ETAD-F0887-00

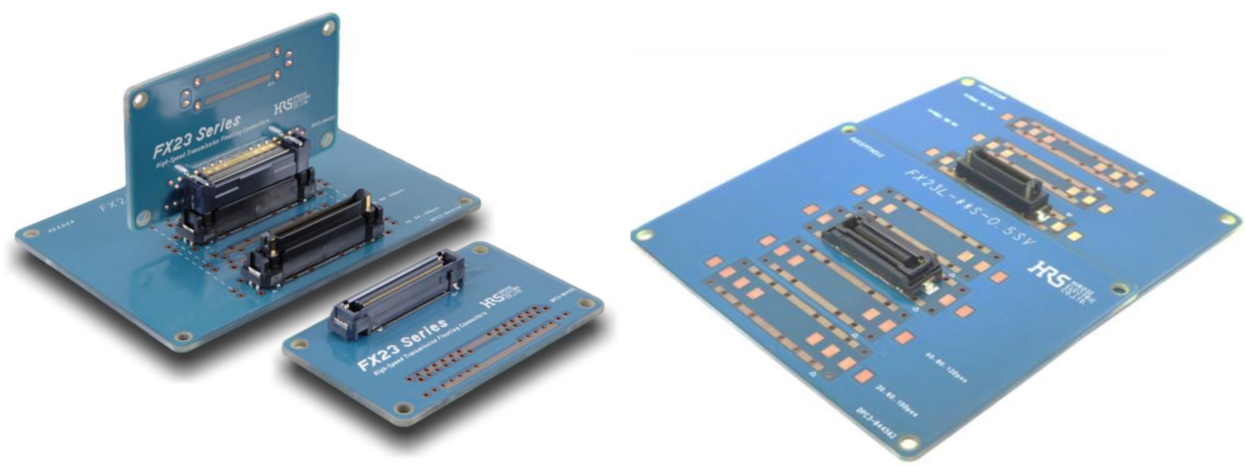
FunctionMAX™

0.5mm pitch, Power/Signal Hybrid
Floating Board to Board Connectors for Highspeed Transmission

FX23×FX23L Series

Design Guideline

March 2023



https://www.hirose.com/product/en/products/FX23/
https://www.hirose.com/product/en/products/FX23L/

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1. Preface

1-1 Purpose

The FX23xFX23L Series Instruction Manual is intended to provide information on basic features of the FX23 and FX23L Series and the method of use, as well as to provide information on the method of designing products efficiently and improving the assembling process when the FX23xFX23L Series are used.

Hirose expects this Instruction Manual will significantly contribute to your product development, quality, and cost reduction of the entire system.
Because this Instruction Manual intends only to provide general information, it does not restrict your design and does not guarantee results in all circumstances.
If there is anything that does not conform to the description in this Instruction Manual, consult Hirose for alternative solutions.

1-2 Scope

Described is basic connector design information, recommended board dimensions, and requirements.
This Instruction Manual will be revised on a continuing basis as technical specifications and manufacturing capability changes.

2. Product Information

2-1 Basic Specifications

- ○ Product pitch : Mating section 0.5mm (double column), SMT 0.5mm (both sides exposed)
- ○ Connection type : [FX23 Series] Horizontal connection (stacking height: 15 to 30mm), vertical connection
  [FX23L Series] Horizontal connection (stacking height: 8 to 12mm)
- ○ Floating range : ±0.6mm in X direction, ±0.6mm in Y direction
- ○ Design mating length : 1.5mm
- ○ Current capacity : Signal contact 0.5A/pin, power contact 3 A/pin x 4
- ○ Number of pins : 20/40/60/80/100/120

2-2 Product Number Structure

○ Straight header (FX23, FX23L)

FX23 - 120P - 0.5 SV 15
(1) (2) (3) (4) (5) (6)

○ Straight receptacle (FX23, FX23L)

FX23 - 120S - 0.5 SV 10
(1) (2) (3) (4) (5) (6)

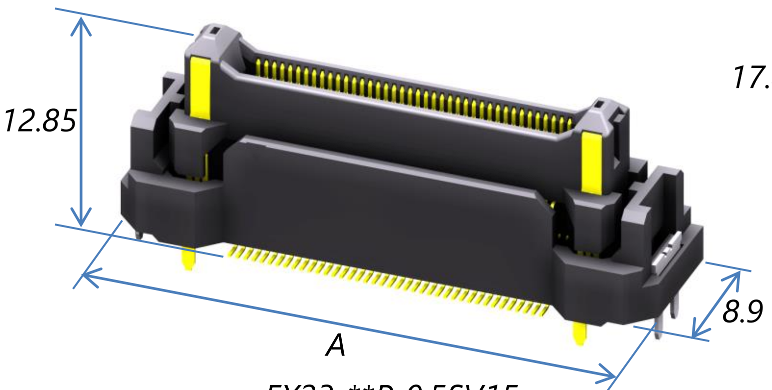
○ Right angle receptacle (FX23 only)

FX23 - 120S - 0.5 SH
(1) (2) (3) (4) (5)

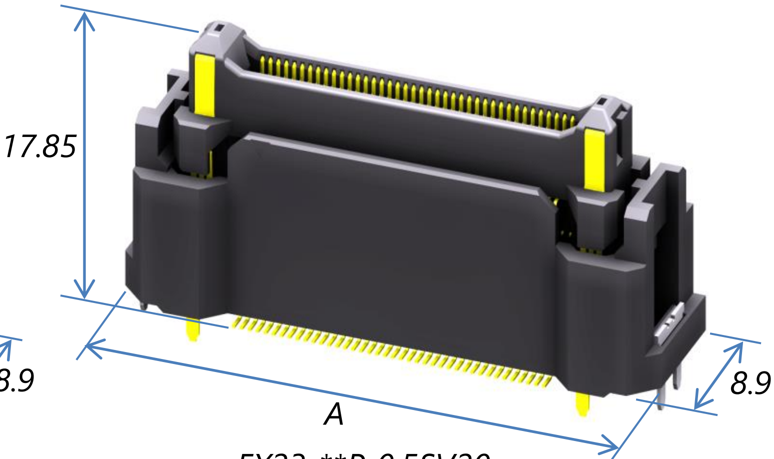
(1) Series name	: FX23 : FX23L
(2) Number of pins	: 20/40/60/80/100/120
(3) Connector type	P : Header S : Receptacle
(4) Contact pitch	: 0.5mm
(5) Product shape	SV: Straight SH: Right angle
(6) Product height	Mating height [mm] = Numerical value on the header side + numerical value on the receptacle side (Ex. FX23-120P-0.5SV15×FX23-120S-0.5SV10 -- h=25mm

2-3 Mating Diagram (Outline) FX23 Series

■ Header



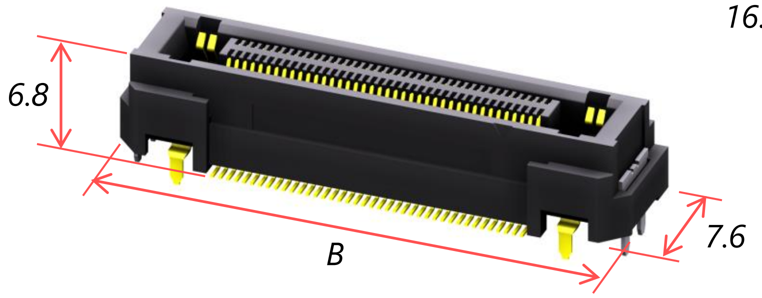
FX23-**P-0.5SV15



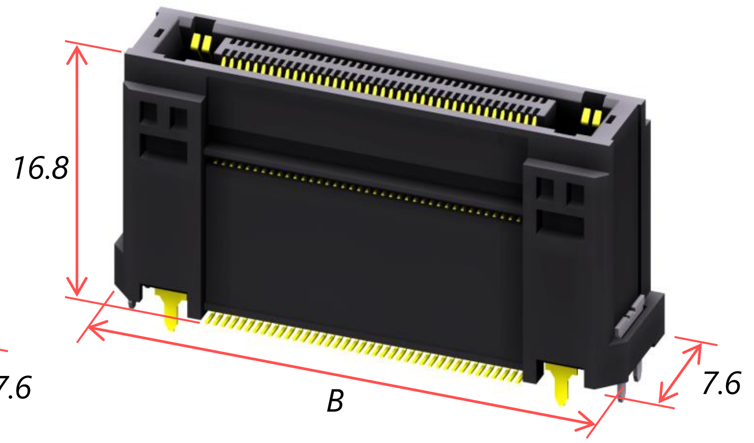
FX23-**P-0.5SV20

Number of pins	20pos.	40pos.	60pos.	80pos.	100pos.	120pos.
A dimension	18.7	23.7	28.7	33.7	38.7	43.7

■ Straight receptacle



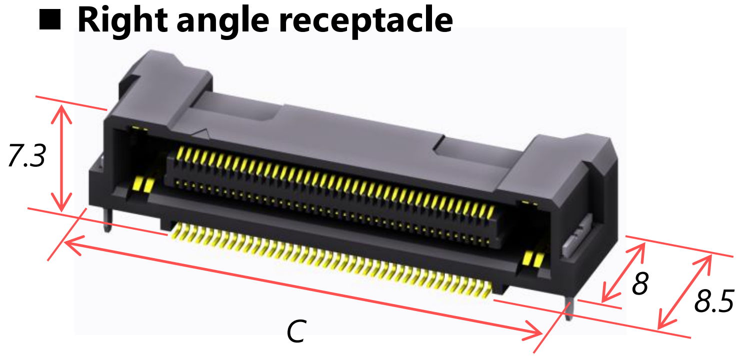
FX23-**S-0.5SV



FX23-**S-0.5SV10

Number of pins	20pos.	40pos.	60pos.	80pos.	100pos.	120pos.
B dimension	17.2	22.2	27.2	32.2	37.2	42.2

■ Right angle receptacle

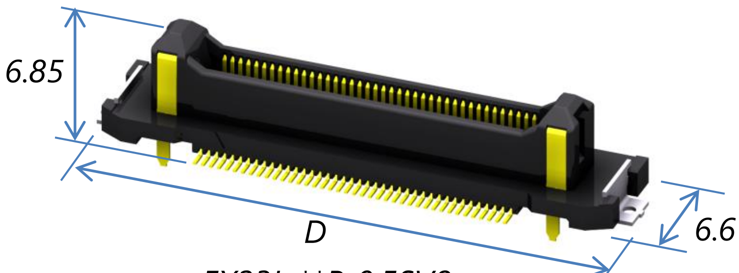


FX23-**S-0.5SH

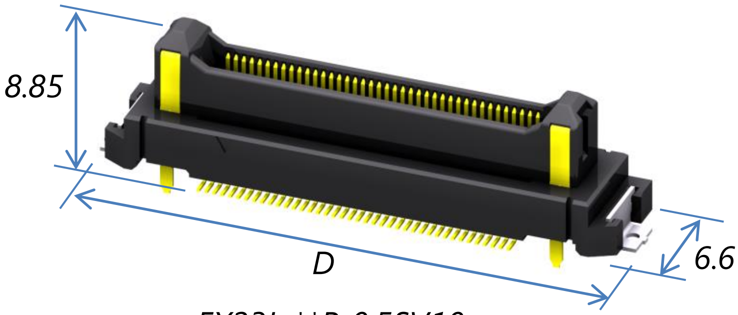
Number of pins	20pos.	40pos.	60pos.	80pos.	100pos.	120pos.
C dimension	15.5	20.5	25.5	30.5	35.5	40.5

2-3 Mating Diagram (Outline) FX23L Series

■ Header

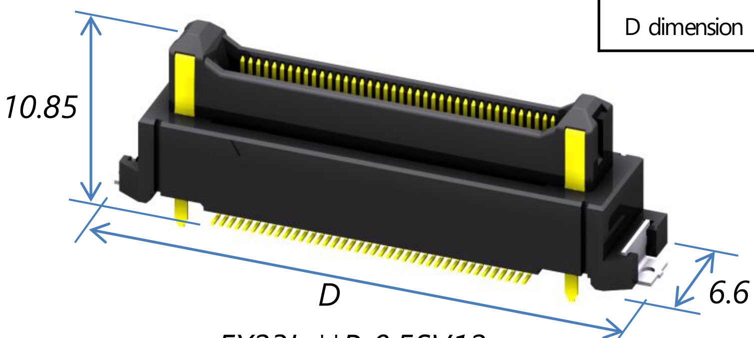


FX23L-**P-0.5SV8



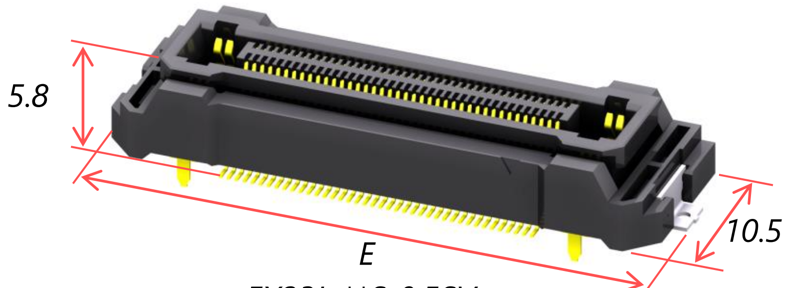
FX23L-**P-0.5SV10

Number of pins	20pos.	40pos.	60pos.	80pos.	100pos.	120pos.
D dimension	18.7	23.7	28.7	33.7	38.7	43.7



FX23L-**P-0.5SV12

■ Receptacle



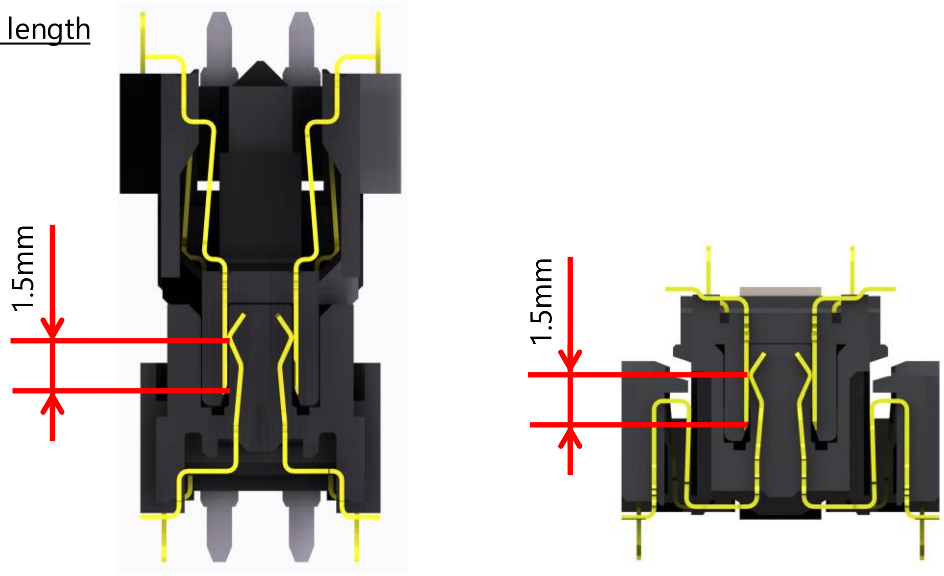
FX23L-**S-0.5SV

Number of pins	20pos.	40pos.	60pos.	80pos.	100pos.	120pos.
E dimension	21	26	31	36	41	46

2-4 Mating Length

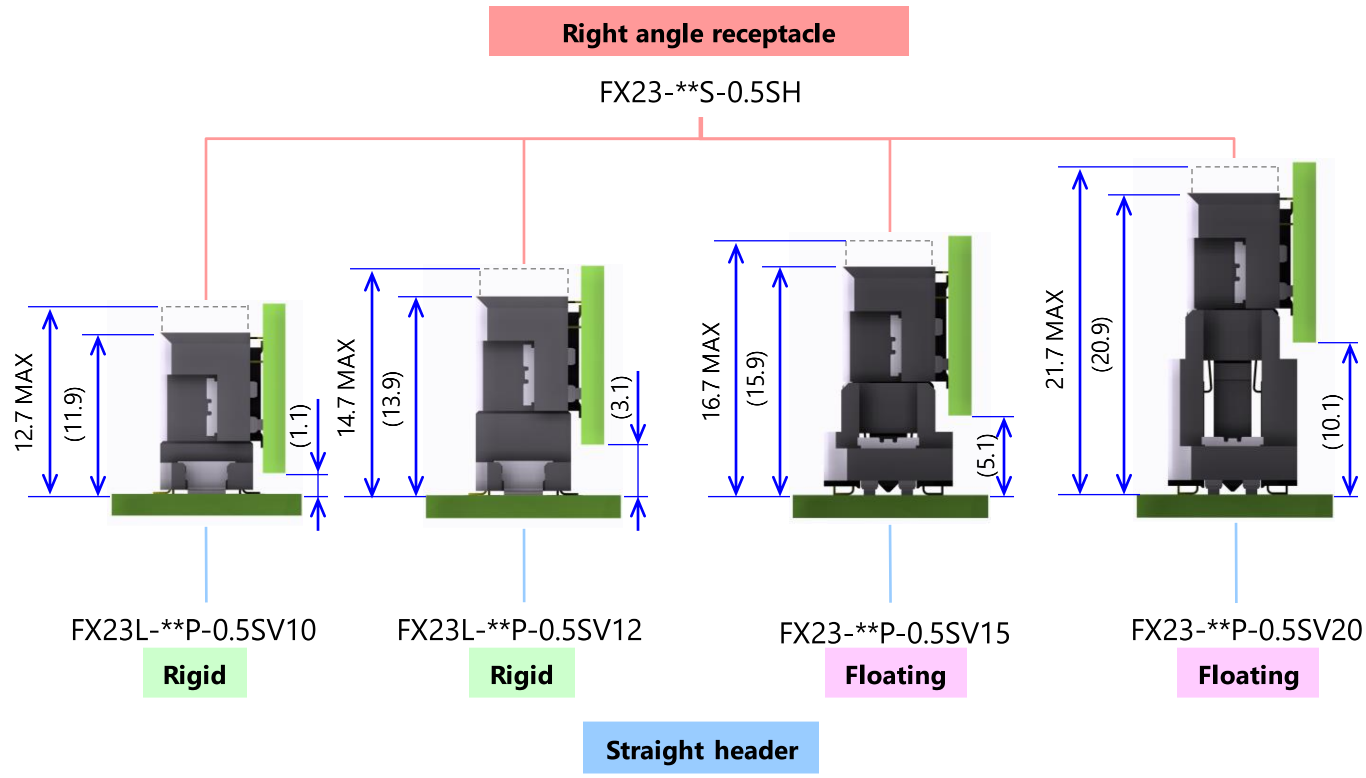
The design mating length of this connector is shown in the following figure.
The dimension between boards should comply with the dimension corresponding to the stabilization methods specified in "5-2. Board stabilization Dimensions."

Mating length



FX23 Series FX23L Series

2-5 Connection Variations (Vertical Connection)

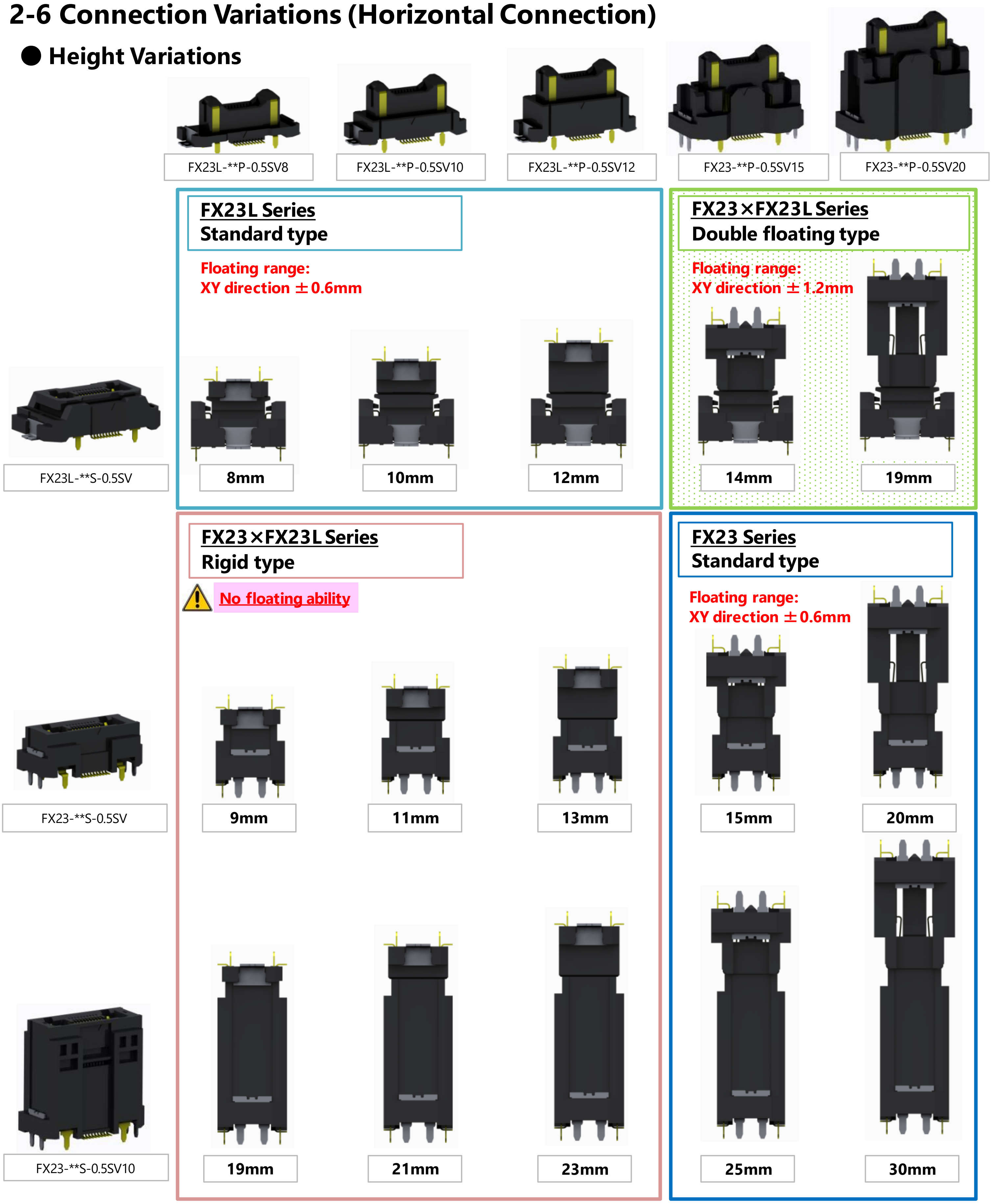


** ---> Number of contacts: 20/40/60/80/100/120

Note. Since the metal fittings interfere with each other, FX23L-**P-0.5SV8 and FX23-**S-0.5SH cannot engage.

2-6 Connection Variations (Horizontal Connection)

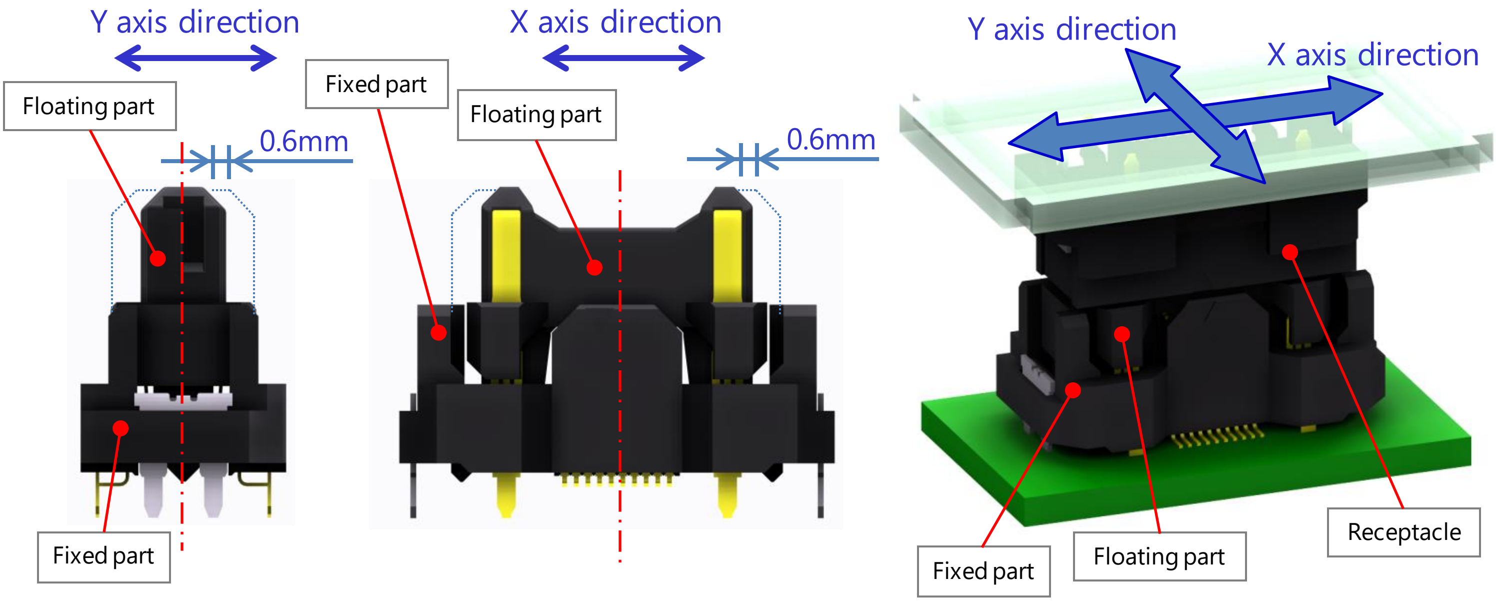
● **Height Variations**



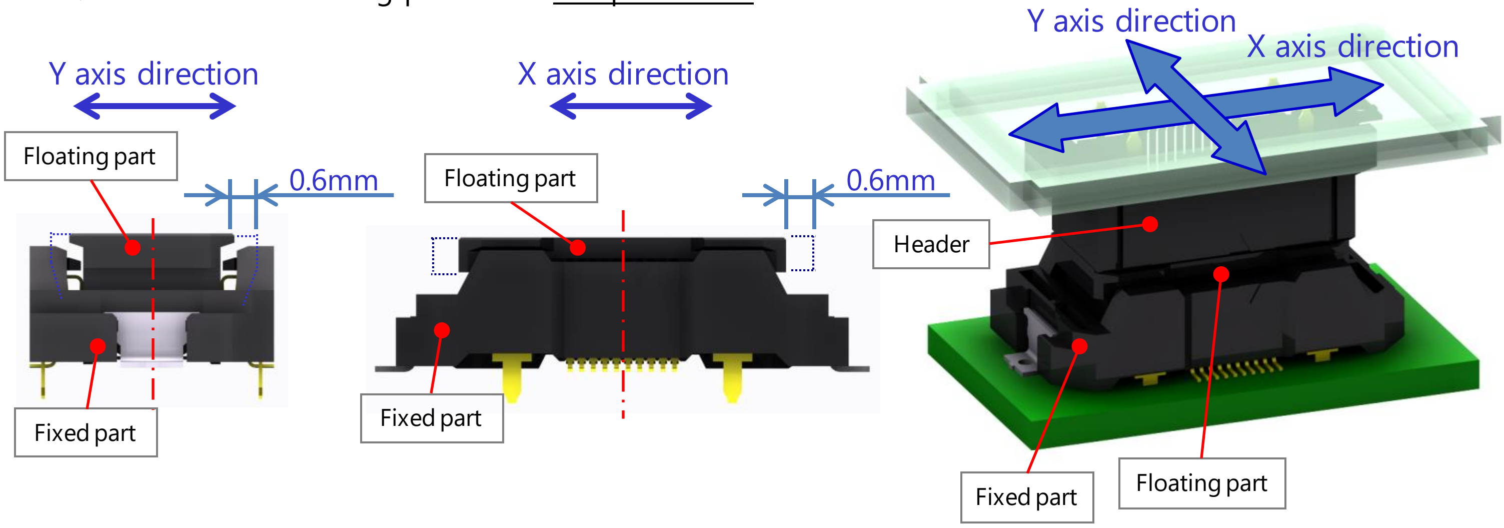
2-7 Floating Range

FX23 and FX23L Series have a floating capability on the header and receptacle side, respectively.
The floating range is ±0.6mm in both X and Y directions.
Note that the repeat count of the floating operation is 100 times at maximum according to the specified insertion/withdrawal count.

◆**FX23 Series** Floating part at header side moves.



◆**FX23L Series** Floating part at the receptacle side moves.



2-8 Use of Insulation Coating Agent

FX23 Series --- Can be used

FX23L Series --- Cannot be used

FX23 Series have spaces around the contacts to prevent insulation coating agents from creeping up due to capillarity.

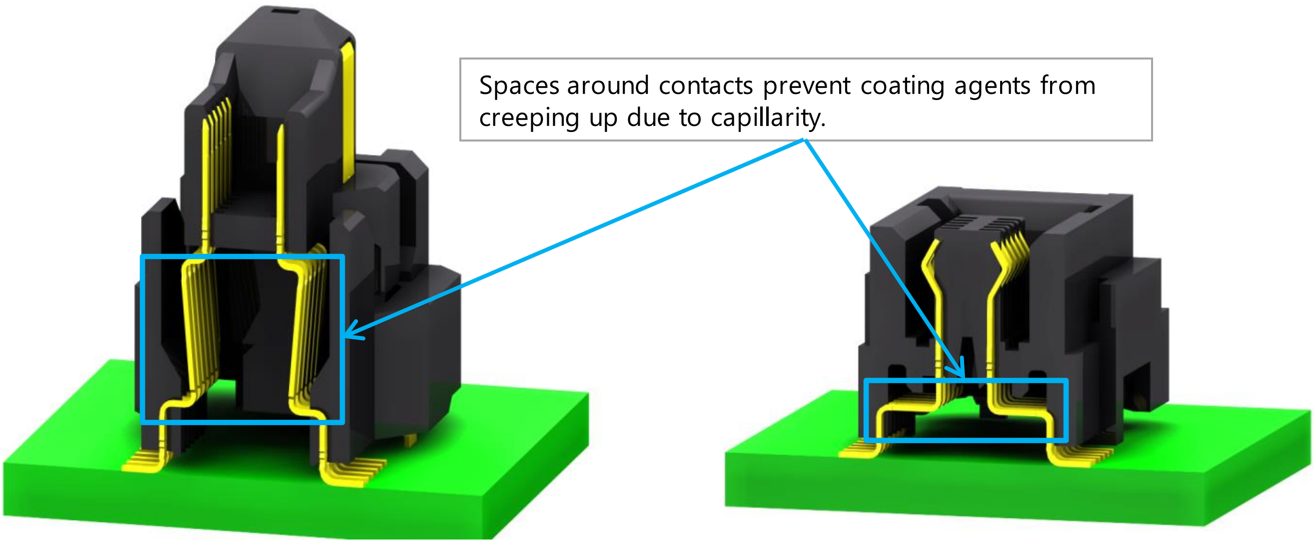
FX23L Series, which has a lower height, does not have spaces like FX23 Series.

Thus, FX23L Series is not designed for preventing insulation coating agents from creeping up.

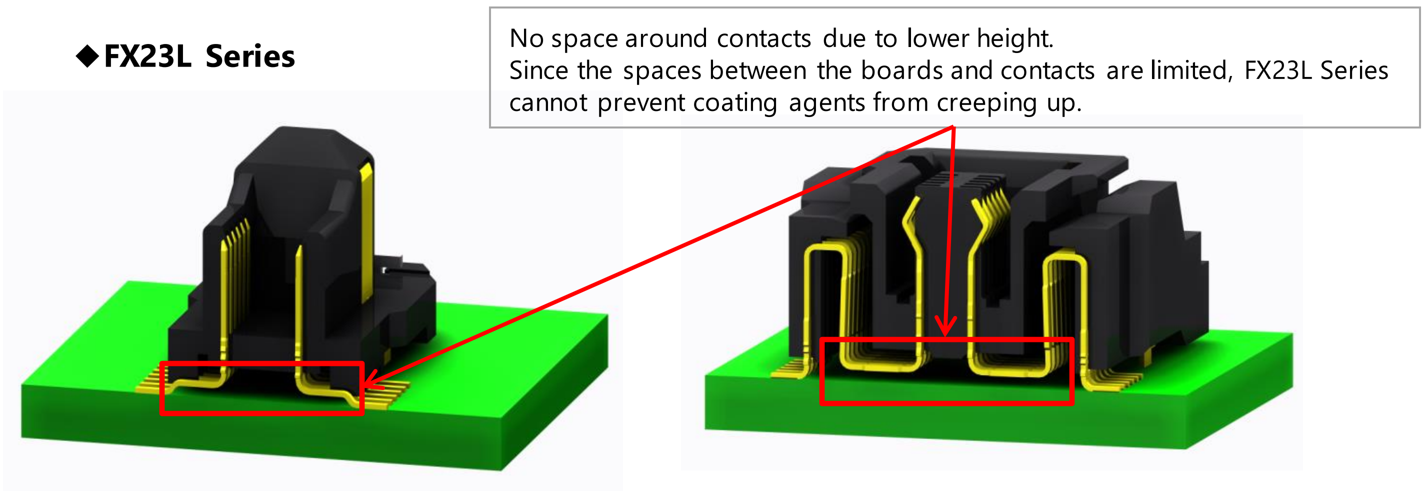
When an insulation coating agent creeps up, it may have adverse effects, such as contact failure by disturbing contact displacement and loss of floating movement.

For this reason, avoid applying an insulation coating agent for FX23L Series.

◆FX23 Series



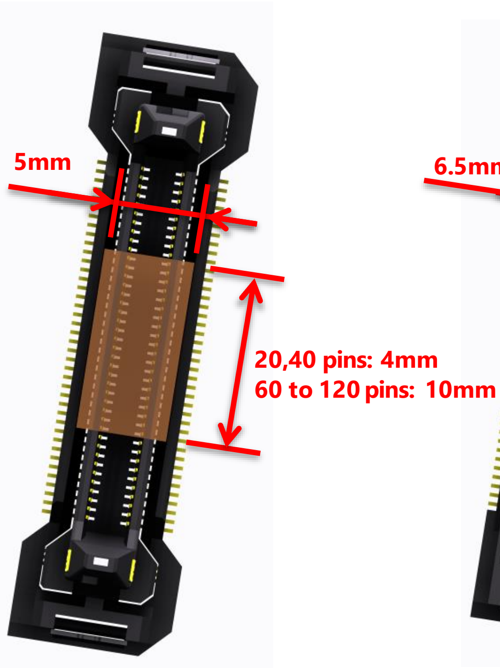
◆FX23L Series



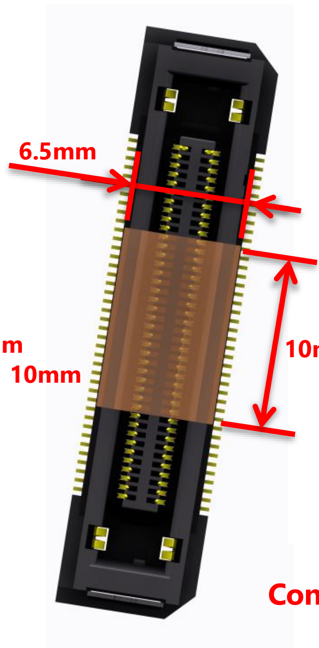
3. Connector Mounting

3-1 Pick and Place Area

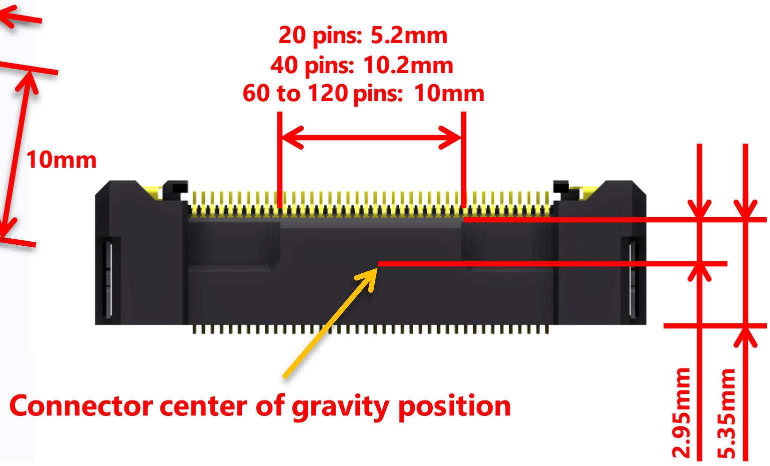
To support automatic Board Placement, a kapton tape is attached to the mating section.



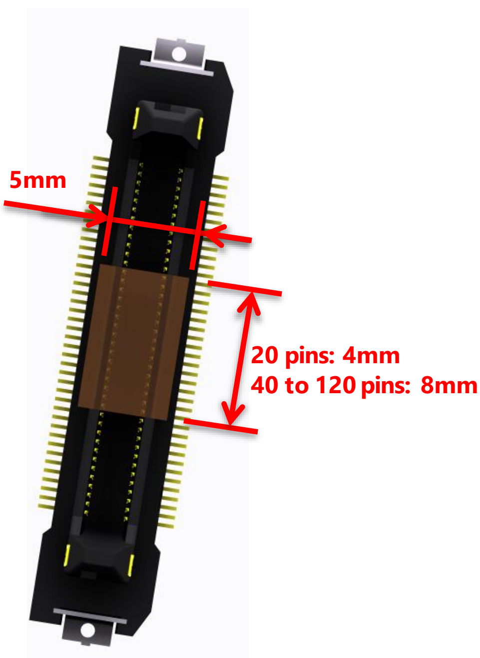
FX23-**P-0.5SV**
(Straight header)



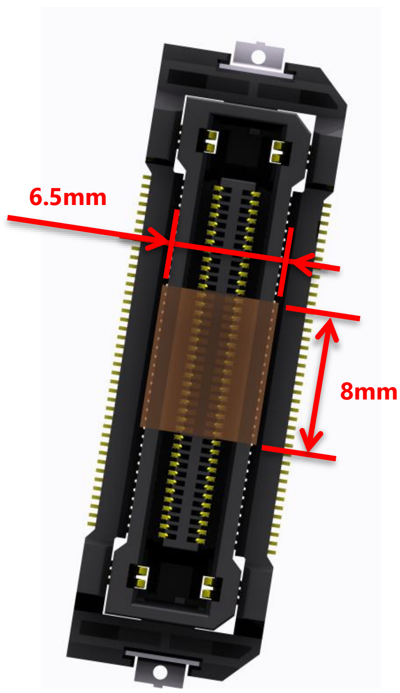
FX23-**S-0.5SV**
(Straight receptacle)



FX23-**S-0.5SH
Right angle receptacle



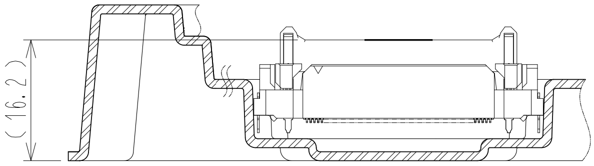
FX23L-**P-0.5SV** (straight header)



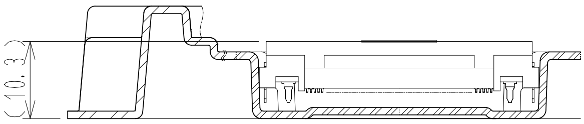
FX23L-**S-0.5SV** (straight receptacle)

The distance from the bottom of the tray to the Kapton tape surface is shown below.

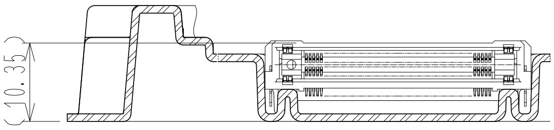
■FX23-**P-0.5SV15



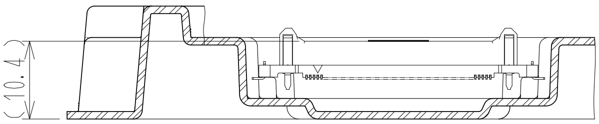
■FX23-**S-0.5SV



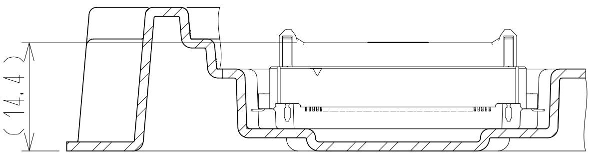
■FX23-**S-0.5SH



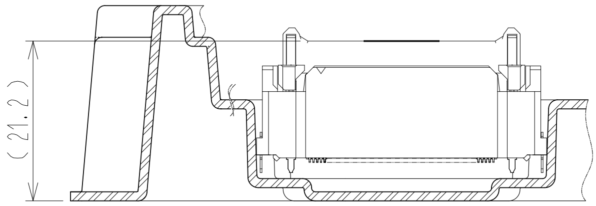
■FX23L-**P-0.5SV8



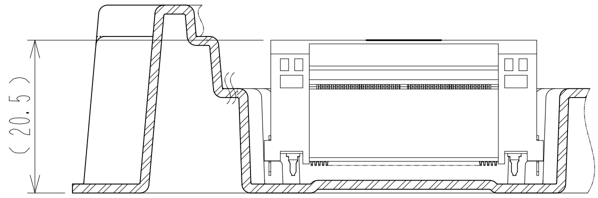
■FX23L-**P-0.5SV12



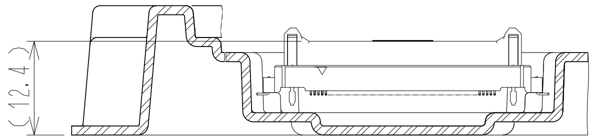
■FX23-**P-0.5SV20



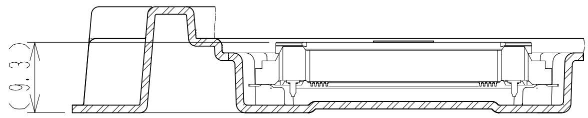
■FX23-**S-0.5SV10



■FX23L-**P-0.5SV10

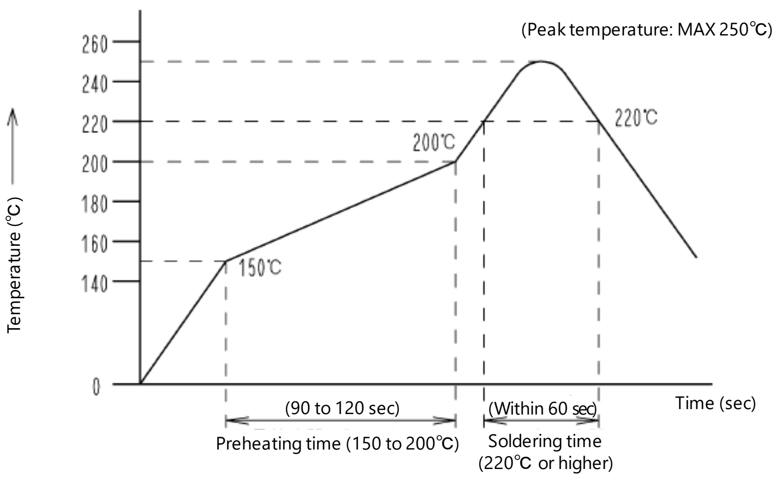


■FX23L-**S-0.5SV



3-2 Recommended Temperature Profile

This temperature profile should be used as a reference under the following process conditions. It may be different depending on the type of solder paste, manufacturer, board size, mounting member, etc. Check the mounting status carefully before use.



<Application conditions>

Test board Dimension : 110×50×1.6mm

Material : Glass epoxy

Solder component : Sn96.5/Ag3.0/Cu0.5

Flux content : 11.5 wt%

Metal mask thickness : 0.12mm, 0.15mm

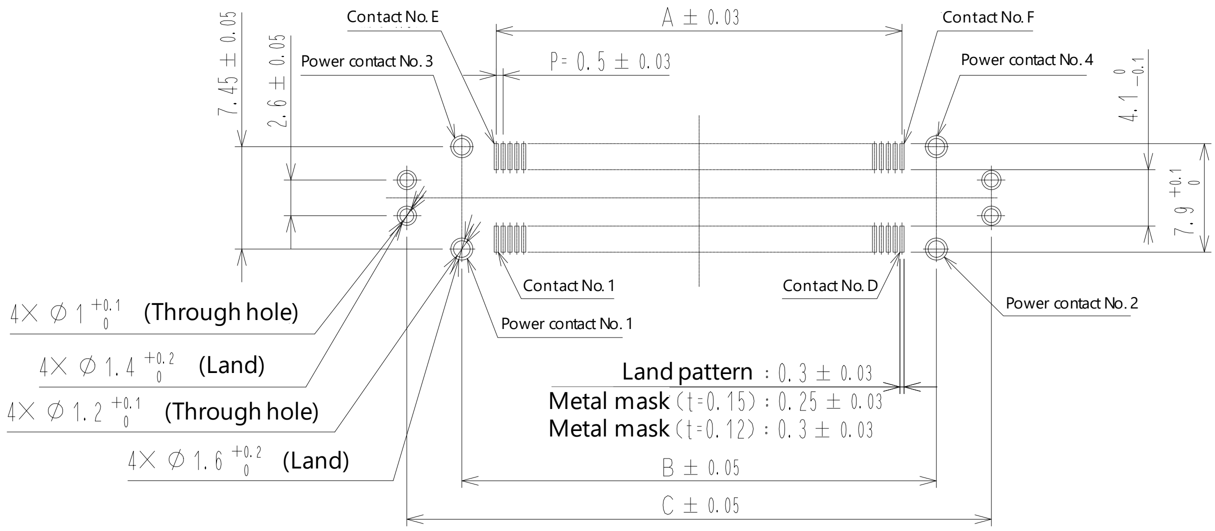
Number of reflows : 2 or less

Reflow area : 220 ℃ or higher, within 60 seconds

Preheating area : 150 to 200℃, 90 to120 seconds

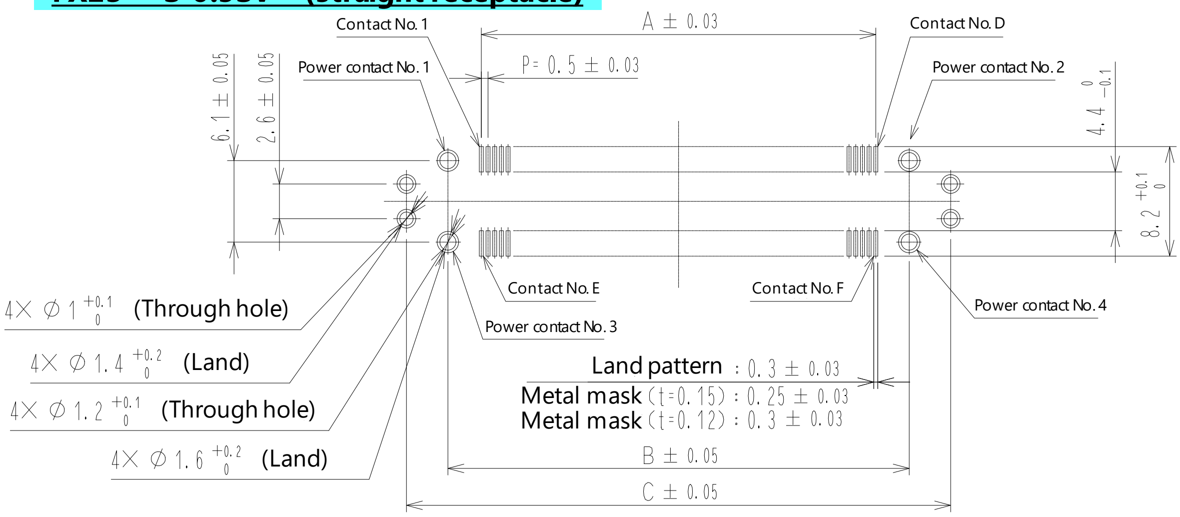
3-3 Recommended Land Pattern (Recommended Board Thickness: t = 1.6mm)

FX23-**P-0.5SV** (straight header)



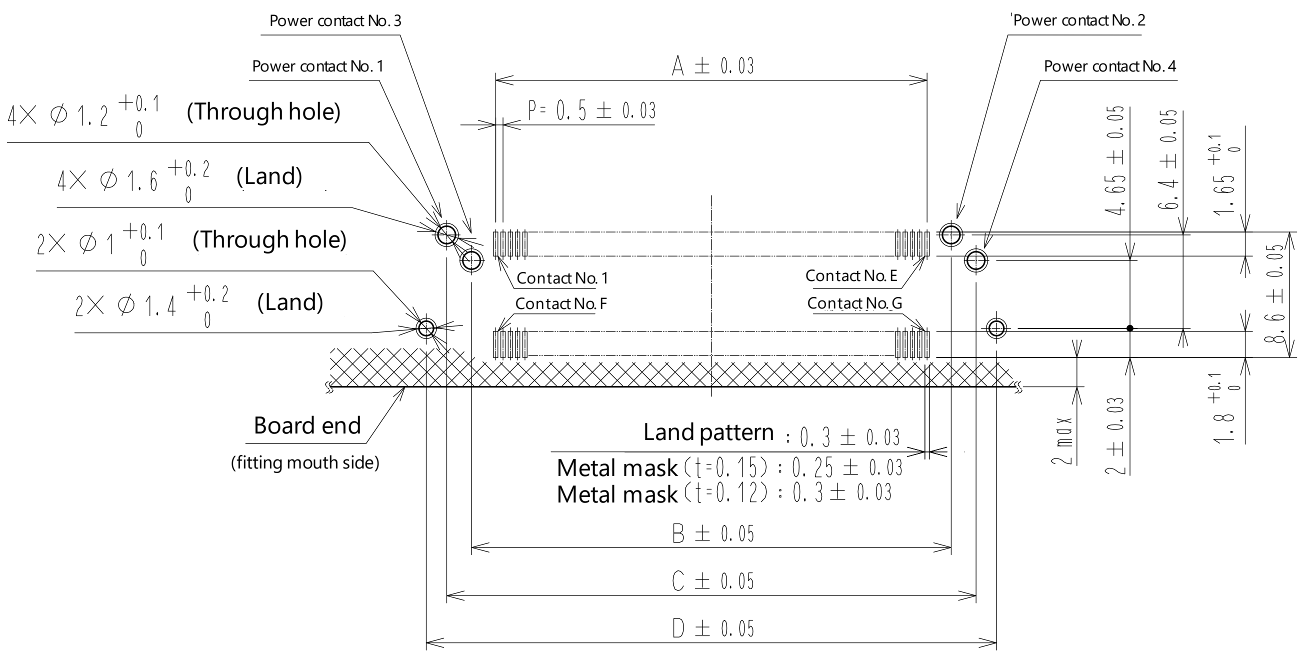
	20pos.	40pos.	60pos.	80pos.	100pos.	120pos.
A	4.5	9.5	14.5	19.5	24.5	29.5
B	9.5	14.5	19.5	24.5	29.5	34.5
C	17.5	22.5	27.5	32.5	37.5	42.5
D	10	20	30	40	50	60
E	11	21	31	41	51	61
F	20	40	60	80	100	120

FX23-**S-0.5SV** (straight receptacle)



	20pos.	40pos.	60pos.	80pos.	100pos.	120pos.
A	4.5	9.5	14.5	19.5	24.5	29.5
B	9.5	14.5	19.5	24.5	29.5	34.5
C	15.7	20.7	25.7	30.7	35.7	40.7
D	10	20	30	40	50	60
E	11	21	31	41	51	61
F	20	40	60	80	100	120

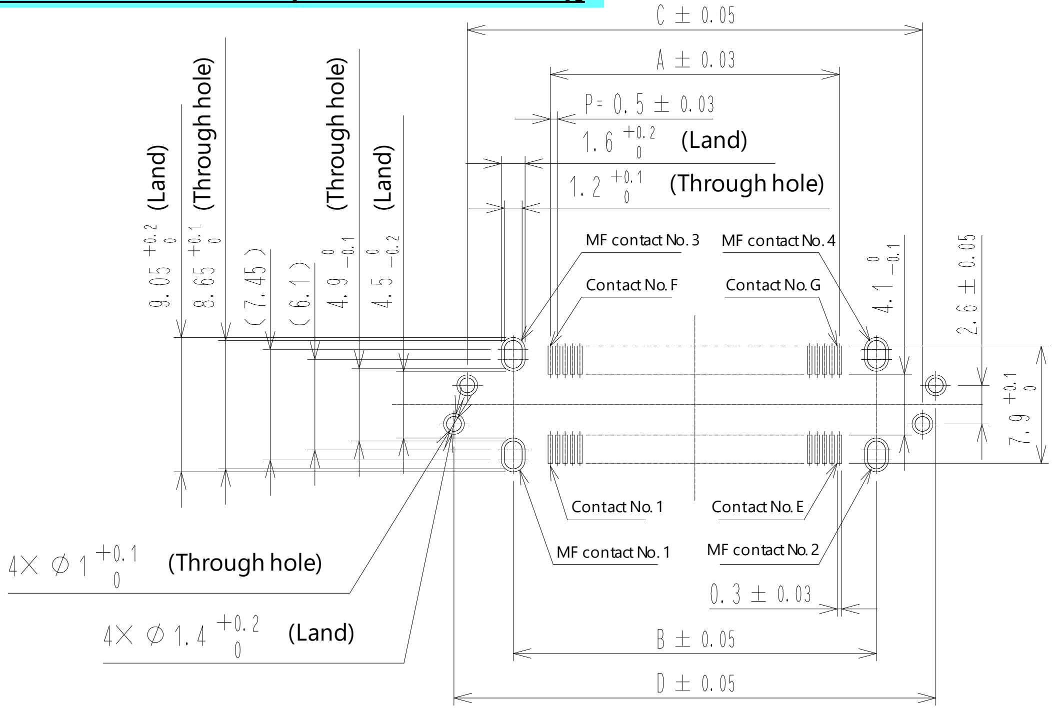
FX23-S-0.5SH (right angle receptacle)**



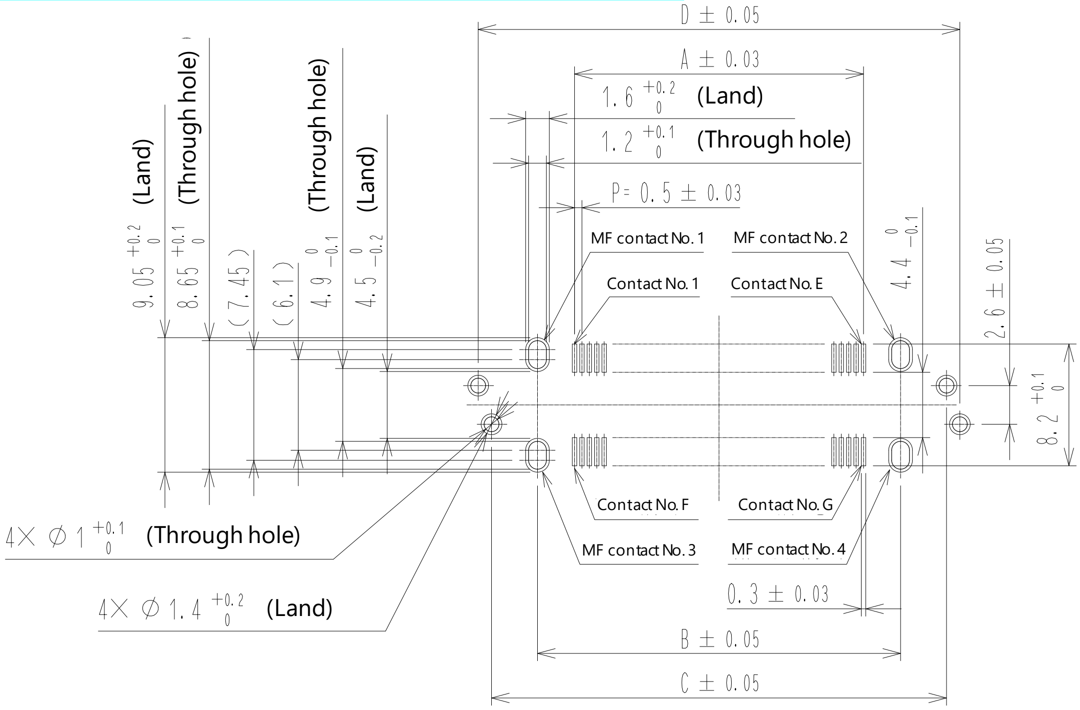
	20pos.	40pos.	60pos.	80pos.	100pos.	120pos.
A	4.5	9.5	14.5	19.5	24.5	29.5
B	7.8	12.8	17.8	22.8	27.8	32.8
C	11.2	16.2	21.2	26.2	31.2	36.2
D	14	19	24	29	34	39
E	10	20	30	40	50	60
F	11	21	31	41	51	61
G	20	40	60	80	100	120

<Recommended land pattern for front and back mounting of one-leg type metal fittings>

[Mounting surface on header side (FX23-**P-0.5SV**B)]

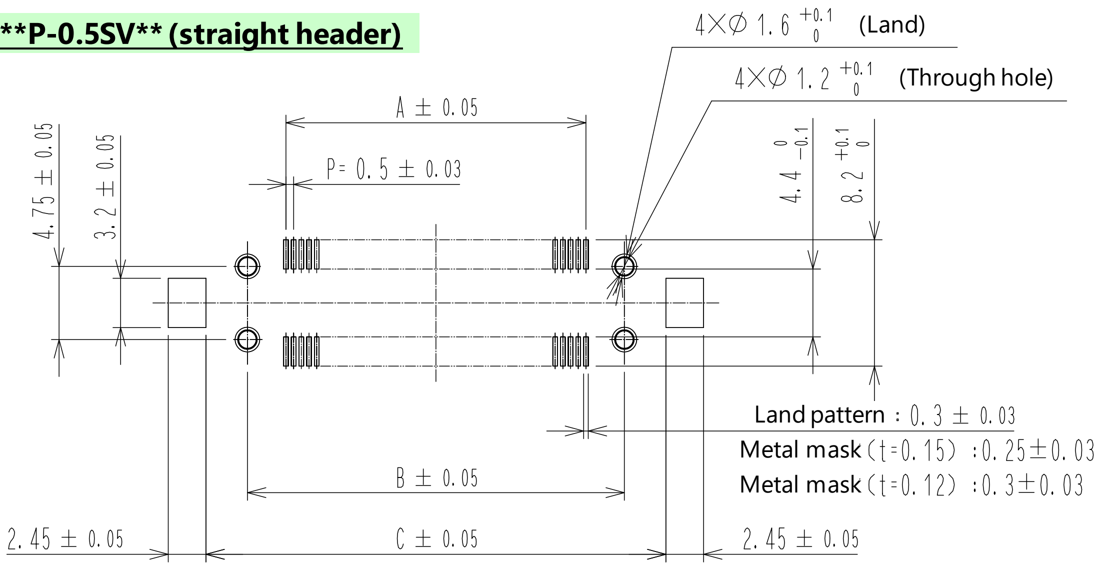


[Mounting surface on receptacle side (FX23-**S-0.5SV**B)]



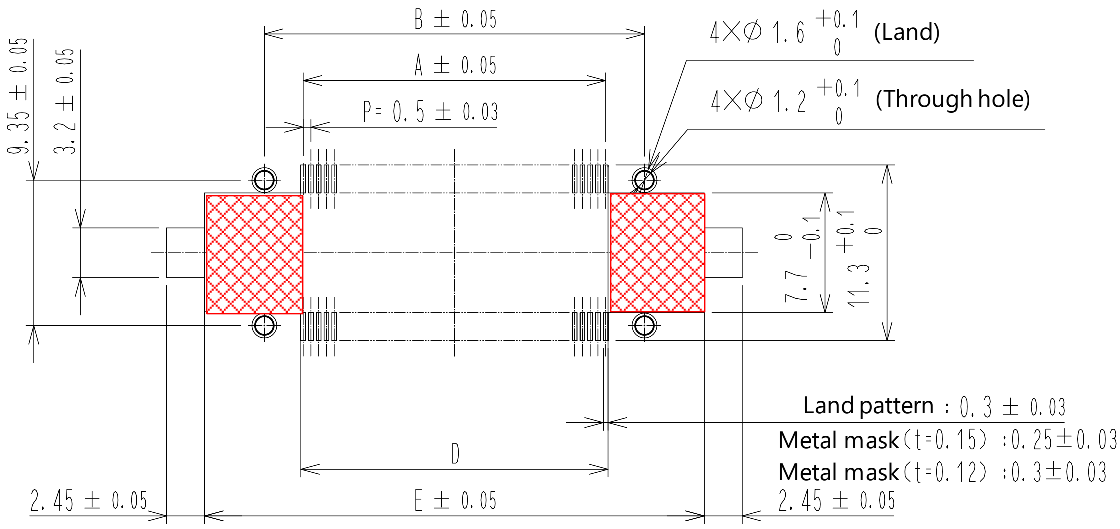
	20pos.	40pos.	60pos.	80pos.	100pos.	120pos.
A	4.5	9.5	14.5	19.5	24.5	29.5
B	9.5	14.5	19.5	24.5	29.5	34.5
C	15.7	20.7	25.7	30.7	35.7	40.7
D	17.5	22.5	27.5	32.5	37.5	42.5
E	10	20	30	40	50	60
F	11	21	31	41	51	61
G	20	40	60	80	100	120

FX23L-P-0.5SV** (straight header)**



	20pos.	40pos.	60pos.	80pos.	100pos.	120pos.
A	4.5	9.5	14.5	19.5	24.5	29.5
B	9.5	14.5	19.5	24.5	29.5	34.5
C	14.9	19.9	24.9	29.9	34.9	39.9

FX23L-S-0.5SV (straight receptacle)**



	20pos.	40pos.	60pos.	80pos.	100pos.	120pos.
A	4.5	9.5	14.5	19.5	24.5	29.5
B	9.5	14.5	19.5	24.5	29.5	34.5
D	4.8	9.8	14.8	19.8	24.8	29.8
E	17.2	22.2	27.2	32.2	37.2	42.2

3-4 Recommended Metal Mask Layout

◆ Used solder paste

・Manufacturer : Senju metal industry

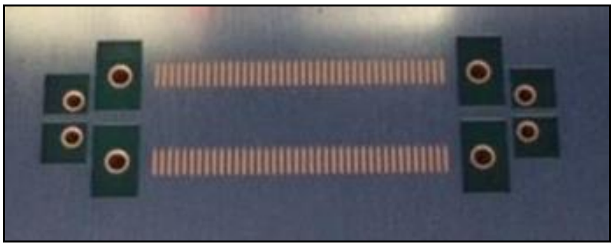
・Type : M705-GRN360-K2-V

・Material : Sn96.5/Ag3.0/Cu0.5, Flux content: 11.5wt%

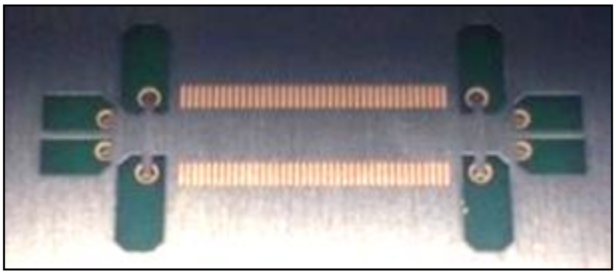
◆Supplementary explanation about metal mask opening shape

The metal mask opening shape of this series has two types: an opening pattern in which solder paste is printed on the board through holes and an opening pattern in which it is not printed on them.

Select either of these types after understanding the contents of their advantages and disadvantages.



Opening pattern with printing on through holes



Opening pattern without printing on through holes

	Opening pattern with printing on through holes	Opening pattern without printing on through holes
Advantage	The solder paste printing area is small	The solder amount does not depend on the mounting condition because solder paste does not come into the through hole
Disadvantage	The mounting status should be checked in advance because the solder amount that comes into the through hole depends on the mounting condition	The solder paste printing area is large

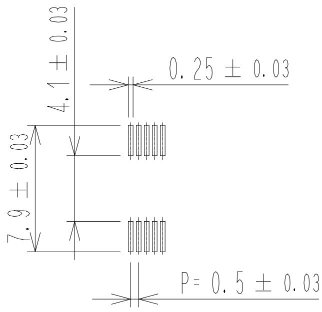
◆FX23 Series

◆Straight header (FX23-**P-0.5SV15, FX23-**P-0.5SV20)

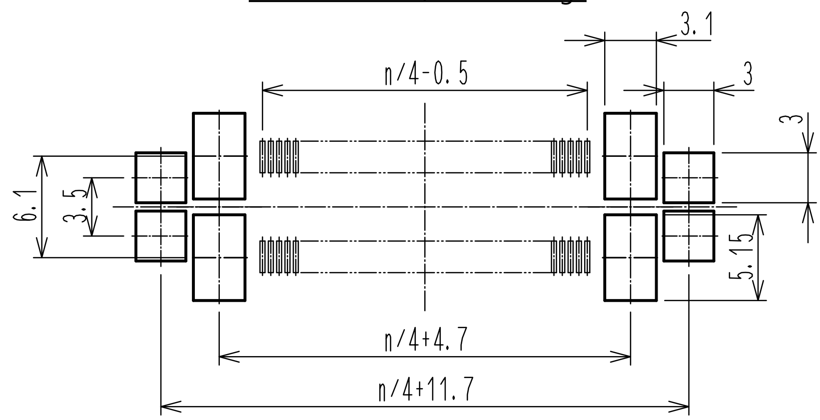
[Metal mask thickness: **0.15mm**]

n: Number of pins

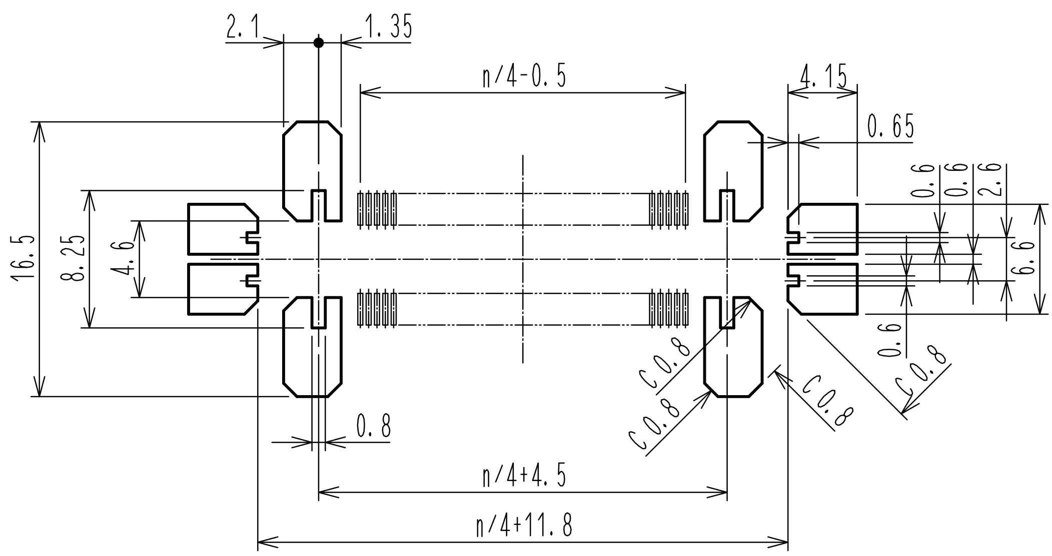
Signal contacts



Power contacts/metal fittings



Opening pattern with printing on through holes



Opening pattern without printing on through holes

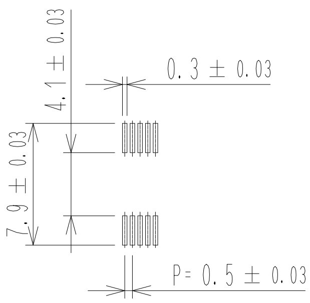
◆FX23 Series

◆Straight header (FX23-**P-0.5SV15, FX23-**P-0.5SV20)

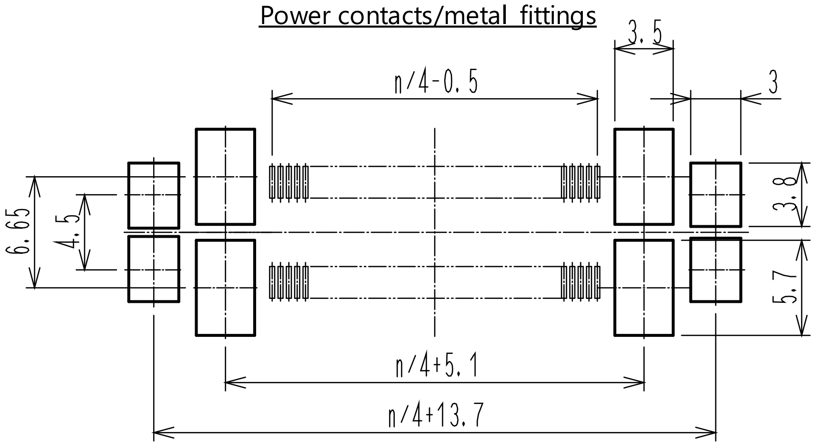
[Metal mask thickness: **0.12mm**]

n: Number of pins

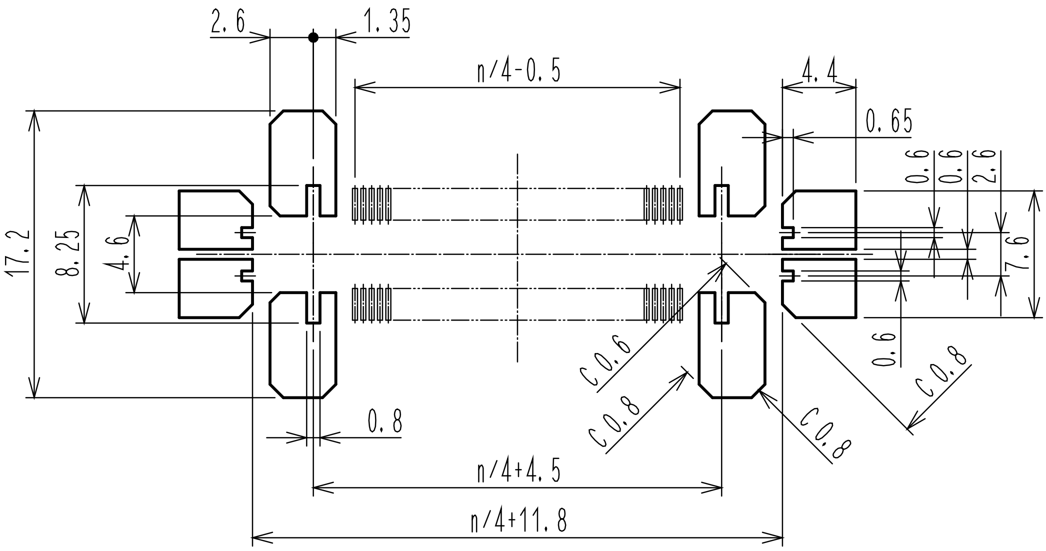
Signal contacts



Power contacts/metal fittings



Opening pattern with printing on through holes



Opening pattern without printing on through holes

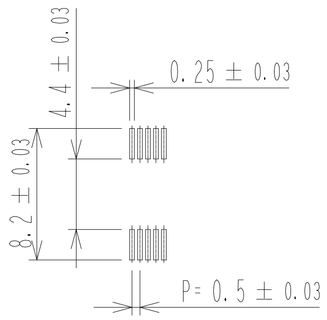
◆FX23 Series

◆Straight receptacle (FX23-**S-0.5SV, FX23-**S-0.5SV10)

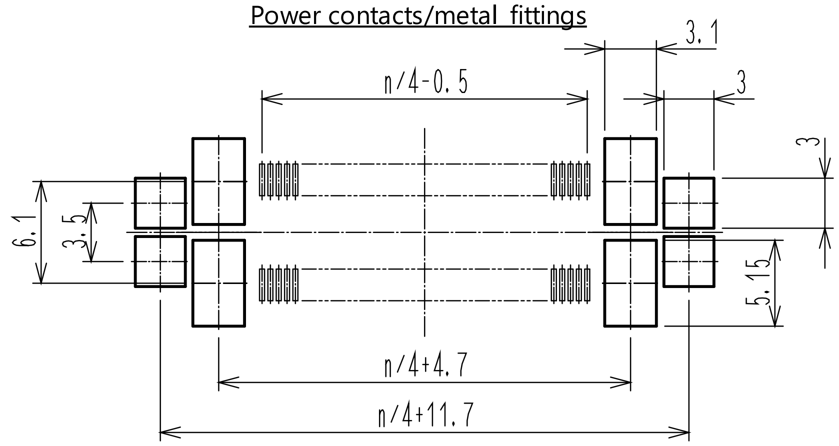
[Metal mask thickness: **0.15mm**]

n: Number of pins

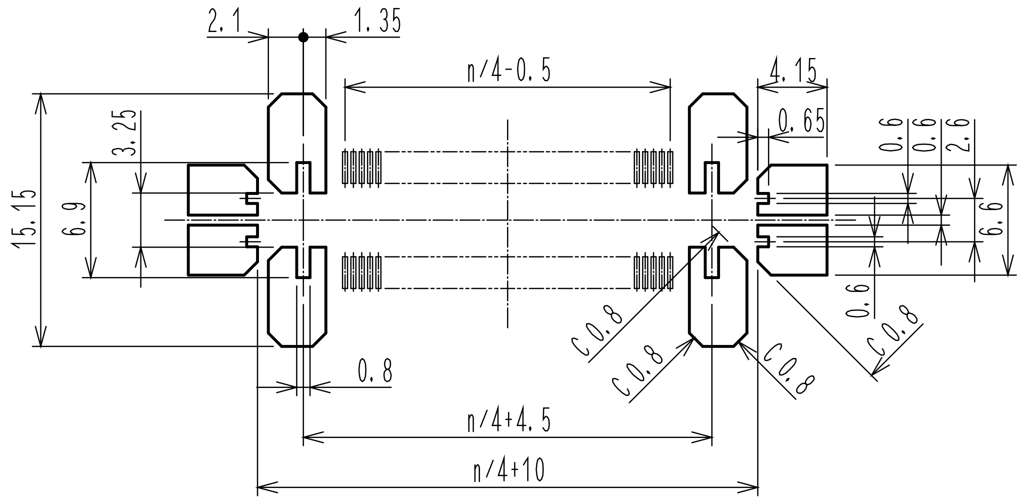
Signal contacts



Power contacts/metal fittings



Opening pattern with printing on through holes



Opening pattern without printing on through holes

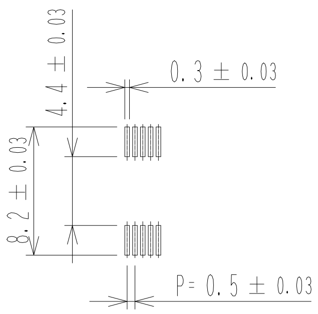
◆FX23 Series

◆Straight receptacle (FX23-**S-0.5SV, FX23-**S-0.5SV10)

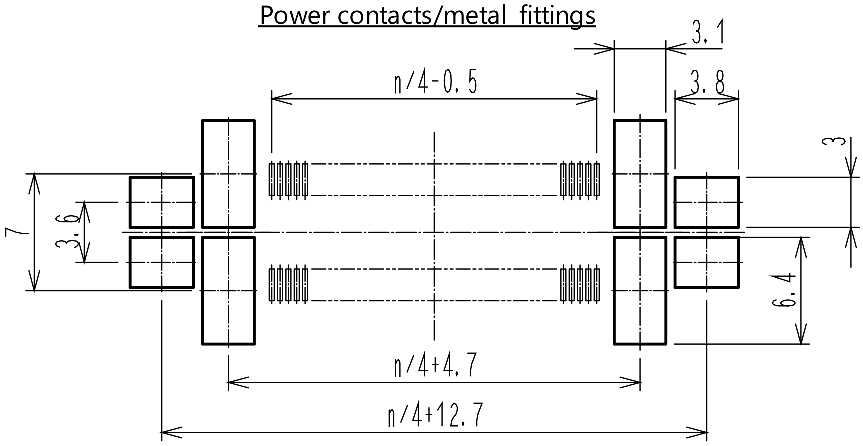
[Metal mask thickness: **0.12mm**]

n: Number of pins

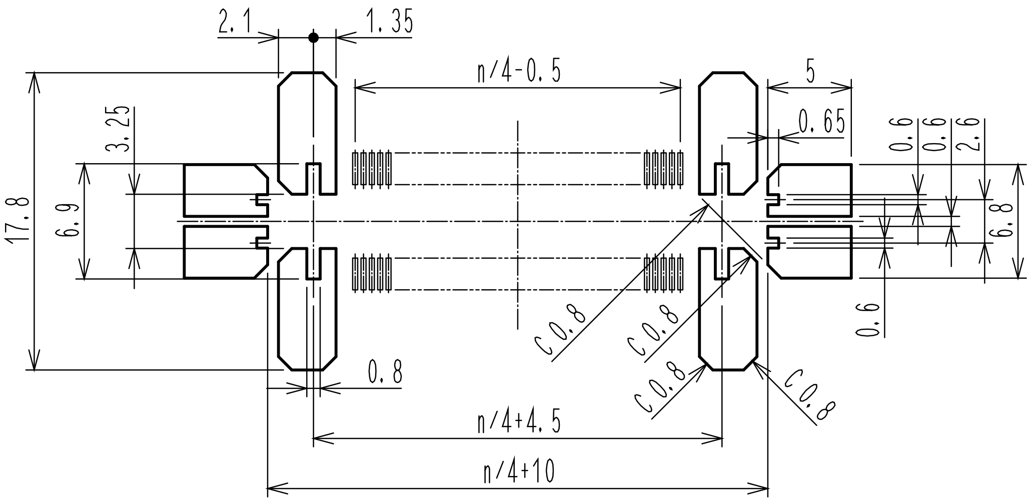
Signal contacts



Power contacts/metal fittings



Opening pattern with printing on through holes



Opening pattern without printing on through holes

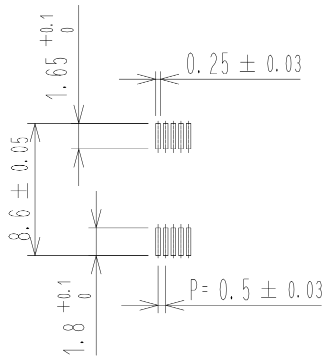
◆FX23 Series

◆Right angle receptacle (FX23-**S-0.5SH)

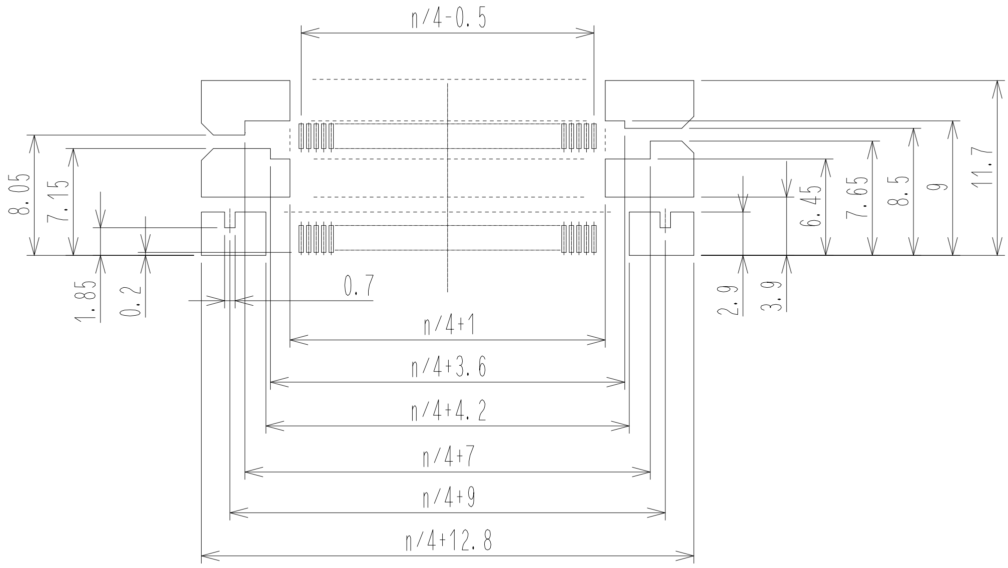
[Metal mask thickness: **0.15mm**]

n: Number of pins

Signal contacts



Power contacts/metal fittings



Opening pattern without printing on through holes

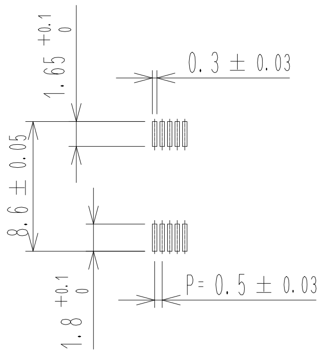
◆FX23 Series

◆Right angle receptacle (FX23-**S-0.5SH)

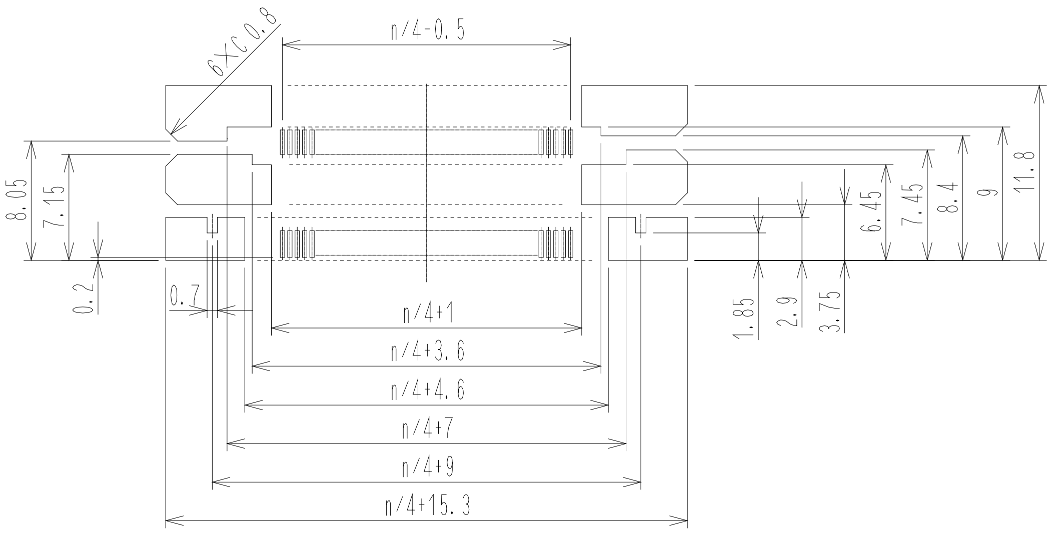
[Metal mask thickness: **0.12mm**]

n: Number of pins

Signal contacts



Power contacts/metal fittings



Opening pattern without printing on through holes

◆FX23 Series

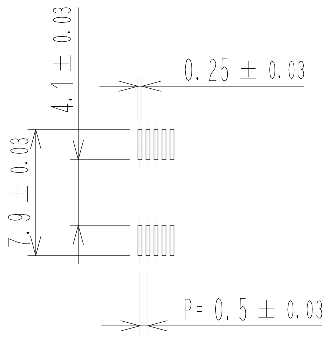
◆Straight header for front and back mounting (FX23-**P-0.5SV15B, FX23-**P-0.5SV20B)

[Metal mask thickness: **0.15mm**]

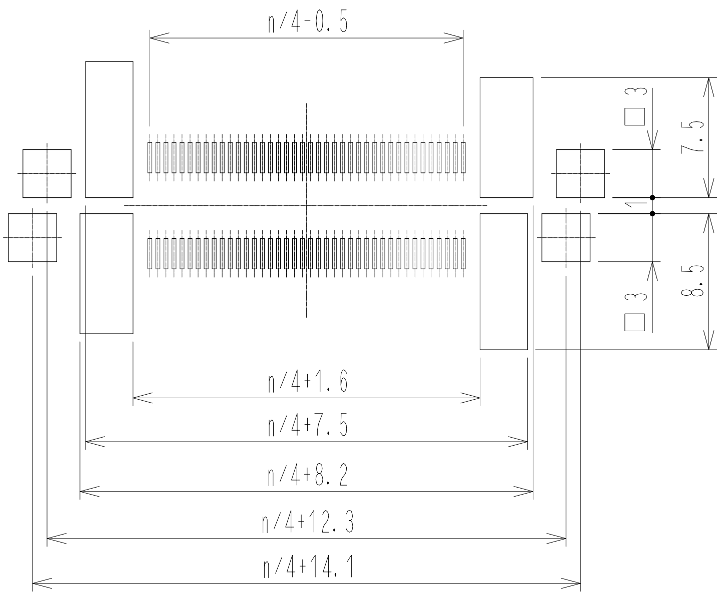
n: Number of pins

*The following are opening patterns for secondary mounting. For primary mounting of the header side, do not open the power contacts and the metal fittings.

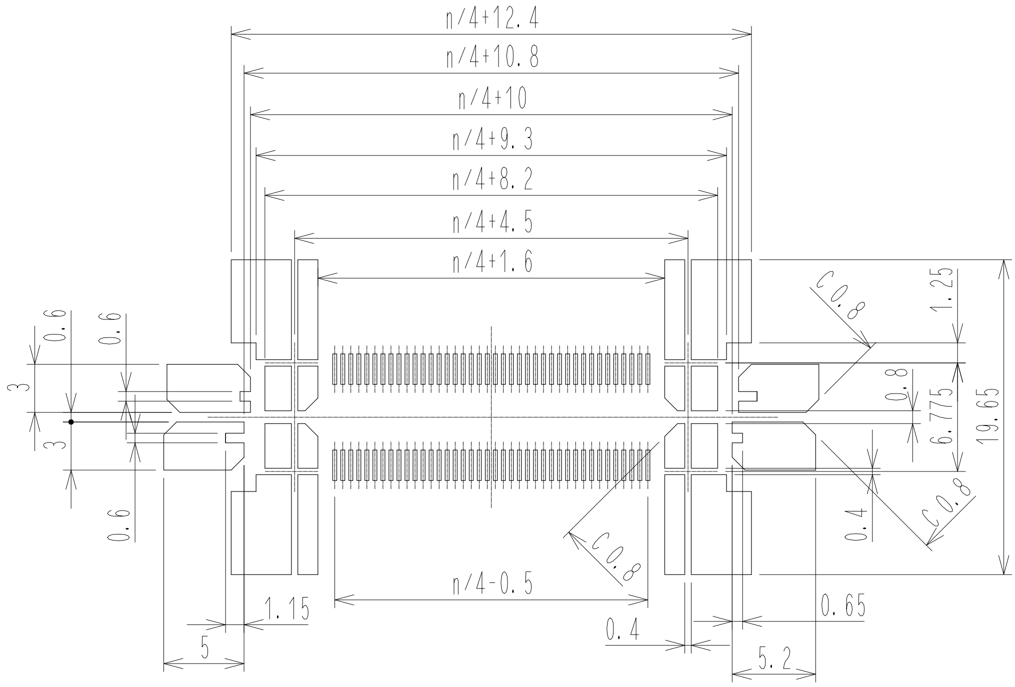
Signal contacts



Power contacts/metal fittings



Opening pattern with printing on through holes



Opening pattern without printing on through holes

◆FX23 Series

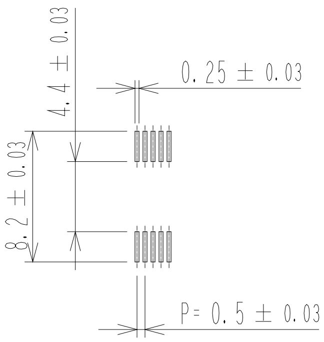
◆Straight receptacle for front and back mounting (FX23-**S-0.5SVB, FX23-**S-0.5SV10B)

[Metal mask thickness: **0.15mm**]

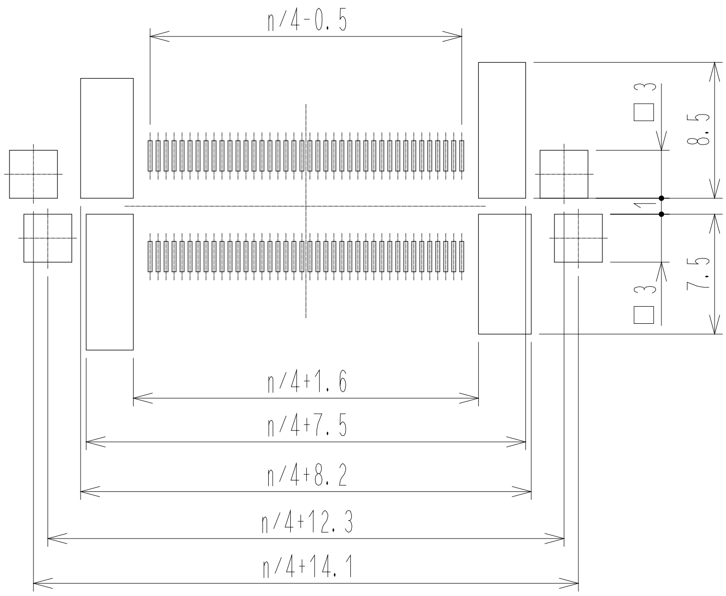
n: Number of pins

*The following are opening patterns for secondary mounting. For primary mounting of the receptacle side, do not open the power contacts and the metal fittings.

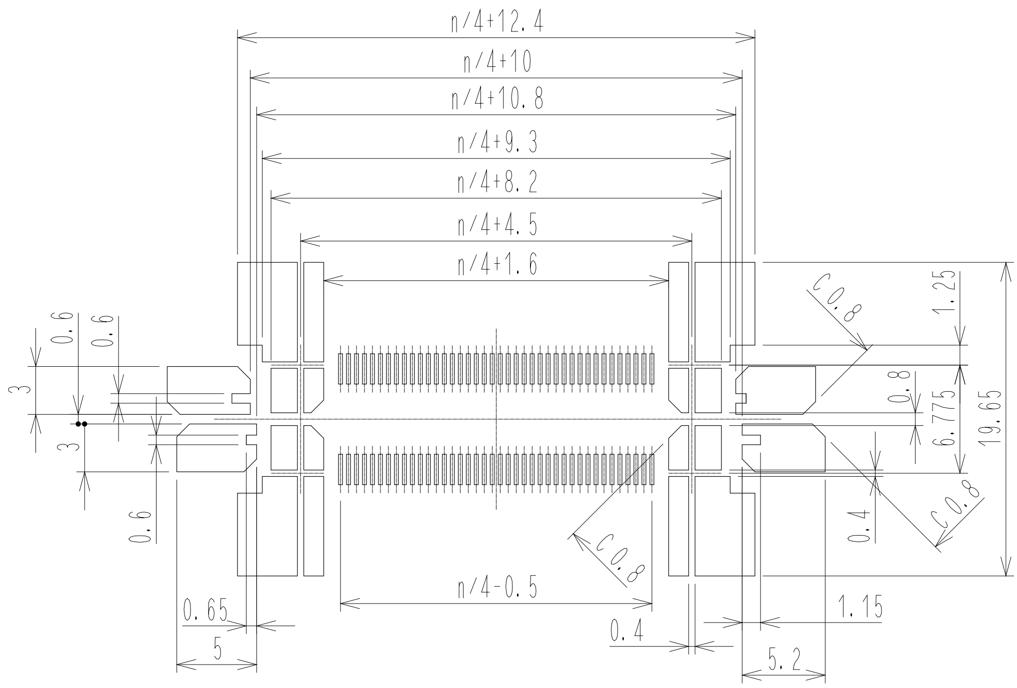
Signal contacts



Power contacts/metal fittings



Opening pattern with printing on through holes



Opening pattern without printing on through holes

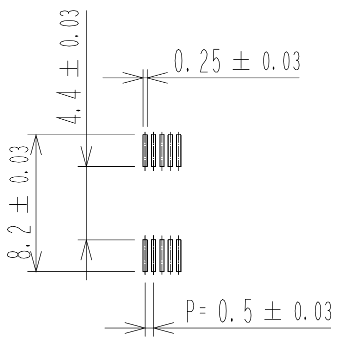
◆FX23L Series

◆Straight header (FX23L-**P-0.5SV8, FX23L-**P-0.5SV10, FX23L-**P-0.5SV12)

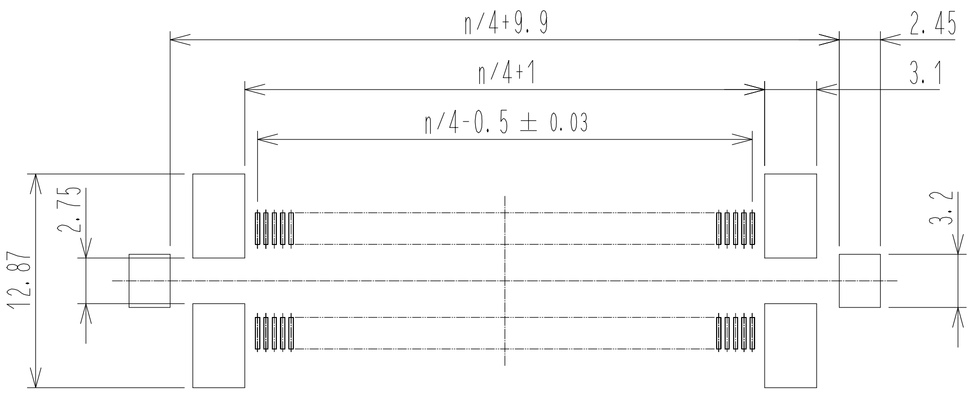
[Metal mask thickness: **0.15mm**]

n: Number of pins

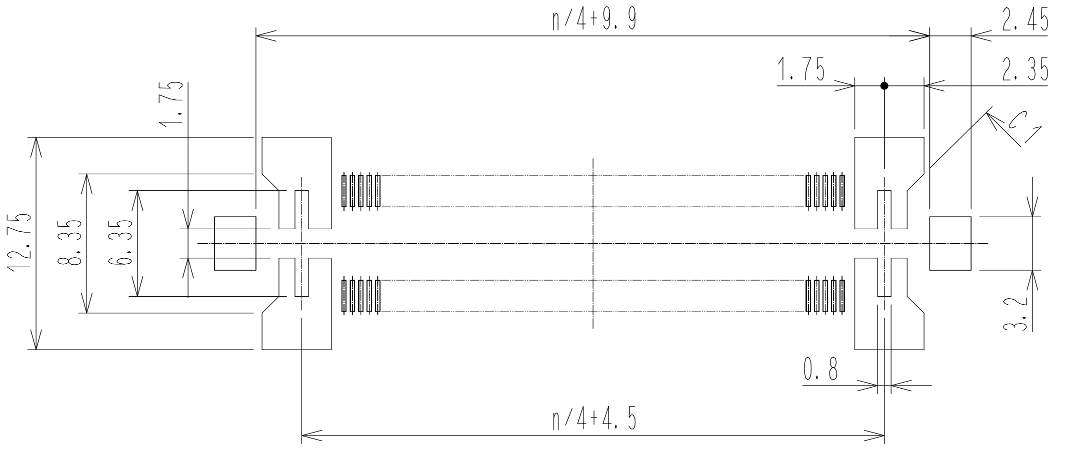
Signal contacts



Power contacts/metal fittings



Opening pattern with printing on through holes



Opening pattern without printing on through holes

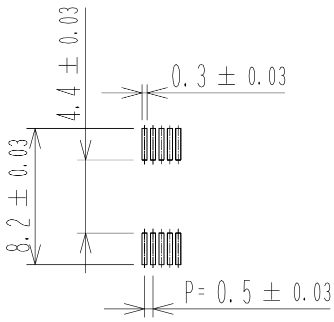
◆FX23L Series

◆Straight header (FX23L-**P-0.5SV8, FX23L-**P-0.5SV10, FX23L-**P-0.5SV12)

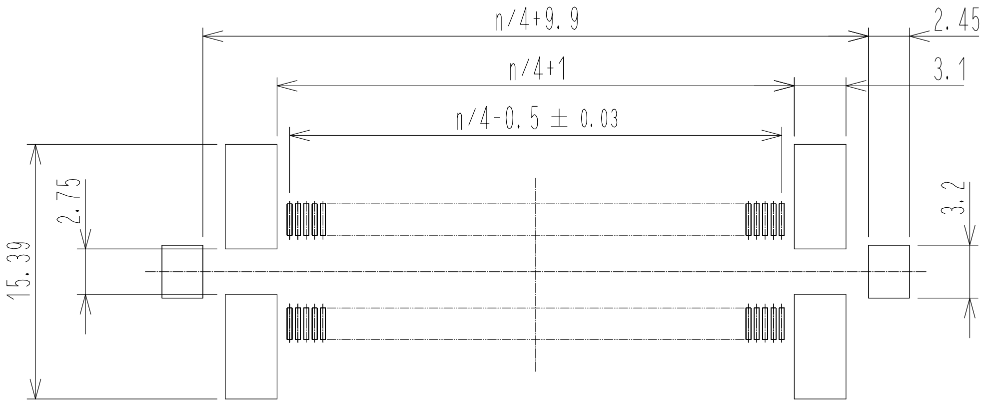
[Metal mask thickness: **0.12mm**]

n: Number of pins

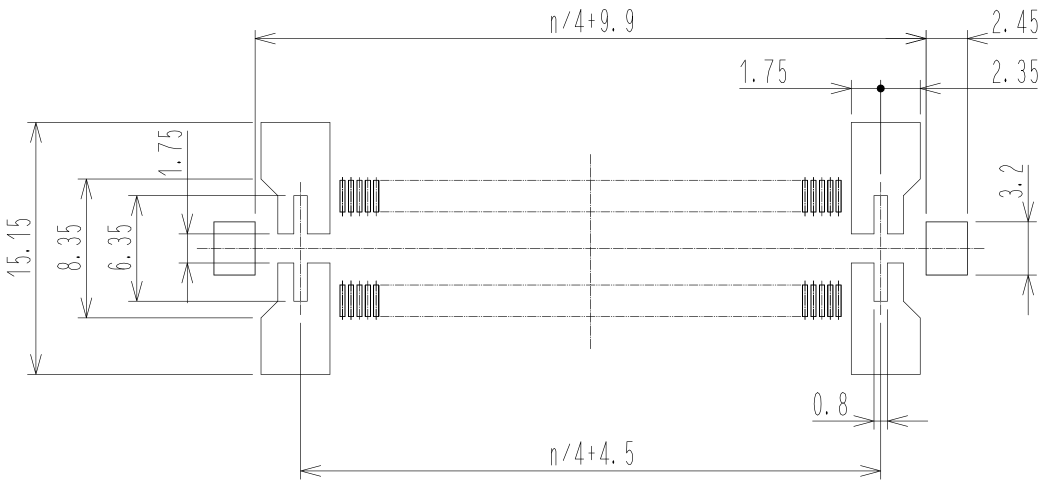
Signal contacts



Power contacts/metal fittings



Opening pattern with printing on through holes



Opening pattern without printing on through holes

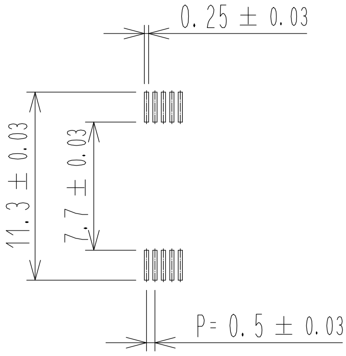
◆FX23L Series

◆Straight receptacle (FX23L-**S-0.5SV)

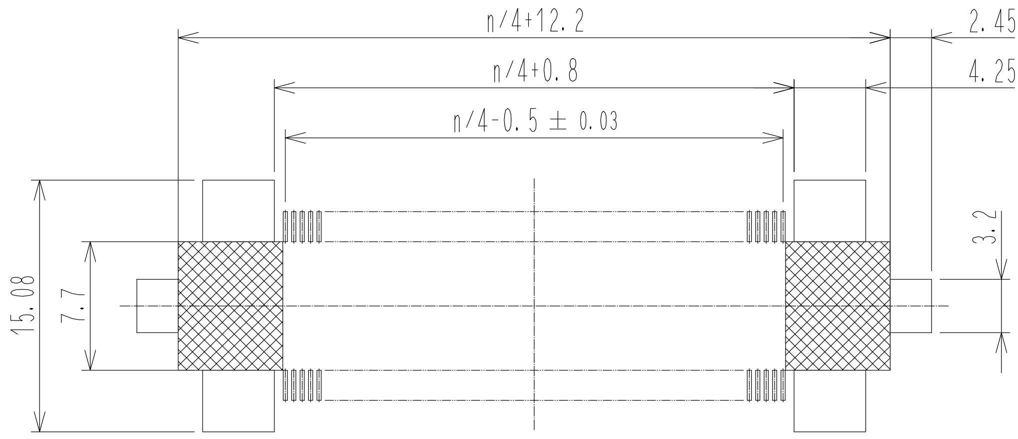
[Metal mask thickness: **0.15mm**]

n: Number of pins

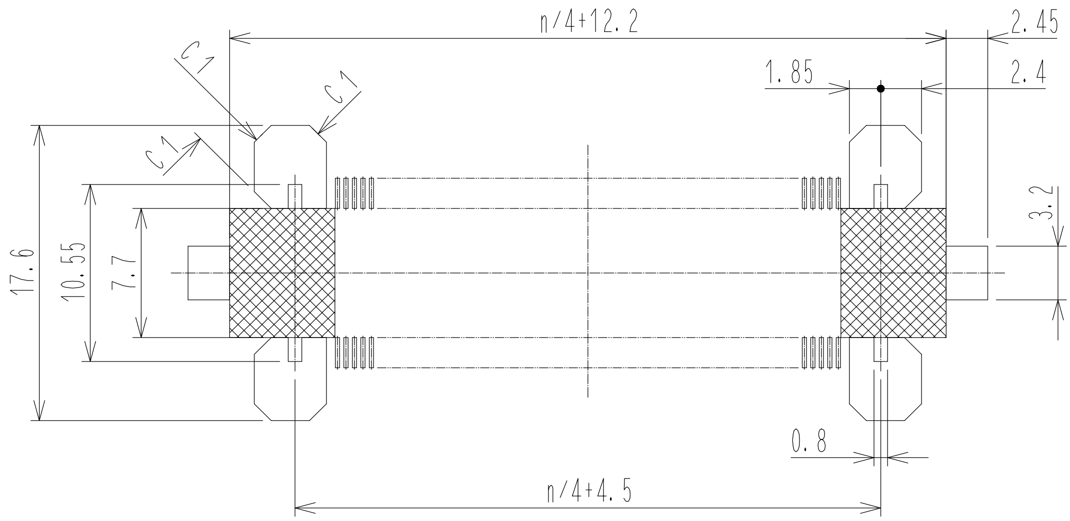
Signal contacts



Power contacts/metal fittings



Opening pattern with printing on through holes



Opening pattern without printing on through holes

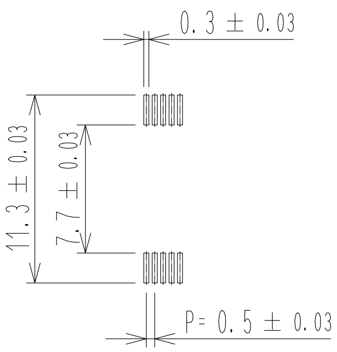
◆FX23L Series

◆Straight receptacle (FX23L-**S-0.5SV)

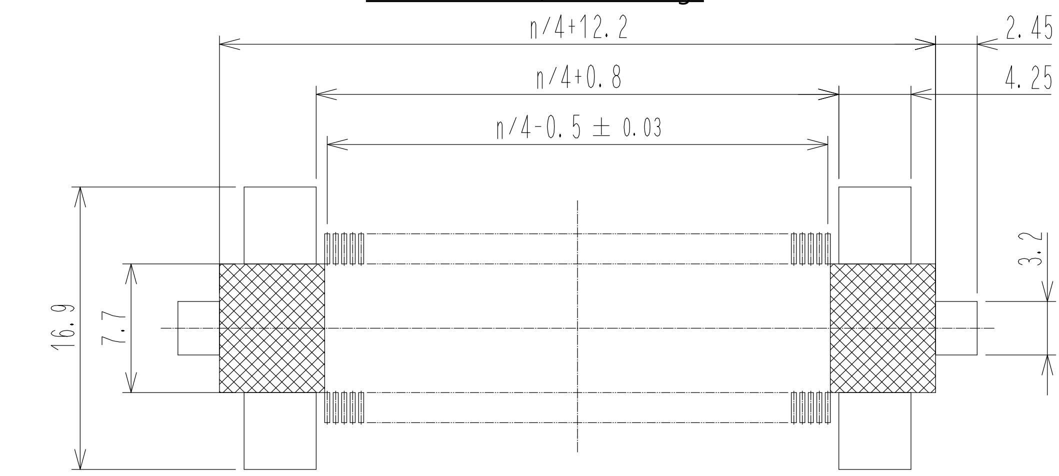
[Metal mask thickness: **0.12mm**]

n: Number of pins

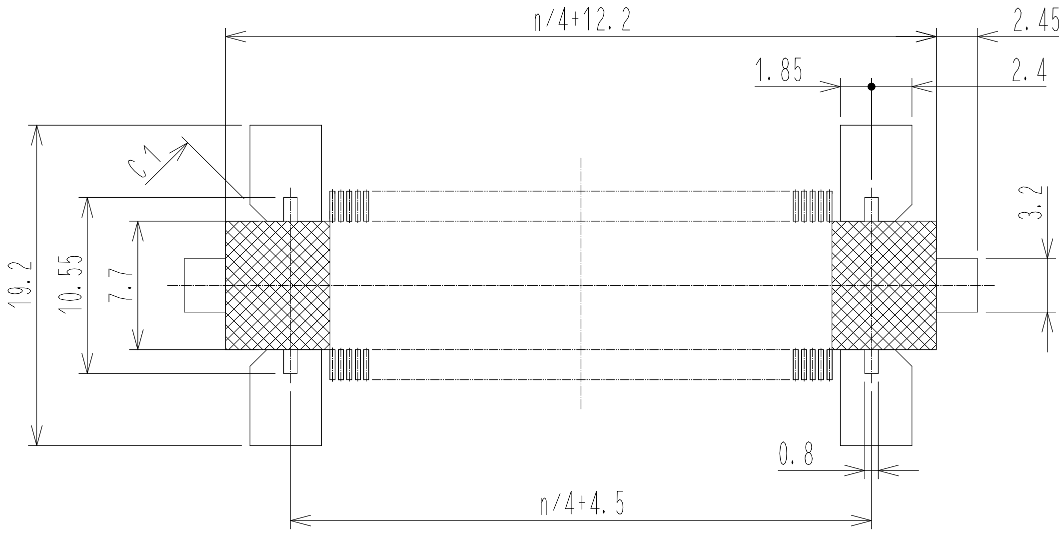
Signal contacts



Power contacts/metal fittings



Opening pattern with printing on through holes



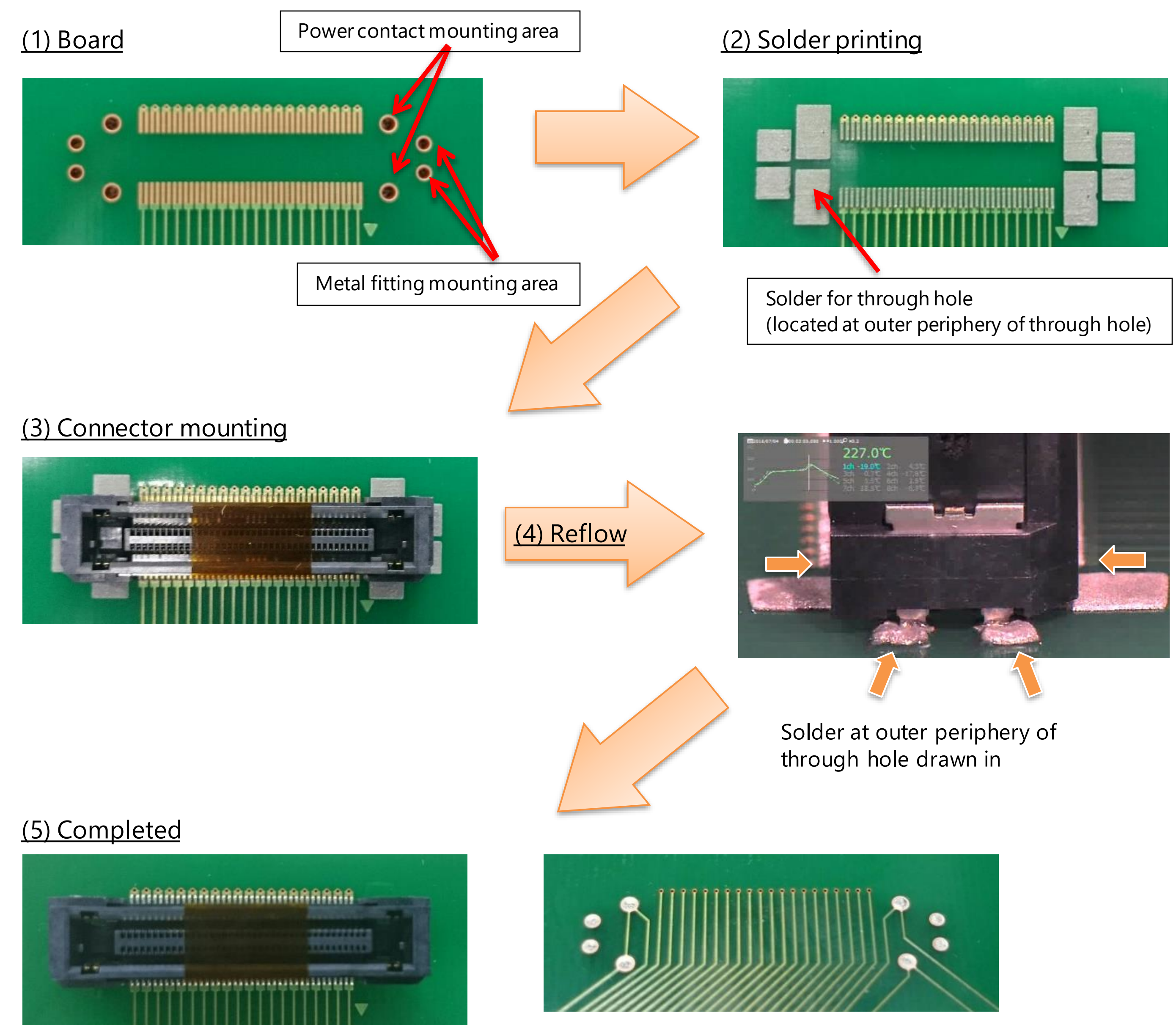
Opening pattern without printing on through holes

3-5 Power Contact/Metal Fitting Through Hole Reflow

Through hole reflow for FX23 power contacts/metal fittings and FX23L power contacts draw solder paste from the surrounding area. The following describes the through hole reflow process. Design a metal mask considering the information.

Note! This guideline was created based on results of the testing performed at Hirose and not intended to guarantee mounting in all circumstances. Before performing a through hole reflow, customers are required to check that there is no problem in mounting using this guideline as reference.

[Through hole reflow process]



<Notes>

1. The metal mask dimensions are determined on the assumption of mounting with the land pattern dimensions recommended by Hirose.
2. Avoid excessive solder paste ~~flow~~ into ~~a~~ through holes.
   A solder bridge may be formed depending on the amount of solder paste.
3. The solder paste print areas of the power contacts and metal fittings should be solid with copper foil layer with resist pattern coating or flat surfaces without copper foil.
   When a shape causing unevenness, such as a pattern and via hole, exists on the solder inflow path to the through hole, solder paste cannot be drawn in well, and ball-shaped solder may remain on the board, causing the occurrence of non-soldering area.
4. Note that if the through hole diameter/board thickness/metal mask thickness specified in the guideline is not used, the metal mask layout should be reviewed. Please contact Hirose.
5. The solder amount is specified assuming that the solder paste specified in Section 3-4 is used.
   The required solder amount may vary depending on the solder component.

3-6 Power Contact/Metal Fitting Mounting Status Inspection Criteria

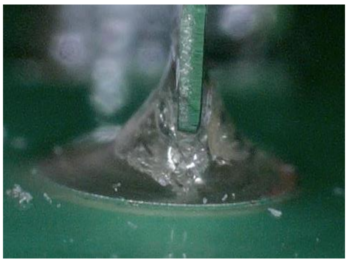
The following criteria is used for mounting of the FX23/FX23L through hole reflow part.

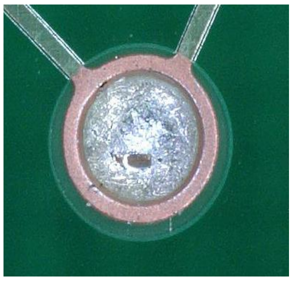
[Mounting status check points] Common to all series

- ◆ Check that fillets are formed on the connector-mounted face.
- ◆ Check that a through hole is filled with solder when viewed from the back side of the board.

[Judgment example]

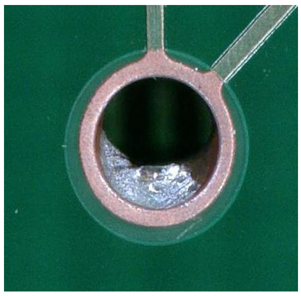
◆ OK





◆ NG

Incomplete fillet formation



Insufficient solder filling

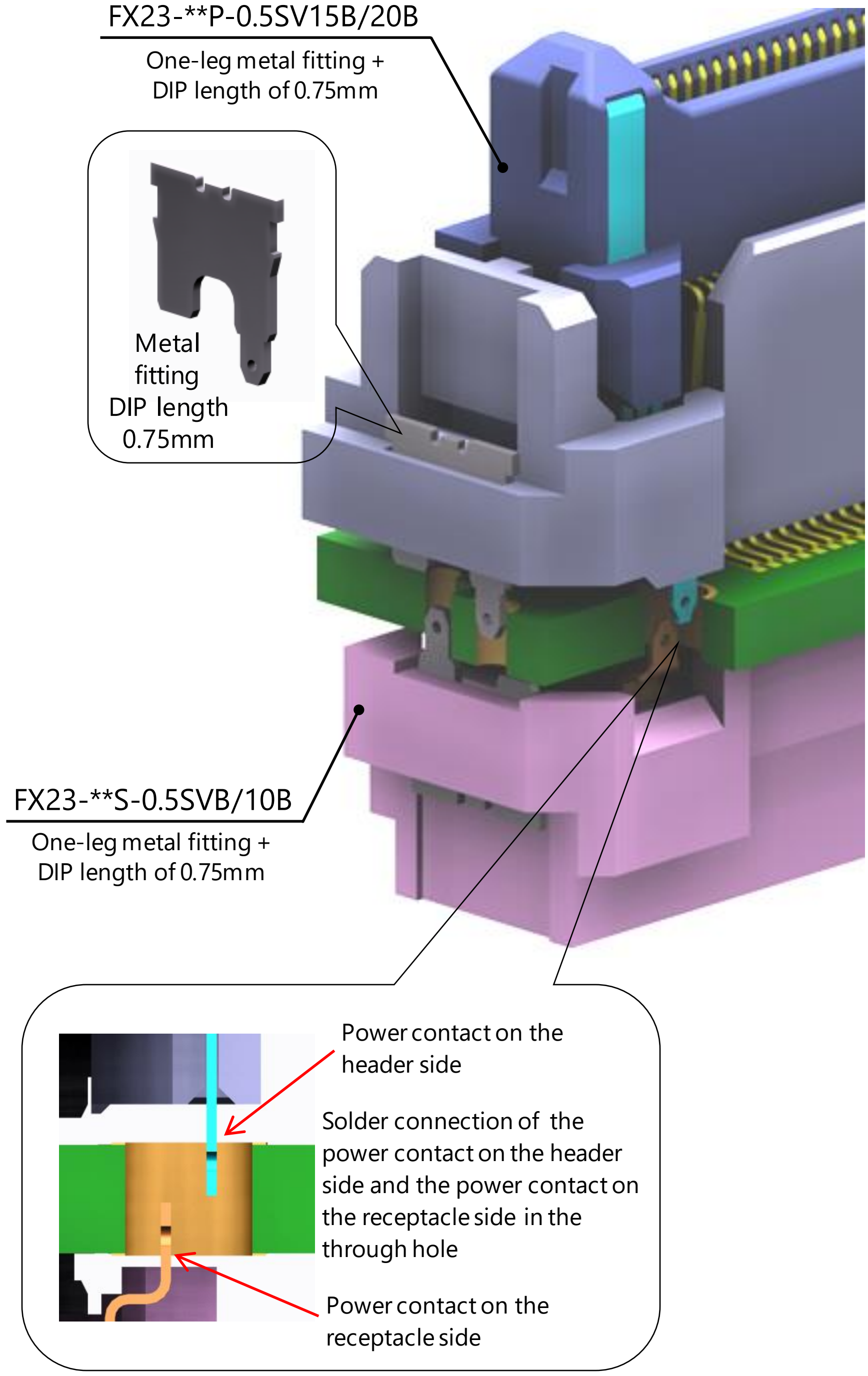
3-7 Front and Back Mounting of One-Leg Type Metal Fittings

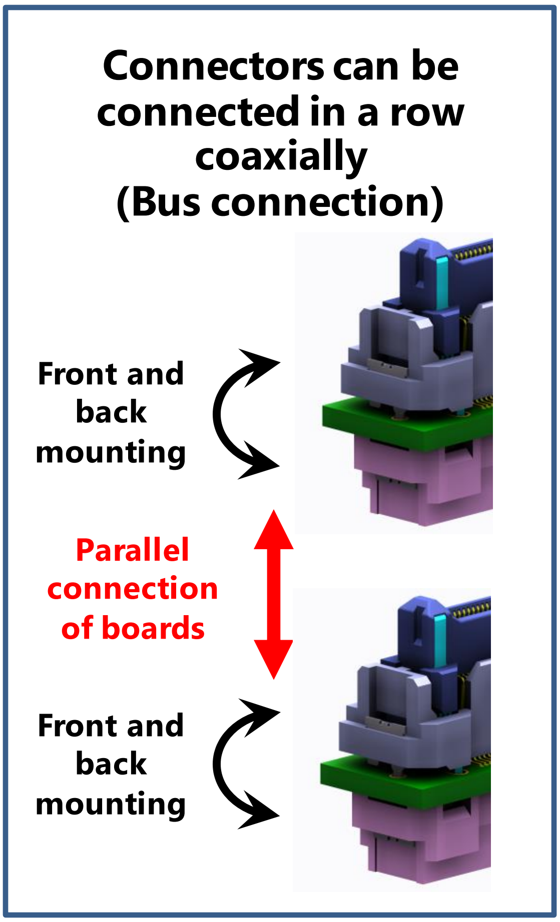
For the straight shape of FX23 Series, one-leg type metal fittings (with B at the end of the product name) are available.

By mounting them on the front and back sides of the board coaxially, connectors to be used can be connected in a row (bus connection).

<u>Note: FX23L series do not support bus connection.</u>

[Image of front and back mounting]

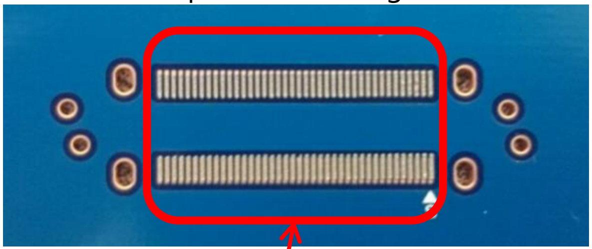




[Reference example of mounting procedure] *Here the receptacle side is the primary mounting side.

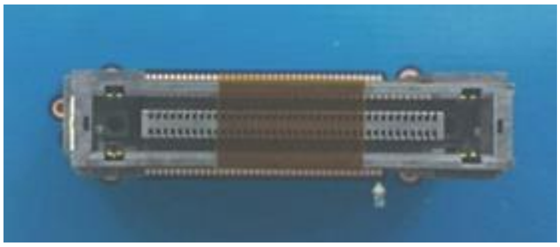
(1) Solder paste printing on the primary mounting side

Receptacle mounting side

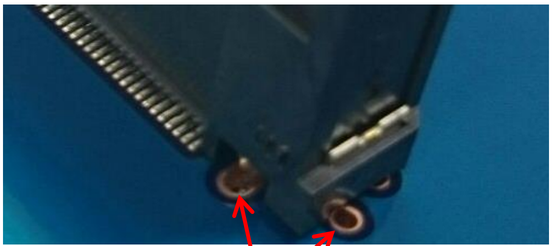


At the time of primary mounting, solder paste is printed only for the signal contacts.

(2) Connector placement and reflow on the primary mounting side



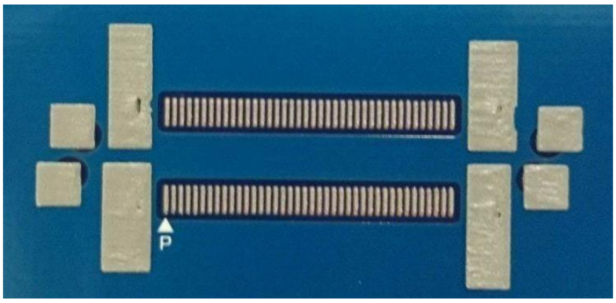
(3) Completion of the primary mounting



The through holes are not filled with solder paste

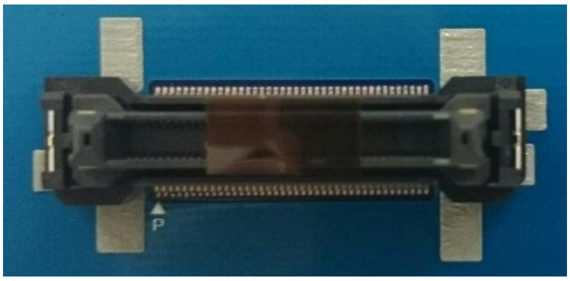
(4) Solder paste printing on the secondary mounting side

Header mounting side

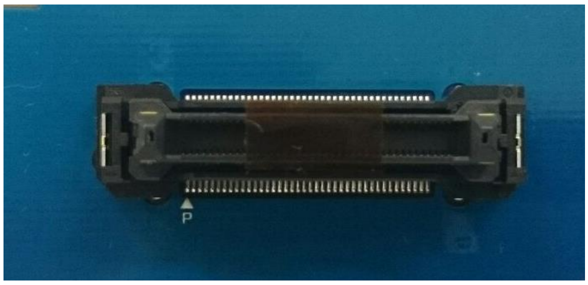


Printing is performed also to the power contacts and metal fillings.

(5) Connector placement and reflow on the secondary mounting side

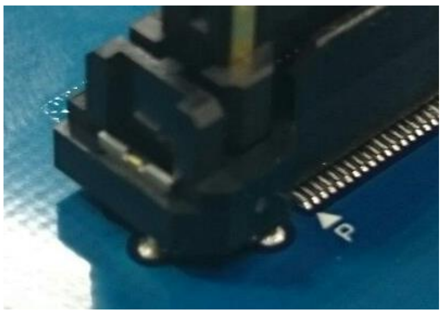


(6) Completion of the secondary mounting



[Reference] Mounting status

Receptacle

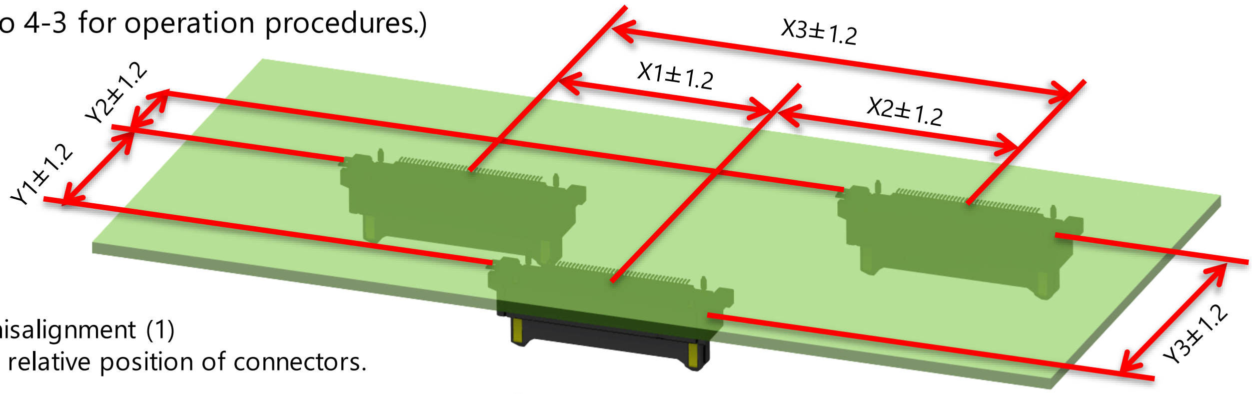


Header

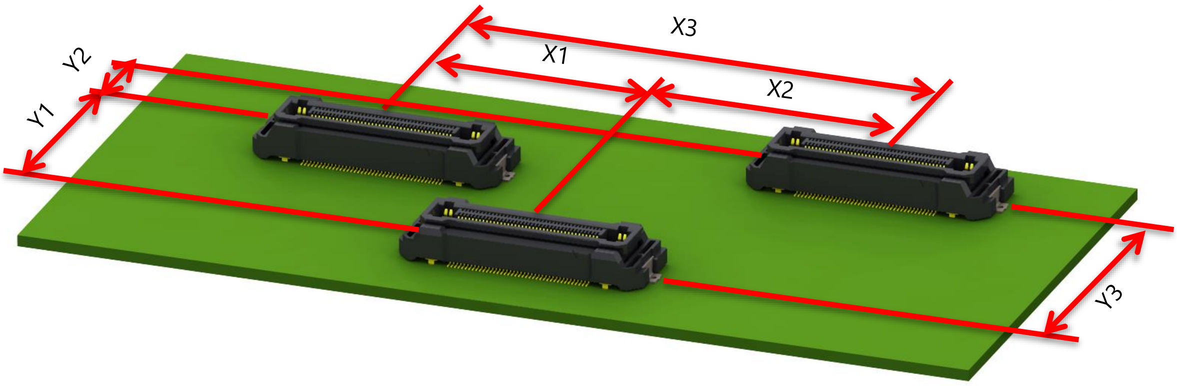
3-8 Regulation for Multiple-Connector Mounting

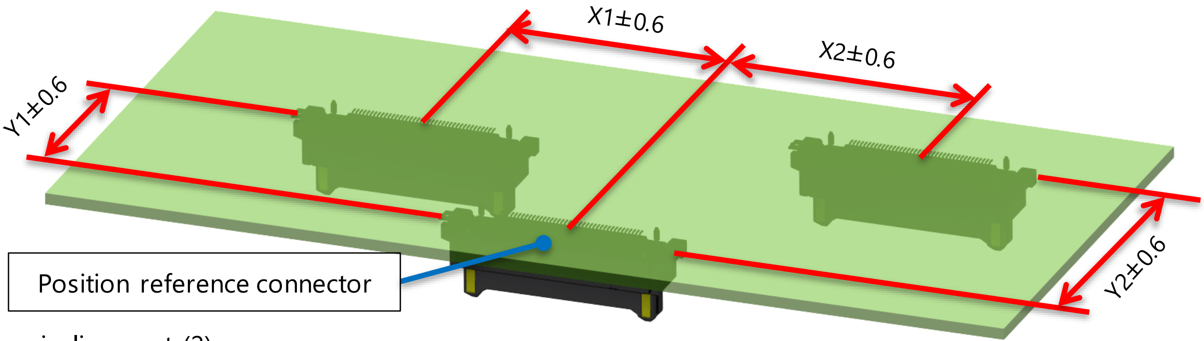
The mounting accuracy in multiple-connector mounting should be within the floating range.

(Refer to 4-3 for operation procedures.)

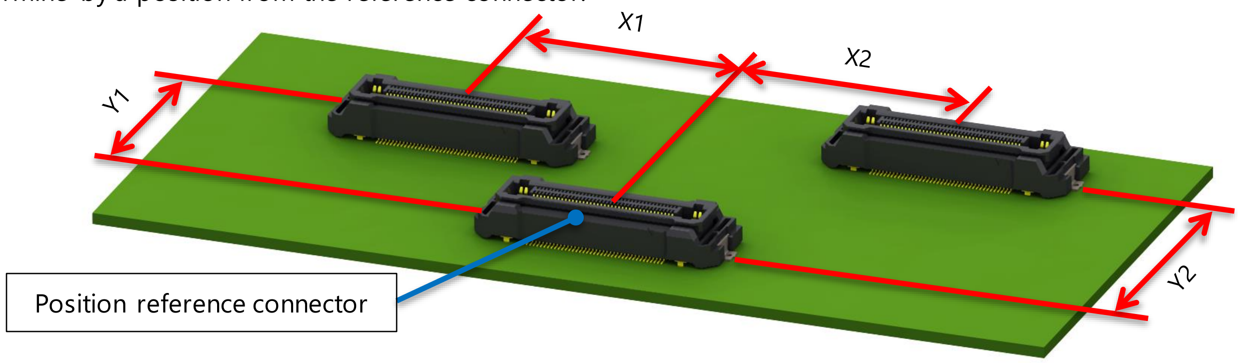


Regulation for misalignment (1)
: Determine by a relative position of connectors.





Regulation for misalignment (2)
: Determine by a position from the reference connector.



*1. The above figure shows a case where three connectors are mounted together.
For the case of mounting two connectors together, only X1 and Y1 are subject to misalignment management.
Misalignment is specified within ±1.2mm in both X and Y directions.

*2. When mounting multiple connectors on the same board, use connectors oriented in the same direction.

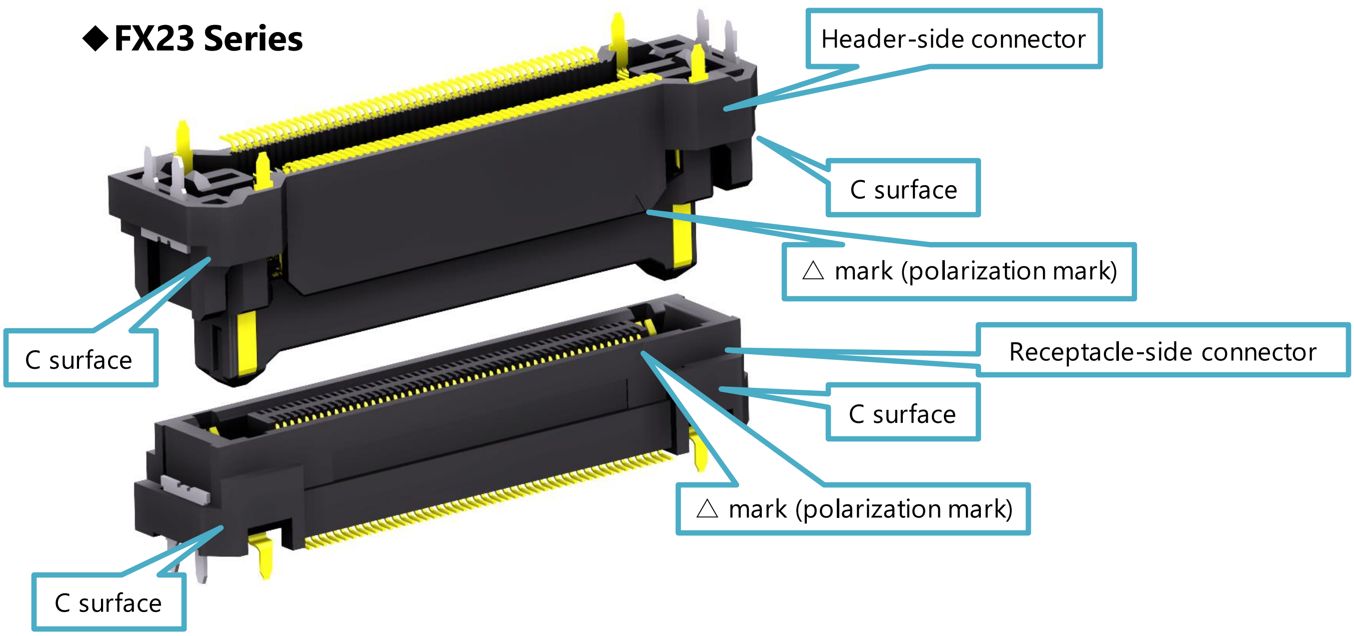
4. Mating Operation

4-1 Connector Direction in Mating (Reverse Insertion Prevention Mechanism)

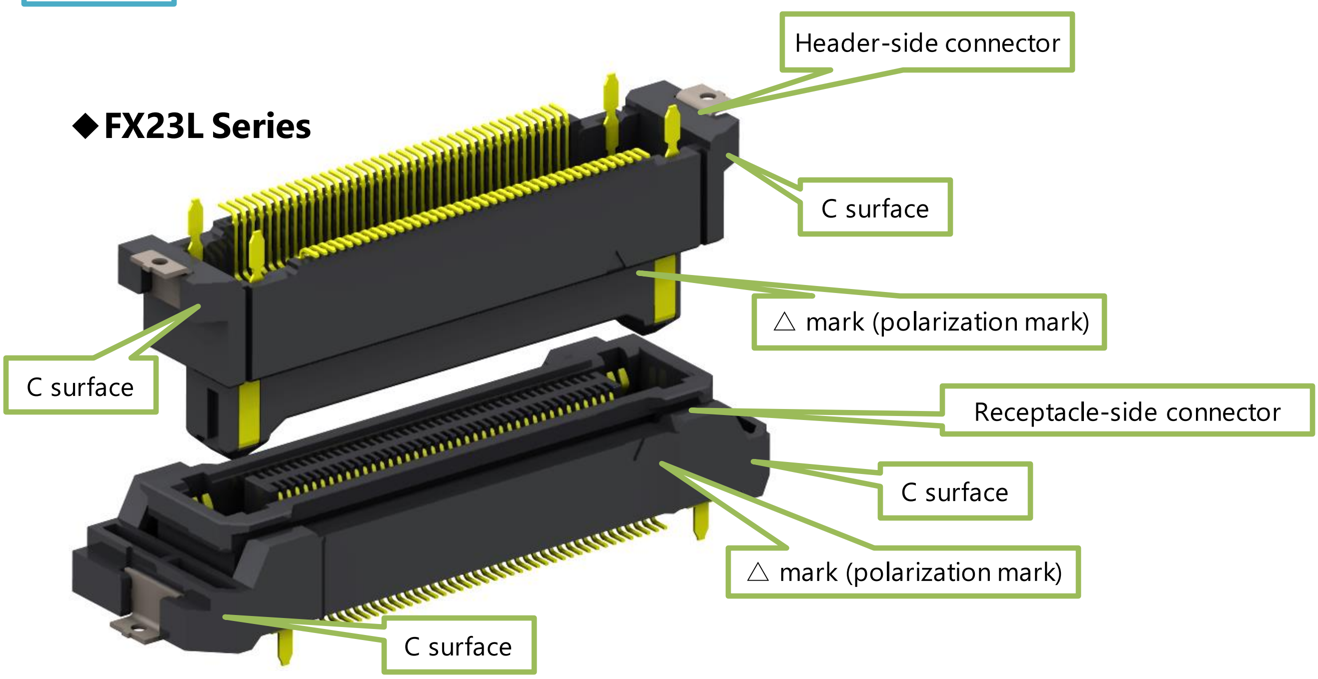
In mating connectors, align C surfaces or △ marks on both outer surfaces. The connectors employ a reverse insertion prevention mechanism, however, mating them in a reverse orientation with excessive force may damage the connectors.

Avoid forcible mating. Check the following connector polarization before mating.

◆FX23 Series



◆FX23L Series

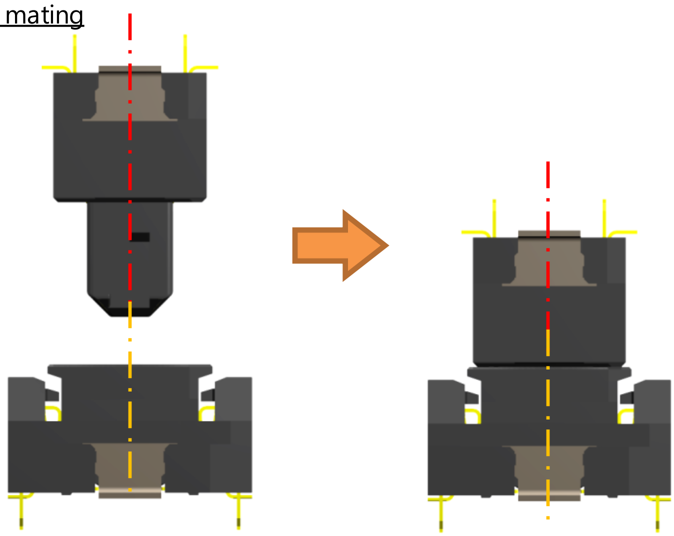


4-2 Allowable Misalignment in Mating

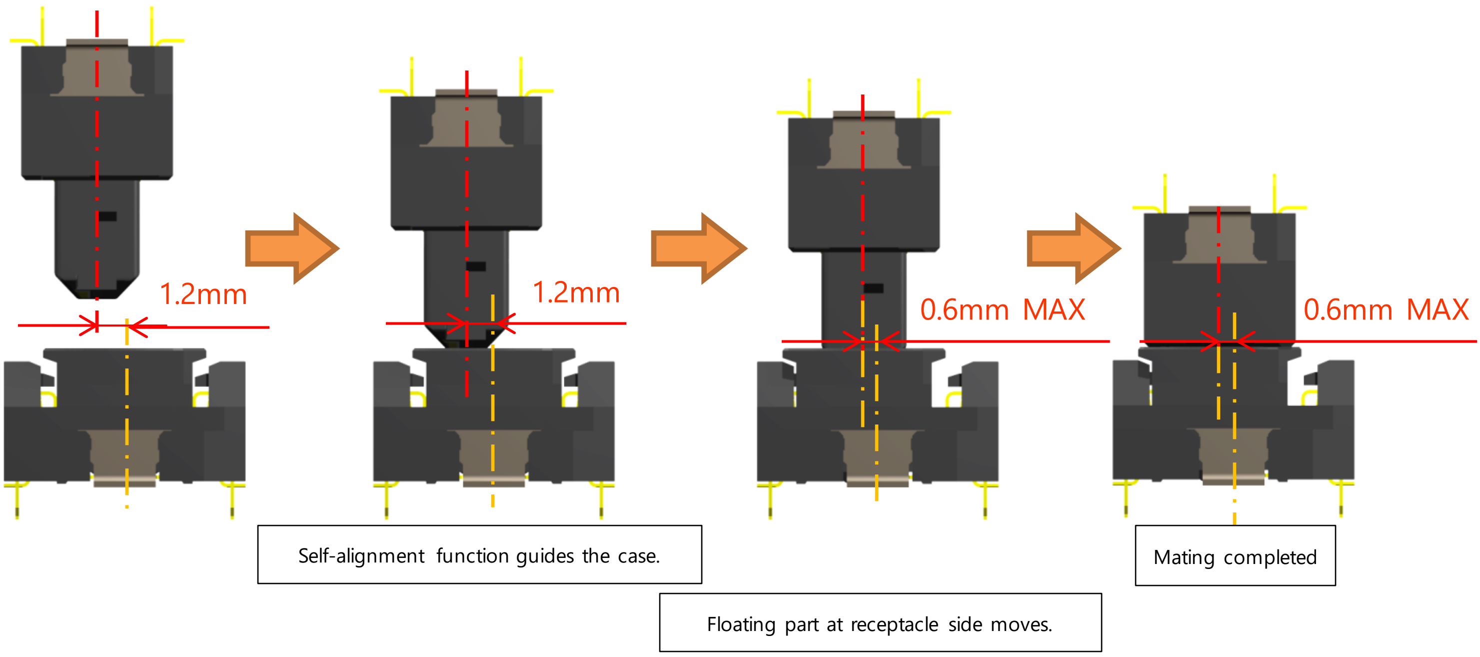
Mate connectors while either the header or receptacle side can be moved freely, avoiding application of excessive force in the direction other than the mating direction and to insure the self-alignment design works naturally as a guide. The self-alignment range of the connector is ±1.2mm.

In applications where misalignment of mating axis cannot be avoided in all areas from the start to the end of mating, the maximum misalignment should be within the floating range (±0.6mm in both X and Y directions).

Normal mating



Axis misaligned mating



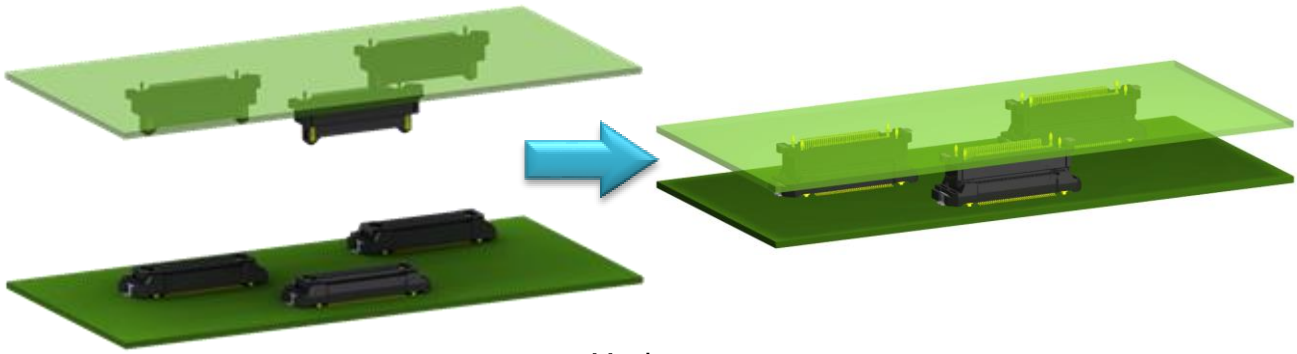
4-3 Insertion/Withdrawal Method for Multiple-Connector Mounting

The FX23 and FX23L Series allow multiple-connector mounting on the same board.

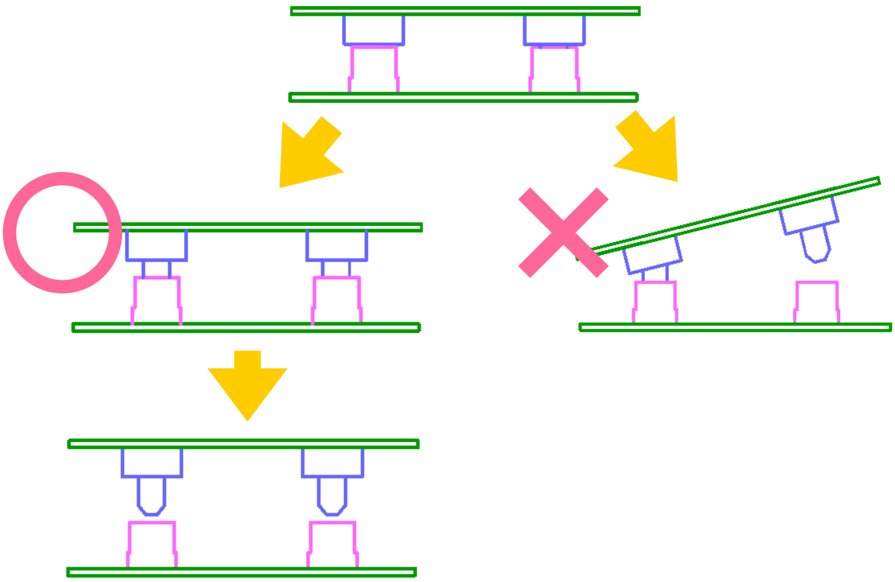
Note that the insertion/withdrawal force increases as the number of mounted connectors increases. (Reference: Use up to three or four connectors for 120-pin.)

When mating connectors, maintain parallelism between boards until insertion/withdrawal of all connectors is completed.

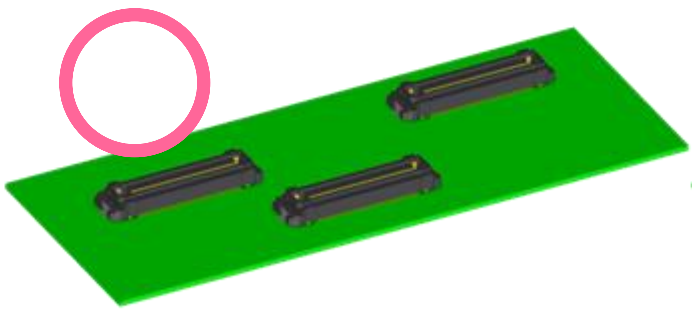
In addition, when mounting multiple units on the same board, the connectors should be oriented in the same direction.



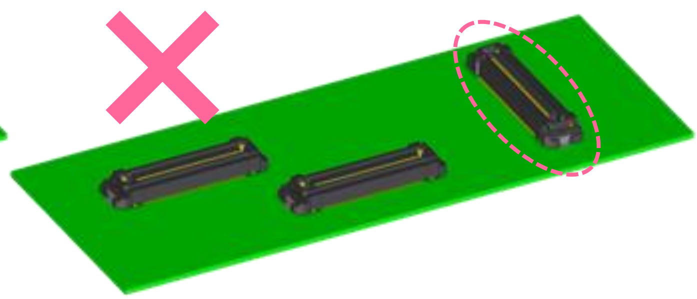
Mating state



Multiple mounting state



Connectors are oriented in the correct direction



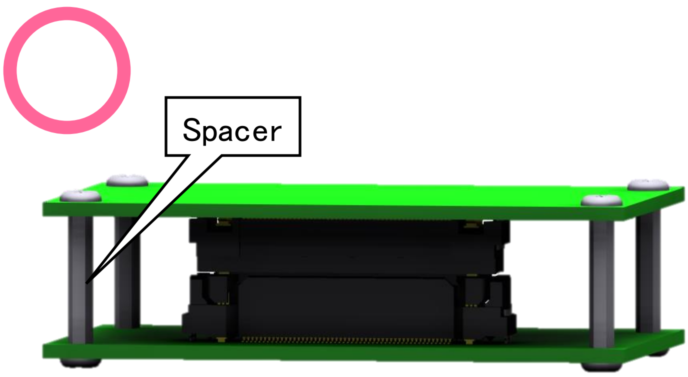
Connectors are not aligned

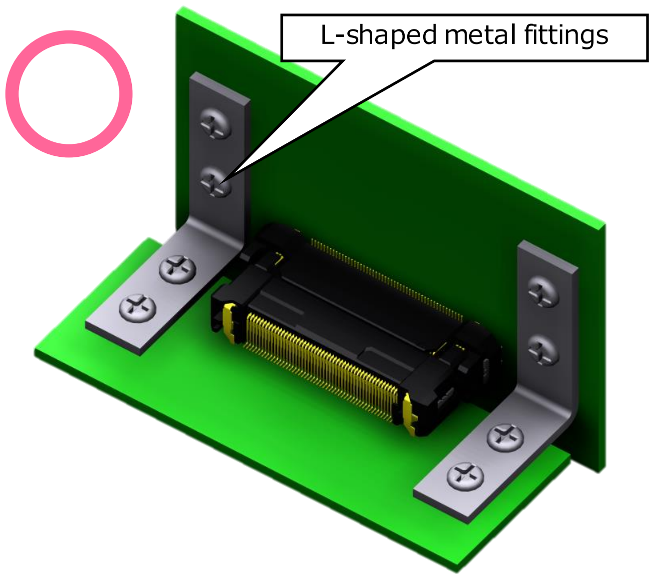
5. Board Stabilization

5-1 Methods to Secure Board

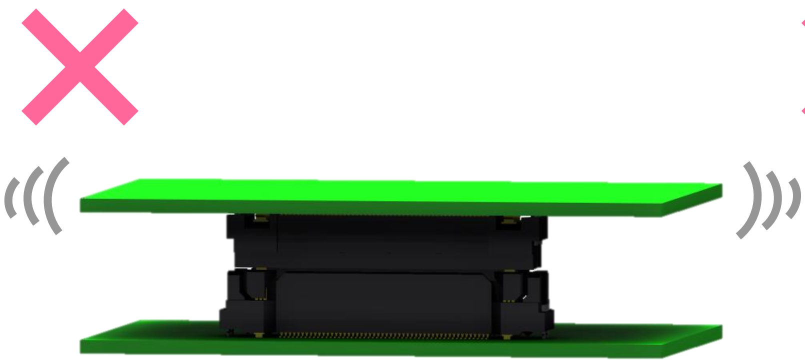
This connector can absorb misalignment of boards but cannot absorb vibration itself. When boards are supported by a connector only, the connector will be loaded excessively, which may result in a damage or contact failure. Take measures to secure boards with an object other than connector as shown in the following figure.

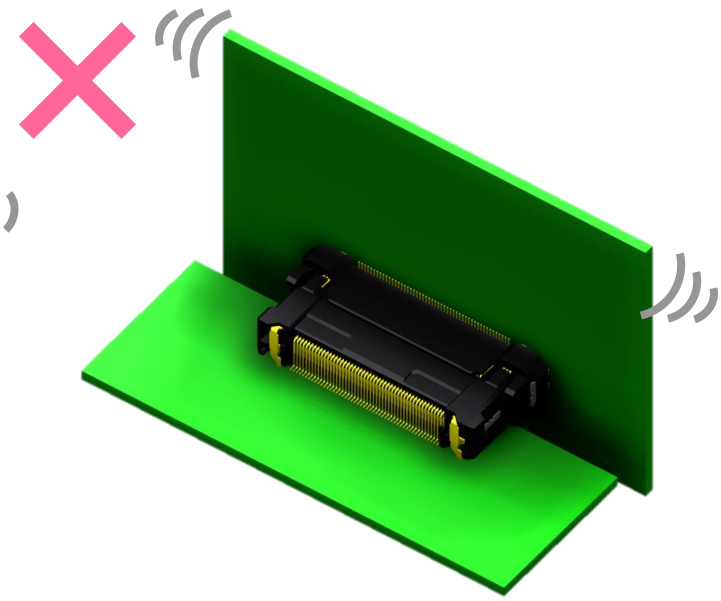
・ Fix by spacer or metal fittings





・ Boards not fixed





5-2 Board Stabilization Dimensions

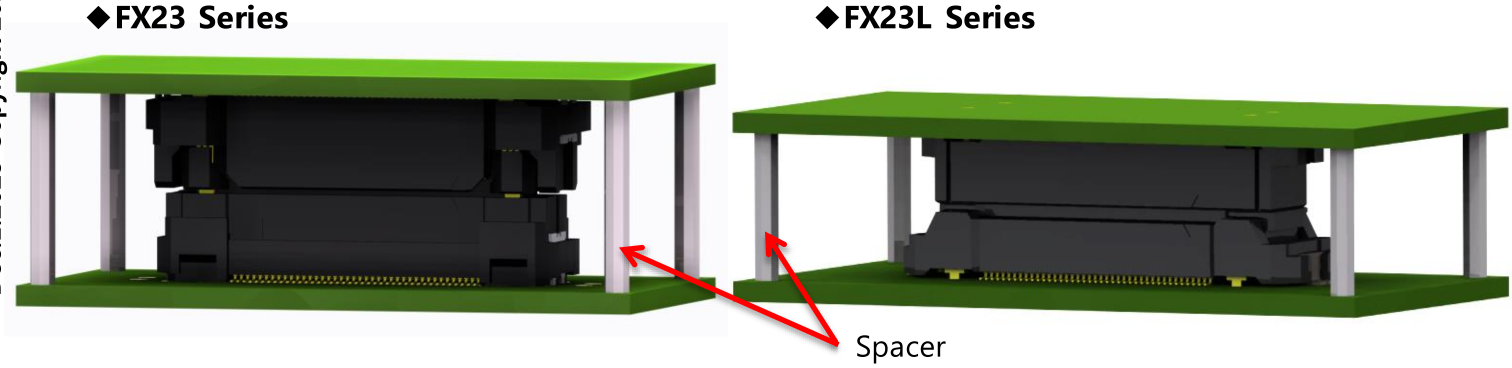
To fix boards with spacers, refer to the following dimensions.

When you use tools other than spacer to fix boards, the stacking height between boards should be +0.5/-0.127mm.

Stacking height	Header x receptacle product names	Recommended spacer height dimensions	Other fixing methods height dimensions
8 mm	FX23L-**P-0.5SV8 × FX23L-**S-0.5SV	8 ± 0.127 mm	8 +0.65/-0.127 mm
9 mm	FX23L-**P-0.5SV8 × FX23-**S-0.5SV	9 ± 0.127 mm	9 +0.65/-0.127 mm
10 mm	FX23L-**P-0.5SV10 × FX23L-**S-0.5SV	10 ± 0.127 mm	10 +0.65/-0.127 mm
11 mm	FX23L-**P-0.5SV10 × FX23-**S-0.5SV	11 ± 0.127 mm	11 +0.65/-0.127 mm
12 mm	FX23L-**P-0.5SV12 × FX23L-**S-0.5SV	12 ± 0.127 mm	12 +0.65/-0.127 mm
13 mm	FX23L-**P-0.5SV12 × FX23-**S-0.5SV	13 ± 0.127 mm	13 +0.65/-0.127 mm
14 mm	FX23-**P-0.5SV15 × FX23L-**S-0.5SV	14 ± 0.127 mm	14 +0.65/-0.127 mm
15 mm	FX23-**P-0.5SV15 × FX23-**S-0.5SV	15 ± 0.127 mm	15 +0.65/-0.127 mm
19 mm	FX23-**P-0.5SV20 × FX23L-**S-0.5SV	19 ± 0.127 mm	19 +0.65/-0.127 mm
	FX23L-**P-0.5SV8 × FX23-**S-0.5SV10		
20 mm	FX23-**P-0.5SV20 × FX23-**S-0.5SV	20 ± 0.127 mm	20 +0.65/-0.127 mm
21 mm	FX23L-**P-0.5SV10 × FX23-**S-0.5SV10	21 ± 0.127 mm	21 +0.65/-0.127 mm
23 mm	FX23L-**P-0.5SV12 × FX23-**S-0.5SV10	23 ± 0.127 mm	23 +0.65/-0.127 mm
25 mm	FX23-**P-0.5SV15 × FX23-**S-0.5SV10	25 ± 0.127 mm	25 +0.65/-0.127 mm
30 mm	FX23-**P-0.5SV20 × FX23-**S-0.5SV10	30 ± 0.127 mm	30 +0.65/-0.127 mm

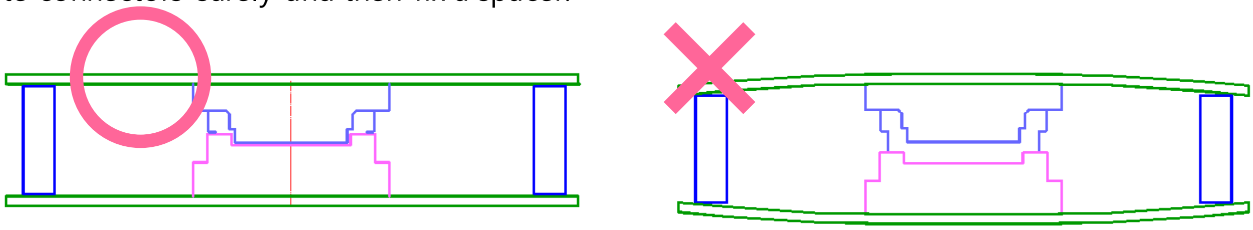
◆FX23 Series

◆FX23L Series



Note that when a spacer is installed away from connectors, incomplete mating of the connectors may occur due to sagging of the board, etc.

Mate connectors surely and then fix a spacer.



FX23×FX23L Series Design Guideline

Revision No.	4.0
Created	PCC Miyaki
Checked	PCC Nagata
Approved	PCC Nagata

History

Revision	Date	Handled by	Comments
0.1	2017/3/27	PCC Ono	Initial release
1.0	2017/10/27	PCC Ono	P.39 Add variation
2.0	2018/6/29	PCC Ono	P.18-21 Added dimension of metal mask
3.0	2018/11/15	PCC Ono	P.6 FX23L –S-0.5SV height dimension correction
4.0	2023/3/31	PCC Miyaki	Correction of errors, addition of notes Some, notations were changed.