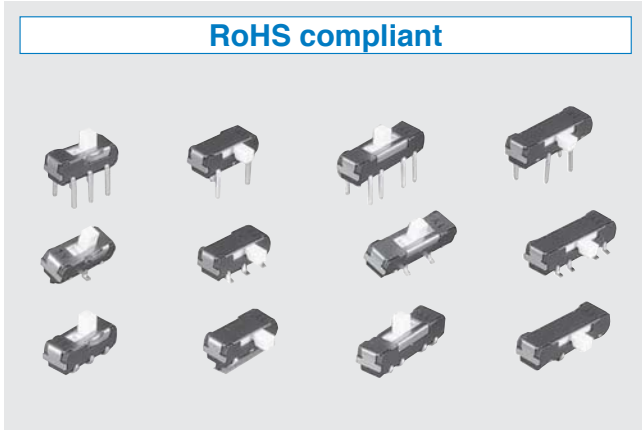


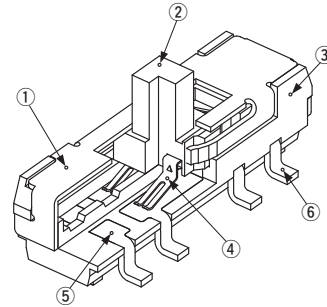
## RoHS compliant



## FEATURES

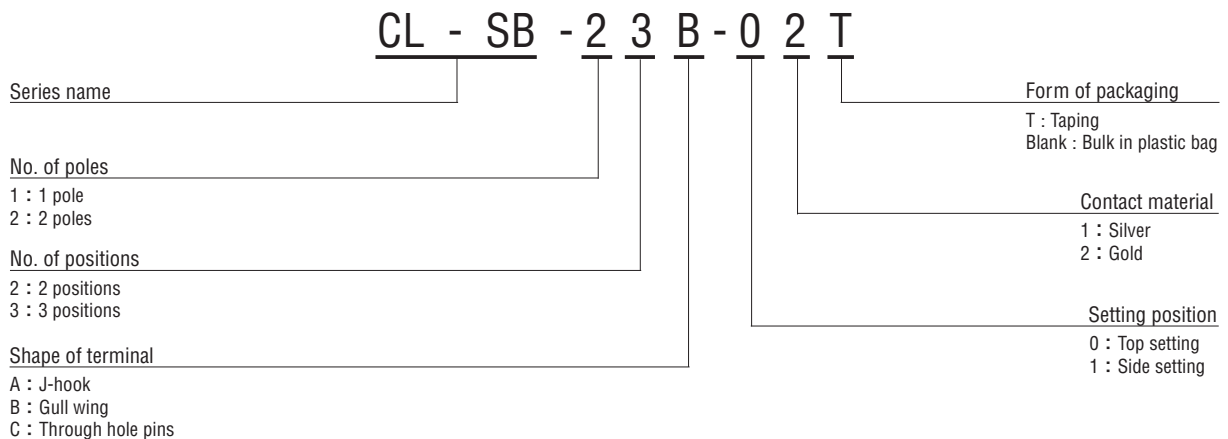
- Wide variety (circuit composition, operating direction, terminal shape: J-hook, Gull wing, Through hole pins)
- Standardization of the silver contacts as well as gold contacts
- Stroke is 2mm
- Using heat-resistant resin to support reflow soldering mounting
- Adopted Twin-contacts mechanism

## INTERNAL STRUCTURE



Part name	Material	Flammability
① Cover	Stainless steel (SUS 304)	—
② Slider	Polyamido	UL94V-0
③ Housing	Polyphenylenesulphide	UL94V-0
④ Moving contact	Copper alloy, gold or silver plate	—
⑤ Fixed contact	Copper alloy, gold or silver plate	—
⑥ Terminal pin	Copper alloy, gold or silver plate	—

## PART NUMBER DESIGNATION



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

# CL-SB

## SLIDE SWITCHES

### LIST OF PART NUMBERS

Setting position	No. of poles	No. of positions	Contact material		Soldering method	Form of packaging	Pieces in package
			Silver	Gold			
Top setting	1	2	CL-SB-12A-01T	CL-SB-12A-02T	Reflow	Taping	500pcs. / reel
			CL-SB-12A-01	CL-SB-12A-02		Plastic bag	50pcs. / pack
			CL-SB-12B-01T	CL-SB-12B-02T		Taping	500pcs. / reel
			CL-SB-12B-01	CL-SB-12B-02		Plastic bag	50pcs. / pack
		CL-SB-12C-01	CL-SB-12C-02	Manual, Dip	Plastic bag	50pcs. / pack	
		CL-SB-13A-01T	CL-SB-13A-02T	Reflow	Taping	500pcs. / reel	
		CL-SB-13A-01	CL-SB-13A-02		Plastic bag	50pcs. / pack	
		CL-SB-13B-01T	CL-SB-13B-02T		Taping	500pcs. / reel	
		CL-SB-13B-01	CL-SB-13B-02		Plastic bag	50pcs. / pack	
		CL-SB-13C-01	CL-SB-13C-02	Manual, Dip	Plastic bag	50pcs. / pack	
	2	2	CL-SB-22A-01T	CL-SB-22A-02T	Reflow	Taping	500pcs. / reel
			CL-SB-22A-01	CL-SB-22A-02		Plastic bag	50pcs. / pack
			CL-SB-22B-01T	CL-SB-22B-02T		Taping	500pcs. / reel
			CL-SB-22B-01	CL-SB-22B-02		Plastic bag	50pcs. / pack
		CL-SB-22C-01	CL-SB-22C-02	Manual, Dip	Plastic bag	50pcs. / pack	
		3	CL-SB-23A-01T	CL-SB-23A-02T	Reflow	Taping	500pcs. / reel
			CL-SB-23A-01	CL-SB-23A-02		Plastic bag	50pcs. / pack
			CL-SB-23B-01T	CL-SB-23B-02T		Taping	500pcs. / reel
			CL-SB-23B-01	CL-SB-23B-02		Plastic bag	50pcs. / pack
			CL-SB-23C-01	CL-SB-23C-02		Manual, Dip	Plastic bag
Side Setting	1	2	CL-SB-12A-11T	CL-SB-12A-12T	Reflow	Taping	500pcs. / reel
			CL-SB-12A-11	CL-SB-12A-12		Plastic bag	50pcs. / pack
			CL-SB-12B-11T	CL-SB-12B-12T		Taping	500pcs. / reel
			CL-SB-12B-11	CL-SB-12B-12		Plastic bag	50pcs. / pack
		CL-SB-12C-11	CL-SB-12C-12	Manual, Dip	Plastic bag	50pcs. / pack	
		CL-SB-13A-11T	CL-SB-13A-12T	Reflow	Taping	500pcs. / reel	
		CL-SB-13A-11	CL-SB-13A-12		Plastic bag	50pcs. / pack	
		CL-SB-13B-11T	CL-SB-13B-12T		Taping	500pcs. / reel	
		CL-SB-13B-11	CL-SB-13B-12		Plastic bag	50pcs. / pack	
		CL-SB-13C-11	CL-SB-13C-12	Manual, Dip	Plastic bag	50pcs. / pack	
	2	2	CL-SB-22A-11T	CL-SB-22A-12T	Reflow	Taping	500pcs. / reel
			CL-SB-22A-11	CL-SB-22A-12		Plastic bag	50pcs. / pack
			CL-SB-22B-11T	CL-SB-22B-12T		Taping	500pcs. / reel
			CL-SB-22B-11	CL-SB-22B-12		Plastic bag	50pcs. / pack
		CL-SB-22C-11	CL-SB-22C-12	Manual, Dip	Plastic bag	50pcs. / pack	
		3	CL-SB-23A-11T	CL-SB-23A-12T	Reflow	Taping	500pcs. / reel
			CL-SB-23A-11	CL-SB-23A-12		Plastic bag	50pcs. / pack
			CL-SB-23B-11T	CL-SB-23B-12T		Taping	500pcs. / reel
			CL-SB-23B-11	CL-SB-23B-12		Plastic bag	50pcs. / pack
			CL-SB-23C-11	CL-SB-23C-12		Manual, Dip	Plastic bag

※Verify the above part numbers when placing orders.

Taping version can be supplied only in reel unit.

# CL-SB SLIDE SWITCHES

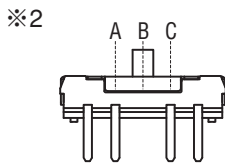
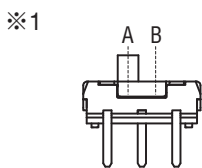
## STANDARD SPECIFICATIONS

Operating temperature range	-40 ~ 85 °C	
Storage temperature range		
Sealing	Non Washable	
Net weight	0.21 g (CL-SB-12*-0*)	0.21 g (CL-SB-12*-1*)
	0.22 g (CL-SB-22*-0*)	0.22 g (CL-SB-22*-1*)
	0.26 g (CL-SB-13*-0*)	0.26 g (CL-SB-13*-1*)
	0.28 g (CL-SB-23*-0*)	0.28 g (CL-SB-23*-1*)

## MECHANICAL CHARACTERISTICS

No. of positions	2, 3	
Stroke	2 mm	
Operation force	2 Contacts (CL-SB-*2*-**)	A ↔ B ※1 1.5 ± 1.0 N (0.153 ± 0.102kgf)
	3 Contacts (CL-SB-*3*-**)	A → B / C → B ※2 1.5 ± 1.0 N (0.153 ± 0.102kgf) B → A / B → C 2.5 ± 1.5 N (0.255 ± 0.153kgf)
Stop strength	20 N {2.04 kgf} 15 s	
Solderability	245 ± 3 °C, 2 ~ 3 s	
Soldering heat	Flow : 260 ± 3 °C, 5 ~ 6 s Reflow : 255 °C (Peak temperature) (Please refer to the profile below)	
	Manual soldering : 380 ± 10 °C, 3 ~ 4 s	
Shear	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} 10s	

{ } : Reference only



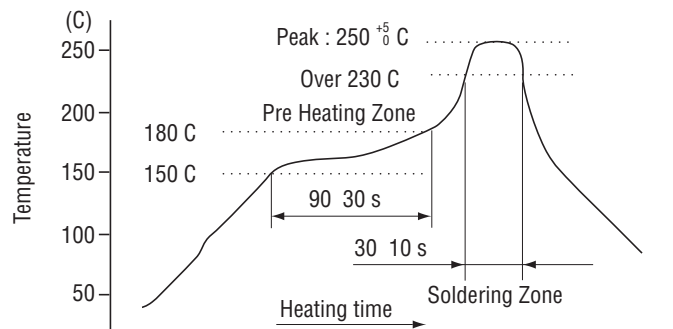
## ELECTRICAL CHARACTERISTICS

Contact rating Non-switching Switching Minimum	DC50 V 200 mA DC12 V 200 mA DC20 mV 1 μA (Gold contacts) DC5 V 10 mA (Silver contacts)	
Contact timing	Non-shorting	
Contact resistance	70mΩ maximum (Gold contacts) 50mΩ maximum (Silver contacts)	1.5 mA 1 kHz 20 mV maximum
Insulation resistance	100 MΩ minimum (DC500 V)	
Dielectric strength	AC500 V, 60 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 cycles DC12 ± 0.5V, 200 ± 10mA
Humidity	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>



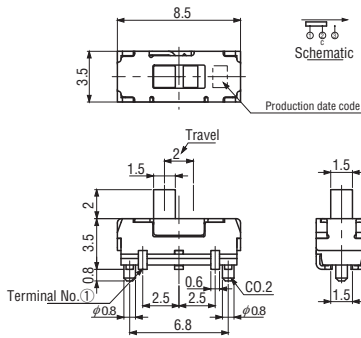
Reflow : two times maximum

# CL-SB SLIDE SWITCHES

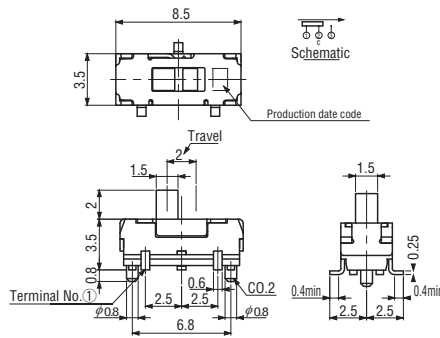
## OUTLINE DIMESIONS

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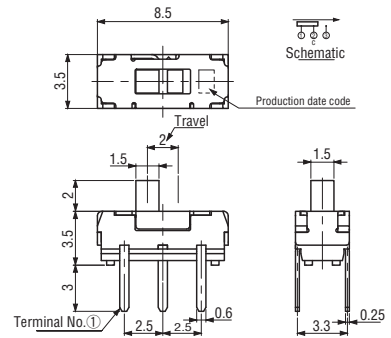
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- CL-SB-12A-02



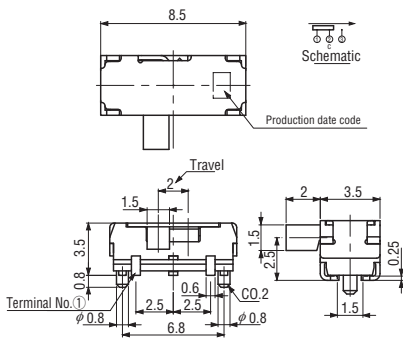
- CL-SB-12B-01
- CL-SB-12B-02



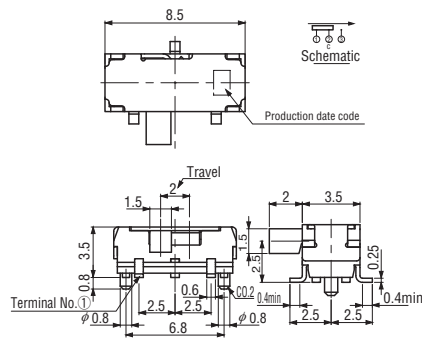
- CL-SB-12C-01
- CL-SB-12C-02



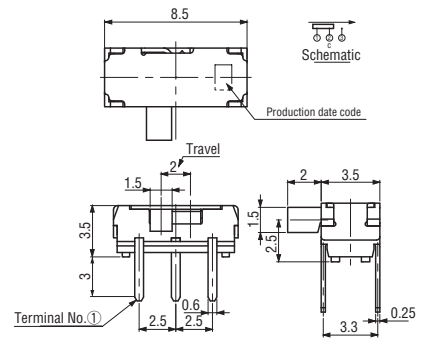
- CL-SB-12A-11
- CL-SB-12A-12



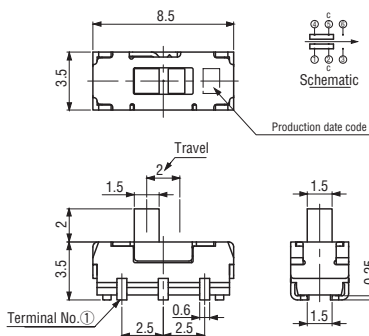
- CL-SB-12B-11
- CL-SB-12B-12



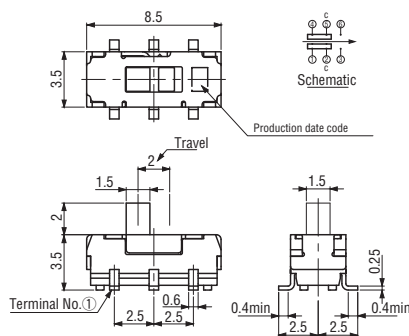
- CL-SB-12C-11
- CL-SB-12C-12



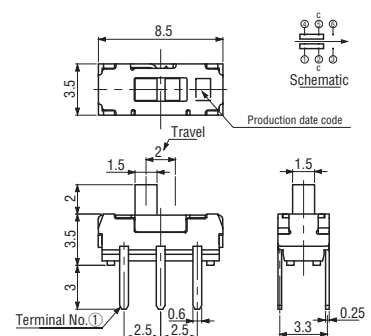
- CL-SB-22A-01
- CL-SB-22A-02



- CL-SB-22B-01
- CL-SB-22B-02



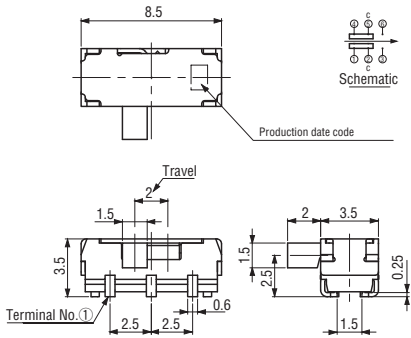
- CL-SB-22C-01
- CL-SB-22C-02



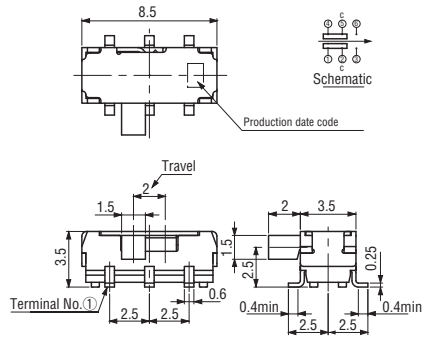
# CL-SB SLIDE SWITCHES

## OUTLINE DIMESIONS

- CL-SB-22A-11
- CL-SB-22A-12

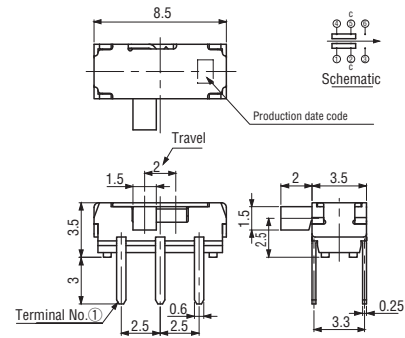


- CL-SB-22B-11
- CL-SB-22B-12

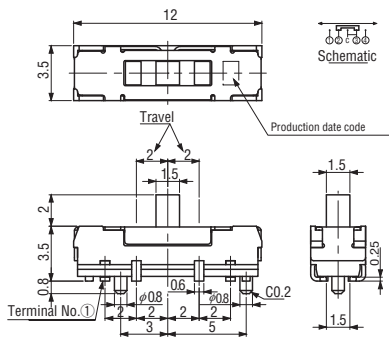


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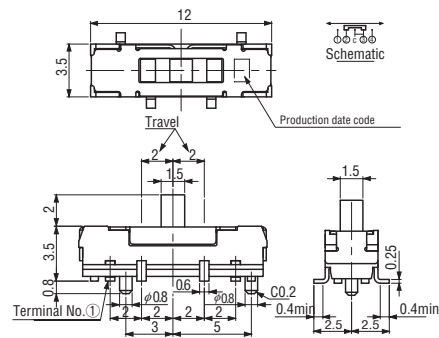
- CL-SB-22C-11
- CL-SB-22C-12



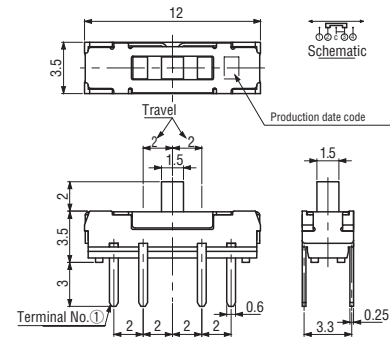
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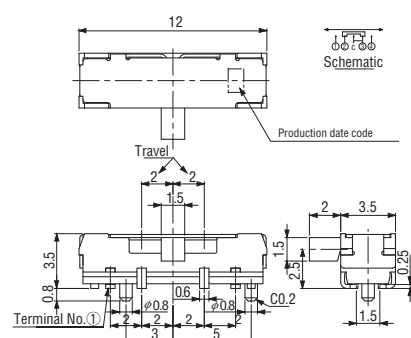
- CL-SB-13B-01
- CL-SB-13B-02



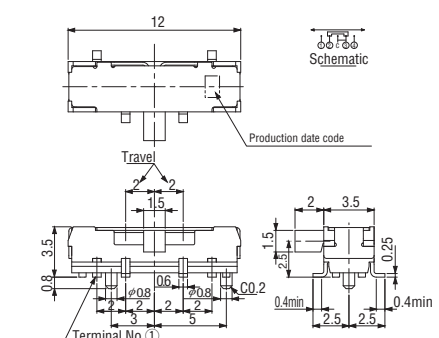
- CL-SB-13C-01
- CL-SB-13C-02



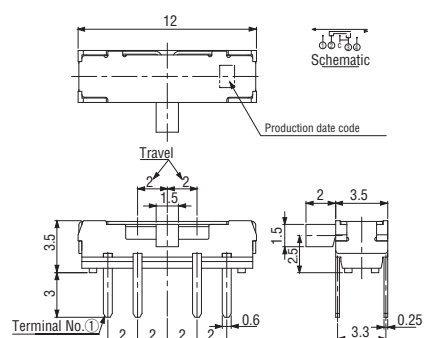
- CL-SB-13A-11
- CL-SB-13A-12



- CL-SB-13B-11
- CL-SB-13B-12

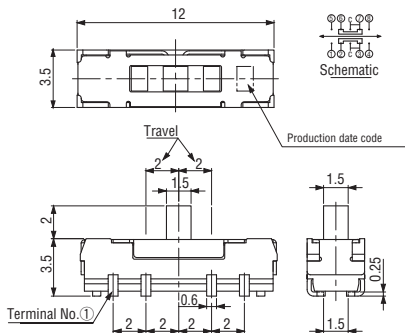


- CL-SB-13C-11
- CL-SB-13C-12

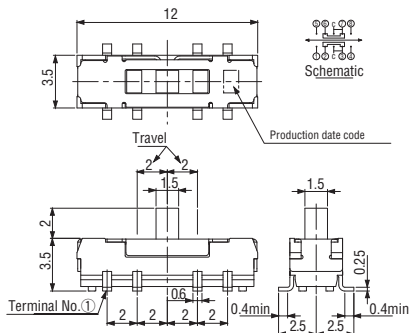


# CL-SB SLIDE SWITCHES

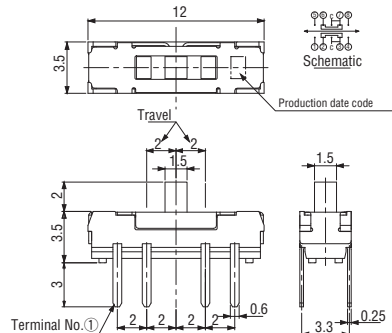
- CL-SB-23A-01
- CL-SB-23A-02



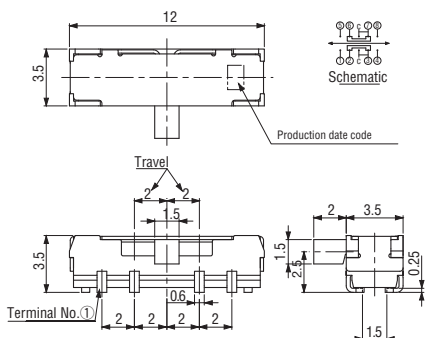
- CL-SB-23B-01
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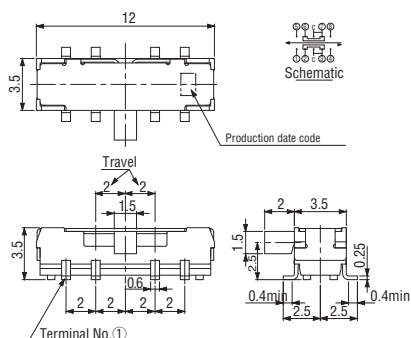
- CL-SB-23C-01
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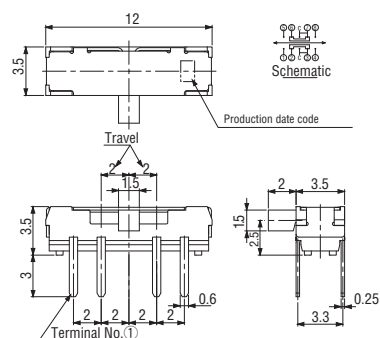
- CL-SB-23A-11
- CL-SB-23A-12



- CL-SB-23B-11
- CL-SB-23B-12



- CL-SB-23C-11
- CL-SB-23C-12

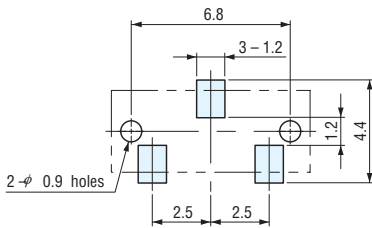


# CL-SB SLIDE SWITCHES

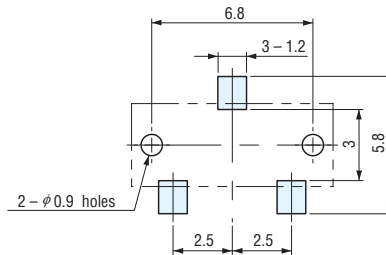
## RECOMMENDED P.C.B. PAD OUTLINE DIMENSIONS

(Unit: mm)

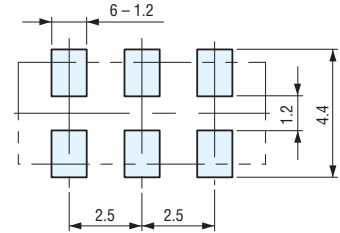
### CL-SB-12A-□□



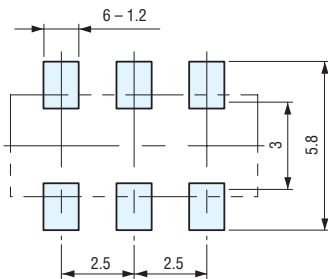
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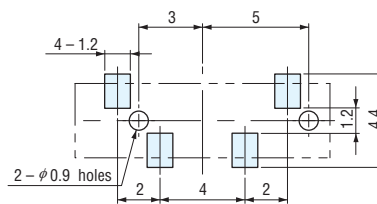
### CL-SB-22A-□□



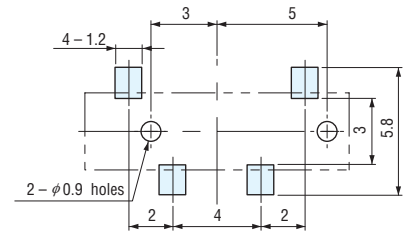
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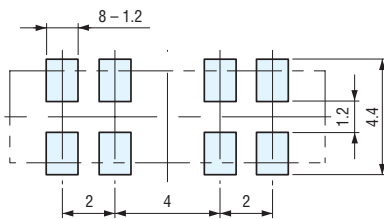
### CL-SB-13A-□□



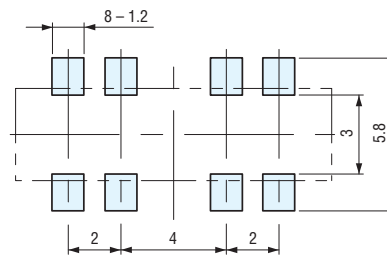
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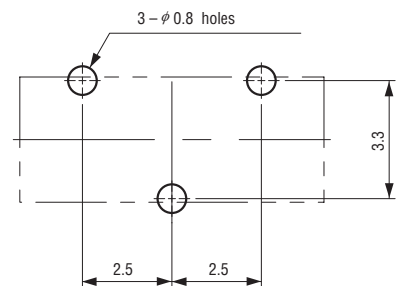
### CL-SB-23A-□□



### CL-SB-23B-□□



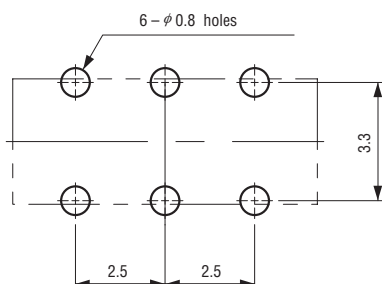
### CL-SB-12C-□□



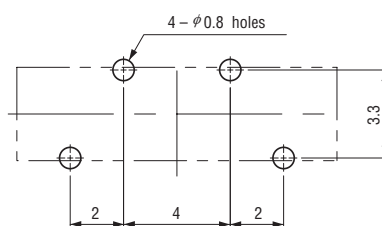
## SIZE OF P.C.B. PROCESSING

(Unit: mm)

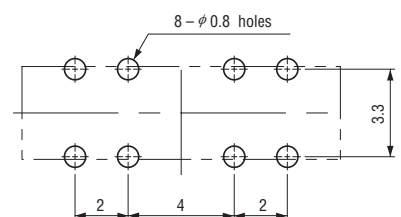
### CL-SB-22C-□□



### CL-SB-13C-□□



### CL-SB-23C-□□



# CL-SB SLIDE SWITCHES

## PACKAGING SPECIFICATIONS

### <Bulk pack specifications>

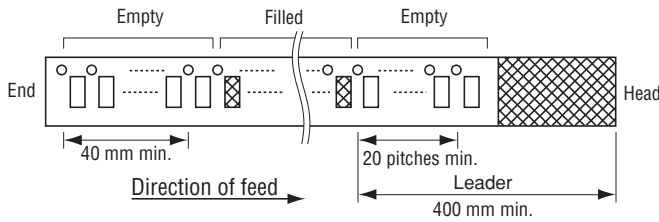
- The smallest unit of bulk pack in plastic bag is 10 pcs. per pack. Orders will be accepted for unit of minimum 10 pcs., i.e., 10, 20, 30 pcs., etc.
- Boxing of bulk in a plastic bag is performed with 50 pcs. per box.

### <Taping 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

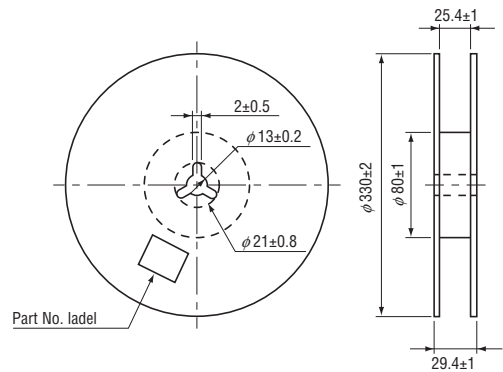


### ● Reel dimensions

(Unit: mm)

(Conforms to JIS C 0806-3)

(In accordance with EIAJ ET-7200A)



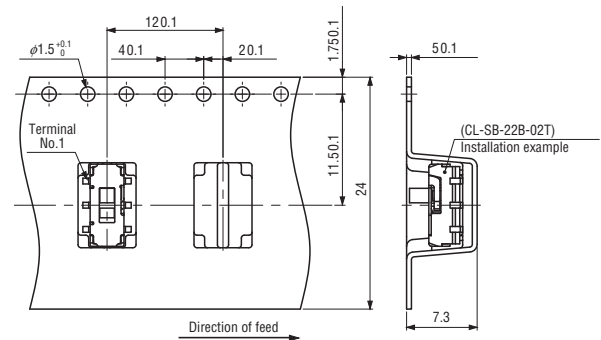
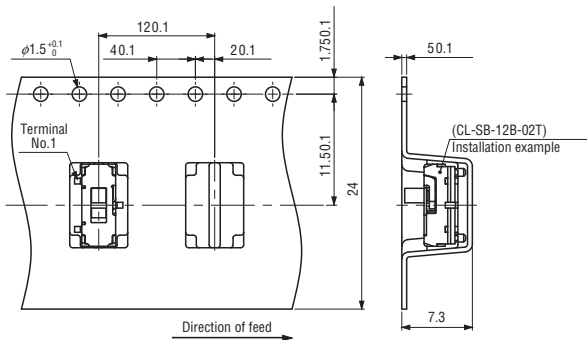
### <Tape dimensions>

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

### ● CL-SB-12A/12B-0 □ T

### ● CL-SB-22A/22B-0 □ T

(Conforms to JIS C 0806)





# CL-SB SLIDE SWITCHES

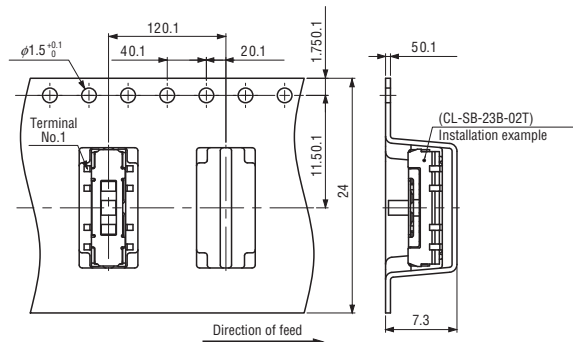
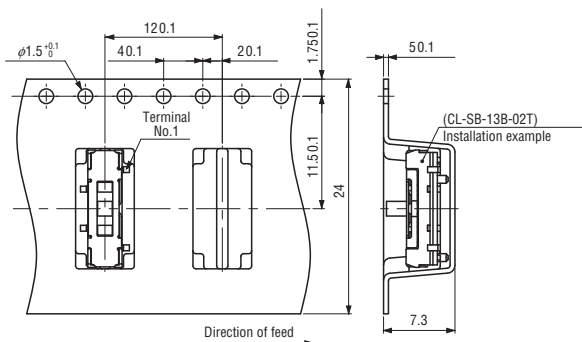
## <Tape dimensions>

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

### ● CL-SB-13A/13B-0 □ T

### ● CL-SB-23A/23B-0 □ T

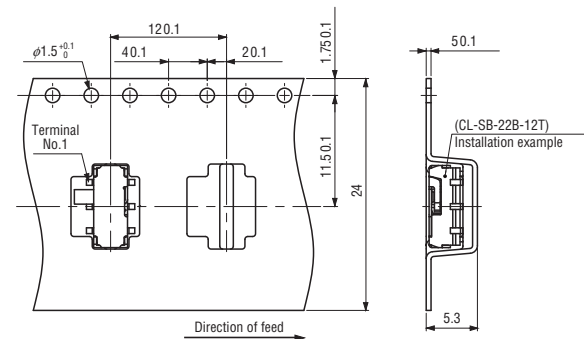
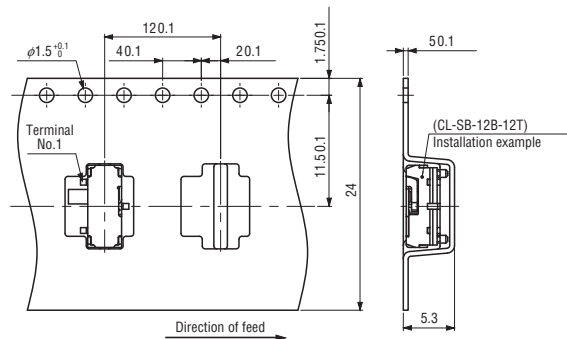
(Conforms to JIS C 0806)



### ● CL-SB-12A/12B-1 □ T

### ● CL-SB-22A/22B-1 □ T

(Conforms to JIS C 0806)



### ● CL-SB-13A/13B-1 □ T

### ● CL-SB-23A/23B-1 □ T

(Conforms to JIS C 0806)

