Title of Document: **REPORT**	Issue No. CHM-1-062	Rev. 4
Customer:	Issue date: August 2, 1991	
Title subject: FLZ Connector	Revision date: October 7, 2019	

This manual describes important and required points of handling about FLZ connector.
Be sure to read this manual thoroughly before using FLZ connector.

C O N T E N T S

1. Model Number and Part Name

1.1. Model number

Part name			Model No.
FLZ connector	Normal type	Loose piece product	**FLZ-SM2-( ) (LF)(SN)
		Embossed-taping product	**FLZ-SM2-( )-TB (LF)(SN)
	Reverse type	Loose piece product	**FLZ-RSM2-( ) (LF)(SN)
		Embossed-taping product	**FLZ-RSM2-( )-TB (LF)(SN)

Note$_1$: Number of circuits by two-digit figure in **.

Note$_2$: Contact plating specification in ( )
Blank: Tin-plated
GB: Contact area: Gold-plated (Thickness: flash)
Soldering area: Tin-plated, etc.

Note$_3$: (LF)(SN) as identification part number indicating lead-free product.

e.g.) 10FLZ-RSM2-GB-TB (LF)(SN)
10-circuit FLZ connector reverse type
Plating spec:At contact area, gold-plated (thickness: flash)
At soldering area, Tin-plated

1.2. Part name and part function

This FLZ connector consists of contact, solder tab, housing and slider.
On handling, understand each name and function.

(1) Contact

It connects PC board with FPC electrically.

(2) Solder tab

It is soldered to PC board and connects connector with PC board mechanically.

(3) Housing

It fixes contact and solder tab.

(4) Slider

Contact and FPC are connected electrically by the slider operation of contact.

(5) Contacting part

Contact and FPC are connected electrically and mechanically.

(6) Solder tail of contact

It is soldered to PC board and connected with PC board mechanically and electrically.

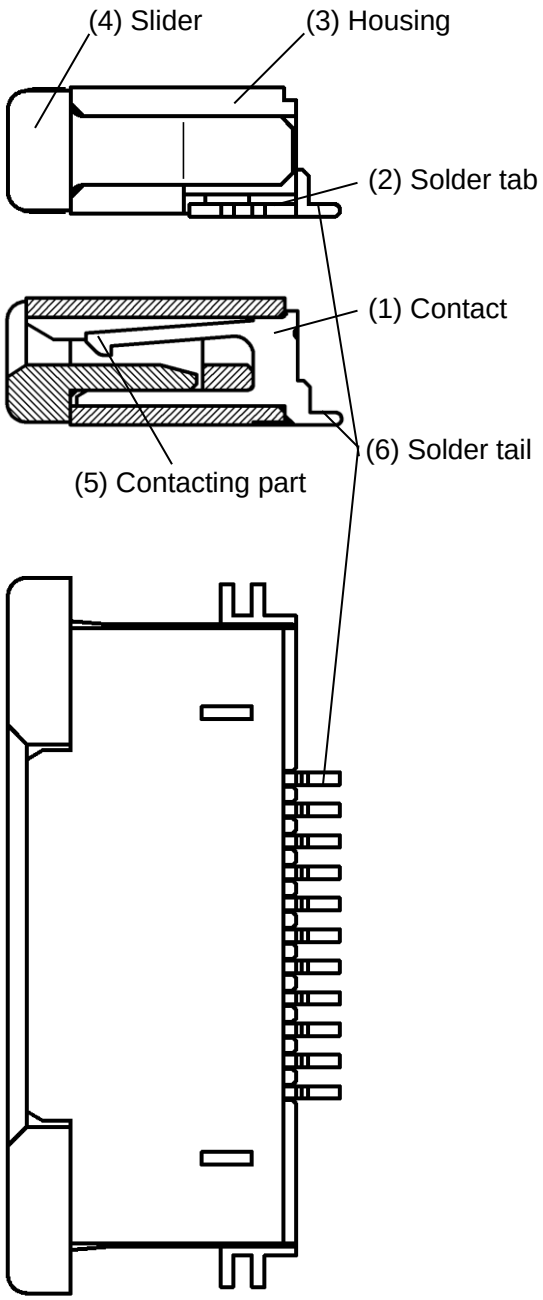


Fig.-1: Normal type

2. Applicable FPC

Item	Rated value	
Applicable FPC	Conductor:	Tin-plated copper foil Gold-plated copper foil
	Conductor pitch:	0.5 mm
	Conductor width:	0.35 mm
	Mating part thickness:	0.3 ± 0.03 mm

Note$_4$: Dimensions of FPC greatly affect to the contacting reliability with connector.
Conform the dimensions of FPC with those of applicable ones described in drawing.

Note$_5$: Especially, narrow pitch connector has a high possibility to come off from 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 etc. shall be satisfied with the given tolerances, considering the variations of those dimensions.

Note$_6$: Confirm the applicability of the connector with the FPC used, before use.
FPC, which applicability is not confirmed, might not be able to guarantee the performance.

Note$_7$: Blanking shall be conducted in the direction from conductor side to reinforcing plate side.

Note$_8$: Material of reinforcing plate should be polyimide.

Note$_9$: Thermosetting adhesive shall be used.

Note$_{10}$: The plating specification of FPC and the connector shall be unified.
Do not mate the different type metal FPC with connector.

3. PC Board Pattern Layout

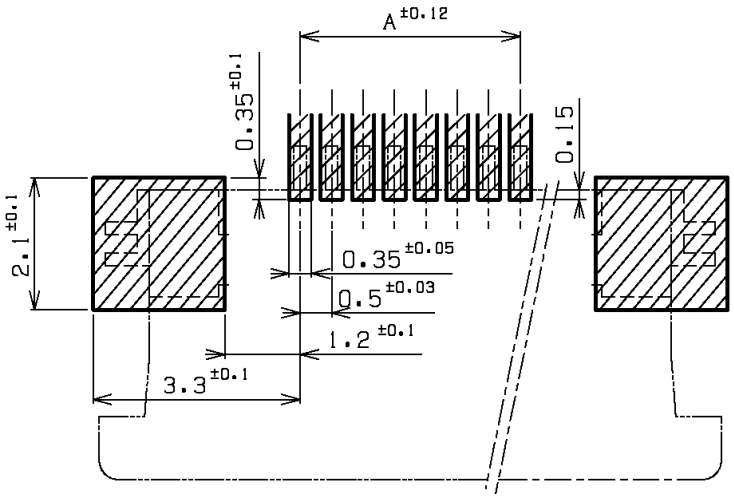


Fig.-2: PC board pattern layout

Note$_{11}$: Please take consideration in the pattern width because it affects the precision after soldering, solder bridge, etc.

Circuit No.	Dimension-A
6	2.5
7	3.0
8	3.5
9	4.0
10	4.5
11	5.0
12	5.5
13	6.0
14	6.5
15	7.0
16	7.5
18	8.5
20	9.5
21	10.0
22	10.5
23	11.0
24	11.5
25	12.0
26	12.5
27	13.0
28	13.5
30	14.5
33	16.0

4. Handling Method and Precautions

4.1. Precautions for soldering operation

4.1.1. Soldering iron method

Soldering should be conducted at the temperature below the temperature profile shown in Product Specification as item of “Resistance to soldering heat”.
Though recommended reflow temperature condition varies depending on solder paste to be used, evaluate and find adequate condition before production.

Depending on the soldering condition, solder and flux wicking may occur on this connector.
Check whether customer soldering condition is applicable or not before using.

When bridge trouble appears in process of reflow soldering and repair is conducted by hand, strictly conduct item 4.1.2 “Solder iron method.”

Following configuration of metal mask is recommended for mounting operation;

- Blanking part: 100 % against pad area on PC board
- Thickness: 120 ~ 150 μm

4.1.2. Solder iron method

When soldering connector on PC board, use a soldering iron with temperature of 350°C at the tip of soldering iron quickly within 3 seconds.
Do not apply external force by pressing soldering iron tip on contact solder tail part.
If done, dismount and exchange connector.
Do not reuse dismounted connector.

4.1.3. Blister on housing

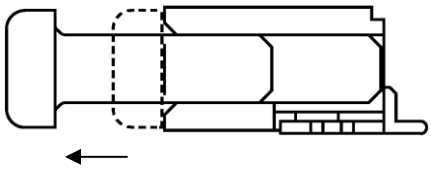
Considering handling of this connector in mating operation, tenacious heat-resistant polyamide resin is used for the material of the housing. But 'blister' may generate on the outer surface of the housing during the process of reflow soldering, depending on the condition of water absorption in a wafer and the condition of reflow soldering. However, because 'blister' is not caused by decomposition of resin, it does not affect the performances of the connector.

4.2. Inserting and extracting FPC

4.2.1. Inserting FPC

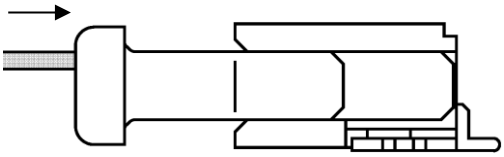
Insert FPC according to the following procedure, referring to the following figure.

①Hold the both ends of slider and release slider by pulling it out with even force in the horizontal direction.
Slider moves approx. 1.8 mm in horizontal direction.



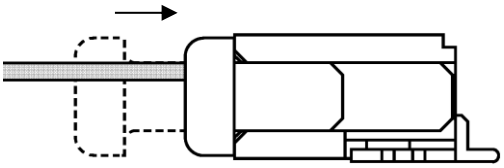
②Insert FPC into the slider entrance up to the backmost.

Normal type: Turn FPC contact surface up.
Reverse type: Turn FPC contact surface down.



Do not insert other than FPC, which may cause the trouble on the connector such as breakdown and electrical discontinuity.

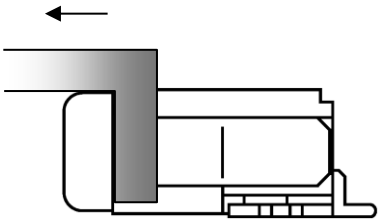
③Press the slider straight and lock it.



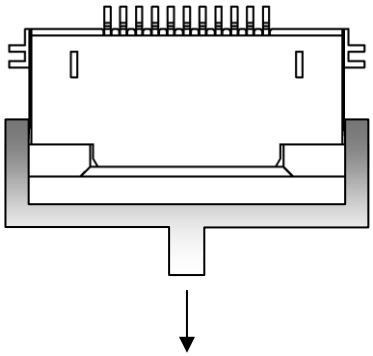
Press the slider securely in the connector so as not to make clearance between the housing and the slider.

4.2.2. Extracting FPC

Pull out FPC after slider is released as mentioned in 4.2.1 ①.



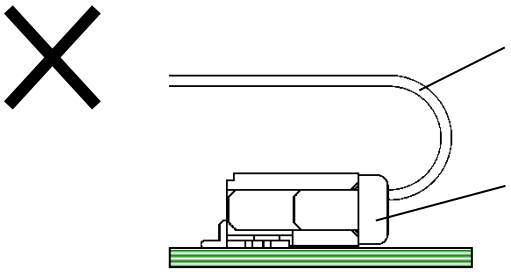
When slider is released, pull slider in horizontal direction straight with even force.
Do not pull only one side of slider or in a diagonal direction, which may make slider be come off and be broken due to prying of slider.
In case that manual extraction of FPC is difficult, use such tool as the jig as shown at the right, and you can release the slider smoothly.

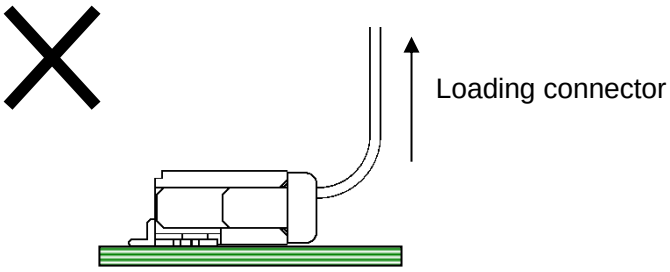


Note: When inserting and releasing FPC, release the slider lock without fail.
Do not insert and extract FPC with locked slider, which may cause such trouble on the connector as breakdown and electrical discontinuity.

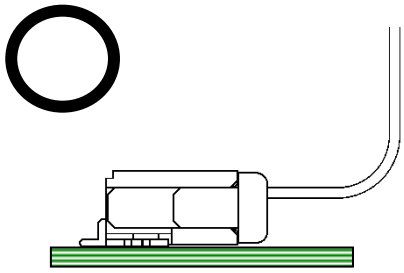
5. Handling of FPC after Mounting on PC board

When inserted FPC is handled, provide sufficient FPC length so as not to load FLZ connector, because such loading may cause damage and discontinuity of connector.

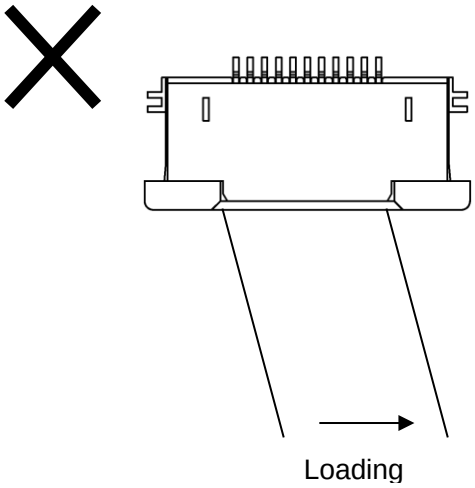




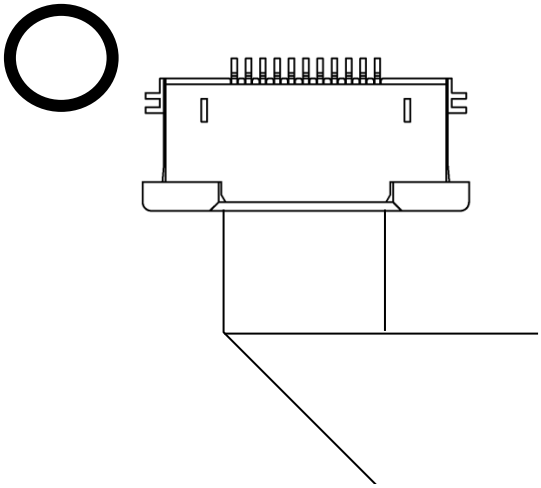
∗ FPC length is not sufficient to handle.



∗ FPC length is sufficient to handle.



∗ Load is applied to FPC.



∗ Forming processing is subject to FPC not so as to load connector.

In case that the contacting area of between the connector and FPC is in danger of being loaded by the actuation of the movable parts or the rotation parts of apparatus, contact defect due to fretting corrosion may be caused. So, taking such a consideration as fixing FPC around the area is necessary so as not to load the contacting area.

6. Storage

As our recommended connector storage condition, the connector shall not be taken out from the packaging carton. Even if the packaging carton is opened once, it is allowed as far as the connector is packed again.

The storage room shall be conditioned to 5 ~ 35 °C temperature and maximum 60% relative humidity with good ventilation, keeping from direct sunshine, corrosive gas such as industrialize gas (from stove, etc.) and ammonium gas (from lavatory, etc.) and condensation.

General storage period is 6 months from delivery product to customer.