



Title of Document:	HANDLING MANUAL	Issue No. CHM-1-2536	Rev. 2
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This manual describes important and required points of handling about the FHT connector (embossed-taping product.)

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

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1. Model Number and Part Name

1-1 Model number

Product name (connector name)	Lead arrangement	Model No.
FHT connector (Taping products)	SMR type	*FHT-SMR-GAN-TF (HF)
	SM1 type	*FHT-SM1-GAN-TF (HF)
FHT connector (Loose piece products)	SMR type	*FHT-SMR-GAN (HF)
	SM1 type	*FHT-SM1-GAN (HF)

Note₁: 2-digit figures in an asterisk denote the circuit number.

Note₂: "(HF)" denotes that the connector is lead-free and halogen-free.

e.g.) 20FHT-SMR-GAN-TF (HF):
20-circuit FHT connector embossed-taping product

Note₃: FHT connector is supplied on embossed-tape (3,000 pcs./reel).

Note₄: The model number of the product label has the identification mark "(S)" at the end.

1-2 Part name

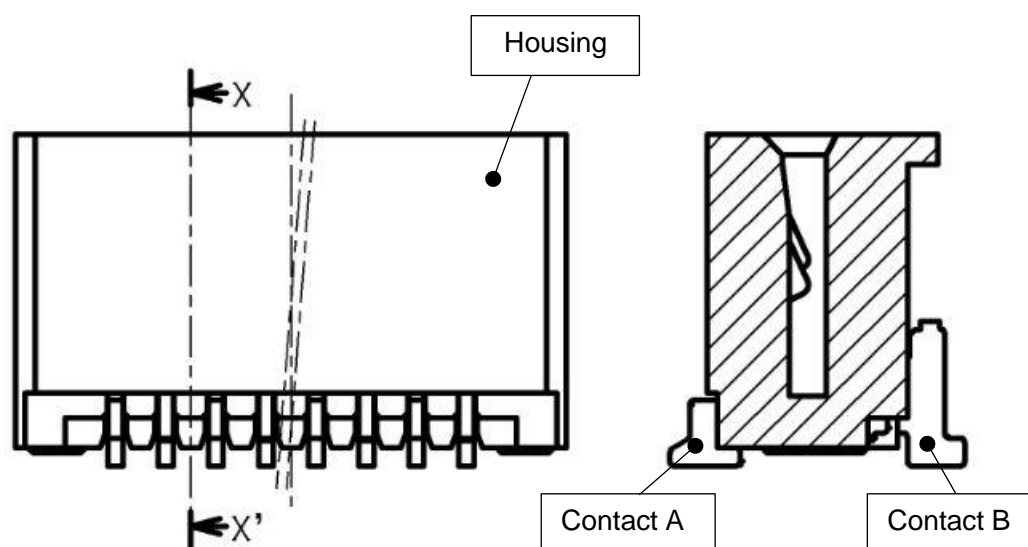


Fig.1: Each part name (Connector)

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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.

After unpacking, return the products in the original package to store.

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.

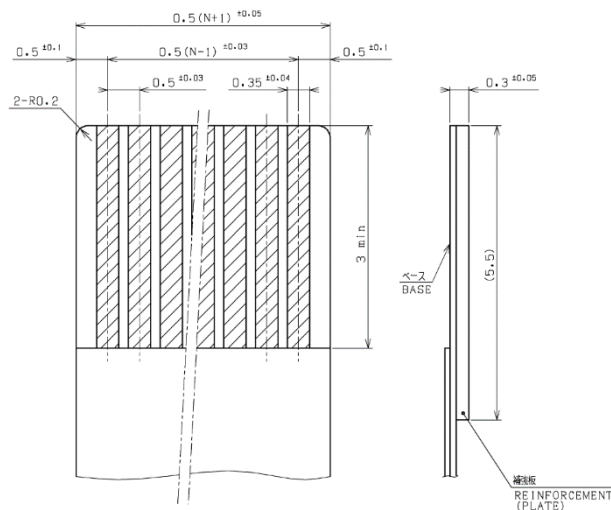
3. Applicable FFC/FPC

- ① The dimensions of FFC/FPC greatly affect the contacting reliability with the connector.
Conform the dimensions of FFC/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 FFC/FPC.
In order to reduce these risks, manage that the important dimensions such as conductor width, length, pitch, FFC/FPC total width, position misalignment between conductor and FFC/FPC width shall meet the given tolerances, considering the variations of those dimensions.
- ③ Confirm the applicability of the connector with the FFC/FPC used, before using.
FFC/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 FFC/FPC, the material of the reinforcing plate should be polyimide and that of the adhesive should be thermosetting.
- ⑤ The material of the reinforcing plate should be polyimide.
- ⑥ Do not use FFCs/FPCs with a different kind of metal plating from the connector to be mated.

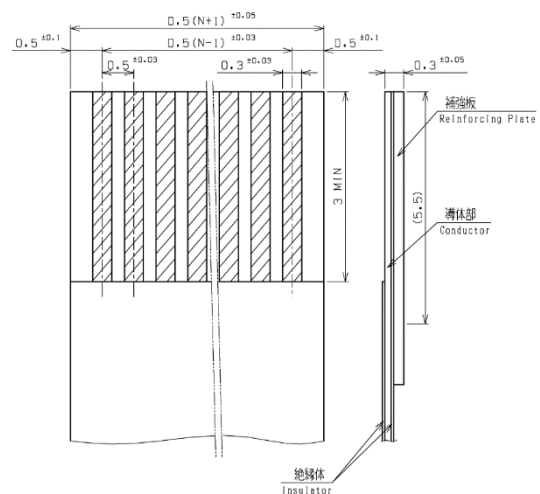
Item	Rated value	
Applicable FFC (KRD-51992)	Lead:	Gold-plated copper foil
	Lead pitch:	0.5 ± 0.03 mm
	Lead width:	0.30 ± 0.03 mm
	Mating part thickness:	0.3 ± 0.05 mm
Applicable FPC (KRD-54583)	Lead:	Gold-plated copper foil
	Lead pitch:	0.5 ± 0.03 mm
	Lead width:	0.35 ± 0.04 mm
	Mating part thickness:	0.3 ± 0.05 mm

The following figures show the reference FFC and FPC.

Refer to the above-mentioned drawings attached to the specification for the details.



Applicable FFC

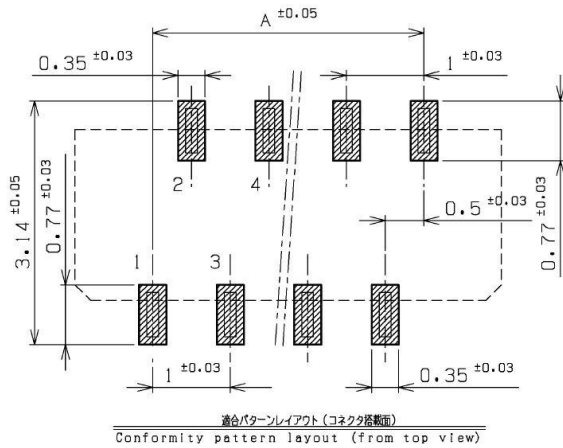


Applicable FPC

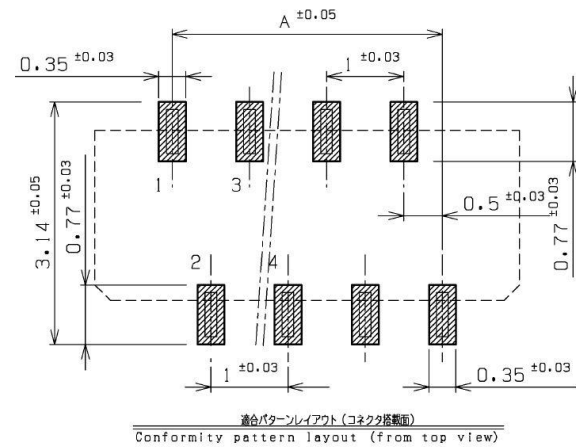
Fig.2: Recommended dimensions of FFC and FPC

4. PC Board Pattern Layout

The following PC board pattern layout is recommended.
Recommended coating thickness of solder: 100 ~ 120 μ m



SMR type



SM1 type

Fig.3: PC board pattern layout

A	$0.5 \times (N - 1)$
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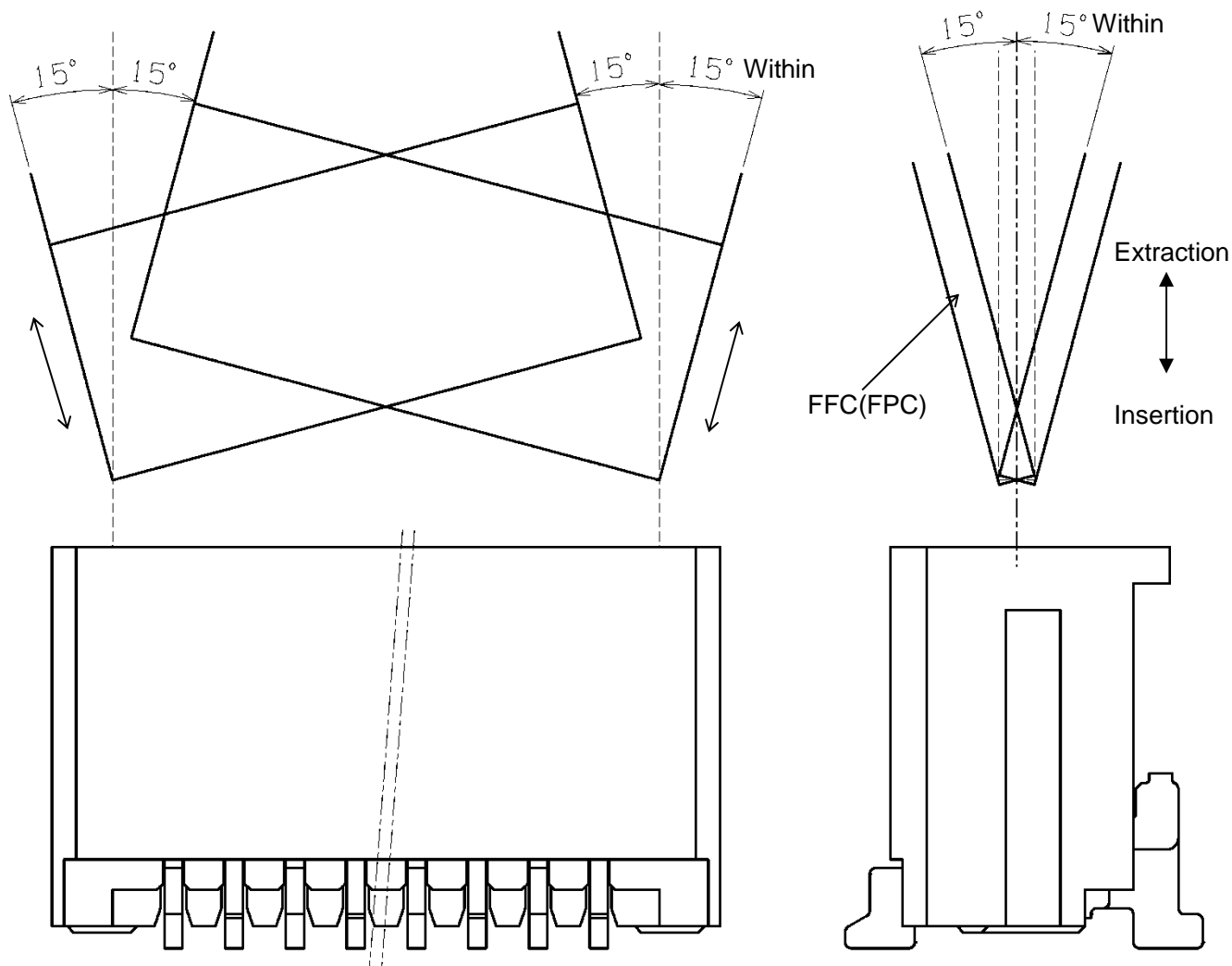
N = Circuits

5. Handling Precautions

5-1 Inserting and extracting FFC (FPC)

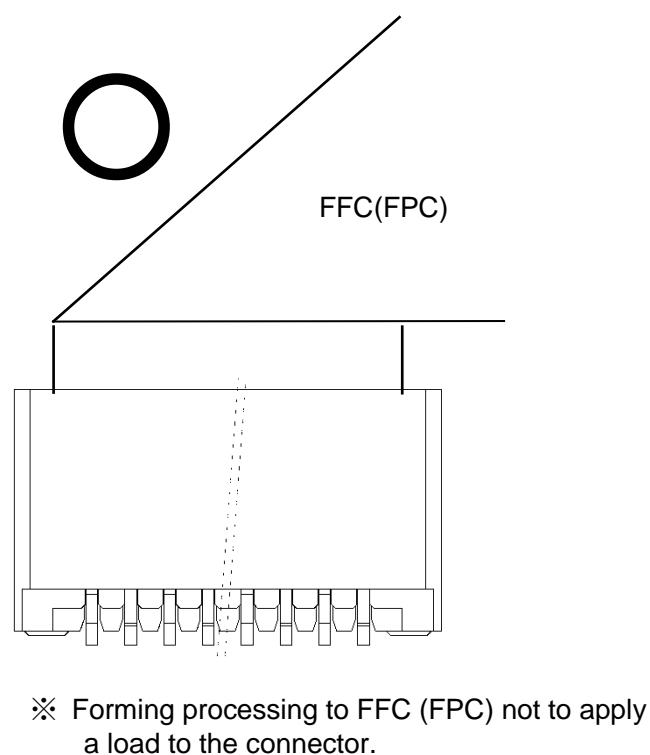
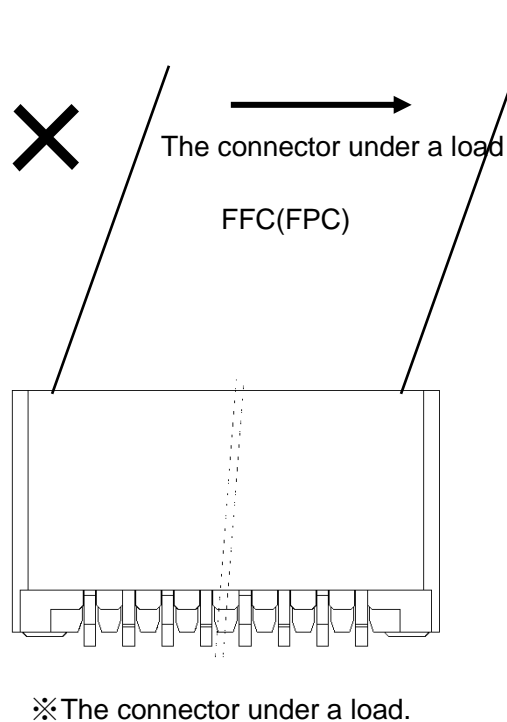
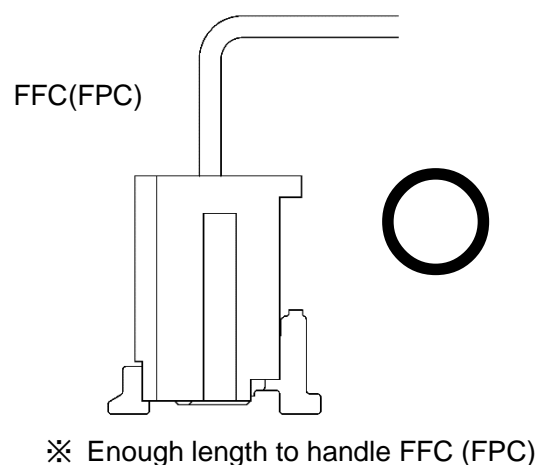
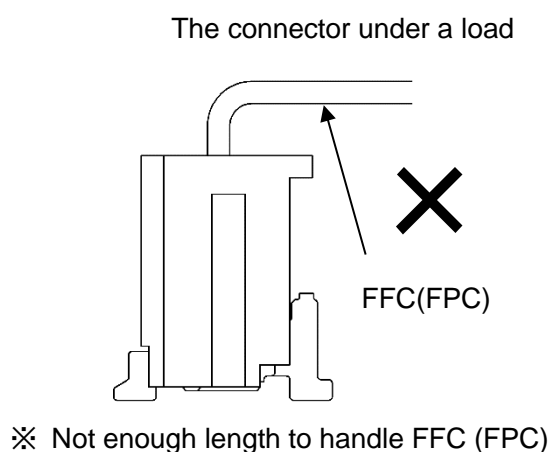
Do the inserting and extracting operations of FFC (FPC) with FHT connector on the same axis not to apply a load to the connector. When the operation on the same axis is difficult, conduct the operation quickly within 15 degrees to each direction as below.

(Because the connector may be broken or electrical discontinuity may be caused.)



6. Handling of FFC (FPC) after Mounting on PC Board

When an inserted FFC (FPC) is handled, provide an enough FFC (FPC) length not to apply any loads to the FHT connector. (Because the connector may be broken or electrical discontinuity may be caused.)



When a load is likely to apply to the connecting part between the connector and FFC (FPC) by the movement of the movable part, such as the operation of the rotation part, of an apparatus, poor contact may be caused due to fretting corrosion. So, take such countermeasures as fixing FFC (FPC) around the connecting part.

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7. Precautions for Soldering Operation

7-1 Solder iron method

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

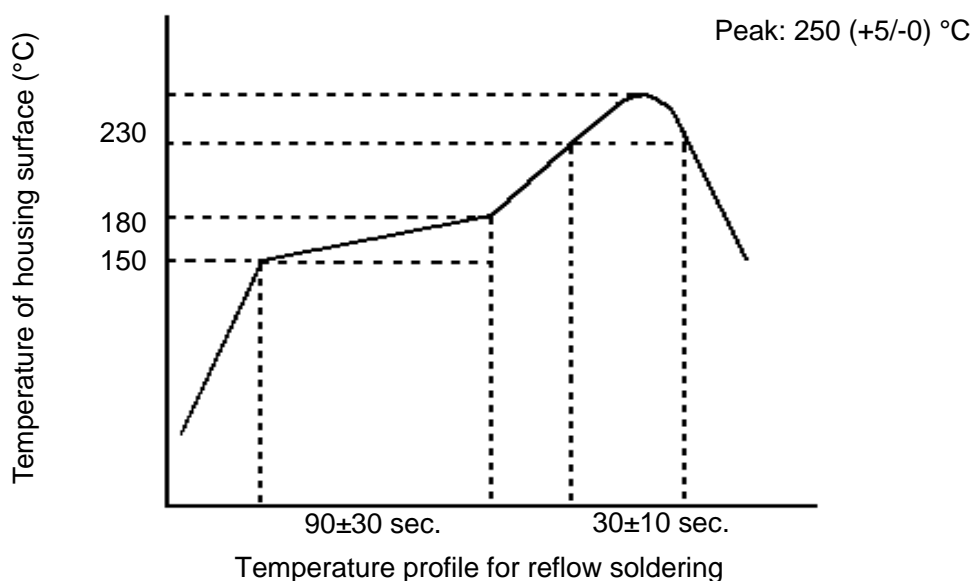
When soldering, do not push the iron tip on the connector contact lead part nor apply an abnormal force such as lateral load. If done, dismount and replace the connector with the new one, and redo soldering. Do not reuse the dismantled connector.

7-2 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 0.10 – 0.12 mm-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 0.12 mm, 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 7-1 "Solder iron method."

8. Notes on Using

Do not contaminate the contact with household goods such as oils, detergent, seasoning, fruit juice and insecticide. If contaminated, do not use.