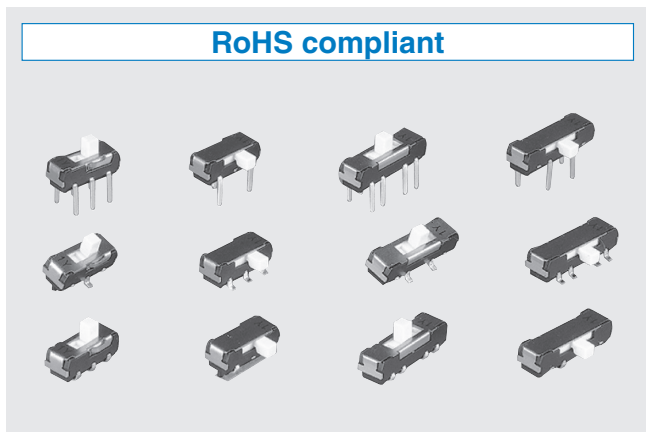


## SLIDE SWITCHES

# CL-SB

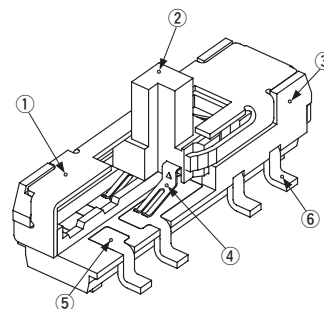
### RoHS compliant



## 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

|                       |  |              |                  |                             |
|-----------------------|--|--------------|------------------|-----------------------------|
| <b>CL - SB</b>        |  | <b>- 2 3</b> | <b>B - 0 2 T</b> |                             |
| Series name           |  | No. of poles | No. of positions | Form of packaging           |
|                       |  | 1 : 1 pole   | 2 : 2 positions  | T : Taping                  |
|                       |  | 2 : 2 poles  | 3 : 3 positions  | Blank : Bulk in plastic bag |
| Shape of terminal     |  |              | Setting position | Contact material            |
| A : J-hook            |  |              | 0 : Top setting  | 1 : Silver                  |
| B : Gull wing         |  |              | 1 : Side setting | 2 : Gold                    |
| C : Through hole pins |  |              |                  |                             |

※ 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 | Pieces in package |
|------------------|--------------|------------------|------------------|---------------|----------------------|-------------------|-------------------|
|                  |              |                  | 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     |
|                  |              | 3                | CL-SB-12C-01     | CL-SB-12C-02  | C(Through hole pins) | Plastic bag       | 50pcs. / pack     |
|                  |              |                  | 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     |
|                  |              | 3                | CL-SB-22C-01     | CL-SB-22C-02  | C(Through hole pins) | Plastic bag       | 50pcs. / pack     |
|                  |              |                  | 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     |
|                  |              | 3                | CL-SB-12C-11     | CL-SB-12C-12  | C(Through hole pins) | Plastic bag       | 50pcs. / pack     |
|                  |              |                  | 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     |
|                  |              | 3                | CL-SB-22C-11     | CL-SB-22C-12  | C(Through hole pins) | Plastic bag       | 50pcs. / pack     |
|                  |              |                  | 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     |

※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*) | 0.23 g (CL-SB-22*-1*) |
|                             | 0.26 g (CL-SB-13*-0*) | 0.27 g (CL-SB-13*-1*) |
|                             | 0.28 g (CL-SB-23*-0*) | 0.29 g (CL-SB-23*-1*) |

### MECHANICAL CHARACTERISTICS

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



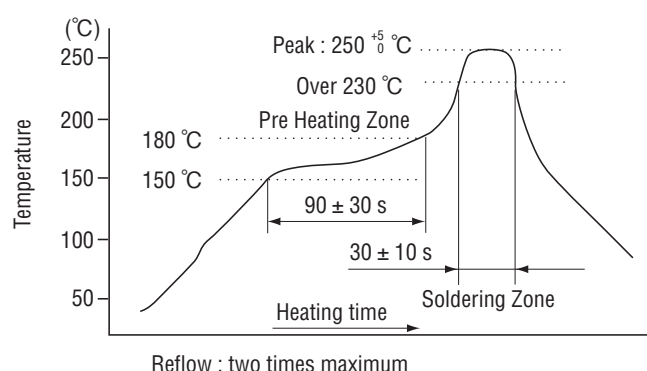
### ELECTRICAL CHARACTERISTICS

|                                                         |                                                                                                      |                               |
|---------------------------------------------------------|------------------------------------------------------------------------------------------------------|-------------------------------|
| Contact rating<br>Non-switching<br>Switching<br>Minimum | DC50 V 200 mA<br>DC12 V 200 mA<br>DC20 mV 1 $\mu$ A (Gold contacts)<br>DC5 V 10 mA (Silver contacts) |                               |
| Contact timing                                          | Non-shorting                                                                                         |                               |
| Contact resistance                                      | 70m $\Omega$ maximum<br>(Gold contacts)<br>50m $\Omega$ maximum<br>(Silver contacts)                 | 1.5 mA 1 kHz<br>20 mV maximum |
| Insulation resistance                                   | 100 M $\Omega$ minimum (DC500 V)                                                                     |                               |
| Dielectric strength                                     | AC500 V, 60 s                                                                                        |                               |

### ENVIRONMENTAL CHARACTERISTICS

|                           |                                                                                                         |
|---------------------------|---------------------------------------------------------------------------------------------------------|
| Vibration                 | (Amplitude) 1.5 mmor<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                                                                |

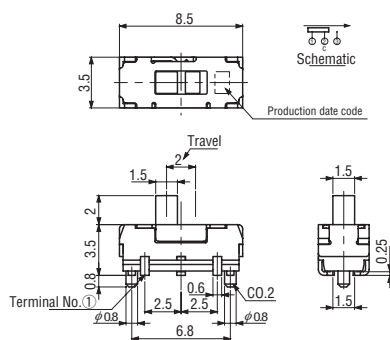
### <Reflow profile for soldering heat evaluation>



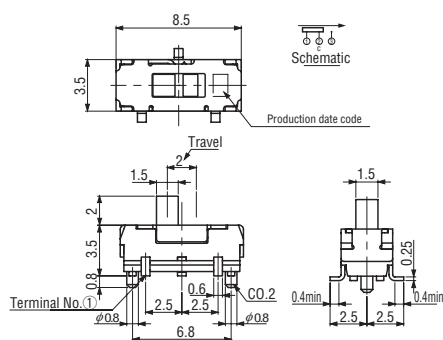
### OUTLINE DIMENSIONS

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

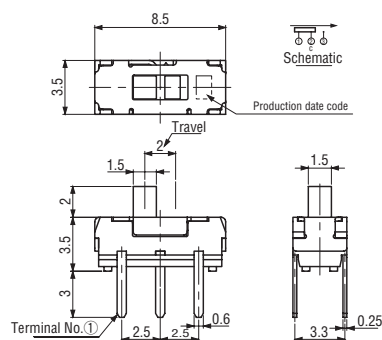
#### CL-SB-12A-01 CL-SB-12A-02



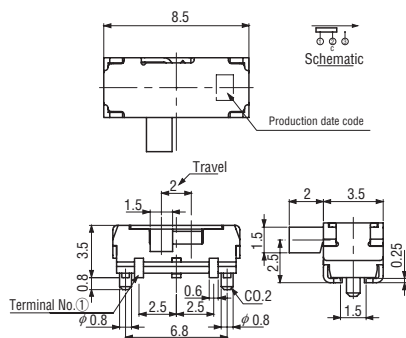
#### CL-SB-12B-01 CL-SB-12B-02



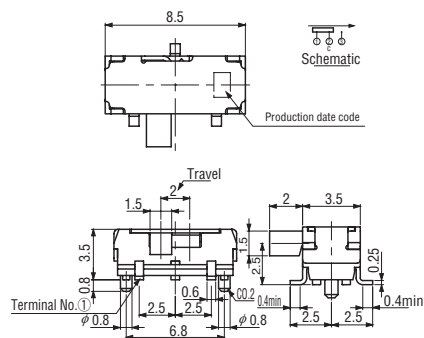
#### CL-SB-12C-01 CL-SB-12C-02



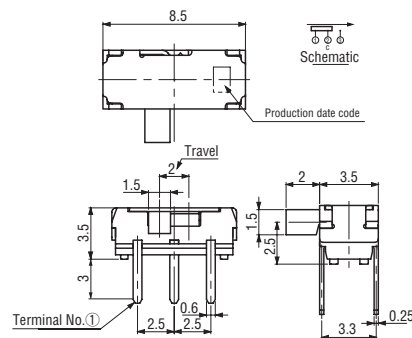
#### CL-SB-12A-11 CL-SB-12A-12



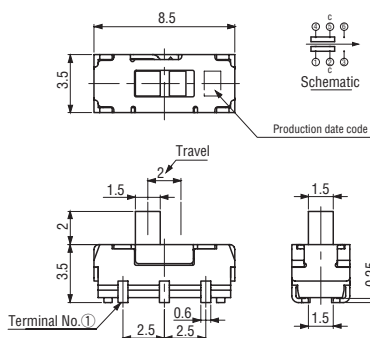
#### CL-SB-12B-11 CL-SB-12B-12



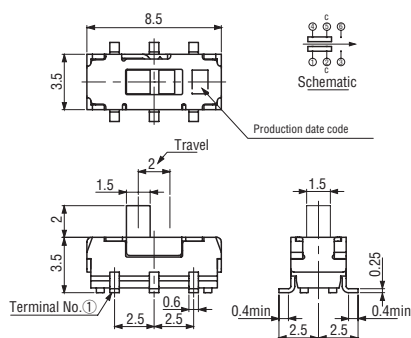
#### CL-SB-12C-11 CL-SB-12C-12



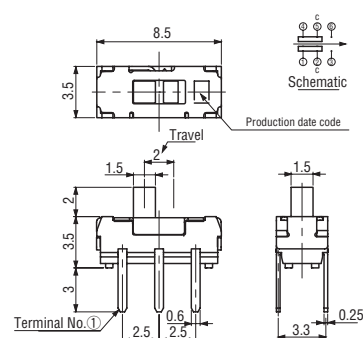
#### CL-SB-22A-01 CL-SB-22A-02



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



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



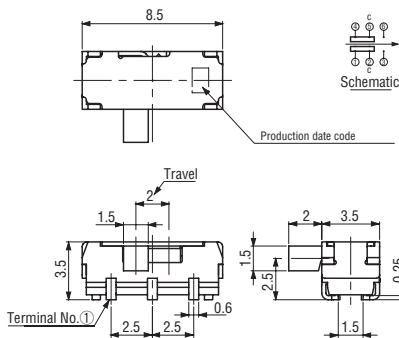
# CL-SB

## SLIDE SWITCHES

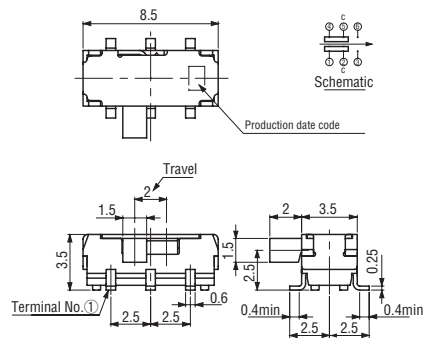
### OUTLINE DIMENSIONS

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

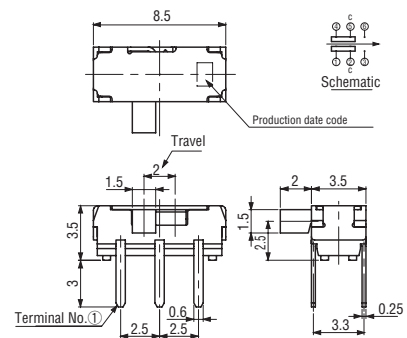
- CL-SB-22A-11
- CL-SB-22A-12



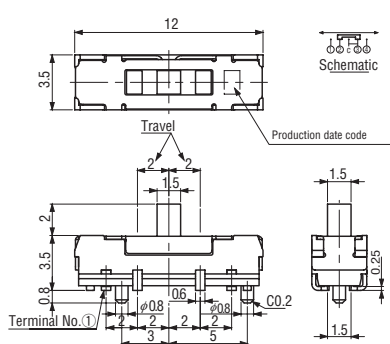
- CL-SB-22B-11
- CL-SB-22B-12



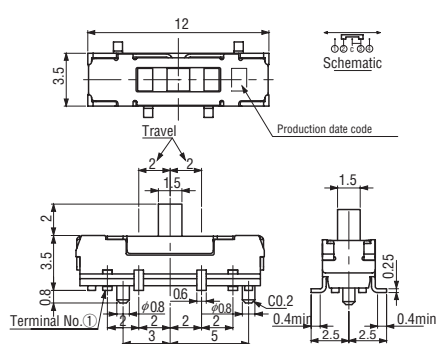
- CL-SB-22C-11
- CL-SB-22C-12



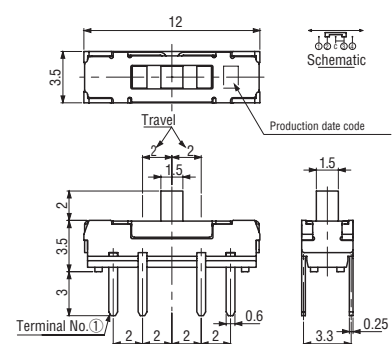
- CL-SB-13A-01
- CL-SB-13A-02



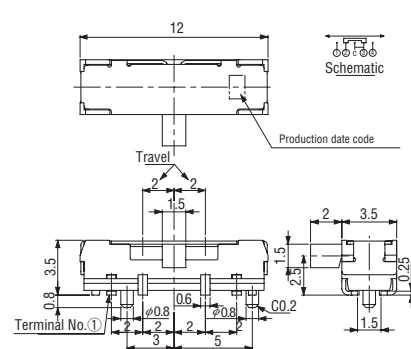
- CL-SB-13B-01
- CL-SB-13B-02



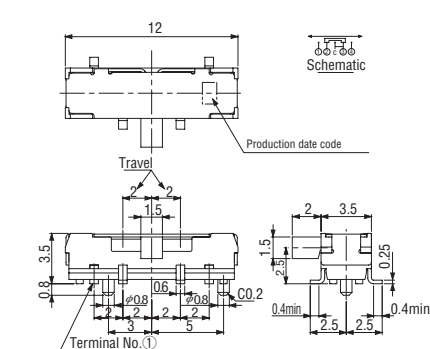
- CL-SB-13C-01
- CL-SB-13C-02



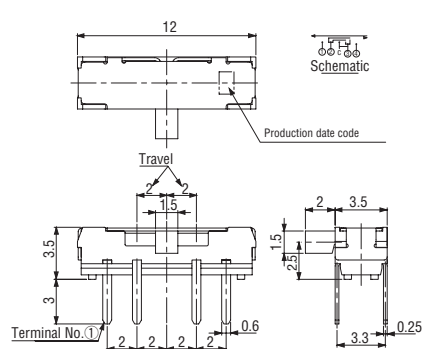
- CL-SB-13A-11
- CL-SB-13A-12



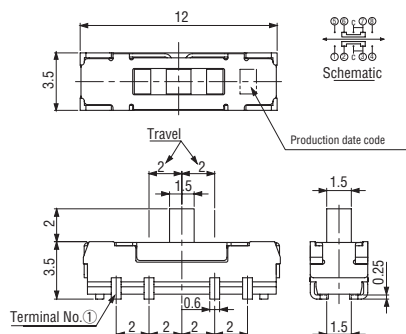
- CL-SB-13B-11
- CL-SB-13B-12



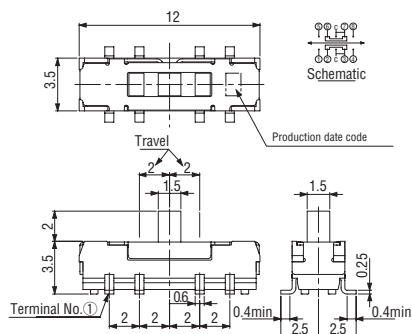
- CL-SB-13C-11
- CL-SB-13C-12



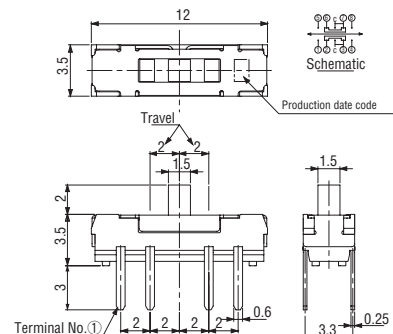
- CL-SB-23A-01
- CL-SB-23A-02



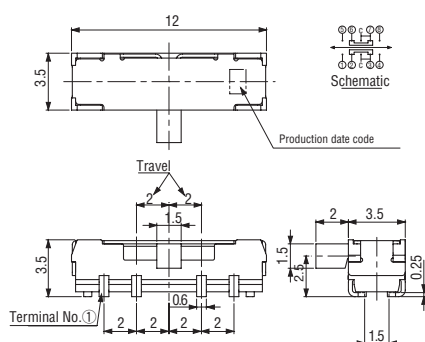
- CL-SB-23B-01
- CL-SB-23B-02



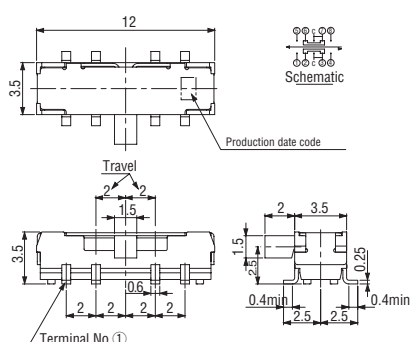
- CL-SB-23C-01
- CL-SB-23C-02



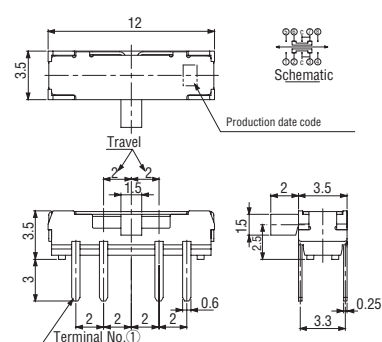
- CL-SB-23A-11
- CL-SB-23A-12



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



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



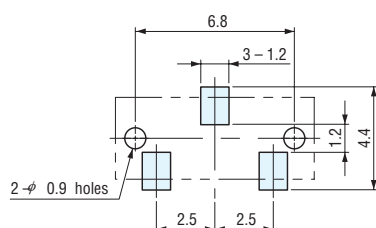
# CL-SB

## SLIDE SWITCHES

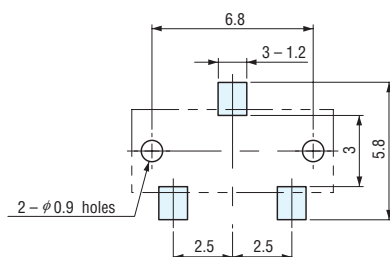
### RECOMMENDED P.C.B. PAD OUTLINE DIMENSIONS

(Unit: mm)

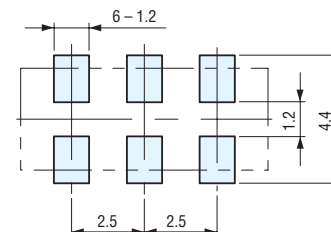
#### CL-SB-12A-□□



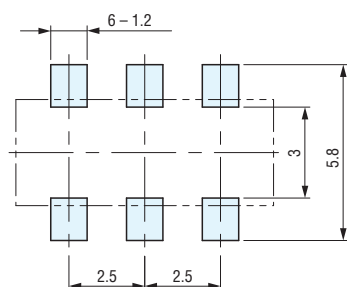
#### CL-SB-12B-□□



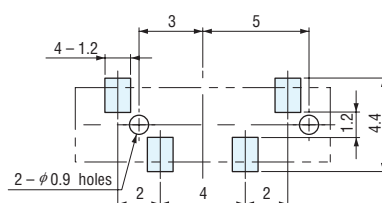
#### CL-SB-22A-□□



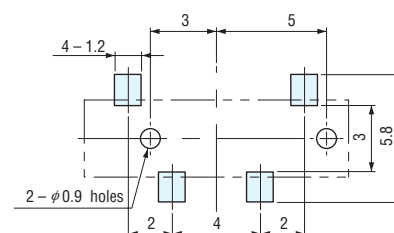
#### CL-SB-22B-□□



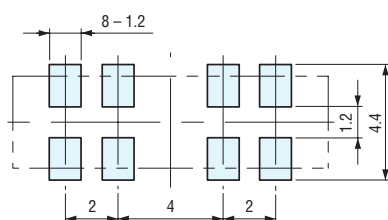
#### CL-SB-13A-□□



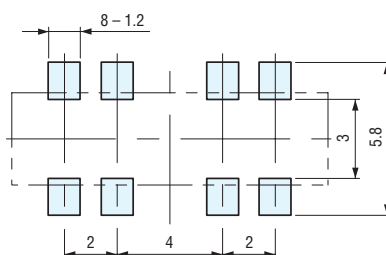
#### CL-SB-13B-□□



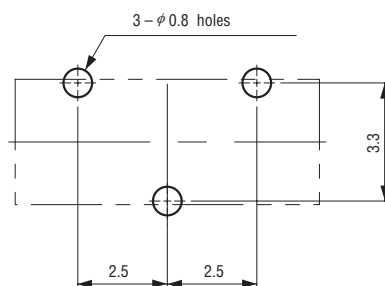
#### CL-SB-23A-□□



#### CL-SB-23B-□□



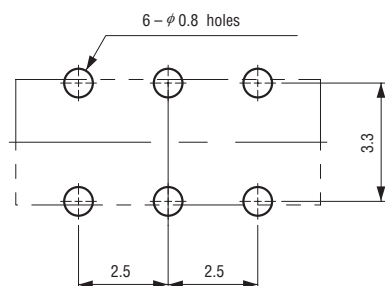
#### CL-SB-12C-□□



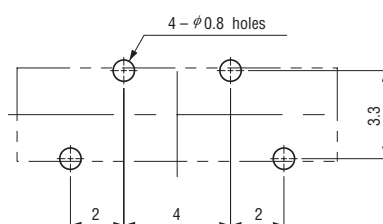
### SIZE OF P.C.B. PROCESSING

(Unit: mm)

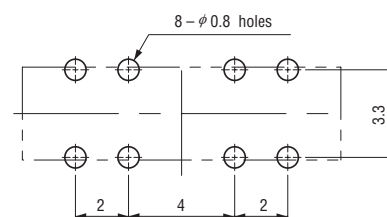
#### CL-SB-22C-□□



#### CL-SB-13C-□□



#### CL-SB-23C-□□



## PACKAGING SPECIFICATIONS

### <Bulk pack specifications>

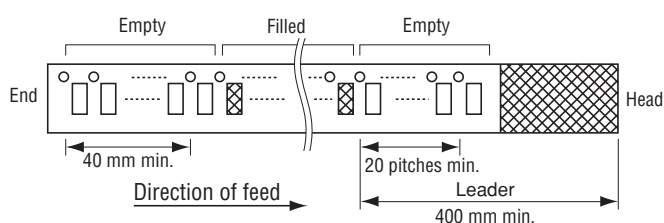
- The smallest unit of bulk pack in plastic bag is 10 pcs. per pack. Orders will be accepted for unit of minimum 10 pcs., i.e., 10, 20, 30 pcs., etc.
- Boxing of bulk in a plastic bag is performed with 50 pcs. per box.

### <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.).

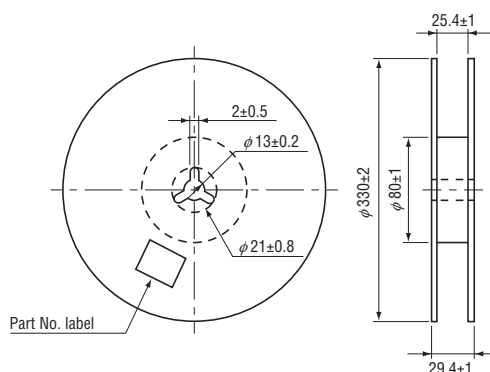
Maximum number of consecutive missing pieces=2  
Leader length and reel dimension are shown in the diagrams below:

### ● Embossed tape dimensions



### ● Reel dimensions (Unit: mm)

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



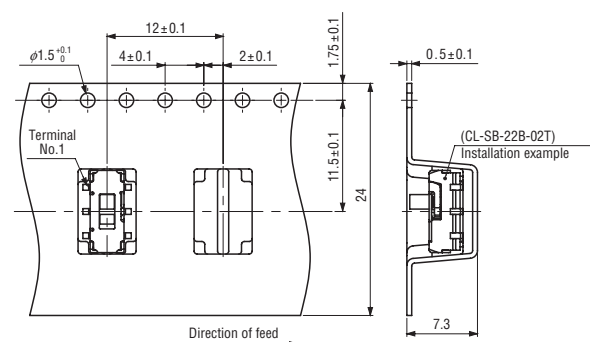
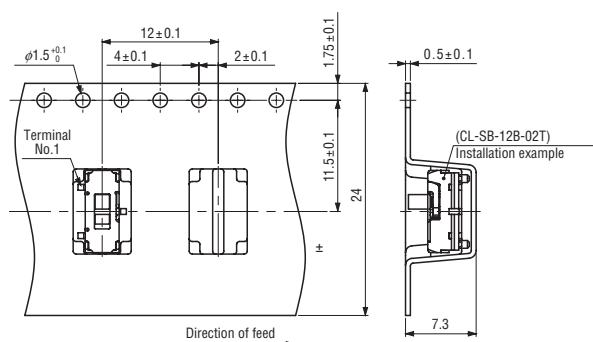
### <Tape dimensions>

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

### ● CL-SB-12A/12B-0 □ T

### ● CL-SB-22A/22B-0 □ T

(Conforms to JIS C 0806)





# CL-SB

## SLIDE SWITCHES

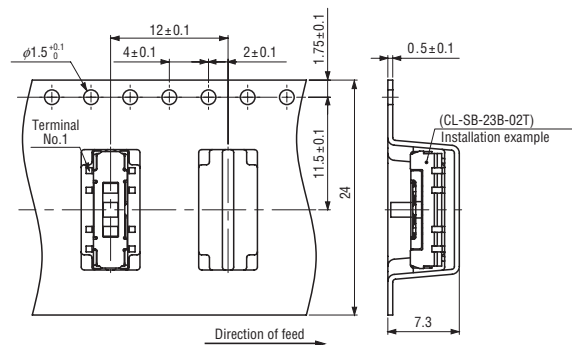
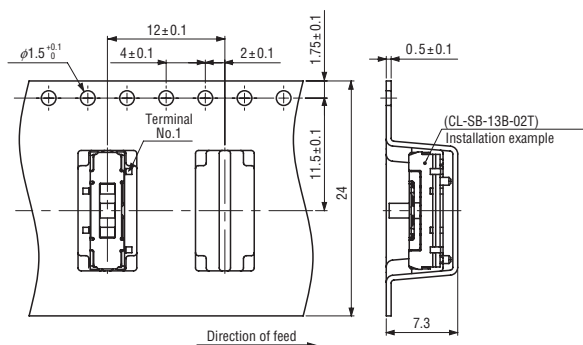
### <Tape dimensions>

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

#### ● CL-SB-13A/13B-0 □ T

#### ● CL-SB-23A/23B-0 □ T

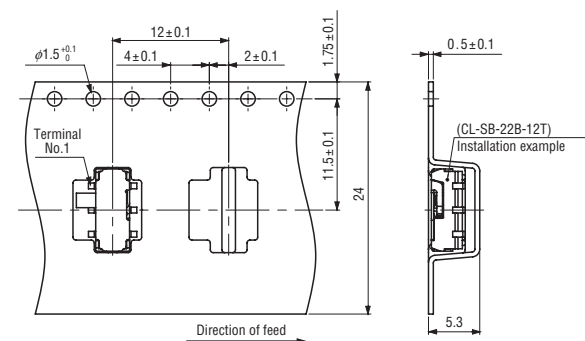
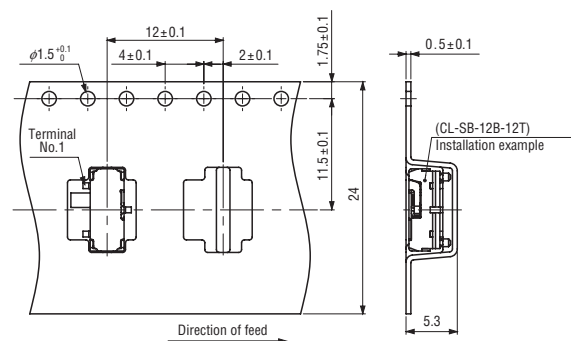
(Conforms to JIS C 0806)



#### ● 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)

