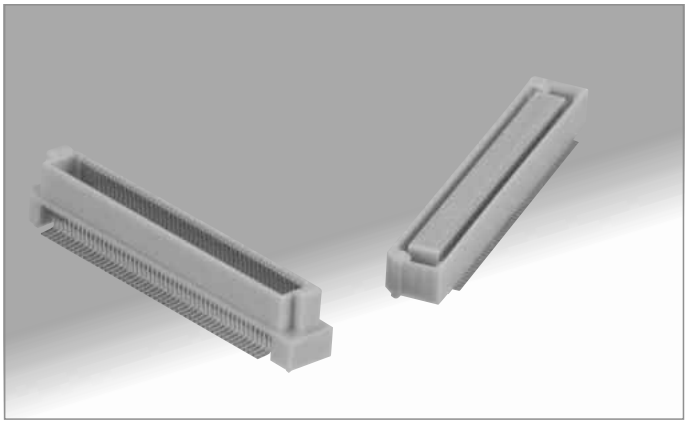
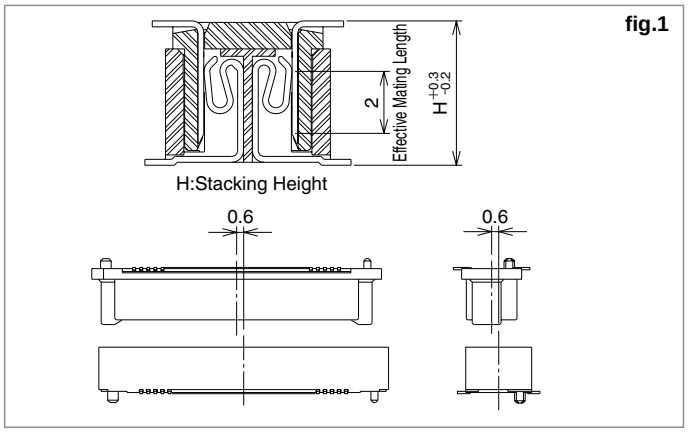
High-Speed (3.125Gbps) Stacking Connectors

FX8C Series



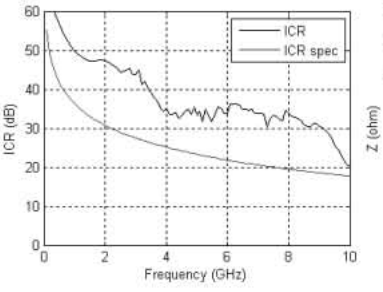


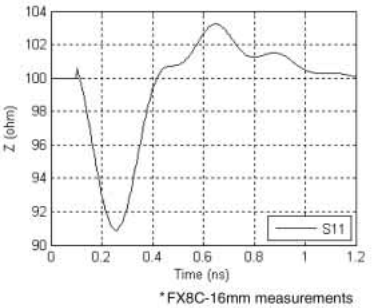
■Mechanical features

- **0.6mm Pitch**
- **Stacking Height : 5~16mm**
- **Number of Contacts : 60, 80, 100, 120, 140, 160, 200, 240, 280**
- **SMT Coplanarity**
  The coplanarity of the SMT solder area lead is maintained at the high accuracy of less than 0.1mm.
- **Mating Guide**
  The very small and guide rib is provided, and secures ±0.6mm self-alignment, considering the mating operativity into accounts. (fig.1)
- **Effective Mating Length : 2mm (fig.1)**
- **Mis-insertion Prevention**
  The boss prevents mis-insertion in the board to cause due to the boss position and boss diameter.
- **Two-piece Connection Product**
  In order to enhance the mating reliability for fine pitch connector using two-pieces, the two-pieces of connectors are combined by our unique method, and can secure the mount position accuracy. In such a new concept, the two-piece connected product is prepared at every number of contacts (The standard mating pitch for the two-piece interconnected product in two rows is 11mm.)

■Signal integrity features

- **Insertion-Loss-to-Crosstalk-Ratio (ICR)**
  The insertion-loss-to-crosstalk ratio (ICR) with five-aggressor differential FEXT meets the IEEE 802.3ap specification for 3.125+ Gbps with plenty of margins.
- **Differential Impedance**
  The differential impedance is within 100±10 ohms at 100 ps rise time (20% to 80%).

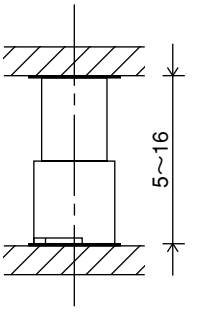




*FX8C-16mm measurements

■Stacking height variations (5mm~16mm)

Header \ Receptacle	FX8C-**S-SV FX8C-** / **S11-SVJ	FX8C-**S-SV5 FX8C-** / **S11-SV5J
FX8C-**P-SV FX8C-** / **P11-SVJ	5mm	10mm
FX8C-**P-SV1 FX8C-** / **P11-SV1J	6mm	11mm
FX8C-**P-SV2 FX8C-**/**P11-SV2J	7mm	12mm
FX8C-**P-SV4 FX8C-** / **P11-SV4J	9mm	14mm
FX8C-**P-SV6 FX8C-** / **P11-SV6J	11mm	16mm



FX8C Series

■Product Specifications

Rating	Current rating 0.4A Voltage rating 100V AC	Operating Temperature Range -55℃ to +85℃ Note 1. Operating Humidity Range 40% to 80%	Storage Temperature Range -10℃ to +60℃ Note 2. Storage Humidity Range 40% to 70%

Item	Specification	Condition
1. Insulation Resistance	100M ohms min.	250V DC
2. Withstanding voltage	No flashover or insulation breakdown.	300V AC/1 minute
3. Contact Resistance	80m ohms max.	100mA
4. Vibration	No electrical discontinuity of 1μs or more	Frequency: 10 to 55 Hz, single amplitude of 0.75 mm, 2 hours in each of the 3 directions.
5. Humidity (Steady state)	Contact resistance: 100m ohms max.Insulation resistance: 100M ohms min.	96 hours at temperature of 40 ± 2℃ and humidity of 90% to 95%
6. Temperature Cycle	Contact resistance: 100m ohms max.Insulation resistance: 100M ohms min.	(-55℃: 30 minutes, 15 to 35℃: 2 to 3 minutes 85℃: 30 minutes, 15 to 35℃: 2 to 3minutes) 5 cycles
7. Durability (Mating/un-mating)	Contact resistance: 100m ohms max.	50 cycles
8. Resistance to Soldering heat	No deformation of components affecting performance.	Reflow: At the recommended temperature profile
		Manual soldering: 360℃ for 5 seconds

Note 1 : Includes temperature rise caused by current flow.
Note 2 : The term "storage" refers to products stored for long period of time prior to mounting and use. Operating Temperature Range and Humidity range covers non conducting condition of installed connectors in storage, shipment or during transportation.
Note 3 : Slight variations in color of the plastic compounds do not affect form ,fit or function of the connector.
Note 4 : FX8C-∗P-SV(∗),FX8C-∗S-SV(∗) is gold plated.
Note 5 : Information contained in this catalog represents general requirements for this Series. Contact us for the drawings and specifications for a specific part number shown.

■Material

Part	Material	Finish		Remarks
Insulator	PPS	Light brown		UL94V-0
Header Contact	Phosphor bronze	Contact area Lead area	Gold plated Tin plated(Note 4)	———
Receptacle Contact	Phosphor bronze	Contact area Lead area	Gold plated Tin plated(Note 4)	———

■Ordering Information

●Single Product

FX8C - 120 P - SV 1 (91)
❶ ❷ ❸ ❹ ❺ ❻

❶ Series Name : FX8C	❺ Product height variation Blank : Standard (Minimum low profile) 1: +1mm · · · · · · 6:+6mm
❷ Number of Contacts :60, 80, 100, 120, 140	
❸ Connector type P :Header S :Receptacle	❻ Packaging Type (71) : Tray packaging (91) : Tube packaging (92) : Embossed tape package
❹ Contact type SV :Board vertical type	

●two-piece Connection Product

FX8C - 120/120 P 11 - SV 1 J
❶ ❷ ❸ ❹ ❺ ❻ ❼

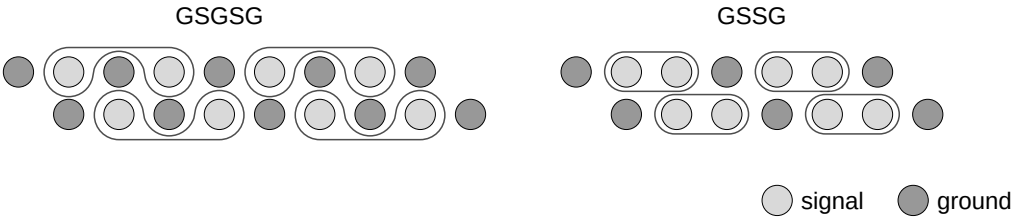
❶ Series Name :FX8C	❹ Connector to Connector Pitch
❷ Number of Contacts: 60×2, 80×2, 100×2, 120×2, 140×2 Example: 120/120 = 240 contacts	❺ Contact type SV : Board vertical type ❻ Product Height Variation Blank : Standard (Minimum lot profile) 1:+1mm · · · · · · 6:+6mm
❸ Connector Type : P : Header S : Receptacle	❼ J: two-piece connection product

∗The standard packaging of the two-piece connection product is the tray packaging.

■Signal integrity

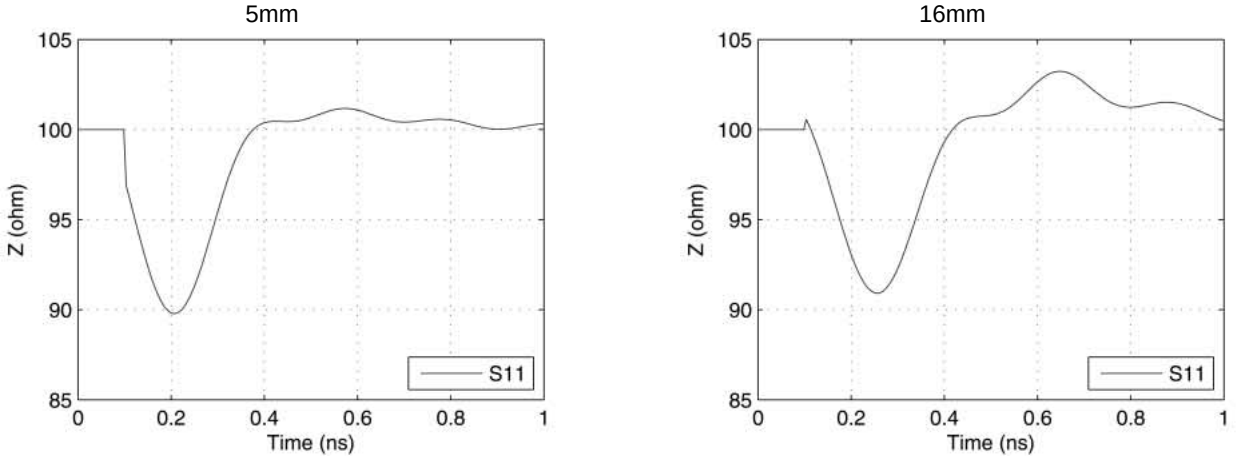
●Pin assignment

To match 100 ohm differential impedance and to reduce crosstalk, a staggered GSGSG pin assignment is recommended for FX8C of 5mm to 9mm height, and a staggered GSSG pin assignment is recommended for 10mm to 16mm height. (G=ground and S=signal)



●Impedance

The differential impedance is 100 ± 10 ohm for FX8C of 5mm and 16mm height at 100 ps rise time (20% to 80%).

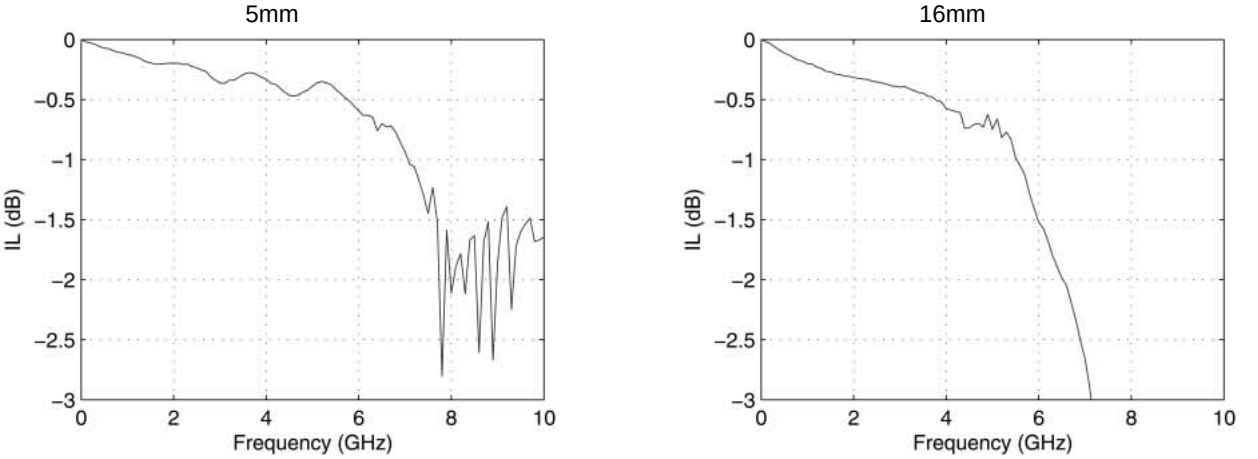


●Propagation delay

The propagation delay is 69 and 118 ps for FX8C of 5mm and 16mm height, respectively.

●Insertion loss

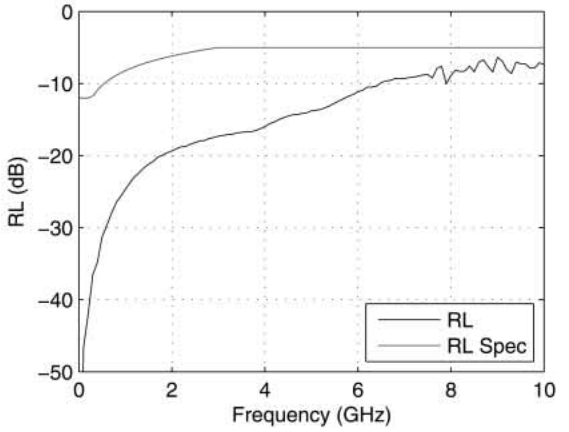
The differential insertion loss crosses 1 dB at 7 and 5 GHz for FX8C of 5mm and 16mm height, respectively.



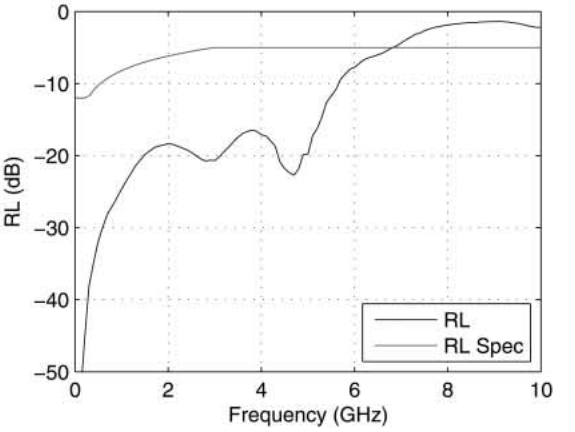
●Return loss

The differential return loss meets the IEEE 802.3ap specification to 10 and 7 GHz for FX8C of 5mm and 16mm height, respectively.

5mm



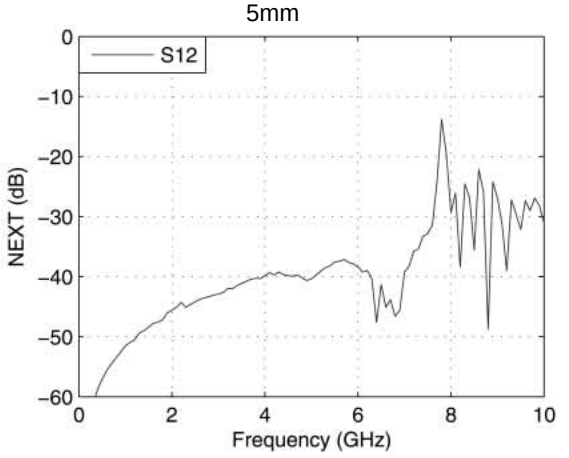
16mm



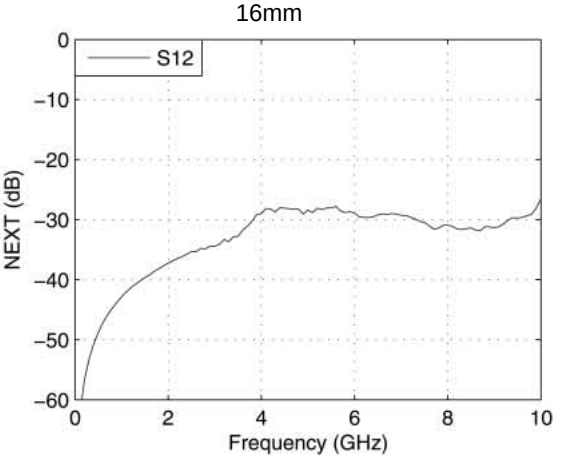
●Near-end crosstalk (NEXT)

The staggered GSGSG and GSSG pin assignments resulted in low differential NEXT.

5mm



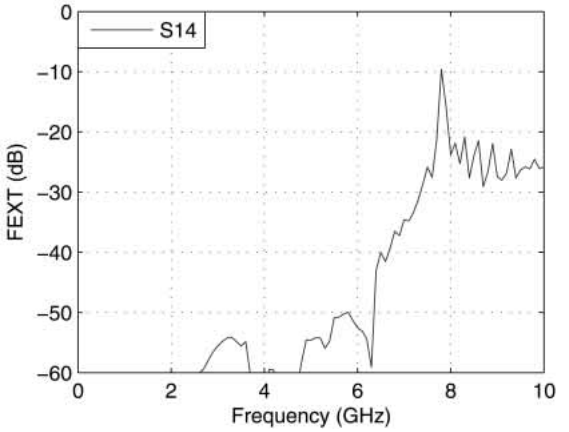
16mm



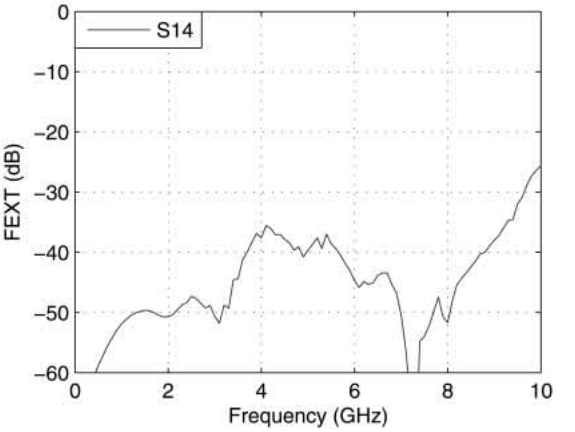
●Far-end crosstalk (FEXT)

The staggered GSGSG and GSSG pin assignments resulted in low differential FEXT.

5mm



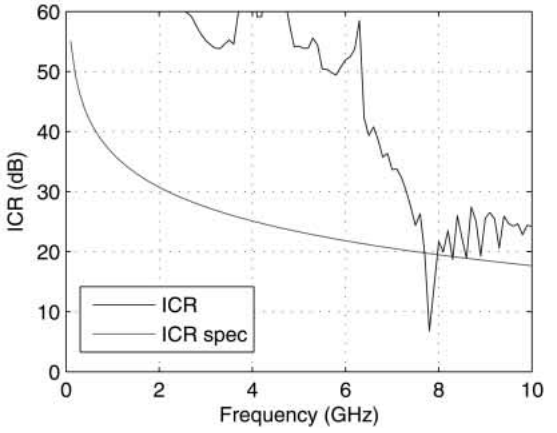
16mm



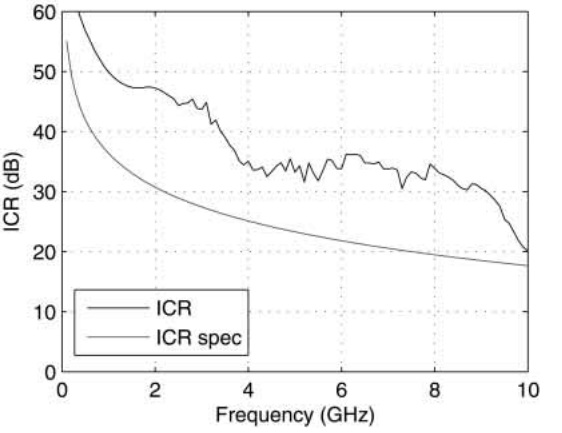
●Insertion-loss-to-crosstalk ratio (ICR)

The insertion-loss-to-crosstalk ratio (ICR) with multi-aggressor* differential FEXT meets the extrapolated IEEE 802.3ap specification to 7+ GHz with plenty of margins.

5mm

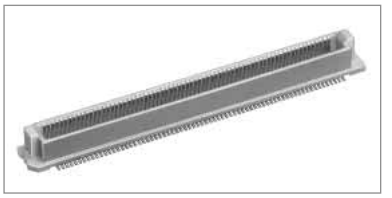


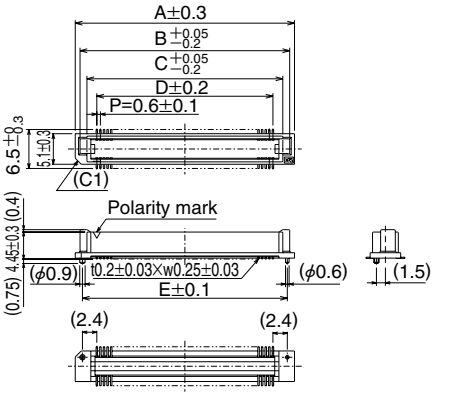
16mm



■Header (Single Product)

[FX8C-**P-SV]



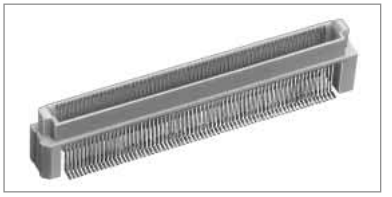


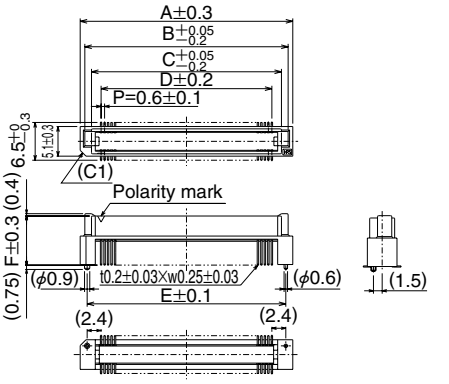
Unit:mm

Part Number	CL No.	Number of Contacts	A	B	C	D	E	Tube packaging Quantity (Pieces)	RoHS
FX8C- 60P-SV(92)	578-0501-9-92	60	24.60	23.00	20.70	17.40	22.20	21	YES
FX8C- 80P-SV(92)	578-0503-4-92	80	30.60	29.00	26.70	23.40	28.20	17	
FX8C-100P-SV(92)	578-0505-0-92	100	36.60	35.00	32.70	29.40	34.20	14	
FX8C-120P-SV(92)	578-0506-2-92	120	42.60	41.00	38.70	35.40	40.20	12	
FX8C-140P-SV(92)	578-0507-5-92	140	48.60	47.00	44.70	41.40	46.20	10	

**71 : Tray packaging product 91: Tube packaging product 92: Embossed tape packaging product
Note 1: To order the tube packaging product, please determine the quantity for delivery, multiplying the tube packaging product by an integer.
Note 2: The embossed tape packaging product is prepared for 60 and 80 contacts only. In addition, the product will be procured per reel unit. Please refer to the delivery form item on page 12 for details.
Note 3: Tray packaging product is not for board placement with automatic equipment.

[FX8C-**P-SV1]
[FX8C-**P-SV2]
[FX8C-**P-SV4]
[FX8C-**P-SV6]





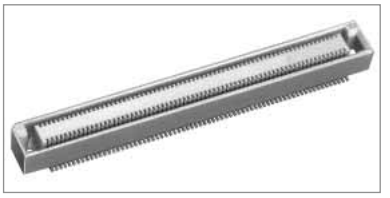
Unit: mm

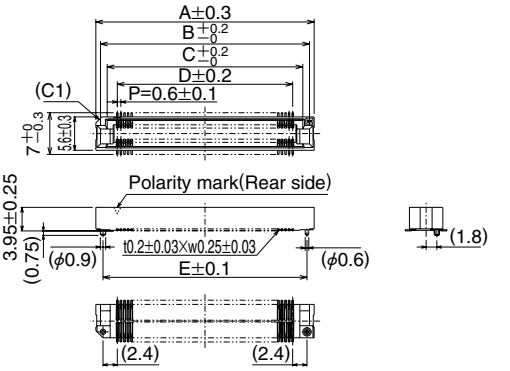
Part Number	CL No.	Number of Contacts	A	B	C	D	E	F	Tube packaging Quantity (Pieces)	RoHS
FX8C- 60P-SV1(92)	578-0521-6-92	60	24.60	23.00	20.70	17.40	22.20	5.45	21	YES
FX8C- 60P-SV2(92)	578-0541-3-92							6.45		
FX8C- 60P-SV4(92)	578-0581-8-92							8.45		
FX8C- 60P-SV6(92)	578-0601-3-92							10.45		
FX8C- 80P-SV1(92)	578-0523-1-92	80	30.60	29.00	26.70	23.40	28.20	5.45	17	
FX8C- 80P-SV2(92)	578-0543-9-92							6.45		
FX8C- 80P-SV4(92)	578-0583-3-92							8.45		
FX8C- 80P-SV6(92)	578-0603-9-92							10.45		
FX8C-100P-SV1(92)	578-0525-7-92	100	36.60	35.00	32.70	29.40	34.20	5.45	14	
FX8C-100P-SV2(92)	578-0545-4-92							6.45		
FX8C-100P-SV4(92)	578-0585-9-92							8.45		
FX8C-100P-SV6(92)	578-0605-4-92							10.45		
FX8C-120P-SV1(92)	578-0526-0-92	120	42.60	41.00	38.70	35.40	40.20	5.45	12	
FX8C-120P-SV2(92)	578-0546-7-92							6.45		
FX8C-120P-SV4(92)	578-0586-1-92							8.45		
FX8C-120P-SV6(92)	578-0606-7-92							10.45		
FX8C-140P-SV1(92)	578-0527-2-92	140	48.60	47.00	44.70	41.40	46.20	5.45	10	
FX8C-140P-SV2(92)	578-0547-0-92							6.45		
FX8C-140P-SV4(92)	578-0587-4-92							8.45		
Note 5 FX8C-140P-SV6(93)	578-0607-0-93							10.45		

** 71: Tray packaging product 91: Tube packaging product 92: Embossed tape packaging product
Note 1: To order the tube packaging product, please determine a quantity for delivery,multiplying the tube packaging product by an integer.
Note 2: The embossed tape packaging product is prepared for 60 and 80 contacts only. In addition, the product will be sold per reel unit. Please refer to the packaging specification item on page 12 for details.
Note 3: The locator material is installed between leads for the FX8C-P-SV6 type.
Note 4: Tray packaging product is not for board placement with automatic equipment.
Note 5: (93) spec is with vacuum pick-up tape, embossed tape packaging product.

■Receptacle (Single Product)

[FX8C-∗∗S-SV]



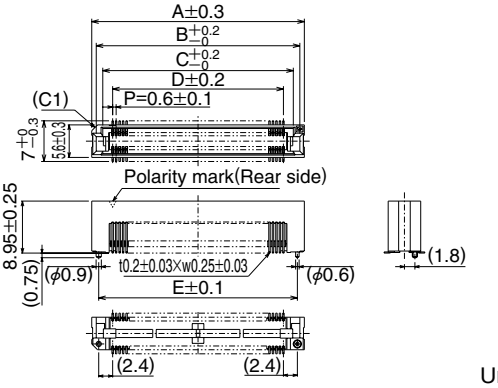


Unit:mm

Part Number	CL No.	Number of Contacts	A	B	C	D	E	Tube packaging Quantity (Pieces)	RoHS
FX8C- 60S-SV(92)	578-0801-2-92	60	24.60	23.05	20.80	17.40	22.20	21	YES
FX8C- 80S-SV(92)	578-0803-8-92	80	30.60	29.05	26.80	23.40	28.20	17	
FX8C-100S-SV(92)	578-0805-3-92	100	36.60	35.05	32.80	29.40	34.20	14	
FX8C-120S-SV(92)	578-0806-6-92	120	42.60	41.05	38.80	35.40	40.20	12	
FX8C-140S-SV(92)	578-0807-9-92	140	48.60	47.05	44.80	41.40	46.20	10	

∗∗ 71: Tray packaging product 91: Tube packaging product 92: Embossed tape packaging product
Note 1: To order the tube packaging product, please determine a quantity for delivery,multiplying the tube packaging product by an integer.
Note 2: The embossed tape packaging product is prepared for 60 and 80 contacts only. In addition, the product will be procured per reel unit. Please refer to the packaging specification item on page 12 for details.
Note 3: Tray packaging product is not for board placement with automatic equipment.

[FX8C-∗∗S-SV5]



Unit:mm

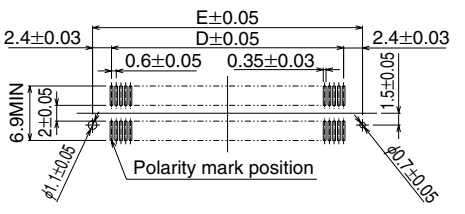
Part Number	CL No.	Number of Contacts	A	B	C	D	E	Tube packaging Quantity (Pieces)	RoHS
FX8C- 60S-SV5(92)	578-0821-0-92	60	24.60	23.05	20.80	17.40	22.20	21	YES
FX8C- 80S-SV5(92)	578-0823-5-92	80	30.60	29.05	26.80	23.40	28.20	17	
FX8C-100S-SV5(92)	578-0825-0-92	100	36.60	35.05	32.80	29.40	34.20	14	
FX8C-120S-SV5(92)	578-0826-3-92	120	42.60	41.05	38.80	35.40	40.20	12	
FX8C-140S-SV5(92)	578-0827-6-92	140	48.60	47.05	44.80	41.40	46.20	10	

∗∗ 71: Tray packaging product 91: Tube packaging product 92: Embossed tape packaging product
Note 1: To order the tube packaging product, please determine a quantity for delivery,multiplying the tube packaging product by an integer.
Note 2: The embossed tape package product is prepared for 60 and 80 contacts only. In addition, the product will be procured per reel unit. Please refer to the packaging specification item on page 12 for details.
Note 3: Tray packaging product is not for board placement with automatic equipment.

■PCB mounting pattern

Header

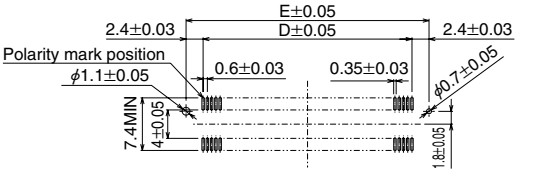
[FX8C∗∗P-SV∗]



·Recommended metal mask thickness : t=0.15mm

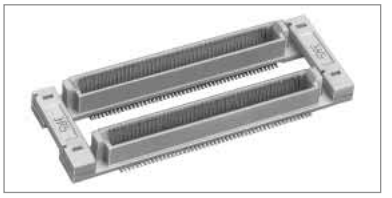
Receptacle

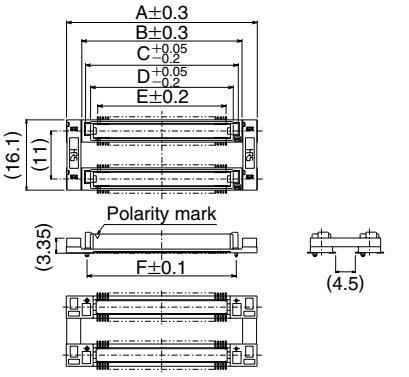
[FX8C-∗∗S-SV,SV5∗]



·Recommended metal mask thickness : t=0.15mm
·If the inside (the connector lower side) of the SMT land isn't treated with insulation tape and so on, the area is considered as the prohibited area.(FX8C-S-SV5 isn't applied.)

■Header (two-piece Connection Product)
[FX8C-**/**P11-SVJ]



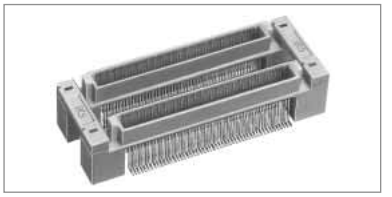


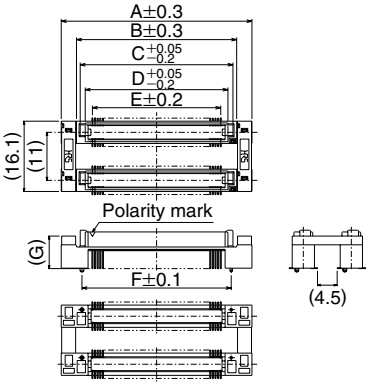
Unit:mm

Part Number	CL No.	Number of Contacts	A	B	C	D	E	F	RoHS
FX8C- 60/ 60P11-SVJ(71)	578-0651-1-71	60×2	31.70	24.70	23.00	20.70	17.40	22.20	YES
FX8C- 80/ 80P11-SVJ(71)	578-0653-7-71	80×2	37.70	30.70	29.00	26.70	23.40	28.20	
FX8C-100/100P11-SVJ(71)	578-0655-2-71	100×2	43.70	36.70	35.00	32.70	29.40	34.20	
FX8C-120/120P11-SVJ(71)	578-0656-5-71	120×2	49.70	42.70	41.00	38.70	35.40	40.20	
FX8C-140/140P11-SVJ(71)	578-0657-8-71	140×2	55.70	48.70	47.00	44.70	41.40	46.20	

Note 1: The two-piece connection product is packaged by tray.
Note 2: Tray packaging product is not for board placement with automatic equipment.

[FX8C-**/**P11-SV1J]
[FX8C-**/**P11-SV2J]
[FX8C-**/**P11-SV4J]
[FX8C-**/**P11-SV6J]





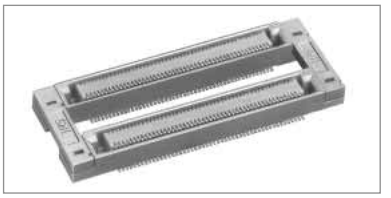
Unit: mm

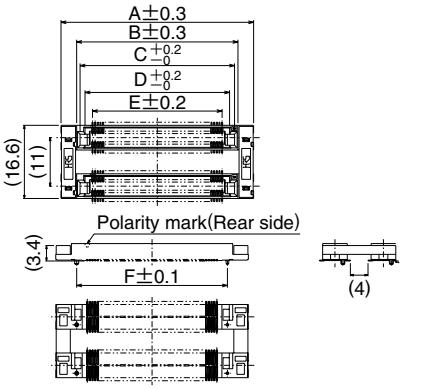
Part Number	CL No.	Number of Contacts	A	B	C	D	E	F	G	H	RoHS
FX8C- 60/ 60P11-SV1J(71)	578-0671-9-71	60×2	31.70	24.70	23.00	20.70	17.40	22.20	4.35	5.45	YES
FX8C- 60/ 60P11-SV2J(71)	578-0691-6-71								5.35	6.45	
FX8C- 60/ 60P11-SV4J(71)	578-0731-9-71								7.35	8.45	
FX8C- 60/ 60P11-SV6J(71)	578-0751-6-71								9.35	10.45	
FX8C- 80/ 80P11-SV1J(71)	578-0673-4-71	80×2	37.70	30.70	29.00	26.70	23.40	28.20	4.35	5.45	
FX8C- 80/ 80P11-SV2J(71)	578-0693-1-71								5.35	6.45	
FX8C- 80/ 80P11-SV4J(71)	578-0733-4-71								7.35	8.45	
FX8C- 80/ 80P11-SV6J(71)	578-0753-1-71								9.35	10.45	
FX8C-100/100P11-SV1J(71)	578-0675-0-71	100×2	43.70	36.70	35.00	32.70	29.40	34.20	4.35	5.45	
FX8C-100/100P11-SV2J(71)	578-0695-7-71								5.35	6.45	
FX8C-100/100P11-SV4J(71)	578-0735-0-71								7.35	8.45	
FX8C-100/100P11-SV6J(71)	578-0755-7-71								9.35	10.45	
FX8C-120/120P11-SV1J(71)	578-0676-2-71	120×2	49.70	42.70	41.00	38.70	35.40	40.20	4.35	5.45	
FX8C-120/120P11-SV2J(71)	578-0696-0-71								5.35	6.45	
FX8C-120/120P11-SV4J(71)	578-0736-2-71								7.35	8.45	
FX8C-120/120P11-SV6J(71)	578-0756-0-71								9.35	10.45	
FX8C-140/140P11-SV1J(71)	578-0677-5-71	140×2	55.70	48.70	47.00	44.70	41.40	46.20	4.35	5.45	
FX8C-140/140P11-SV2J(71)	578-0697-2-71								5.35	6.45	
FX8C-140/140P11-SV4J(71)	578-0737-5-71								7.35	8.45	
FX8C-140/140P11-SV6J(71)	578-0757-2-71								9.35	10.45	

Note 1: The two-piece connection product is packaged by tray.
Note 2: Tray packaging product is not for board placement with automatic equipment.
Note 3: The locator material is installed between leads for the FX8C-**/**P11-SV6J type.

■Receptacle (two-piece Connection Product)

[FX8C-**/**S11-SVJ]



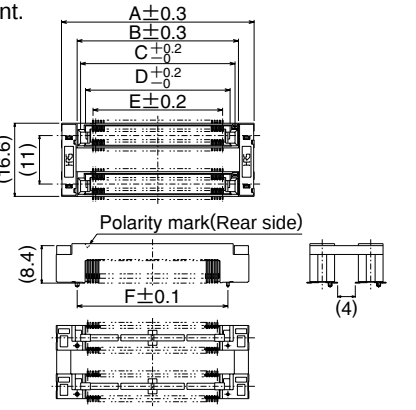


Unit:mm

Part Number	CL No.	Number of Contacts	A	B	C	D	E	F	RoHS
FX8C-060/060S11-SVJ(71)	578-0901-7-71	60×2	31.70	24.60	23.05	20.80	17.40	22.20	YES
FX8C-080/080S11-SVJ(71)	578-0903-2-71	80×2	37.70	30.60	29.05	26.80	23.40	28.20	
FX8C-100/100S11-SVJ(71)	578-0905-8-71	100×2	43.70	36.60	35.05	32.80	29.40	34.20	
FX8C-120/120S11-SVJ(71)	578-0906-0-71	120×2	49.70	42.60	41.05	38.80	35.40	40.20	
FX8C-140/140S11-SVJ(71)	578-0907-3-71	140×2	55.70	48.60	47.05	44.80	41.40	46.20	

Note 1: The two-piece connection product is packaged by tray.
Note 2: Tray packaging product is not for board placement with automatic equipment.

[FX8C-**/**S11-SV5J]



Unit:mm

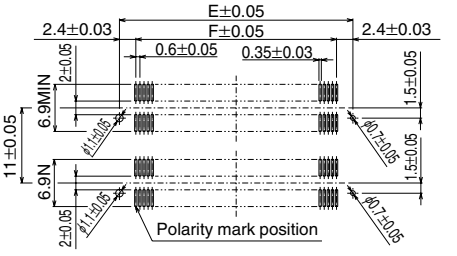
Part Number	CL No.	Number of Contacts	A	B	C	D	E	F	RoHS
FX8C-060/060S11-SV5J(71)	578-0921-4-71	60×2	31.70	24.60	23.05	20.80	17.40	22.20	YES
FX8C-080/080S11-SV5J(71)	578-0923-0-71	80×2	37.70	30.60	29.05	26.80	23.40	28.20	
FX8C-100/100S11-SV5J(71)	578-0925-5-71	100×2	43.70	36.60	35.05	32.80	29.40	34.20	
FX8C-120/120S11-SV5J(71)	578-0926-8-71	120×2	49.70	42.60	41.05	38.80	35.40	40.20	
FX8C-140/140S11-SV5J(71)	578-0927-0-71	140×2	55.70	48.60	47.05	44.80	41.40	46.20	

Note 1: The two-piece connection product is packaged by tray.
Note 2: Tray packaging product is not for board placement with automatic equipment.

■PCB mounting pattern

Header

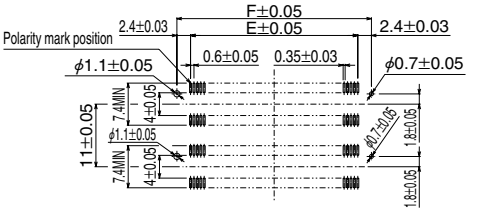
[FX8C-** / **P 11-SVJ, SV1J]



·Recommended metal mask thickness : t=0.15mm

Receptacle

[FX8C-** / **P 11-SVJ, SV5J]

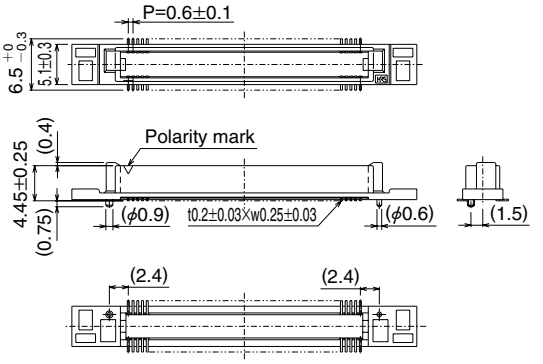


·Recommended metal mask thickness : t=0.15mm
·If the inside (the connector lower side) of the SMT land isn't treated with insulation tape and so on, the area is considered as the prohibited area.(Except FX8C-**/**S11-SV5J)

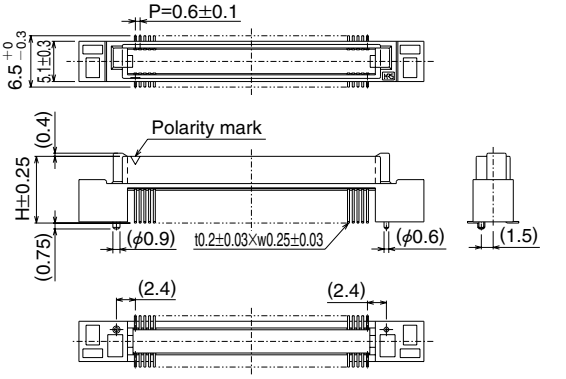
■Detailed Figure After Joint Removal (Single Product in two-piece Connection Product)

Header

[FX8C-** / **P 11-SVJ]

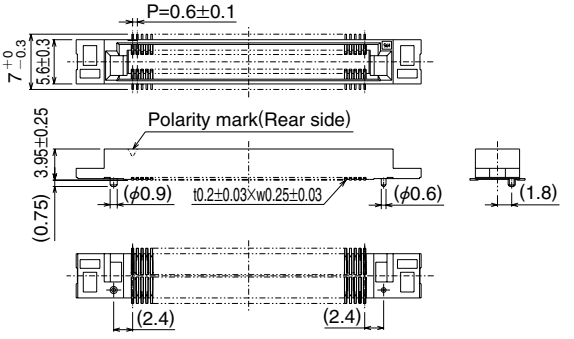


[FX8C-** / **P 11-SV1J]

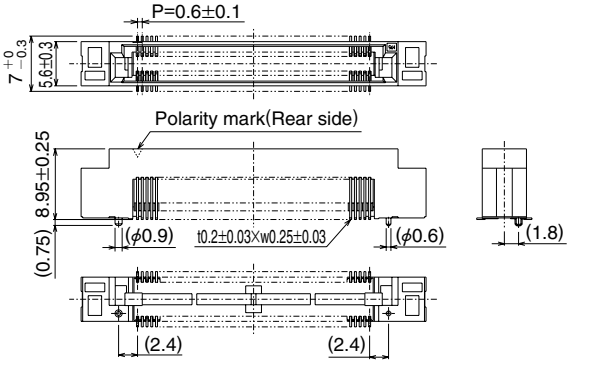


Receptacle

[FX8C-** / **S 11-SVJ]



[FX8C-** / **S 11-SV5J]



■Connector Precautions

1. Tolerance Clearance on Mating Side

The effective contact length of the product is set to 2.0mm. Please use the product so as to set to less than 1.2mm the clearance between the header and the receptacle in the mating process.

2. Fixation Between Mounting Boards

If this product is fixed only by mating force, Please consider the fixing method so as not to apply loads such as vibration, shock and so on.

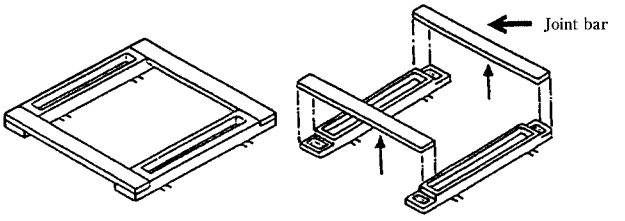
3. Stacking General Tolerance in Mating

Stack Amm ⟶ A $^{+0.3}_{-0.2}$ mm

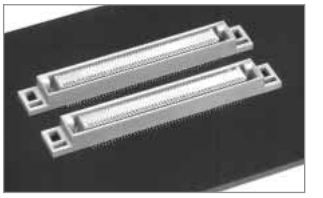
Note: Please Note that the above tolerance of the stacking height doesn't include the solder paste thickness.

4. Handling Two-piece Connection Product

Both joint bar edges of the two-piece connection product are fixed by joints, while the mating process can't be performed in that state. Before the mating process, please remove the joint bars as if pull it up. (Don't remove the joint bars before mounting on the board.)

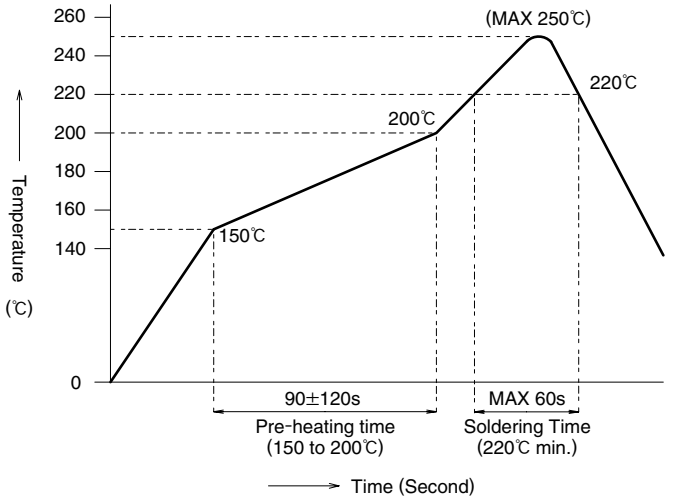


Before removing joint bar



After removing joint bar

5. Mounting Temperature Profile (Reference)



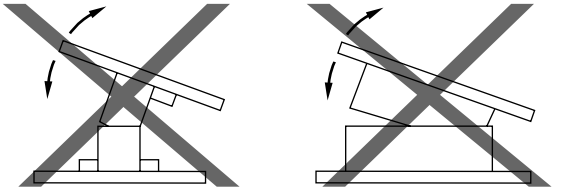
HRS test conditions

Test board	Glass epoxy 161mm×100mm×1.6mm thick
Solder method	:Reflow
Solder composition	:Paste, 96.5%Sn/3%Ag/0.5%Cu
Metal mask	: 0.15mm thick
Reflow cycles	: 2 cycles

The temperature profile is based on the above conditions.
In individual applications the actual temperature may vary, depending on solder paste type, volume/thickness and board size/thickness. Consult your solder paste and equipment manufacturer for specific recommendations.

6. Cautions

This product is made as the thin formed product in order to be miniaturized.



■Packaging Type

Packaging Type	Number of Contacts	60 contacts	80 contacts	100 contacts	120 contacts	140 contacts
Tube packaging	Packaged Product Pieces	21 pieces	17 pieces	14 pieces	12-pieces	10pieces
	Sales Unit	Deliver the multiplied pieces. (Example) In case of 60 contacts,21 pieces, 42-pieces,...				
	Total Tube Length	550mm±2mm				
Embossed Tape Packaging	Tape Width	44mm		56mm		72mm
	Product Pitch	12mm				
	Emboss Reel Diameter	Refer to the table on page 13 in this catalog.				
	Packaged Product Pieces	Refer to the table on page 13 in this catalog.				
	Sales Unit	Per reel				

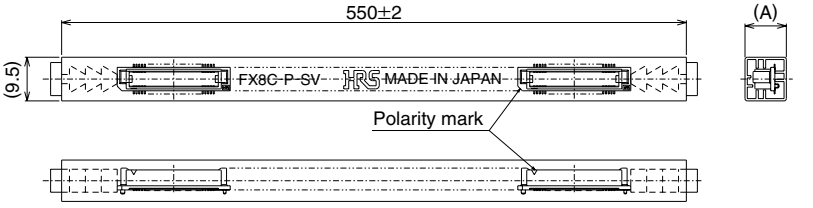
∗The above packaging type is , as listed for the single product only.
In addition, the packaging type of the two-piece connection product is the tray packaging.

■Packaging Specification

[Tube packaging]

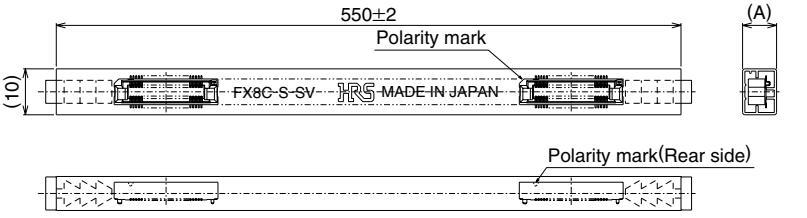
●Header

[FX8-∗∗P-SV (91)]
[FX8-∗∗P-SV1 (91)]
[FX8-∗∗P-SV2 (91)]
[FX8-∗∗P-SV4 (91)]
[FX8-∗∗P-SV6 (91)]



●Receptacle

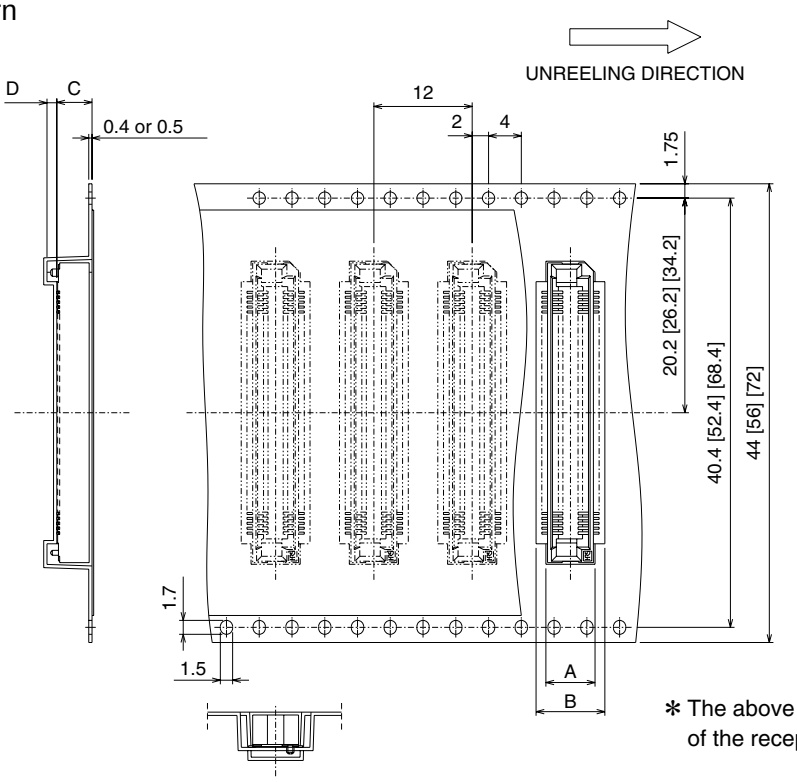
[FX8C-∗∗S-SV (91)]
[FX8C-∗∗S-SV5 (91)]



P/S	Part Number	A
Header	FX8C-∗∗P-SV (91)	9
	FX8C-∗∗P-SV1 (91)	10
	FX8C-∗∗P-SV2 (91)	11
	FX8C-∗∗P-SV4 (91)	13
	FX8C-∗∗P-SV6 (91)	15
Receptacle	FX8C-∗∗S-SV (91)	7.4
	FX8C-∗∗S-SV5 (91)	12.4

[Embossed Tape Package]

●Carrier Size Pattern



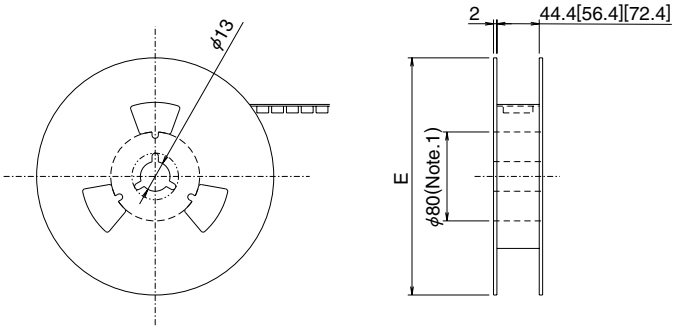
∗ The above figure represents the case of the receptacle connector.

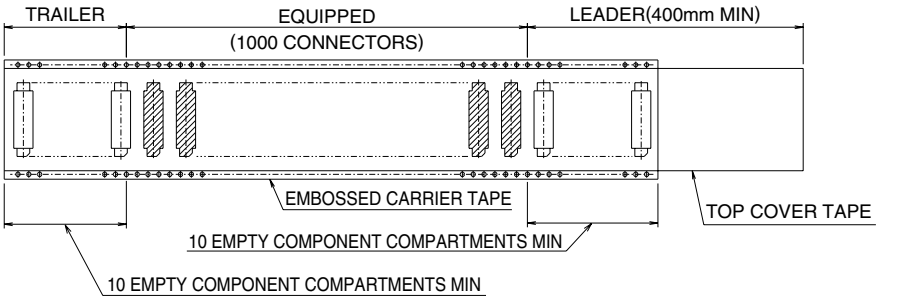
Unit: mm

P/S	Part Number	A	B	C	D	E	Product Pieces	
Header	FX8C-∗∗P-SV (92)	5.5	7.9	5.2	1.2	ϕ370	1000 pieces	
	FX8C-∗∗P-SV1 (92)	5.5	7.9	6.2	1.2	ϕ370	1000 pieces	
	FX8C-∗∗P-SV2 (92)	5.5	7.9	7.2	1.2	ϕ330	500 pieces	Note 2
	FX8C-∗∗P-SV4 (92)	5.5	7.9	9.2	1.2	ϕ370	500 pieces	
	FX8C-∗∗P-SV6 (92)	5.5	7.9	11.2	1.2	ϕ370	500 pieces	
Receptacle	FX8C-∗∗S-SV (92)	6.0	8.4	4.3	1.2	ϕ330	1000 pieces	Note 1
	FX8C-∗∗S-SV5 (92)	6.0	8.4	9.3	1.2	ϕ370	500 pieces	Note 2

∗∗ : Number of Contacts

●Reel State Size Pattern (FREE)



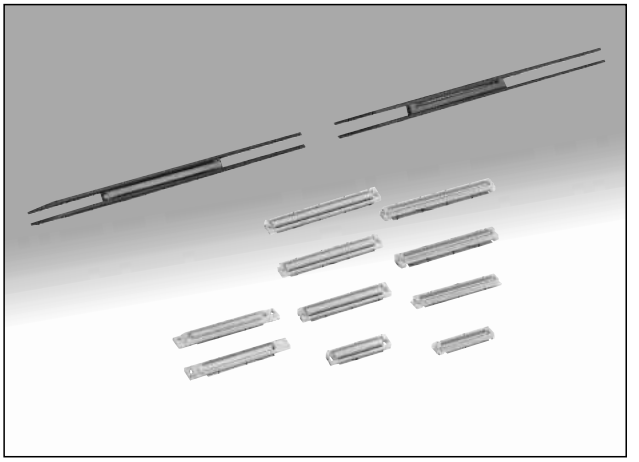


Note 1: E dimension for FX8C-140S-SV(92) is φ370, core dia. is φ100.
Note 2: E dimension for FX8C-120P-SV2(92), FX8C-120S-SV5(92), FX8C-140S-SV5(92) is φ380.

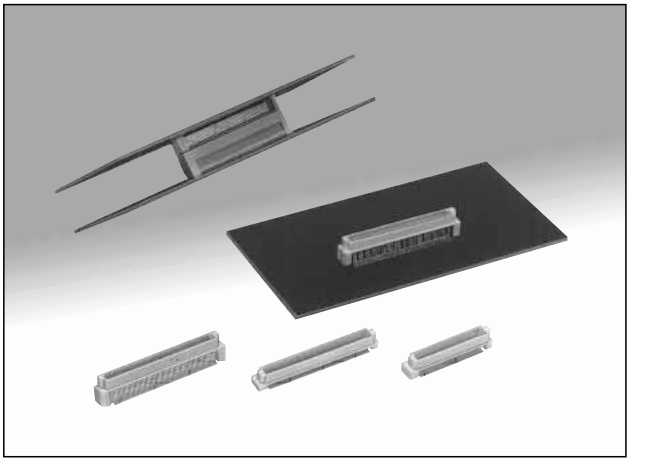
0.6mm Pitch Stacking Height 3mm to 16mm Connector

FX8, FX8C Series

FX8 Series



FX8C Series



Note that FX8 series and FX8C series are not mated with each other.

■Features

1. Stacking Height 3mm to 16mm available

The board to board stacking height can correspond to 3mm~16mm.

2. SMT Coplanarity

The coplanarity of the SMT solder area lead is maintained at the high accuracy of less than 0.1mm.

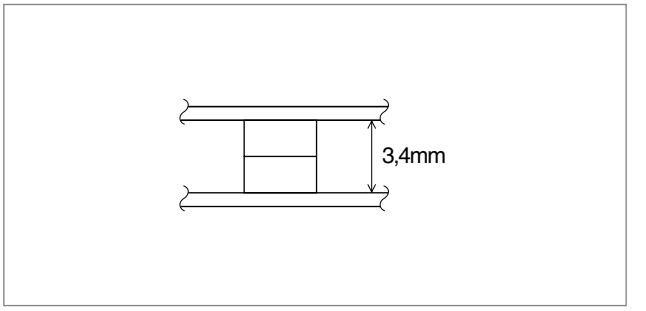
3. Mating Guide

The very small and guide rib is provided, and secures ±0.6mm self-alignment, considering the mating operativity into accounts.

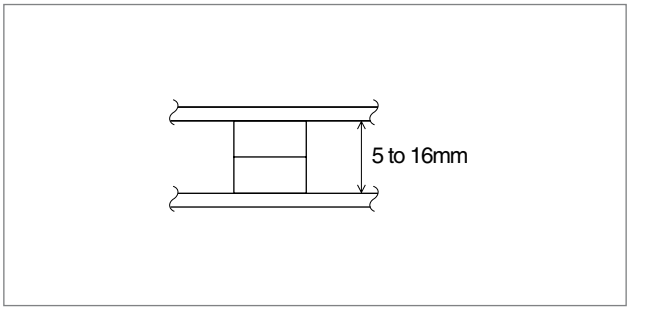
4. Mis-insertion Prevention

The boss prevents mis-insertion in the board to cause due to the boss position and boss diameter.

●Stacking Height 3,4mm-FX8 Series



●Stacking Height 5 to 16mm-FX8C Series



■Applications

Note pc, business equipments, which require miniaturization or light-weight

FX8C Series

■Product Specifications

Rating	Current rating 0.4A Voltage rating 100V AC	Operating Temperature Range -55℃ to +85℃ Note 1. Operating Humidity Range 40% to 80%	Storage Temperature Range -10℃ to +60℃ Note 2. Storage Humidity Range 40% to 70%

Item	Specification	Condition
1. Insulation Resistance	100M ohms min.	250V DC
2. Withstanding voltage	No flashover or insulation breakdown.	300V AC/1 minute
3. Contact Resistance	80m ohms max.	100mA
4. Vibration	No electrical discontinuity of 1μs or more	Frequency: 10 to 55 Hz, single amplitude of 0.75 mm, 2 hours in each of the 3 directions.
5. Humidity (Steady state)	Contact resistance: 100m ohms max.Insulation resistance: 100M ohms min.	96 hours at temperature of 40℃ and humidity of 90% to 95%
6. Temperature Cycle	Contact resistance: 100m ohms max.Insulation resistance: 100M ohms min.	(-55℃: 30 minutes, 15 to 35℃: 2 to 3 minutes 85℃: 30 minutes, 15 to 35℃: 2 to 3minutes) 5 cycles
7. Durability (Mating/un-mating)	Contact resistance: 100m ohms max.	50 cycles
8. Resistance to Soldering heat	No deformation of components affecting performance.	Reflow: At the recommended temperature profile
		Manual soldering: 360℃ for 5 seconds

Note 1 : Includes temperature rise caused by current flow.
Note 2 : The term "storage" refers to products stored for long period of time prior to mounting and use. Operating Temperature Range and Humidity range covers non conducting condition of installed connectors in storage, shipment or during transportation.
Note 3 : Slight variations in color of the plastic compounds do not affect form ,fit or function of the connector.
Note 4 : FX8C-∗P-SV(∗),FX8C-∗S-SV(∗) is gold plated.
Note 5 : Information contained in this catalog represents general requirements for this Series. Contact us for the drawings and specifications for a specific part number shown.

■Material

Part	Material	Finish		Remarks
Insulator	PBS	Light brown		UL94V-0
Header Contact	Phosphor bronze	Contact area Lead area	Gold plated Tin plated(Note 4)	———
Receptacle Contact	Phosphor bronze	Contact area Lead area	Gold plated Tin plated(Note 4)	———

■Ordering Information

●Single Product

FX8C - 120 P - SV 1 (91)
❶ ❷ ❸ ❹ ❺ ❻

❶ Series Name : FX8C	❺ Product height variation Blank : Standard (Minimum low profile) 1: +1mm · · · · · · 3:+3mm
❷ Number of Contacts :60, 80, 90, 120, 140	
❸ Connector type P :Header S :Receptacle	❻ Packaging Type (71) : Tray packaging (91) : Tube packaging (92) : Embossed tape package
❹ Contact type SV :Board vertical type	

●two-piece Connection Product

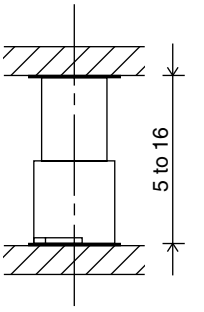
FX8C - 120/120 P 11 - SV 1 J
❶ ❷ ❸ ❹ ❺ ❻ ❼

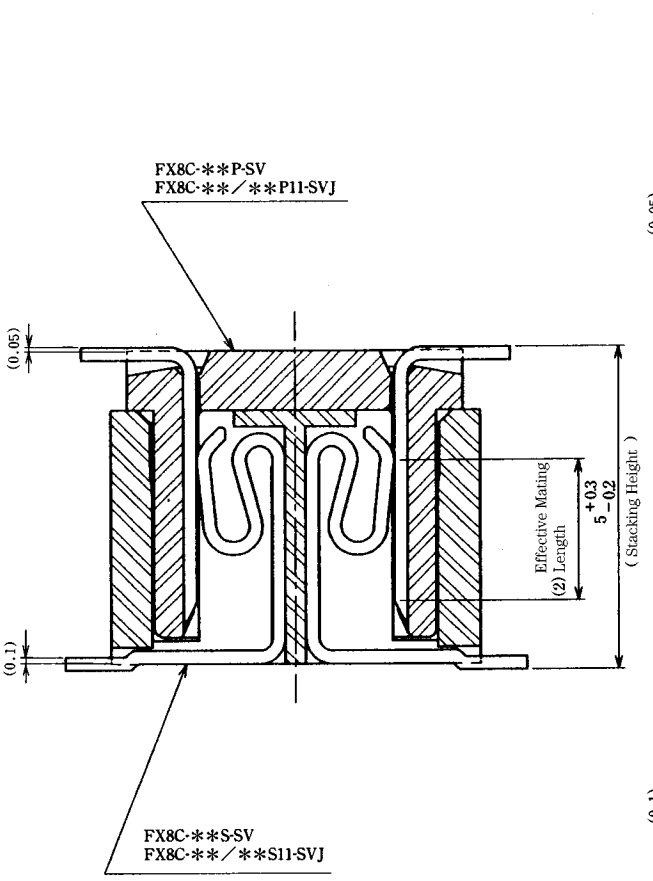
❶ Series Name :FX8C	❹ Connector to Connector Pitch
❷ Number of Contacts: 60×2, 80×2, 90×2, 100×2, 120×2, 140×2 Example: 120/120 = 240 contacts	❺ Contact type SV : Board vertical type ❻ Product Height Variation Blank : Standard (Minimum lot profile) 1:+1mm · · · · · · 3:+3mm
❸ Connector Type : P : Header S : Receptacle	❼ J: two-piece connection product

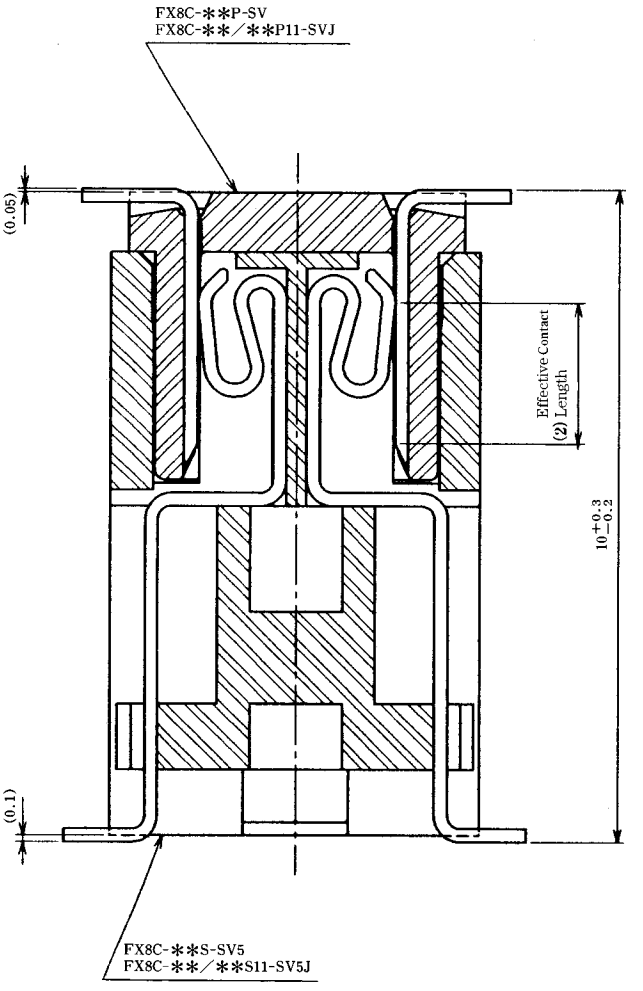
∗The standard packaging of the two-piece connection product is the tray packaging.

◆Stacking Height Variation

Header \ Receptacle	FX8C-**S-SV FX8C-**/**S11-SVJ	FX8C-**S-SV5 FX8C-**/**S11-SV5J
FX8C-**P-SV FX8C-**/**P11-SVJ	5mm	10mm
FX8C-**P-SV1 FX8C-**/**P11-SV1J	6mm	11mm
FX8C-**P-SV2 FX8C-**/**P11-SV2J	7mm	12mm
FX8C-**P-SV4 FX8C-**/**P11-SV4J	9mm	14mm
FX8C-**P-SV6 FX8C-**/**P11-SV6J	11mm	16mm

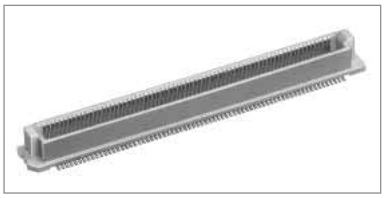


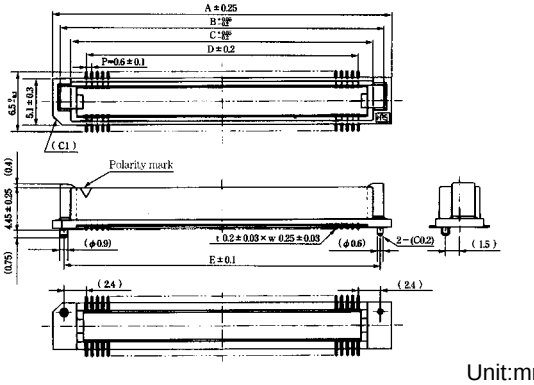




■Header (Single Product)

[FX8C-**P-SV]



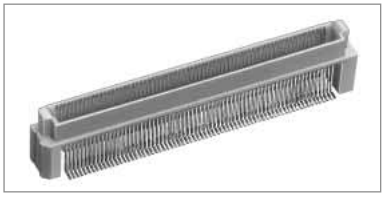


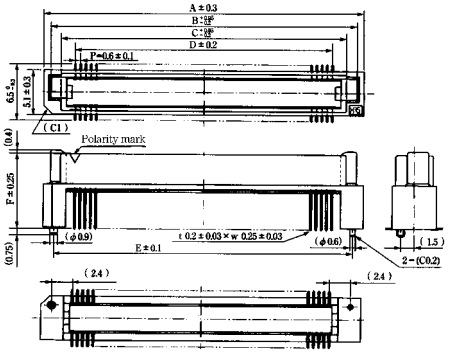
Unit:mm

Part Number	CL No.	Number of Contacts	A	B	C	D	E	Tube packaging Quantity (Pieces)	RoHS
FX8C- 60P-SV(92)	578-0501-9-92	60	24.60	23.00	20.70	17.40	22.20	21	YES
FX8C- 80P-SV(92)	578-0503-4-92	80	30.60	29.00	26.70	23.40	28.20	17	
FX8C-100P-SV(92)	578-0505-0-92	100	36.60	35.00	32.70	29.40	34.20	14	
FX8C-120P-SV(92)	578-0506-2-92	120	42.60	41.00	38.70	35.40	40.20	12	
FX8C-140P-SV(92)	578-0507-5-92	140	48.60	47.00	44.70	41.40	46.20	10	

**71 : Tray packaging product 91: Tube packaging product
92 : Embossed tape packaging product
Note 1: To order the tube packaging product, please determine the quantity for delivery, multiplying the tube packaging product by an integer.
Note 2: The embossed tape packaging product is prepared for 60 and 80 contacts only. In addition, the product will be procured per reel unit. Please refer to the delivery form item on page A182 for details.
Note 3: Tray packaging product is not for board placement with automatic equipment.

[FX8C-**P-SV1]
[FX8C-**P-SV2]
[FX8C-**P-SV4]
[FX8C-**P-SV6]





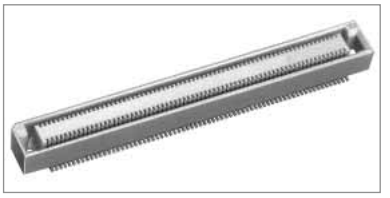
Unit: mm

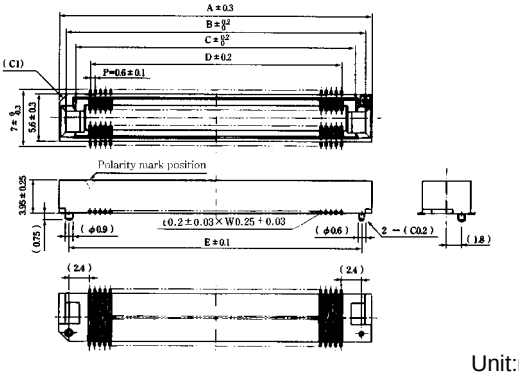
Part Number	CL No.	Number of Contacts	A	B	C	D	E	F	Tube packaging Quantity (Pieces)	RoHS
FX8C- 60P-SV1(92)	578-0521-6-92	60	24.60	23.00	20.70	17.40	22.20	5.45	21	YES
FX8C- 60P-SV2(92)	578-0541-3-92							6.45		
FX8C- 60P-SV4(92)	578-0581-8-92							8.45		
FX8C- 60P-SV6(92)	578-0601-3-92							10.45		
FX8C- 80P-SV1(92)	578-0523-1-92	80	30.60	29.00	26.70	23.40	28.20	5.45	17	
FX8C- 80P-SV2(92)	578-0543-9-92							6.45		
FX8C- 80P-SV4(92)	578-0583-3-92							8.45		
FX8C- 80P-SV6(92)	578-0603-9-92							10.45		
FX8C-100P-SV1(92)	578-0525-7-92	100	36.60	35.00	32.70	29.40	34.20	5.45	14	
FX8C-100P-SV2(92)	578-0545-4-92							6.45		
FX8C-100P-SV4(92)	578-0585-9-92							8.45		
FX8C-100P-SV6(92)	578-0605-4-92							10.45		
FX8C-120P-SV1(92)	578-0526-0-92	120	42.60	41.00	38.70	35.40	40.20	5.45	12	
FX8C-120P-SV2(92)	578-0546-7-92							6.45		
FX8C-120P-SV4(92)	578-0586-1-92							8.45		
FX8C-120P-SV6(92)	578-0606-7-92							10.45		
FX8C-140P-SV1(92)	578-0527-2-92	140	48.60	47.00	44.70	41.40	46.20	5.45	10	
FX8C-140P-SV2(92)	578-0547-0-92							6.45		
FX8C-140P-SV4(92)	578-0587-4-92							8.45		
Note 5 FX8C-140P-SV6(93)	578-0607-0-93							10.45		

** 71: Tray packaging product 91: Tube packaging product 92: Embossed tape packaging product
Note 1: To order the tube packaging product, please determine a quantity for delivery,multiplying the tube packaging product by an integer.
Note 2: The embossed tape packaging product is prepared for 60 and 80 contacts only. In addition, the product will be sold per reel unit. Please refer to the packaging specification item on page A182 for details.
Note 3: The locator material is installed between leads for the FX8C-P-SV6 type.
Note 4: Tray packaging product is not for board placement with automatic equipment.
Note 5: (93) spec is with vacuum pick-up tape, embossed tape packaging product.

■Receptacle (Single Product)

[FX8C-**S-SV]



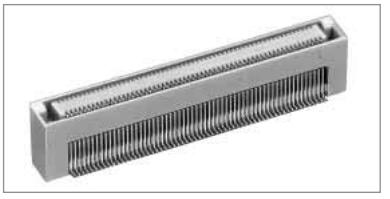


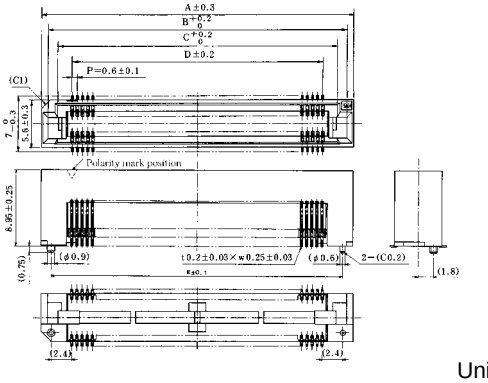
Unit:mm

Part Number	CL No.	Number of Contacts	A	B	C	D	E	Tube packaging Quantity (Pieces)	RoHS
FX8C- 60S-SV(92)	578-0801-2-92	60	24.60	23.05	20.80	17.40	22.20	21	YES
FX8C- 80S-SV(92)	578-0803-8-92	80	30.60	29.05	26.80	23.40	28.20	17	
FX8C-100S-SV(92)	578-0805-3-92	100	36.60	35.05	32.80	29.40	34.20	14	
FX8C-120S-SV(92)	578-0806-6-92	120	42.60	41.05	38.80	35.40	40.20	12	
FX8C-140S-SV(92)	578-0807-9-92	140	48.60	47.05	44.80	41.40	46.20	10	

** 71: Tray packaging product 91: Tube packaging product 92: Embossed tape packaging product
Note 1: To order the tube packaging product, please determine a quantity for delivery,multiplying the tube packaging product by an integer.
Note 2: The embossed tape packaging product is prepared for 60 and 80 contacts only. In addition, the product will be procured per reel unit. Please refer to the packaging specification item on page A182 for details.
Note 3: Tray packaging product is not for board placement with automatic equipment.

[FX8C-**S-SV5]





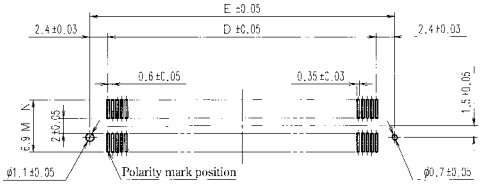
Unit:mm

Part Number	CL No.	Number of Contacts	A	B	C	D	E	Tube packaging Quantity (Pieces)	RoHS
FX8C- 60S-SV5(92)	578-0821-0-92	60	24.60	23.05	20.80	17.40	22.20	21	YES
FX8C- 80S-SV5(92)	578-0823-5-92	80	30.60	29.05	26.80	23.40	28.20	17	
FX8C-100S-SV5(92)	578-0825-0-92	100	36.60	35.05	32.80	29.40	34.20	14	
FX8C-120S-SV5(92)	578-0826-3-92	120	42.60	41.05	38.80	35.40	40.20	12	
FX8C-140S-SV5(92)	578-0827-6-92	140	48.60	47.05	44.80	41.40	46.20	10	

** 71: Tray packaging product 91: Tube packaging product 92: Embossed tape packaging product
Note 1: To order the tube packaging product, please determine a quantity for delivery,multiplying the tube packaging product by an integer.
Note 2: The embossed tape package product is prepared for 60 and 80 contacts only. In addition, the product will be procured per reel unit. Please refer to the packaging specification item on page A182 for details.
Note 3: Tray packaging product is not for board placement with automatic equipment.

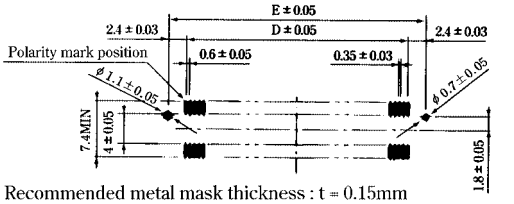
◆PCB mounting pattern

Header
[FX8C-**P-SV*]



· Recommended metal mask thickness : t = 0.15mm

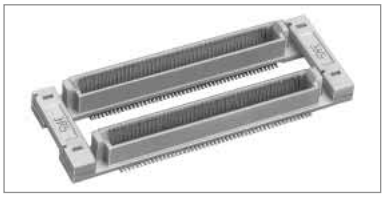
Receptacle
[FX8C-**S-SV, SV5]

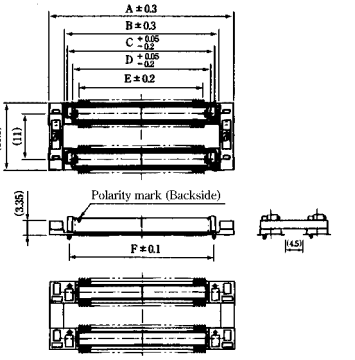


· Recommended metal mask thickness : t = 0.15mm
· If the inside (the connector lower side) of the SMT land isn't treated with the insulation tape and so on, the area is considered as the prohibited area.(FX8C-S-SV5 isn't applied.)

■Header (two-pieces Connection Product)

[FX8C-**/**P11-SVJ]



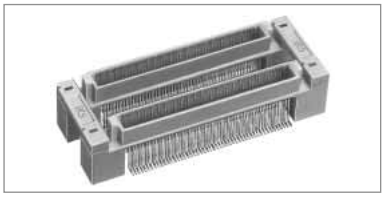


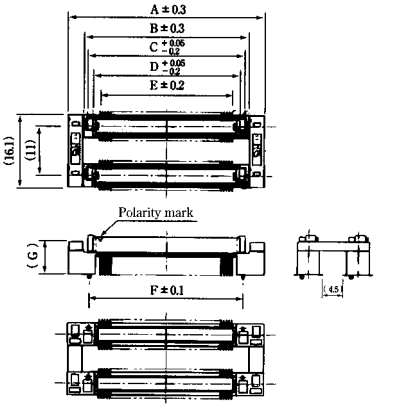
Unit:mm

Part Number	CL No.	Number of Contacts	A	B	C	D	E	F	RoHS
FX8C- 60/ 60P11-SVJ(71)	578-0651-1-71	60×2	31.70	24.70	23.00	20.70	17.40	22.20	YES
FX8C- 80/ 80P11-SVJ(71)	578-0653-7-71	80×2	37.70	30.70	29.00	26.70	23.40	28.20	
FX8C-100/100P11-SVJ(71)	578-0655-2-71	100×2	43.70	36.70	35.00	32.70	29.40	34.20	
FX8C-120/120P11-SVJ(71)	578-0656-5-71	120×2	49.70	42.70	41.00	38.70	35.40	40.20	
FX8C-140/140P11-SVJ(71)	578-0657-8-71	140×2	55.70	48.70	47.00	44.70	41.40	46.20	

Note 1: The two-piece connection product is packaged by tray.
Note 2: Tray packaging product is not for board placement with automatic equipment.

[FX8C-**/**P11-SV1J]
[FX8C-**/**P11-SV2J]
[FX8C-**/**P11-SV4J]
[FX8C-**/**P11-SV6J]





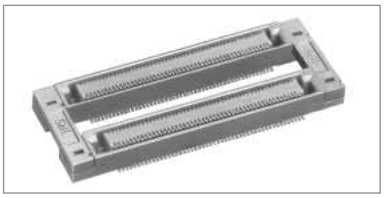
Unit: mm

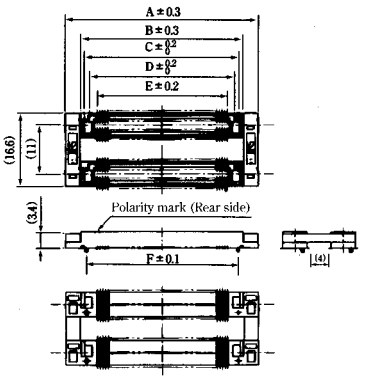
Part Number	CL No.	Number of Contacts	A	B	C	D	E	F	G	H	RoHS
FX8C- 60/ 60P11-SV1J(71)	578-0671-9-71	60×2	31.70	24.70	23.00	20.70	17.40	22.20	4.35	5.45	YES
FX8C- 60/ 60P11-SV2J(71)	578-0691-6-71								5.35	6.45	
FX8C- 60/ 60P11-SV4J(71)	578-0731-9-71								7.35	8.45	
FX8C- 60/ 60P11-SV6J(71)	578-0751-6-71								9.35	10.45	
FX8C- 80/ 80P11-SV1J(71)	578-0673-4-71	80×2	37.70	30.70	29.00	26.70	23.40	28.20	4.35	5.45	
FX8C- 80/ 80P11-SV2J(71)	578-0693-1-71								5.35	6.45	
FX8C- 80/ 80P11-SV4J(71)	578-0733-4-71								7.35	8.45	
FX8C- 80/ 80P11-SV6J(71)	578-0753-1-71								9.35	10.45	
FX8C-100/100P11-SV1J(71)	578-0675-0-71	100×2	43.70	36.70	35.00	32.70	29.40	34.20	4.35	5.45	
FX8C-100/100P11-SV2J(71)	578-0695-7-71								5.35	6.45	
FX8C-100/100P11-SV4J(71)	578-0735-0-71								7.35	8.45	
FX8C-100/100P11-SV6J(71)	578-0755-7-71								9.35	10.45	
FX8C-120/120P11-SV1J(71)	578-0676-2-71	120×2	49.70	42.70	41.00	38.70	35.40	40.20	4.35	5.45	
FX8C-120/120P11-SV2J(71)	578-0696-0-71								5.35	6.45	
FX8C-120/120P11-SV4J(71)	578-0736-2-71								7.35	8.45	
FX8C-120/120P11-SV6J(71)	578-0756-0-71								9.35	10.45	
FX8C-140/140P11-SV1J(71)	578-0677-5-71	140×2	55.70	48.70	47.00	44.70	41.40	46.20	4.35	5.45	
FX8C-140/140P11-SV2J(71)	578-0697-2-71								5.35	6.45	
FX8C-140/140P11-SV4J(71)	578-0737-5-71								7.35	8.45	
FX8C-140/140P11-SV6J(71)	578-0757-2-71								9.35	10.45	

Note 1: The two-piece connection product is packaged by tray.
Note 2: Tray packaging product is not for board placement with automatic equipment.
Note 3: The locator material is installed between leads for the FX8C-**/**P11-SV6J type.

■Receptacle (two-piece Connection Product)

[FX8C-**/**S11-SVJ]



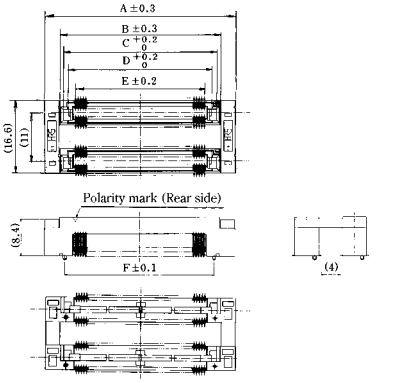


Unit:mm

Part Number	CL No.	Number of Contacts	A	B	C	D	E	F	RoHS
FX8C-060/060S11-SVJ(71)	578-0901-7-71	60×2	31.70	24.60	23.05	20.80	17.40	22.20	
FX8C-080/080S11-SVJ(71)	578-0903-2-71	80×2	37.70	30.60	29.05	26.80	23.40	28.20	
FX8C-100/100S11-SVJ(71)	578-0905-8-71	100×2	43.70	36.60	35.05	32.80	29.40	34.20	YES
FX8C-120/120S11-SVJ(71)	578-0906-0-71	120×2	49.70	42.60	41.05	38.80	35.40	40.20	
FX8C-140/140S11-SVJ(71)	578-0907-3-71	140×2	55.70	48.60	47.05	44.80	41.40	46.20	

Note 1: The two-piece connection product is packaged by tray.
Note 2: Tray packaging product is not for board placement with automatic equipment.

[FX8C-**/**S11-SV5J]



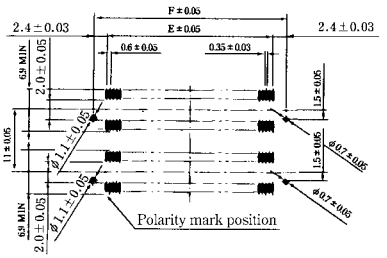
Unit:mm

Part Number	CL No.	Number of Contacts	A	B	C	D	E	F	RoHS
FX8C-060/060S11-SV5J(71)	578-0921-4-71	60×2	31.70	24.60	23.05	20.80	17.40	22.20	
FX8C-080/080S11-SV5J(71)	578-0923-0-71	80×2	37.70	30.60	29.05	26.80	23.40	28.20	
FX8C-100/100S11-SV5J(71)	578-0925-5-71	100×2	43.70	36.60	35.05	32.80	29.40	34.20	YES
FX8C-120/120S11-SV5J(71)	578-0926-8-71	120×2	49.70	42.60	41.05	38.80	35.40	40.20	
FX8C-140/140S11-SV5J(71)	578-0927-0-71	140×2	55.70	48.60	47.05	44.80	41.40	46.20	

Note 1: The two-piece connection product is packaged by tray.
Note 2: Tray packaging product is not for board placement with automatic equipment.

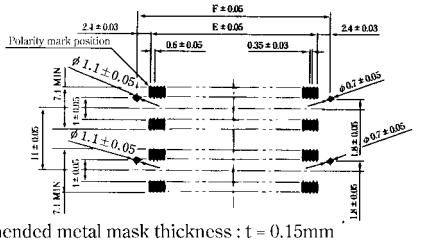
◆PCB mounting pattern

Header
[FX8C-**/**P11-SVJ、SV1J]



· Recommended metal mask thickness : t = 0.15mm

Receptacle
[FX8C-**/**S11-SVJ, SV5J]

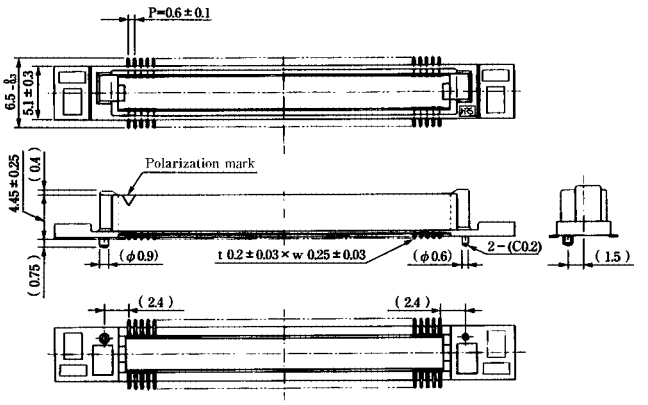


· Recommended metal mask thickness : t = 0.15mm
· If the inside (the connector lower side) of the SMT land isn't treated with the insulation tape and so on, the area is considered as the prohibited area. (Except FX8C-**/**S11-SV5J)

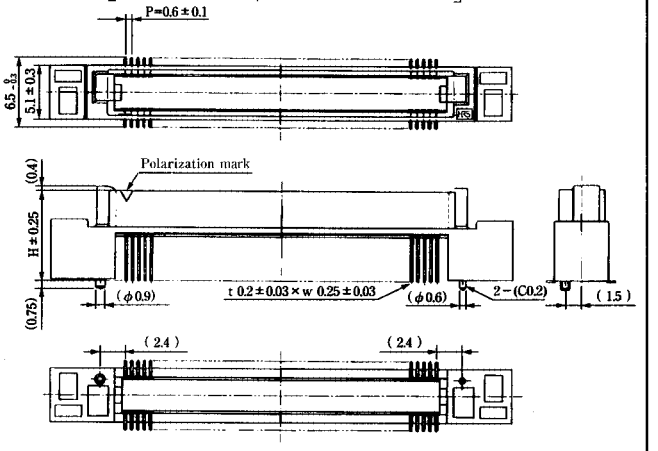
◆Detailed Figure After Joint Removal (Single Product in two-piece Connection Product)

Header

[FX8C-**/**P11-SVJ]

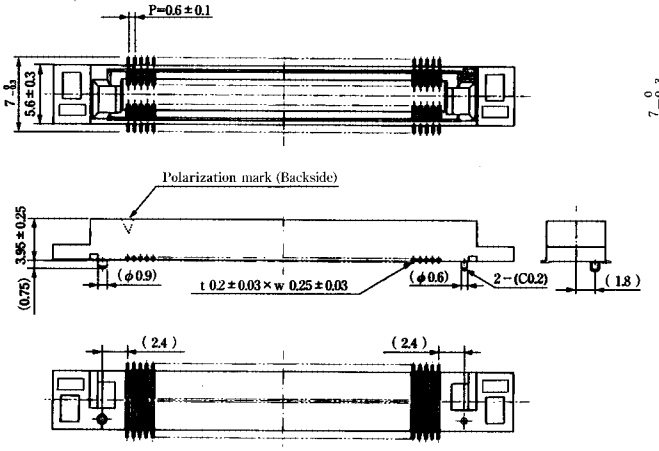


[FX8C-**/**P11-SV1J]

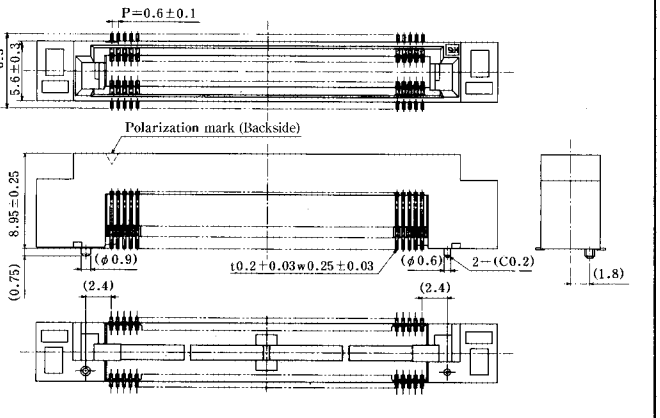


Receptacle

[FX8C-**/**S11-SVJ]



[FX8C-**/**S11-SV5J]



◆Connector Precautions

1. Tolerance Clearance on Mating Side

The effective contact length of the product is set to 2.0mm. Please use the product so as to set to less than 12mm the clearance between the header and the receptacle in the mating process.

2. Fixation Between Mounting Boards

If this product is fixed only by mating force, Please consider the fixing method so as not to apply loads such as vibration, shock and so on.

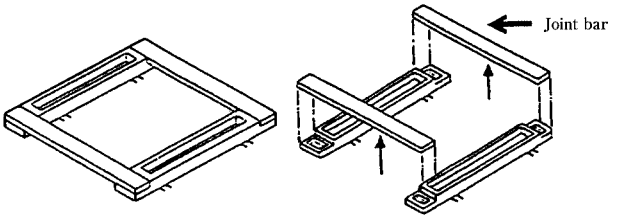
3. Stacking General Tolerance in Mating

Stack Amm ⟶ A $^{+0.3}_{-0.2}$ mm

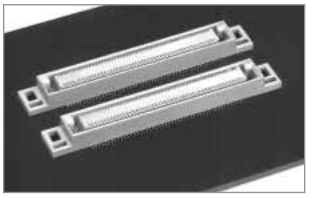
Note: Please Note that the above tolerance of the stacking height doesn't include the solder paste thickness.

4. Handling Two-piece Connection Product

Both joint bar edges of the two-piece connection product are fixed by joints, while the mating process can't be performed in that state. Before the mating process, please remove the joint bars as if pull it up. (Don't remove the joint bars before mounting on the board.)

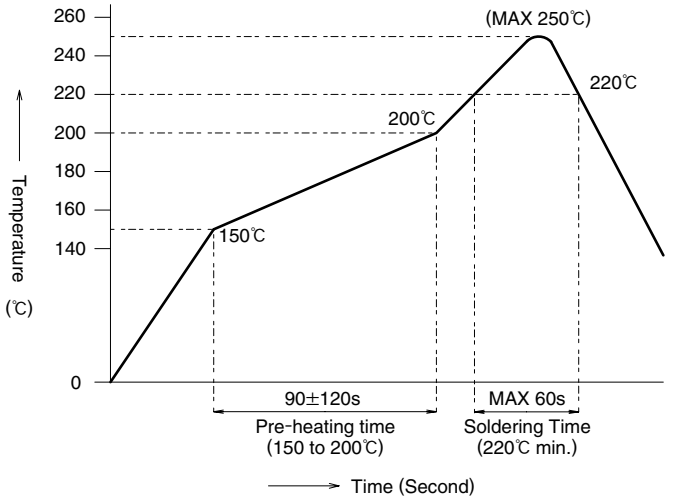


Before removing joint bar



After removing joint bar

5. Mounting Temperature Profile (Reference)



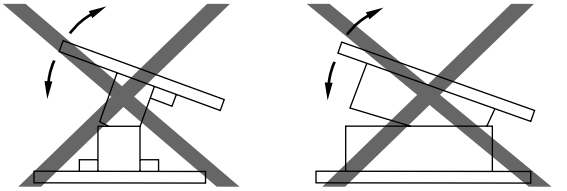
HRS test conditions

Test board	Glass epoxy 161mm×100mm×1.6mm thick
Solder method	:Reflow
Solder composition	:Paste, 96.5%Sn/3%Ag/0.5%Cu
Metal mask	: 0.15mm thick
Reflow cycles	: 2 cycles

The temperature profile is based on the above conditions.
In individual applications the actual temperature may vary, depending on solder paste type, volume/thickness and board size/thickness. Consult your solder paste and equipment manufacturer for specific recommendations.

6. Cautions

This product is made as the thin formed product in order to be miniaturized.



◆Packaging Type

Packaging Type	Number of Contacts	60 contacts	80 contacts	100 contacts	120 contacts	140 contacts
Tube packaging	Packaged Product Pieces	21 pieces	17 pieces	14 pieces	12-pieces	10pieces
	Sales Unit	Deliver the multiplied pieces. (Example) In case of 20 contacts,21 pieces, 4two-pieces,...				
	Total Tube Length	550mm±2mm				
Embossed Tape Packaging	Tape Width	44mm		56mm		72mm
	Product Pitch	12mm				
	Emboss Reel Diameter	Refer to the table on page A183 in this catalog.				
	Packaged Product Pieces	Refer to the table on page A183 in this catalog.				
	Sales Unit	Per reel				

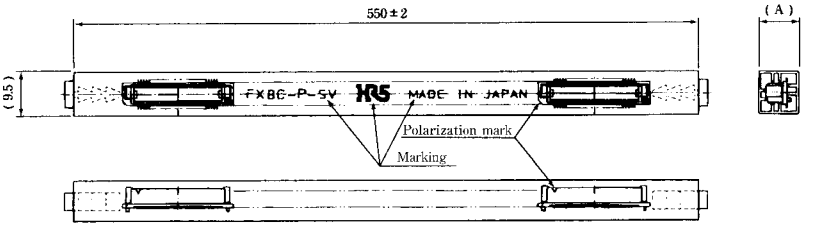
∗The above packaging type is , as listed for the single product only.
In addition, the packaging type of the two-piece connection product is the tray packaging.

◆Packaging Specification

[Tube packaging]

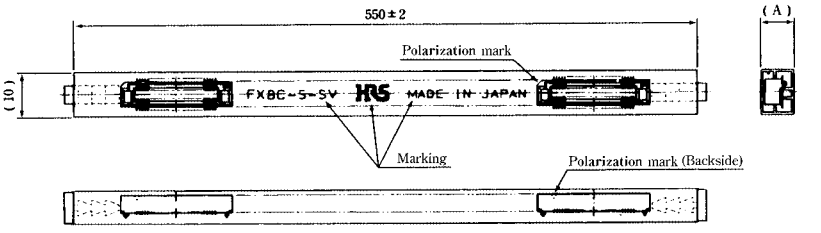
●Header

[FX8-∗∗P-SV (91)]
[FX8-∗∗P-SV1 (91)]
[FX8-∗∗P-SV2 (91)]
[FX8-∗∗P-SV4 (91)]
[FX8-∗∗P-SV6 (91)]



●Receptacle

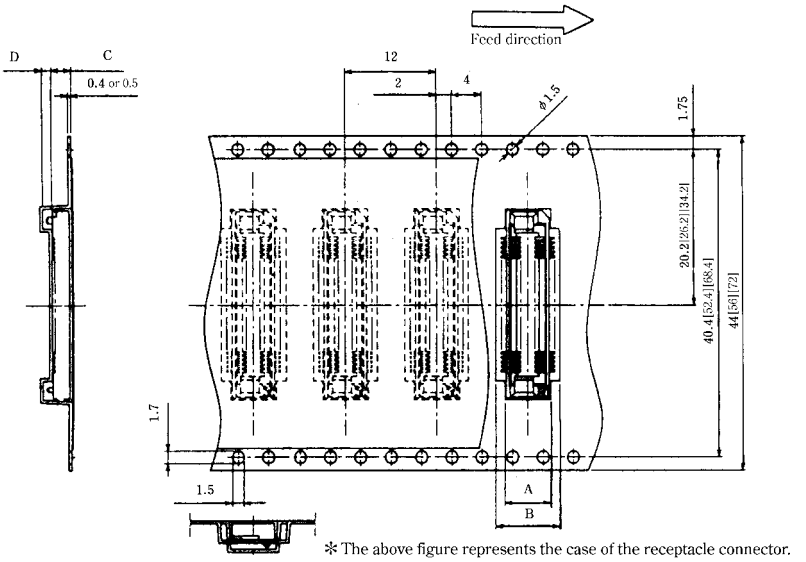
[FX8C-∗∗S-SV (91)]
[FX8C-∗∗S-SV5 (91)]



P/S	Part Number	A
Header	FX8C-∗∗P-SV (91)	9
	FX8C-∗∗P-SV1 (91)	10
	FX8C-∗∗P-SV2 (91)	11
	FX8C-∗∗P-SV4 (91)	13
	FX8C-∗∗P-SV6 (91)	15
Receptacle	FX8C-∗∗S-SV (91)	7.4
	FX8C-∗∗S-SV5 (91)	12.4

[Embossed Tape Package]

●Carrier Size Pattern



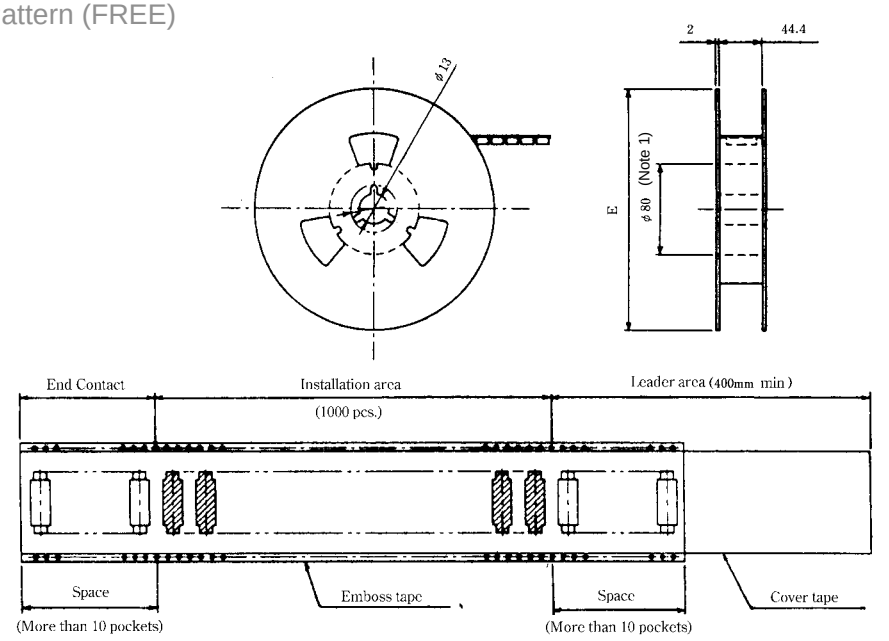
✻The above figure represents the case of the receptacle connector.

Unit: mm

P/S	Part Number	A	B	C	D	E	Product Pieces	
Header	FX8C-✻✻P-SV (92)	5.5	7.9	5.2	1.2	φ370	1000 pieces	
	FX8C-✻✻P-SV1 (92)	5.5	7.9	6.2	1.2	φ370	1000 pieces	
	FX8C-✻✻P-SV2 (92)	5.5	7.9	7.2	1.2	φ330	500 pieces	
	FX8C-✻✻P-SV4 (92)	5.5	7.9	9.2	1.2	φ370	500 pieces	Note 2
	FX8C-✻✻P-SV6 (92)	5.5	7.9	11.2	1.2	φ370	500 pieces	
Receptacle	FX8C-✻✻S-SV (92)	6.0	8.4	4.3	1.2	φ330	1000 pieces	Note 1
	FX8C-✻✻S-SV5 (92)	6.0	8.4	9.3	1.2	φ370	500 pieces	Note 2

✻✻ : Number of Contacts

●Reel State Size Pattern (FREE)



Note 1: E dimension for FX8C-140S-SV(92) is φ370, core dia. is φ100.
Note 2: E dimension for FX8C-120P-SV2(92), FX8C-120S-SV5(92), FX8C-140S-SV5(92) is φ380.