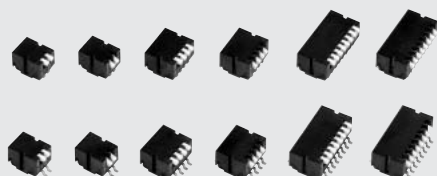


# PIANO SWITCHES (HALF PITCH)

# CHP

## RoHS compliant



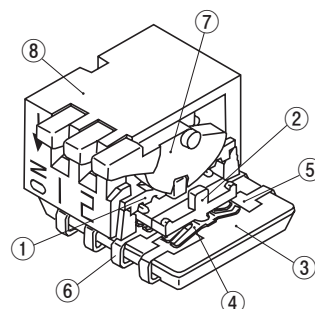
## FEATURES

- RoHS compliant
- High-reliability

## APPLICATIONS

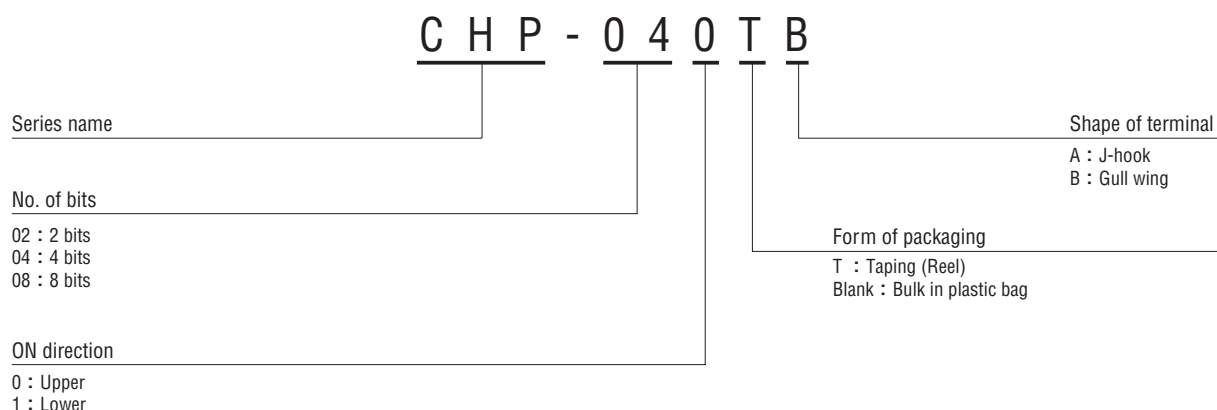
- Communication devices, AV • OA equipment and computer peripherals

## INTERNAL STRUCTURE



|   | Part name      | Material                   | Flammability |
|---|----------------|----------------------------|--------------|
| ① | Cover          | PPS(Polyphenylenesulphide) | UL-94V-0     |
| ② | Slider         | PA(Polyamide)              |              |
| ③ | Housing        | PPS(Polyphenylenesulphide) |              |
| ④ | Slider contact | Copper alloy, Gold-plated  | —            |
| ⑤ | Fixed contact  |                            |              |
| ⑥ | Terminal pin   |                            |              |
| ⑦ | Piano lever    | PA(Polyamide)              | UL-94V-0     |
| ⑧ | Piano cover    | PPS(Polyphenylenesulphide) |              |

## PART NUMBER DESIGNATION



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

# CHP

## PIANO SWITCHES (HALF PITCH)

### LIST OF PART NUMBERS

| No. of bits | ON direction | Form of packaging | Shape of terminals |               | Pieces in package |
|-------------|--------------|-------------------|--------------------|---------------|-------------------|
|             |              |                   | A (J-hook)         | B (Gull wing) |                   |
| 2           | Upper        | Taping            | CHP-020TA          | CHP-020TB     | 500 pcs./reel     |
|             |              | Plastic bag       | CHP-020A           | CHP-020B      | 50 pcs./pack      |
|             | Lower        | Taping            | CHP-021TA          | CHP-021TB     | 500 pcs./reel     |
|             |              | Plastic bag       | CHP-021A           | CHP-021B      | 50 pcs./pack      |
| 4           | Upper        | Taping            | CHP-040TA          | CHP-040TB     | 500 pcs./reel     |
|             |              | Plastic bag       | CHP-040A           | CHP-040B      | 50 pcs./pack      |
|             | Lower        | Taping            | CHP-041TA          | CHP-041TB     | 500 pcs./reel     |
|             |              | Plastic bag       | CHP-041A           | CHP-041B      | 50 pcs./pack      |
| 8           | Upper        | Taping            | CHP-080TA          | CHP-080TB     | 500 pcs./reel     |
|             |              | Plastic bag       | CHP-080A           | CHP-080B      | 50 pcs./pack      |
|             | Lower        | Taping            | CHP-081TA          | CHP-081TB     | 500 pcs./reel     |
|             |              | Plastic bag       | CHP-081A           | CHP-081B      | 50 pcs./pack      |

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

### STANDARD SPECIFICATIONS

|                       |                                                                              |
|-----------------------|------------------------------------------------------------------------------|
| Operating temp. range | - 40 ~ 85 °C                                                                 |
| Storage temp. range   |                                                                              |
| Sealing               | Non-washable                                                                 |
| Net weight            | Approx. 0.16 g (CHP-02), Approx. 0.25 g (CHP-04),<br>Approx. 0.43 g (CHP-08) |

### ELECTRICAL CHARACTERISTICS

|                                                         |                                                              |
|---------------------------------------------------------|--------------------------------------------------------------|
| Contact rating<br>Non-switching<br>Switching<br>Minimum | DC50 V 100 mA<br>DC6 V, 100 mA DC24 V, 25 mA<br>DC20 mV 1 μA |
| Contact resistance                                      | 50 mΩ maximum                                                |
| Insulation resistance                                   | 1000 MΩ (DC100 V) minimum                                    |
| Dielectric strength                                     | AC500 V, 60 s                                                |

### MECHANICAL CHARACTERISTICS

|                   |                                                                          |
|-------------------|--------------------------------------------------------------------------|
| Operation angle   | 22 °                                                                     |
| Operation force   | 5 N (0.51 kgf) maximum                                                   |
| Stop strength     | 10 N (1.02 kgf) 60 s                                                     |
| Solderability     | 245 ± 3 °C, 2 ~ 3 s                                                      |
| Soldering heat    | Reflow : 255 °C (Peak temperature)<br>Please refer to the profile below) |
|                   | Manual soldering :<br>350 ± 10 °C, 3 ~ 4 s                               |
| Shear (Adhesion)  | 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) 10 s                                                      |

{ } : Reference only

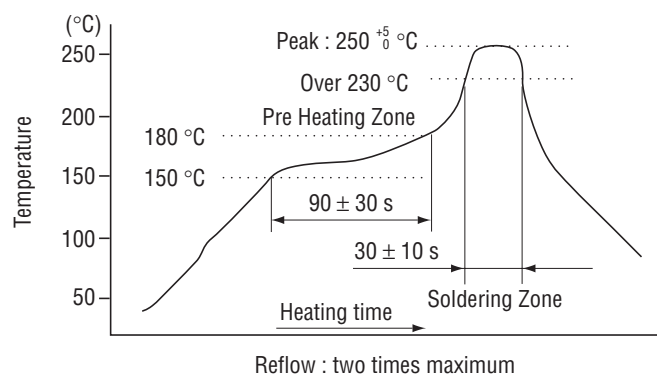
### ENVIRONMENTAL CHARACTERISTICS

|                     |                                                                                                      |
|---------------------|------------------------------------------------------------------------------------------------------|
| Vibration           | Amplitude 1.5 mm or Acceleration 98 m/s <sup>2</sup> ,<br>10-500 Hz, 3 directions for 10 cycles each |
| Shock               | 490 m/s <sup>2</sup> , 11 ms<br>6 directions for 3 times each                                        |
| Load life           | Continuous load 1000 cycles,<br>DC6 ± 0.5 V, 100 ± 10 mA                                             |
| Humidity            | -10 ~ 65 °C, Relative humidity 0 ~ 96 %,<br>24 h for 10 cycles                                       |
| High temp. exposure | 85 °C, 96 h                                                                                          |
| Low temp. exposure  | -40 °C, 96 h                                                                                         |
| Thermal shock       | -40 (0.5 h) ~ 85 °C (0.5 h), 5 cycles                                                                |

# CHP

## PIANO SWITCHES (HALF PITCH)

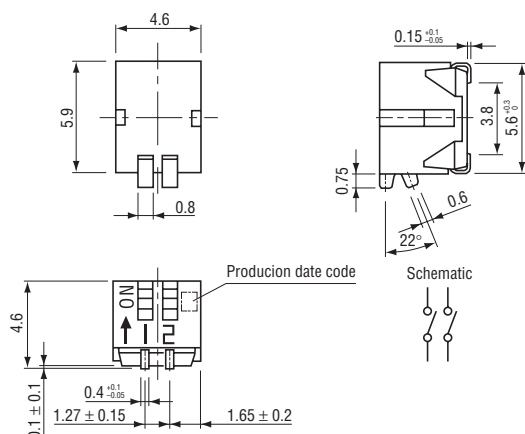
### <Reflow profile for soldering heat evaluation>



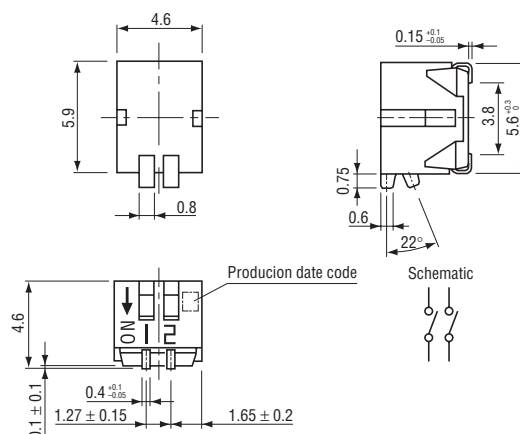
### OUTLINE DIMENSIONS

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

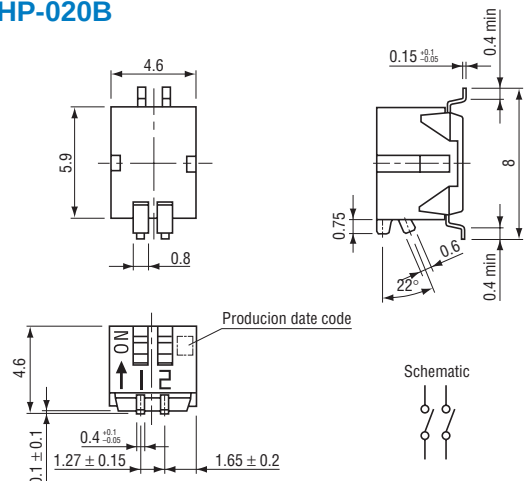
#### ● CHP-020A



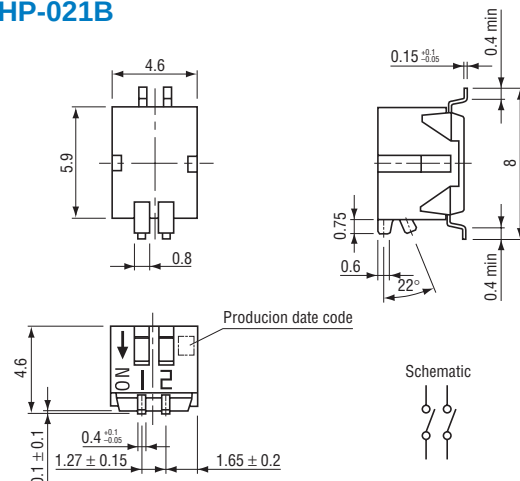
#### ● CHP-021A



#### ● CHP-020B



#### ● CHP-021B



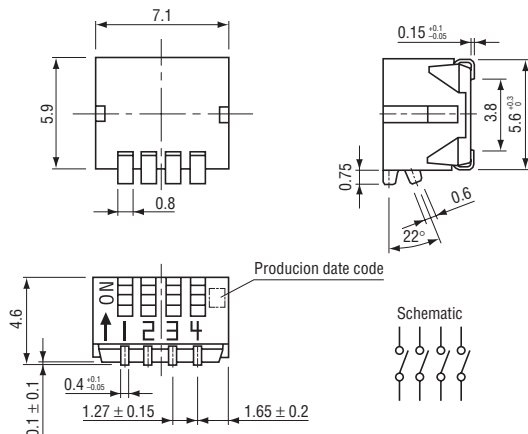
# CHP

## PIANO SWITCHES (HALF PITCH)

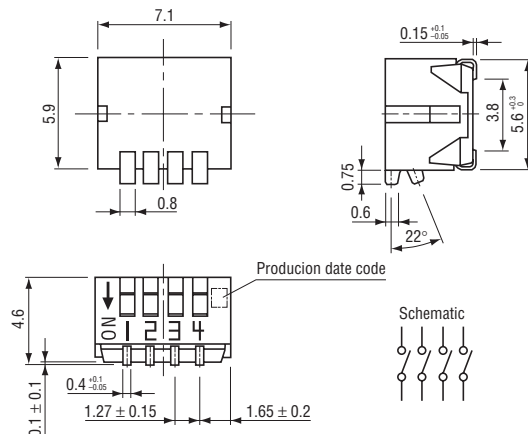
### OUTLINE DIMENSIONS

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

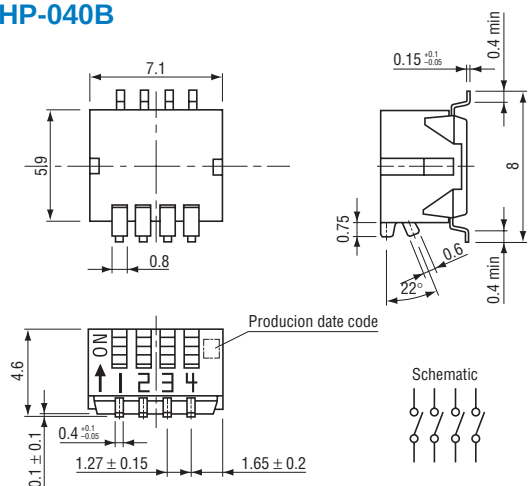
#### ● CHP-040A



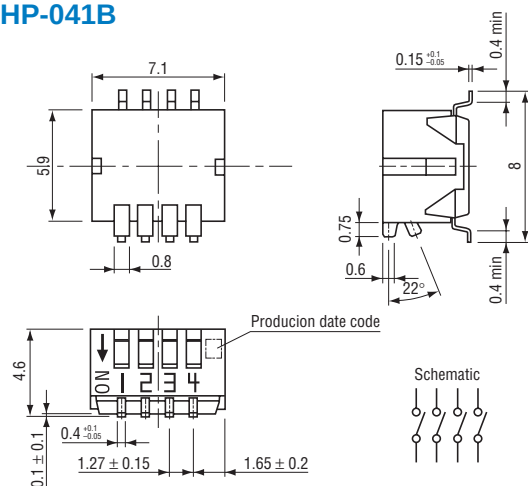
#### ● CHP-041A



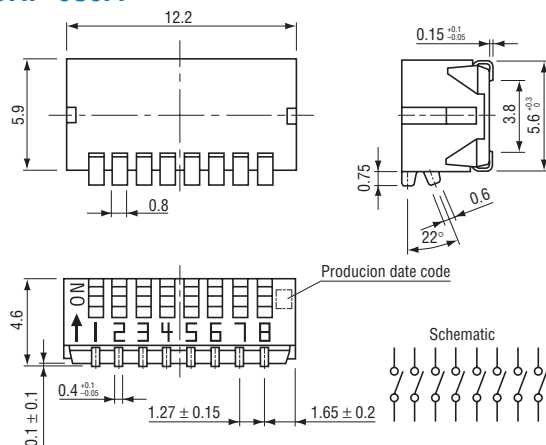
#### ● CHP-040B



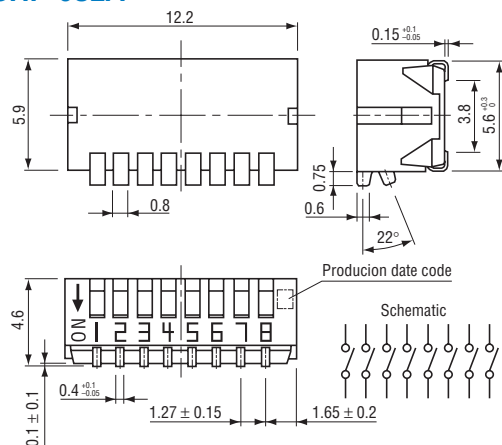
#### ● CHP-041B



#### ● CHP-080A



#### ● CHP-081A

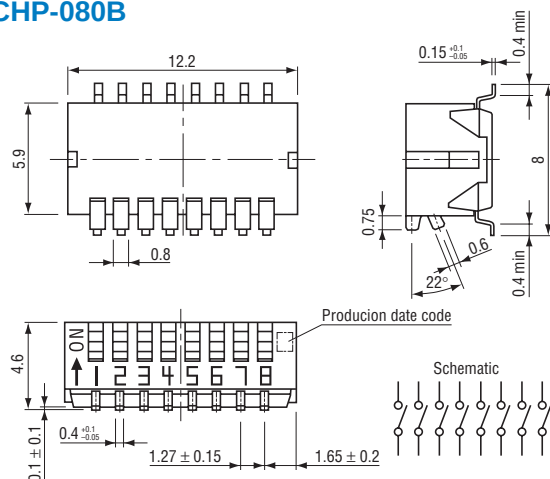


# CHP

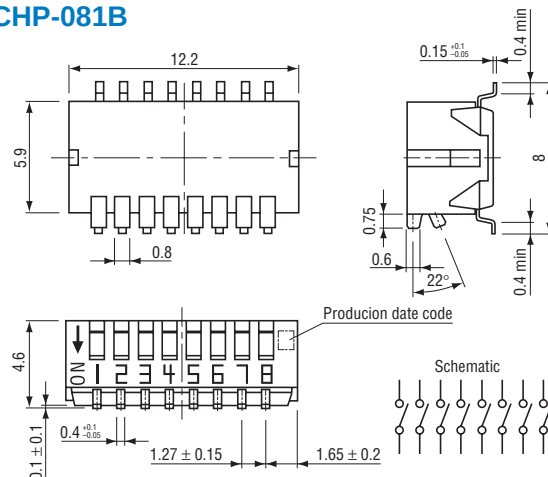
## PIANO SWITCHES (HALF PITCH)

### OUTLINE DIMENSIONS

#### ● CHP-080B



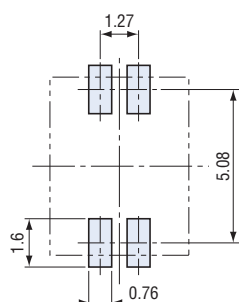
#### ● CHP-081B



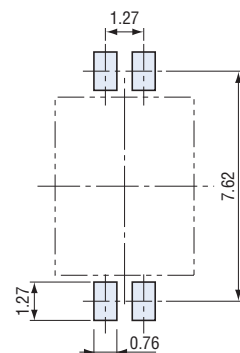
Unless otherwise specified, tolerance :  $\pm 0.3$  (Unit : mm)

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

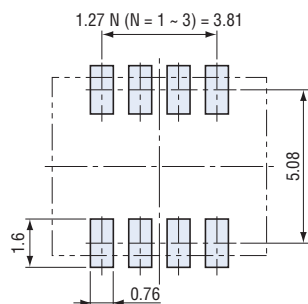
#### ● 2 bits A type



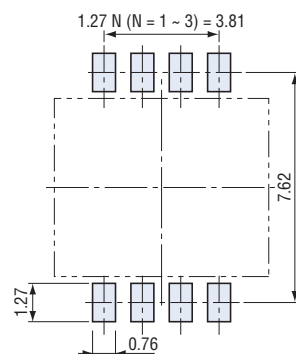
#### B type



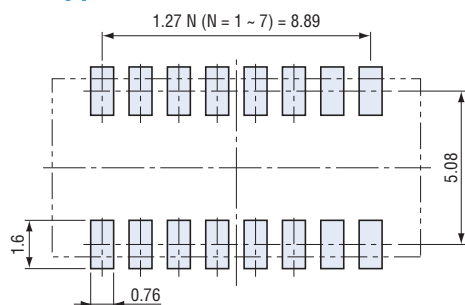
#### ● 4 bits A type



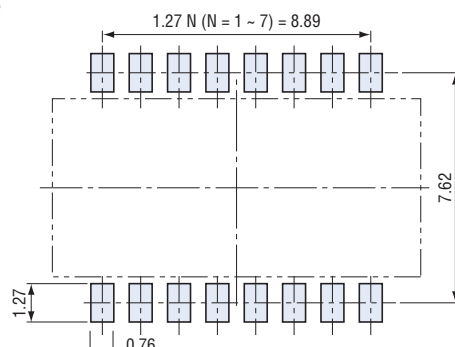
#### B type



#### ● 8 bits A type



#### B type



# CHP

## PIANO SWITCHES (HALF PITCH)

### PACKAGING SPECIFICATIONS

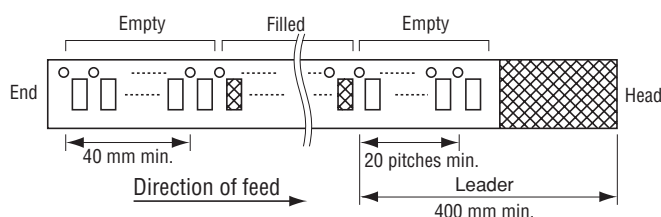
#### <Taping packaging specifications>

- 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 two reels.

Maximum number of consecutive missing pieces=2

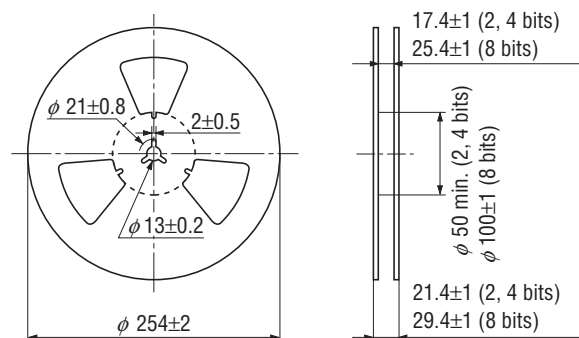
Leader length and reel dimension are shown in the diagrams below:

#### ● Embossed tape dimensions

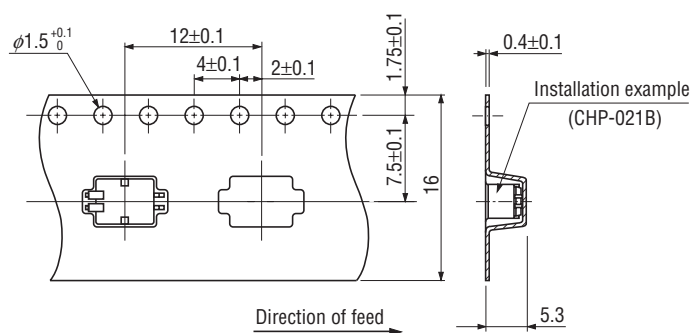


#### ● Reel dimensions

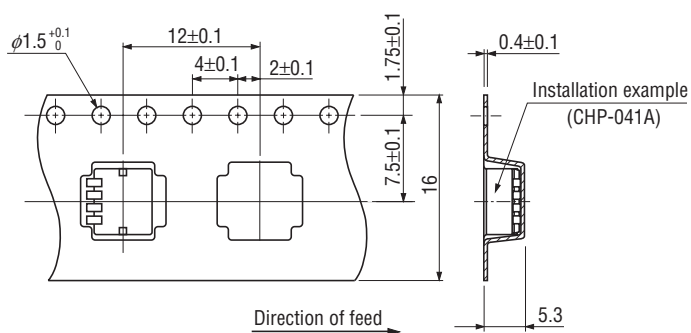
(Unit: mm)  
(Conforms to JIS C 0806-3)  
(In accordance with EIAJ ET-7200A)



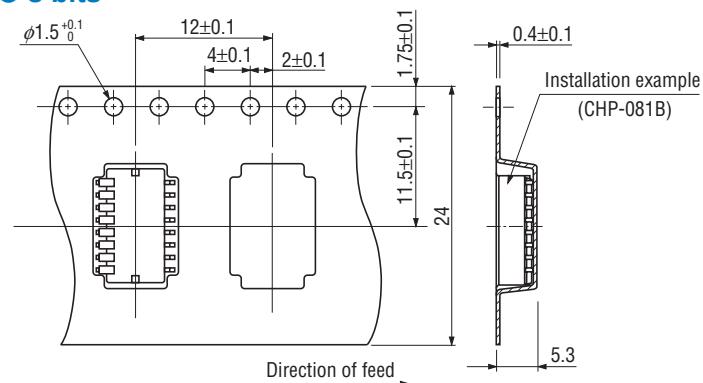
#### ● 2 bits



#### ● 4 bits



#### ● 8 bits



#### <Bulk pack specifications>

- The smallest unit of bulk pack in a 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. (Standard 100 pcs.) per box.