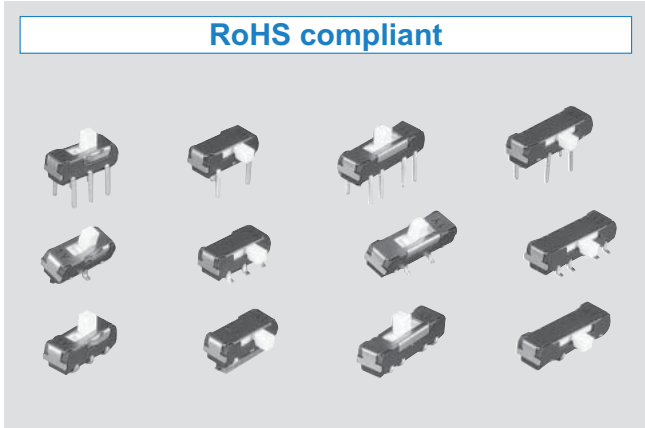




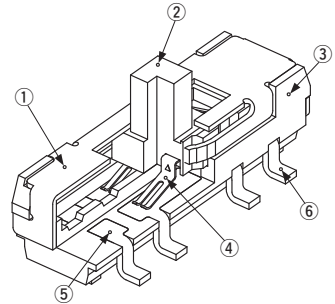
# CL-SB

## SLIDE SWITCHES

### RoHS compliant



### INTERNAL STRUCTURE

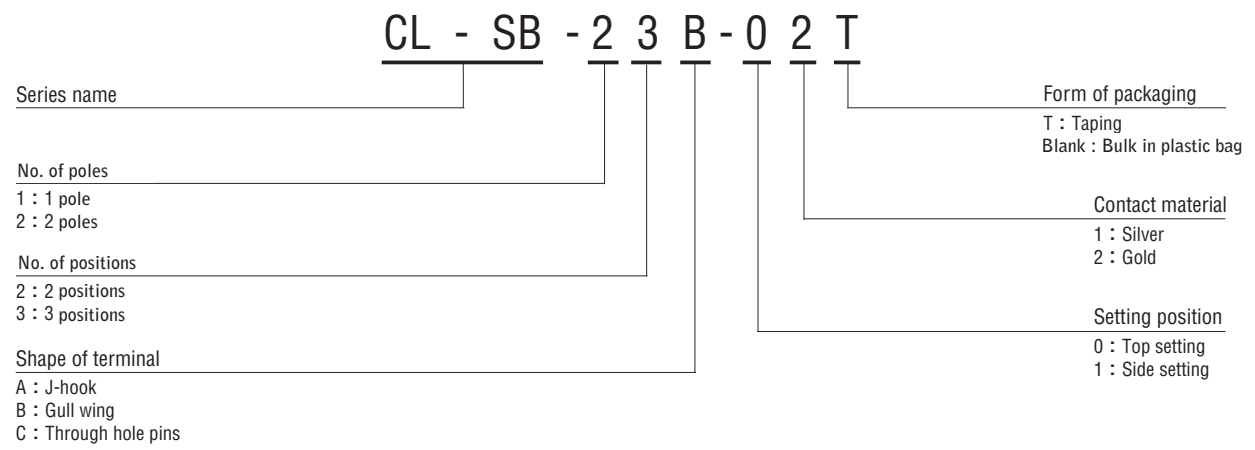


| Part name        | Material                           | Flammability |
|------------------|------------------------------------|--------------|
| ① Cover          | Stainless steel (SUS 304)          | —            |
| ② Slider         | Polyamide                          | UL-94V-0     |
| ③ Housing        | Polyphenylenesulphide              | UL-94V-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 | —            |

### 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

### 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 Pole(s) | 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       |
|                  |                | 3                | 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       |
|                  | 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       |
|                  |                | 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       |
|                  |                | 3                | 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       |
|                  | 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       |
|                  |                | 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

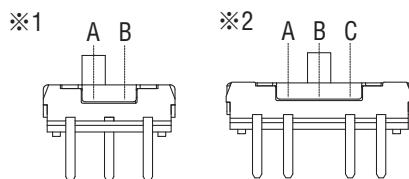
## STANDARD SPECIFICATIONS

|                             |                       |                       |
|-----------------------------|-----------------------|-----------------------|
| 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*) | 0.23 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 (Top setting)  |   |
| Solderability     | 245 ± 3 °C, 2 ~ 3 s   |   |
| Soldering heat    | Reflow : 255°C (Peak temt.)<br><Please refer to the profile below><br>Flow : 260±3°C, 5~6 s<br>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



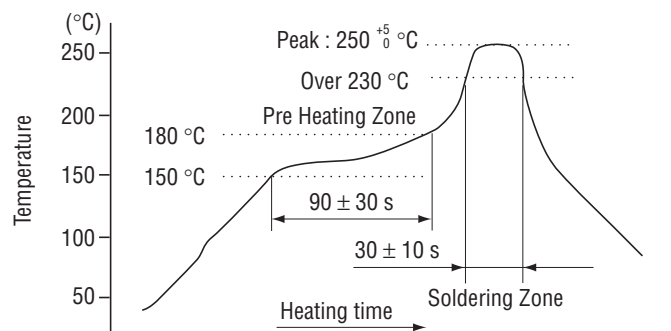
## ELECTRICAL CHARACTERISTICS

|                       |                                   |                               |
|-----------------------|-----------------------------------|-------------------------------|
| Contact rating        | DC50 V 200 mA                     |                               |
| Non-switching         | DC12 V 200 mA                     |                               |
| Switching             | DC20 mV 1 μA (Gold contacts)      |                               |
| Minimum               | DC5 V 10mA (Silver contacts)      |                               |
| Contact timing        | Non-shorting                      |                               |
| Contact resistance    | 70mΩ maximum<br>( Gold contacts)  | 1.5 mA 1 kHz<br>20 mV maximum |
|                       | 50mΩ maximum<br>(Silver contacts) |                               |
| Insulation resistance | 100 MΩ minimum (DC 500V)          |                               |
| 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 10 cycles |
| Shock                     | 490 m/s <sup>2</sup> , 11 ms<br>6 directions for 3 times each   |
| Load life                 | Continuous load 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>



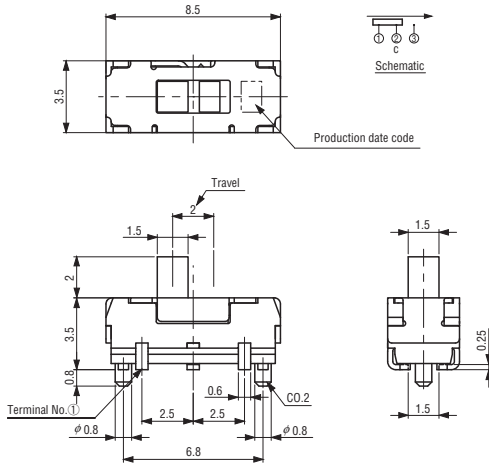
Reflow : two times maximum

# CL-SB SLIDE SWITCHES

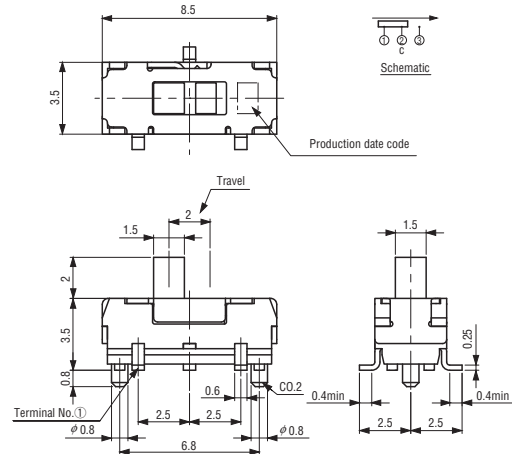
## OUTLINE DIMENSIONS

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

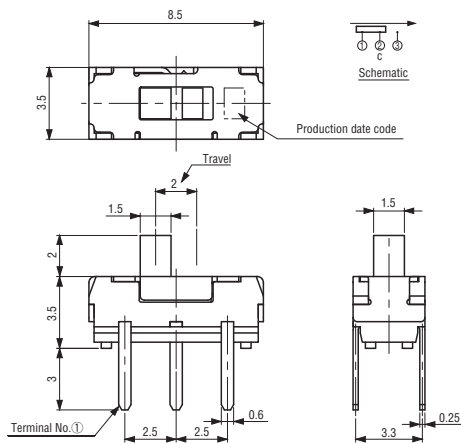
- CL-SB-12A-01
- CL-SB-12A-02



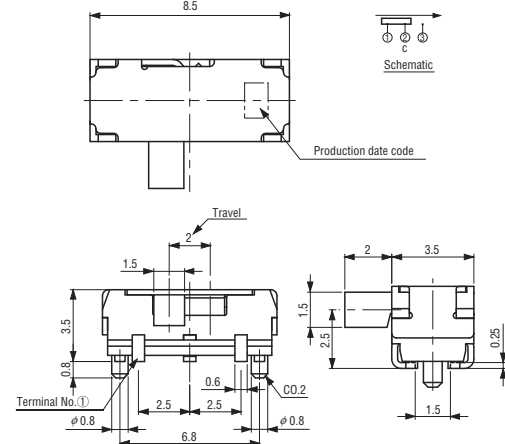
- CL-SB-12B-01
- CL-SB-12B-02



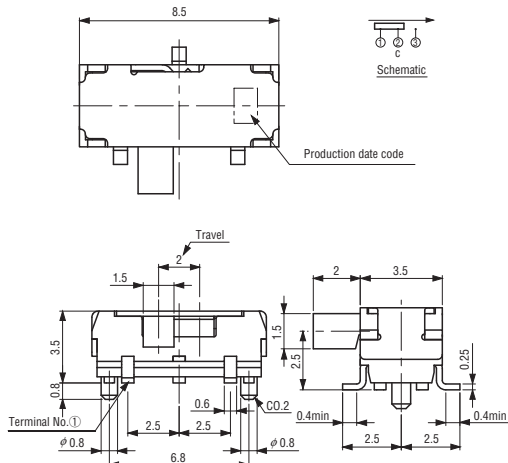
- CL-SB-12C-01
- CL-SB-12C-02



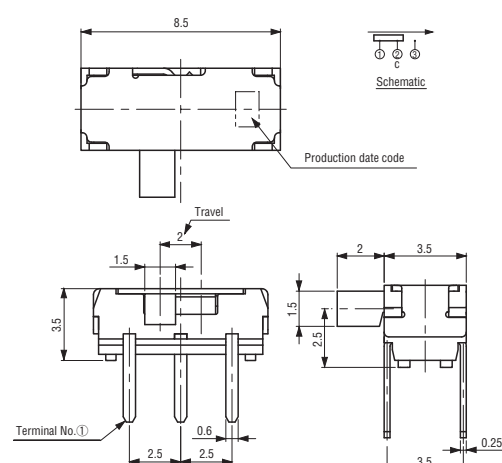
- CL-SB-12A-11
- CL-SB-12A-12



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



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

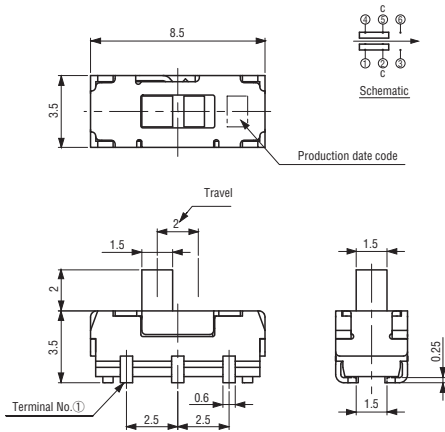


# CL-SB SLIDE SWITCHES

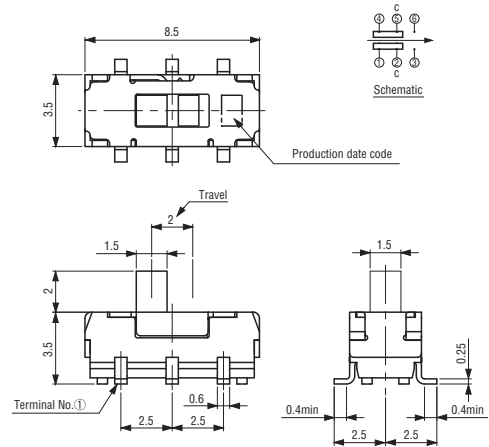
## OUTLINE DIMENSIONS

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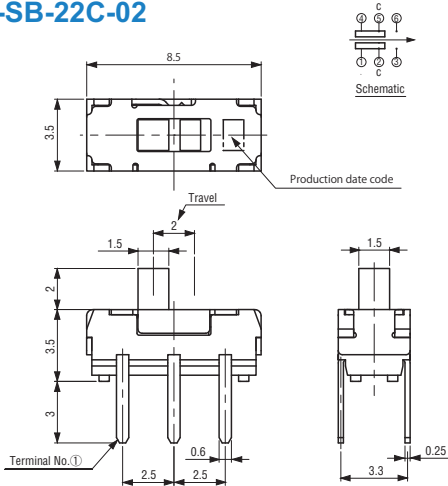
- CL-SB-22A-01
- CL-SB-22A-02



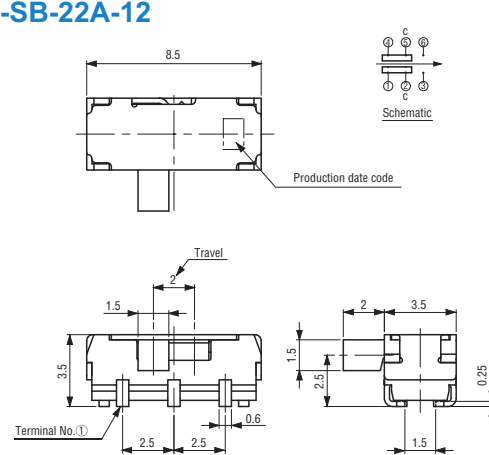
- CL-SB-22B-01
- CL-SB-22B-02



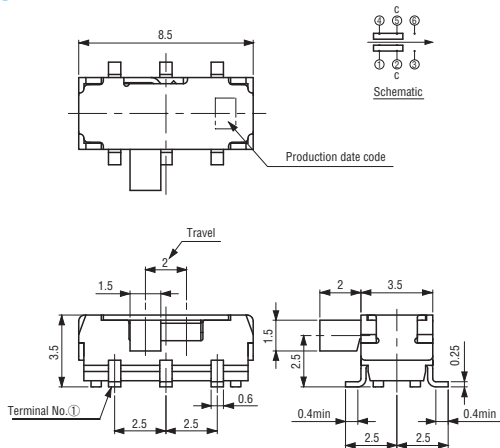
- CL-SB-22C-01
- CL-SB-22C-02



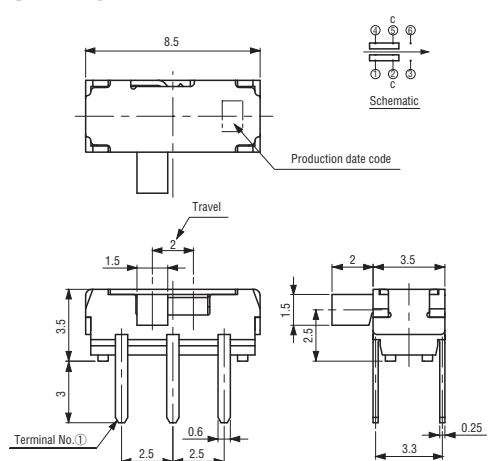
- CL-SB-22A-11
- CL-SB-22A-12



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



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

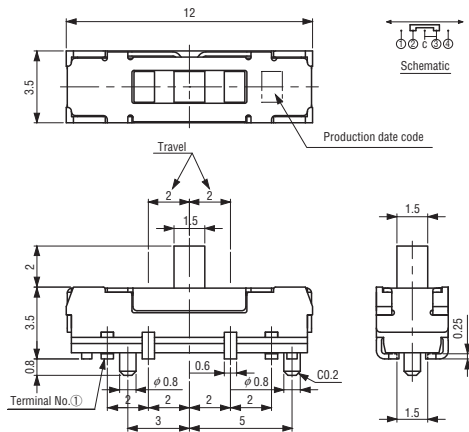


# CL-SB SLIDE SWITCHES

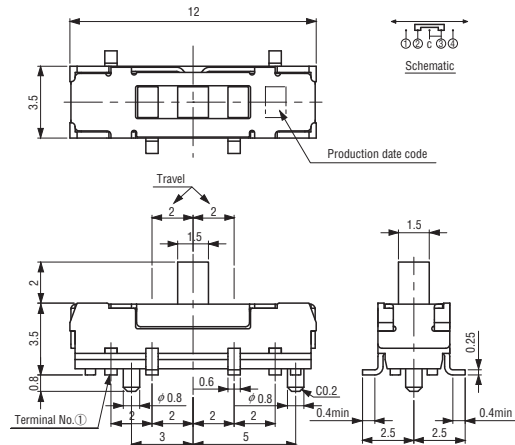
## OUTLINE DIMENSIONS

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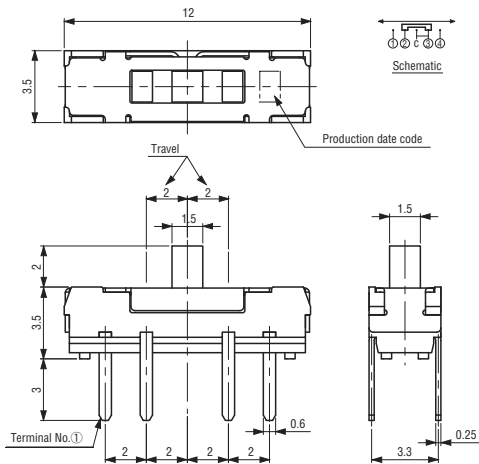
- CL-SB-13A-01
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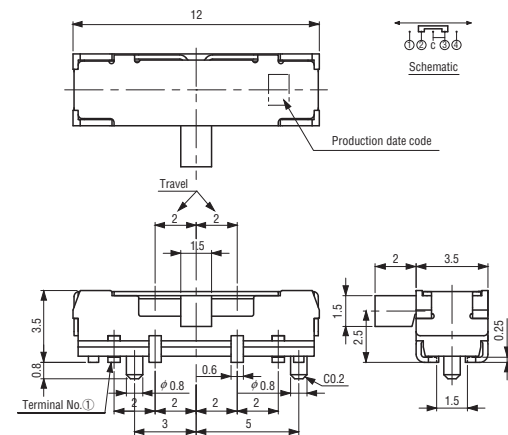
- CL-SB-13B-01
- CL-SB-13B-02



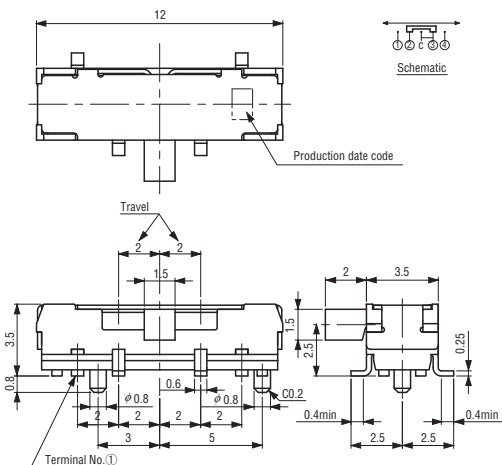
- CL-SB-13C-01
- CL-SB-13C-02



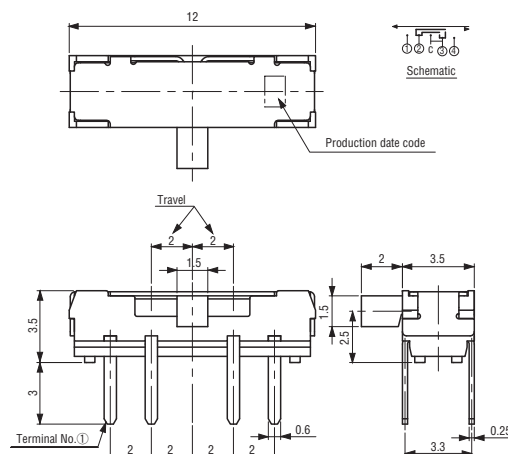
- CL-SB-13A-11
- CL-SB-13A-12



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



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

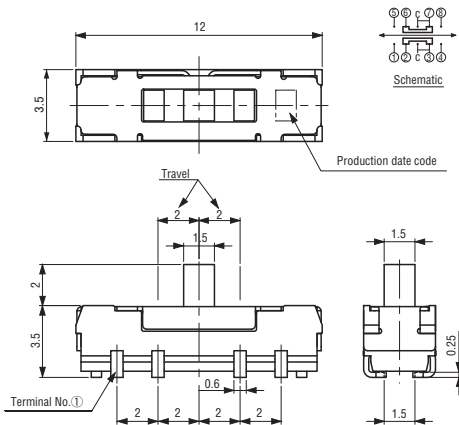


# CL-SB SLIDE SWITCHES

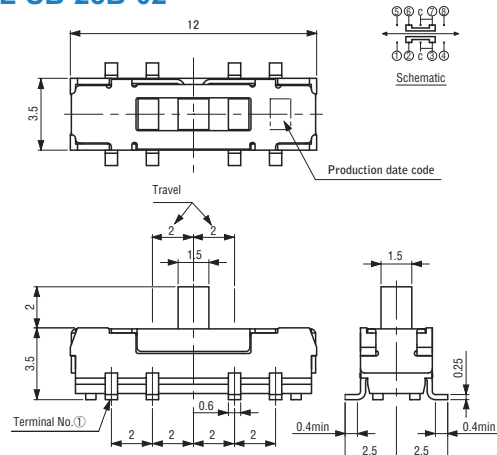
## OUTLINE DIMENSIONS

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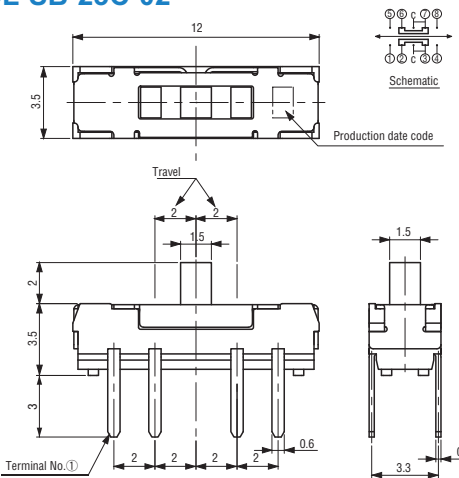
- CL-SB-23A-01
- CL-SB-23A-02



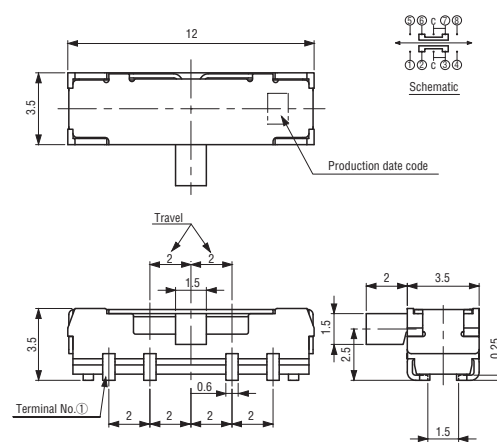
- CL-SB-23B-01
- CL-SB-23B-02



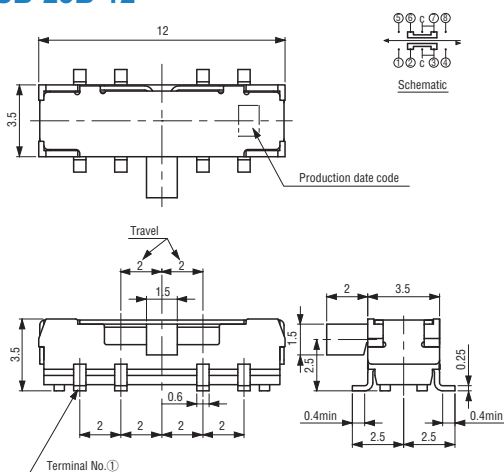
- CL-SB-23C-01
- CL-SB-23C-02



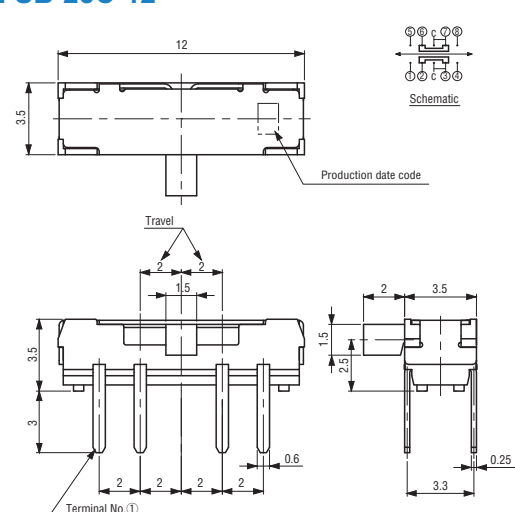
- CL-SB-23A-11
- CL-SB-23A-12



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



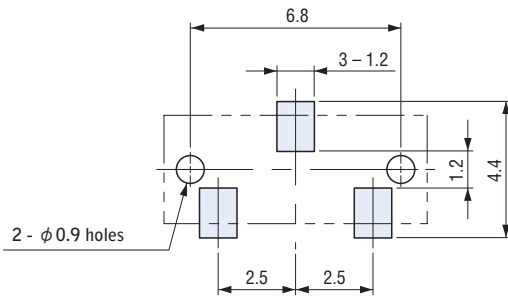
- CL-SB-23C-11
- CL-SB-23C-12



# CL-SB SLIDE SWITCHES

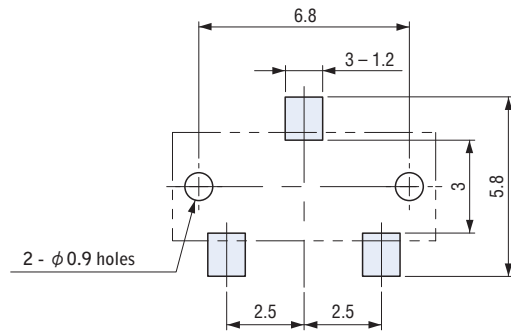
## RECOMMENDED P.C.B. PAD OUTLINE DIMENSIONS

### CL-SB-12A-□□

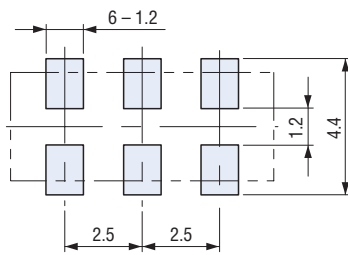


### CL-SB-12B-□□

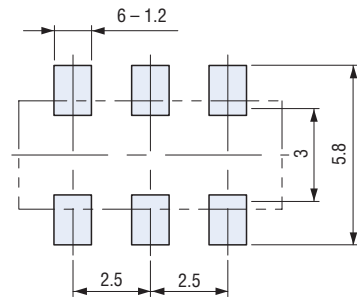
(Unit: mm)



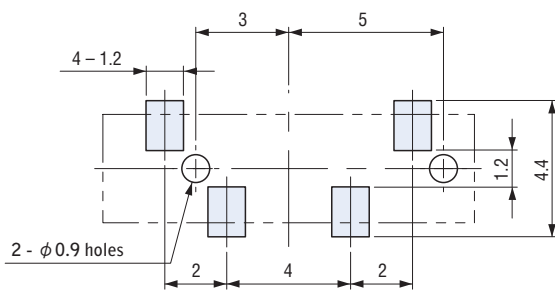
### CL-SB-22A-□□



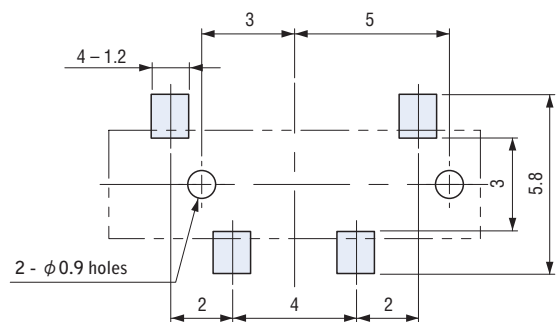
### CL-SB-22B-□□



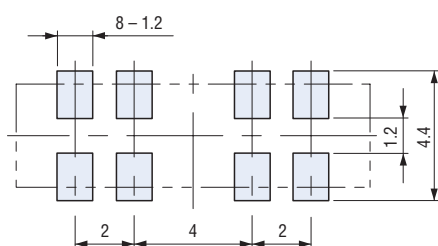
### CL-SB-13A-□□



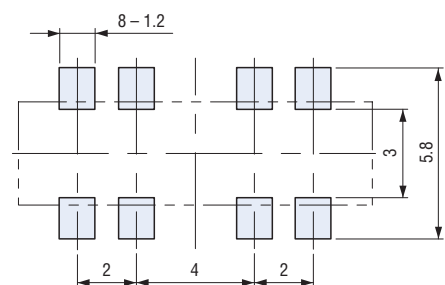
### CL-SB-13B-□□



### CL-SB-23A-□□



### CL-SB-23B-□□

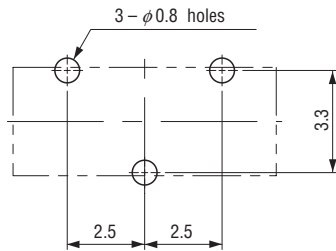




# CL-SB SLIDE SWITCHES

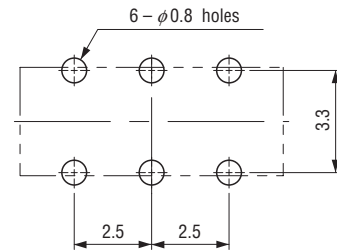
## SIZE OF P.C.B. PROCESSING

### ● CL-SB-12C-□□

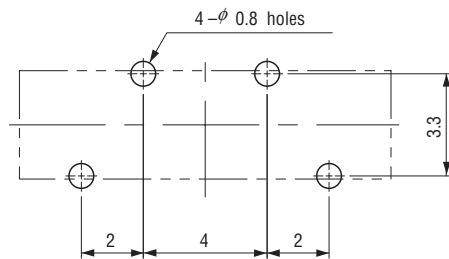


### ● CL-SB-22C-□□

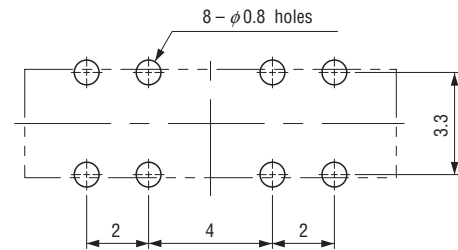
(Unit: mm)



### ● CL-SB-13C-□□



### ● CL-SB-23C-□□



# CL-SB SLIDE SWITCHES

## PACKAGING SPECIFICATIONS

### <Bulk pack specifications>

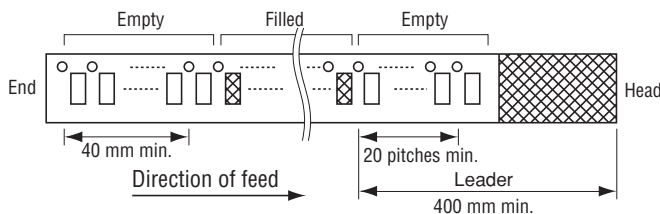
- The smallest unit of bulk pack in plastic bag is 10 pcs. per pack. Orders will be accepted for unit of minimum 10 pcs., i.e., 10, 20, 30 pcs., etc.
- Boxing of bulk in a plastic bag is performed with 50 pcs. per box.

### <Taping 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:

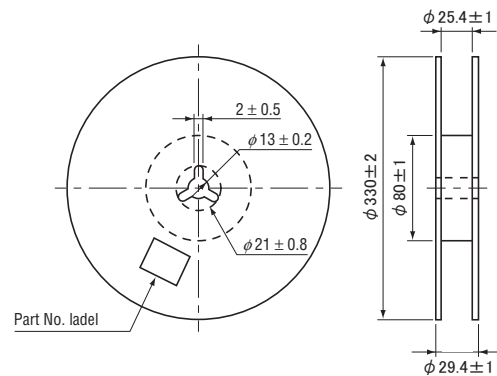
#### ● Embossed tape dimensions



#### ● Reel dimensions

(Unit: mm)

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



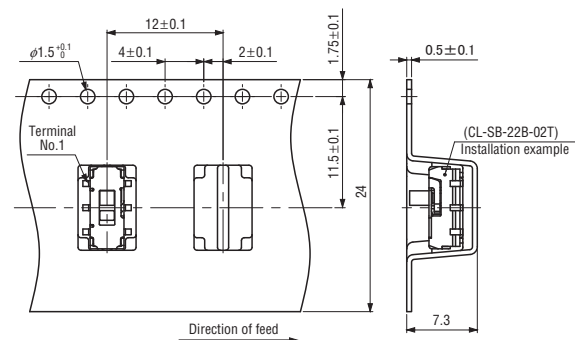
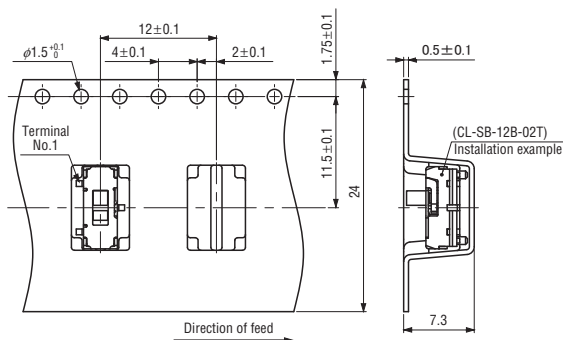
Unless otherwise specified, tolerance: ± 0.3 (Unit: mm)

### <Tape dimensions>

#### ● CL-SB-12A/12B-0□T

#### ● CL-SB-22A/22B-0□T

(Conforms to JIS C 0806)



# CL-SB SLIDE SWITCHES

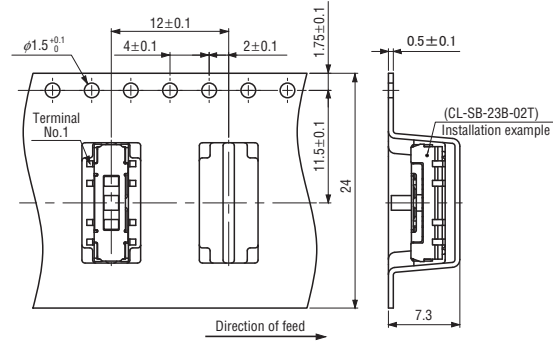
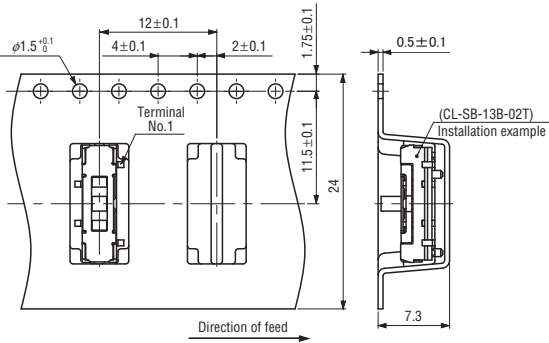
## <Tape dimensions>

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

### ● CL-SB-13A/13B-0□T

### ● CL-SB-23A/23B-0□T

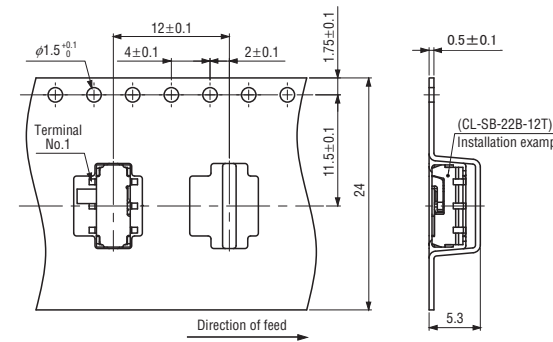
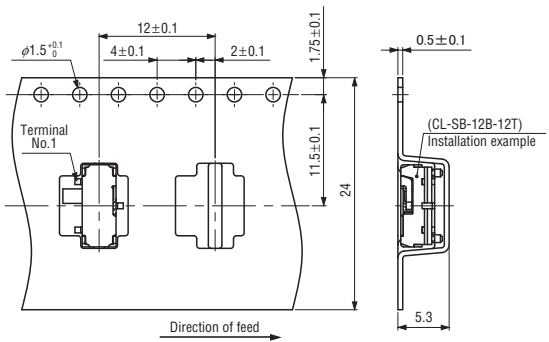
(Conforms to JIS C 0806)



### ● 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)

