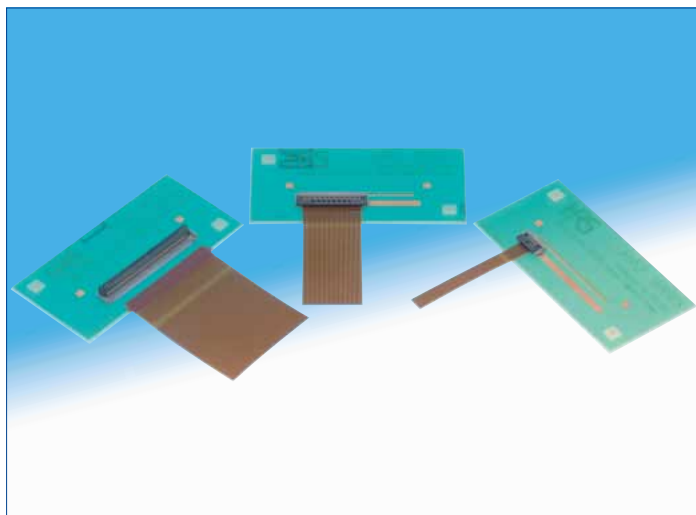


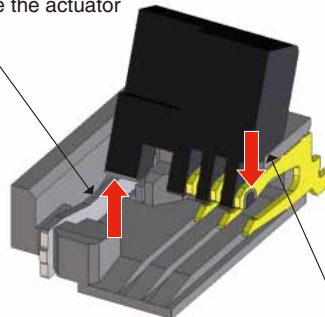
# 0.5mm and 1mm Pitch, 2mm Height, FPC/FFC ZIF Connectors

## FH52 Series



### Secure actuator retention

Metal fittings are designed to hold and stabilize the actuator



Contacts are designed to hold and stabilize the actuator

## ■ Features

### 1. Highly reliable connection and robust structure

With the need for higher contact counts and the need for a connector body that delivers unquestionable strength and a reliable connection in a FPC/FFC connector, the FH52 series has made great strides to meet this need. It meets this need with the following:

- An FPC positioning mechanism that delivers the high reliability requested
- A reliable and secure connection that is packed into a well-designed, durable structure.

### 2. Product variations capable of meeting a range of needs

- FH52E : Long metal fittings type  
Easy visual inspection of solder posts after processing.
- FH52K : Long metal fittings type, 125°C Heat Resistant Type  
125°C heat resistant connector meets severe automotive requirements
- FH52T : Long metal fittings type, 2-Point Contact Type  
Contact structure with independent springs connects with FPC/FFC at 2 points reducing failure from dust intrusion.

### 3. Simplified operations

The flip lock structure makes it easier to engage/disengage the actuator and reduces the required force needed to operate. A clear tactile click is delivered upon the successful completion of the mating process.

### 4. Increased retention force

The side catch technology combined with tabbed FPC/FFC increase the horizontal retention force of the FPC/FFC.

### 5. Accepts standard 0.3mm thick FPC/FFC

It accepts 0.3mm thick products that are easy to manufacture and have superb insertion performance.

### 6. Fully molded structure aids PCB layout

The bottom of this connector is enclosed by a fully molded structure that protects the contacts and removes any restrictions from PCB patterning and design.

### 7. Halogen-free

All materials and substances used to produce this product comply with Halogen-free standards.\* As defined in IEC 61249-2-21. Br : 900 ppm or less, Cl : 900 ppm or less, Br+Cl : 1,500 ppm or less

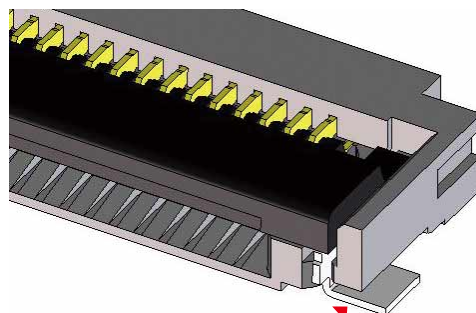
### 8. Supports automatic pick-n-place mounting

Offered in tape and reel packaging that is compatible with automatic machine mounting. (3,000pcs/reel)

### 9. Multiple packing options

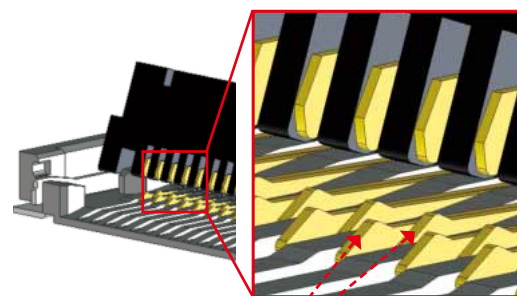
The standard packaging is 3,000pcs/reel, but it is also offered in a 500pcs/reel. (The outer diameter of the reel will be  $\phi$ 180mm in this case.)

### Extended metal fitting option (FH52E/FH52K/FH52T)



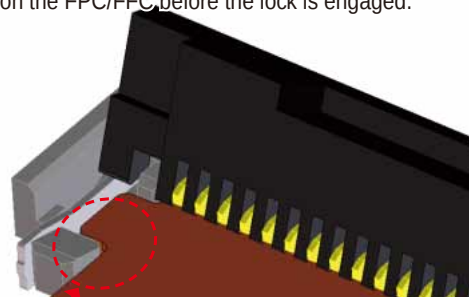
The metal fittings extend out from the connector body to enable a visual inspection of its soldering conditions.

### 2-Points of Contact (FH52T)



2-point contact structure with independent springs to improve reliability.

Side catch technology designed to place a temporary hold on the FPC/FFC before the lock is engaged.



FPC/FFC with tab increase the retention force in horizontal direction.

## Product Specifications

| Rating                                    | Rated current 0.5A (Note 1)<br>Rated voltage 50V AC rms                                                                 | Operating temperature range : -40°C to +105°C (Note 2)(Note 4)<br>Operating humidity range : Relative humidity 90% max.<br>(No condensation) | Storage temperature range : -10°C to +50°C (Note 3)<br>Storage humidity range : Relative humidity 90% max.<br>(No condensation) |
|-------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| Adaptive FPC/FFC contact specifications   | Thickness: = 0.3 ± 0.05mm Gold plated contact traces                                                                    |                                                                                                                                              |                                                                                                                                 |
| Item                                      | Specification                                                                                                           | Conditions                                                                                                                                   |                                                                                                                                 |
| 1. Insulation resistance                  | 500MΩ min.                                                                                                              | 100V DC                                                                                                                                      |                                                                                                                                 |
| 2. Withstanding voltage                   | No flashover or insulation breakdown                                                                                    | 150V AC rms / 1 minute                                                                                                                       |                                                                                                                                 |
| 3. Contact resistance                     | 50mΩ max.<br>* Including FPC/FFC conductor resistance                                                                   | 1mA (DC or 1000Hz)                                                                                                                           |                                                                                                                                 |
| 4. Durability<br>(insertion / withdrawal) | Contact resistance : 50mΩ max.<br>No damage, cracks, or parts dislocation                                               | 20 cycles                                                                                                                                    |                                                                                                                                 |
| 5. Vibration                              | No electrical discontinuity of 1μs or more<br>Contact resistance : 50mΩ max.<br>No damage, cracks, or parts dislocation | Frequency : 10 to 55Hz, single amplitude of 0.75mm,<br>10 cycles in each of the 3 directions                                                 |                                                                                                                                 |
| 6. Shock                                  | No electrical discontinuity of 1μs or more<br>Contact resistance : 50mΩ max.<br>No damage, cracks, or parts dislocation | Acceleration of 981m/s <sup>2</sup> , duration of 6 ms, sine half-wave<br>waveform, 3 cycles in each of the 3 axes                           |                                                                                                                                 |
| 7. Humidity<br>(Steady state)             | Contact resistance : 50mΩ max.<br>Insulation resistance : 50MΩ min.<br>No damage, cracks, or parts dislocation          | 96 hours at temperature of 40°C and humidity of 90% to 95%                                                                                   |                                                                                                                                 |
| 8. Temperature cycle                      | Contact resistance : 50mΩ max.<br>Insulation resistance : 50MΩ min.<br>No damage, cracks, or parts dislocation          | Temperature : -40°C → +15°C to +35°C → +105°C (Note 4) → +15°C to +35°C<br>Time : 30 → 2 to 3 → 30 → 2 to 3 (Minutes)<br>5 cycles            |                                                                                                                                 |
| 9. Resistance to soldering heat           | No deformation of components affecting performance                                                                      | Reflow : Peak temperature 250°C max., 230°C or more, 30 seconds or less<br>Manual soldering: 350 ± 10°C for 5 seconds                        |                                                                                                                                 |

Note 1 : When passing the current through all of the contacts, use 70% of the current rating.

Note 2 : Includes temperature rise caused by current flow.

Note 3 : The term "storage" refers to products stored for long period of time prior to mounting and use. Operating Temperature Range and Humidity Range covers non-conducting condition of installed connectors in storage, shipment or during transportation.

Note 4 : FH52K withstands up to +125°C.

## Materials / Finish

| Part           | Material     | Finish                | Remarks |
|----------------|--------------|-----------------------|---------|
| Insulator      | LCP          | Color : Grey          | UL94V-0 |
|                |              | Color : Black         |         |
| Contacts       | Copper alloy | Partially gold plated | ———     |
| Metal fittings | Brass        | Tine plated           |         |

## Product Number Structure

Refer to the chart below when determining the product specifications from the product number.

Please select from the product numbers listed in this catalog when placing orders.

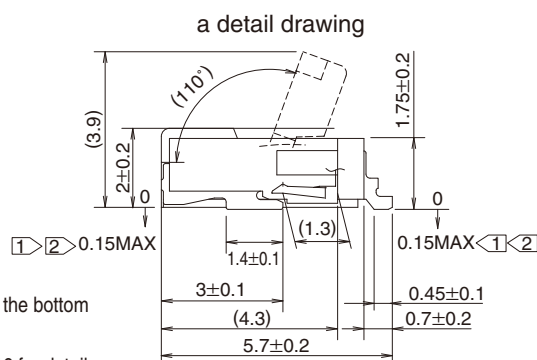
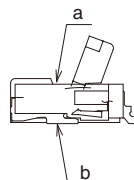
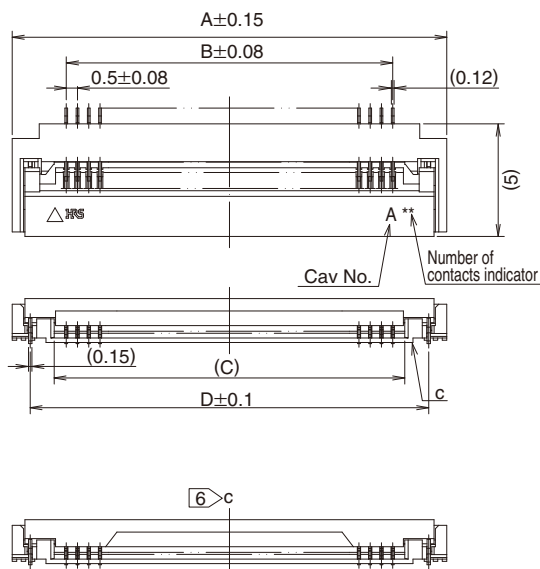
**FH 52 E - 50 (25) S B - 0.5 SH (99)**

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

|                                                                                                                                                                           |                                                                                                                                                                                                                             |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ① Series name : FH                                                                                                                                                        | ⑥ Contact arrangement : Single (pole piece array)                                                                                                                                                                           |
| ② Series No. : 52                                                                                                                                                         | ⑦ Alternating direction :<br>No symbol : Standard type (all contacts loaded)<br>A : Alternating contact type (Alternating on the polarity side)<br>B : Alternating contact type (Alternating on the opposite polarity side) |
| ③ Blank : Standard type<br>E : Long metal fittings type<br>K : Long metal fittings type, +125°C Heat Resistant type<br>T : Long metal fittings type, 2-Point Contact type | ⑧ Contact pitch : 0.5mm, 1mm                                                                                                                                                                                                |
| ④ Standard type : Number of contacts<br>Alternating contact type : Mold size                                                                                              | ⑨ Termination type<br>SH : SMT horizontal mounting type                                                                                                                                                                     |
| ⑤ Standard type : No symbol<br>Alternating contact type : Number of contacts                                                                                              | ⑩ SpecificationBlank : Partially gold plated, 3,000pcs/reel<br>(99) : Partially gold plated, 500pcs/reel                                                                                                                    |

## Connector Dimensions

### [FH52 (Standard Type) 0.5mm Pitch product]



- Notes
- ① The coplanarity of each terminal lead is within 0.1.
  - ② The contact terminal lead position indicates the dimension from the b surface, the bottom surface of the insulator body.
  - 3 Packaged on tape and reel only. Check the packaging specification on Page 16 for details.
  - 4 Sink mark reliefs may be added due to improvements
  - 5 Sight variations in color of the plastic compounds do not affect form, fit or function.  
After reflow, the terminal plating may change color; however this does not represent a quality issue.
  - ⑥ The dimensions of 60-contact actuators are shown in the figures.

Unit : mm

| Part No.           | HRS No.                 | No. of contacts | A    | B    | C     | D    |
|--------------------|-------------------------|-----------------|------|------|-------|------|
| FH52-4S-0.5SH(**)  | Under planning (Note 2) | 4               | 6.3  | 1.5  | 2.57  | 4.7  |
| FH52-5S-0.5SH(**)  |                         | 5               | 6.8  | 2.0  | 3.07  | 5.2  |
| FH52-6S-0.5SH(**)  | 580-3304-0 **           | 6               | 7.3  | 2.5  | 3.57  | 5.7  |
| FH52-8S-0.5SH(**)  | 580-3305-3 **           | 8               | 8.3  | 3.5  | 4.57  | 6.7  |
| FH52-10S-0.5SH(**) | 580-3306-6 **           | 10              | 9.3  | 4.5  | 5.57  | 7.7  |
| FH52-11S-0.5SH(**) | 580-3320-7 **           | 11              | 9.8  | 5.0  | 6.07  | 8.2  |
| FH52-12S-0.5SH(**) | 580-3307-9 **           | 12              | 10.3 | 5.5  | 6.57  | 8.7  |
| FH52-15S-0.5SH(**) | 580-3302-5 **           | 15              | 11.8 | 7.0  | 8.07  | 10.2 |
| FH52-16S-0.5SH(**) | Under planning (Note 2) | 16              | 12.3 | 7.5  | 8.57  | 10.7 |
| FH52-18S-0.5SH(**) |                         | 18              | 13.3 | 8.5  | 9.57  | 11.7 |
| FH52-20S-0.5SH(**) | 580-3309-4 **           | 20              | 14.3 | 9.5  | 10.57 | 12.7 |
| FH52-22S-0.5SH(**) | 580-3317-2 **           | 22              | 15.3 | 10.5 | 11.57 | 13.7 |
| FH52-24S-0.5SH(**) | 580-3318-5 **           | 24              | 16.3 | 11.5 | 12.57 | 14.7 |
| FH52-25S-0.5SH(**) | 580-3316-0 **           | 25              | 16.8 | 12.0 | 13.07 | 15.2 |
| FH52-26S-0.5SH(**) | 580-3319-8 **           | 26              | 17.3 | 12.5 | 13.57 | 15.7 |
| FH52-28S-0.5SH(**) | 580-3324-8 **           | 28              | 18.3 | 13.5 | 14.57 | 16.7 |
| FH52-30S-0.5SH(**) | 580-3310-3 **           | 30              | 19.3 | 14.5 | 15.57 | 17.7 |
| FH52-32S-0.5SH(**) | 580-3325-0 **           | 32              | 20.3 | 15.5 | 16.57 | 18.7 |
| FH52-40S-0.5SH(**) | 580-3300-0 **           | 40              | 24.3 | 19.5 | 20.57 | 22.7 |
| FH52-42S-0.5SH(**) | 580-3329-1 **           | 42              | 25.3 | 20.5 | 21.57 | 23.7 |
| FH52-45S-0.5SH(**) | 580-3311-6 **           | 45              | 26.8 | 22.0 | 23.07 | 25.2 |
| FH52-50S-0.5SH(**) | 580-3303-8 **           | 50              | 29.3 | 24.5 | 25.57 | 27.7 |
| FH52-60S-0.5SH(**) | 580-3301-2 **           | 60              | 34.3 | 29.5 | 30.57 | 32.7 |

Note 1 : Tape and reel packaging. (3,000pcs/reel, 500pcs/reel)

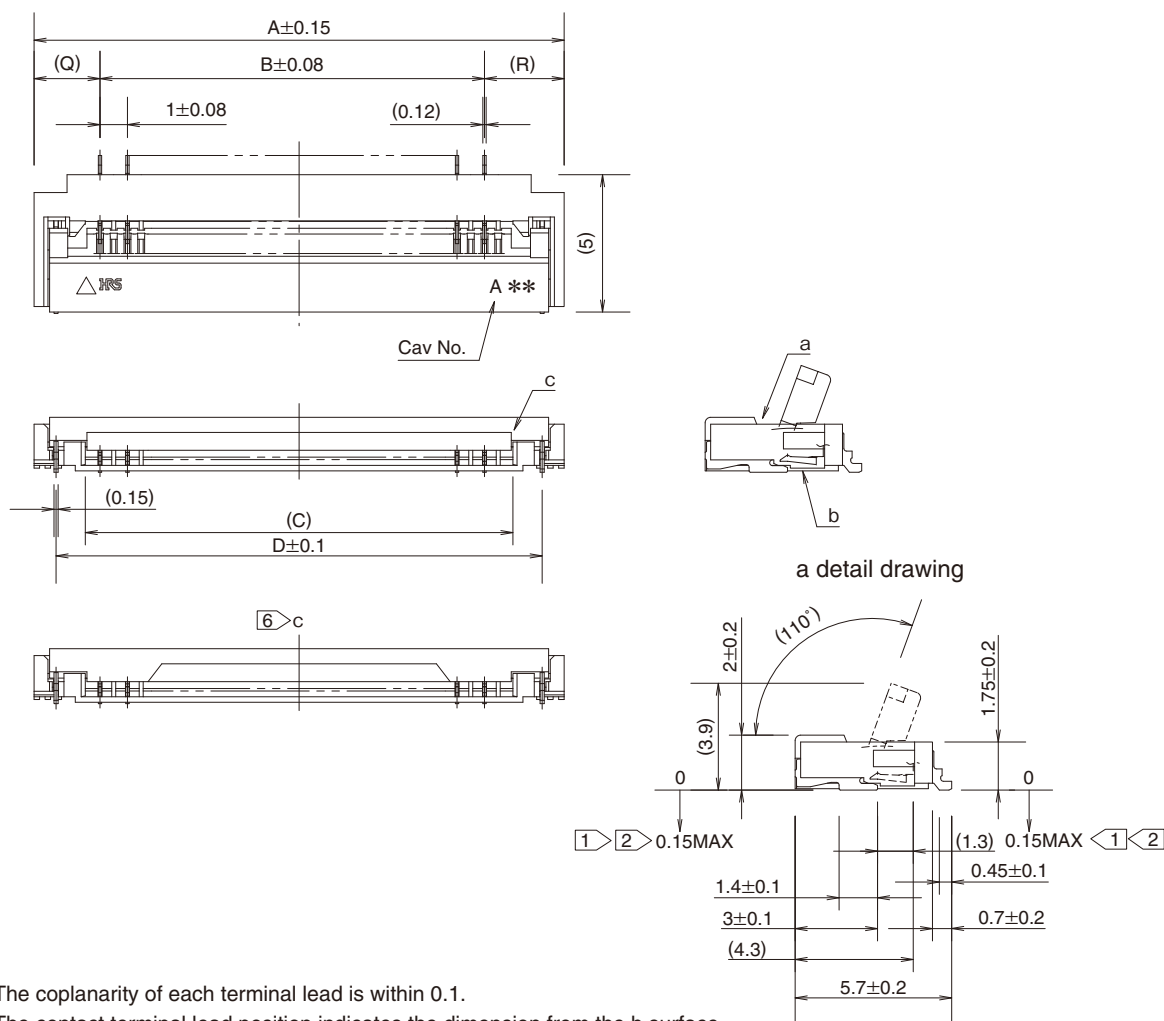
Order by number of reels.

Note 2 : Contact positions without HRS No. are currently under planning.

Please contact hirose for detailed information about product variation.

## Connector Dimensions

### [FH52 (Standard Type) 1mm Pitch product]



- Notes
- ① The coplanarity of each terminal lead is within 0.1.
  - ② The contact terminal lead position indicates the dimension from the b surface, the bottom surface of the insulator body.
  - 3 Packaged on tape and reel only. Check the packaging specification on Page 16 for details.
  - 4 Sink mark reliefs may be added due to improvements
  - 5 Sight variations in color of the plastic compounds do not affect form, fit or function.  
After reflow, the terminal plating may change color; however this does not represent a quality issue.
  - ⑥ The dimensions of 30-contact actuators are shown in the figures.

Unit : mm

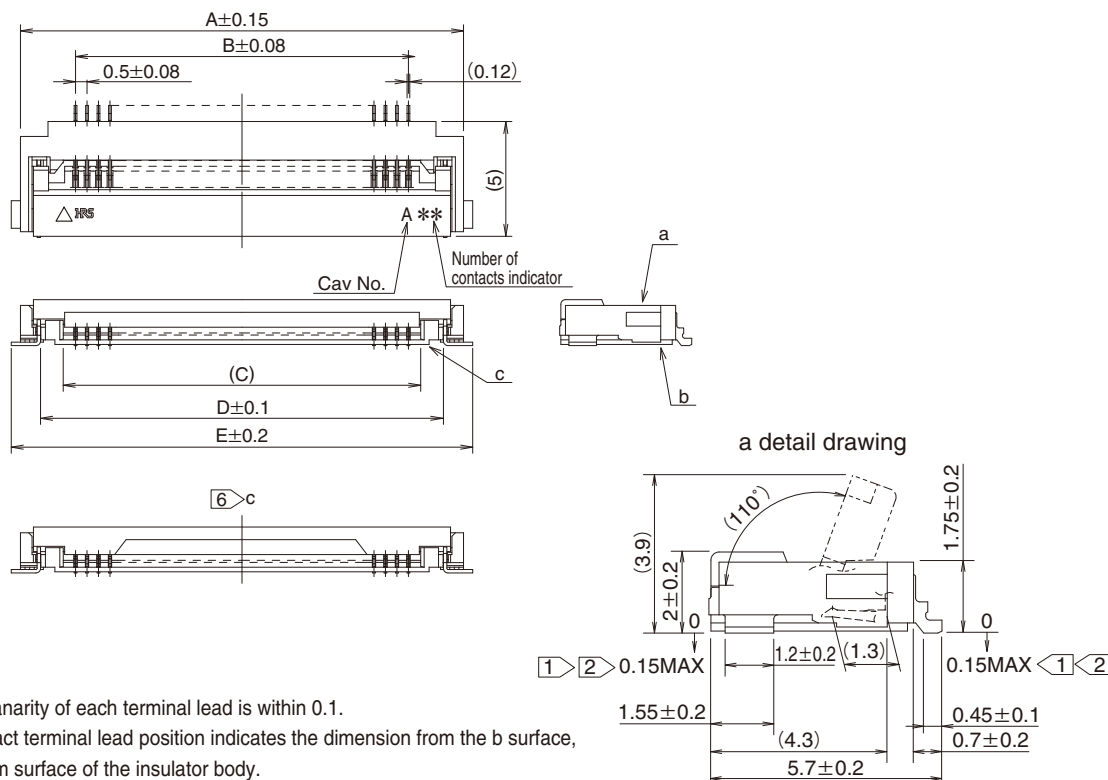
| Part No.              | HRS No.       | No. of contacts | A    | B  | C     | D    | Q   | R   |
|-----------------------|---------------|-----------------|------|----|-------|------|-----|-----|
| FH52-10(4)SA-1SH(**)  | 580-3330-0 ** | 4               | 9.3  | 3  | 5.57  | 7.7  | 2.9 | 3.4 |
| FH52-12S-1SH(**)      | 580-3323-5 ** | 12              | 16.8 | 11 | 13.07 | 15.2 | 2.9 | 2.9 |
| FH52-32(16)SB-1SH(**) | 580-3338-2 ** | 16              | 20.3 | 15 | 16.57 | 18.7 | 2.4 | 2.9 |
| FH52-60(30)SB-1SH(**) | 580-3315-7 ** | 30              | 34.3 | 29 | 30.57 | 32.7 | 2.4 | 2.9 |

Note 1 : Tape and reel packaging. (3,000pcs/reel, 500pcs/reel)

Order by number of reels.

## Connector Dimensions

### [FH52E (Long Metal Fittings Type) 0.5mm Pitch product]



- Notes
- ① The coplanarity of each terminal lead is within 0.1.
  - ② The contact terminal lead position indicates the dimension from the b surface, the bottom surface of the insulator body.
  - 3 Packaged on tape and reel only. Check the packaging specification on Page 16 for details.
  - 4 Sink mark reliefs may be added due to improvements
  - 5 Sight variations in color of the plastic compounds do not affect form, fit or function.  
After reflow, the terminal plating may change color ; however this does not represent a quality issue.
  - ⑥ The dimensions of 60-contact actuators are shown in the figures.

Unit : mm

| Part No.            | HRS No.                 | No. of contacts | A    | B    | C     | D     | E    |
|---------------------|-------------------------|-----------------|------|------|-------|-------|------|
| FH52E-4S-0.5SH(**)  | Under planning (Note 2) | 4               | 6.3  | 1.5  | 2.57  | 4.55  | 7.1  |
| FH52E-5S-0.5SH(**)  |                         | 5               | 6.8  | 2.0  | 3.07  | 5.05  | 7.6  |
| FH52E-6S-0.5SH(**)  |                         | 6               | 7.3  | 2.5  | 3.57  | 5.55  | 8.1  |
| FH52E-8S-0.5SH(**)  | 580-3349-0 **           | 8               | 8.3  | 3.5  | 4.57  | 6.55  | 9.1  |
| FH52E-10S-0.5SH(**) | 580-3346-0 **           | 10              | 9.3  | 4.5  | 5.57  | 7.55  | 10.1 |
| FH52E-11S-0.5SH(**) | Under planning (Note 2) | 11              | 9.8  | 5.0  | 6.07  | 8.05  | 10.6 |
| FH52E-12S-0.5SH(**) |                         | 12              | 10.3 | 5.5  | 6.57  | 8.55  | 11.1 |
| FH52E-15S-0.5SH(**) | 580-3337-0 **           | 15              | 11.8 | 7.0  | 8.07  | 10.05 | 12.6 |
| FH52E-16S-0.5SH(**) | Under planning (Note 2) | 16              | 12.3 | 7.5  | 8.57  | 10.55 | 13.1 |
| FH52E-18S-0.5SH(**) | 580-3331-3 **           | 18              | 13.3 | 8.5  | 9.57  | 11.55 | 14.1 |
| FH52E-20S-0.5SH(**) | 580-3357-0 **           | 20              | 14.3 | 9.5  | 10.57 | 12.55 | 15.1 |
| FH52E-22S-0.5SH(**) | 580-3343-2 **           | 22              | 15.3 | 10.5 | 11.57 | 13.55 | 16.1 |
| FH52E-24S-0.5SH(**) | 580-3340-4 **           | 24              | 16.3 | 11.5 | 12.57 | 14.55 | 17.1 |
| FH52E-25S-0.5SH(**) | Under planning (Note 2) | 25              | 16.8 | 12.0 | 13.07 | 15.05 | 17.6 |
| FH52E-26S-0.5SH(**) |                         | 26              | 17.3 | 12.5 | 13.57 | 15.55 | 18.1 |
| FH52E-28S-0.5SH(**) |                         | 28              | 18.3 | 13.5 | 14.57 | 16.55 | 19.1 |
| FH52E-30S-0.5SH(**) | 580-3347-3 **           | 30              | 19.3 | 14.5 | 15.57 | 17.55 | 20.1 |
| FH52E-32S-0.5SH(**) | Under planning (Note 2) | 32              | 20.3 | 15.5 | 16.57 | 18.55 | 21.1 |
| FH52E-40S-0.5SH(**) | 580-3334-1 **           | 40              | 24.3 | 19.5 | 20.57 | 22.55 | 25.1 |
| FH52E-42S-0.5SH(**) | Under planning (Note 2) | 42              | 25.3 | 20.5 | 21.57 | 23.55 | 26.1 |
| FH52E-45S-0.5SH(**) |                         | 45              | 26.8 | 22.0 | 23.07 | 25.05 | 27.6 |
| FH52E-50S-0.5SH(**) | 580-3335-4 **           | 50              | 29.3 | 24.5 | 25.57 | 27.55 | 30.1 |
| FH52E-60S-0.5SH(**) | 580-3339-5 **           | 60              | 34.3 | 29.5 | 30.57 | 32.55 | 35.1 |
| FH52E-64S-0.5SH(**) | 580-3333-9 **           | 64              | 36.3 | 31.5 | 32.57 | 34.55 | 37.1 |
| FH52E-68S-0.5SH(**) | 580-3332-6 **           | 68              | 38.3 | 33.5 | 34.57 | 36.55 | 39.1 |

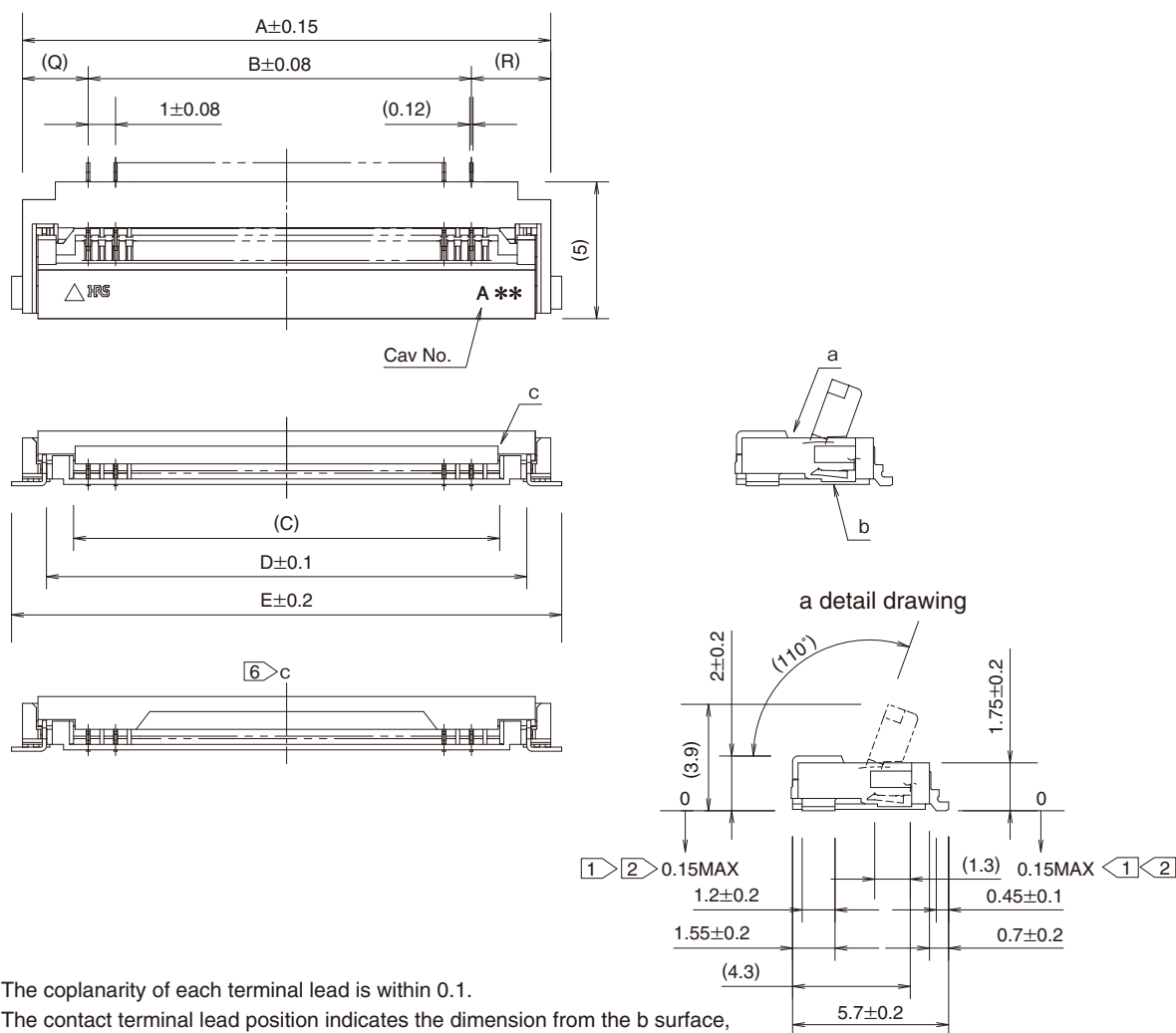
Note 1 : Tape and reel packaging. (3,000pcs/reel, 500pcs/reel)

Order by number of reels.

Note 2 : Contact positions without HRS No. are currently under planning. Please contact Hirose for detailed information about product variation.

## Connector Dimensions

### [FH52E (Long Metal Fittings Type) 1mm Pitch product]



- Notes
- 1 The coplanarity of each terminal lead is within 0.1.
  - 2 The contact terminal lead position indicates the dimension from the b surface, the bottom surface of the insulator body.
  - 3 Packaged on tape and reel only. Check the packaging specification on Page 16 for details.
  - 4 Sink mark reliefs may be added due to improvements
  - 5 Sight variations in color of the plastic compounds do not affect form, fit or function. After reflow, the terminal plating may change color; however this does not represent a quality issue.
  - 6 The dimensions of 30-contact actuators are shown in the figures.

Unit : mm

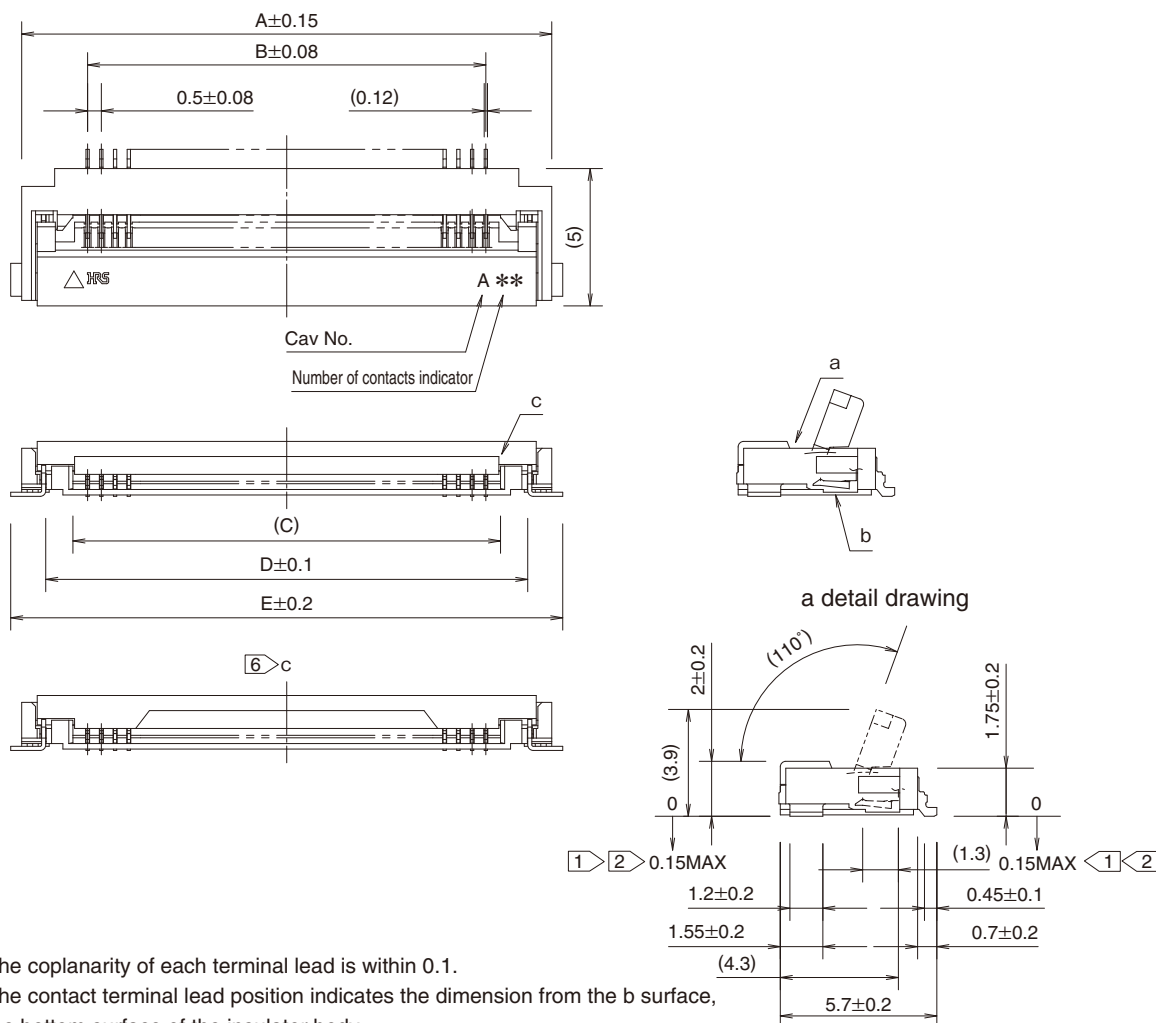
| Part No.               | HRS No.       | No. of contacts | A    | B  | C     | D     | E    | Q   | R   |
|------------------------|---------------|-----------------|------|----|-------|-------|------|-----|-----|
| FH52E-8(4)SB-1SH(**)   | 580-3351-0 ** | 4               | 8.3  | 3  | 4.57  | 6.55  | 9.1  | 2.4 | 2.9 |
| FH52E-20(10)SA-1SH(**) | 580-3352-0 ** | 10              | 14.3 | 9  | 10.57 | 12.55 | 15.1 | 2.9 | 2.4 |
| FH52E-20(10)SB-1SH(**) | 580-3353-0 ** | 10              | 14.3 | 9  | 10.57 | 12.55 | 15.1 | 2.4 | 2.9 |
| FH52E-50(25)SA-1SH(**) | 580-3354-0 ** | 25              | 29.3 | 24 | 25.57 | 27.55 | 30.1 | 2.9 | 2.4 |
| FH52E-50(25)SB-1SH(**) | 580-3355-0 ** | 25              | 29.3 | 24 | 25.57 | 27.55 | 30.1 | 2.4 | 2.9 |
| FH52E-60(30)SB-1SH(**) | 580-3358-0 ** | 30              | 34.3 | 29 | 30.57 | 32.55 | 35.1 | 2.4 | 2.9 |

Note 1 : Tape and reel packaging. (3,000pcs/reel, 500pcs/reel)

Order by number of reels.

## Connector Dimensions

### [FH52K (Long Metal Fittings Type, 125°C Heat Resistant Type) 0.5mm Pitch product]



- Notes
- 1 The coplanarity of each terminal lead is within 0.1.
  - 2 The contact terminal lead position indicates the dimension from the b surface, the bottom surface of the insulator body.
  - 3 Packaged on tape and reel only. Check the packaging specification on Page 16 for details.
  - 4 Sink mark reliefs may be added due to improvements
  - 5 Sight variations in color of the plastic compounds do not affect form, fit or function.  
After reflow, the terminal plating may change color; however this does not represent a quality issue.
  - 6 The dimensions of 60-contact actuators are shown in the figures.

Unit : mm

| Part No.            | HRS No.                 | No. of contacts | A    | B    | C     | D     | E    |
|---------------------|-------------------------|-----------------|------|------|-------|-------|------|
| FH52K-6S-0.5SH(**)  | 580-4613-0 **           | 6               | 7.3  | 2.5  | 3.57  | 5.55  | 8.1  |
| FH52K-8S-0.5SH(**)  | 580-4611-0 **           | 8               | 8.3  | 3.5  | 4.57  | 6.55  | 9.1  |
| FH52K-10S-0.5SH(**) | 580-4606-0 **           | 10              | 9.3  | 4.5  | 5.57  | 7.55  | 10.1 |
| FH52K-12S-0.5SH(**) | Under planning (Note 2) | 12              | 10.3 | 5.5  | 6.57  | 8.55  | 11.1 |
| FH52K-15S-0.5SH(**) |                         | 15              | 11.8 | 7.0  | 8.07  | 10.05 | 12.6 |
| FH52K-18S-0.5SH(**) |                         | 18              | 13.3 | 8.5  | 9.57  | 11.55 | 14.1 |
| FH52K-20S-0.5SH(**) | 580-4604-0 **           | 20              | 14.3 | 9.5  | 10.57 | 12.55 | 15.1 |
| FH52K-22S-0.5SH(**) | Under planning (Note 2) | 22              | 15.3 | 10.5 | 11.57 | 13.55 | 16.1 |
| FH52K-24S-0.5SH(**) |                         | 24              | 16.3 | 11.5 | 12.57 | 14.55 | 17.1 |
| FH52K-25S-0.5SH(**) |                         | 25              | 16.8 | 12.0 | 13.07 | 15.05 | 17.6 |
| FH52K-26S-0.5SH(**) |                         | 26              | 17.3 | 12.5 | 13.57 | 15.55 | 18.1 |
| FH52K-30S-0.5SH(**) | Under planning (Note 2) | 30              | 19.3 | 14.5 | 15.57 | 17.55 | 20.1 |
| FH52K-32S-0.5SH(**) | 580-4600-9 **           | 32              | 20.3 | 15.5 | 16.57 | 18.55 | 21.1 |
| FH52K-34S-0.5SH(**) | 580-4601-0 **           | 34              | 21.3 | 16.5 | 17.57 | 19.55 | 22.1 |
| FH52K-40S-0.5SH(**) | Under planning (Note 2) | 40              | 24.3 | 19.5 | 20.57 | 22.55 | 25.1 |
| FH52K-50S-0.5SH(**) |                         | 50              | 29.3 | 24.5 | 25.57 | 27.55 | 30.1 |
| FH52K-60S-0.5SH(**) |                         | 60              | 34.3 | 29.5 | 30.57 | 32.55 | 35.1 |
| FH52K-64S-0.5SH(**) |                         | 64              | 36.3 | 31.5 | 32.57 | 34.55 | 37.1 |
| FH52K-68S-0.5SH(**) | 580-4614-0 **           | 68              | 38.3 | 33.5 | 34.57 | 36.55 | 39.1 |

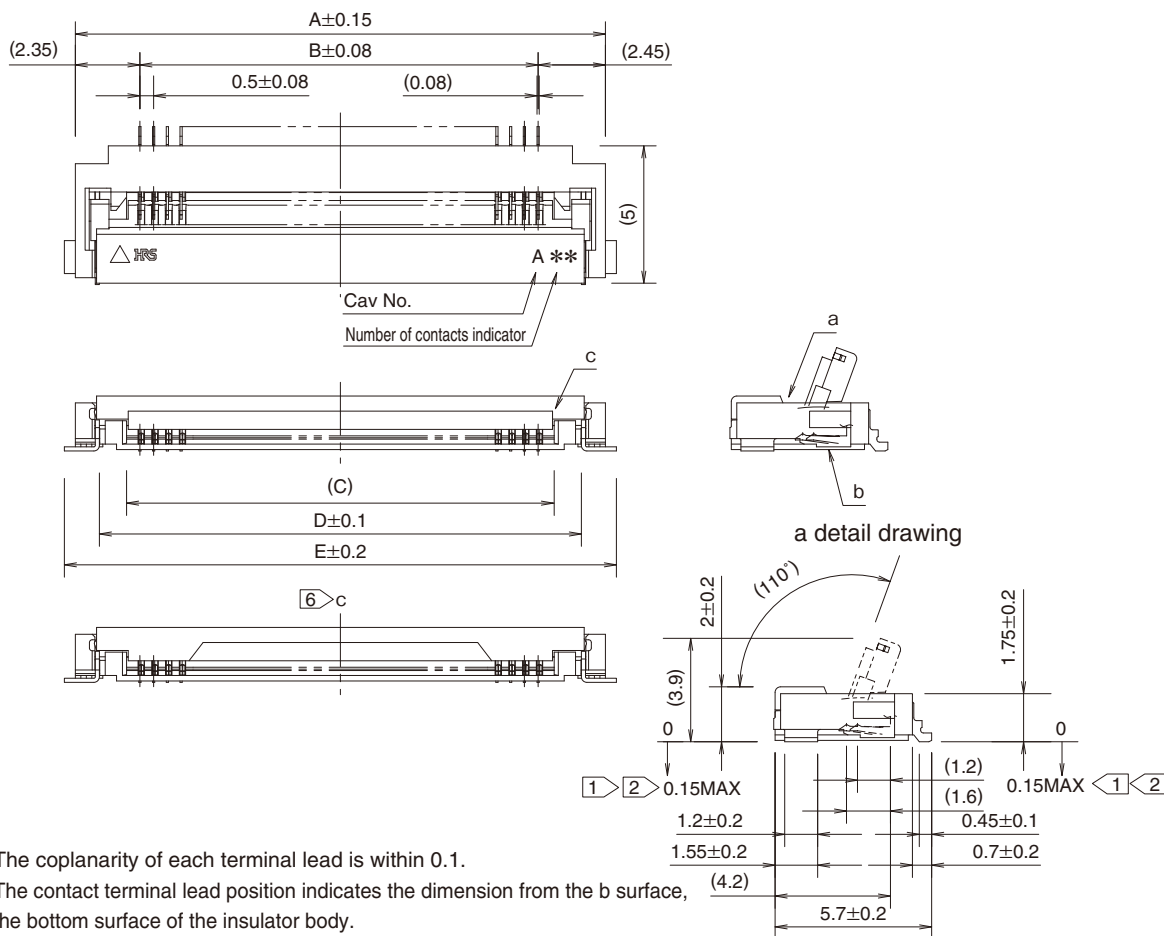
Note 1 : Tape and reel packaging. (3,000pcs/reel, 500pcs/reel)

Order by number of reels.

Note 2 : Contact positions without HRS No. are currently under planning. Please contact Hirose for detailed information about product variation.

## Connector Dimensions

### [FH52T (Long Metal Fittings Type, 2-Point Contact Type) 0.5mm Pitch product]



- Notes
- 1 The coplanarity of each terminal lead is within 0.1.
  - 2 The contact terminal lead position indicates the dimension from the b surface, the bottom surface of the insulator body.
  - 3 Packaged on tape and reel only. Check the packaging specification on Page 16 for details.
  - 4 Sink mark reliefs may be added due to improvements
  - 5 Sight variations in color of the plastic compounds do not affect form, fit or function. After reflow, the terminal plating may change color; however this does not represent a quality issue.
  - 6 The dimensions of 60-contact actuators are shown in the figures.

Unit : mm

| Part No.            | HRS No.                 | No. of contacts | A    | B    | C     | D     | E    |
|---------------------|-------------------------|-----------------|------|------|-------|-------|------|
| FH52T-4S-0.5SH(**)  | Under planning (Note 2) | 4               | 6.3  | 1.5  | 2.57  | 4.55  | 7.1  |
| FH52T-5S-0.5SH(**)  |                         | 5               | 6.8  | 2.0  | 3.07  | 5.05  | 7.6  |
| FH52T-6S-0.5SH(**)  |                         | 6               | 7.3  | 2.5  | 3.57  | 5.55  | 8.1  |
| FH52T-8S-0.5SH(**)  |                         | 8               | 8.3  | 3.5  | 4.57  | 6.55  | 9.1  |
| FH52T-10S-0.5SH(**) | 580-4503-0 **           | 10              | 9.3  | 4.5  | 5.57  | 7.55  | 10.1 |
| FH52T-11S-0.5SH(**) | Under planning (Note 2) | 11              | 9.8  | 5.0  | 6.07  | 8.05  | 10.6 |
| FH52T-12S-0.5SH(**) |                         | 12              | 10.3 | 5.5  | 6.57  | 8.55  | 11.1 |
| FH52T-15S-0.5SH(**) |                         | 15              | 11.8 | 7.0  | 8.07  | 10.05 | 12.6 |
| FH52T-16S-0.5SH(**) |                         | 16              | 12.3 | 7.5  | 8.57  | 10.55 | 13.1 |
| FH52T-18S-0.5SH(**) |                         | 18              | 13.3 | 8.5  | 9.57  | 11.55 | 14.1 |
| FH52T-20S-0.5SH(**) |                         | 20              | 14.3 | 9.5  | 10.57 | 12.55 | 15.1 |
| FH52T-22S-0.5SH(**) |                         | 22              | 15.3 | 10.5 | 11.57 | 13.55 | 16.1 |
| FH52T-24S-0.5SH(**) | 580-4500-0 **           | 24              | 16.3 | 11.5 | 12.57 | 14.55 | 17.1 |
| FH52T-25S-0.5SH(**) | Under planning (Note 2) | 25              | 16.8 | 12.0 | 13.07 | 15.05 | 17.6 |
| FH52T-26S-0.5SH(**) |                         | 26              | 17.3 | 12.5 | 13.57 | 15.55 | 18.1 |
| FH52T-28S-0.5SH(**) |                         | 28              | 18.3 | 13.5 | 14.57 | 16.55 | 19.1 |
| FH52T-30S-0.5SH(**) |                         | 30              | 19.3 | 14.5 | 15.57 | 17.55 | 20.1 |
| FH52T-32S-0.5SH(**) | 580-4502-0 **           | 32              | 20.3 | 15.5 | 16.57 | 18.55 | 21.1 |
| FH52T-40S-0.5SH(**) | Under planning (Note 2) | 40              | 24.3 | 19.5 | 20.57 | 22.55 | 25.1 |
| FH52T-42S-0.5SH(**) |                         | 42              | 25.3 | 20.5 | 21.57 | 23.55 | 26.1 |
| FH52T-45S-0.5SH(**) |                         | 45              | 26.8 | 22.0 | 23.07 | 25.05 | 27.6 |
| FH52T-50S-0.5SH(**) | 580-4501-7 **           | 50              | 29.3 | 24.5 | 25.57 | 27.55 | 30.1 |
| FH52T-60S-0.5SH(**) | Under planning (Note 2) | 60              | 34.3 | 29.5 | 30.57 | 32.55 | 35.1 |
| FH52T-64S-0.5SH(**) |                         | 64              | 36.3 | 31.5 | 32.57 | 34.55 | 37.1 |
| FH52T-68S-0.5SH(**) |                         | 68              | 38.3 | 33.5 | 34.57 | 36.55 | 39.1 |

Note 1 : Tape and reel packaging. (3,000pcs/reel, 500pcs/reel)

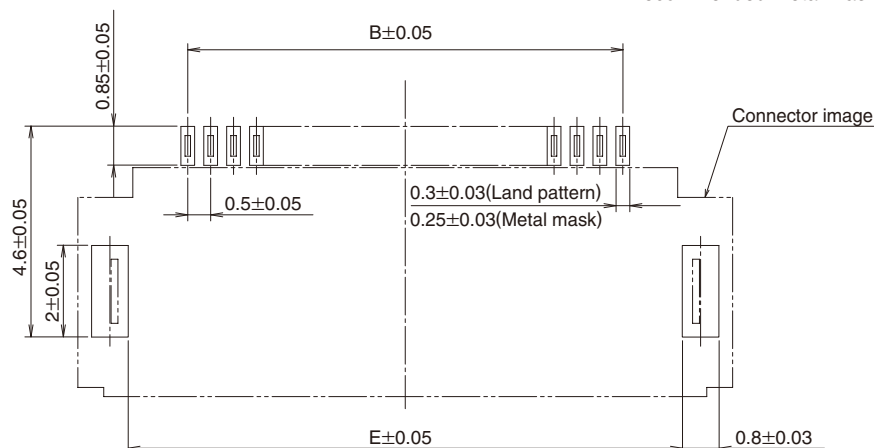
Order by number of reels.

Note 2 : Contact positions without HRS No. are currently under planning. Please contact Hirose for detailed information about product variation.

## ◆ Recommended PCB Mounting Pattern and Metal Mask Dimensions

### [FH52 (Standard Type) 0.5mm Pitch product]

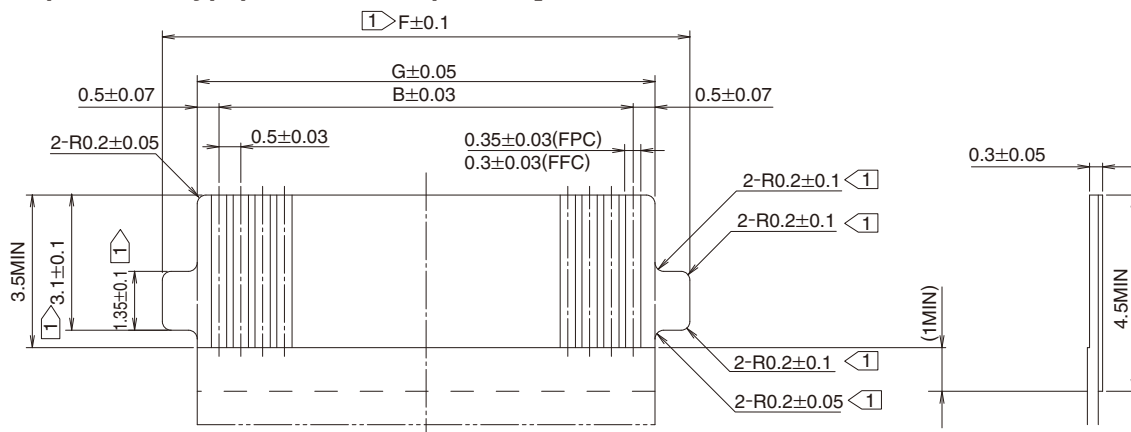
Recommended metal mask thickness : 0.12mm



\* The recommended PCB mounting pattern for the FH12 Series (horizontal mounting type) can be used as well.

## ◆ Recommended FPC/FFC Dimensions

### [FH52 (Standard Type) 0.5mm Pitch product]



Notes ① FFC/FPC without tabs can also be used.

In that case, the specified portions are not necessary.

Unit : mm

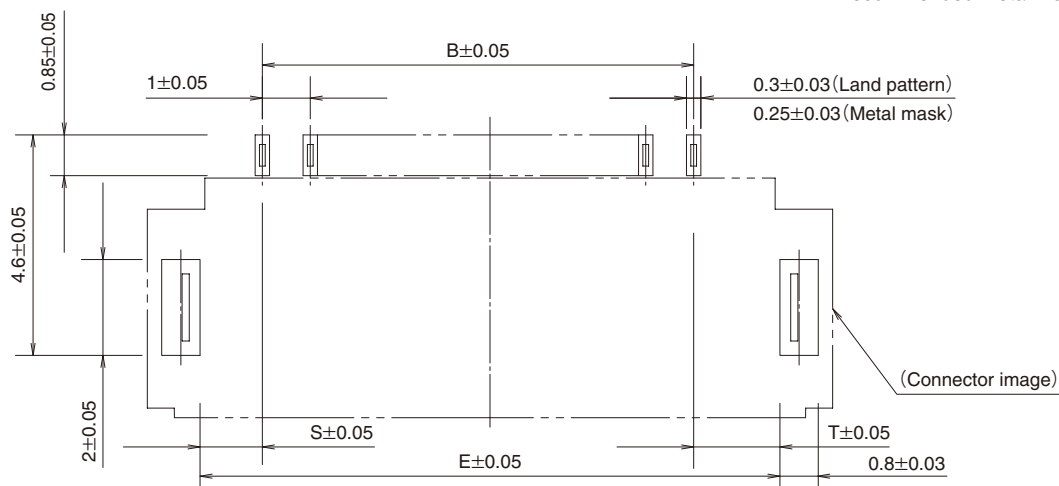
| Part No.           | HRS No.                 | No. of contacts | B    | E    | F    | G    |
|--------------------|-------------------------|-----------------|------|------|------|------|
| FH52-4S-0.5SH(**)  | Under planning (Note 1) | 4               | 1.5  | 4.1  | 4.1  | 2.5  |
| FH52-5S-0.5SH(**)  |                         | 5               | 2.0  | 4.6  | 4.6  | 3.0  |
| FH52-6S-0.5SH(**)  | 580-3304-0 **           | 6               | 2.5  | 5.1  | 5.1  | 3.5  |
| FH52-8S-0.5SH(**)  | 580-3305-3 **           | 8               | 3.5  | 6.1  | 6.1  | 4.5  |
| FH52-10S-0.5SH(**) | 580-3306-6 **           | 10              | 4.5  | 7.1  | 7.1  | 5.5  |
| FH52-11S-0.5SH(**) | 580-3320-7 **           | 11              | 5.0  | 7.6  | 7.6  | 6.0  |
| FH52-12S-0.5SH(**) | 580-3307-9 **           | 12              | 5.5  | 8.1  | 8.1  | 6.5  |
| FH52-15S-0.5SH(**) | 580-3302-5 **           | 15              | 7.0  | 9.6  | 9.6  | 8.0  |
| FH52-16S-0.5SH(**) | Under planning (Note 1) | 16              | 7.5  | 10.1 | 10.1 | 8.5  |
| FH52-18S-0.5SH(**) |                         | 18              | 8.5  | 11.1 | 11.1 | 9.5  |
| FH52-20S-0.5SH(**) | 580-3309-4 **           | 20              | 9.5  | 12.1 | 12.1 | 10.5 |
| FH52-22S-0.5SH(**) | 580-3317-2 **           | 22              | 10.5 | 13.1 | 13.1 | 11.5 |
| FH52-24S-0.5SH(**) | 580-3318-5 **           | 24              | 11.5 | 14.1 | 14.1 | 12.5 |
| FH52-25S-0.5SH(**) | 580-3316-0 **           | 25              | 12.0 | 14.6 | 14.6 | 13.0 |
| FH52-26S-0.5SH(**) | 580-3319-8 **           | 26              | 12.5 | 15.1 | 15.1 | 13.5 |
| FH52-28S-0.5SH(**) | 580-3324-8 **           | 28              | 13.5 | 16.1 | 16.1 | 14.5 |
| FH52-30S-0.5SH(**) | 580-3310-3 **           | 30              | 14.5 | 17.1 | 17.1 | 15.5 |
| FH52-32S-0.5SH(**) | 580-3325-0 **           | 32              | 15.5 | 18.1 | 18.1 | 16.5 |
| FH52-40S-0.5SH(**) | 580-3300-0 **           | 40              | 19.5 | 22.1 | 22.1 | 20.5 |
| FH52-42S-0.5SH(**) | 580-3329-1 **           | 42              | 20.5 | 23.1 | 23.1 | 21.5 |
| FH52-45S-0.5SH(**) | 580-3311-6 **           | 45              | 22.0 | 24.6 | 24.6 | 23.0 |
| FH52-50S-0.5SH(**) | 580-3303-8 **           | 50              | 24.5 | 27.1 | 27.1 | 25.5 |
| FH52-60S-0.5SH(**) | 580-3301-2 **           | 60              | 29.5 | 32.1 | 32.1 | 30.5 |

Note 1 : Contact positions without HRS No. are currently under planning. Please contact Hirose for detailed information about product variation.

## ◆ Recommended PCB Mounting Pattern and Metal Mask Dimensions

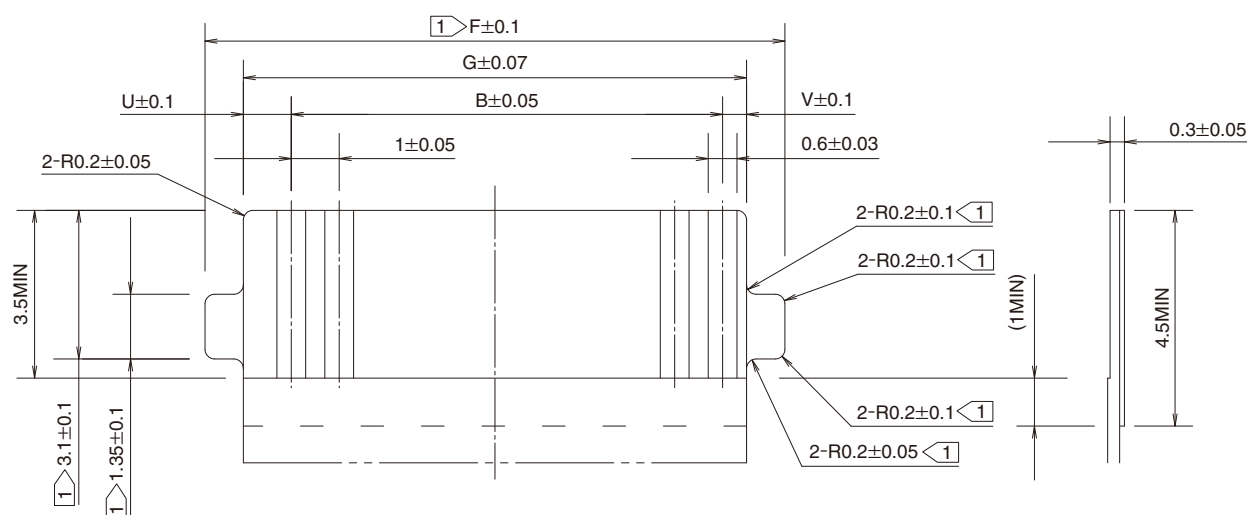
### [FH52 (Standard Type) 1mm Pitch product]

Recommended metal mask thickness : 0.12mm



## ◆ Recommended FPC/FFC Dimensions

### [FH52 (Standard Type) 1mm Pitch product]



Notes 1) FFC/FPC without tabs can also be used.

In that case, the specified portions are not necessary.

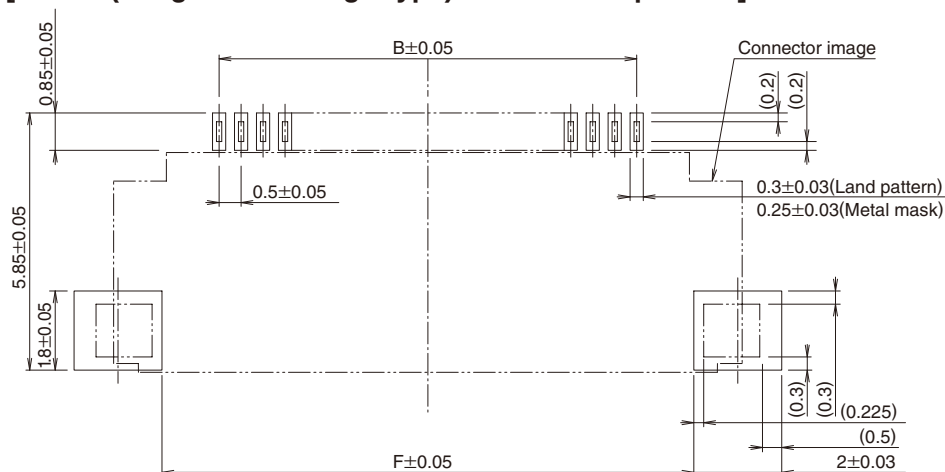
Unit : mm

| Part No.              | HRS No.       | No. of contacts | B  | E    | F    | G    | S   | T   | U   | V   |
|-----------------------|---------------|-----------------|----|------|------|------|-----|-----|-----|-----|
| FH52-10(4)SA-1SH(**)  | 580-3330-0 ** | 4               | 3  | 7.1  | 7.1  | 5.5  | 1.8 | 2.3 | 1.5 | 1   |
| FH52-12S-1SH(**)      | 580-3323-5 ** | 12              | 11 | 14.6 | 14.6 | 13.0 | 1.8 | 1.8 | 1   | 1   |
| FH52-32(16)SB-1SH(**) | 580-3338-2 ** | 16              | 15 | 18.1 | 18.1 | 16.5 | 1.3 | 1.8 | 1   | 0.5 |
| FH52-60(30)SB-1SH(**) | 580-3315-7 ** | 30              | 29 | 32.1 | 32.1 | 30.5 | 1.3 | 1.8 | 1   | 0.5 |

## ◆ Recommended PCB Mounting Pattern and Metal Mask Dimensions

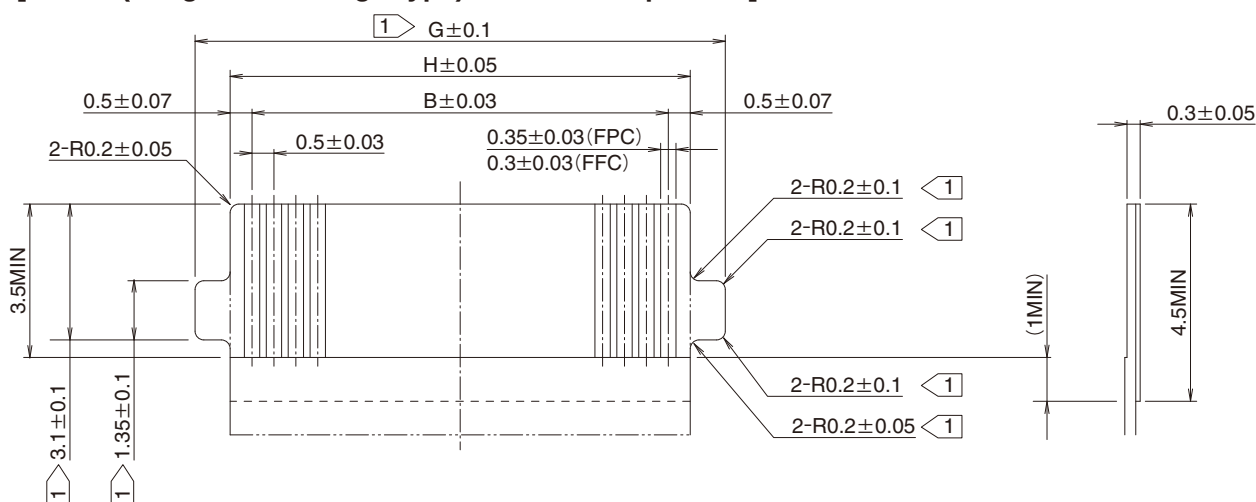
[FH52E (Long Metal Fittings Type) 0.5mm Pitch product]

Recommended metal mask thickness : 0.12mm



## ◆ Recommended FPC/FFC Dimensions

[FH52E (Long Metal Fittings Type) 0.5mm Pitch product]



Notes ① FFC/FPC without tabs can also be used.

In that case, the specified portions are not necessary.

Unit : mm

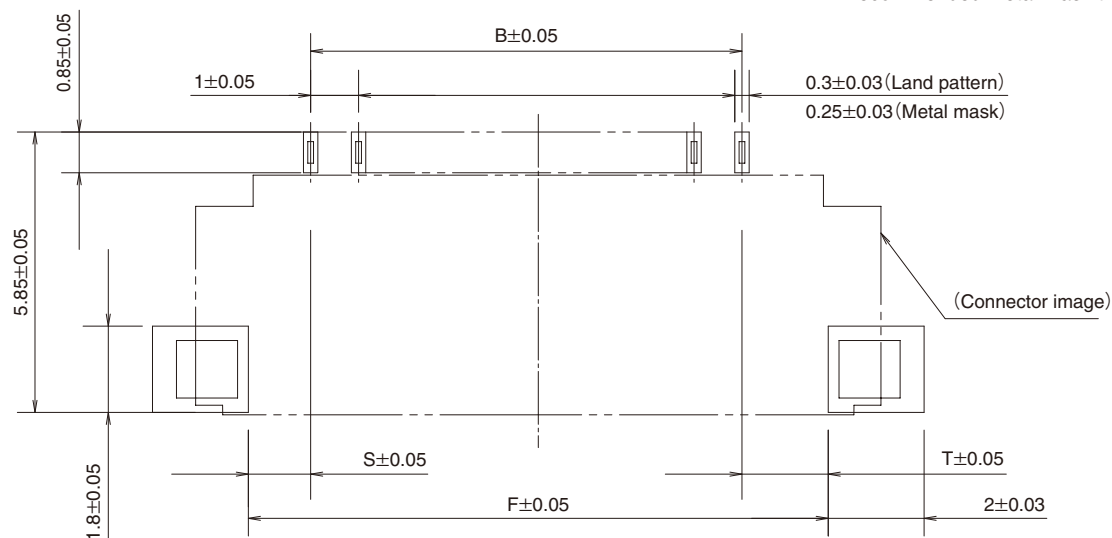
| Part No.            | HRS No.                 | No. of contacts | B    | F    | G    | H    |
|---------------------|-------------------------|-----------------|------|------|------|------|
| FH52E-4S-0.5SH(**)  | Under planning (Note 1) | 4               | 1.5  | 4.1  | 4.1  | 2.5  |
| FH52E-5S-0.5SH(**)  |                         | 5               | 2.0  | 4.6  | 4.6  | 3.0  |
| FH52E-6S-0.5SH(**)  |                         | 6               | 2.5  | 5.1  | 5.1  | 3.5  |
| FH52E-8S-0.5SH(**)  | 580-3349-0 **           | 8               | 3.5  | 6.1  | 6.1  | 4.5  |
| FH52E-10S-0.5SH(**) | 580-3346-0 **           | 10              | 4.5  | 7.1  | 7.1  | 5.5  |
| FH52E-11S-0.5SH(**) | Under planning (Note 1) | 11              | 5.0  | 7.6  | 7.6  | 6.0  |
| FH52E-12S-0.5SH(**) |                         | 12              | 5.5  | 8.1  | 8.1  | 6.5  |
| FH52E-15S-0.5SH(**) | 580-3337-0 **           | 15              | 7.0  | 9.6  | 9.6  | 8.0  |
| FH52E-16S-0.5SH(**) | Under planning (Note 1) | 16              | 7.5  | 10.1 | 10.1 | 8.5  |
| FH52E-18S-0.5SH(**) | 580-3331-3 **           | 18              | 8.5  | 11.1 | 11.1 | 9.5  |
| FH52E-20S-0.5SH(**) | 580-3357-0 **           | 20              | 9.5  | 12.1 | 12.1 | 10.5 |
| FH52E-22S-0.5SH(**) | 580-3343-2 **           | 22              | 10.5 | 13.1 | 13.1 | 11.5 |
| FH52E-24S-0.5SH(**) | 580-3340-4 **           | 24              | 11.5 | 14.1 | 14.1 | 12.5 |
| FH52E-25S-0.5SH(**) | Under planning (Note 1) | 25              | 12.0 | 14.6 | 14.6 | 13.0 |
| FH52E-26S-0.5SH(**) |                         | 26              | 12.5 | 15.1 | 15.1 | 13.5 |
| FH52E-28S-0.5SH(**) |                         | 28              | 13.5 | 16.1 | 16.1 | 14.5 |
| FH52E-30S-0.5SH(**) | 580-3347-3 **           | 30              | 14.5 | 17.1 | 17.1 | 15.5 |
| FH52E-32S-0.5SH(**) | Under planning (Note 1) | 32              | 15.5 | 18.1 | 18.1 | 16.5 |
| FH52E-40S-0.5SH(**) | 580-3334-1 **           | 40              | 19.5 | 22.1 | 22.1 | 20.5 |
| FH52E-42S-0.5SH(**) | Under planning (Note 1) | 42              | 20.5 | 23.1 | 23.1 | 21.5 |
| FH52E-45S-0.5SH(**) |                         | 45              | 22.0 | 24.6 | 24.6 | 23.0 |
| FH52E-50S-0.5SH(**) | 580-3335-4 **           | 50              | 24.5 | 27.1 | 27.1 | 25.5 |
| FH52E-60S-0.5SH(**) | 580-3339-5 **           | 60              | 29.5 | 32.1 | 32.1 | 30.5 |
| FH52E-64S-0.5SH(**) | 580-3333-9 **           | 64              | 31.5 | 34.1 | 34.1 | 32.5 |
| FH52E-68S-0.5SH(**) | 580-3332-6 **           | 68              | 33.5 | 36.1 | 36.1 | 34.5 |

Note 1 : Contact positions without HRS No. are currently under planning. Please contact hirose for detailed information about product variation.

## ◆ Recommended PCB Mounting Pattern and Metal Mask Dimensions

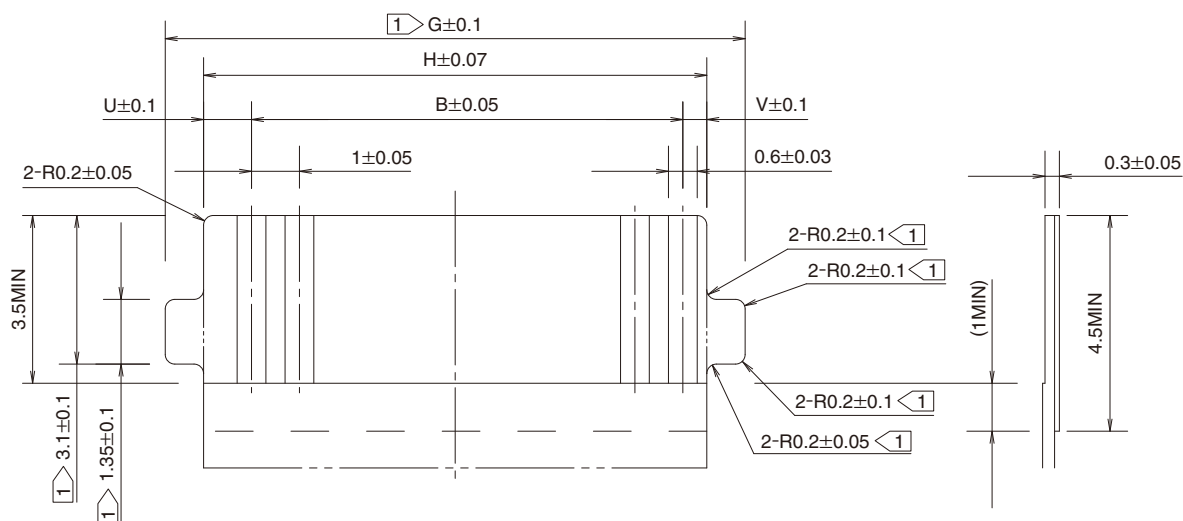
### [FH52E (Long Metal Fittings Type) 1mm Pitch product]

Recommended metal mask thickness : 0.12mm



## ◆ Recommended FPC/FFC Dimensions

### [FH52E (Long Metal Fittings Type) 1mm Pitch product]



Notes ① FFC/FPC without tabs can also be used.

In that case, the specified portions are not necessary.

Unit : mm

| Part No.               | HRS No.       | No. of contacts | B    | F    | G    | H    | S   | T   | U   | V   |
|------------------------|---------------|-----------------|------|------|------|------|-----|-----|-----|-----|
| FH52E-8(4)SB-1SH(**)   | 580-3351-0 ** | 4               | 3    | 6.1  | 6.1  | 4.5  | 1.3 | 1.8 | 1   | 0.5 |
| FH52E-20(10)SA-1SH(**) | 580-3352-0 ** | 10              | 9    | 12.1 | 12.1 | 10.5 | 1.8 | 1.3 | 0.5 | 1   |
| FH52E-20(10)SB-1SH(**) | 580-3353-0 ** | 10              | 9    | 12.1 | 12.1 | 10.5 | 1.3 | 1.8 | 1   | 0.5 |
| FH52E-50(25)SA-1SH(**) | 580-3354-0 ** | 25              | 24   | 27.1 | 27.1 | 25.5 | 1.8 | 1.3 | 0.5 | 1   |
| FH52E-50(25)SB-1SH(**) | 580-3355-0 ** | 25              | 24   | 27.1 | 27.1 | 25.5 | 1.3 | 1.8 | 1   | 0.5 |
| FH52E-60(30)SB-1SH(**) | 580-3358-0 ** | 30              | 34.3 | 32.1 | 32.1 | 30.5 | 1.3 | 1.8 | 1   | 0.5 |

**[FH52K (Long Metal Fittings Type, 125°C Heat Resistant Type) 0.5mm Pitch product]**

Figure 1: Dimensional drawing of the PCB layout. The drawing shows a rectangular PCB with various dimensions and tolerances. Key dimensions include: overall width 5.85±0.05, overall height 0.85±0.05, a central horizontal slot of width 0.5±0.05, a central vertical slot of width 0.3±0.03 (Land pattern) and 0.25±0.03 (Metal mask), and a bottom horizontal slot of width 2±0.03. The drawing also shows a 'Connector image' on the right side. The dimensions are labeled with tolerances: 5.85±0.05, 0.85±0.05, 0.5±0.05, 0.3±0.03 (Land pattern), 0.25±0.03 (Metal mask), 2±0.03, and 0.225 (0.5). The drawing is labeled 'Figure 1: Dimensional drawing of the PCB layout'.

Technical drawing of a rectangular component with dimensions and tolerances. The drawing includes a top view and a side view. The top view shows a rectangle with overall dimensions  $G \pm 0.1$  and  $H \pm 0.05$ . The width of the central section is  $B \pm 0.03$ . The distance from the center to the side edges is  $0.5 \pm 0.07$ . The distance from the center to the top and bottom edges is  $0.5 \pm 0.03$ . The thickness of the top and bottom layers is  $0.35 \pm 0.03$  (FPC) and  $0.3 \pm 0.03$  (FFC). The side view shows a thickness of  $3.5 \text{ MIN}$  and a total height of  $4.5 \text{ MIN}$ . The drawing also includes several callouts for specific features and tolerances, such as  $2-R0.2 \pm 0.05$ ,  $2-R0.2 \pm 0.1$ , and  $2-R0.2 \pm 0.05$ .

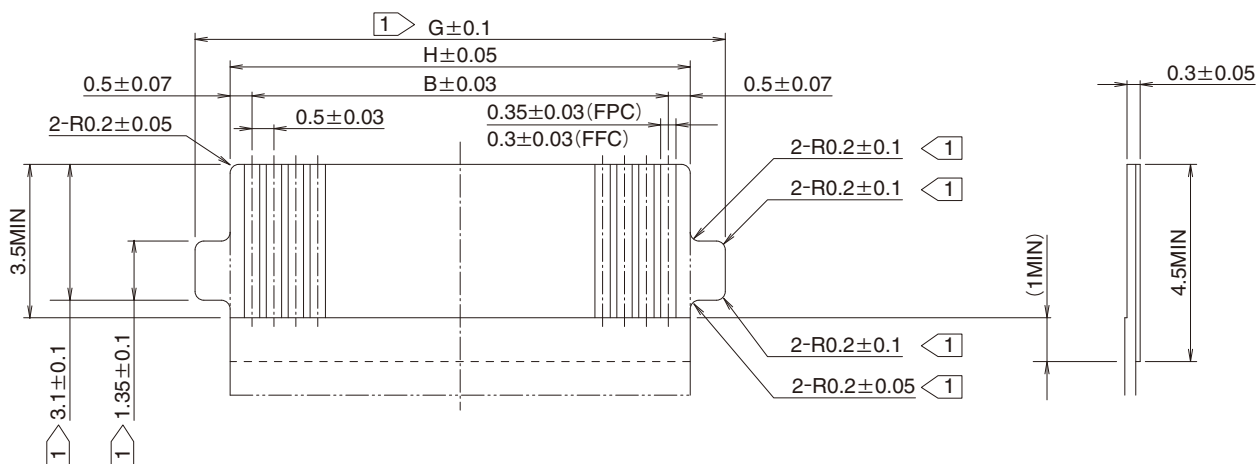
Unit : mm

Note 1 : Contact positions without HRS No. are currently under planning.  
Please contact hirose for detailed information about product variation.

**[FH52T (Long Metal Fittings Type, 2-Point Contact Type) 0.5mm Pitch product]**

Figure 1 is a dimensional drawing of the connector. The drawing shows a top-down view of a rectangular connector with various dimensions and features. Key dimensions include: overall width  $5.85 \pm 0.05$ , overall height  $0.85 \pm 0.05$ , a central horizontal slot of width  $0.5 \pm 0.05$ , a central vertical slot of width  $0.3 \pm 0.03$  (Land pattern) and  $0.25 \pm 0.03$  (Metal mask), a central horizontal slot of width  $B \pm 0.05$ , a central vertical slot of width  $F \pm 0.05$ , a central horizontal slot of width  $2 \pm 0.03$ , and a central vertical slot of width  $0.8 \pm 0.05$ . A note indicates "Recommended metal mask thickness : 0.01". A dashed line indicates the "Connector image".

**[FH52T (Long Metal Fittings Type, 2-Point Contact Type) 0.5mm Pitch product]**



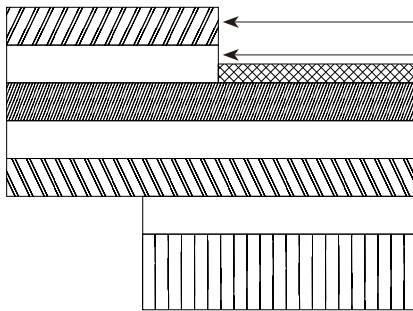
In that case, the specified portions are not necessary.

| Part No.            | HRS No.                 | No. of contacts | B    | F    | G    | H    |
|---------------------|-------------------------|-----------------|------|------|------|------|
| FH52T-4S-0.5SH(**)  | Under planning (Note 1) | 4               | 1.5  | 4.1  | 4.1  | 2.5  |
| FH52T-5S-0.5SH(**)  |                         | 5               | 2.0  | 4.6  | 4.6  | 3.0  |
| FH52T-6S-0.5SH(**)  |                         | 6               | 2.5  | 5.1  | 5.1  | 3.5  |
| FH52T-8S-0.5SH(**)  |                         | 8               | 3.5  | 6.1  | 6.1  | 4.5  |
| FH52T-10S-0.5SH(**) | 580-4503-0 **           | 10              | 4.5  | 7.1  | 7.1  | 5.5  |
| FH52T-11S-0.5SH(**) | Under planning (Note 1) | 11              | 5.0  | 7.6  | 7.6  | 6.0  |
| FH52T-12S-0.5SH(**) |                         | 12              | 5.5  | 8.1  | 8.1  | 6.5  |
| FH52T-15S-0.5SH(**) |                         | 15              | 7.0  | 9.6  | 9.6  | 8.0  |
| FH52T-16S-0.5SH(**) |                         | 16              | 7.5  | 10.1 | 10.1 | 8.5  |
| FH52T-18S-0.5SH(**) |                         | 18              | 8.5  | 11.1 | 11.1 | 9.5  |
| FH52T-20S-0.5SH(**) |                         | 20              | 9.5  | 12.1 | 12.1 | 10.5 |
| FH52T-22S-0.5SH(**) |                         | 22              | 10.5 | 13.1 | 13.1 | 11.5 |
| FH52T-24S-0.5SH(**) | 580-4500-0 **           | 24              | 11.5 | 14.1 | 14.1 | 12.5 |
| FH52T-25S-0.5SH(**) | Under planning (Note 1) | 25              | 12.0 | 14.6 | 14.6 | 13.0 |
| FH52T-26S-0.5SH(**) |                         | 26              | 12.5 | 15.1 | 15.1 | 13.5 |
| FH52T-28S-0.5SH(**) |                         | 28              | 13.5 | 16.1 | 16.1 | 14.5 |
| FH52T-30S-0.5SH(**) |                         | 30              | 14.5 | 17.1 | 17.1 | 15.5 |
| FH52T-32S-0.5SH(**) | 580-4502-0 **           | 32              | 15.5 | 18.1 | 18.1 | 16.5 |
| FH52T-40S-0.5SH(**) | Under planning (Note 1) | 40              | 19.5 | 22.1 | 22.1 | 20.5 |
| FH52T-42S-0.5SH(**) |                         | 42              | 20.5 | 23.1 | 23.1 | 21.5 |
| FH52T-45S-0.5SH(**) |                         | 45              | 22.0 | 24.6 | 24.6 | 23.0 |
| FH52T-50S-0.5SH(**) | 580-4501-7 **           | 50              | 24.5 | 27.1 | 27.1 | 25.5 |
| FH52T-60S-0.5SH(**) | Under planning (Note 1) | 60              | 29.5 | 32.1 | 32.1 | 30.5 |
| FH52T-64S-0.5SH(**) |                         | 64              | 31.5 | 34.1 | 34.1 | 32.5 |
| FH52T-68S-0.5SH(**) |                         | 68              | 33.5 | 36.1 | 36.1 | 34.5 |

14

## ◆ FH52 Series FPC/FFC Construction (Recommended Specifications)

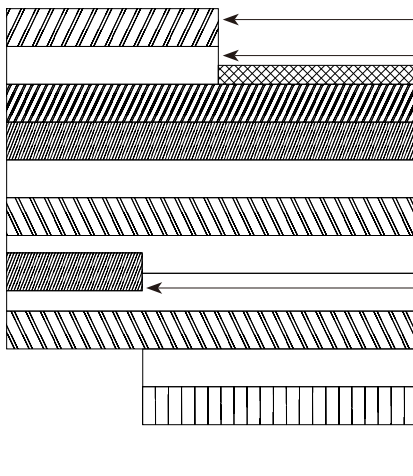
### 1. Using Single-Sided FPC



#### FPC : Flexible Printed Circuit

| Material name                   | Material                                                          | Thickness (μm) |
|---------------------------------|-------------------------------------------------------------------|----------------|
| Covering film layer             | Polyimide 1mil                                                    | (25)           |
| Cover adhesive                  |                                                                   | (25)           |
| Surface treatment               | 0.2 μm thick gold plated over 1 to 5 μm thick nickel underplating | 3              |
| Copper foil                     | Cu 1oz                                                            | 35             |
| Base adhesive                   | Thermosetting adhesive                                            | 25             |
| Base film                       | Polyimide 1mil thick                                              | 25             |
| Reinforcement material adhesive | Thermosetting adhesive                                            | 30             |
| Stiffener                       | Polyimide 7mil thick                                              | 175            |
| Total                           |                                                                   | 293            |

### 2. Using Double-Sided FPC

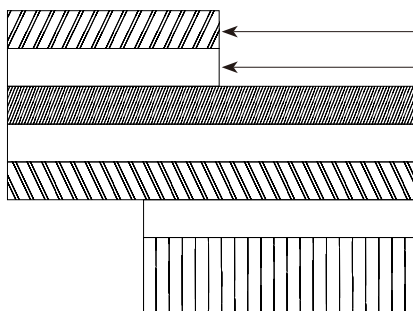


#### FPC : Flexible Printed Circuit

| Material name                   | Material                                                          | Thickness (μm) |
|---------------------------------|-------------------------------------------------------------------|----------------|
| Covering film layer             | Polyimide 1mil                                                    | (25)           |
| Cover adhesive                  |                                                                   | (25)           |
| Surface treatment               | 0.2 μm thick gold plated over 1 to 5 μm thick nickel underplating | 3              |
| Through-hole copper             | Cu                                                                | 15             |
| Copper foil                     | Cu 1/2oz                                                          | 18             |
| Base adhesive                   | Thermosetting adhesive                                            | 18             |
| Base film                       | Polyimide 1mil thick                                              | 25             |
| Base adhesive                   | Thermosetting adhesive                                            | 18             |
| Copper foil                     | Cu 1/2oz                                                          | (18)           |
| Cover adhesive                  | Thermosetting adhesive                                            | 25             |
| Covering layer film             | Polyimide 1mil thick                                              | 25             |
| Reinforcement material adhesive | Thermosetting adhesive                                            | 50             |
| Stiffener                       | Polyimide 4mil thick                                              | 100            |
| Total                           |                                                                   | 297            |

\* To prevent release of the FPC due to its bending, use of the double sided FPC with copper foil on the back side is not recommended.

### 3. Using FFC



#### FFC : Flexible Flat Cable

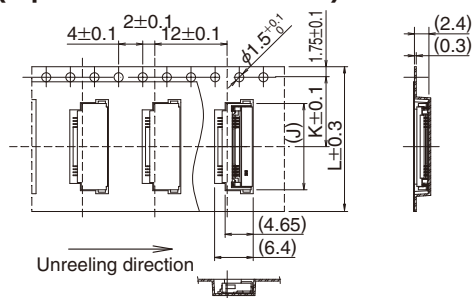
| Material name                    | Material                | Thickness (μm) |
|----------------------------------|-------------------------|----------------|
| Polyester film                   |                         | (12)           |
| Adhesive                         | Thermoplastic polyester | (30)           |
| Gold plated annealed copper foil |                         | 35             |
| Adhesive                         | Polyester               | 30             |
| Polyester                        |                         | 12             |
| Adhesive                         | Polyester               | 30             |
| Stiffener                        | Polyester               | 188            |
| Total                            |                         | 295            |

\* Typical thickness tolerance is about  $\pm 20\mu\text{m}$

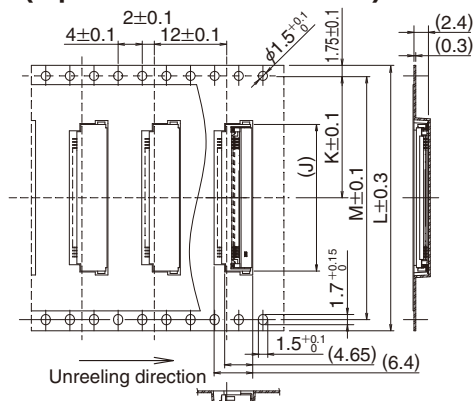
1. This specification is a recommendation for the construction of the FH52 Series FPC and FFC ( $t = 0.3 \pm 0.05\text{mm}$ ).
2. For details about the construction, please contact the FPC/FFC manufacturers.

## ◆ Packaging Specification

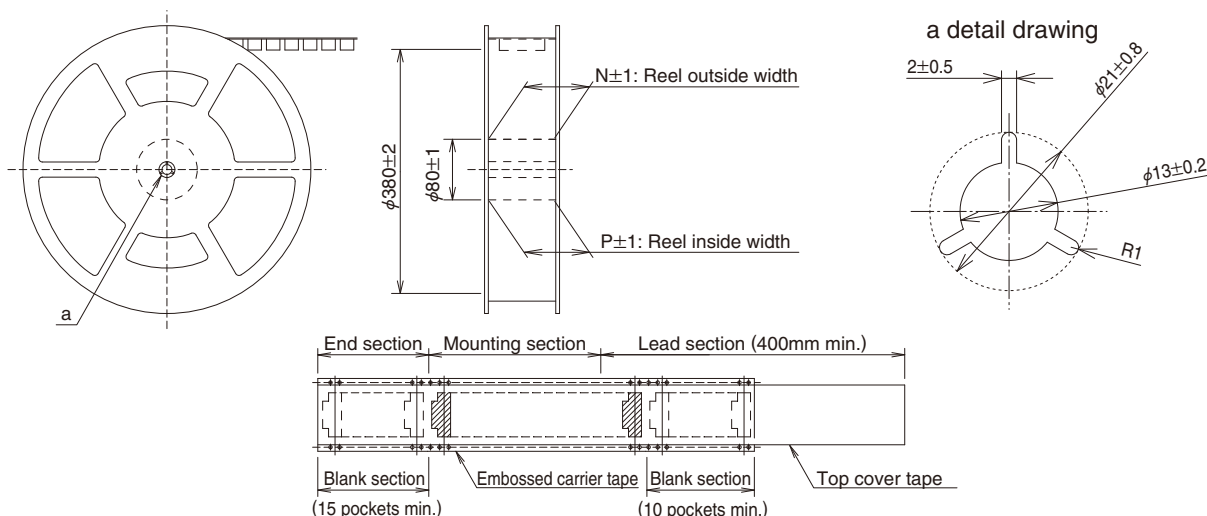
### ● Embossed carrier tape dimensions (tape width 24mm or less)



### ● Embossed carrier tape dimensions (tape width 32mm or more)



### ● Reel Dimensions



### [FH52 (Standard Type) 0.5mm Pitch product]

Unit : mm

| Part No.           | HRS No.                 | No. of contacts | J    | K    | L    | M    | N    | P    |
|--------------------|-------------------------|-----------------|------|------|------|------|------|------|
| FH52-4S-0.5SH(**)  | Under planning (Note 1) | 4               | 6.6  | 7.5  | 16.0 | —    | 21.4 | 17.4 |
| FH52-5S-0.5SH(**)  |                         | 5               | 7.1  | 11.5 | 24.0 | —    | 29.4 | 25.4 |
| FH52-6S-0.5SH(**)  | 580-3304-0 **           | 6               | 7.6  |      |      | —    |      |      |
| FH52-8S-0.5SH(**)  | 580-3305-3 **           | 8               | 8.6  |      |      | —    |      |      |
| FH52-10S-0.5SH(**) | 580-3306-6 **           | 10              | 9.6  |      |      | —    |      |      |
| FH52-11S-0.5SH(**) | 580-3320-7 **           | 11              | 10.1 |      |      | —    |      |      |
| FH52-12S-0.5SH(**) | 580-3307-9 **           | 12              | 10.6 |      |      | —    |      |      |
| FH52-15S-0.5SH(**) | 580-3302-5 **           | 15              | 12.1 |      |      | —    |      |      |
| FH52-16S-0.5SH(**) | Under planning (Note 1) | 16              | 12.6 | 14.2 | 32.0 | —    | 37.4 | 33.4 |
| FH52-18S-0.5SH(**) | 580-3321-0 **           | 18              | 13.6 |      |      | —    |      |      |
| FH52-20S-0.5SH(**) | 580-3309-4 **           | 20              | 14.6 |      |      | —    |      |      |
| FH52-22S-0.5SH(**) | 580-3317-2 **           | 22              | 15.6 |      |      | —    |      |      |
| FH52-24S-0.5SH(**) | 580-3318-5 **           | 24              | 16.6 |      |      | —    |      |      |
| FH52-25S-0.5SH(**) | 580-3316-0 **           | 25              | 17.1 |      |      | —    |      |      |
| FH52-26S-0.5SH(**) | 580-3319-8 **           | 26              | 17.6 |      |      | —    |      |      |
| FH52-28S-0.5SH(**) | 580-3324-8 **           | 28              | 18.6 | 20.2 | 44.0 | —    | 49.4 | 45.4 |
| FH52-30S-0.5SH(**) | 580-3310-3 **           | 30              | 19.6 |      |      | —    |      |      |
| FH52-32S-0.5SH(**) | 580-3325-0 **           | 32              | 20.6 |      |      | —    |      |      |
| FH52-40S-0.5SH(**) | 580-3300-0 **           | 40              | 24.6 |      |      | —    |      |      |
| FH52-42S-0.5SH(**) | 580-3329-1 **           | 42              | 25.6 |      |      | —    |      |      |
| FH52-45S-0.5SH(**) | 580-3311-6 **           | 45              | 27.1 |      |      | —    |      |      |
| FH52-50S-0.5SH(**) | 580-3303-8 **           | 50              | 29.6 | 26.2 | 56.0 | 52.4 | 61.4 | 57.4 |
| FH52-60S-0.5SH(**) | 580-3301-2 **           | 60              | 34.6 |      |      |      |      |      |

### [FH52 (Standard Type) 1mm Pitch product]

Unit : mm

| Part No.              | HRS No.       | No. of contacts | J    | K    | L    | M    | N    | P    |
|-----------------------|---------------|-----------------|------|------|------|------|------|------|
| FH52-10(4)SA-1SH(**)  | 580-3330-0 ** | 4               | 9.6  | 11.5 | 24.0 | —    | 29.4 | 25.4 |
| FH52-12S-1SH(**)      | 580-3323-5 ** | 12              | 17.1 | 14.2 | 32.0 | 28.4 | 37.4 | 33.4 |
| FH52-32(16)SB-1SH(**) | 580-3338-2 ** | 16              | 20.6 | 20.2 | 44.0 | 40.4 | 49.4 | 45.4 |
| FH52-60(30)SB-1SH(**) | 580-3315-7 ** | 30              | 34.6 | 26.2 | 56.0 | 52.4 | 61.4 | 57.4 |

Note 1 : Contact positions without HRS No. are currently under planning. Please contact Hirose for detailed information about product variation.

**[FH52E (Long Metal Fittings Type) 0.5mm Pitch product]**

Unit : mm

| Part No.            | HRS No.                 | No. of contacts | J    | K    | L    | M    | N    | P    |
|---------------------|-------------------------|-----------------|------|------|------|------|------|------|
| FH52E-4S-0.5SH(**)  | Under planning (Note 1) | 4               | 6.6  | 7.5  | 16.0 | ———  | 21.4 | 17.4 |
| FH52E-5S-0.5SH(**)  |                         | 5               | 7.1  | 11.5 | 24.0 | ———  | 29.4 | 25.4 |
| FH52E-6S-0.5SH(**)  |                         | 6               | 7.6  |      |      | ———  |      |      |
| FH52E-8S-0.5SH(**)  | 580-3349-0 **           | 8               | 8.6  |      |      | ———  |      |      |
| FH52E-10S-0.5SH(**) | 580-3346-0 **           | 10              | 9.6  |      |      | ———  |      |      |
| FH52E-11S-0.5SH(**) | Under planning (Note 1) | 11              | 10.1 |      |      | ———  |      |      |
| FH52E-12S-0.5SH(**) |                         | 12              | 10.6 |      |      | ———  |      |      |
| FH52E-15S-0.5SH(**) | 580-3337-0 **           | 15              | 12.1 |      |      | ———  |      |      |
| FH52E-16S-0.5SH(**) | Under planning (Note 1) | 16              | 12.6 |      |      | ———  |      |      |
| FH52E-18S-0.5SH(**) | 580-3331-3 **           | 18              | 13.6 |      |      | ———  |      |      |
| FH52E-20S-0.5SH(**) | 580-3357-0 **           | 20              | 14.6 |      |      | ———  |      |      |
| FH52E-22S-0.5SH(**) | 580-3343-2 **           | 22              | 15.6 | 14.2 | 32.0 | 28.4 | 37.4 | 33.4 |
| FH52E-24S-0.5SH(**) | 580-3340-4 **           | 24              | 16.6 |      |      |      |      |      |
| FH52E-25S-0.5SH(**) | Under planning (Note 1) | 25              | 17.1 |      |      |      |      |      |
| FH52E-26S-0.5SH(**) |                         | 26              | 17.6 |      |      |      |      |      |
| FH52E-28S-0.5SH(**) |                         | 28              | 18.6 |      |      |      |      |      |
| FH52E-30S-0.5SH(**) | 580-3347-3 **           | 30              | 19.6 | 20.2 | 44.0 | 40.4 | 49.4 | 45.4 |
| FH52E-32S-0.5SH(**) | Under planning (Note 1) | 32              | 20.6 |      |      |      |      |      |
| FH52E-40S-0.5SH(**) | 580-3334-1 **           | 40              | 24.6 |      |      |      |      |      |
| FH52E-42S-0.5SH(**) | Under planning (Note 1) | 42              | 25.6 |      |      |      |      |      |
| FH52E-45S-0.5SH(**) |                         | 45              | 27.1 |      |      |      |      |      |
| FH52E-50S-0.5SH(**) | 580-3335-4 **           | 50              | 29.6 | 26.2 | 56.0 | 52.4 | 61.4 | 57.4 |
| FH52E-60S-0.5SH(**) | 580-3339-5 **           | 60              | 34.6 |      |      |      |      |      |
| FH52E-64S-0.5SH(**) | 580-3333-9 **           | 64              | 36.6 |      |      |      |      |      |
| FH52E-68S-0.5SH(**) | 580-3332-6 **           | 68              | 38.6 |      |      |      |      |      |

**[FH52E (Long Metal Fittings Type) 1mm Pitch product]**

Unit : mm

| Part No.               | HRS No.       | No. of contacts | J    | K    | L    | M    | N    | P    |
|------------------------|---------------|-----------------|------|------|------|------|------|------|
| FH52E-8(4)SB-1SH(**)   | 580-3351-0 ** | 4               | 8.6  | 11.5 | 24.0 | ———  | 29.4 | 25.4 |
| FH52E-20(10)SA-1SH(**) | 580-3352-0 ** | 10              | 14.6 |      |      | ———  |      |      |
| FH52E-20(10)SB-1SH(**) | 580-3353-0 ** | 10              | 14.6 |      |      | ———  |      |      |
| FH52E-50(25)SA-1SH(**) | 580-3354-0 ** | 25              | 29.6 | 20.2 | 44.0 | 40.4 | 49.4 | 45.4 |
| FH52E-50(25)SB-1SH(**) | 580-3355-0 ** | 25              | 29.6 |      |      |      |      |      |
| FH52E-60(30)SB-1SH(**) | 580-3358-0 ** | 30              | 34.6 | 26.2 | 56.0 | 52.4 | 61.4 | 57.4 |

**[FH52K (Long Metal Fittings Type, 125°C Heat Resistant Type) 0.5mm Pitch product]**

Unit : mm

| Part No.            | HRS No.                 | No. of contacts | J    | K    | L    | M    | N    | P    |
|---------------------|-------------------------|-----------------|------|------|------|------|------|------|
| FH52K-6S-0.5SH(**)  | 580-4613-0 **           | 6               | 7.6  | 11.5 | 24.0 | ———  | 29.4 | 25.4 |
| FH52K-8S-0.5SH(**)  | 580-4611-0 **           | 8               | 8.6  |      |      | ———  |      |      |
| FH52K-10S-0.5SH(**) | 580-4606-0 **           | 10              | 9.6  |      |      | ———  |      |      |
| FH52K-12S-0.5SH(**) | Under planning (Note 1) | 12              | 10.6 |      |      | ———  |      |      |
| FH52K-15S-0.5SH(**) |                         | 15              | 12.1 |      |      | ———  |      |      |
| FH52K-18S-0.5SH(**) |                         | 18              | 13.6 |      |      | ———  |      |      |
| FH52K-20S-0.5SH(**) | 580-4604-0 **           | 20              | 14.6 | 14.2 | 32.0 | 28.4 | 37.4 | 33.4 |
| FH52K-22S-0.5SH(**) | Under planning (Note 1) | 22              | 15.6 |      |      |      |      |      |
| FH52K-24S-0.5SH(**) |                         | 24              | 16.6 |      |      |      |      |      |
| FH52K-25S-0.5SH(**) |                         | 25              | 17.1 |      |      |      |      |      |
| FH52K-26S-0.5SH(**) |                         | 26              | 17.6 | 20.2 | 44.0 | 40.4 | 49.4 | 45.4 |
| FH52K-30S-0.5SH(**) | Under planning (Note 1) | 30              | 19.6 |      |      |      |      |      |
| FH52K-32S-0.5SH(**) | 580-4600-9 **           | 32              | 20.6 |      |      |      |      |      |
| FH52K-34S-0.5SH(**) | 580-4601-0 **           | 34              | 21.6 |      |      |      |      |      |
| FH52K-40S-0.5SH(**) | Under planning (Note 1) | 40              | 24.6 | 26.2 | 56.0 | 52.4 | 61.4 | 57.4 |
| FH52K-50S-0.5SH(**) |                         | 50              | 29.6 |      |      |      |      |      |
| FH52K-60S-0.5SH(**) |                         | 60              | 34.6 |      |      |      |      |      |
| FH52K-64S-0.5SH(**) |                         | 64              | 36.6 |      |      |      |      |      |
| FH52K-68S-0.5SH(**) | 580-4614-0 **           | 68              | 38.6 |      |      |      |      |      |

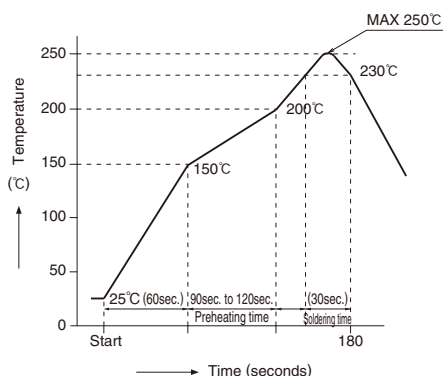
Note 1 : Contact positions without HRS No. are currently under planning. Please contact hirose for detailed information about product variation.

**[FH52T (Long Metal Fittings Type, 2-Point Contact Type) 0.5mm Pitch product]**

Unit : mm

| Part No.            | HRS No.                 | No. of contacts | J    | K    | L    | M    | N    | P    |
|---------------------|-------------------------|-----------------|------|------|------|------|------|------|
| FH52T-4S-0.5SH(**)  | Under planning (Note 1) | 4               | 6.6  | 7.5  | 16.0 | —    | 21.4 | 17.4 |
| FH52T-5S-0.5SH(**)  |                         | 5               | 7.1  | 11.5 | 24.0 | —    | 29.4 | 25.4 |
| FH52T-6S-0.5SH(**)  |                         | 6               | 7.6  |      |      | —    |      |      |
| FH52T-8S-0.5SH(**)  |                         | 8               | 8.6  |      |      | —    |      |      |
| FH52T-10S-0.5SH(**) | 580-4503-0 **           | 10              | 9.6  |      |      | —    |      |      |
| FH52T-11S-0.5SH(**) | Under planning (Note 1) | 11              | 10.1 |      |      | —    |      |      |
| FH52T-12S-0.5SH(**) |                         | 12              | 10.6 |      |      | —    |      |      |
| FH52T-15S-0.5SH(**) |                         | 15              | 12.1 |      |      | —    |      |      |
| FH52T-16S-0.5SH(**) |                         | 16              | 12.6 |      |      | —    |      |      |
| FH52T-18S-0.5SH(**) |                         | 18              | 13.6 |      |      | —    |      |      |
| FH52T-20S-0.5SH(**) |                         | 20              | 14.6 |      |      | —    |      |      |
| FH52T-22S-0.5SH(**) | 580-4500-0 **           | 22              | 15.6 | 14.2 | 32.0 | 28.4 | 37.4 | 33.4 |
| FH52T-24S-0.5SH(**) |                         | 24              | 16.6 |      |      |      |      |      |
| FH52T-25S-0.5SH(**) |                         | 25              | 17.1 |      |      |      |      |      |
| FH52T-26S-0.5SH(**) |                         | 26              | 17.6 |      |      |      |      |      |
| FH52T-28S-0.5SH(**) | Under planning (Note 1) | 28              | 18.6 | 20.2 | 44.0 | 40.4 | 49.4 | 45.4 |
| FH52T-30S-0.5SH(**) |                         | 30              | 19.6 |      |      |      |      |      |
| FH52T-32S-0.5SH(**) | 580-4502-0 **           | 32              | 20.6 |      |      |      |      |      |
| FH52T-40S-0.5SH(**) | Under planning (Note 1) | 40              | 24.6 |      |      |      |      |      |
| FH52T-42S-0.5SH(**) |                         | 42              | 25.6 |      |      |      |      |      |
| FH52T-45S-0.5SH(**) |                         | 45              | 27.1 |      |      |      |      |      |
| FH52T-50S-0.5SH(**) | 580-4501-7 **           | 50              | 29.6 | 26.2 | 56.0 | 52.4 | 61.4 | 57.4 |
| FH52T-60S-0.5SH(**) | Under planning (Note 1) | 60              | 34.6 |      |      |      |      |      |
| FH52T-64S-0.5SH(**) |                         | 64              | 36.6 |      |      |      |      |      |
| FH52T-68S-0.5SH(**) |                         | 68              | 38.6 |      |      |      |      |      |

Note 1 : Contact positions without HRS No. are currently under planning. Please contact Hirose for detailed information about product variation.

**◆ Recommended Temperature Profile****HRS test condition**

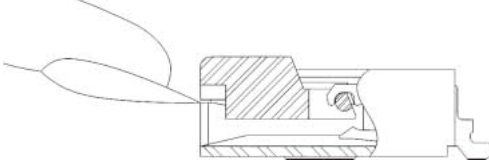
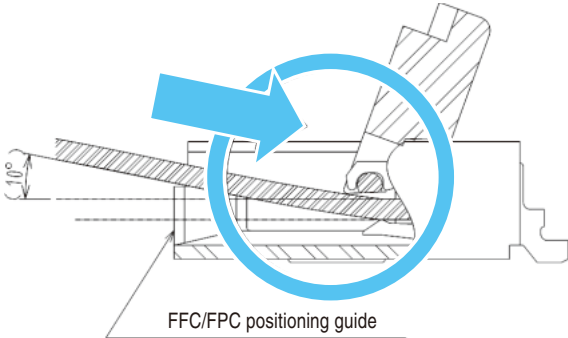
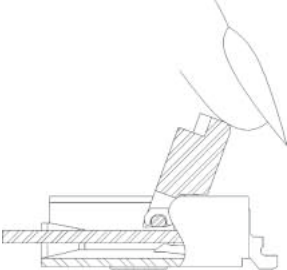
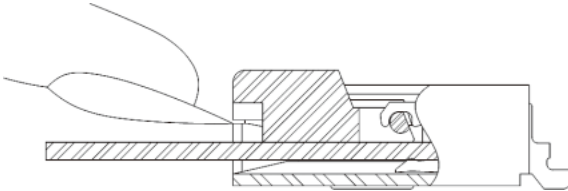
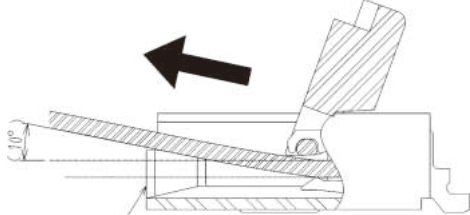
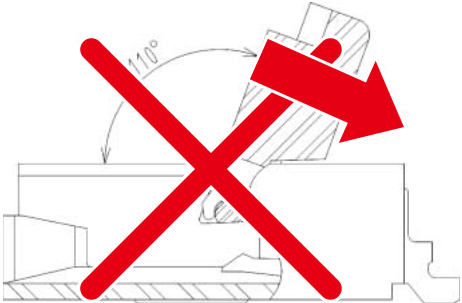
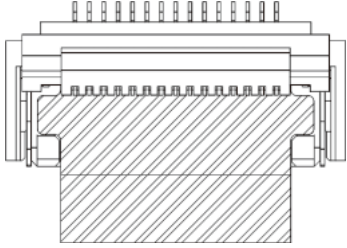
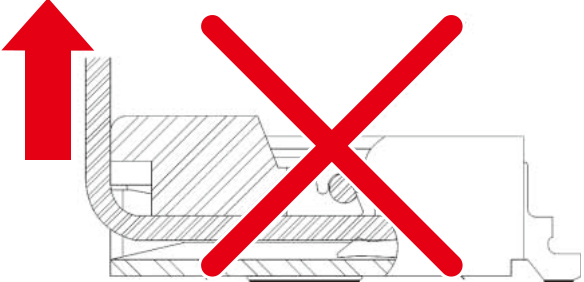
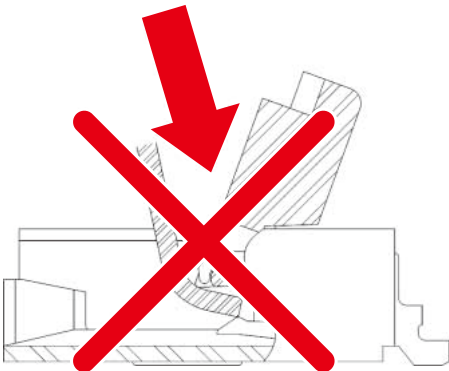
Solder method : Reflow, IR  
 Reflow furnace atmosphere : Atmosphere  
 Solder composition : Paste, 96.5%Sn/3.0%Ag/0.5%Cu  
 (Senju Metal Industry's Part Number : M705-221CM5-32-10.5)

Test board : Material and size  
 Glass epoxy : 80mm × 100mm × 1.6mm thick  
 Land dimensions : 0.3 × 0.85mm  
 Metal mask dimensions : 0.12mm thick  
 Opening dimensions : 0.25 × 0.85mm

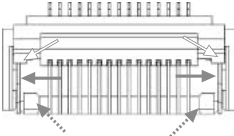
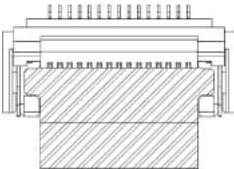
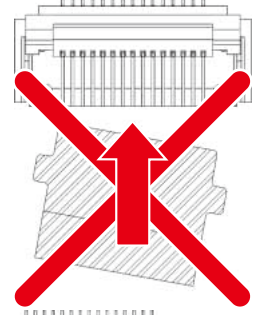
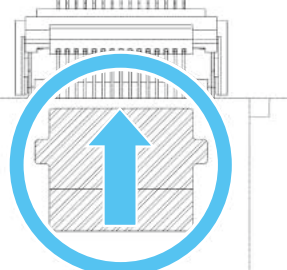
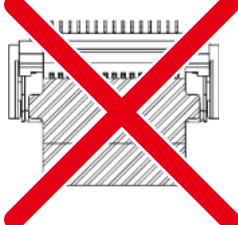
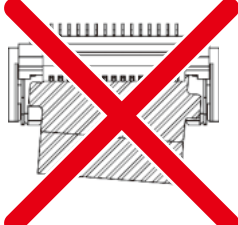
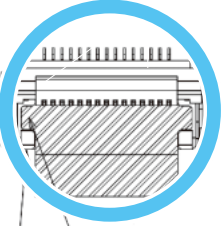
The temperature profiles are based on the above conditions.

In individual applications the actual temperature may vary, depending on solder paste type, volume/thickness and board size/thickness. Consult your solder paste and equipment manufacturer for specific recommendations.

## ◆ Operation and Precautions

| Operation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Precautions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>1. FPC/FFC insertion procedure</b></p> <p>① Lift up the actuator to release the lock. You can easily pop it up with the thumbnail or index-finger nail.</p>  <p>② Insert the FPC or FFC with the exposed conductive traces facing down. When connecting a tabbed FPC or FFC, securely insert it to the bottom, perpendicular to the connector with an angle of 10° with respect to the PCB surface, using the FFC/FPC positioning guide.</p>  <p>③ Rotate down the actuator until firmly closed.</p>  <p><b>2. FPC/FFC removal</b></p> <p>① Lift up the actuator to release the lock. Pull up the FPC or FFC a little and then withdraw it from the connector.</p>   <p>FFC positioning guide</p> | <p>① The FH52 Series is equipped with an actuator that rotates approximately 110°. Do not apply a force to open it beyond its fully open position. The actuator may come off or be permanently damaged.</p>  <p>② Insert the FPC or FFC properly to the opening of the connector. Improper insertion may lead to a break or poor continuity of the FPC or FFC.</p>  <p>③ The connector does not have a strong upward tensile strength owing to its structure. Secure the FPC or FFC when it is subjected to a tensile force.</p>  <p>④ When inserting an FPC or FFC, do not rub it vigorously against the bottom side of the connector opening. Excessive contact between the contacts and the FPC or FFC may result in the deformation of contacts, peeling of conductive traces, or other faults.</p>  |

## ◆Precautions (Mating/Un-Mating FPC/FFC with the Retention Tabs)

| Operation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Precautions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>1. How to insert</b></p> <p>Insert the cable into the interspace (.....) between the mold walls (⇒) at both ends of entrance where the connector is inserted and the guide walls (→) at both ends of interior connector so the cable tabs are properly located.</p>   <p><b>2. Precautions when mating/un-mating</b></p> <p><b>① Avoid insertion in diagonal direction.</b></p> <p>Do not insert the cable in diagonal direction. A part of the connector may touches the contacts resulting in deformation of the contacts.</p> <p><b>Diagonal insertion</b></p>  <p>Be sure to insert the FPC or FFC straight into the connector opening until the bottom of the connector.</p>  <p><b>Perpendicular to the connector</b></p> | <p><b>② Avoid "ride on"</b></p> <p>Avoid insertion so the cables ride on any guide. Be sure NOT to close the actuator as the cables ride on any guide. It may cause conduction failure.</p> <p><b>Ride on the both guides</b></p>  <p><b>Ride on the right guide</b></p>  <p><b>Correct insertion</b></p>  <p><b>FFC/FPC retention tab</b><br/><b>FFC/FPC positioning guide</b></p> |

# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

## Hirose Electric:

[FH52-50S-0.5SH](#) [FH52-60S-0.5SH](#) [FH52-60S-0.5SH\(99\)](#) [FH52-60\(30\)SB-1SH](#) [FH52-60\(30\)SB-1SH\(99\)](#) [FH52-5S-1SH](#) [FH52E-26S-0.5SH](#) [FH52K-20\(10\)SB-1SH](#)