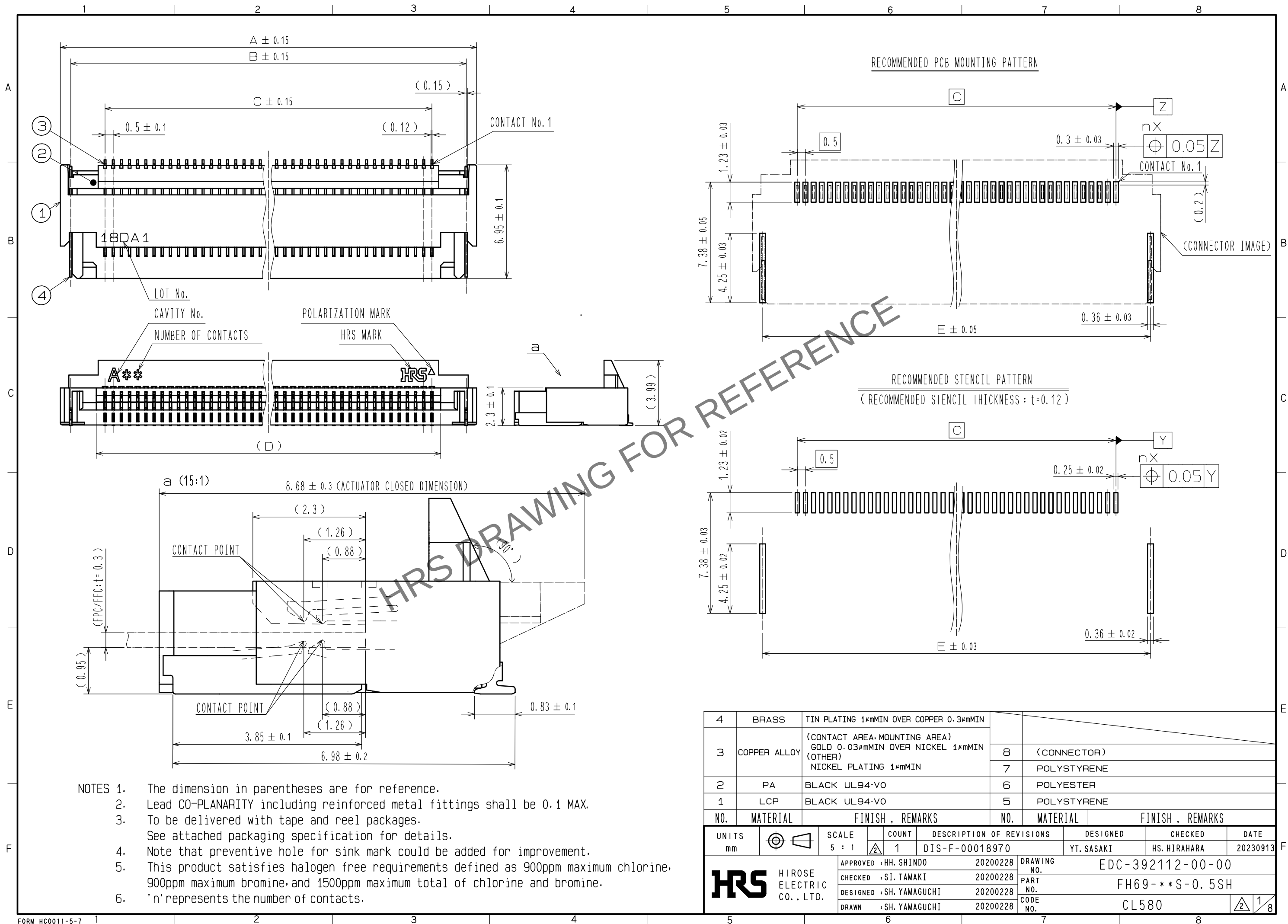
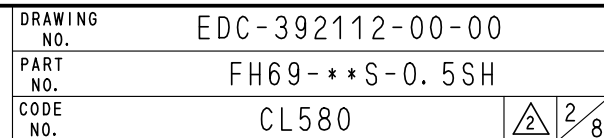


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|     |              |                                                                                                        |     |             |                  |
|-----|--------------|--------------------------------------------------------------------------------------------------------|-----|-------------|------------------|
| 4   | BRASS        | TIN PLATING 1#mMIN OVER COPPER 0.3#mMIN                                                                |     |             |                  |
| 3   | COPPER ALLOY | (CONTACT AREA, MOUNTING AREA)<br>GOLD 0.03#mMIN OVER NICKEL 1#mMIN<br>(OTHER)<br>NICKEL PLATING 1#mMIN | 8   | (CONNECTOR) |                  |
|     |              |                                                                                                        | 7   | POLYSTYRENE |                  |
| 2   | PA           | BLACK UL94-V0                                                                                          | 6   | POLYESTER   |                  |
| 1   | LCP          | BLACK UL94-V0                                                                                          | 5   | POLYSTYRENE |                  |
| NO. | MATERIAL     | FINISH , REMARKS                                                                                       | NO. | MATERIAL    | FINISH , REMARKS |

|                           |  |                |                                  |            |                                            |                        |                         |                  |
|---------------------------|--|----------------|----------------------------------|------------|--------------------------------------------|------------------------|-------------------------|------------------|
| UNITS<br>mm               |  | SCALE<br>5 : 1 |                                  | COUNT<br>1 | DESCRIPTION OF REVISIONS<br>DIS-F-00018970 | DESIGNED<br>YT. SASAKI | CHECKED<br>HS. HIRAHARA | DATE<br>20230913 |
| HIROSE ELECTRIC CO., LTD. |  |                | APPROVED :HH. SHINDO 20200228    |            | DRAWING NO. EDC-392112-00-00               |                        |                         |                  |
|                           |  |                | CHECKED :SI. TAMAKI 20200228     |            | PART NO. FH69-**S-0.5SH                    |                        |                         |                  |
|                           |  |                | DESIGNED :SH. YAMAGUCHI 20200228 |            | CODE NO. CL580                             |                        |                         |                  |
|                           |  |                | DRAWN :SH. YAMAGUCHI 20200228    |            | 1/8                                        |                        |                         |                  |

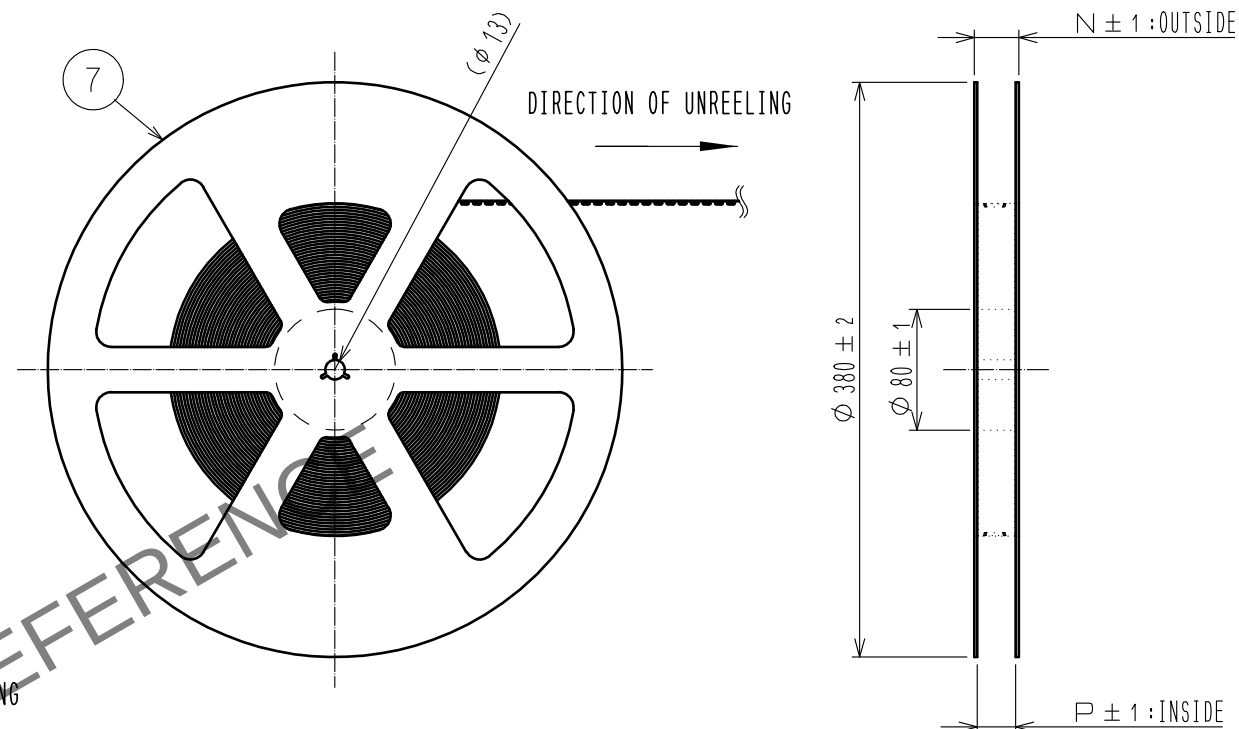
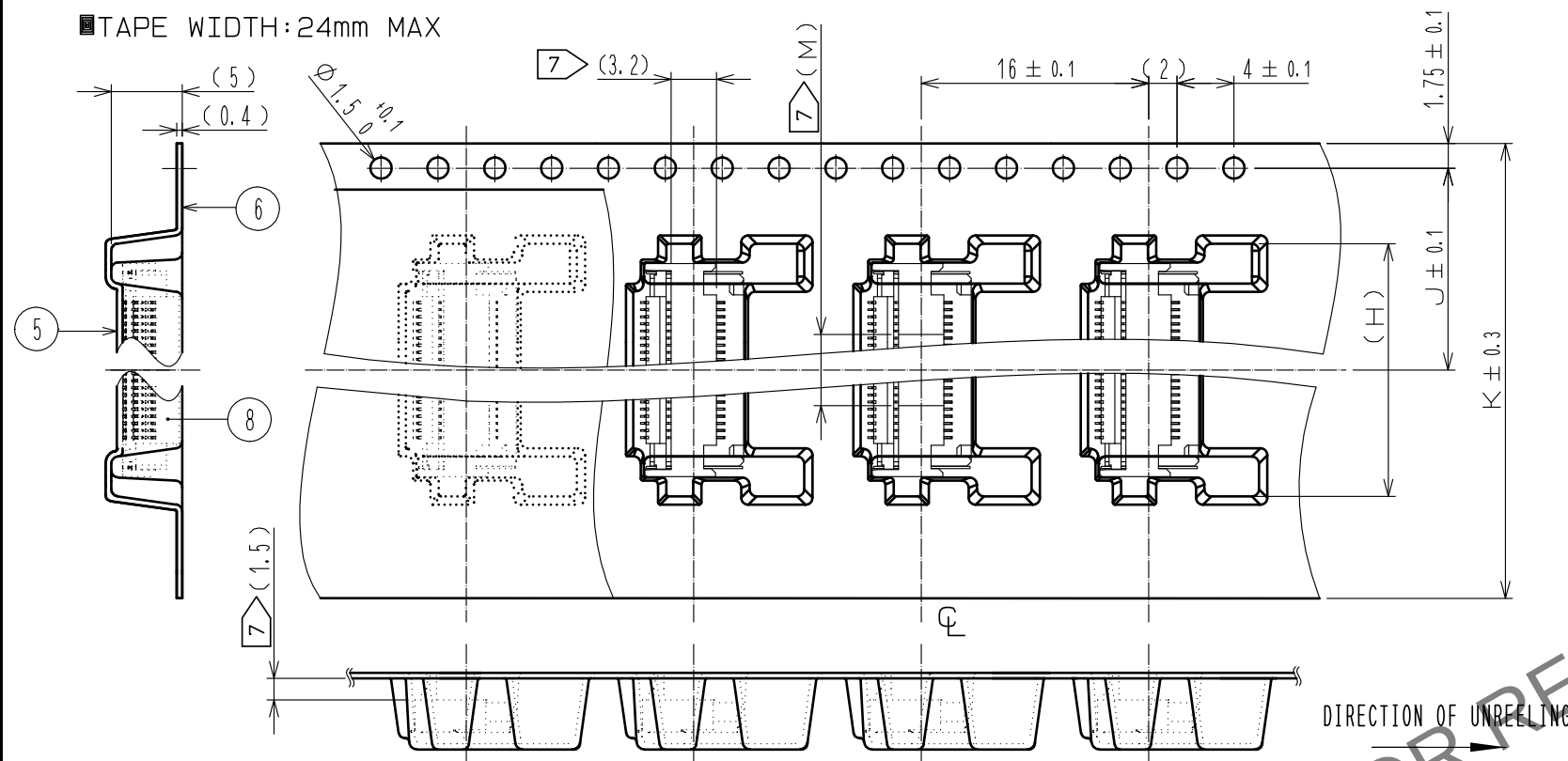


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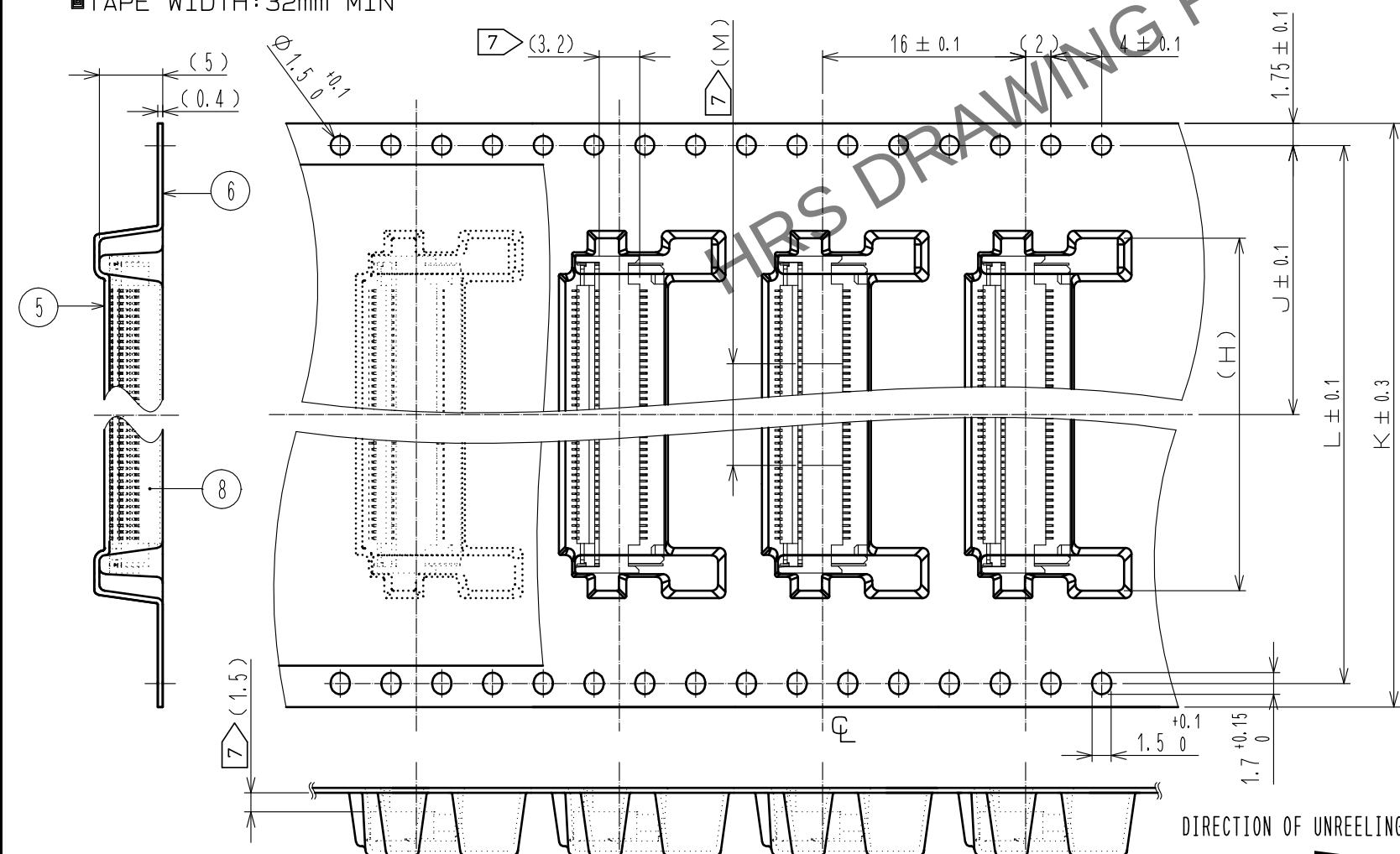
## EMBOSED CARRIER TAPE DIMENSION (2:1)

## REEL DIMENSION (FREE)

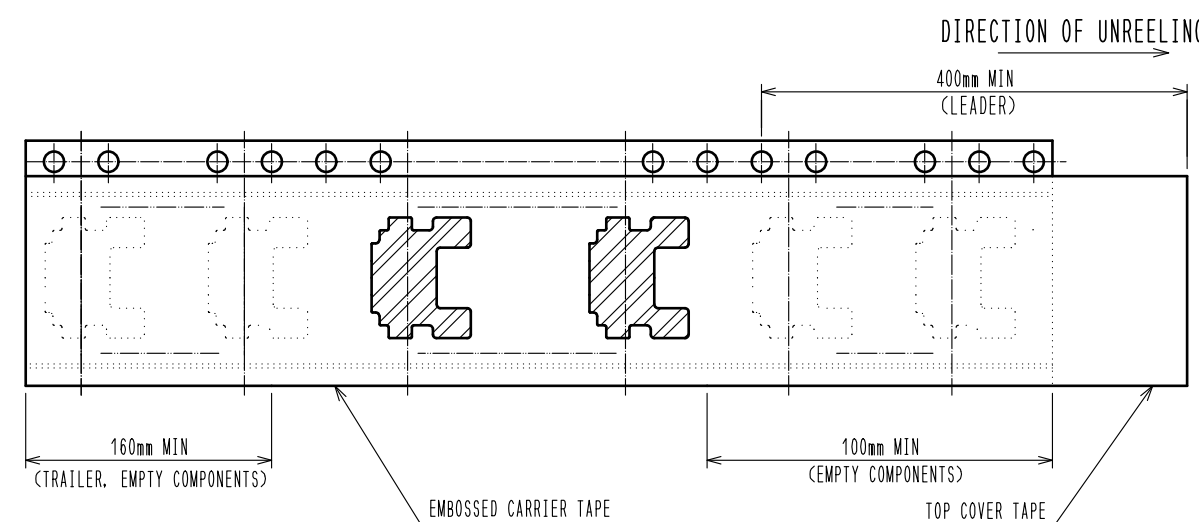
■ TAPE WIDTH: 24mm MAX



■ TAPE WIDTH: 32mm MIN



## LEADER, TRAILER DIMENSION (FREE)



- NOTES
- 7 The indicated dimension indicates the pick-up area or pick-up position for automatic mounting.
  - 8. 1 reel : 1000 connectors.
  - 9. Refer to JIS C 0806 and IEC 60286-3.  
(Packaging of components for automatic mounting.)

## <PACKING SPECIFICATION>

|     |             |                  |
|-----|-------------|------------------|
| HRS | DRAWING NO. | EDC-392112-00-00 |
|     | PART NO.    | FH69-**-S-0.5SH  |
|     | CODE NO.    | CL580            |
|     |             | 2/3              |

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| PART NUMBER    | CODE NUMBER     | NUMBER OF CONTACT | DIMENSION OF CONNECTOR, PCB MOUNTING PATTERN, AND FFC/FPC |      |      |       |       |       |      |       | DIMENSION OF DRAWING FOR PACKING |    |      |     |      |      |
|----------------|-----------------|-------------------|-----------------------------------------------------------|------|------|-------|-------|-------|------|-------|----------------------------------|----|------|-----|------|------|
|                |                 |                   | A                                                         | B    | C    | D     | E     | F     | G    | H     | J                                | K  | L    | M   | N    | P    |
| FH69-10S-0.5SH | CL580-5003-0-00 | 10                | 9.98                                                      | 8.7  | 4.5  | 5.57  | 8.73  | 7.15  | 5.5  | 12.66 | 11.5                             | 24 | -    | 5.0 | 29.4 | 25.4 |
| FH69-20S-0.5SH | —————           | 20                | 14.98                                                     | 13.7 | 9.5  | 10.57 | 13.73 | 12.15 | 10.5 | 17.66 | 14.2                             | 32 | 28.4 | 8.0 | 37.4 | 33.4 |
| FH69-30S-0.5SH | CL580-5004-0-00 | 30                | 19.98                                                     | 18.7 | 14.5 | 15.57 | 18.73 | 17.15 | 15.5 | 22.66 | 20.2                             | 44 | 40.4 | 8.0 | 49.4 | 45.4 |
| FH69-40S-0.5SH | CL580-5006-0-00 | 40                | 24.98                                                     | 23.7 | 19.5 | 20.57 | 23.73 | 22.15 | 20.5 | 27.66 | 20.2                             | 44 | 40.4 | 8.0 | 49.4 | 45.4 |
| FH69-50S-0.5SH | CL580-5008-0-00 | 50                | 29.98                                                     | 28.7 | 24.5 | 25.57 | 28.73 | 27.15 | 25.5 | 32.66 | 26.2                             | 56 | 52.4 | 8.0 | 61.4 | 57.4 |
| FH69-60S-0.5SH | CL580-5007-0-00 | 60                | 34.98                                                     | 33.7 | 29.5 | 30.57 | 33.73 | 32.15 | 30.5 | 37.66 | 26.2                             | 56 | 52.4 | 8.0 | 61.4 | 57.4 |

※THE PRODUCTS WITHOUT CODE NUMBER ARE CURRENTLY UNDER PLANNING.  
PLEASE CONTACT HIROSE FOR DETAILED INFORMATION ABOUT PRODUCT VARIATION.

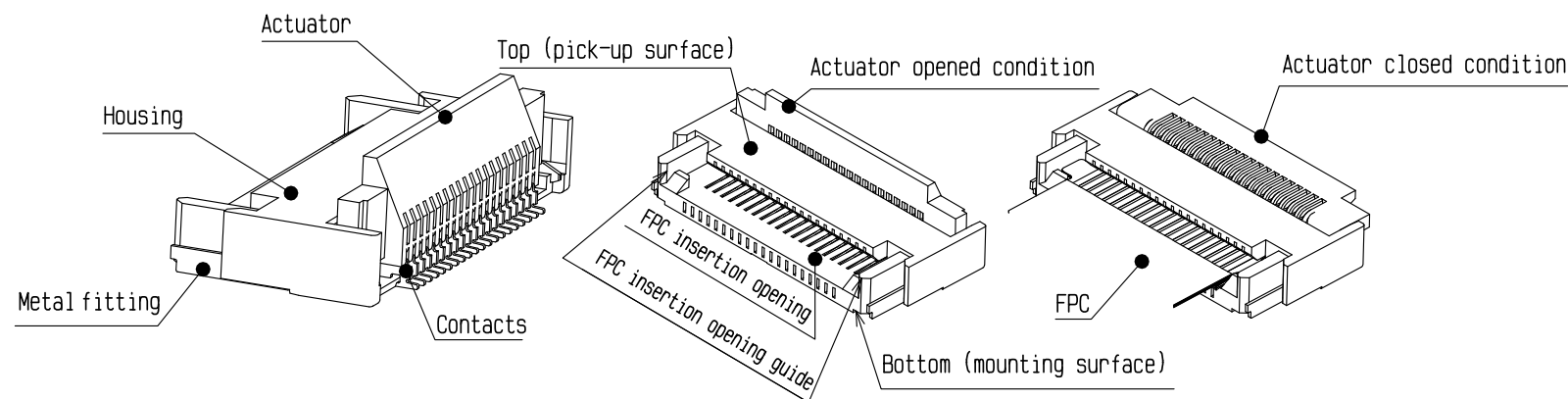
<DIMENSION TABLE>

|     |             |                  |  |  |  |  |  |  |  |  |  |  |  |  |  |                        |                         |
|-----|-------------|------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|------------------------|-------------------------|
| HRS | DRAWING NO. | EDC-392112-00-00 |  |  |  |  |  |  |  |  |  |  |  |  |  |                        |                         |
|     | PART NO.    | FH69-**S-0.5SH   |  |  |  |  |  |  |  |  |  |  |  |  |  |                        |                         |
|     | CODE NO.    | CL580            |  |  |  |  |  |  |  |  |  |  |  |  |  | <div><div></div></div> | <div><div>4</div></div> |

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To prevent connector/FPC breakage and contact failure (mating failure, FPC pattern breakage, etc),  
read through the instructions shown below and handle the connector properly.  
Although this instruction manual is applicable to usage with FPC/FFC.

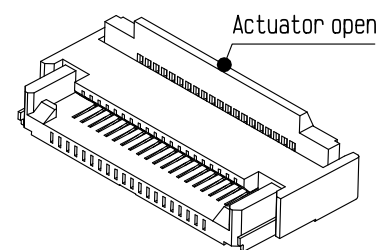
### [Connector Part Nomenclature]



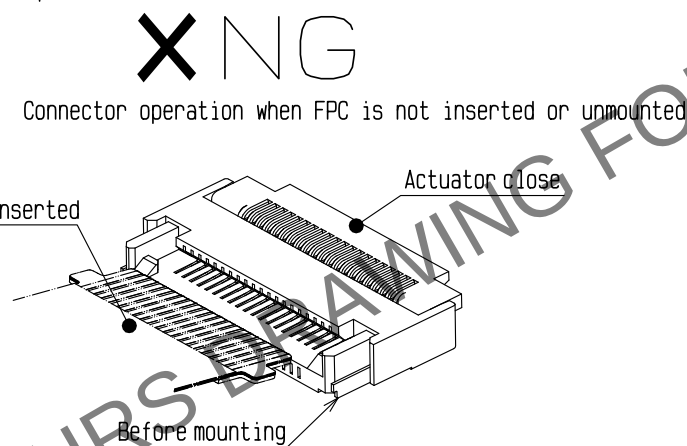
### [Operation and cautions]

#### 1. Initial condition

Actuator does not have to be operated before inserting FPC,  
as the connector is delivered with the actuator opened.



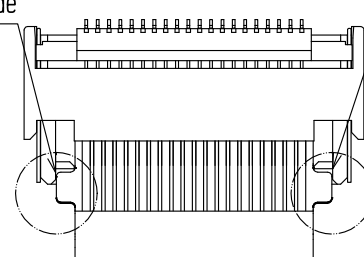
- When delivered -



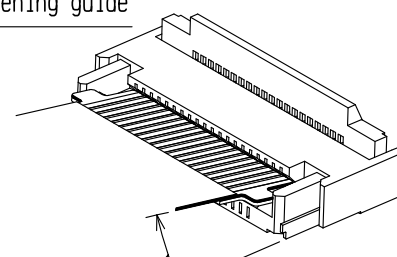
#### 2. How to insert and remove FPC

- When inserting the FPC, insert the FPC at about 10 degree angle to the PCB mounting surface.  
Also, please position both ends of the FPC by insertion opening guide and then insert it straightly.
- When removing the FPC, please pull it out diagonally upward so that the both end tab of FPC  
get over the housing boss.

FPC insertion opening guide



FPC insertion opening guide

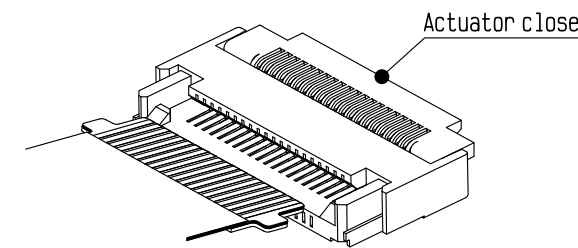


Insertion: 10°

Removal: Angle of the FPC tabs must get over the housing.

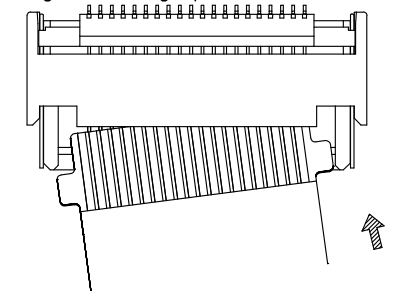
✗ NG

Insertion and removal with actuator close



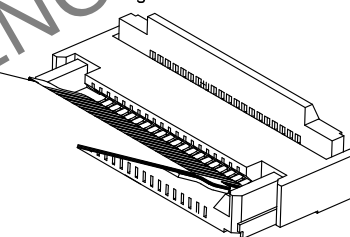
✗ NG

Insertion and removal  
during wrenching up, down, left and right.



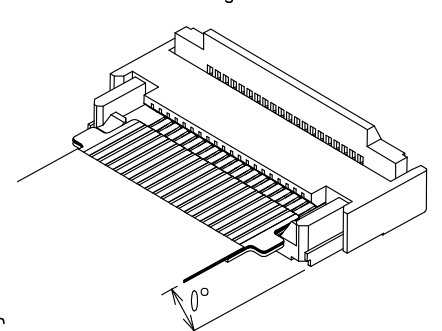
✗ NG

Insertion and removal  
excessive angles from PCB surface



✗ NG

Insertion and removal  
horizontal angle from PCB surface

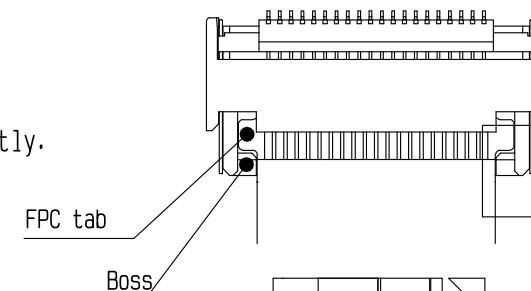


#### 3. FPC insertion check and mating confirmation of the FPC

Guide for positioning FPC guide the FPC tabs to the correct position.  
Make sure that the FPC tabs are located in correct position  
as shown in the figure below after FPC insertion and mating.

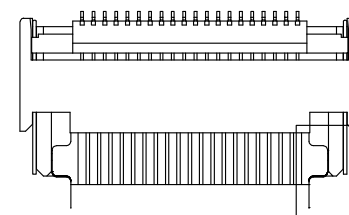
○ OK

FPC(Proper position)



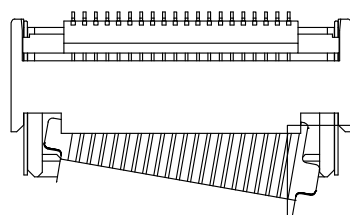
✗ NG

FPC(shallow Position)



✗ NG

FPC(Slanted)



FPC tab

Boss

FPC tab

Boss

FPC tab rides on boss

<INSTRUCTION MANUAL (1)>

HRS

|             |                  |
|-------------|------------------|
| DRAWING NO. | EDC-392112-00-00 |
| PART NO.    | FH69-**S-0.5SH   |
| CODE NO.    | CL580            |

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#### 4. How to lock and unlock

The actuator rotates around the rotational axis.

Lock : Apply load to rotate the actuator by 90 degree after inserting the FPC.

Unlock : Slowly flip up the Actuator lock

How to lock

OK

90°

Rotation axis

How to unlock

Rotation axis

OK

Operate the center of the actuator

Operate near both-ends of the actuator at the same timing moment.  
(Around 3 PIN from the end)

NG

Operate at one end of the actuator

NG

Force from reverse direction to actuator.

NG

Push horizontally to lock

NG

Push vertical to lock

NG

Pick the actuator to lift

NG

Operate with a sharp tool

NG

Operation to push the actuator into connector

NG

Excessive force to housing

NG

Operation from FPC insertion opening side

<INSTRUCTION MANUAL (2)>

HRS

|             |                  |
|-------------|------------------|
| DRAWING NO. | EDC-392112-00-00 |
| PART NO.    | FH69-**S-0.5SH   |
| CODE NO.    | CL580            |

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## [Instructions for PCB layout]

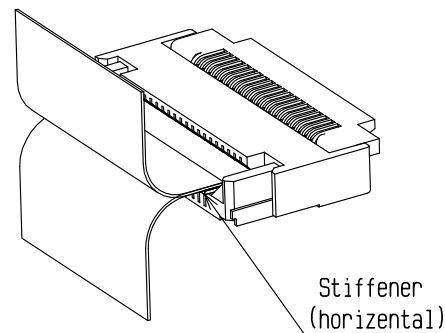
Please design a PCB layout not to apply load to connector and FPC.

### [Cautions]

- If the FPC has to be curled/bended in your cabling design, please keep enough degree of freedom in your design to keep the FPC tension free. In this regard, the stiffener is parallel to the PCB.
- Do not mount other components underneath the FPC stiffener which may interfere with the connection.
- Please consult with the FPC manufacturer about FPC bending performance and wire breakage strength while making design.
- Keep enough space for the rotation of the actuator during PCB and component layout design.
- Please consult with our sales representative if you are using FPC with different configuration from our recommendation.

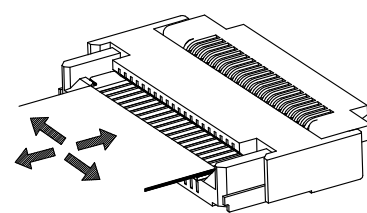
OK

No load applied to stiffener



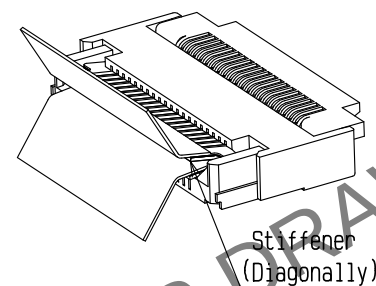
NG

Load applied to FPC



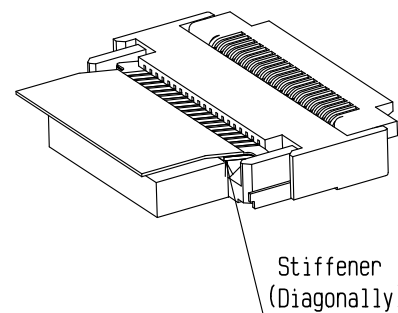
NG

Load applied to stiffener



NG

Housing or parts interfering with the FPC



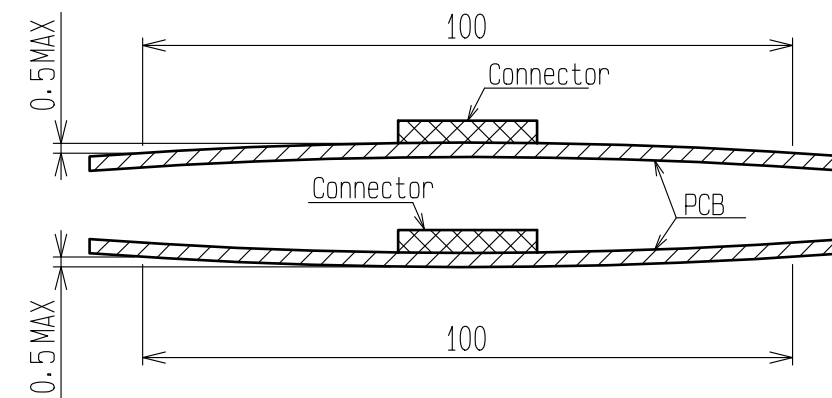
## [Instructions for mounting on the PCB]

- Refer to recommended layouts for PCB, stencil pattern and FPC dimension. Please inspect the size of solder fillet and flux climbing height of the mounted connector while using different land/stencil pattern from our recommendation.
- Please verify your solder resist/silk screening design carefully before implementing the design.
- Apply reflow temperature profile within the specified conditions. For specific applications, the recommended temperature may vary depending on type/volume/thickness of solder paste and size/thickness of PCB. Please consult with your solder paste and equipment manufacturer for specific recommendations.
- Please try to minimize the warpage of the PCB. Soldering failure could still occur due to the PCB warpage even if the coplanarity of the connector is under 0.1mm.
- If the connector is mounting on FPC, please make sure to put a stiffener on the backside of the FPC. Recommended stiffener: Glass epoxy material with thickness of 0.3mm MIN.
- Do not apply 0.5N or greater external force on the connector when unreeling or handling the connector before mounting. Excessive mechanical stress may damage the connector before mounting.

## [Instructions for PCB handling after mounting the connector]

The warpage of PCB may apply excessive stress on the connector and damage the connector.

- Splitting a large PCB into several pieces
  - Installing mounting screw on PCB
- During the assembly processes deccribed above, care shall be taken so as not to give any stresses of deflection or twisting to the PCB.
- The warpage of a 100mm wide PCB should remain within 0.5mm.



## [Instructions of hand soldering]

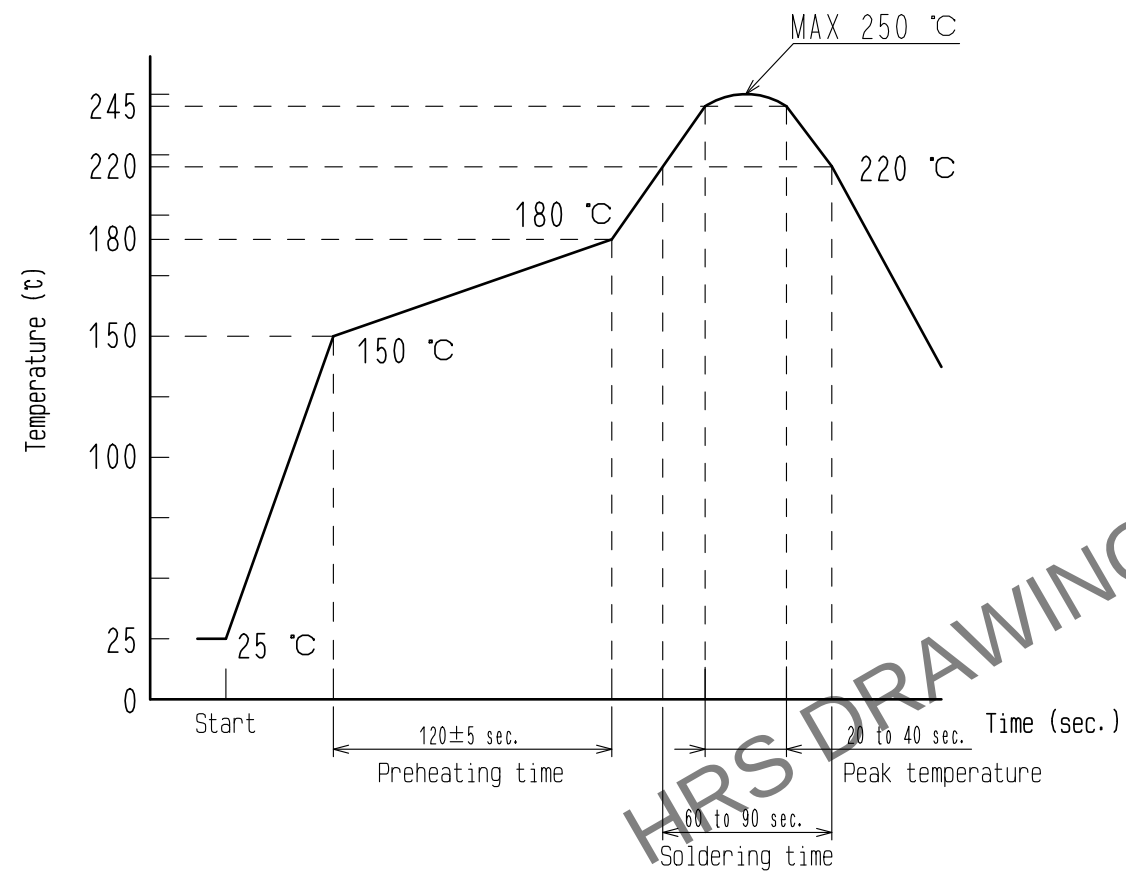
- Do not perform hand soldering with the FPC inserted into the connector.
- Do not apply excessive heat. And soldering iron must not touch connector except terminal leads area.
- Do not supply excessive solder (flux).

<INSTRUCTION MANUAL (3)>

[Recommended reflow temperature profile]

The temperatures mentioned above refer to the PCB surface temperature near the connector leads.  
For specific applications, the recommended temperature may vary depending on type/volume/thickness of solder paste and size/thickness of PCB.  
Please consult with your solder paste and equipment manufacturer for specific recommendations.

- Reflow method:IR reflow
- Number of reflow cycles:2 cycles MAX.



<INSTRUCTION MANUAL (4)>

**HRS**

|             |                  |
|-------------|------------------|
| DRAWING NO. | EDC-392112-00-00 |
| PART NO.    | FH69-**S-0.5SH   |
| CODE NO.    | CL580            |