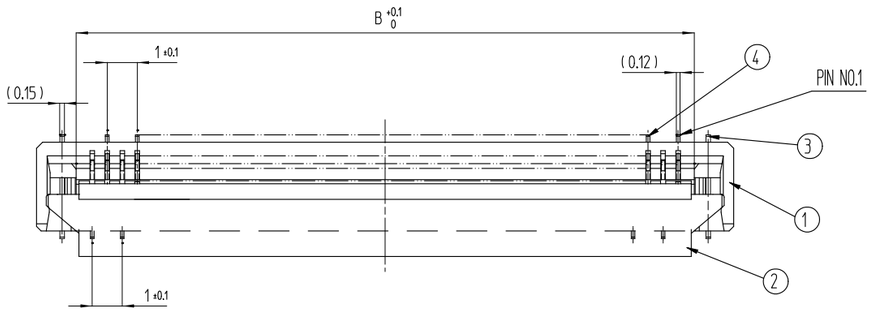
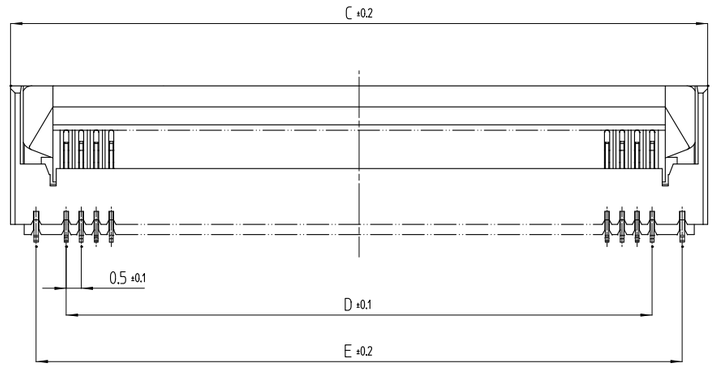
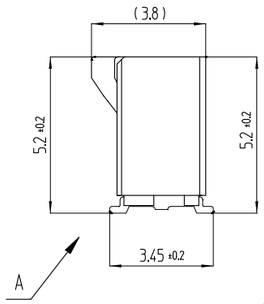
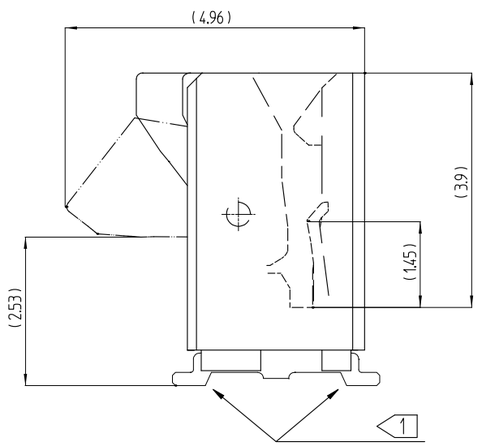
	△ 数 COUNT	訂正事項 DESCRIPTION OF REVISIONS	擔當 B Y	檢圖 CHKD	年月日 DATE
1	–	RE-5-1603	L.S.G	C.D.H	17．03．09
2	–	RE-5-2133	K.G.B	C.D.H	19．03．29
3	1	RE-5-2946	C.Y.H	C.D.H	23．02．01





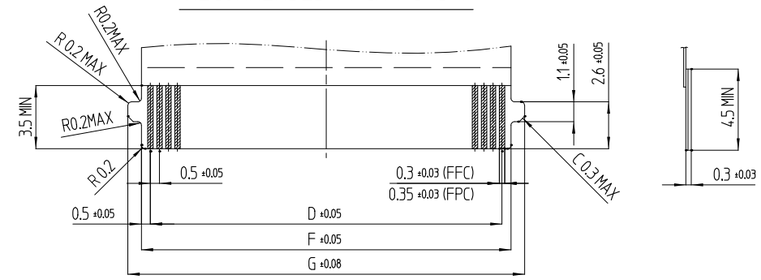


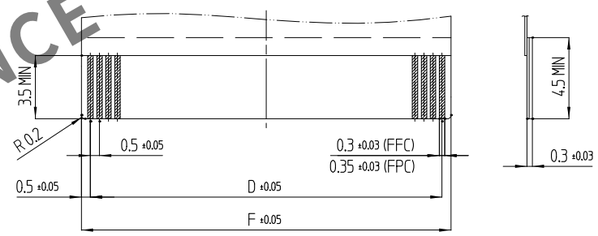
A(10:1)



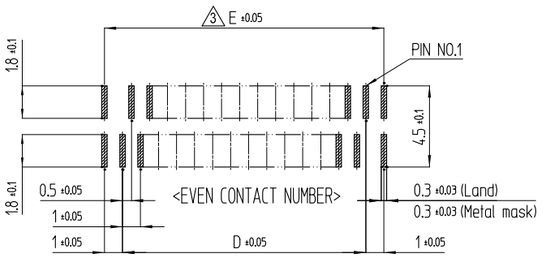
NOTE 1 LEAD CO-PLANARITY SHALL BE 0.1 MAX.

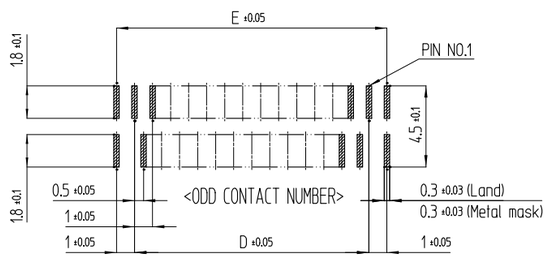
RECOMMENDED FPC/FFC (3:1)





RECOMMENDED LAND PATTERN, METAL MASK (3:1)
RECOMMENDED METAL MASK THICKNESS : t=0.15





NO.	MATERIAL	FINISH , REMARKS	NO.	MATERIAL	FINISH , REMARKS
2	LCP	BLACK UL94V-0	4	PHOSPHOR BRONZE	(CONTACT AREA) GOLD 0.03㎛ MIN. OVER NICKEL 1㎛ MIN. (LEAD) GOLD 0.03㎛ MIN. OVER NICKEL 1㎛ MIN. (OTHER) NICKEL PLATING 1㎛ MIN.
1	LCP	BEIGE UL94V-0	3	PHOSPHOR BRONZE	Sn 1㎛ MIN. OVER NICKEL 1㎛ MIN.

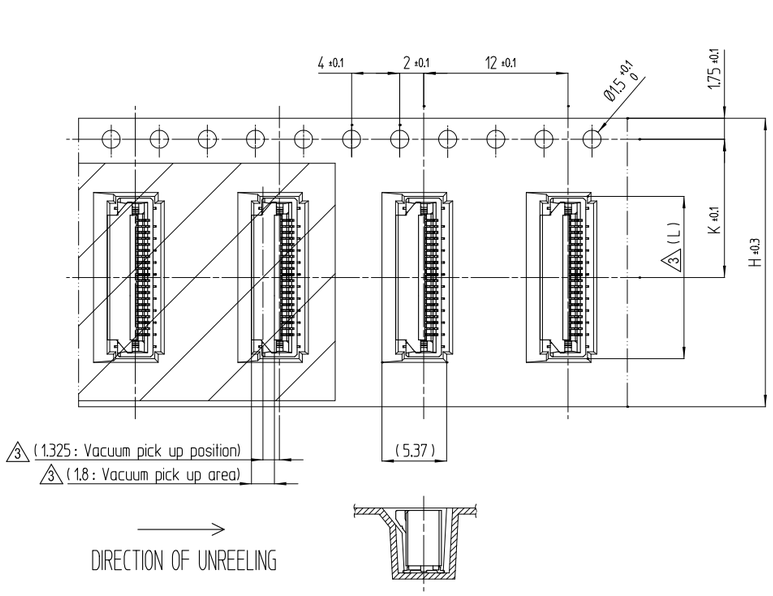
REMARKS

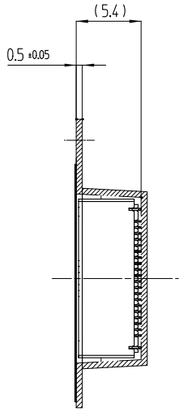
DRAWN	DESIGNED	CHECKED	APPROVED	RELEASED
KIM 16.04.26 H.S	KIM 16.04.26 H.S	CHO 16.04.26 D.H	SONG 16.04.26 H.C	ENG 23.02.06 DEPT

CODE NO. (OLD)	DRAWING NO. EDC3-632306-80	PART NO. TF38-**S-0.5SV(830)
SCALE 5 : 1 / UNITS mm	HRS HIROSE KOREA CO.,LTD.	CODE NO. CL 6537-0017-0-830 1/7

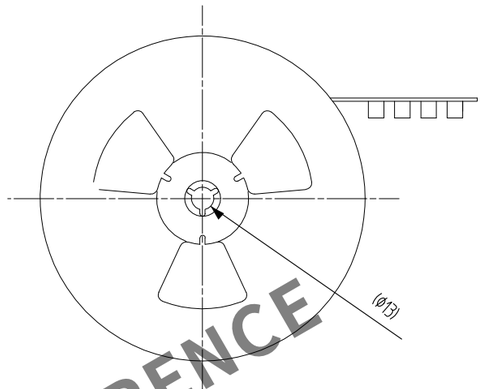
	△ 数 COUNT	訂正事項 DESCRIPTION OF REVISIONS	描画 B Y	検図 CHKD	年月日 DATE
△1	–	RE-5-1603	L.S.G	C.D.H	17．03．09
△2	–	RE-5-2133	K.G.B	C.D.H	19．03．29
△3	6	RE-5-2946	C.Y.H	C.D.H	23．02．01

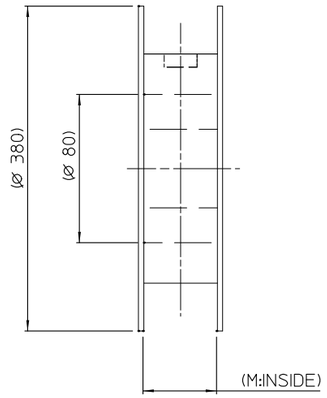
EMBOSSED CARRIER TAPE DIMENSION (TAPE WIDTH TO 24mm MAX)



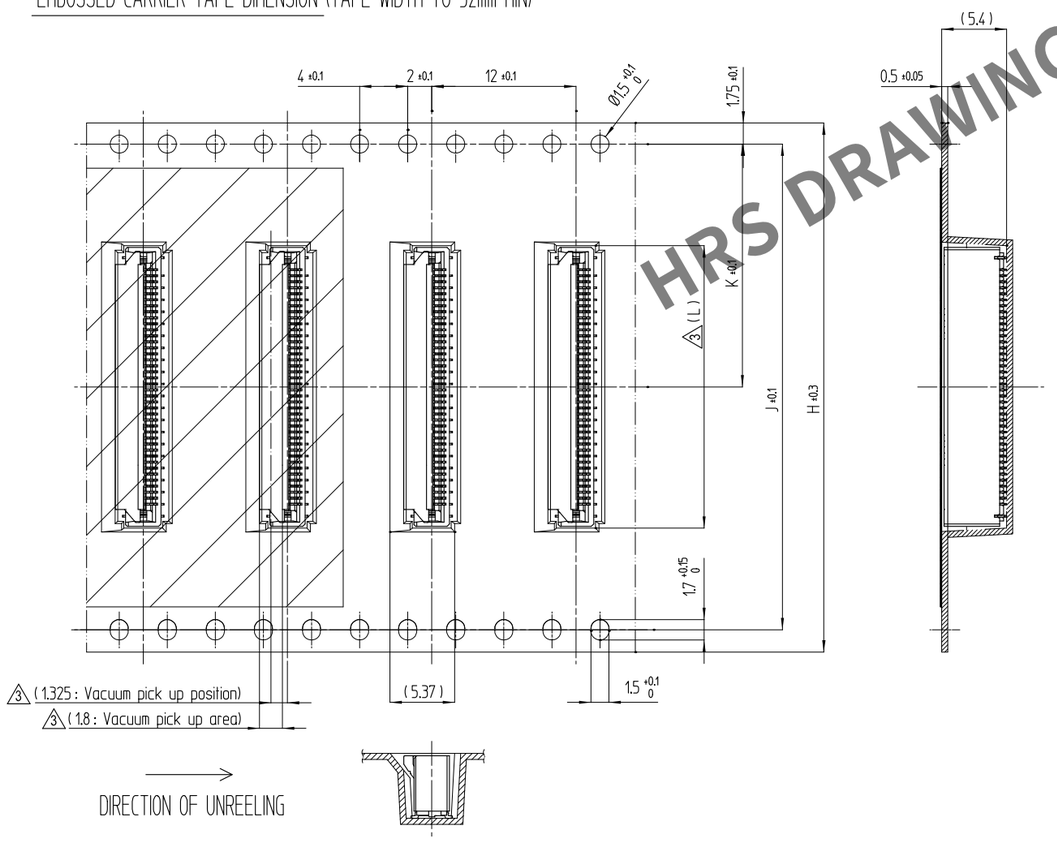


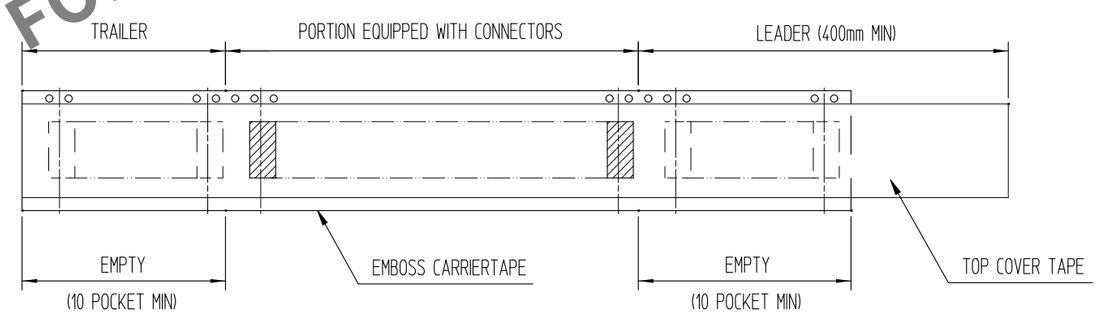
REEL DIMENSION (FREE)





EMBOSSED CARRIER TAPE DIMENSION (TAPE WIDTH TO 32mm MIN)





NOTE 2 PER REEL : 1000 CONNECTORS.

NO.	MATERIAL	FINISH , REMARKS	NO.	MATERIAL	FINISH , REMARKS

REMARKS

DRAWN	DESIGNED	CHECKED	APPROVED	RELEASED
KIM 16.04.26 H.S	KIM 16.04.26 H.S	CHO 16.04.26 D.H	SONG 16.04.26 H.C	ENG 23.02.06 DEPT

CODE NO. (OLD)

SCALE 2 : 1
UNITS mm

DRAWING NO. EDC3-632306-80

HRS HIROSE KOREA CO.,LTD.

PART NO. TF38-**S-0.5SV(830)

CODE NO. CL 6537-0017-0-830

2/7

	△ 数 COUNT	訂正事項 DESCRIPTION OF REVISIONS	擔當 B Y	檢圖 CHKD	年月日 DATE
1	–	RE-5-1603	L.S.G	C.D.H	17. 03. 09
2	1	RE-5-2133	K.G.B	C.D.H	19. 03. 29
3	–	RE-5-2946	C.Y.H	C.D.H	23. 02. 01

PART NUMBER	NUMBER OF CONTACTS	DIMENSION OF CONNECTOR, FPC/FFC, PCB PATTERN						DIMENSION OF PACKING				
		B	C	D	E	F	G	H	J	K	L	M
△2 TF38-16S-0.5SV(830)	16	8.57	11.2	7.5	9.5	8.5	10	24	–	11.5	11.5	24.5
TF38-18S-0.5SV(830)	18	9.57	12.2	8.5	10.5	9.5	11	24	–	11.5	12.5	24.5
TF38-20S-0.5SV(830)	20	10.57	13.2	9.5	11.5	10.5	12	24	–	11.5	13.5	24.5
TF38-22S-0.5SV(830)	22	11.57	14.2	10.5	12.5	11.5	13	24	–	11.5	14.5	24.5
TF38-24S-0.5SV(830)	24	12.57	15.2	11.5	13.5	12.5	14	24	–	11.5	15.5	24.5
TF38-26S-0.5SV(830)	26	13.57	16.2	12.5	14.5	13.5	15	32	28.4	14.2	16.5	32.5
TF38-30S-0.5SV(830)	30	15.57	18.2	14.5	16.5	15.5	17	32	28.4	14.2	18.5	32.5
TF38-32S-0.5SV(830)	32	16.57	19.2	15.5	17.5	16.5	18	44	40.4	20.2	19.5	44.5
TF38-36S-0.5SV(830)	36	18.57	21.2	17.5	19.5	18.5	20	44	40.4	20.2	21.5	44.5
TF38-38S-0.5SV(830)	38	19.57	22.2	18.5	20.5	19.5	21	44	40.4	20.2	22.5	44.5
TF38-40S-0.5SV(830)	40	20.57	23.2	19.5	21.5	20.5	22	44	40.4	20.2	23.5	44.5
TF38-45S-0.5SV(830)	45	23.07	25.7	22	24	23	24.5	44	40.4	20.2	26	44.5
TF38-50S-0.5SV(830)	50	25.57	28.2	24.5	26.5	25.5	27	44	40.4	20.2	28.5	44.5
TF38-60S-0.5SV(830)	60	30.57	33.2	29.5	31.5	30.5	32	56	52.4	26.2	33.5	56.5

NO.	MATERIAL	FINISH , REMARKS	NO.	MATERIAL	FINISH , REMARKS

REMARKS

DRAWN	DESIGNED	CHECKED	APPROVED	RELEASED
KIM 16.04.26 H.S	KIM 16.04.26 H.S	CHO 16.04.26 D.H	SONG 16.04.26 H.C	ENG 23.02.06 DEPT

CODE NO. (OLD)

SCALE 1 : 1

UNITS mm

DRAWING NO. EDC3-632306-80

HRS HIROSE KOREA CO.,LTD.

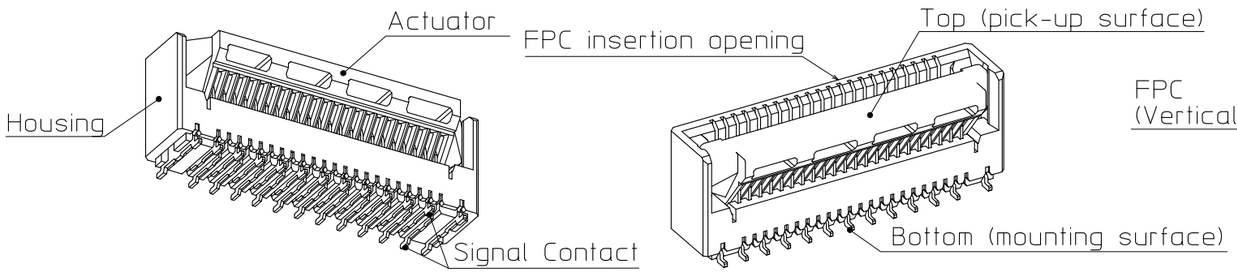
PART NO. TF38-**S-0.5SV(830)

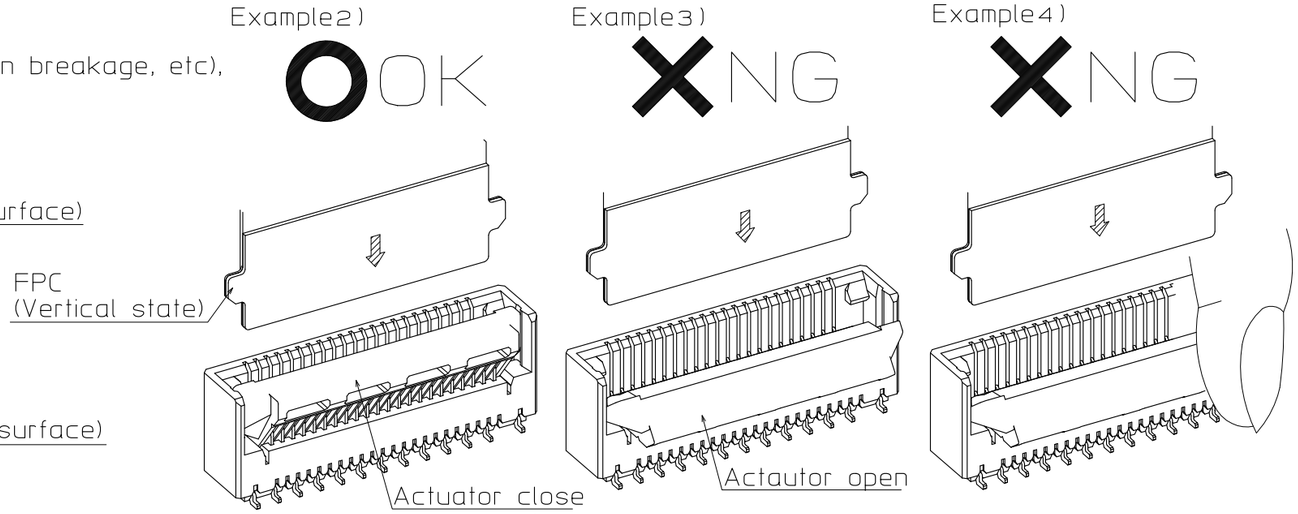
CODE NO. CL 6537-0017-0-830

3/7

This connector requires delicate and careful handling.
To prevent connector/FPC breakage and contact failure (mating failure, FPC Pattern breakage, etc), read through the instruction shown below and handle the connector properly.
This instrucion manual is applicable to uasge with FPC/FFC.

【Connector part nomenclature】



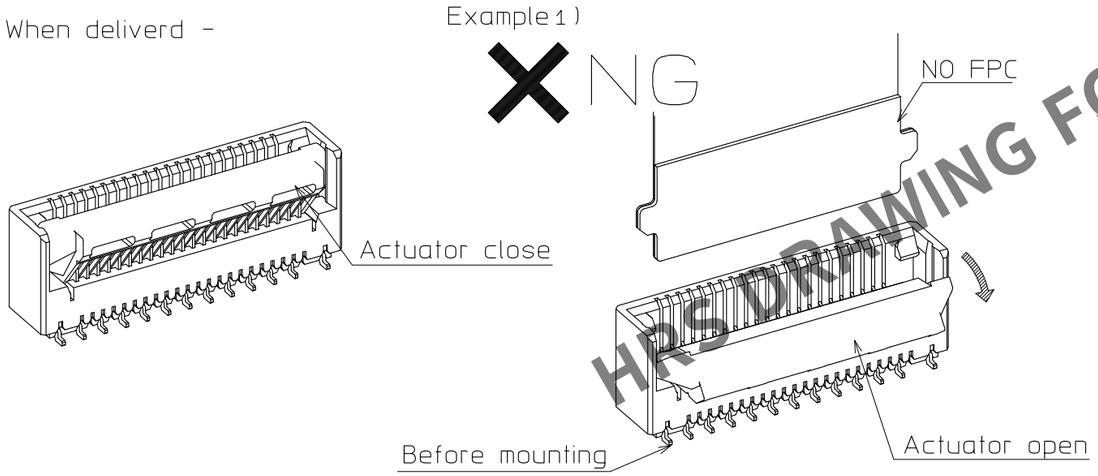


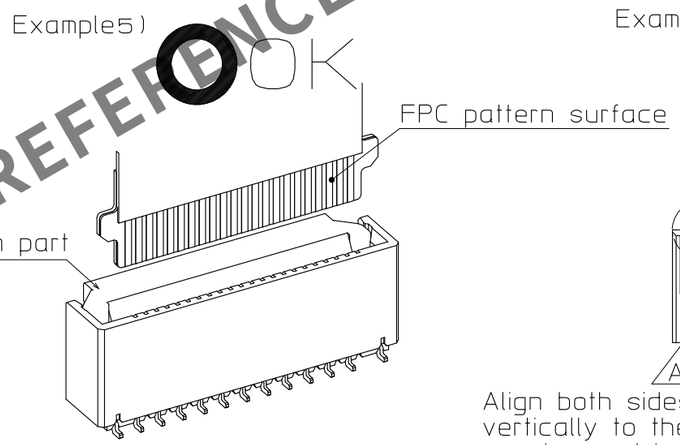
【Operation and precautions】

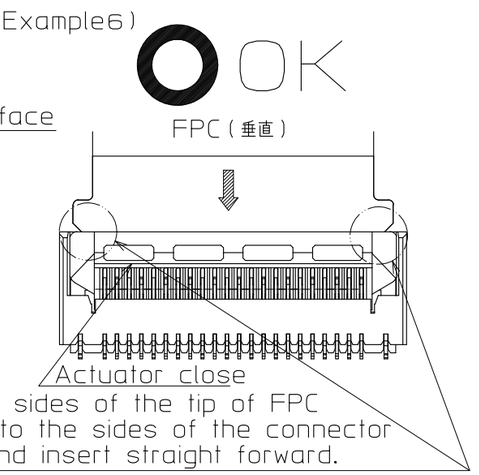
1. Initail condition
The product is supplied with the actuator closed.
Actuator does not have to be operated before inserting FPC.

【Caution】
· Do not open the actuator when the FPC is not inserted (Example 1).
· Do not insert FPC or operate actuator before mounting (Example 1).

- When deliverd -

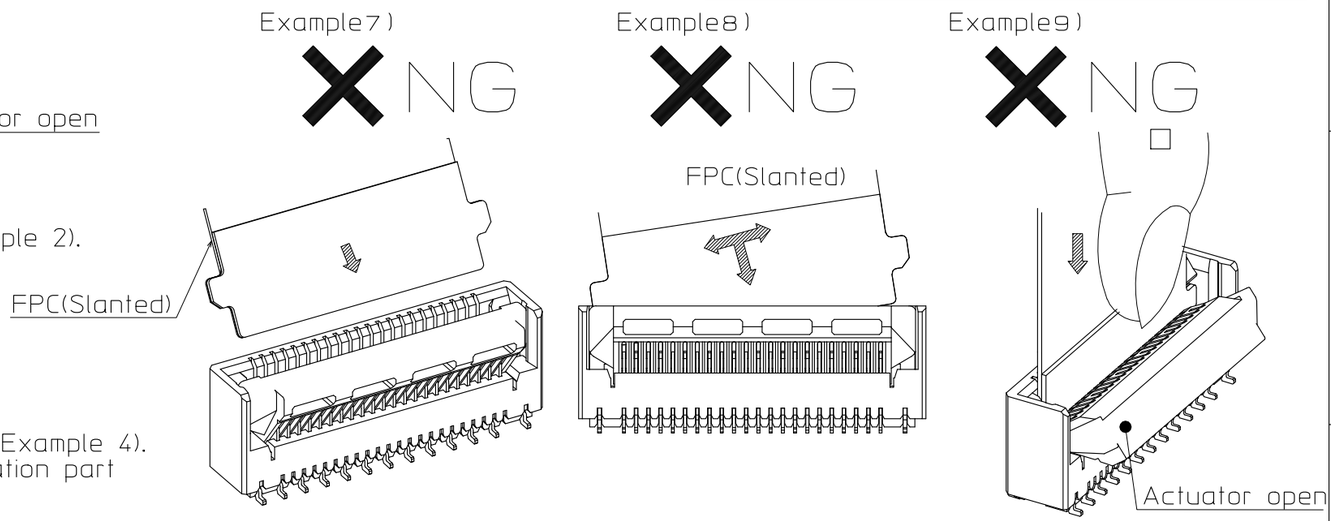






2. How to insert FPC
Insert the FPC into the connector opening verically to the PCB surface (Example 2).
Insert it properly to the very end.

【Caution】
- Make sure the actuator is closed when insertion FPC.
Do not insert the FPC when the actuator is open (Example 3).
While actuator is open, it is structured so that FPC can't be inserted,
but if it is forced to insert FPC it will cause breakage.
- Do not insert the FPC when the actuator is pressed from above a finger (Example 4).
- Insert the FPC pattern surface on the opposite side of the actuator operation part (Example 5).
- Align both sides of the tip of FPC vertically to the side of the connector opening and insert straight forward (Example 6).
- Do not twist the FPC to up and down or right and left or an angle (Example 7 ,8).
- Do not open actuator with fingers when insert FPC (Example 9).

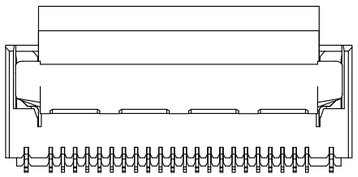


3. FPC insertion check
Make sure that the FPC tabs are located in proper position after FPC insertion (Example 10).
(The FPC position is to be aligned by the protrusion the housing.)

[Caution]
- Do not insert the FPC at an angle and/or stop it before insertion is completed (Example 11, 12).

Example 10)

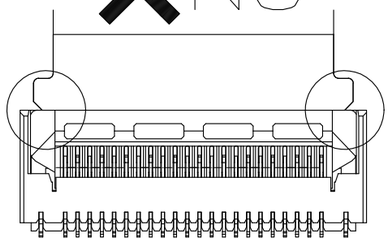
OOK



FPC is completely inserted to the end.

Example 11)

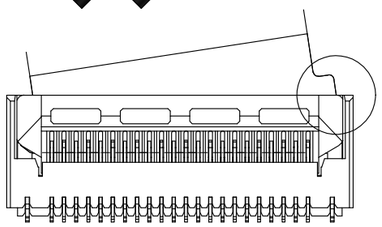
XNG



Insertion of FPC is shallow and not fully inserted to the end.

Example 12)

XNG



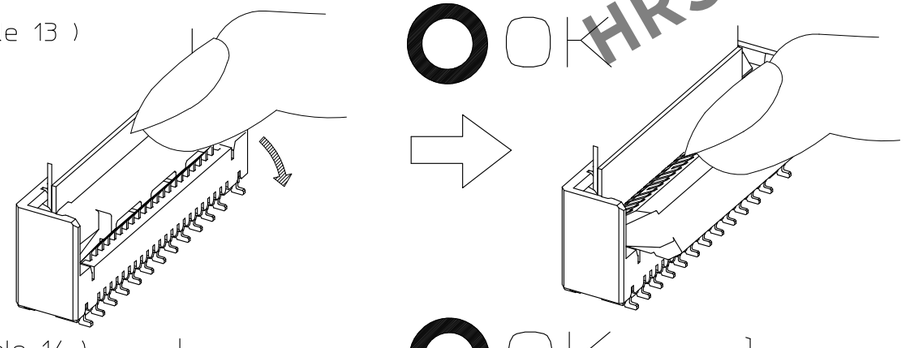
FPC is inserted in slanted angle and not fully inserted to the end.

4. Use of the actuator(open/close)
Slowly filp down the actuator to the lock (Example 13).
Slowly flip up the actuator to release the lock (Example 14).

[Caution]
- To open/close the actuator, operate at the center of the actuator (Example 15).
- To open/close the actuator, do not operate the actuator at one end only (Example 16).
- The actuator is opened up to the movable limit, 90 degree. Do not open the actuator beyond the specified degree or apply excess force to the actuator (Example 17).
- Do not pick the actuator to lift and pull it (Example 18).
- Operate the actuator by hand without using sharp tool such as Tweezers (Example 19).
- Do not apply escess force to the actuator during the operation (Example 20).

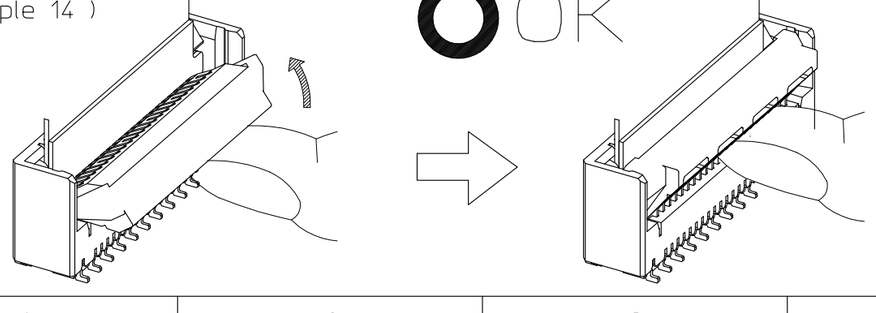
Example 13)

OOK



Example 14)

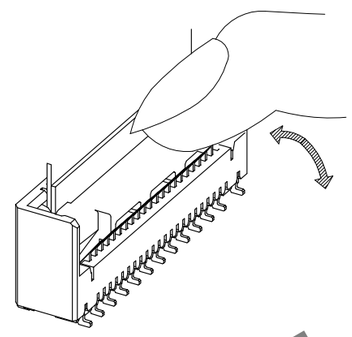
OOK



Example 15)

OOK

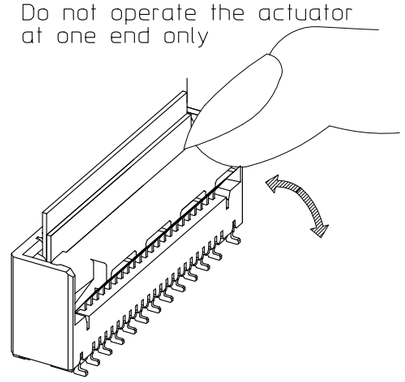
Operate the actuator at the center



Example 16)

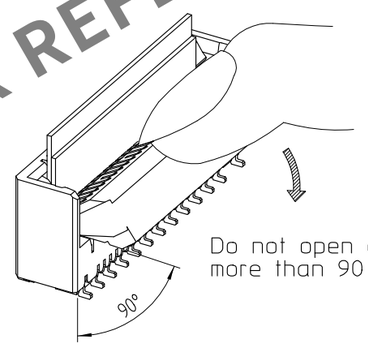
XNG

Do not operate the actuator at one end only



Example 17)

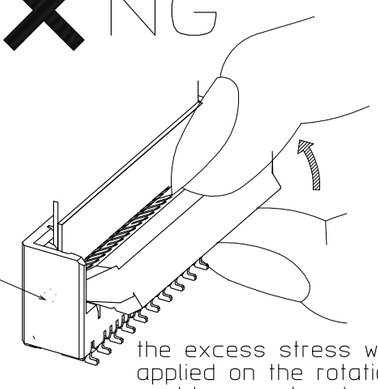
XNG



Do not open actuator more than 90 degree

Example 18)

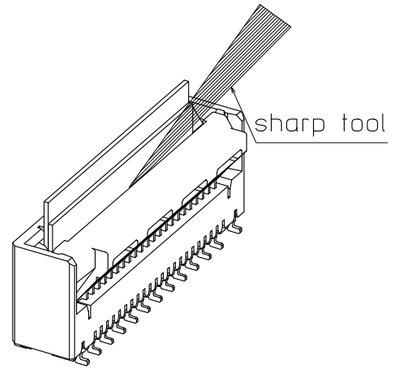
XNG



the excess stress whitch is applied on the rotation axis. could cause breakage.

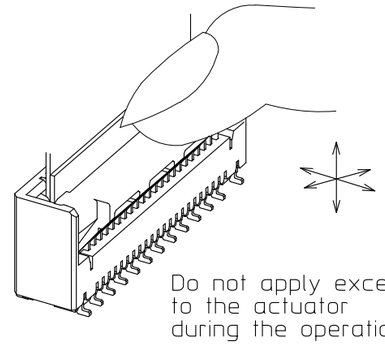
Example 19)

XNG



Example 20)

XNG



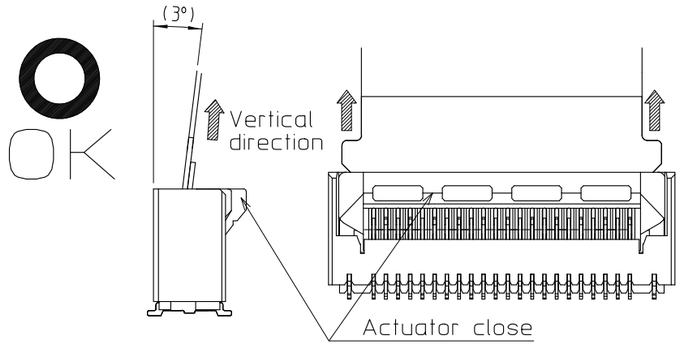
Do not apply excess force to the actuator during the operation.

<Instruction manual (2)>

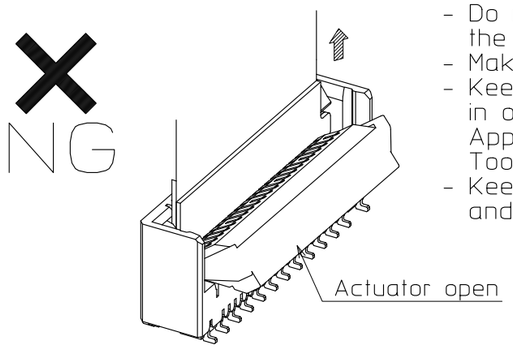
5. How to remove FPC
After flip up the actuator to the fully opened position vertically withdraw the FPC (Example 21).

[Caution]
- Do not attempt to pull the FPC without unlocking the housing (Example 22). After forcibly remove FPC, retention force of FPC may decrease.
- This connector has the temporary FPC holding structure with the housing. For FPC removal, do not pull out the FPC other than in the vertically direction of the PCB (Example 23).

Example 21)



Example 22)



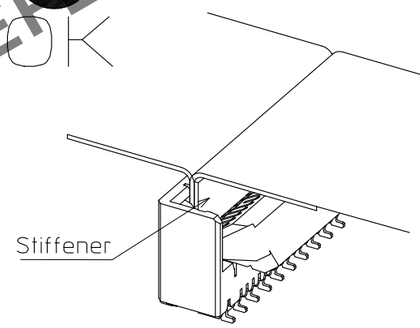
[Precautions for component layout]

Depending on a FPC rouding, a load is applied to the connector, and a contact failure may occur.
To prevent a failure, take the following notes into a consideration during mechanism design.

[Caution]
- When fixing FPC after FPC cabling, avoid pulling FPC, and route the wire FPC with slack. In this regard, the stiffner is vertical to the PCB (Example 24).
- Avoid applying forces to FPC in vertical or horizontal directions. Do not bend the FPC excesssively near the connector during use, or it may cause contact failure of FPC breakage. Stabilizing the FPC is recommended (Example 25, 26)
- Do not mount other components or enclosure touching to the FPC underneath the FPC stiffener (Example 27).
- Make adjustments with the FPC manufacturer for FPC bending performance and wire breakage.
- Keep a sufficient FPC insertion space in the stage of the layout in order to avoid incorrect FPC insertion. Appropriate FPC length and component layout are recommended for assembly ease. Too short FPC length makes assembly difficult.
- Keep spaces for the locking lever movement and its operation for PCB design and component layout.

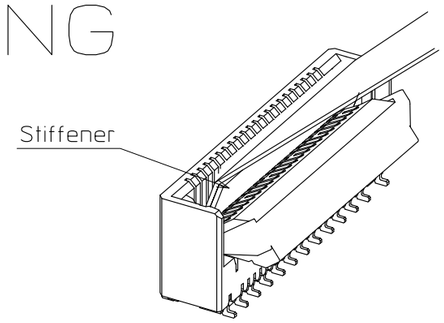
Example 24)

Stress is not applied to Stiffener

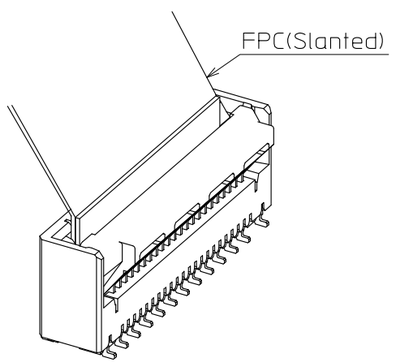


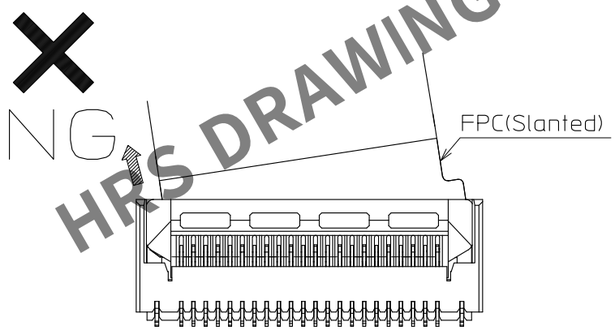
Example 25)

Stress is applied to Stiffener



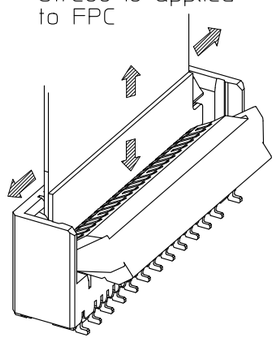
Example 23)





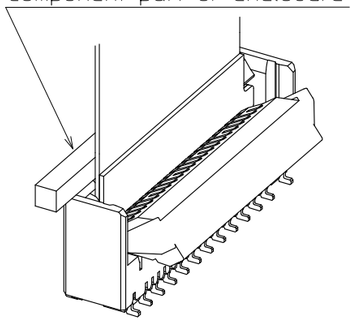
Example 26 0

Stress is applied to FPC



Example 27)

Component part or enclosure



<Instruction manual (3)>

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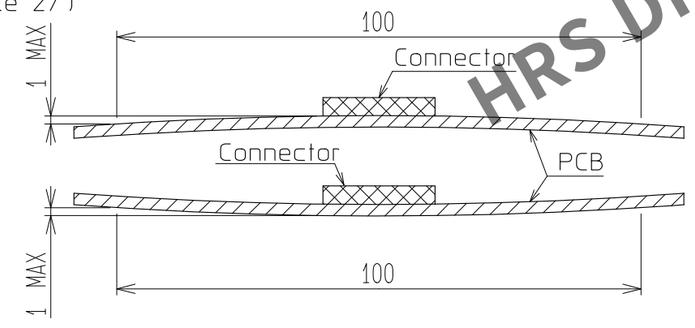
[Instructions for mouting on the PCB]
Follow the instructions shown below when mounting on the PCB.

[Caution]
- Refer to recommended layouts on the page 1 for PCB and Stencil pattern.
- Shorter pattern width than the recommended PCB dimension, could cause solder wicking and/of flux penetration.
- Larger pattern than the recommended stencil dimension, could cause solder wicking and/or flux penetration.
- Clearence underneath the contact lead and the housing is very small. In case solder resist and/or silk screening are applied on PCB underneath the connector. verify the thickness, or it could push up the connector bottom and may cause soldering defect and/or insufficient fillet formation.
- Apply reflow temperature profile within the specified conditions. In individual applications, the actual temperature may vary. depending on solder paste type, volume/thickness and PCB size/thickness. Consult your solder paste and equipment manufacturer for specific recommendations.
- Prevent warpage of PCB, where possible, since it can cause soldering failure : even with 0.1 mm max coplanarity.
- When mounting on the flexible board, please make sure to put a stiffener on the backsides of the flixible board. We recommend a glass epoxy material with the thickness of 0.3mm min.
- Do not add 1.0N or greater external force when unreel or pick and place the connector etc, or it may get broken.

[Instructions for PCB handling after mounting the connector]
Follow the instructions shown below when mounting on the PCB.

[Caution]
- . Splitting a large PCB into several pieces
  . Screwing the PCB
  During the handling described above, do not exert an excessive force on the PCB. Otherwise, the connector may become defective.
- The warp of a 100mm wide PCB should be 1.0mm or less. The warp of PCB suffers stress on connector and the connector may become defective(Example 27).

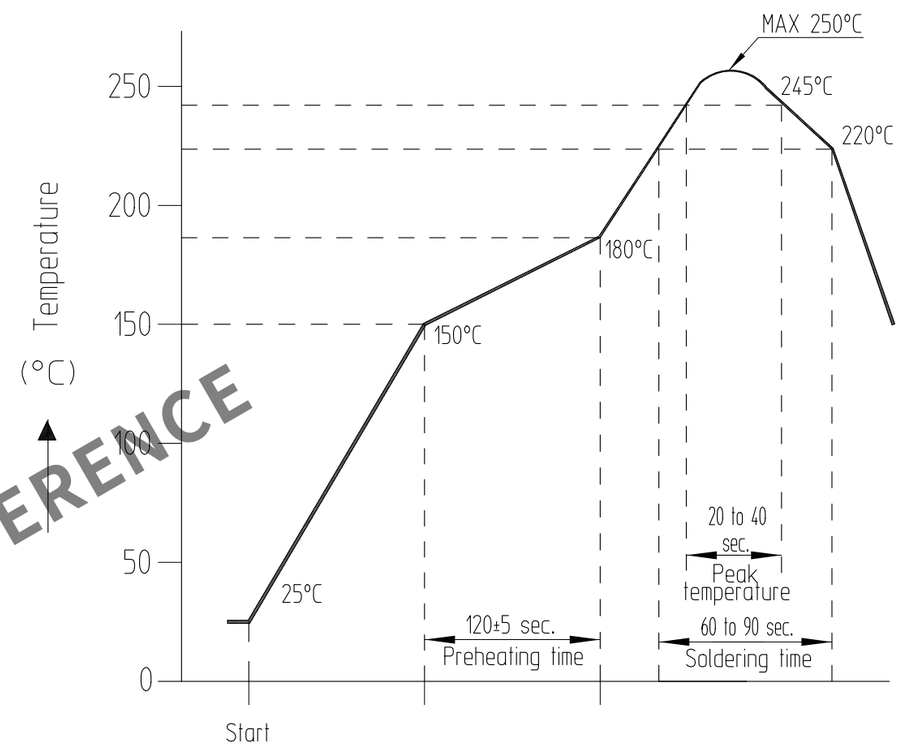
Exsample 27)



[Instructions on manual soldering]
Follow the instructions shown below when soldering the connector manually during repair work, etc.

[Caution]
- Do not perform manual soldering with the FPC inserted into the connector.
- Do not heat the connector excessively. Be very careful not to let the soldering iron contact any parts other than connector leads. Otherwise, the connector may be deformed or melt.
- Do not supply excessive solder (or flux). If excessive solder (or flux) is supplied on the terminals, solder or flux may adhere to the contacts, resulting in poor contact. Supplying excessive solder to the metal fittings may hinder locking lever rotation, resulting in breakage of the connector.

[Recommended reflow temperatur profile]



[Applicable conditions]
Reflow method : IR/Hot air
Solder : Paste type Sn/3.0Ag/0.5Cu

Test PCB :
- Material : Glass epoxy
- Land size : Recommended Pattern

Metal Mask :
- Thickness & Opening size : Recommended Pattern

This temperature profile is based on the above conditions.
It may vastly depending on solder paste type, manufacturer, PCB size and mounting materials.
Please use only after checking the mounting conditions.