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Title subject:	FHA Connector (Gold-Plated, Halogen-Free)	Revision date: May 2, 2024	

This manual describes important and required points of handling about the FHA connector (gold-plated, halogen-free)

Be sure to read this manual thoroughly before using the FHA connector.

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1. Structure and Name

1-1 Each part name

Each part name of the connector is shown below.

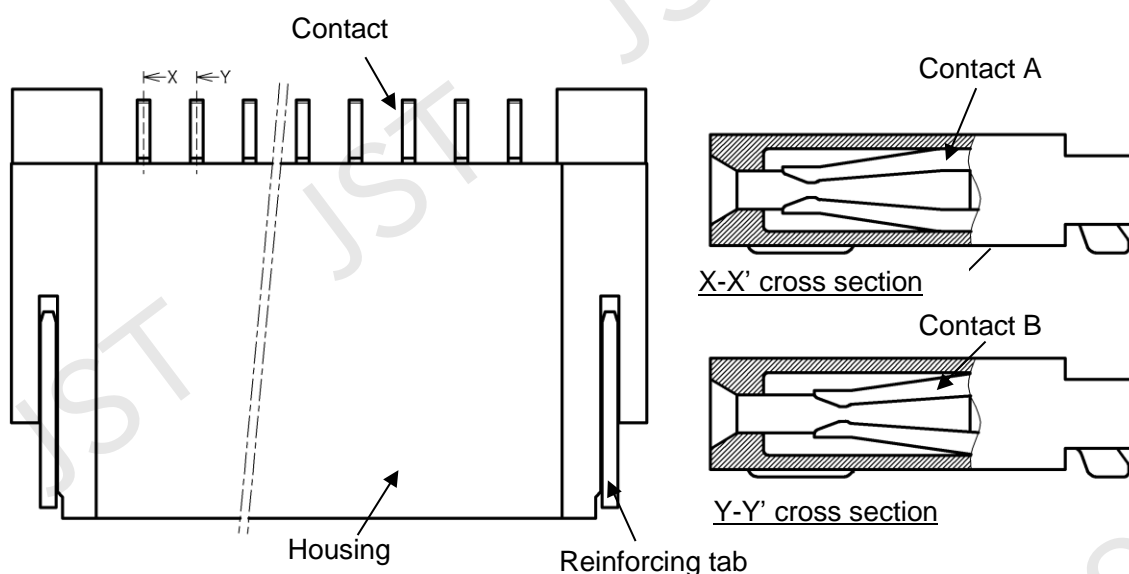


Fig.1: Each part name (connector)

1-2 Model number

Part name	Model number
FHA connector (Taping)	* FHA-SM1-GAN-ETB(HF)
FHA connector (loose piece)	* FHA-SM1-GAN(HF)

Note₁: Figures in an asterisk denote the circuit number.

2. Storage

2-1 Storing the connectors

Recommended storage condition: Temperature: 5 – 35 °C, Relative humidity 60 % or less
(Under packaging like the state of JST shipment)

Keep off direct sunlight, places exposing to such corrosive gas as industrial gas (generate from a stove and whatnot) and ammonia gas (generate from a toilet and whatnot) and dusty place.

Note that the resin molding part may break due to transportation and handling, such as processing and mating, under dry or low temperature condition.

Recommended storage period: Within 6 months after the delivery

2-2 Storing the processed products

Not leaving the crimped contact to stand in a place exposed to high humidity and direct sunshine, and not placing them directly on the ground. Keep them in a clean storage room.

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3. Applicable FPC

- ① The dimensions of FPC greatly affect the contacting reliability with the connector.
Conform the dimensions of FPC with those of applicable ones described in the drawing attached to the specification.
- ② Especially, narrow pitch connectors have a high possibility to come off of the contact point due to warpage, deformation, slant insertion, insufficient insertion and so on of FPC.
In order to reduce these risks, manage that the important dimensions such as conductor width, length, pitch, FPC total width, position misalignment between conductor and FPC width shall meet the given tolerances, considering the variations of those dimensions.
- ③ Confirm the applicability of the connector with the FPC used, before using.
FPC, which applicability is not confirmed, might not be able to guarantee the performance.
- ④ The blanking shall be conducted from the conductor side to the reinforcing plate side.
When using FPC, the material of the reinforcing plate should be polyimide and that of the adhesive should be thermosetting.
- ⑤ Do not use FPCs with a different kind of metal plating from the connector to be mated.

Item	Rated value
Applicable FPC (KRD-31874-4)	Lead: Gold-plated copper foil
	Lead pitch: 0.5 mm
	Lead width: 0.35 mm
	Mating part thickness: 0.3 ± 0.05 mm

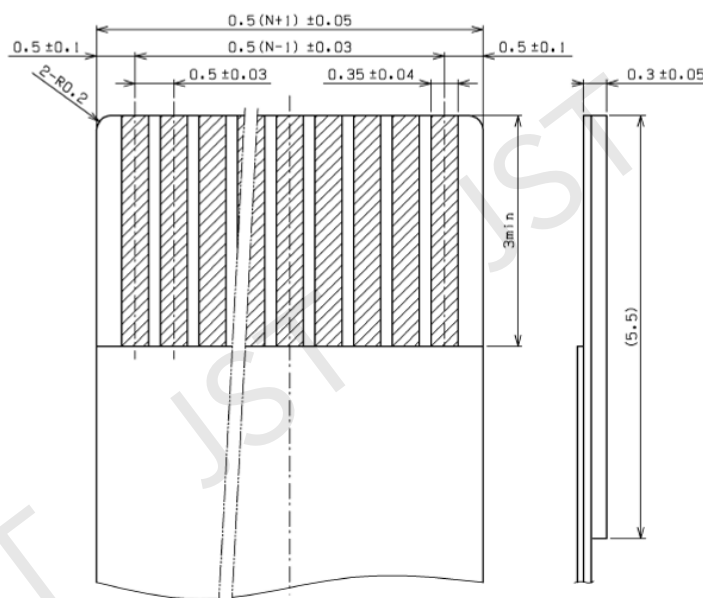
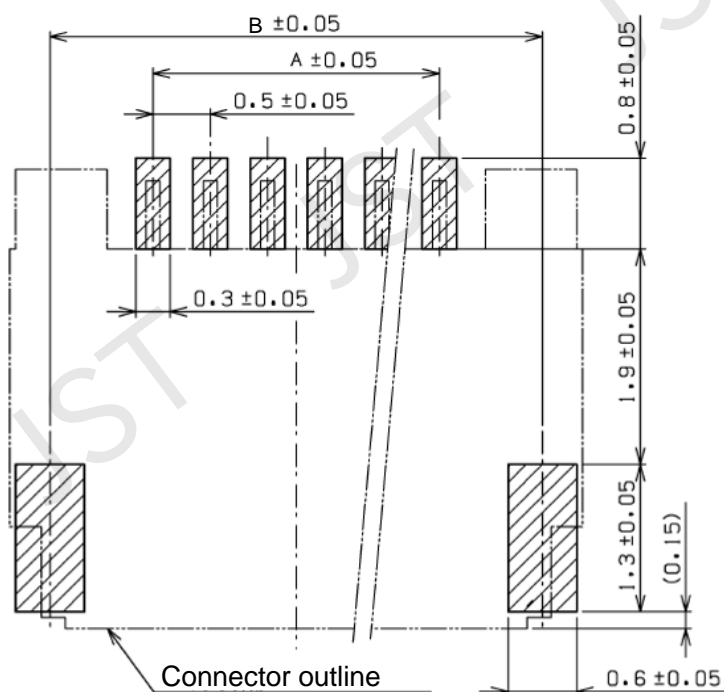


Fig.2: Applicable FPC

4. PC Board Pattern Layout

We recommend the use of the following PC board pattern layout (viewed from the connector mounting side).



UNIT: mm

A	$0.5 \times (N - 1)$
B	$1.8 + 0.5(N - 1)$

N= Circuit No.

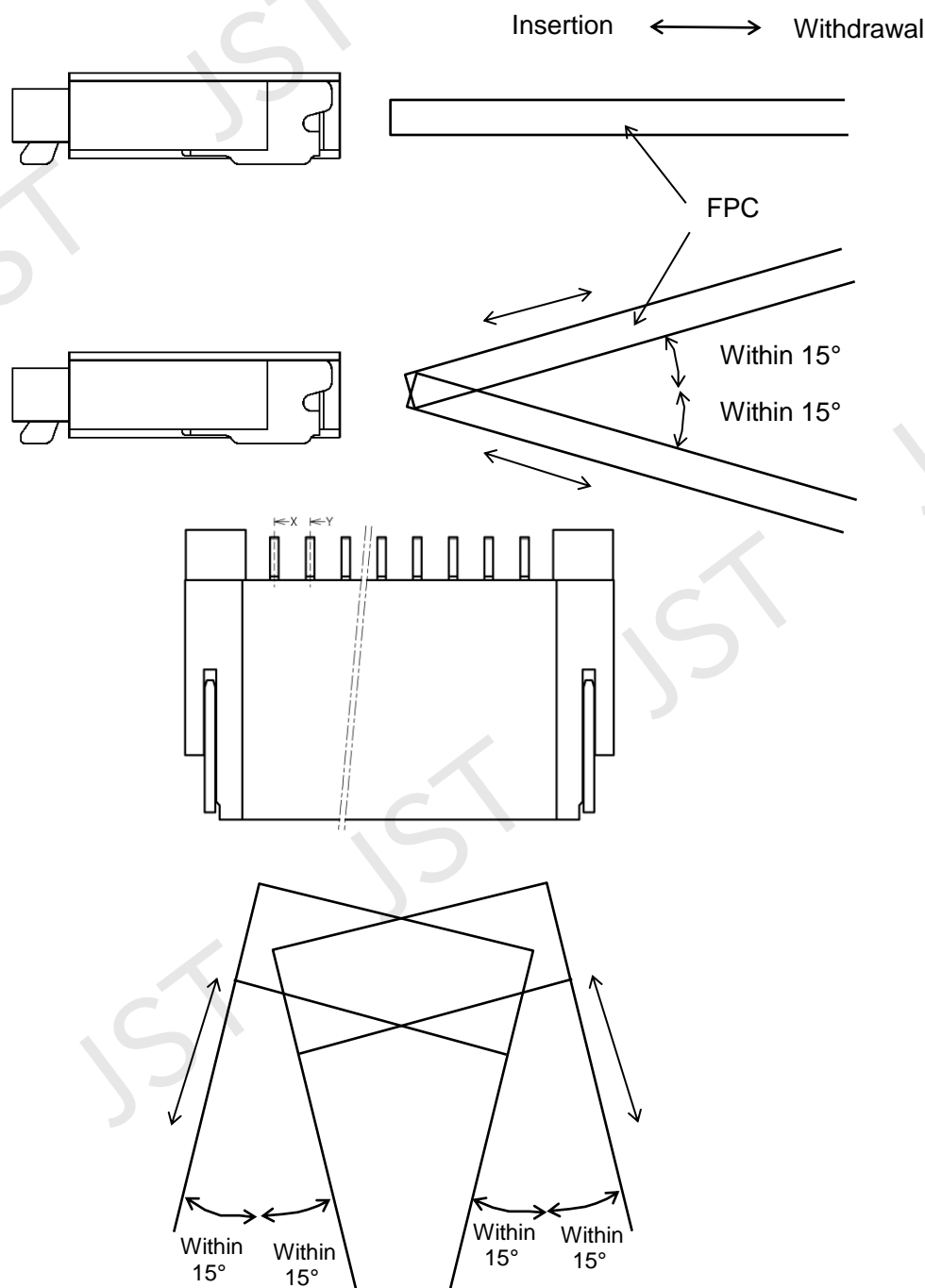
Fig.3: PC board pattern layout

5. Handling Precautions

5-1 Inserting and withdrawing FPC

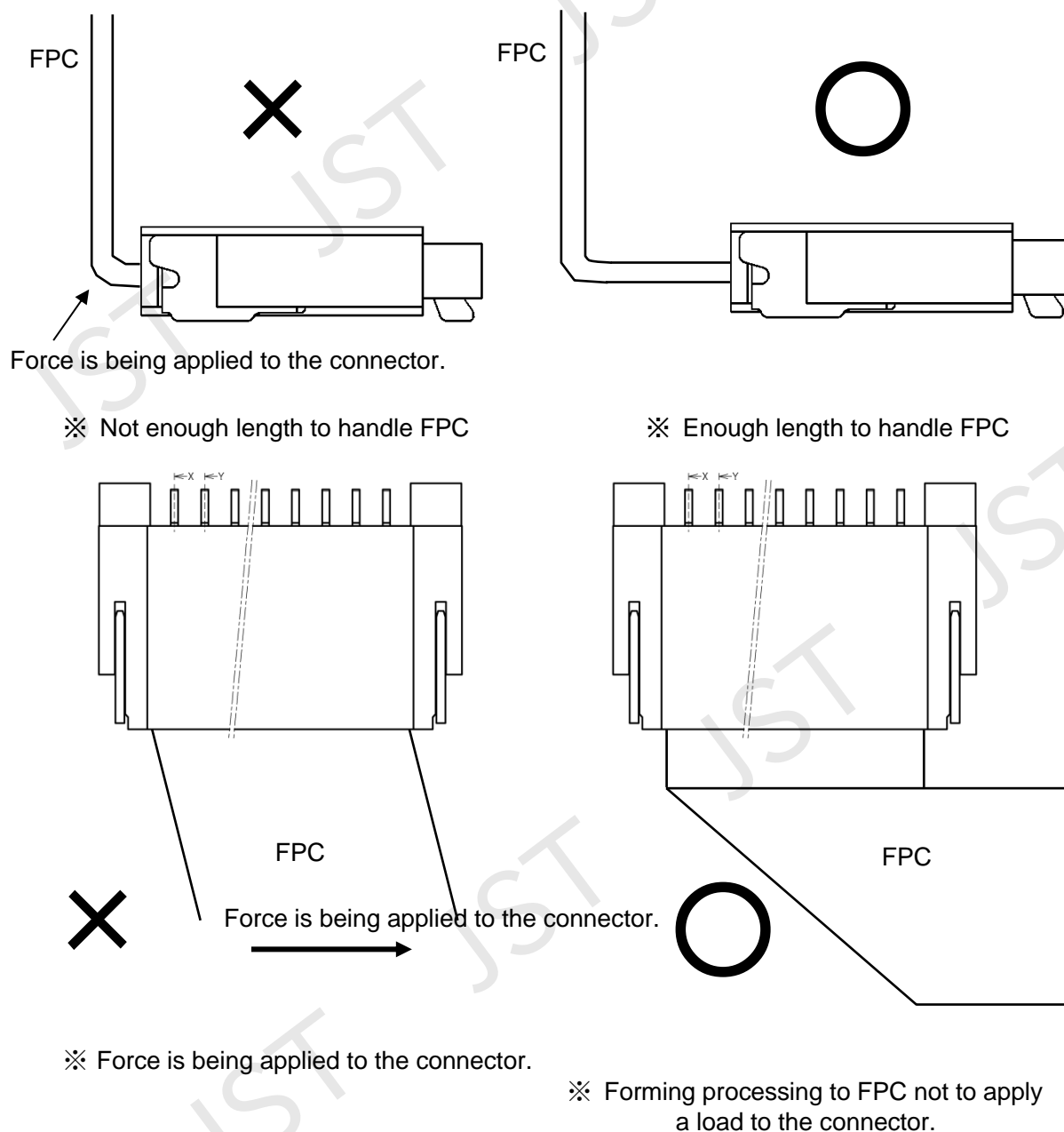
Do the inserting and extracting operations of a FPC with FHA connector on the same axis to avoid applying a load to the connector. When the operation on the same axis is difficult, conduct the operation quickly within 15-degree range in each direction as described below.

(Because failure to do so may result in connector breakage or electrical discontinuity.)



5-2 Handling of FPC after mounting on PC board

When handling the FPC inserted, ensure that it has sufficient length to avoid applying a load to the FHA connector. (Because failure to do so may result in connector breakage or electrical discontinuity)



When using the connector in areas where the FPC inserted in the connector moves due to the rotating axis of devices or along with the operation of the moveable part, consider taking a countermeasure such as fixing the FPC near the joint part, as poor contact may occur due to fretting corrosion.

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5-3 Precautions for Soldering Operation

5-3-1 Solder iron method

Solder the connector mounted on a PC board by a soldering iron of 350°C quickly (within 3 sec.) and check the appearance visually.

When soldering, do not push the iron tip on the connector contact lead part nor apply an abnormal force such as lateral load. If done, dismount and replace the connector with the new one, and redo soldering.

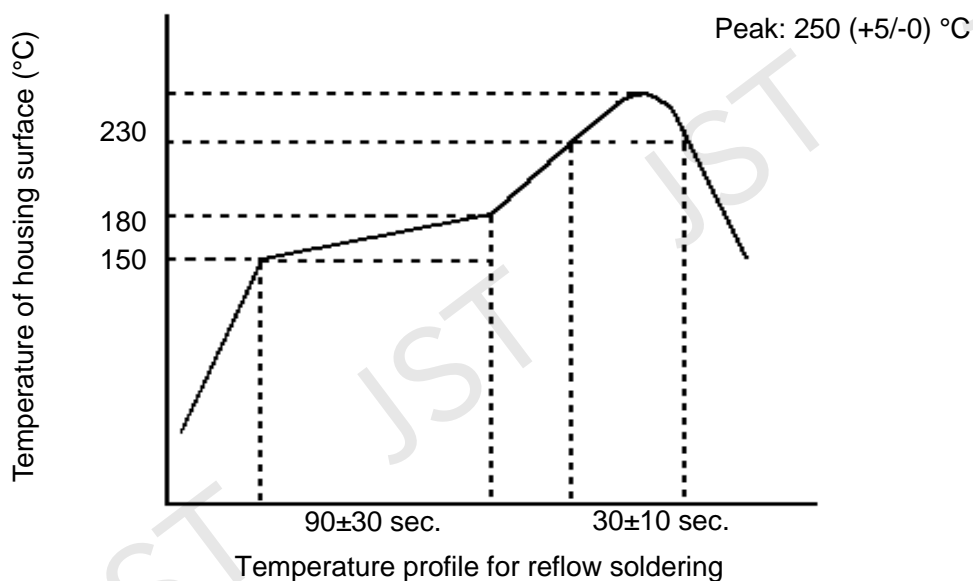
Do not reuse the dismounted connector.

5-3-2 Reflow soldering method

We recommend reflow soldering at a lower temperature than the temperature profile shown below. As the recommended reflow temperature condition varies depending on the materials, such as solder paste, solder the connector according to the condition of the material.

We recommend using some 100 – 120 μm-thick metal mask which the blanking part has the area same as PC board pad area. In case that the metal mask thickness is more than 120 μm, adjust the amount (area) of soldering coat by making the opening area smaller than the PC board pad area.

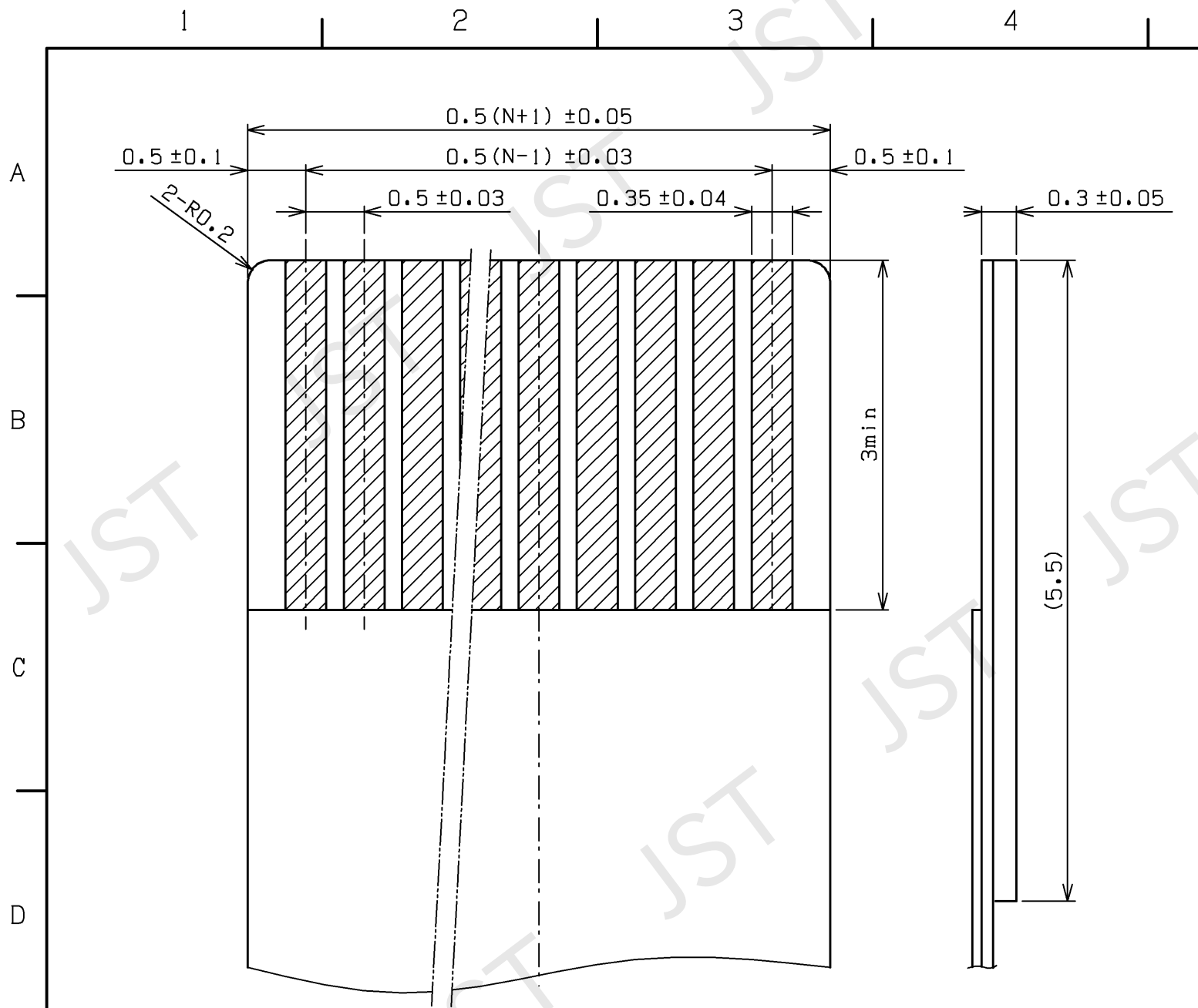
When bridge troubles appear in process of reflow soldering and repair is conducted by hand, strictly conduct item 5-3-1 "Solder iron method."



5-4 Others

- Do not stain the connector with household goods, such as seasoning, detergent, and fruit juice, because such a stain may cause electrical discontinuity, corrosion, and the like. If stained, never use the stained contact.
- Never spray fumy insecticide in the place where the connectors are stored.

THIS DRAWING CONTAINS INFORMATION THAT IS PROPRIETARY TO J.S.T. AND SHALL NOT BE USED OR ADAPTED, COPIED, OR PUBLISHED WITHOUT WRITTEN PERMISSION. IN THE EVENT THAT THERE ARISE ANY DOUBTS OR CONTROVERSIES BETWEEN JAPANESE AND ENGLISH EXPRESSION, THE JAPANESE TEXT SHALL PREVAIL.



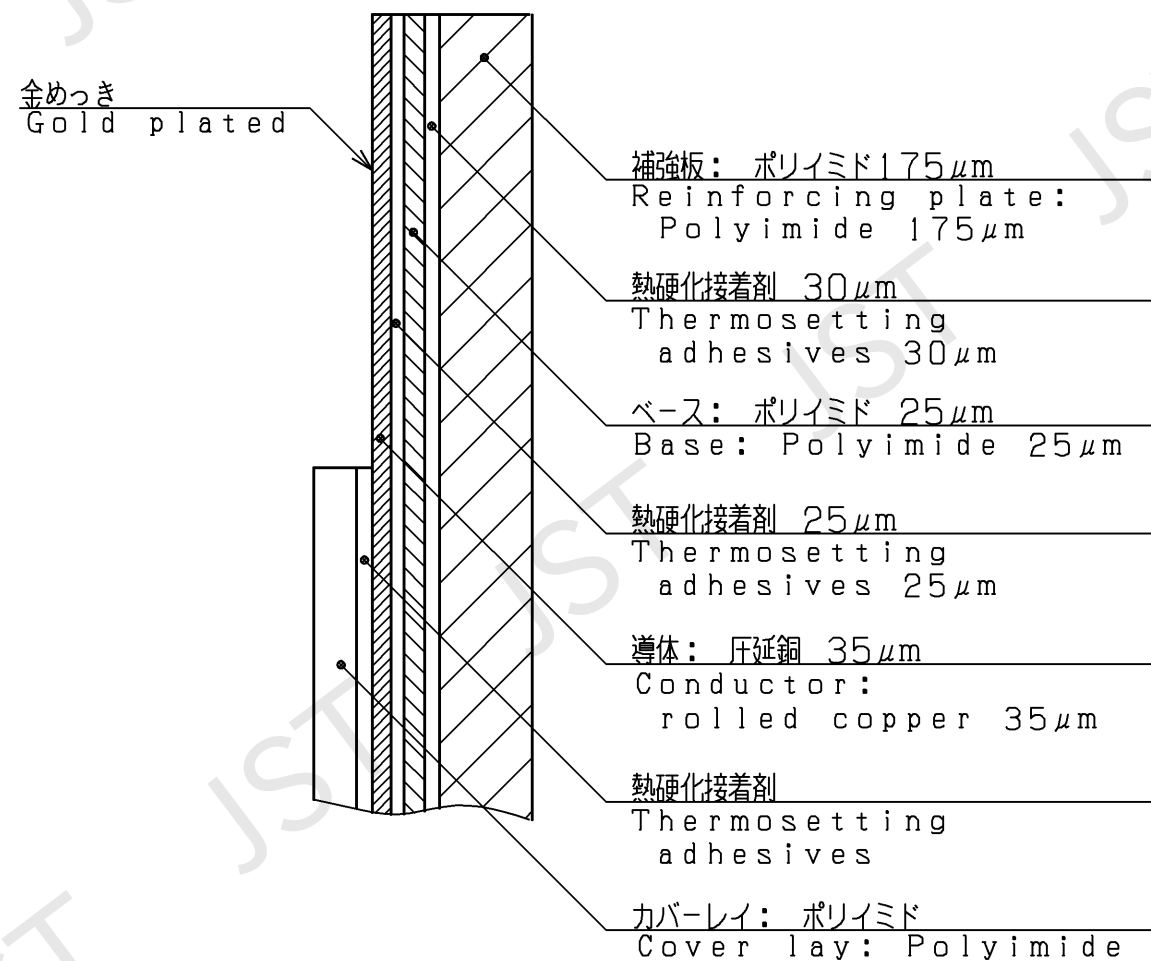
NOTE

- 1) Nは極数を示す。
- 2) めっき: 金めっき
めっき方法は電解めっきの事
- 3) FPC適合性確認のこと
- 4) 打ち抜き方向は、導体側から補強板側とする。
- 5) FPC部材構成は参考例です。
嵌合部厚は、本部材構成を参考に
0.30±0.05mmにて製作願います。
部材構成の詳細はFPCメーカーにお問合せください。

NOTE

- 1) N: Number of circuit.
- 2) Plating: Gold plated
The plating method is the thing
of electrolysis plating
- 3) Confirm an applicability of FPC
with connector.
- 4) Blanking shall be conducted in
the direction from conductor side
to reinforcing plate side.
- 5) This is a reference FPC construction
Make the thickness of the FPC mated
portion 0.30±0.05mm in reference to
the FPC construction.
Contact FPC maker for details
on component construction.

FPC部材構成<参考>
FPC construction <Reference>
(NOTE5)



品番 No.		部品名 PART NAME		材質 MATERIAL		処理 SURFACE FINISH		備考 REMARKS	
サイズ SIZE		単位 UNIT		投影法 PROJECTION		作図年月日 DATE		納入先 CUSTOMER	
A3		METRIC		第1角法 1st Angle		MAR.8.2024		品名 SERIES NAME	
						尺度 SCALE		形番 PART No.	
						図番 DRAWING No.		R0	
						FREE		FHAネクタ用0.5mmピッチ適合FPC (金めっき) Applicable FPC for 0.5mm pitch FHA connector (Gold plated)	
						JST 日本圧着端子製造株式会社 J.S.T. MFG.CO.,LTD.		KRD-31874-4	