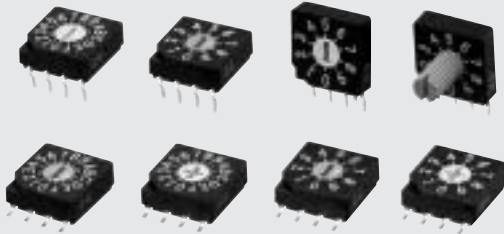


ROTARY CODED SWITCHES

SC-1000/2000

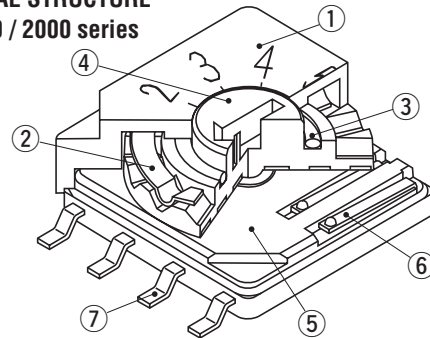
RoHS compliant



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

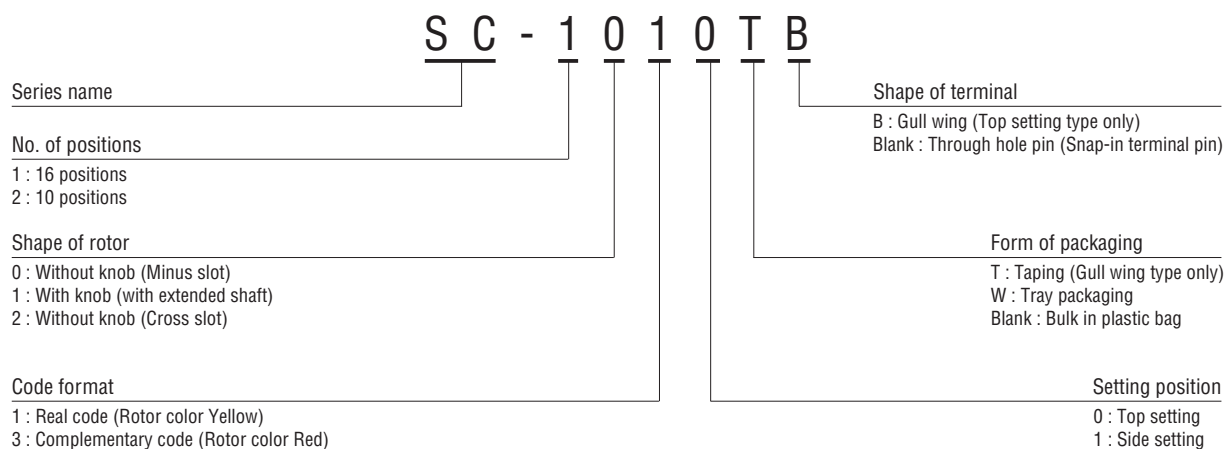
INTERNAL STRUCTURE SC-1000 / 2000 series



	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

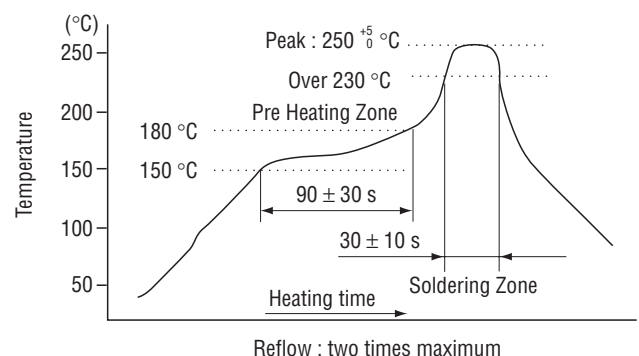
No. of positions	16 (SC-1000), 10 (SC-2000)
Adjustment torque	4 ~ 20 mN·m {41 ~ 204 gf·cm}
Stepping angle	22.5° (SC-1000), 36° (SC-2000)
Terminal strength (Through hole pin only)	10 N {1.02 kgf} minimum
Stop strength (With knob only)	10 N {1.02 kgf}, 10 s
Solderability	245 ± 3 °C, 2 ~ 3 s
Soldering heat	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

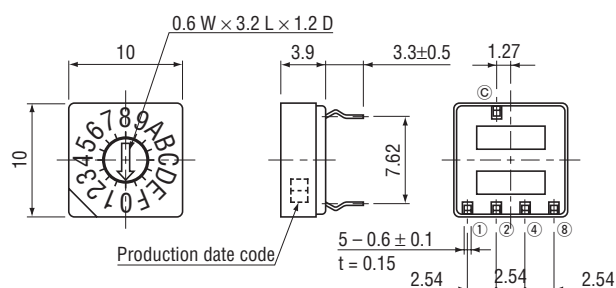
ROTARY CODED SWITCHES

OUTLINE DIMENSIONS

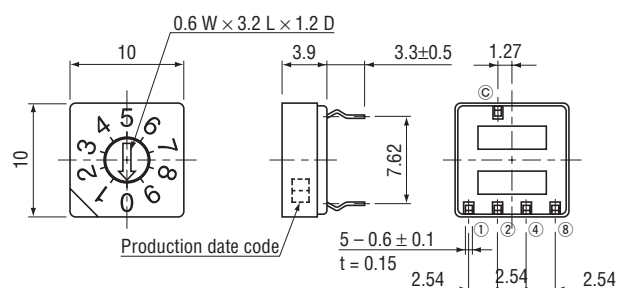
Unless otherwise specified, tolerance: ± 0.3 (Unit: mm)

<Through hole pin, Top setting>

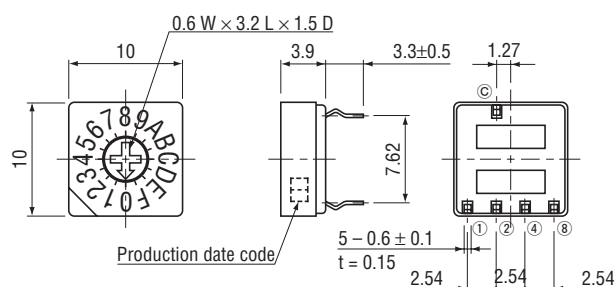
- SC-1010 (Real code)
- SC-1030 (Complementary code)



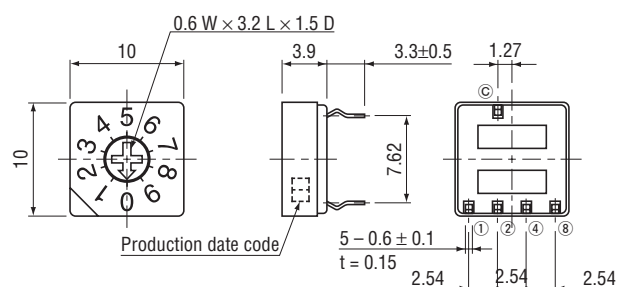
- SC-2010 (Real code)
- SC-2030 (Complementary code)



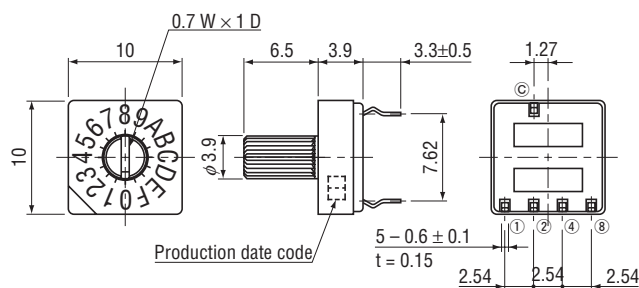
- SC-1210 (Real code)
- SC-1230 (Complementary code)



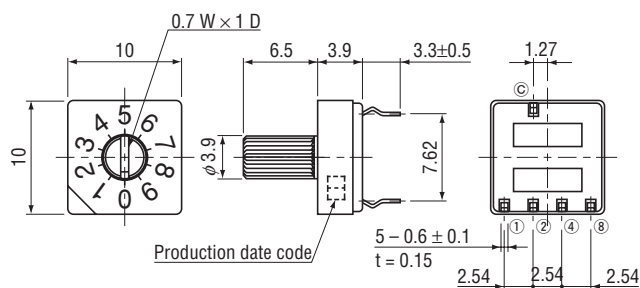
- SC-2210 (Real code)
- SC-2230 (Complementary code)



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



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



SC-1000/2000

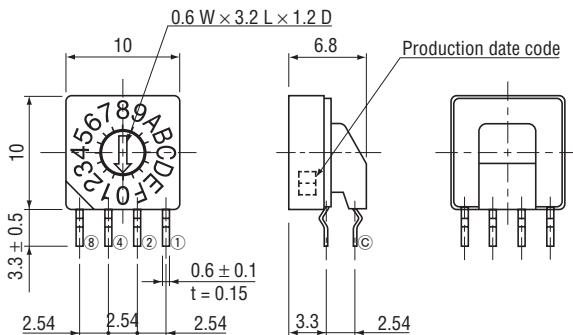
ROTARY CODED SWITCHES

OUTLINE DIMENSIONS

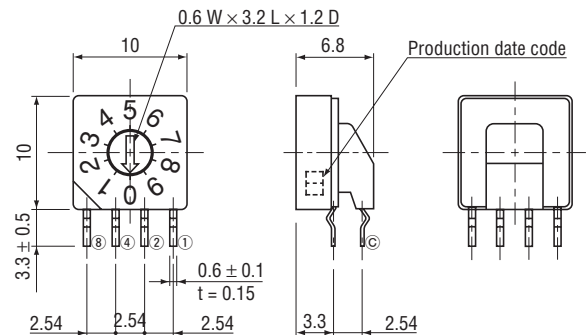
<Through hole pin, Side setting>

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

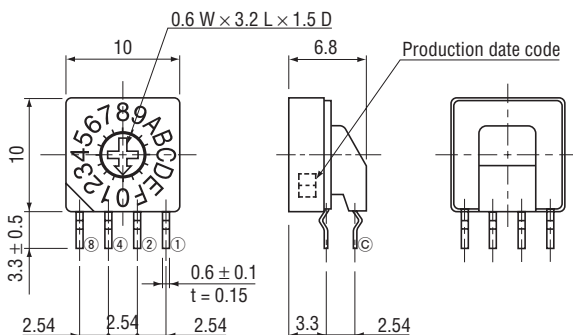
Unless otherwise specified, tolerance: ± 0.3 (Unit: mm)



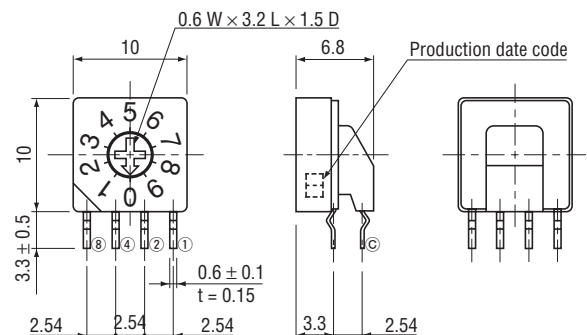
- SC-2011 (Real code)
- SC-2031 (Complementary code)



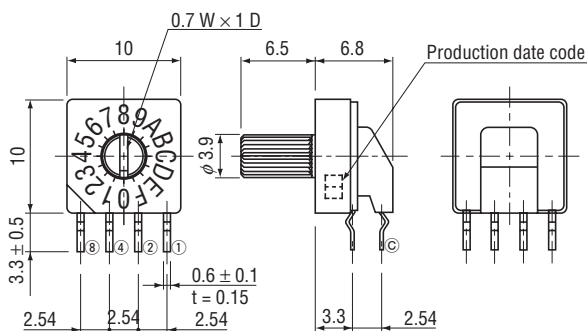
- SC-1211 (Real code)
- SC-1231 (Complementary code)



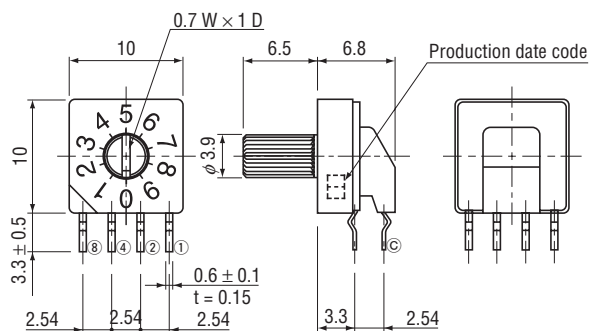
- SC-2211 (Real code)
- SC-2231 (Complementary code)



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



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



SC-1000/2000

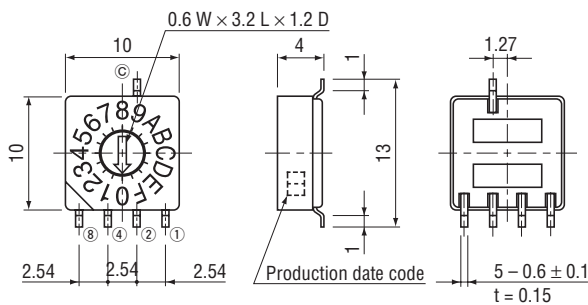
ROTARY CODED SWITCHES

OUTLINE DIMENSIONS

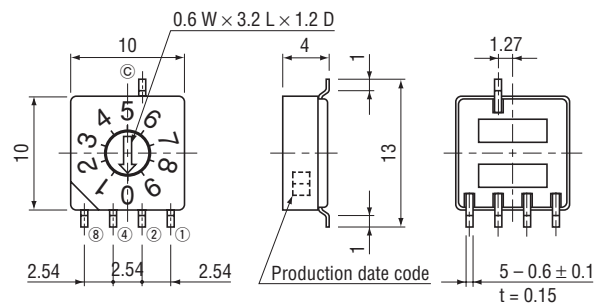
<Gull wing, Top setting>

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

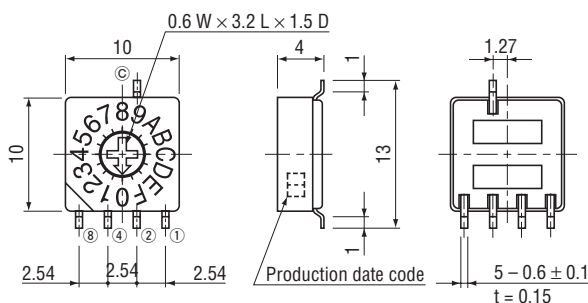
Unless otherwise specified, tolerance: ± 0.3 (Unit: mm)



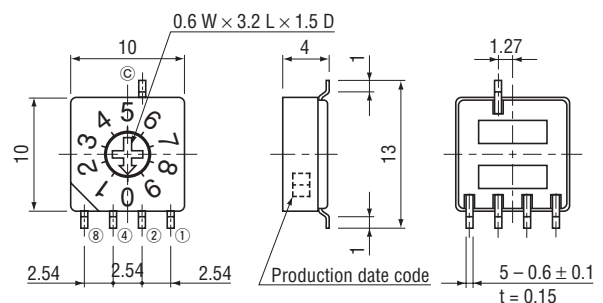
- SC-2010B (Real code)
- SC-2030B (Complementary code)



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

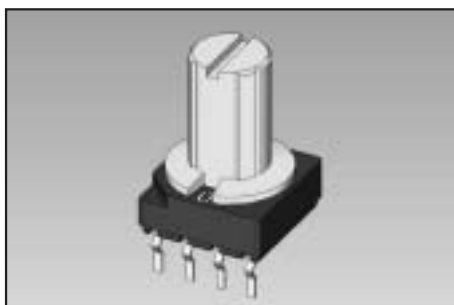


- SC-2210B (Real code)
- SC-2230B (Complementary code)



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	$\bar{8}$	●	●	●	●	●	●	●								
		$\bar{4}$	●	●	●	●				●	●	●	●				
		$\bar{2}$	●	●			●	●		●	●			●	●		
		$\bar{1}$	●		●		●		●	●		●		●		●	

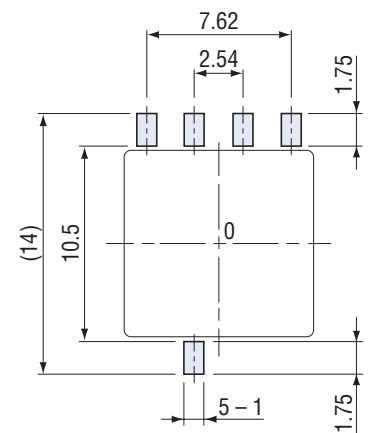
● ... Contact closed

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)	Real code Complementary code	Operating face of real code Operating face of complementary code
P.C.B. dimensions (Bottom view)	SC-1000/2000 case	SC-1000/2000 case



SC-1000/2000

ROTARY CODED SWITCHES

■ PACKAGING SPECIFICATIONS

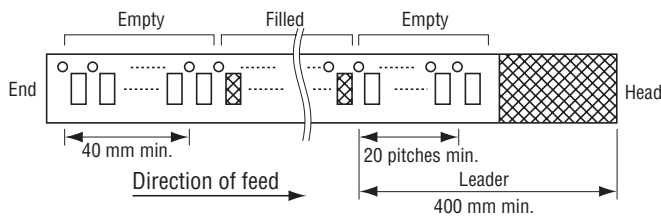
<Taping packaging specifications>

- 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:

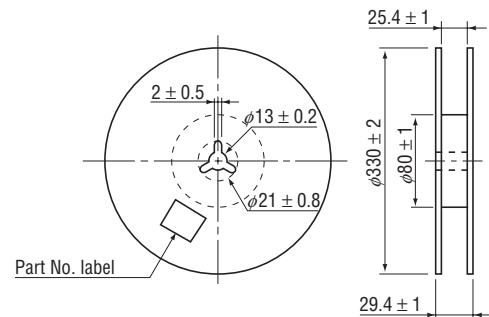
● Embossed tape dimensions



● Reel dimensions

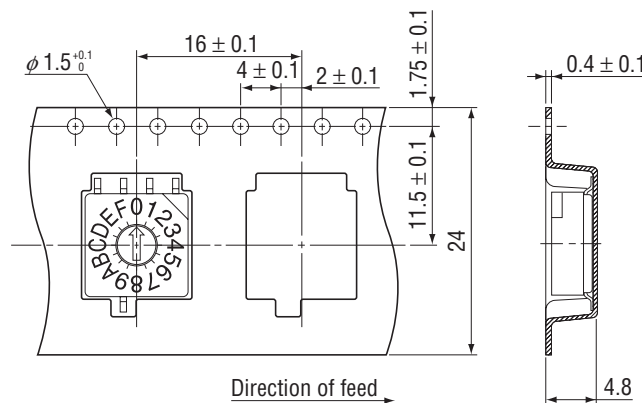
(Unit: mm)

(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.