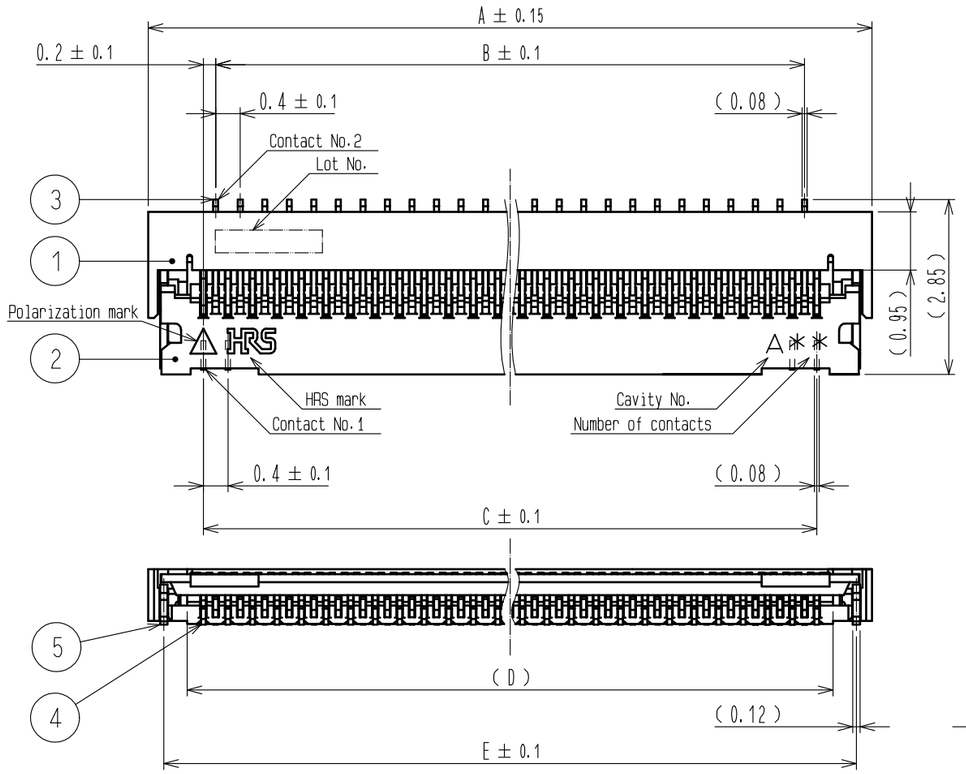
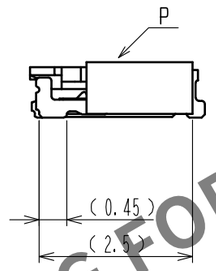
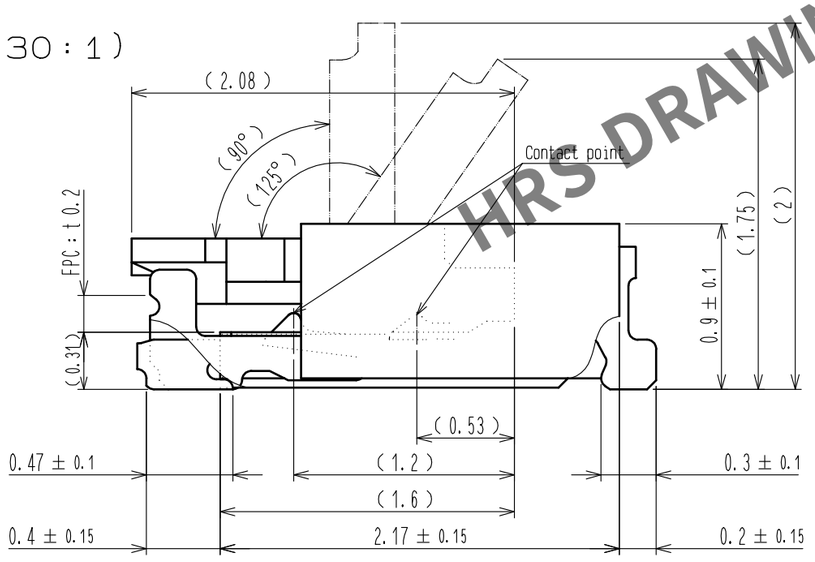
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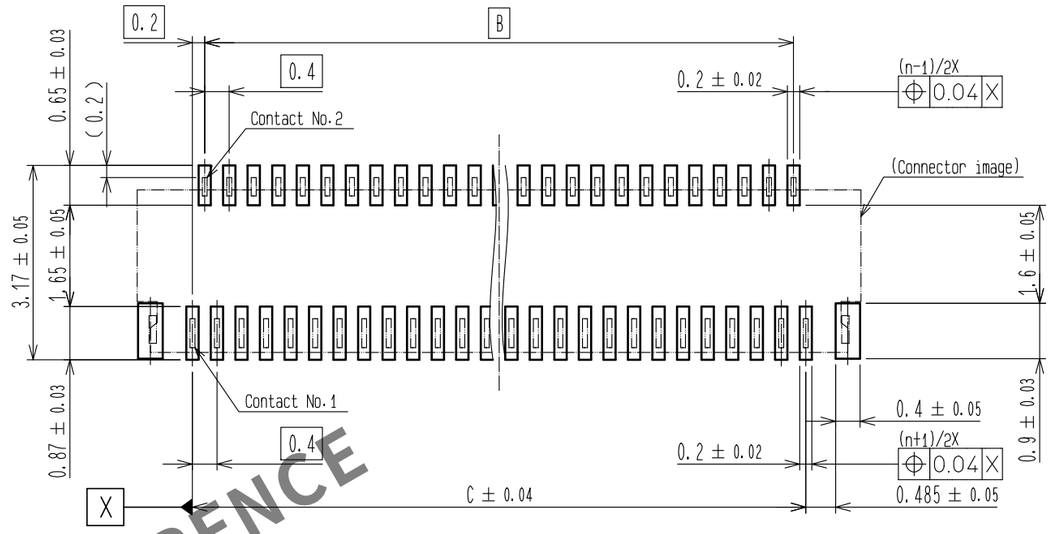




P (30 : 1)

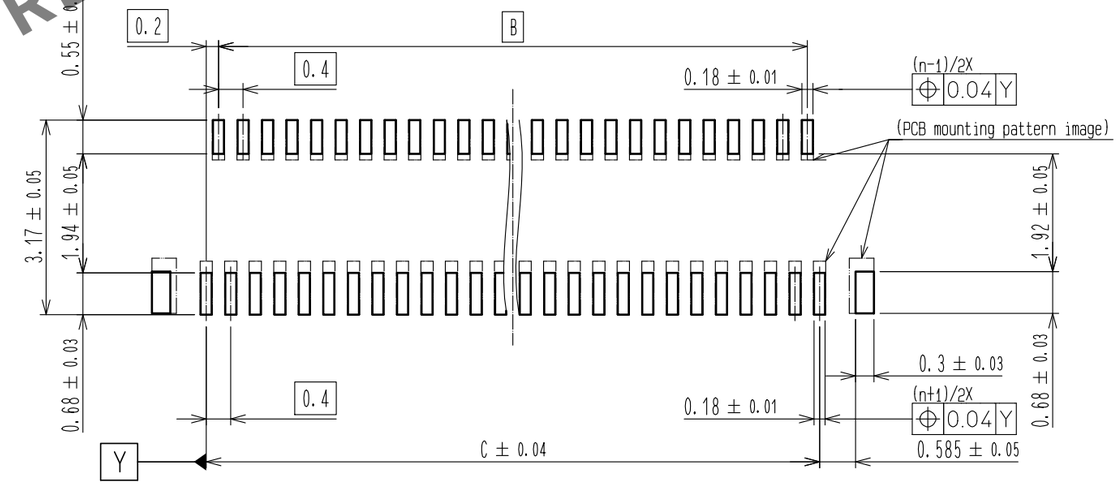


RECOMMENDED PCB MOUNTING PATTERN



RECOMMENDED STENCIL PATTERN

(RECOMMENDED STENCIL THICKNESS:t=0.1mm)



NOTE
1. The dimensions in parentheses are for reference.
2. 'n' is number of contacts.
3. Lead coplanarity including reinforced metal fittings shall be 0.1 mm MAX.
4. To be delivered with tape and reel packages.
   See attached packaging specifications for details.
5. Note that preventive hole for sink mark or slit could be added for improvement.
6. The quality remains good, even with the dark spots, which could occasionally occur on molded plastic.
7. This product satisfies halogen free requirements defined as 900 ppm maximum chlorine, 900 ppm maximum bromine, and 1500 ppm maximum total of chlorine and bromine.

NO.	MATERIAL	FINISH , REMARKS	NO.	MATERIAL	FINISH , REMARKS
4	PHOSPHOR BRONZE	(CONTACT AREA, LEAD) GOLD 0.05μm MIN OVER NICKEL 1μm MIN. (OTHER) NICKEL PLATING 1μm MIN.	9	(CONNECTOR)	
			8	POLYSTYRENE	
3	PHOSPHOR BRONZE	(CONTACT AREA, LEAD) GOLD 0.05μm MIN OVER NICKEL 1μm MIN. (OTHER) NICKEL PLATING 1μm MIN.	7	POLYESTER	
			6	POLYSTYRENE	
2	PA	BLACK UL94HB	5	PHOSPHOR BRONZE (PLATED MATERIAL)	TIN PLATING(REFLOW FINISHED) 1μm MIN OVER COPPER 0.5μm MIN
1	LCP	BEIGE UL94V-0			

UNITS	SCALE		COUNT	DESCRIPTION OF REVISIONS	DESIGNED	CHECKED	DATE
mm	10 : 1	1	1	DIS-F-00004559	TA. SUZUKI	HS. SAKAMOTO	20190417

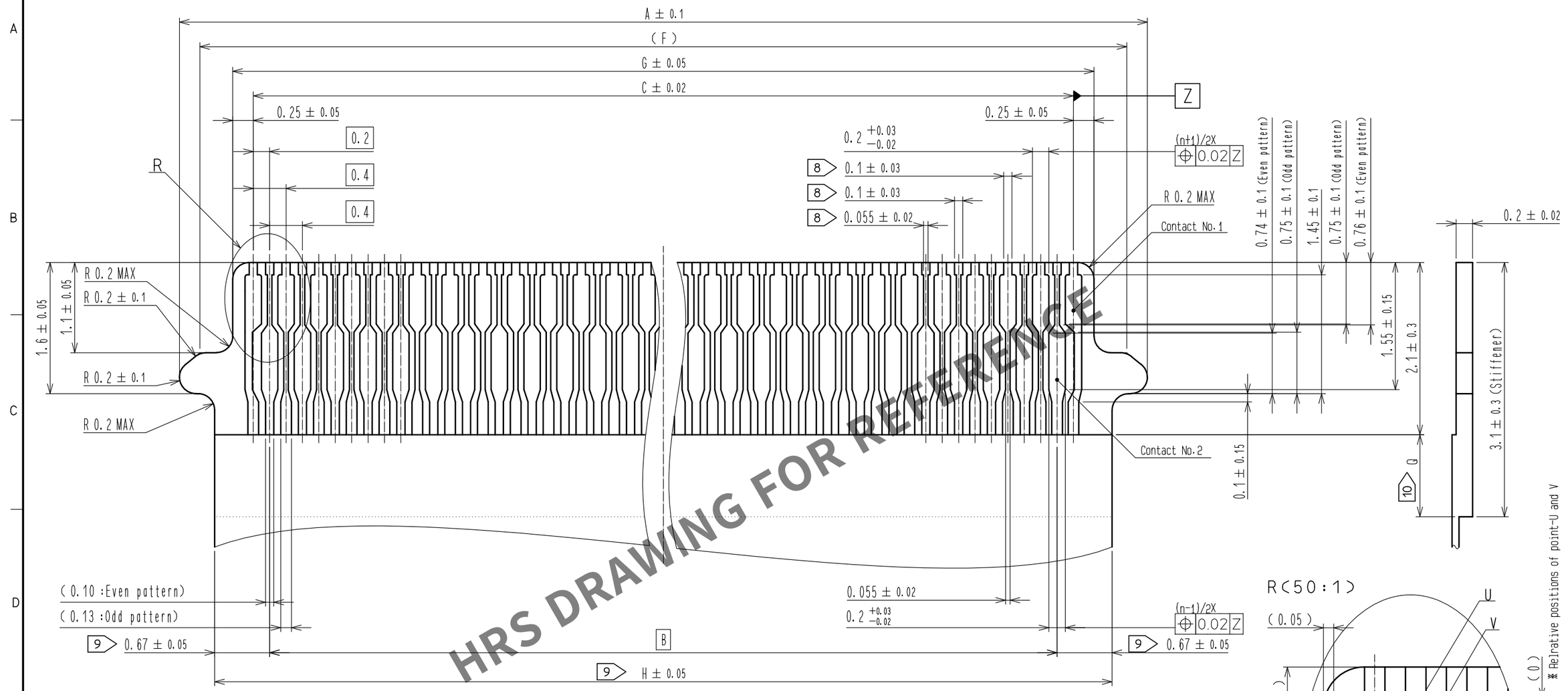
HIROSE ELECTRIC CO., LTD.

APPROVED	MO. ISHIDA	20140204	DRAWING NO. EDC3-355760-01
CHECKED	ST. WADA	20140203	PART NO. FH43BW-**S-0.2SHW(10)
DESIGNED	HS. HIRAHARA	20140203	CODE NO. CL580-
DRAWN	HS. HIRAHARA	20140203	1/8

HRS DRAWING FOR REFERENCE

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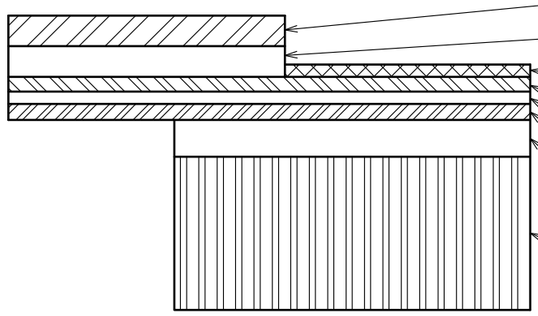
RECOMMENDED FPC (20:1)



HRS DRAWING FOR REFERENCE

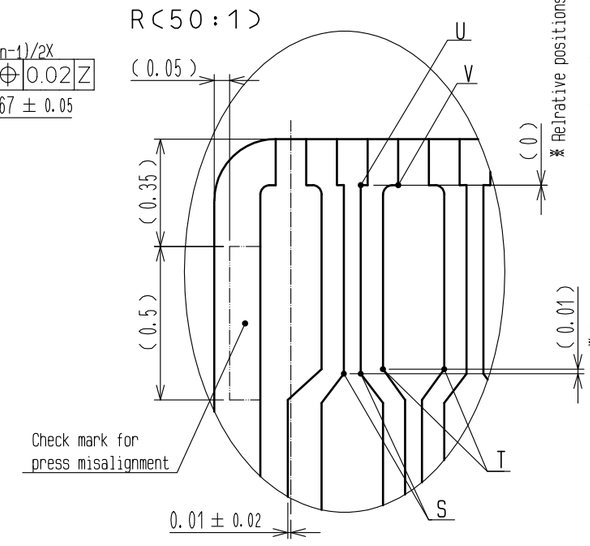
NOTE 8 Shows recommended dimension when lead for plating is required.
9 Indicated tolerance is applicable to the exposed conductor.
10 Dimention Q must be 0.5 mm minimum.

FPC CONFIGURATION (REFERENCE EXAMPLE) (FREE)



MATERIAL NAME	MATERIAL	THICKNESS(μm)
COVERING FILM LAYER	POLYIMIDE 1 mil	25
COVER ADHESIVE		25
SURFACE TREATMENT	1μm TO 6μm NICKEL UNDERPLATED 0.2μm GOLD PLATED.	(4)
COPPER FOIL	Cu 1/3 oz	12
BASE ADHESIVE	HEAT-HARDENED ADHESIVE	No adhesion material
BASE FILM	POLYIMIDE 1 mil	25
REINFORCEMENT MATERIAL ADHESIVE	HEAT-HARDENED ADHESIVE	30
STIFFENER	POLYIMIDE 5 mil	125

R (50:1)



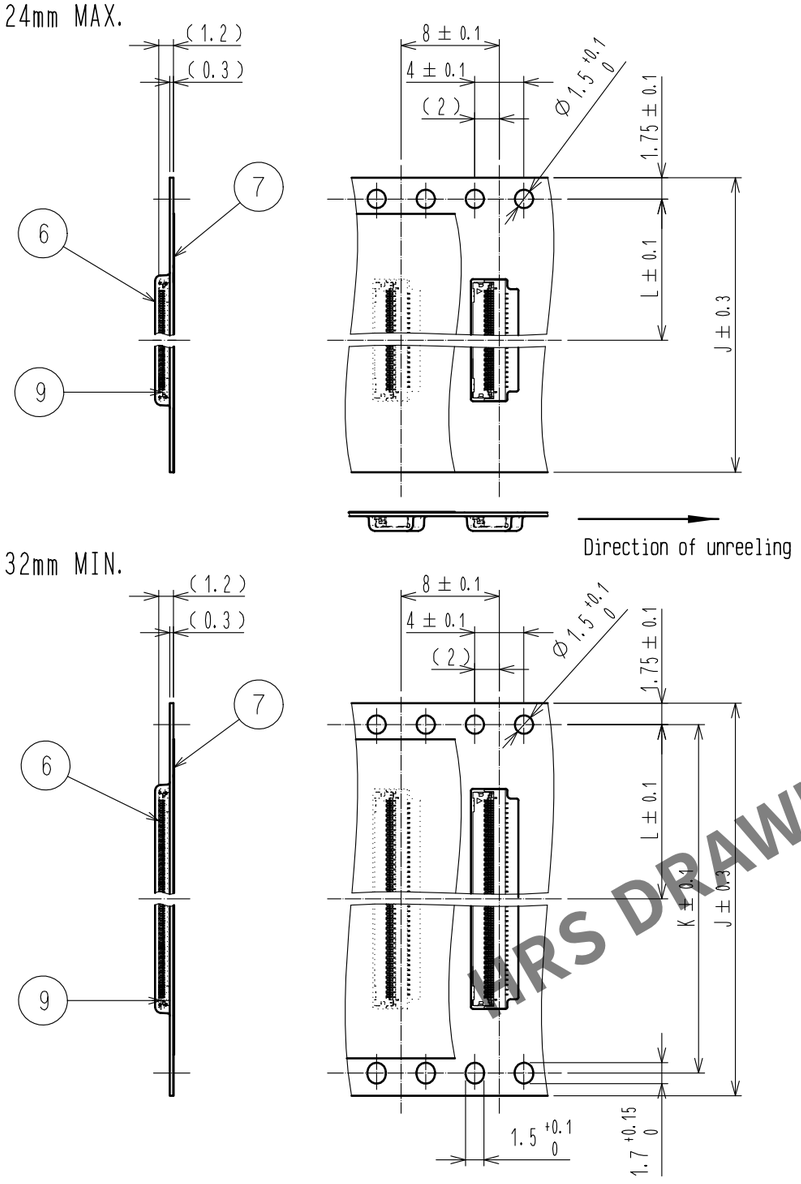
<RECOMMENDED FPC>

DRAWING NO.	EDC3-355760-01
PART NO.	FH43BW-**S-0.2SHW(10)
CODE NO.	CL580-

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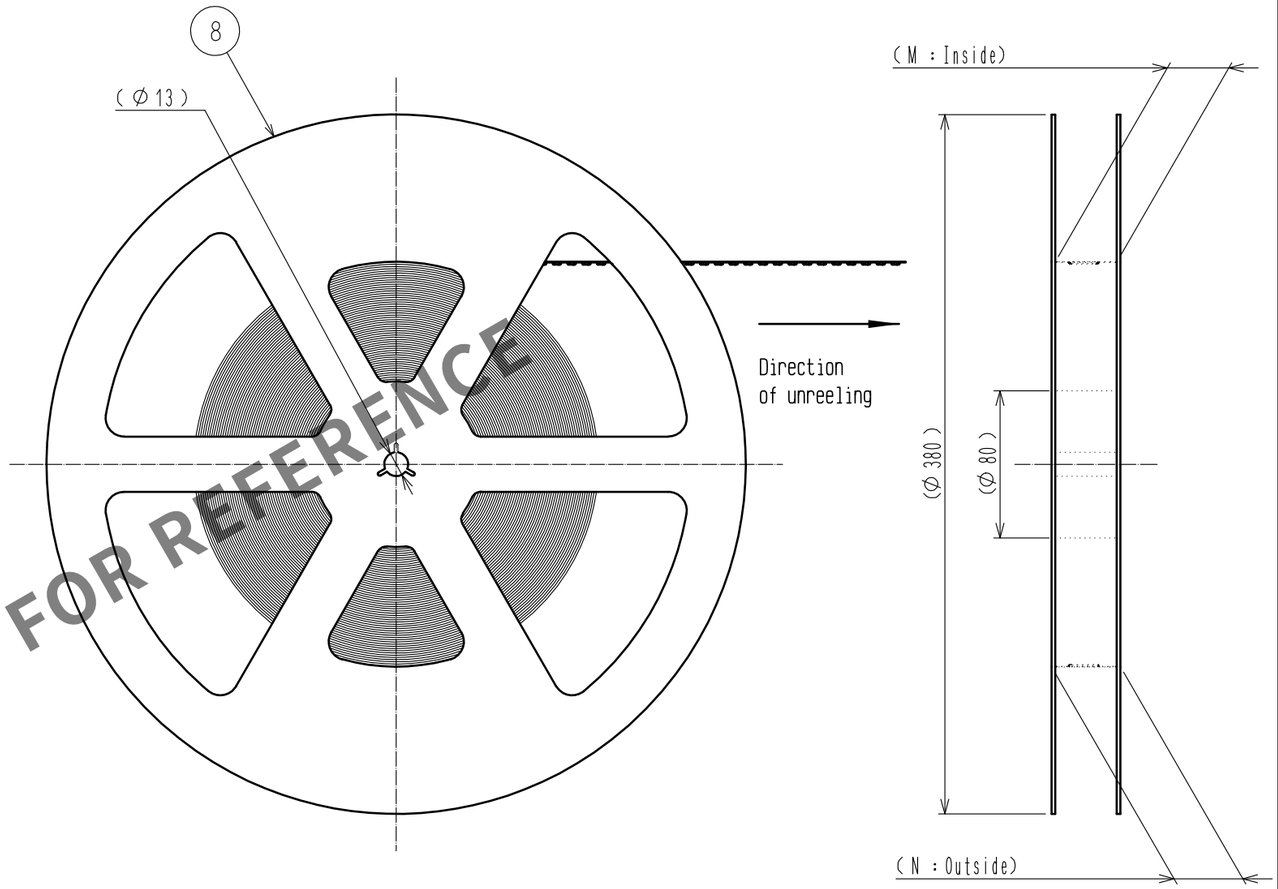
EMBOSSED CARRIER TAPE DIMENSION (2:1)

24mm MAX.

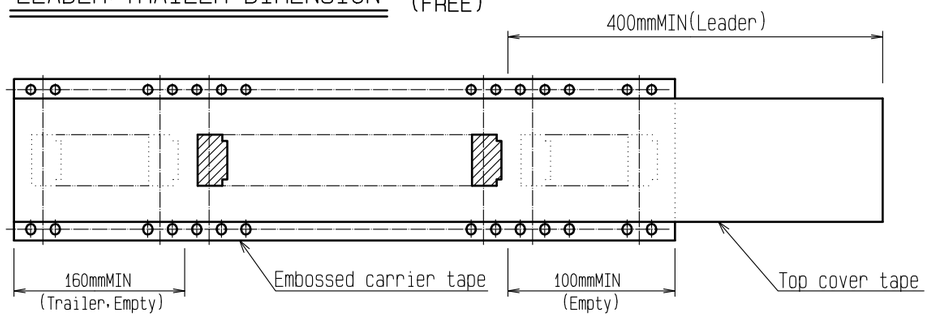


32mm MIN.

REEL DIMENSION (FREE)



LEADER, TRAILER DIMENSION (FREE)



NOTE 11 Per reel : 5000 connectors.
12 Refer to JIS C 0806 and IEC 60286-3
(Packaging of components for automatic handling.)

HRS DRAWING FOR REFERENCE

<DRAWING FOR PACKING>

DRAWING NO.	EDC3-355760-01
PART NO.	FH43BW-**S-0.2SHW(10)
CODE NO.	CL580-

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PART NUMBER	CODE NUMBER	NUMBER OF CONTACTS	DIMENSION OF CONNECTOR, FPC, LAND PATTERN								DIMENSION OF DRAWING FOR PACKING				
			A	B	C	D	E	F	G	H	J	K	L	M	N
FH43BW-21S-0.2SHW(10)	CL580-2822-0-10	21	5.8	3.6	4	4.53	5.29	5.3	4.5	4.94	16	-	7.5	17.4	21.4
△1 FH43BW-25S-0.2SHW(10)	CL580-2830-0-10	25	6.6	4.4	4.8	5.33	6.09	6.1	5.3	5.74	16	-	7.5	17.4	21.4
FH43BW-29S-0.2SHW(10)	-	29	7.4	5.2	5.6	6.13	6.89	6.9	6.1	6.54	16	-	7.5	17.4	21.4
FH43BW-31S-0.2SHW(10)	CL580-2820-4-10	31	7.8	5.6	6	6.53	7.29	7.3	6.5	6.94	24	-	11.5	25.4	29.4
FH43BW-35S-0.2SHW(10)	CL580-2821-7-10	35	8.6	6.4	6.8	7.33	8.09	8.1	7.3	7.74	24	-	11.5	25.4	29.4
FH43BW-41S-0.2SHW(10)	CL580-2813-9-10	41	9.8	7.6	8	8.53	9.29	9.3	8.5	8.94	24	-	11.5	25.4	29.4
FH43BW-45S-0.2SHW(10)	CL580-2815-4-10	45	10.6	8.4	8.8	9.33	10.09	10.1	9.3	9.74	24	-	11.5	25.4	29.4
FH43BW-51S-0.2SHW(10)	CL580-2814-1-10	51	11.8	9.6	10	10.53	11.29	11.3	10.5	10.94	24	-	11.5	25.4	29.4
FH43BW-61S-0.2SHW(10)	CL580-2816-7-10	61	13.8	11.6	12	12.53	13.29	13.3	12.5	12.94	24	-	11.5	25.4	29.4
FH43BW-71S-0.2SHW(10)	CL580-2819-5-10	71	15.8	13.6	14	14.53	15.29	15.3	14.5	14.94	32	28.4	14.2	33.4	37.4

HRS DRAWING FOR REFERENCE

* CONTACT POSITIONS WITHOUT CODE NUMBERS ARE CURRENTLY UNDER PLANNING.
  CONTACT HIROSE FOR DETAILED INFORMATION ABOUT PRODUCT VARIATION.

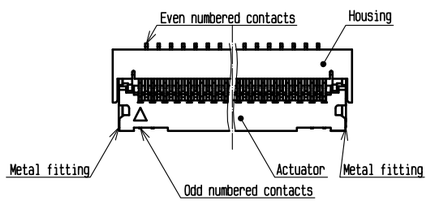
HRS	DRAWING NO.	EDC3-355760-01
	PART NO.	FH43BW-**S-0.2SHW(10)
	CODE NO.	CL580- △1 4/8

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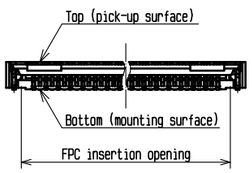
HRS DRAWING FOR REFERENCE

This connector features small and thin, requiring delicate and careful handling.
To prevent connector/FPC breakage and contact failure (meting failure, FPC pattern breakage, etc),
read through the instructions shown below and handle the connector properly.
Each values indicating here are for reference and may differ from standard value.

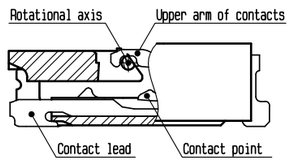
[Connector Part Nomenclature]



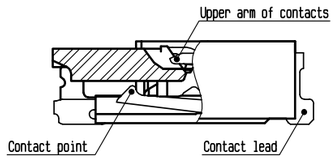
Top view



Front view



Odd numbered contact view



Even numbered contact view

[Operation and Precautions]

1. Initial condition
   The connector is delivered with the actuator closed.

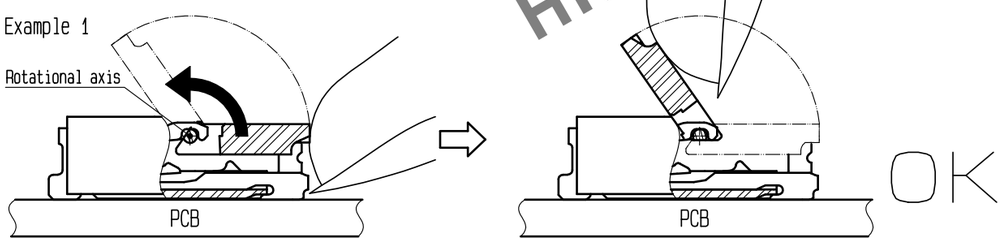
   [Caution]
   -Do not insert FPC or operate actuator before mounting.

2. How to unlock (Before inserting FPC)

   The actuator rotates on its axis as shown below.
   Slowly flip up the actuator to release the lock.

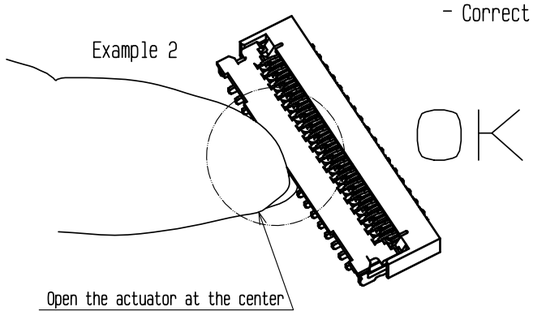
   [Caution]
   -Open the actuator by carefully lifting it at the center.
   -Do not lift the actuator at one end only.
   -The actuator must be operated by hand only,
    and do not insert any tools or fingernails inside the connector.
   -The actuator rotates 125 degrees max.
    Do not attempt to force the actuator to backside further.
   -When operating the actuator do not apply any force in the direction of the connector. (example 6, 7)
   -Do not attempt to dislodge the actuator.

Example 1



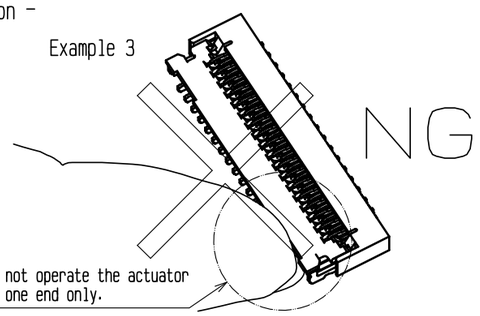
- Correct operation -

Example 2



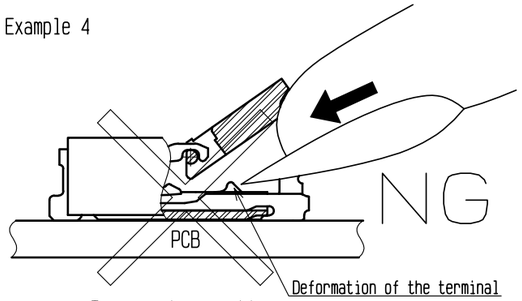
- Correct operation -

Example 3



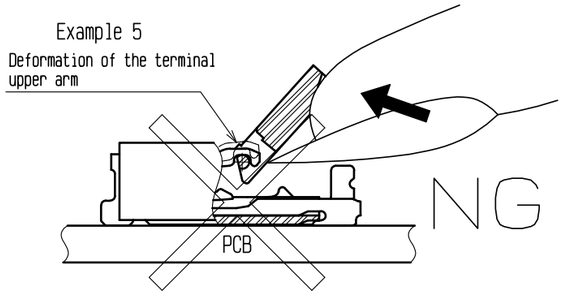
- Incorrect operation -

Example 4



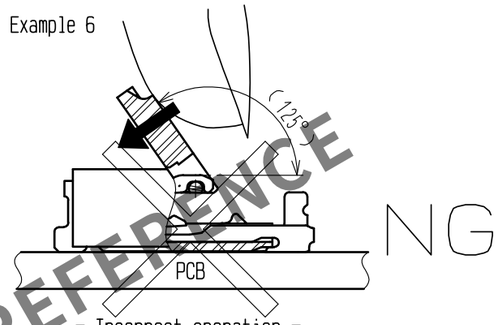
- Incorrect operation -

Example 5



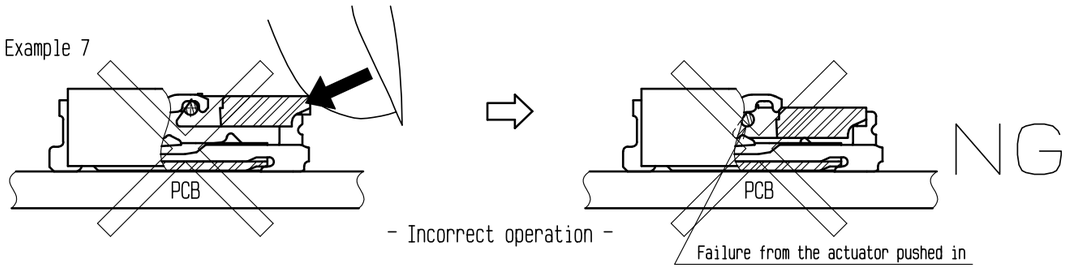
- Incorrect operation -

Example 6



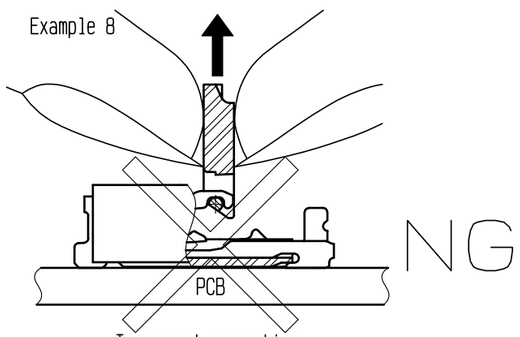
- Incorrect operation -

Example 7



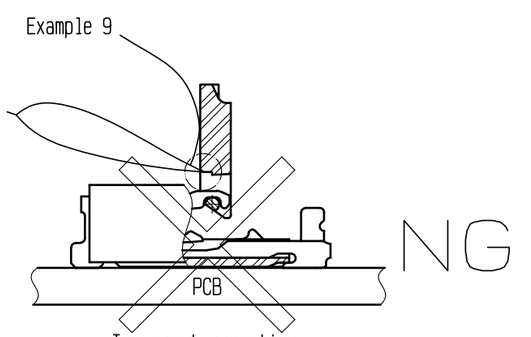
- Incorrect operation -

Example 8



- Incorrect operation -

Example 9



- Incorrect operation -

<INSTRUCTION MANUAL(1)>

HRS	DRAWING NO.	EDC3-355760-01
	PART NO.	FH43BW-**S-0.2SHW(10)
	CODE NO.	CL580-

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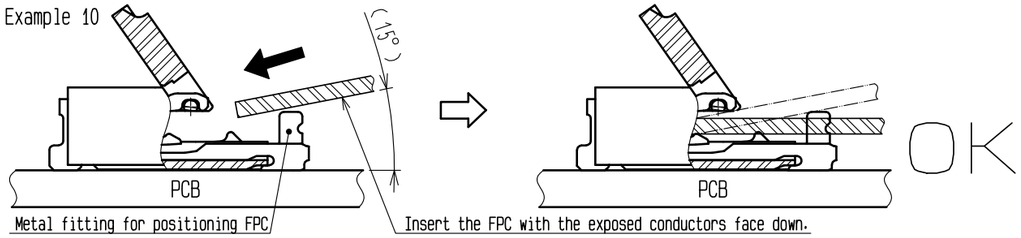
HRS DRAWING FOR REFERENCE

3. How to insert FPC

This connector has contacts on the bottom, insert the FPC with the exposed conductors face down.
This connector has metal fittings, insert the FPC at about 15 degree angle to the PCB mounting surface.

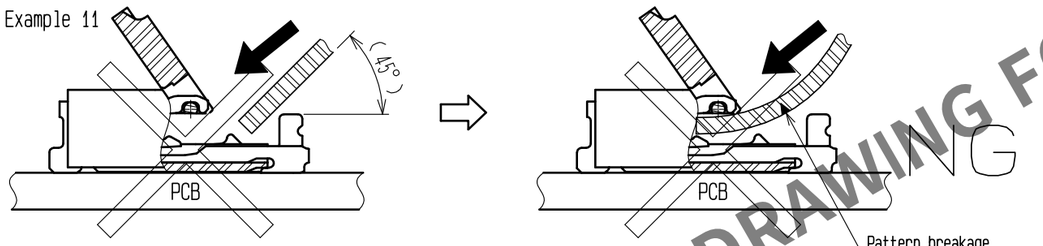
[Caution]
-Do not insert the FPC with the conductor surface face up.
-Insert the FPC properly to the very end.
-Insert the FPC with the actuator opened.
-Do not insert the FPC at an angle.
-Do not twist the FPC to up and down, right and left or an angle.

Example 10



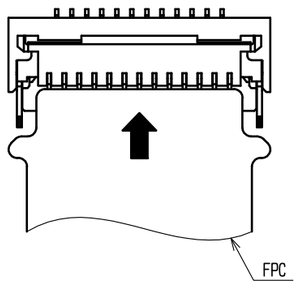
- Correct operation -

Example 11



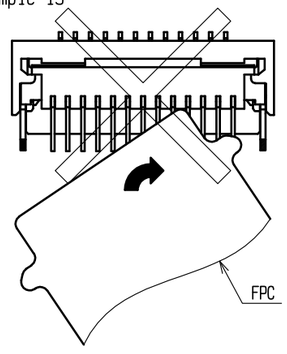
- Incorrect operation -

Example 12



- Correct operation -

Example 13



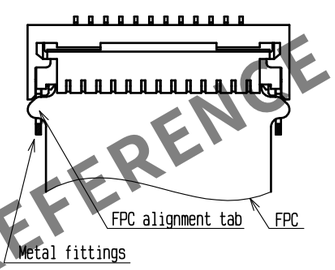
- Incorrect operation -

4. FPC insertion check

Metal fittings 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.

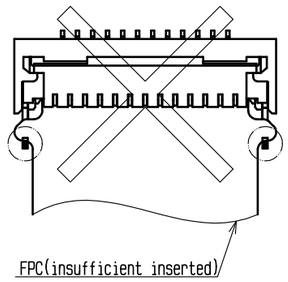
[Caution]
-Do not insert the FPC at an angle and/or stop it before insertion is completed.

Example 14



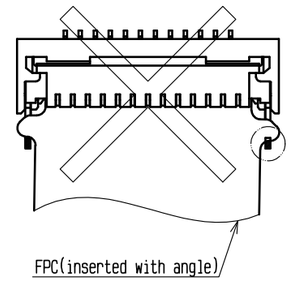
- Correct operation -

Example 15

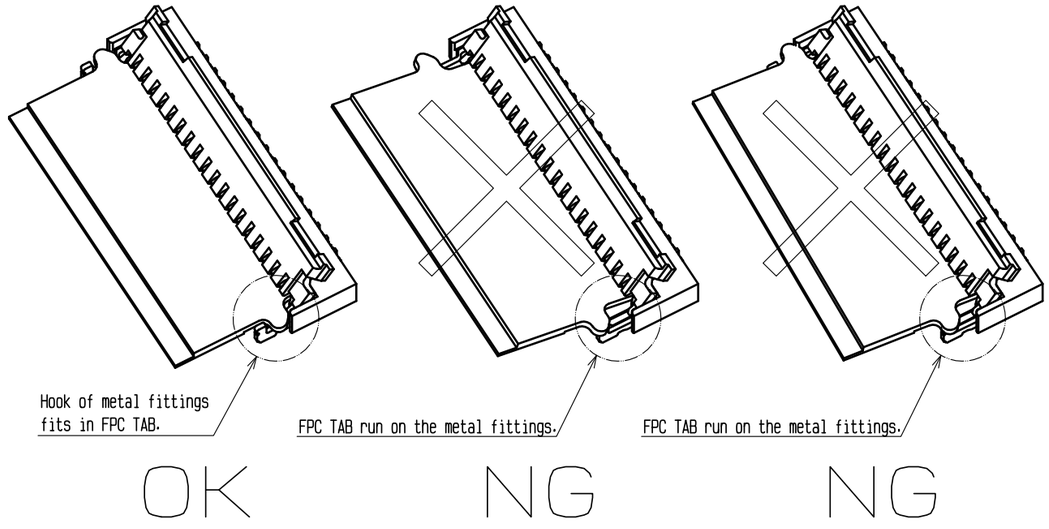


- Incorrect operation -

Example 16



- Incorrect operation -



<INSTRUCTION MANUAL(2)>

HRS	DRAWING NO.	EDC3-355760-01
	PART NO.	FH43BW-**S-0.2SHW(10)
	CODE NO.	CL580-

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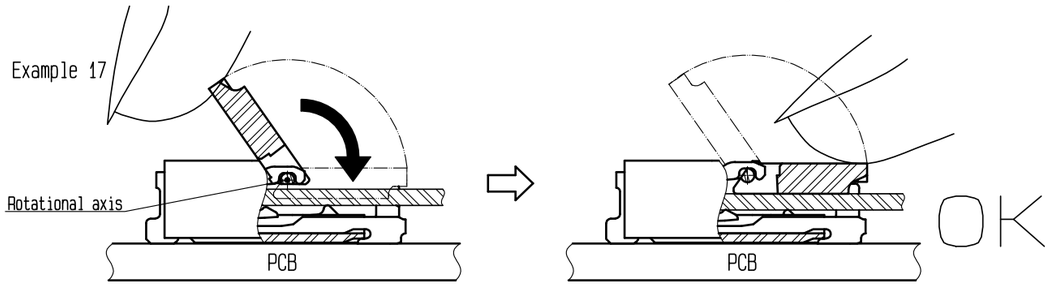
HRS DRAWING FOR REFERENCE

5. How to lock

The actuator rotates on its axis as shown below.
Apply load to rotate the actuator after inserting the FPC.

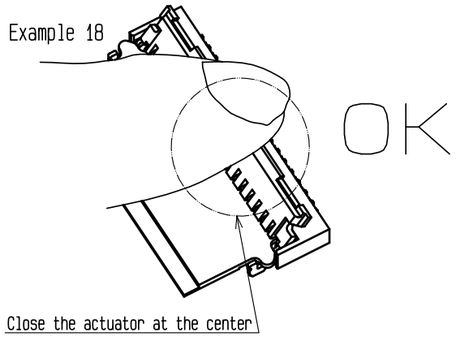
[Caution]
-Close the actuator by carefully operating it at the center.
-Do not operate the actuator at one end only.
-The actuator must be operated by hand only,
and do not insert any tools or fingernails inside the connector.
-Do not attempt to force the actuator to backside further.
-When operating the actuator do not apply any force in the direction of the connector.
-Do not attempt to dislodge the actuator.
-Confirm that the actuator completely closed and is parallel to the PCB mounting surface.

Example 17



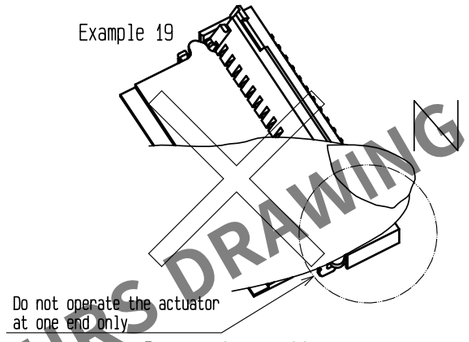
- Correct operation -

Example 18



- Correct operation -

Example 19



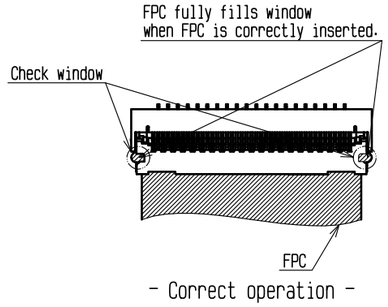
- Incorrect operation -

6. Mating confirmation of the FPC

Visually confirm the FPC positioning after closing the actuator.

[Caution]
-Do not insert the FPC at an angle and/or stop it before insertion is completed.

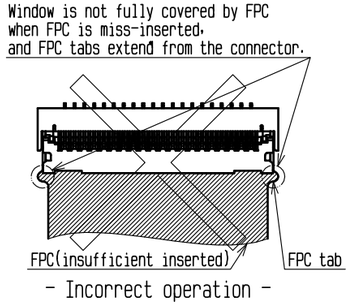
Example 20



- Correct operation -

OK

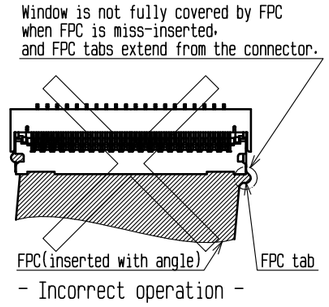
Example 21



- Incorrect operation -

NG

Example 22



- Incorrect operation -

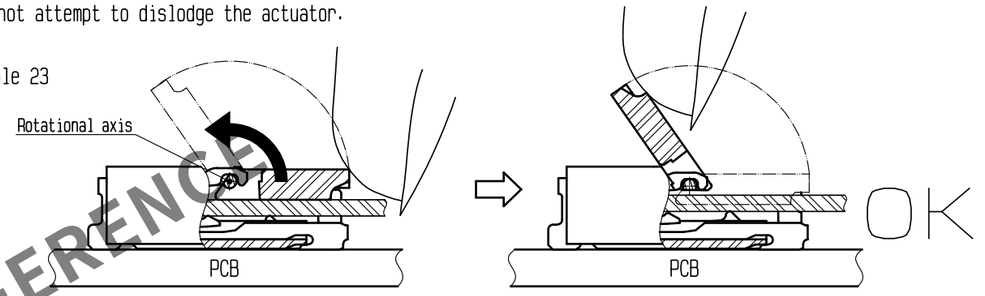
NG

7. How to unlock

Slowly flip up the actuator to release the lock.

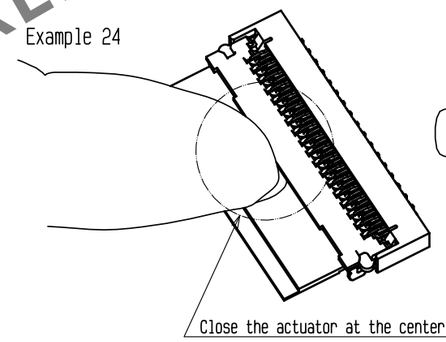
[Caution]
-Open the actuator by carefully lifting it at the center.
-Do not lift the actuator at one end only.
-The actuator must be operated by hand only,
and do not insert any tools or fingernails inside the connector.
-The actuator rotates 125 degrees max.
Do not attempt to force the actuator to backside further.
-When operating the actuator do not apply any force in the direction of the connector.
-Do not attempt to dislodge the actuator.

Example 23



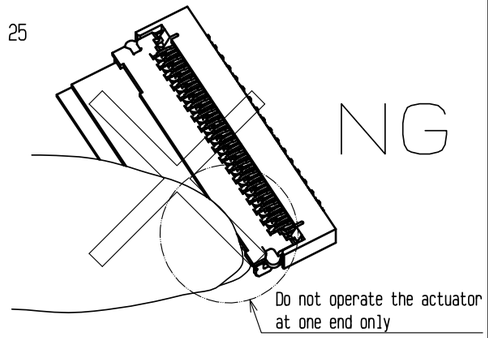
- Correct operation -

Example 24



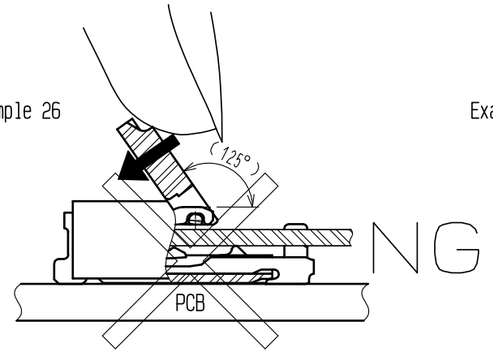
- Correct operation -

Example 25



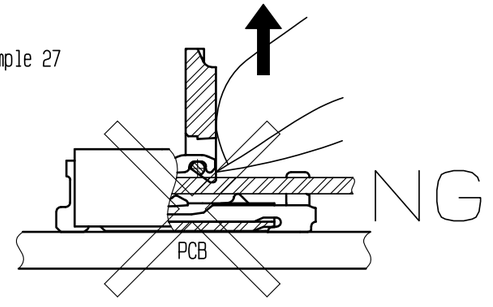
- Incorrect operation -

Example 26



- Incorrect operation -

Example 27



- Incorrect operation -

<INSTRUCTION MANUAL(3)>

DRAWING NO.	EDC3-355760-01
PART NO.	FH43BW-**S-0.2SHW(10)
CODE NO.	CL580-

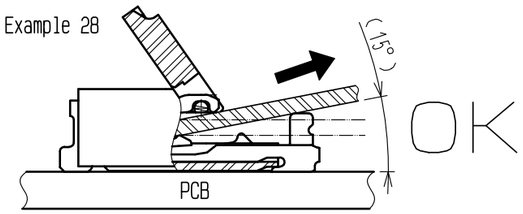
Mar.1.2024 Copyright 2024 HIROSE ELECTRIC CO., LTD. All Rights Reserved.
In case of consideration for using Automotive equipment / device which demand high reliability, kindly contact our sales window correspondents.

8. How to remove FPC

This connector has a temporary FPC holding structure with metal fittings.
After rotating the actuator to the fully opened position carefully withdraw the FPC pulling out at about 15 degree angle to the PCB mounting surface.

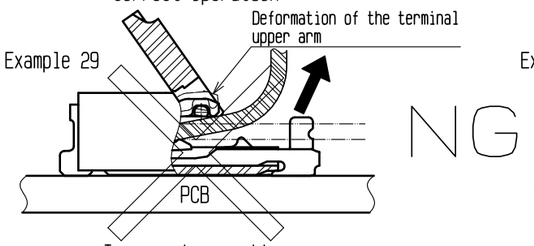
[Caution]
-For FPC removal, do not pull out the FPC horizontally.
-Do not withdraw the FPC at an angle.
-Do not attempt to pull the FPC without unlocking the actuator.

Example 28



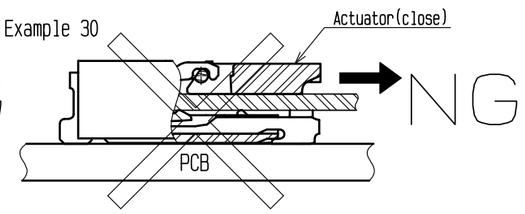
- Correct operation -

Example 29



- Incorrect operation -

Example 30



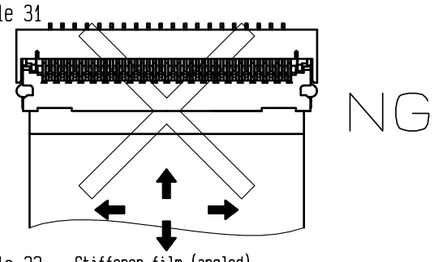
- Incorrect operation -

[Precautions for component layout]

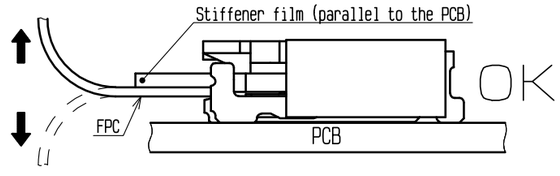
Depending on a FPC rounding, a load is applied to the connector, and a contact failure may occur.
To prevent a failure, take the following notes into a consideration during mechanism design.

[Caution]
-Avoid applying forces to FPC in vertical or horizontal directions.
In addition, avoid pulling up and down on the FPC.
-When fixing FPC after FPC cabling, avoid pulling FPC, and route the wire FPC with slack.
In this regard, the stiffener is parallel to the PCB.
-Do not bend the FPC excessively near the connector during use, or it may causecontact failure or FPC breakage.
Fixing the FPC is recommended to prevent these failures.
-Do not mount other components touching to the FPC underneath the FPC stiffener.
-Follow the recommended FPC design.
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 actuator movement and its operation for PCB design and component layout.

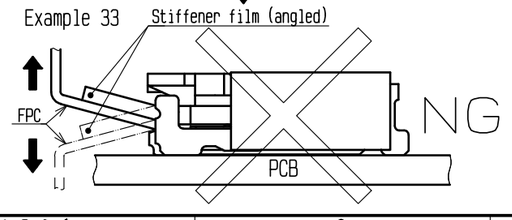
Example 31



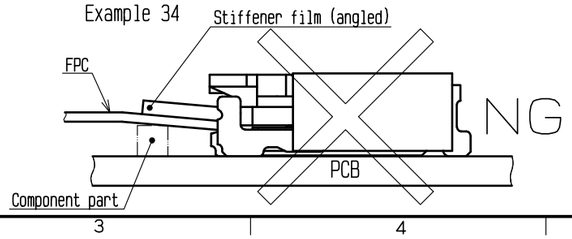
Example 32



Example 33



Example 34



[Instructions for mounting on the PCB]

Follow the instructions shown below when mounting on the PCB.

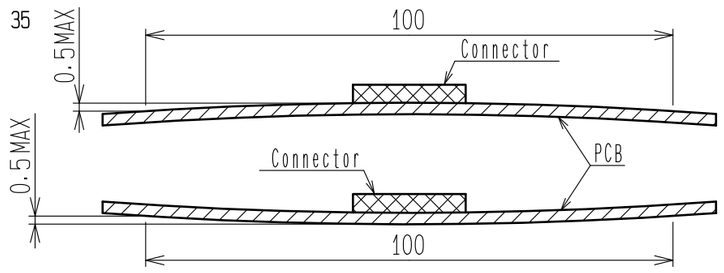
[Caution]
-Refer to recommended layouts on the page 1 for PCB and stencil pattern.
-Shorter pattern width than the recommended PCB dimension, could cause solder wicking and/or flux penetration.
-Larger pattern than the recommended stencil dimension, could cause solder wicking and/or flux penetration.
-Clearance underneath the contact 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 backside of the flexible board.
We recommend a glass epoxy material with the thickness of 0.3 mm MIN.
-Do not add 0.5 N 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
Avoid the handling described above so that no force is exerted on the PCB during the assembly process.
Otherwise, the connector may become defective.
-The warp of a 100 mm wide PCB should be 0.5 mm or less.
The warp of PCB suffers stress on connector and the connector may become defective.

Example 35



[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 or rotating parts of the actuator, resulting in poor contact or a rotation failure of the actuator.
Supplying excessive solder to the metal fittings may hinder actuator rotation, resulting in breakage of the connector.

HRS DRAWING FOR REFERENCE

<INSTRUCTION MANUAL(4)>

HRS	DRAWING NO.	EDC3-355760-01
	PART NO.	FH43BW-**S-0.2SHW(10)
	CODE NO.	CL580-