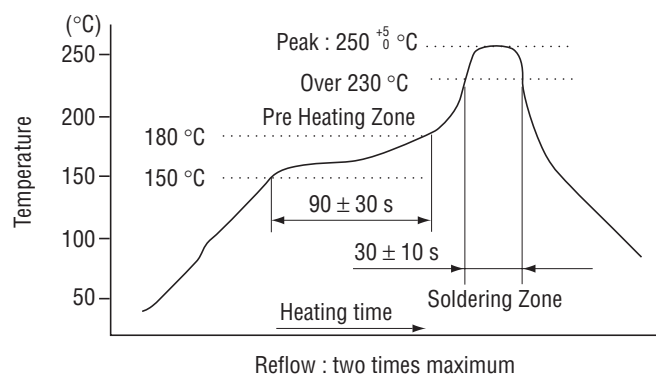
No. of positions	6, 10, 16
Adjustment torque	20 mN·m {204 gf·cm} maximum
Stepping angle	60° (6 positions) 36° (10 positions) 22.5° (16 positions)
Solderability	245 ± 3 °C, 2 ~ 3 s
Soldering heat	Reflow : 255 °C (Peak temperature) (Please refer to the profile below) Flow : 260 ± 3 °C, 5 ~ 6 s, two times 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

### ENVIRONMENTAL CHARACTERISTICS

Vibration	Amplitude 1.5 mm or Acceleration 98 m/s <sup>2</sup> , 10-500-10 Hz, 3 directions for 2 h each
Shock	490 m/s <sup>2</sup> , 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

{ } : Reference only

### <Reflow profile for soldering heat evaluation>



# S-7000

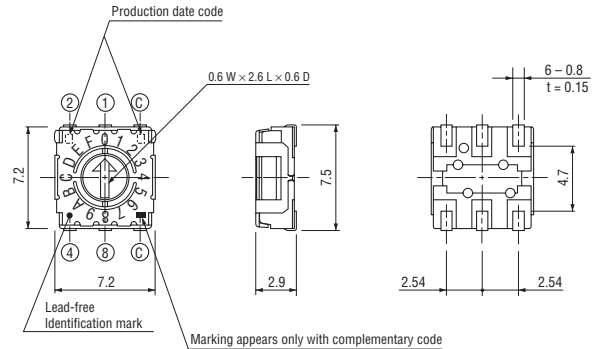
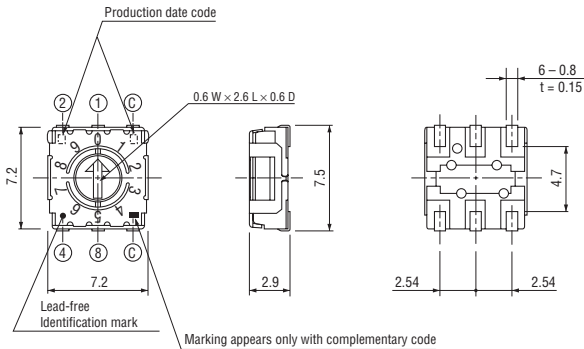
## ROTARY CODED SWITCHES (SMD)

### OUTLINE DIMENSIONS

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

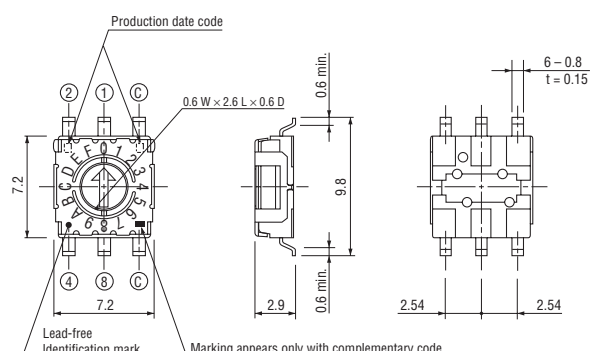
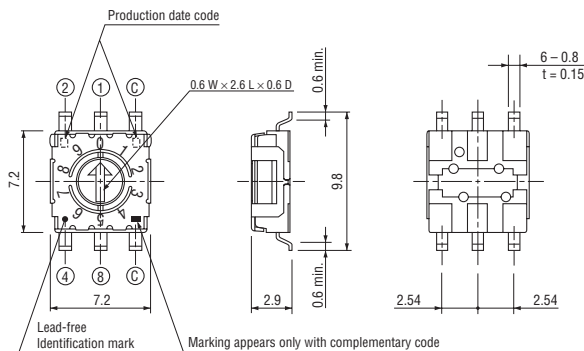
- S-7010EA (Real code)
- S-7030EA (Complementary code)

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



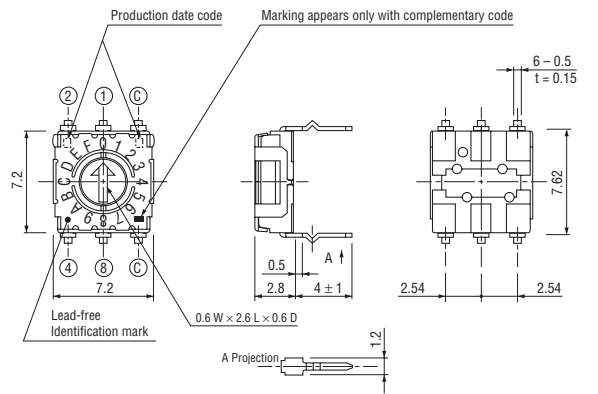
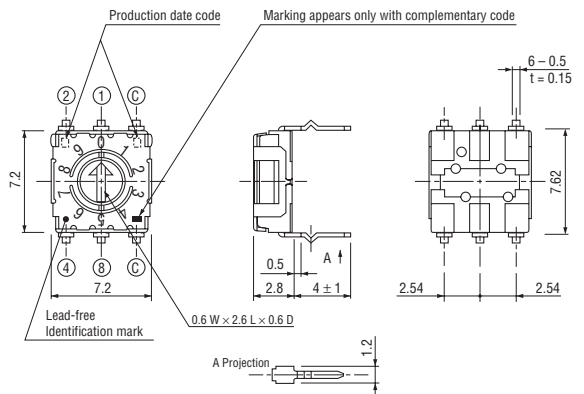
- S-7010EB (Real code)
- S-7030EB (Complementary code)

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



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

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



# S-7000

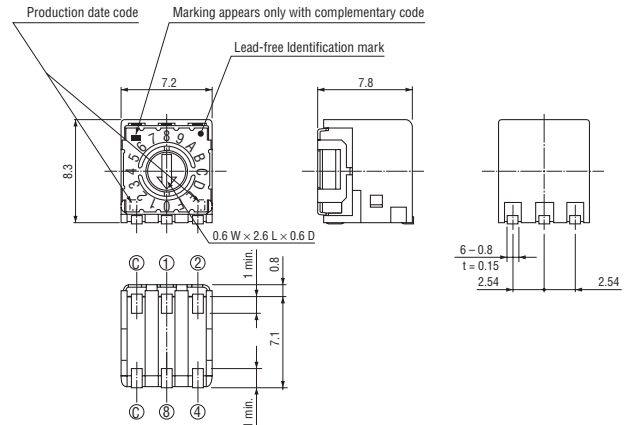
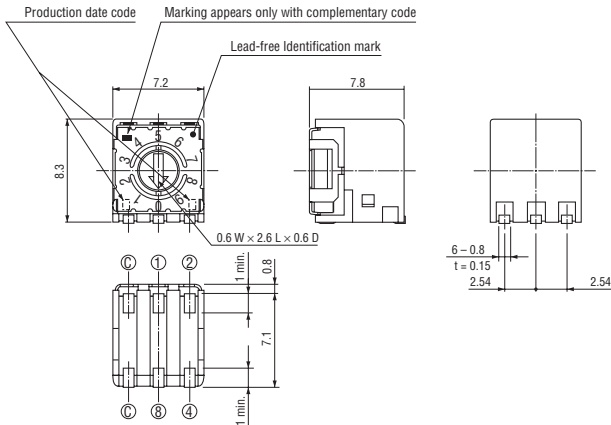
## ROTARY CODED SWITCHES (SMD)

### OUTLINE DIMESIONS

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

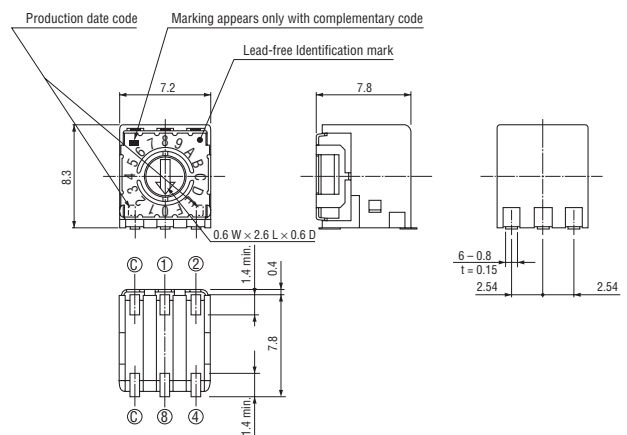
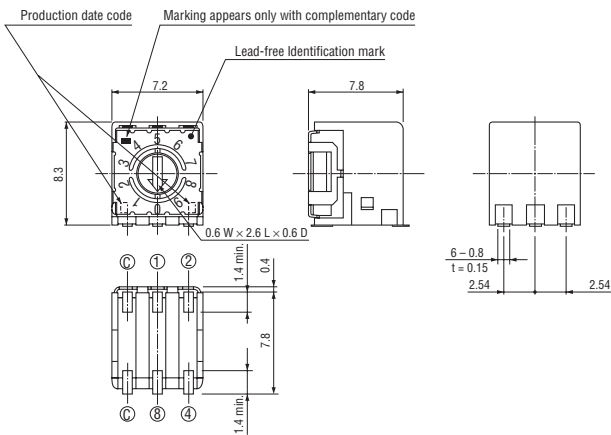
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- S-7031EA (Complementary code)

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



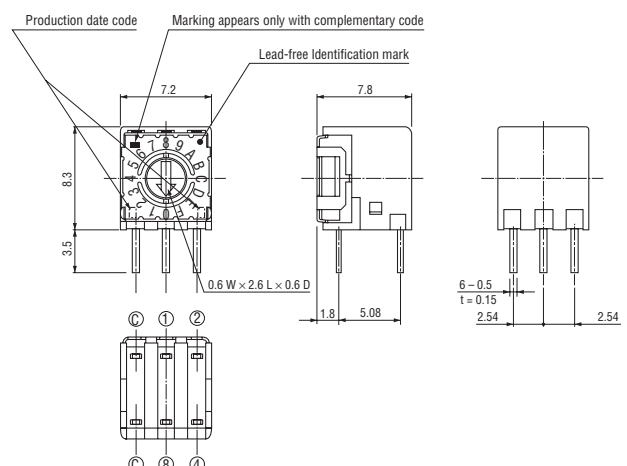
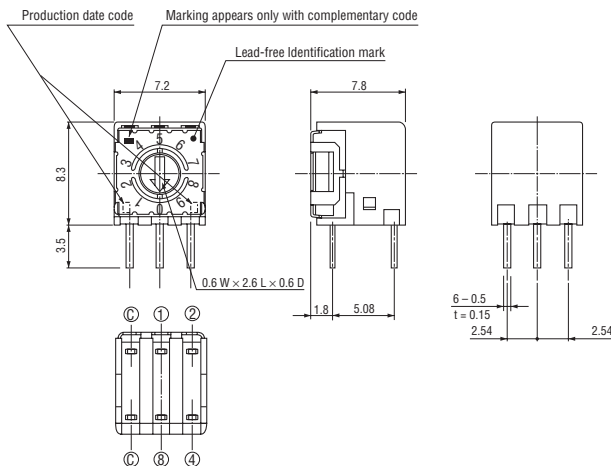
- S-7011EB (Real code)
- S-7031EB (Complementary code)

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



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

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



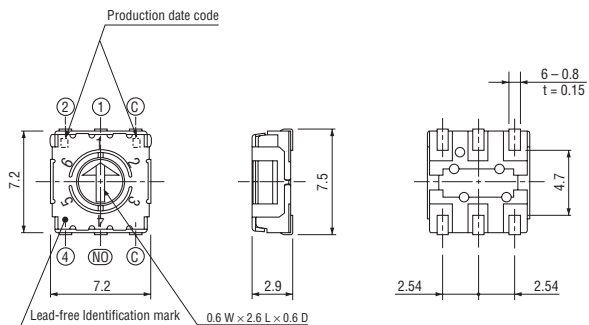
# S-7000

## ROTARY CODED SWITCHES (SMD)

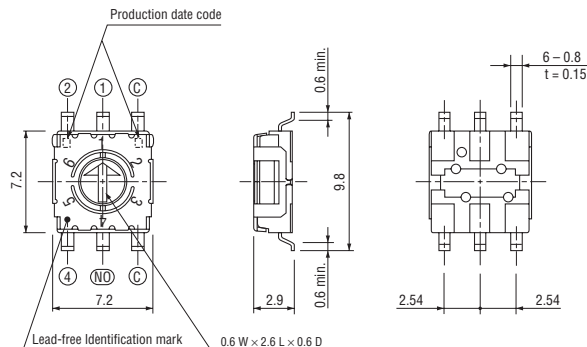
### OUTLINE DIMENSIONS

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

#### ● S-7060EA (Real code)



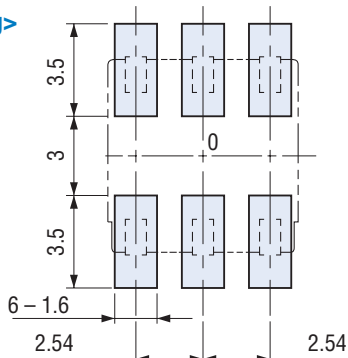
#### ● S-7060EB (Real code)



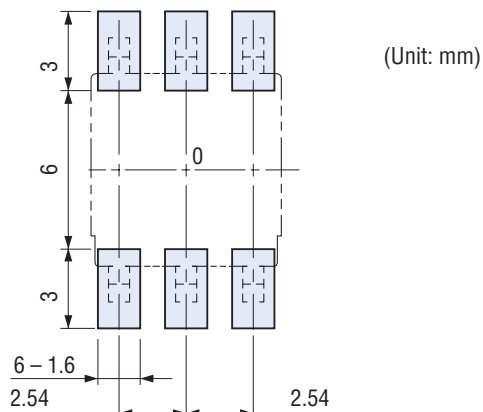
### RECOMMENDED P.C.B. PAD OUTLINE DIMENSIONS

#### <Top setting>

##### ● A type

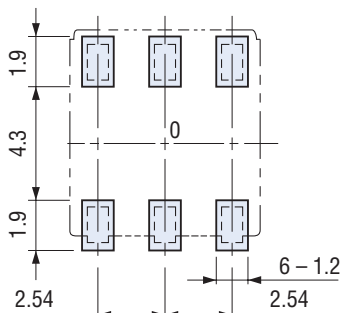


##### ● B type

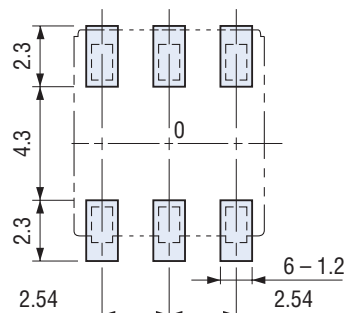


#### <Side setting>

##### ● A type



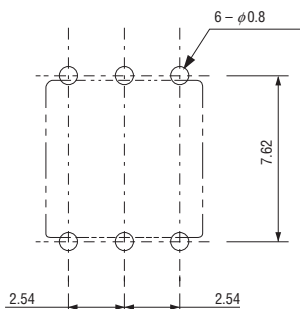
##### ● B type



### SIZE OF P.C.B. PROCESSING

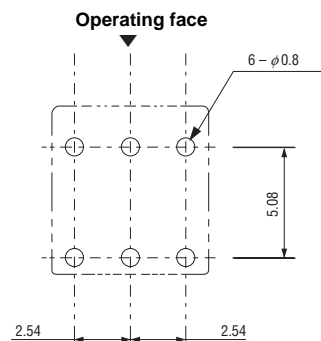
#### <Top setting>

##### ● C type



#### <Side setting>

##### ● C type



# S-7000

## ROTARY CODED SWITCHES (SMD)

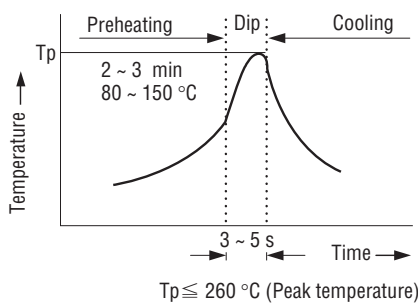
### SOLDERING CONDITIONS

#### ● Soldering iron

##### Manual soldering

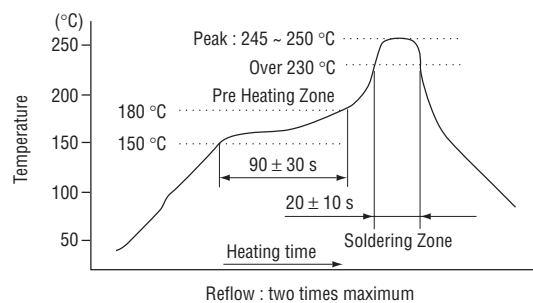
Soldering shall be done at 350 °C for 3 seconds (max.).

#### ● Flow soldering (Lead-free)



Recommended profile for Lead-free soldering

#### ● Infrared reflow soldering (Lead-free)



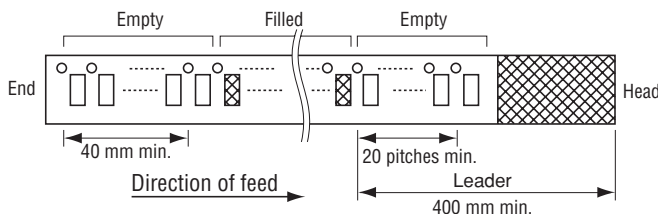
### PACKAGING SPECIFICATIONS

#### <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:

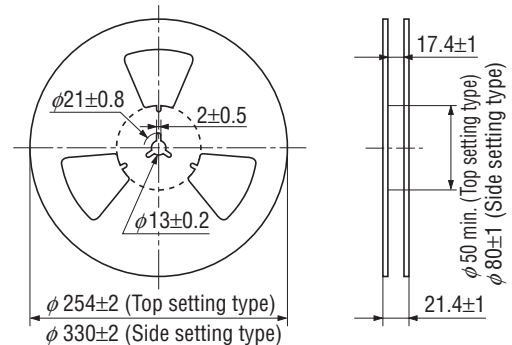
#### ● Embossed tape dimensions



#### ● Reel dimensions

(Unit: mm)

(Conforms to JIS C 0806-3)  
 (In accordance with EIAJ ET-7200A)

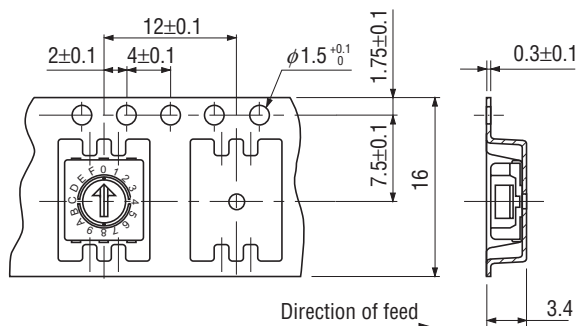


# S-7000

## ROTARY CODED SWITCHES (SMD)

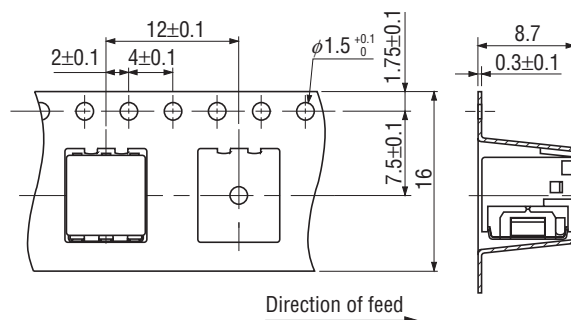
(Conforms to JIS C 0806-3)

● S-70□□ETA  
 <Top setting>

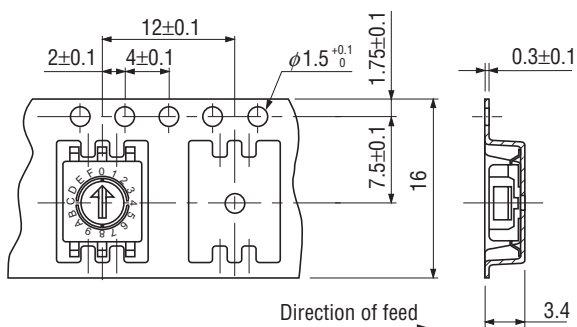


<Side setting>

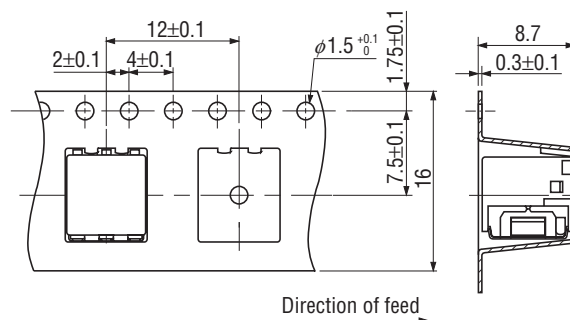
(Unit: mm)



● 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.