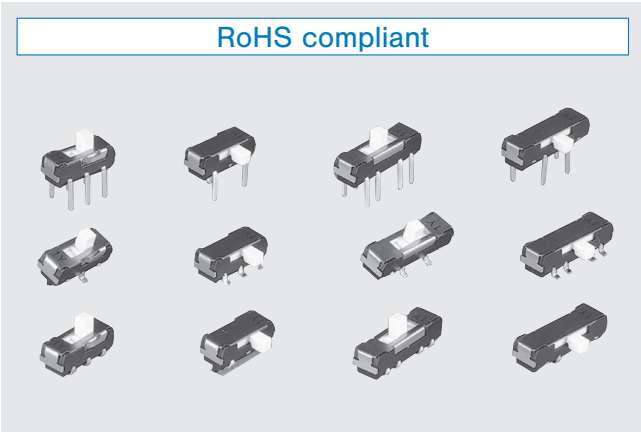




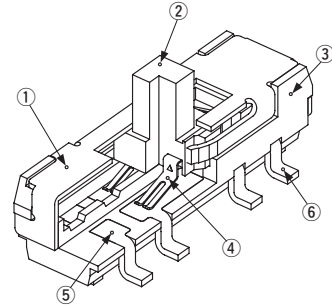
# SLIDE SWITCHES

# CL-SB

RoHS compliant



## 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 |

## 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

## PART NUMBER DESIGNATION

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

Series name

No. of poles

1 : 1 pole  
2 : 2 poles

No. of positions

2 : 2 positions  
3 : 3 positions

Shape of terminal

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

※1: Please check the following LIST OF PART NUMBERS.

Form of packaging

T : Taping

Blank : Bulk in plastic bag

Contact material

1 : Silver

2 : Gold

Setting position

0 : Top setting

1 : Side setting

※ 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

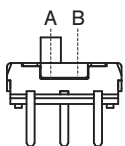
|                             |   |
|-----------------------------|---|
| Operating temperature range | -40 ~ 85 °C   |
| Storage temperature range   |   |
| Sealing                     | Non- Washable   |
| Net weight                  | 0.21 g (CL-SB-12 <sup>+</sup> -0 <sup>*</sup> ) 0.21 g (CL-SB-12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

### MECHANICAL CHARACTERISTICS

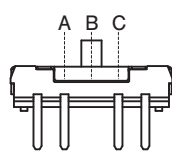
|                   |   |
|-------------------|---|
| No. of positions  | 2, 3  |
| Stroke            | 2 mm  |
| Operation force   | 2 Contacts (CL-SB-*2*-* <sup>*</sup> ) A ↔ B ※ 1<br>1.5 ± 1.0 N {0.153 ± 0.102kgf}<br>3 Contacts (CL-SB-*3*-* <sup>*</sup> ) A→B / C→B ※ 2<br>1.5 ± 1.0 N {0.153 ± 0.102kgf}<br>B→A / B→C<br>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)<br>(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



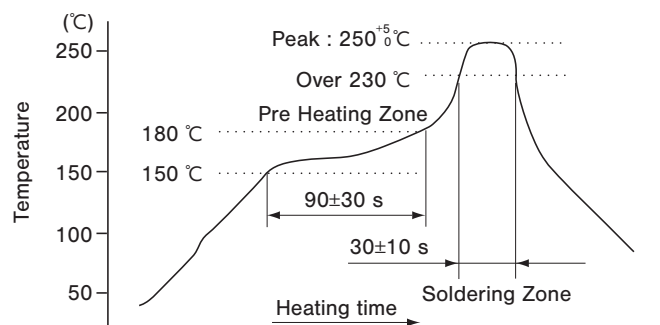
### ELECTRICAL CHARACTERISTICS

|                       |                                |                               |
|-----------------------|--------------------------------|-------------------------------|
| 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<br>20 mV maximum |
|                       | 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<br>(Acceleration) 98 m/s <sup>2</sup> ,<br>10-500-10 Hz, 3 directions for 2 h each |
| Shock                     | 490 m/s <sup>2</sup> , 11 ms<br>6 directions for 3 times each  |
| Load life                 | 10000 cycles,<br>DC12 ± 0.5V, 200 ± 10mA   |
| Humidity                  | 40 °C, Relative humidity 90 ~ 95 %,<br>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



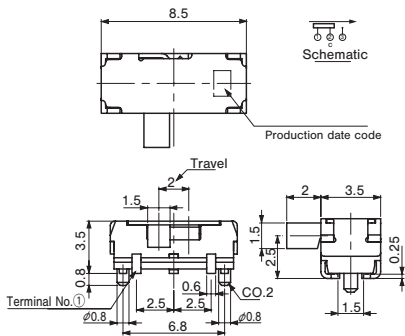
- CL-SB-12B-01
- CL-SB-12B-02



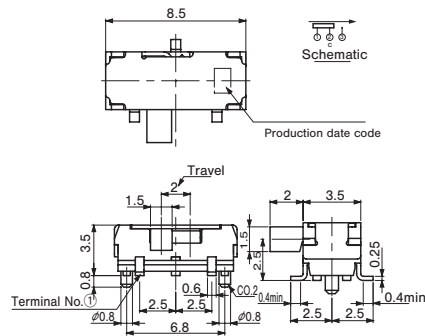
- CL-SB-12C-01
- CL-SB-12C-02



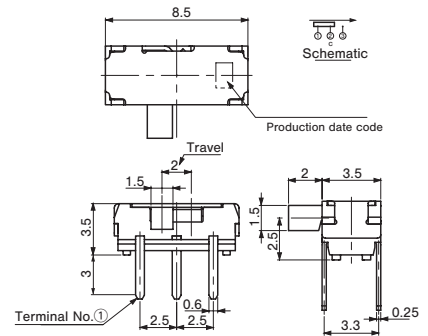
- CL-SB-12A-11
- CL-SB-12A-12



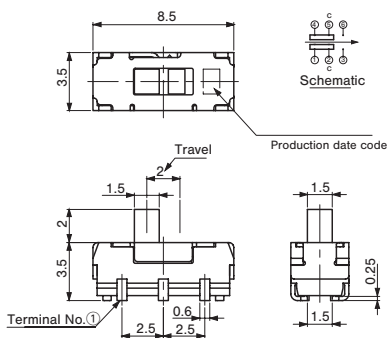
- CL-SB-12B-11
- CL-SB-12B-12



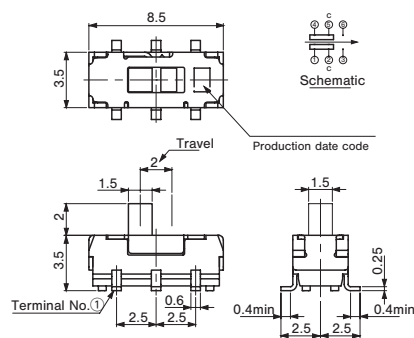
- CL-SB-12C-11
- CL-SB-12C-12



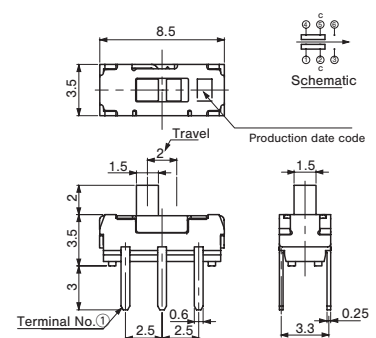
- CL-SB-22A-01
- CL-SB-22A-02



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



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



# CL-SB

## SLIDE SWITCHES

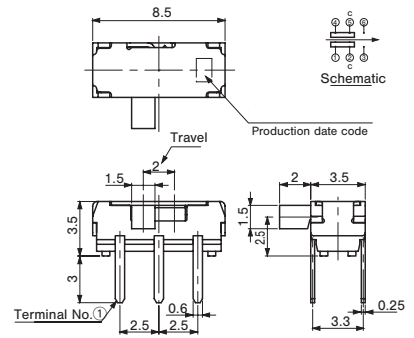
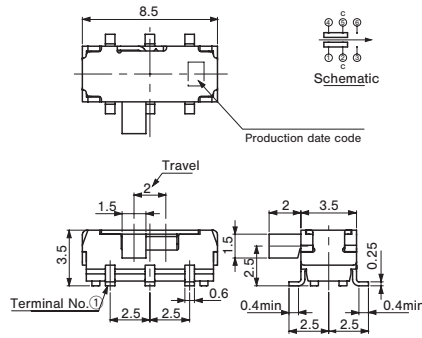
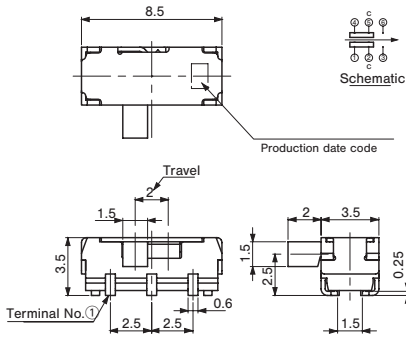
### OUTLINE DIMESIONS

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

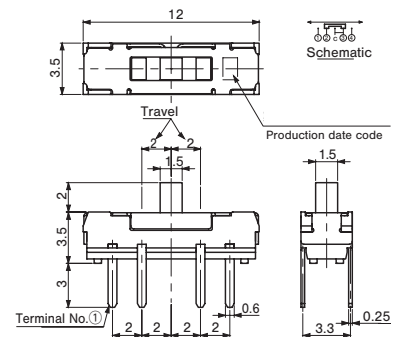
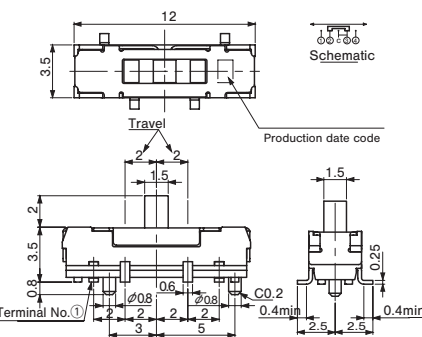
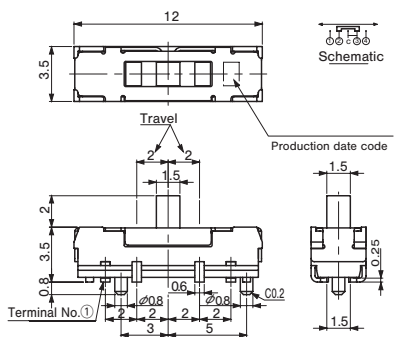
- CL-SB-22C-11
- CL-SB-22C-12



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

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

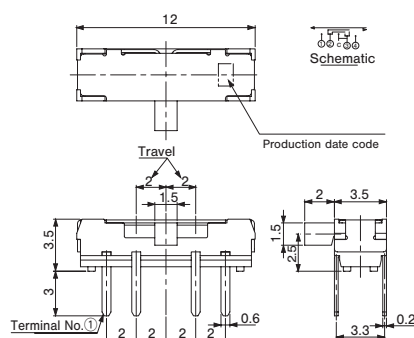
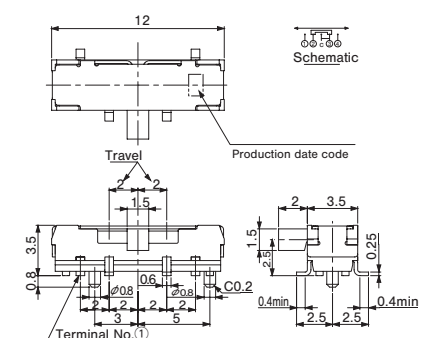
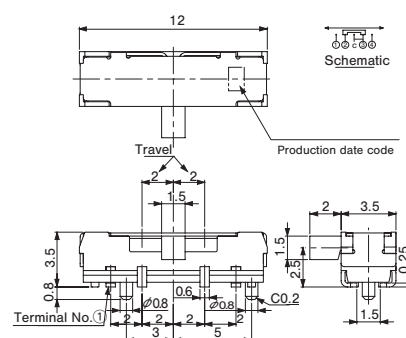
- CL-SB-13C-01
- CL-SB-13C-02



- 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



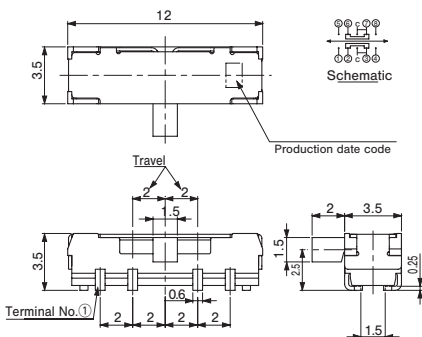
- CL-SB-23B-01
- CL-SB-23B-02



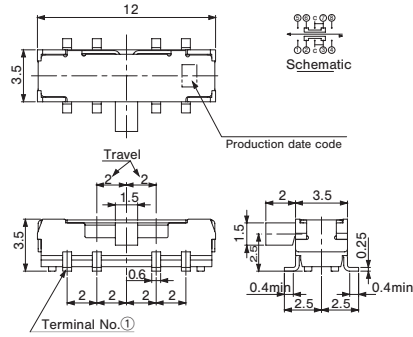
- CL-SB-23C-01
- CL-SB-23C-02



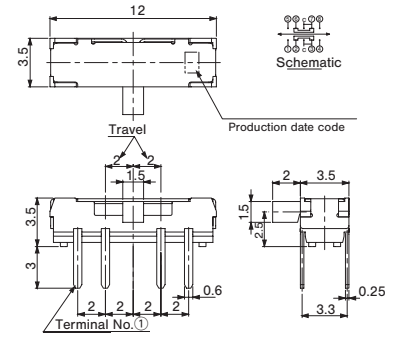
- CL-SB-23A-11
- CL-SB-23A-12



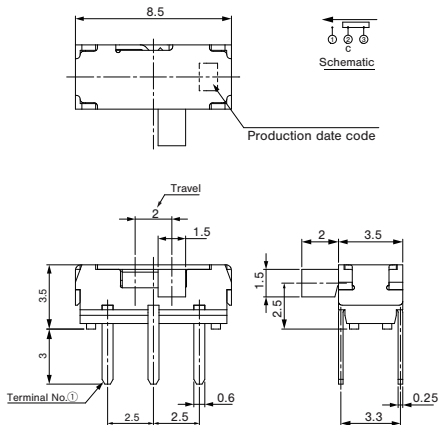
- CL-SB-23B-11
- CL-SB-23B-12



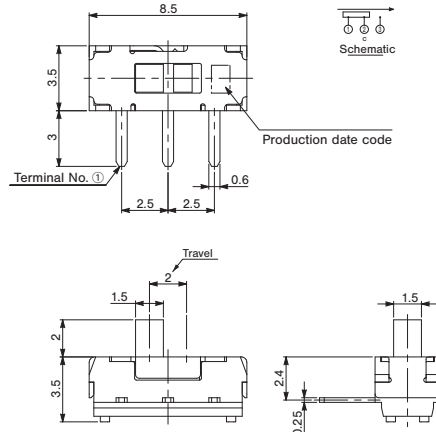
- CL-SB-23C-11
- CL-SB-23C-12



- CL-SB-12C1-11



- CL-SB-12C4-11



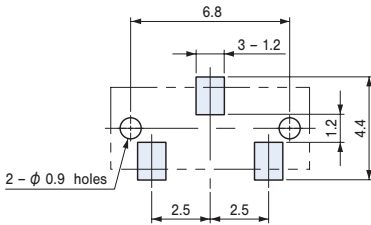
# CL-SB

## SLIDE SWITCHES

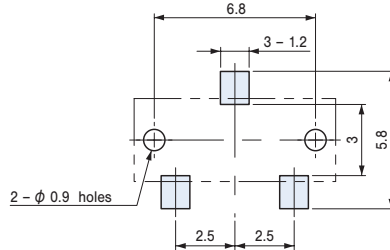
### RECOMMENDED P.C.B. PAD OUTLINE DIMENSIONS

(Unit:mm)

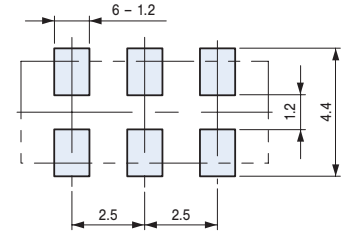
#### CL-SB-12A-□□



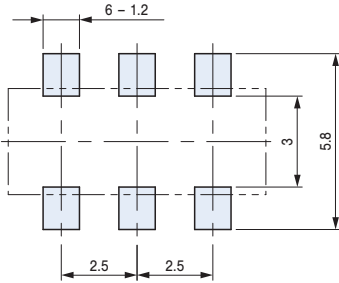
#### CL-SB-12B-□□



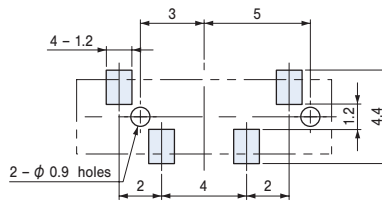
#### CL-SB-22A-□□



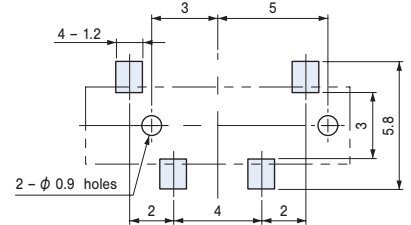
#### CL-SB-22B-□□



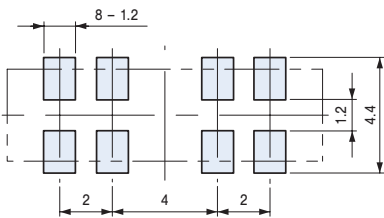
#### CL-SB-13A-□□



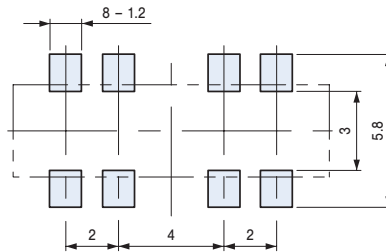
#### CL-SB-13B-□□



#### CL-SB-23A-□□



#### CL-SB-23B-□□

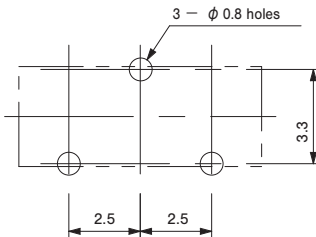


### SIZE OF P.C.B. PROCESSING

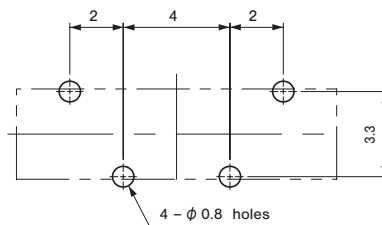
(Unit: mm)

#### CL-SB-12C-□□

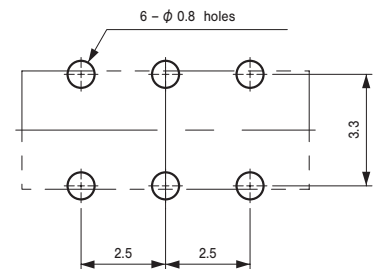
#### CL-SB-12C1-11



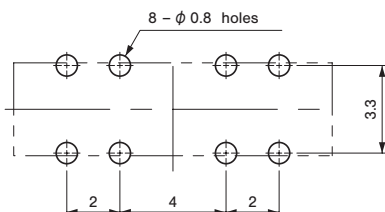
#### CL-SB-13C-□□



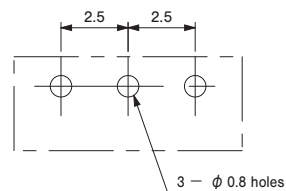
#### CL-SB-22C-□□



#### CL-SB-23C-□□



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





# CL-SB

## SLIDE SWITCHES

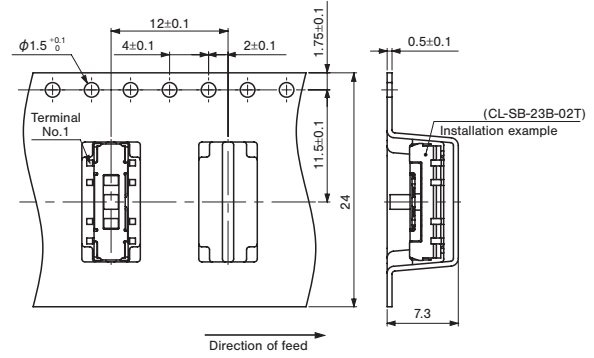
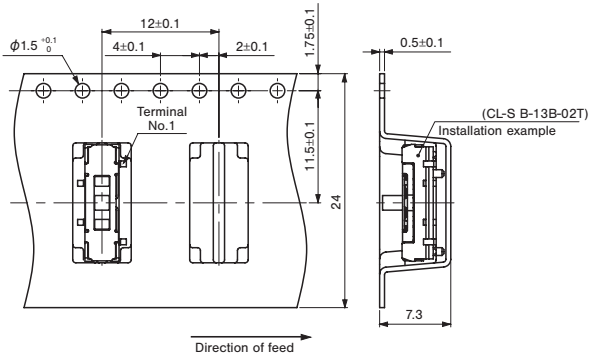
### <Tape dimensions>

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

#### ● CL-SB-13A/13B-0□T

#### ● CL-SB-23A/23B-0□T

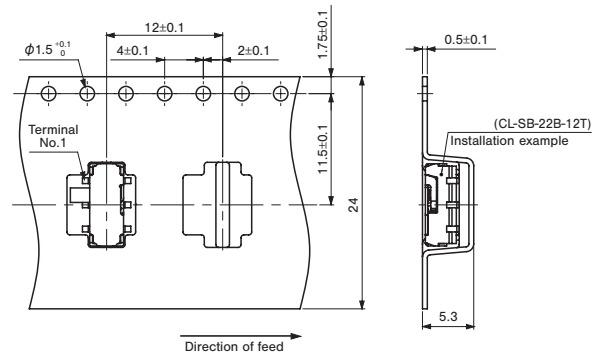
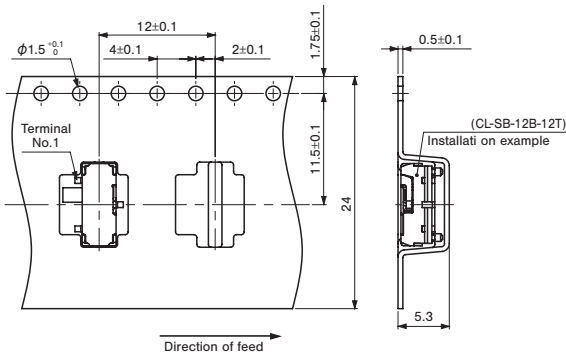
(Conforms to JIS C 0806)



#### ● CL-SB-12A/12B-1□T

#### ● CL-SB-22A/22B-1□T

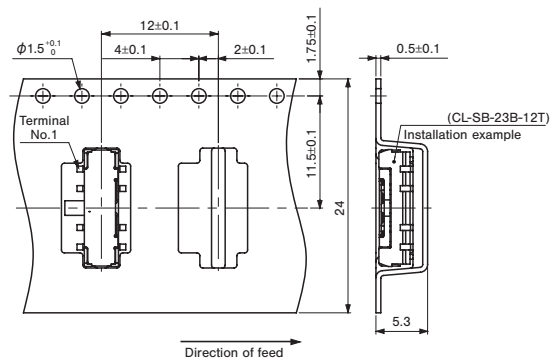
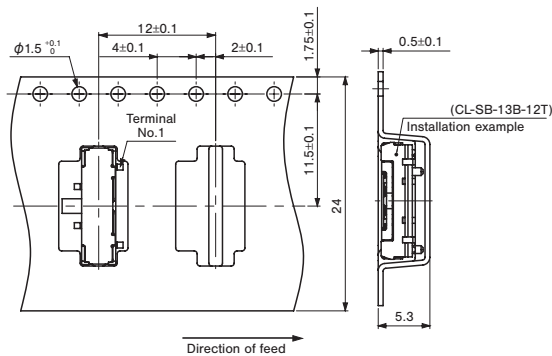
(Conforms to JIS C 0806)



#### ● CL-SB-13A/13B-1□T

#### ● CL-SB-23A/23B-1□T

(Conforms to JIS C 0806)



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