



**THE DATASHEET OF  
CL-SB-23B-02T**



# SLIDE SWITCHES

# CL-SB



## 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
- Resin material is UL Recognized 94V-0

## INTERNAL STRUCTURE



Part name	Material
① Cover	Stainless steel (SUS 304)
② Slider	Polyamido
③ Housing	Polyphenylenesulfide
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

**CL - SB - 2 3 B - 0 2 T**

<p><b>Series name</b></p> <hr/> <p><b>No. of poles</b> 1 : 1 pole 2 : 2 poles</p> <p><b>No. of positions</b> 2 : 2 positions 3 : 3 positions</p> <p><b>Shape of terminal</b> A : J-hook B : Gull wing C : Through hole pins C1 : PC terminals with one on the operation side and others on the opposite side ※1 C4 : Terminals aligned laterally on one side ※1</p> <p>※1: Please check the following LIST OF PART NUMBERS.</p>	<p><b>Form of packaging</b> T : Taping Blank : Bulk in plastic bag</p> <p><b>Contact material</b> 1 : Silver 2 : Gold</p> <p><b>Setting position</b> 0 : Top setting 1 : Side setting</p>
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※ Please refer to the LIST OF PART NUMBERS when placing orders.

## LIST OF PART NUMBERS

Setting position	No. of poles	No. of positions	Contact material		Shape of terminal	Form of packaging	Packaging quantity
			Silver	Gold			
Top setting	1	2	CL-SB-12A-01T	CL-SB-12A-02T	A(J-hook)	Taping	500pcs. / reel
			CL-SB-12A-01	CL-SB-12A-02		Plastic bag	50pcs. / pack
			CL-SB-12B-01T	CL-SB-12B-02T	B(Gull wing)	Taping	500pcs. / reel
			CL-SB-12B-01	CL-SB-12B-02		Plastic bag	50pcs. / pack
		CL-SB-12C-01	CL-SB-12C-02	C(Through hole pins)	Plastic bag	50pcs. / pack	
		3	CL-SB-13A-01T	CL-SB-13A-02T	A(J-hook)	Taping	500pcs. / reel
			CL-SB-13A-01	CL-SB-13A-02		Plastic bag	50pcs. / pack
			CL-SB-13B-01T	CL-SB-13B-02T	B(Gull wing)	Taping	500pcs. / reel
			CL-SB-13B-01	CL-SB-13B-02		Plastic bag	50pcs. / pack
	CL-SB-13C-01		CL-SB-13C-02	C(Through hole pins)	Plastic bag	50pcs. / pack	
	2	2	CL-SB-22A-01T	CL-SB-22A-02T	A(J-hook)	Taping	500pcs. / reel
			CL-SB-22A-01	CL-SB-22A-02		Plastic bag	50pcs. / pack
			CL-SB-22B-01T	CL-SB-22B-02T	B(Gull wing)	Taping	500pcs. / reel
			CL-SB-22B-01	CL-SB-22B-02		Plastic bag	50pcs. / pack
		CL-SB-22C-01	CL-SB-22C-02	C(Through hole pins)	Plastic bag	50pcs. / pack	
		3	CL-SB-23A-01T	CL-SB-23A-02T	A(J-hook)	Taping	500pcs. / reel
			CL-SB-23A-01	CL-SB-23A-02		Plastic bag	50pcs. / pack
			CL-SB-23B-01T	CL-SB-23B-02T	B(Gull wing)	Taping	500pcs. / reel
CL-SB-23B-01			CL-SB-23B-02	Plastic bag		50pcs. / pack	
CL-SB-23C-01	CL-SB-23C-02		C(Through hole pins)	Plastic bag	50pcs. / pack		
Side Setting	1	2	CL-SB-12A-11T	CL-SB-12A-12T	A(J-hook)	Taping	500pcs. / reel
			CL-SB-12A-11	CL-SB-12A-12		Plastic bag	50pcs. / pack
			CL-SB-12B-11T	CL-SB-12B-12T	B(Gull wing)	Taping	500pcs. / reel
			CL-SB-12B-11	CL-SB-12B-12		Plastic bag	50pcs. / pack
		CL-SB-12C-11	CL-SB-12C-12	C(Through hole pins)	Plastic bag	50pcs. / pack	
		3	CL-SB-13A-11T	CL-SB-13A-12T	A(J-hook)	Taping	500pcs. / reel
			CL-SB-13A-11	CL-SB-13A-12		Plastic bag	50pcs. / pack
			CL-SB-13B-11T	CL-SB-13B-12T	B(Gull wing)	Taping	500pcs. / reel
			CL-SB-13B-11	CL-SB-13B-12		Plastic bag	50pcs. / pack
	CL-SB-13C-11		CL-SB-13C-12	C(Through hole pins)	Plastic bag	50pcs. / pack	
	2	2	CL-SB-22A-11T	CL-SB-22A-12T	A(J-hook)	Taping	500pcs. / reel
			CL-SB-22A-11	CL-SB-22A-12		Plastic bag	50pcs. / pack
			CL-SB-22B-11T	CL-SB-22B-12T	B(Gull wing)	Taping	500pcs. / reel
			CL-SB-22B-11	CL-SB-22B-12		Plastic bag	50pcs. / pack
		CL-SB-22C-11	CL-SB-22C-12	C(Through hole pins)	Plastic bag	50pcs. / pack	
		3	CL-SB-23A-11T	CL-SB-23A-12T	A(J-hook)	Taping	500pcs. / reel
			CL-SB-23A-11	CL-SB-23A-12		Plastic bag	50pcs. / pack
			CL-SB-23B-11T	CL-SB-23B-12T	B(Gull wing)	Taping	500pcs. / reel
			CL-SB-23B-11	CL-SB-23B-12		Plastic bag	50pcs. / pack
	CL-SB-23C-11		CL-SB-23C-12	C(Through hole pins)	Plastic bag	50pcs. / pack	
	1	2	CL-SB-12C1-11	—	C1(Through hole pins)	Plastic bag	50pcs. / pack
CL-SB-12C4-11			—	C4(Through hole pins)	Plastic bag	50pcs. / pack	

※Verify the above part numbers when placing orders.  
Taping version can be supplied only in reel unit.

# CL-SB

## SLIDE SWITCHES

### STANDARD SPECIFICATIONS

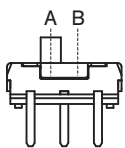
Operating temperature range	-40 ~ 85 °C	
Storage temperature range	-40 ~ 85 °C	
Sealing	Non- Washable	
Net weight	0.21 g (CL-SB-12 <sup>+</sup> -0 <sup>*</sup> ) 0.22 g (CL-SB-22 <sup>+</sup> -0 <sup>*</sup> ) 0.26 g (CL-SB-13 <sup>+</sup> -0 <sup>*</sup> ) 0.28 g (CL-SB-23 <sup>+</sup> -0 <sup>*</sup> ) 0.21 g (CL-SB-12C1-11)	0.21 g (CL-SB-12 <sup>+</sup> -1 <sup>*</sup> ) 0.23 g (CL-SB-22 <sup>+</sup> -1 <sup>*</sup> ) 0.27 g (CL-SB-13 <sup>+</sup> -1 <sup>*</sup> ) 0.29 g (CL-SB-23 <sup>+</sup> -1 <sup>*</sup> ) 0.19 g (CL-SB-12C4-11)

### MECHANICAL CHARACTERISTICS

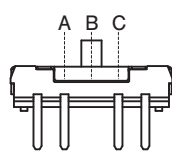
No. of positions	2, 3	
Stroke	2 mm	
Operation force	2 Contacts (CL-SB-*2*-**)	A ↔ B ※ 1 1.5 ± 1.0 N {0.153 ± 0.102kgf}
	3 Contacts (CL-SB-*3*-**)	A→B / C→B ※ 2 1.5 ± 1.0 N {0.153 ± 0.102kgf} B→A / B→C 2.5 ± 1.5 N {0.255 ± 0.153kgf}
Stop strength	20 N {2.04 kgf} 15 s	
Solderability	245 ± 3 °C, 2 ~ 3 s	
Soldering heat	Reflow : 255 °C (Peak temperature) (Please refer to the profile below)	
	Flow : 260 ± 3 °C, 5 ~ 6 s	
	Manual soldering : 350 ± 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

※ 1



※ 2



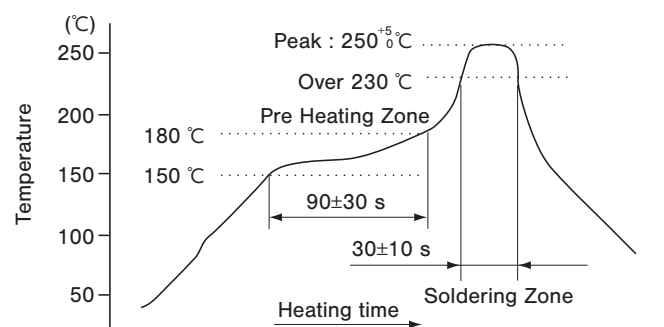
### ELECTRICAL CHARACTERISTICS

Contact rating	DC50 V 200 mA	
Non-switching	DC12 V 200 mA	
Switching	DC20 mV 1 μA (Gold contacts)	
Minimum	DC5 V 10 mA (Silver contacts)	
Contact timing	Non-shorting	
Contact resistance	70mΩ maximum (Gold contacts)	1.5 mA 1 kHz 20 mV maximum (Silver contacts)
	50mΩ maximum (Silver contacts)	
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, No load
High temperature exposure	85 °C, 96 h, No load
Low temperature exposure	-40 °C, 96 h, No load
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

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

- CL-SB-12A-01
- CL-SB-12A-02



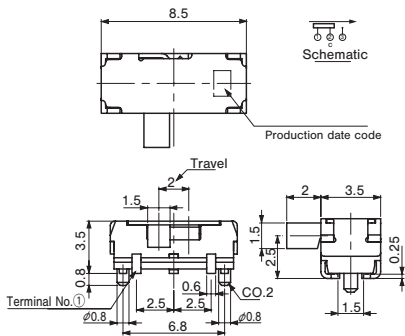
- CL-SB-12B-01
- CL-SB-12B-02



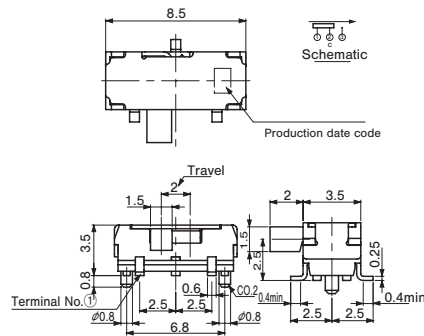
- CL-SB-12C-01
- CL-SB-12C-02



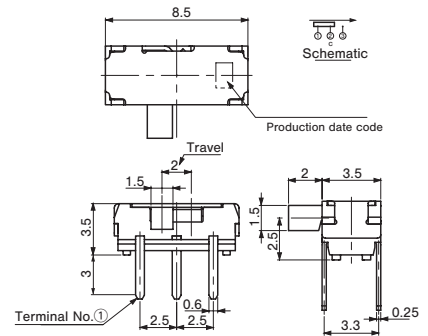
- CL-SB-12A-11
- CL-SB-12A-12



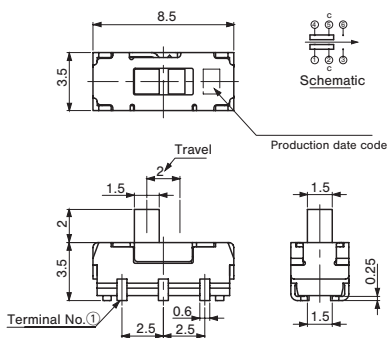
- CL-SB-12B-11
- CL-SB-12B-12



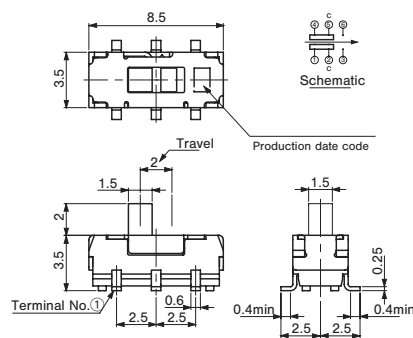
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- CL-SB-12C-12



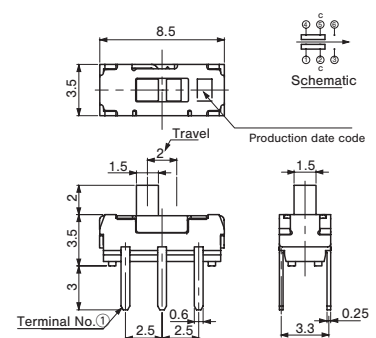
- CL-SB-22A-01
- CL-SB-22A-02



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



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



# CL-SB

## SLIDE SWITCHES

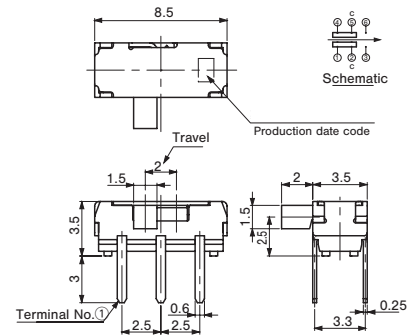
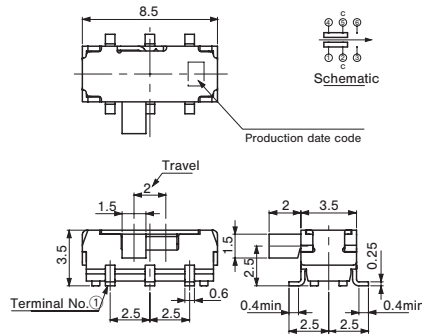
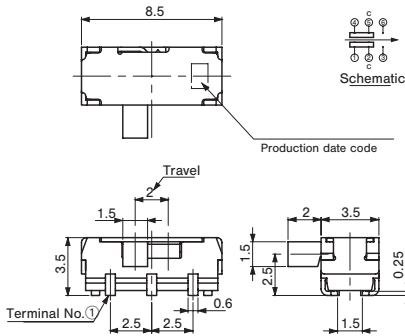
### OUTLINE DIMENSIONS

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

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

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

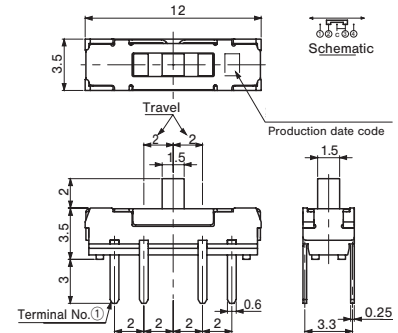
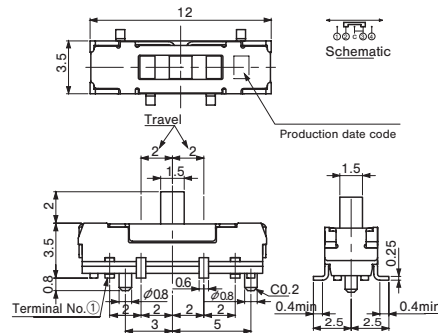
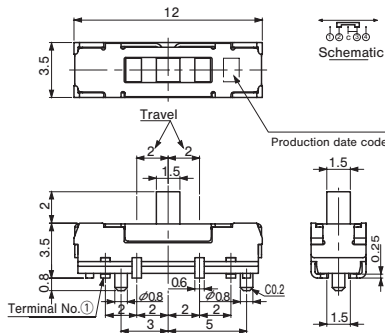
- CL-SB-22C-11
- CL-SB-22C-12



- CL-SB-13A-01
- CL-SB-13A-02

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

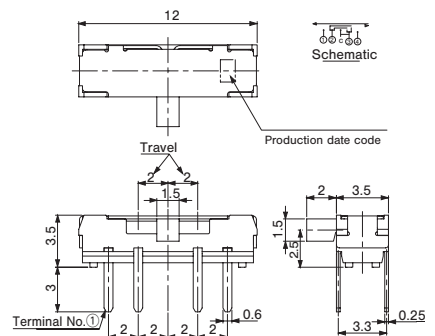
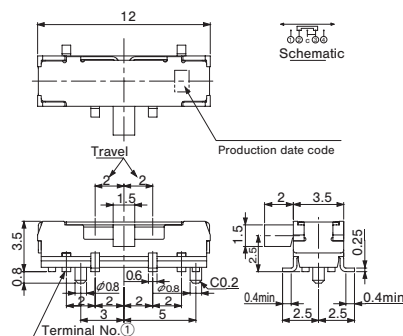
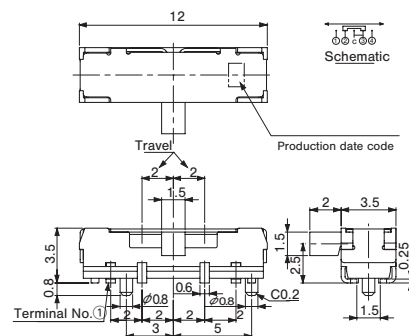
- CL-SB-13C-01
- CL-SB-13C-02



- 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



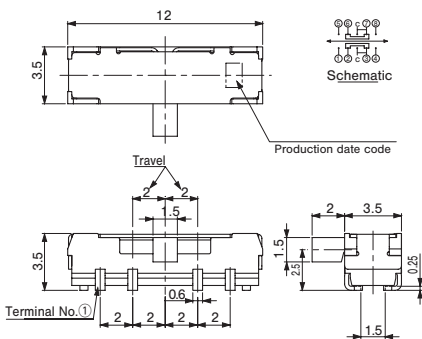
- CL-SB-23B-01
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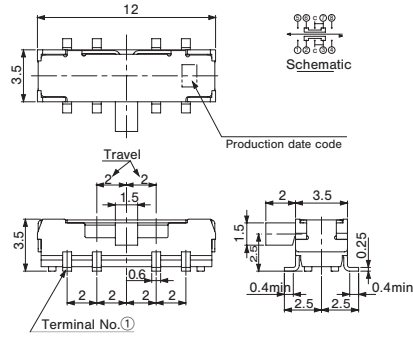
- CL-SB-23C-01
- CL-SB-23C-02



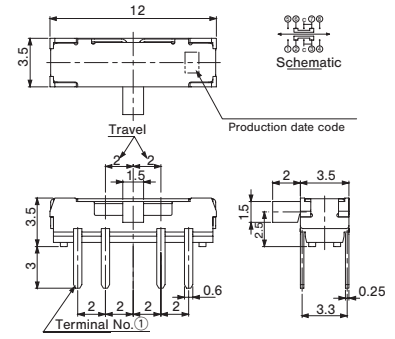
- CL-SB-23A-11
- CL-SB-23A-12



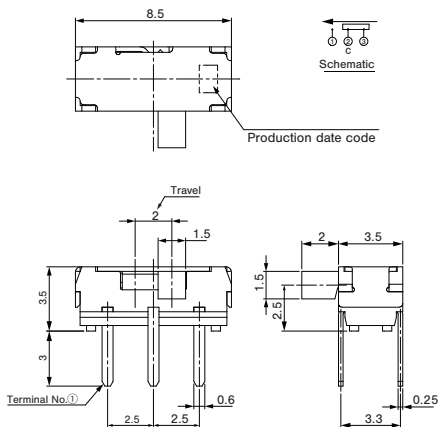
- CL-SB-23B-11
- CL-SB-23B-12



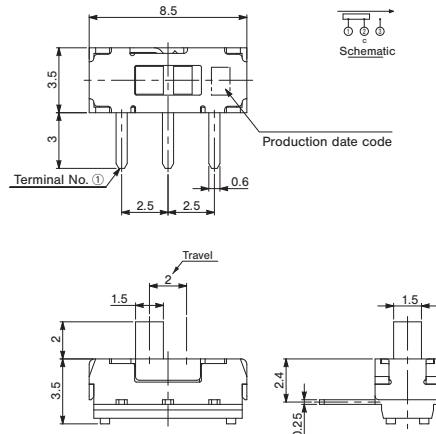
- CL-SB-23C-11
- CL-SB-23C-12



- CL-SB-12C1-11



- CL-SB-12C4-11



# CL-SB

## SLIDE SWITCHES

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

(Unit:mm)

#### CL-SB-12A-□□



#### CL-SB-12B-□□



#### CL-SB-22A-□□



#### CL-SB-22B-□□



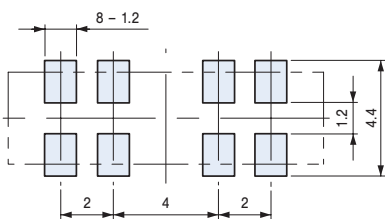
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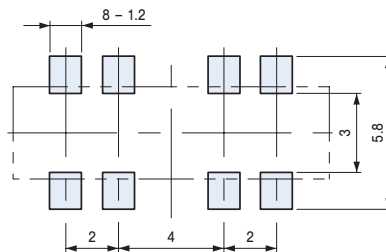
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#### CL-SB-23A-□□



#### CL-SB-23B-□□



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

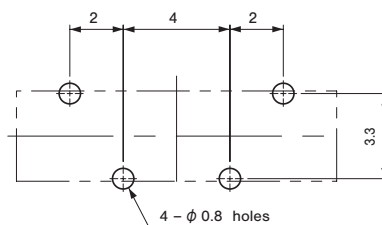
(Unit: mm)

#### CL-SB-12C-□□

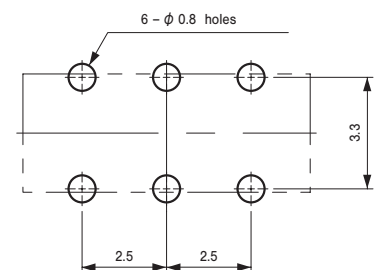
#### CL-SB-12C1-11



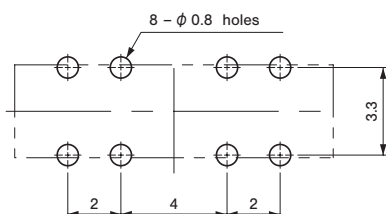
#### CL-SB-13C-□□



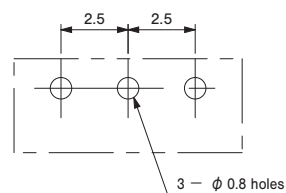
#### CL-SB-22C-□□



#### CL-SB-23C-□□



#### CL-SB-12C4-11



## 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.

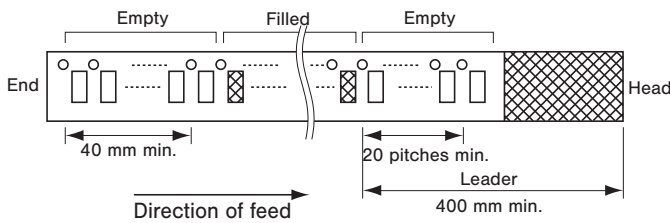
### <Taping packaging specifications>

- 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:

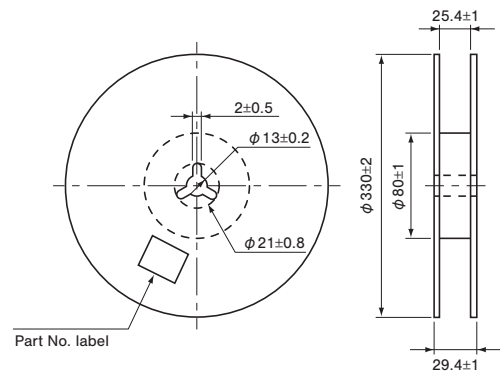
### ● Embossed tape dimensions



### ● Reel dimensions

(Unit: mm)

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



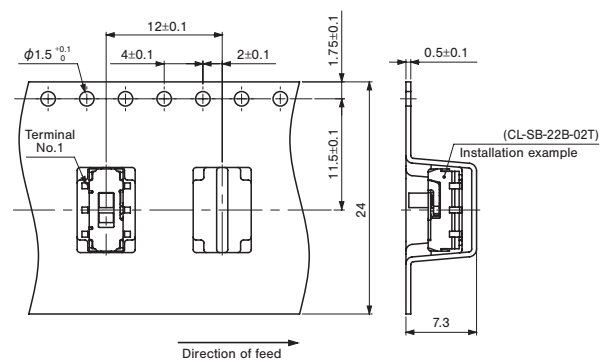
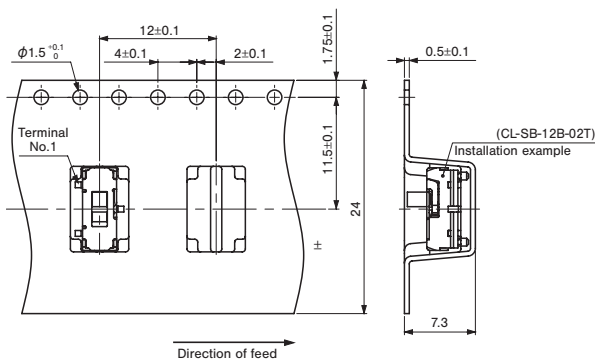
### <Tape dimensions>

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

### ● CL-SB-12A/12B-0□T

### ● CL-SB-22A/22B-0□T

(Conforms to JIS C 0806)



# CL-SB

## SLIDE SWITCHES

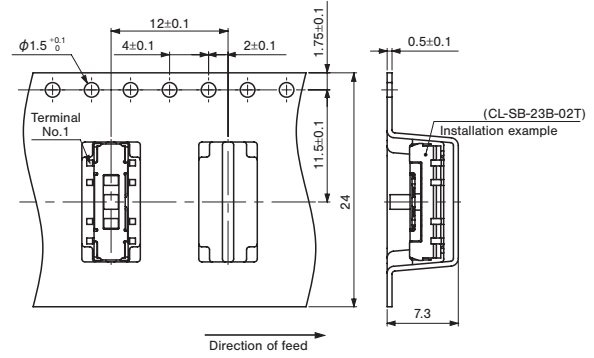
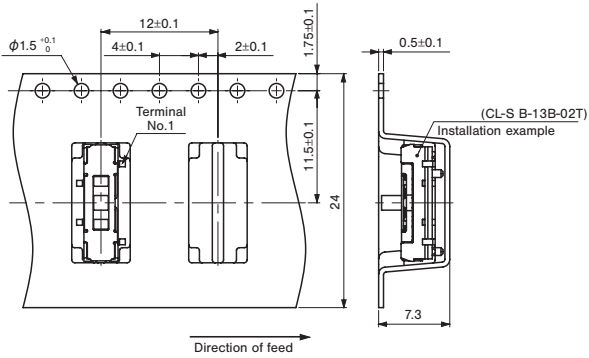
### <Tape dimensions>

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

#### ● CL-SB-13A/13B-0□T

#### ● CL-SB-23A/23B-0□T

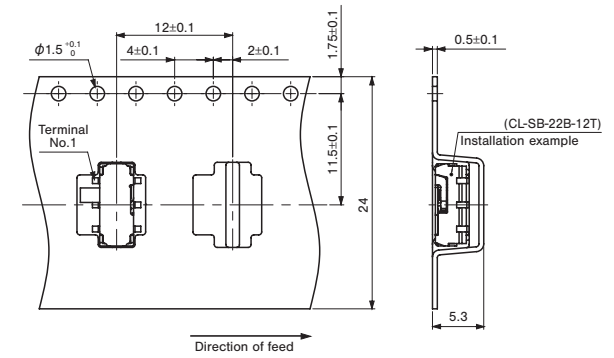
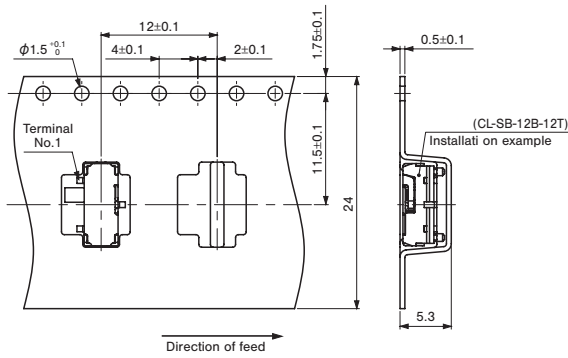
(Conforms to JIS C 0806)



#### ● CL-SB-12A/12B-1□T

#### ● CL-SB-22A/22B-1□T

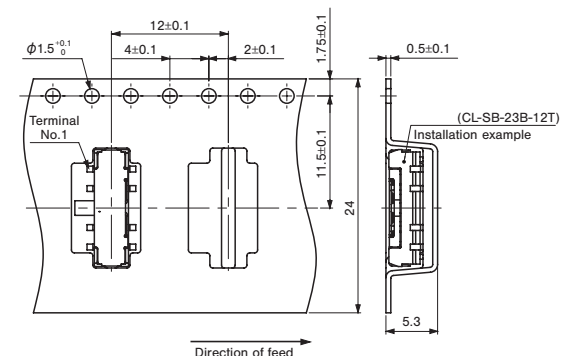
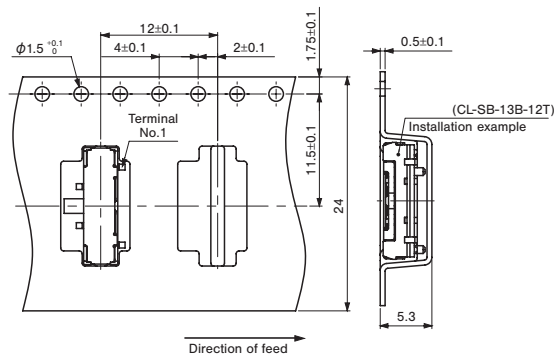
(Conforms to JIS C 0806)



#### ● CL-SB-13A/13B-1□T



#### ● CL-SB-23A/23B-1□T

(Conforms to JIS C 0806)







## Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

-  [View CL-SB-23B-02T on WIN SOURCE](#)
-  [Nidec Copal Electronics Information](#)

## Optimize Your Supply Chain with WIN SOURCE Solutions

-  Global Sourcing Solution
-  Obsolete Management
-  Cost Control Management
-  Shortage Management
-  Alternative Solution
-  Excess Inventory Management