



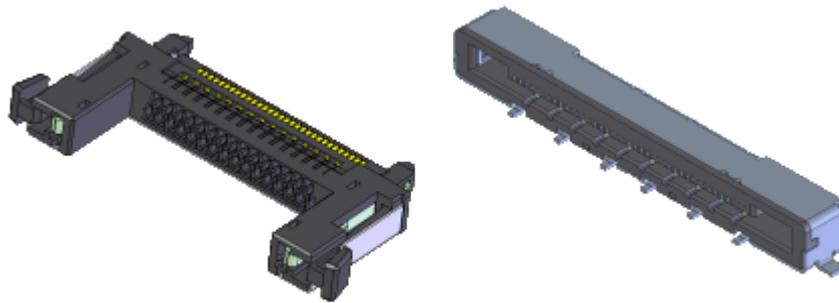
Connector for Internal Serial Transmission

CONNECTOR

# FI-R Series

MB-0153-4

June 2013

**RoHS Compliant**

High-speed serial transmission such as LVDS, TMDS (HDMI), and PCI Express are widely used in applications in a variety of markets including the personal computer, TV, consumer device, copier, and medical device markets.

In these applications connectors not only need to have the ability to transmit signals at high speed, but they also must have the durability, ease of mating, and variety of options to respond to the demands of all designs.

The FI-R is the ideal connector series to meet these demands.

## Features

- 0.5mm terminal pitch, 3.8mm height connector, compact design with 21, 31, 41, and 51 positions.
- Stable mating with large mating guides on the plug.
- Strong PCB retention with solder hold-downs on the receptacle.
- Impedance matching: 100 ohm. Ground reinforced by shell structure and hold-downs.
- Receptacle options include with and without shell, and right-angle and straight types, all with a common footprint.
- Mechanical lock to prevent mis-mating and accidental unmating.
- Plug options for discrete wire crimping, fine coaxial wire soldering, and FFC to suit a variety of needs.
- VESA standard connector for TV LCD interface.

## General Specification

### Receptacle

A1. FI-RE\*\*S-HF (Right-angle, shell type)

A2. FI-RE\*\*S-VF (Straight, shell type )

■ No. of Contacts: 21, 31, 41, 51pos.

■ Contact Resistance: 50m ohm max.

■ Dielectric Withstanding Voltage:  
AC500Vr.m.s, 1 minute

■ Operating Temperature:  
-40Deg. C to +80Deg. C

■ Rated Current:

AC, DC 0.8A per terminal

■ Insulation Resistance: 100M ohm min.

■ Pitch: 0.5mm



### Plug, Crimp Type

B1. FI-RE\*\*HL (Mechanical lock, shell type)

B2. FI-RC3-1A-1E-15000 (Crimp for upper contact )

B3. FI-RC3-1B-1E-15000 (Crimp for lower contact )

■ No. of Contacts: 21, 31, 41, 51pos.

■ Contact Resistance: 50m ohm max.

■ Dielectric Withstanding Voltage:  
AC500Vr.m.s, 1 minute

■ Operating Temperature:  
-40Deg. C to +80Deg. C

■ Rated Current:

AC, DC 0.7A per terminal

■ Insulation Resistance: 100M ohm min.

■ Pitch: 0.5mm

■ Applicable Cable: 30, 32, 36 AWG



### Plug, Solder Type

C1. FI-RE\*\*CL (Mechanical lock, shell type)

C2. FI-RE\*\*CL-SH2-3000 (Cover shell for solder type)

■ No. of Contacts: 21, 31, 41, 51pos.

■ Contact Resistance: 50m ohm max.

■ Dielectric Withstanding Voltage:  
AC500Vr.m.s, 1 minute

■ Operating Temperature:  
-40Deg. C to +80Deg. C

■ Rated Current:

AC, DC 0.7A per terminal

■ Insulation Resistance: 100M ohm min.

■ Pitch: 0.5mm

■ Applicable Cable:  
Coaxial cable 40 AWG



Materials and Finishes
------------------------

**Receptacle**A1. FI-RE\*\*S-HF (Right-angle, shell type)

Component	Material / Finish
Contact	Copper alloy / Contact area Au, SMT Terminal area Sn plating
Insulator	Heat resistant plastic / None
Shell	Stainless steel / None

A2. FI-RE\*\*S-VF (Straight, shell type)

Component	Material / Finish
Contact	Copper alloy / Contact area Au, SMT Terminal area Sn plating
Insulator	Heat resistant plastic / None
Shell	Stainless steel / None

**Plug, Crimp Type**B1. FI-RE\*\*HL (Mechanical lock, shell type)

Component	Material / Finish
Press Fit Shell	Copper alloy / Sn plating
Insulator	Heat resistant plastic / None
Lock Spring	Stainless steel / None

B2. FI-RC3-1A-1E-15000 (Crimp for upper contact)

Component	Material / Finish
Contact	Phosphor bronze / Contact area Au, Terminal area Sn plating

B3. FI-RC3-1B-1E-15000 (Crimp for lower contact)

Component	Material and Finish
Contact	Phosphor bronze / Contact area Au, Terminal area Sn plating



Materials and Finishes
------------------------

**Plug, Solder Type**C1. FI-RE\*\*CL (Mechanical lock, shell type)

Component	Material / Finish
Contact	Copper alloy / Contact area Au, Terminal area Sn plating
Press Fit Shell	Copper alloy / Sn plating
Insulator	Heat resistant plastic / None
Lock Spring	Stainless steel / None

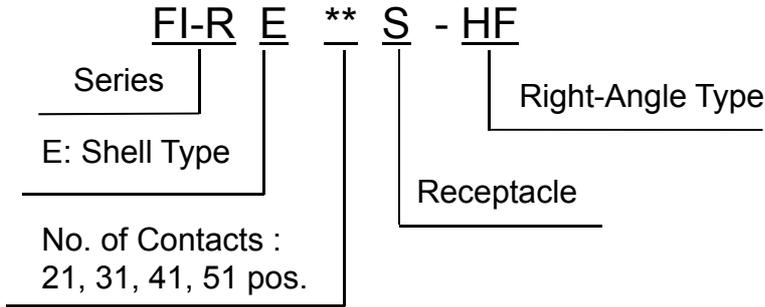
C2. FI-RE\*\*CL-SH2-3000 (Cover shell for solder type)

Component	Material / Finish
Cover Shell	Stainless steel / None



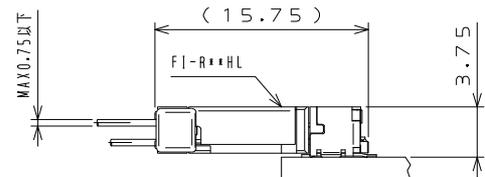
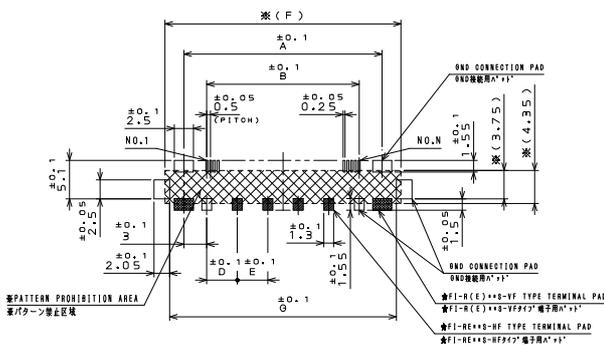
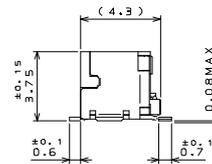
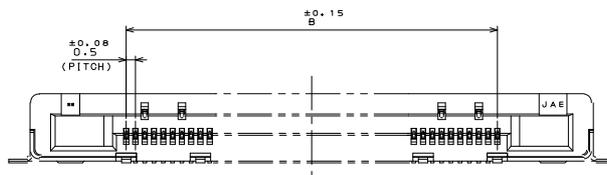
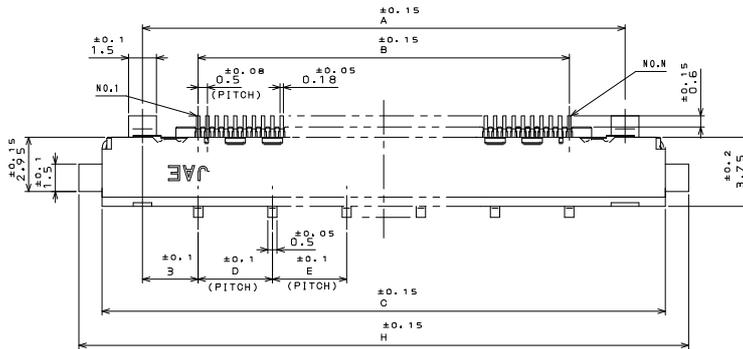
Ordering Information

Receptacle (Right-angle, shell type)  
Individual Connector (SJ102934)



**A1**

Unit: mm



Drawing when mated (for reference)

Recommended board dimensions

Dimensions

NO.OF CONTACTS (N)	A	B	C	D	E	F	G	H
21	16	10	20.35	3	—	20.95	19.75	22.85
31	21	15	25.35	4	—	25.95	24.75	27.85
41	26	20	30.35	4	4	30.95	29.75	32.85
51	31	25	35.35	5	5	35.95	34.75	37.85

Ordering Information

Receptacle (Right-angle, shell type)  
Embossed Tape Reel (SJ102937)

FI-R E \*\* S - HF - R1500

Series  
E: Shell Type

No. of Contacts:  
21, 31, 41, 51 pos.

Embossed Tape  
1500pcs. per reel

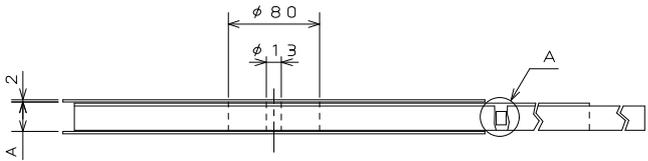
Right-Angle Type

Receptacle



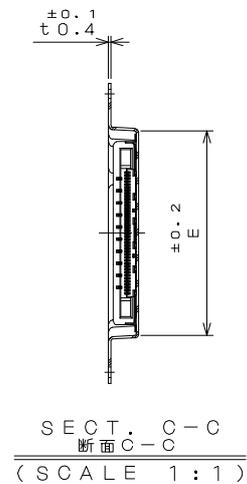
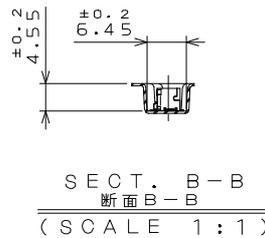
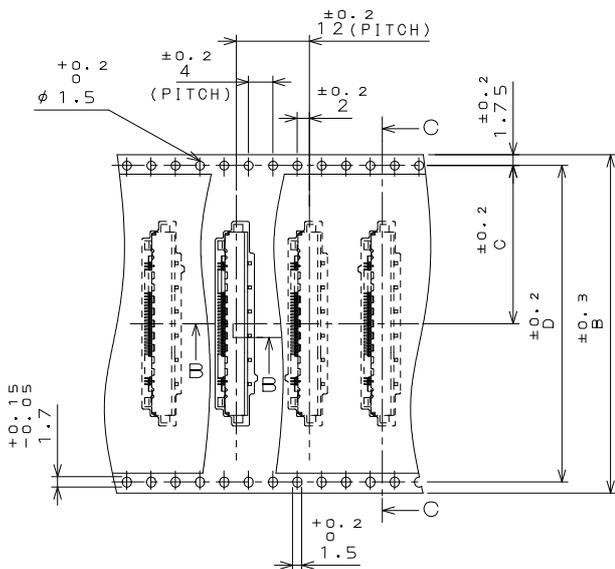
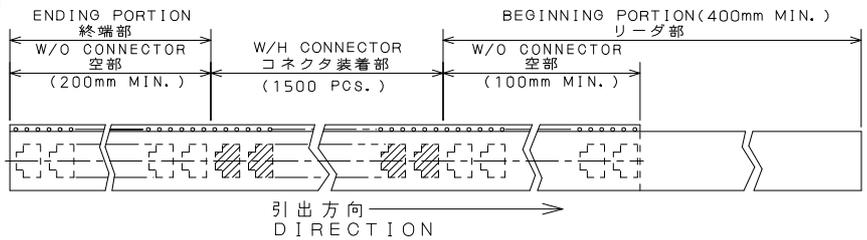
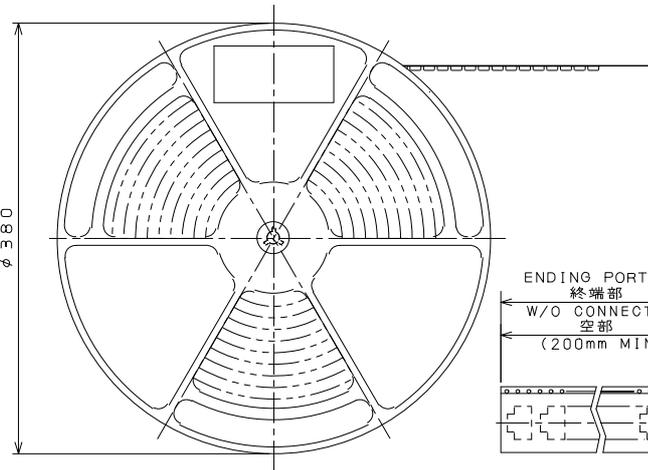
**A1**

Unit: mm



Dimensions

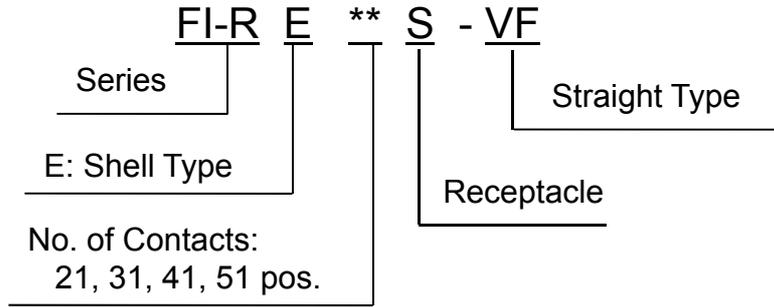
NO.OF CONTACT	A	B	C	D	E
2 1	46	44	20.2	40.4	23.85
3 1	46	44	20.2	40.4	28.85
4 1	58	56	26.2	52.4	33.85
5 1	58	56	26.2	52.4	38.85



DETAIL A  
A部詳細図  
(SCALE 1:1)

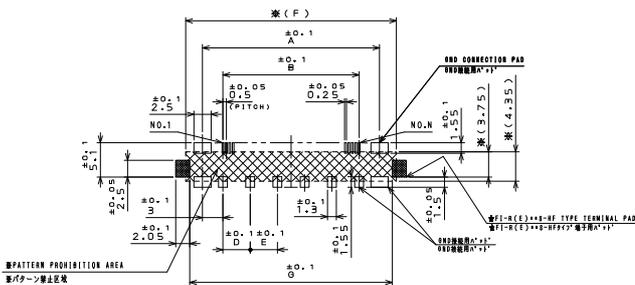
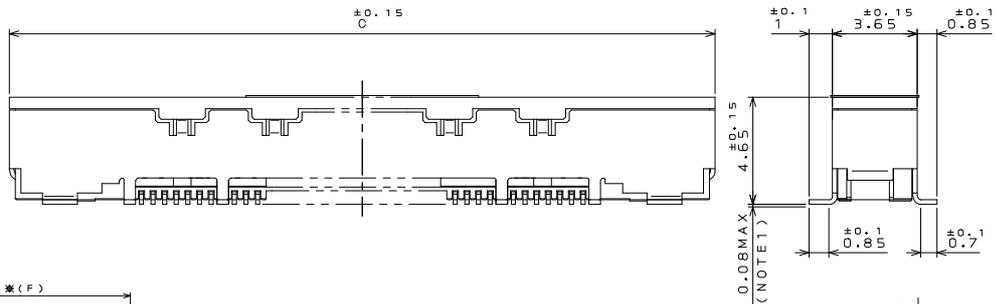
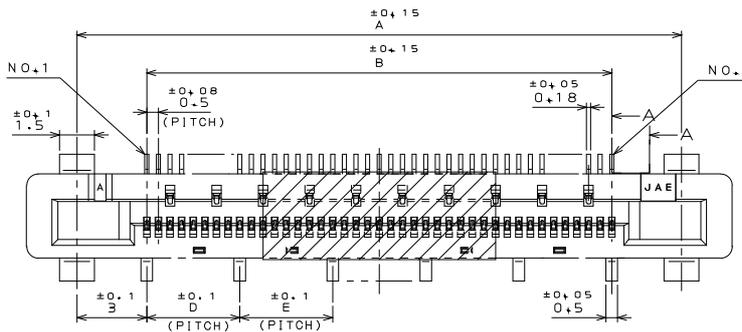
Ordering Information

Receptacle (Straight, shell type)  
Individual Connector (SJ102933)

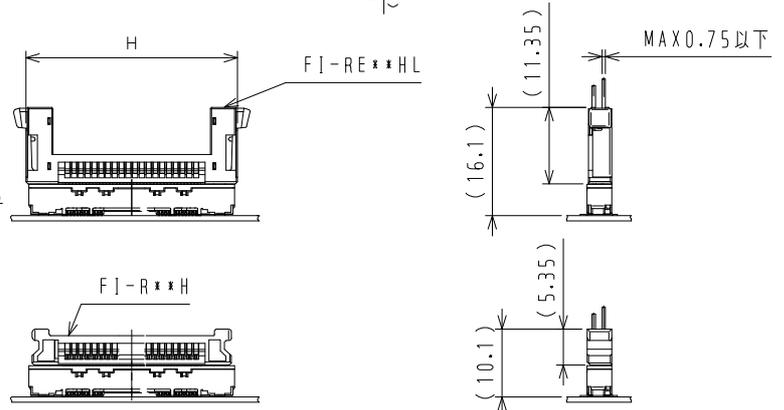


**A2**

Unit: mm



Recommended board dimensions



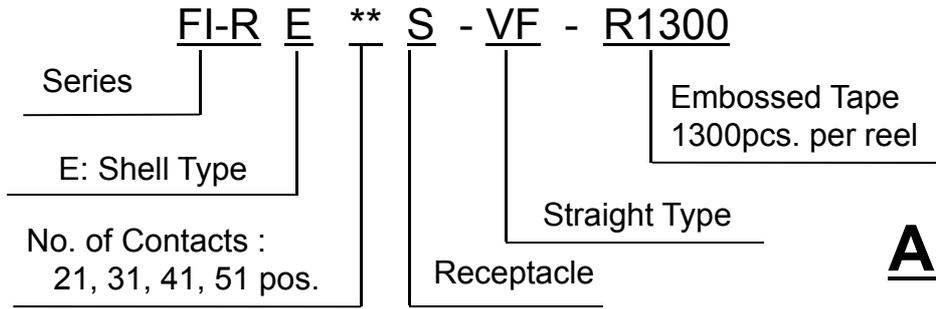
Drawing when mated (for reference)

Dimensions

NO.OF CONTACTS (N)	DIMENSION							
	A	B	C	D	E	F	G	H
21	16	10	20.35	3	—	20.95	19.75	21.25
31	21	15	25.35	4	—	25.95	24.75	26.25
41	26	20	30.35	4	4	30.95	29.75	31.25
51	31	25	35.35	5	5	35.95	34.75	36.25

Ordering Information

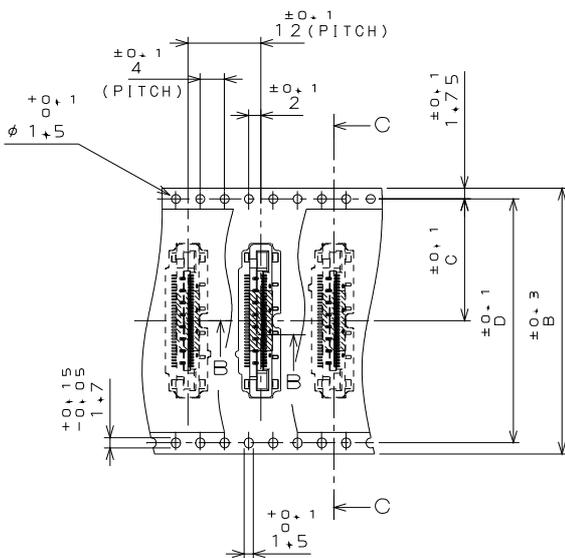
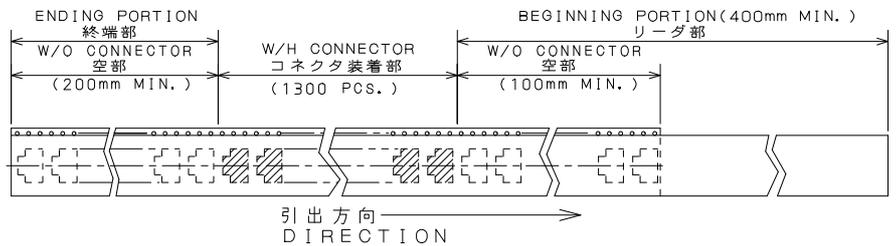
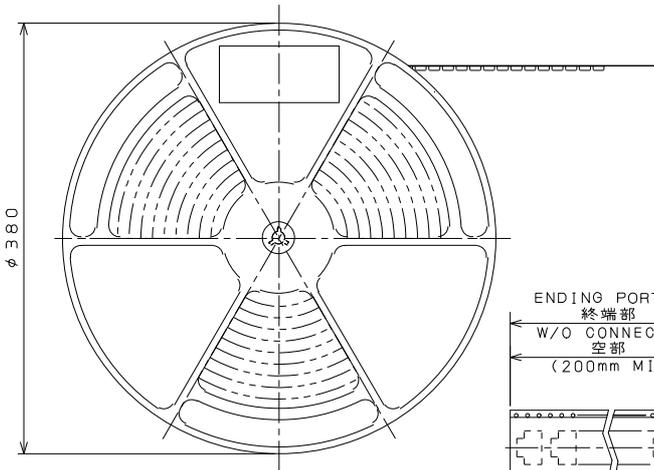
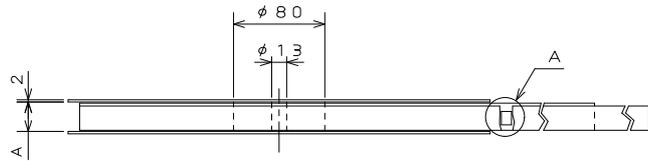
Receptacle (Straight, shell type)  
Embossed Tape Reel (SJ102936)



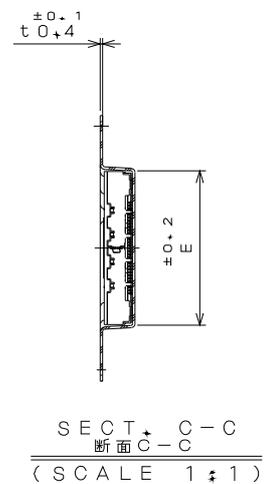
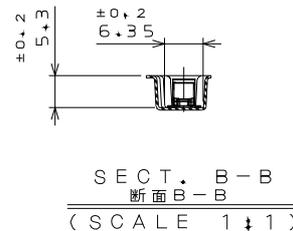
Unit: mm

Dimensions

NO.OF CONTACT	A	B	C	D	E
21	46	44	20+2	40+4	20+6
31	46	44	20+2	40+4	25+6
41	58	56	26+2	52+4	30+6
51	58	56	26+2	52+4	35+6

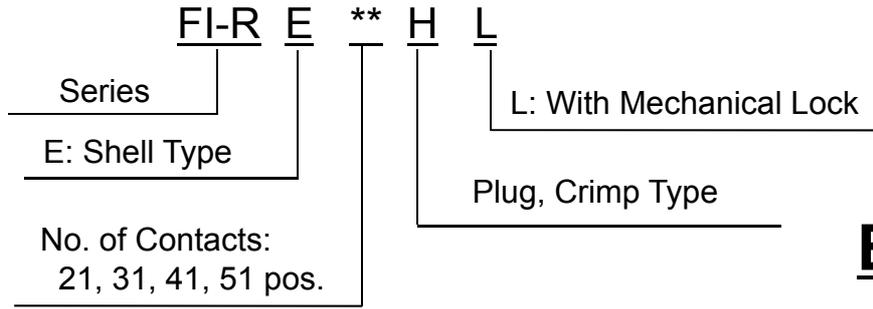


DETAIL A  
A部詳細図  
(SCALE 1±1)

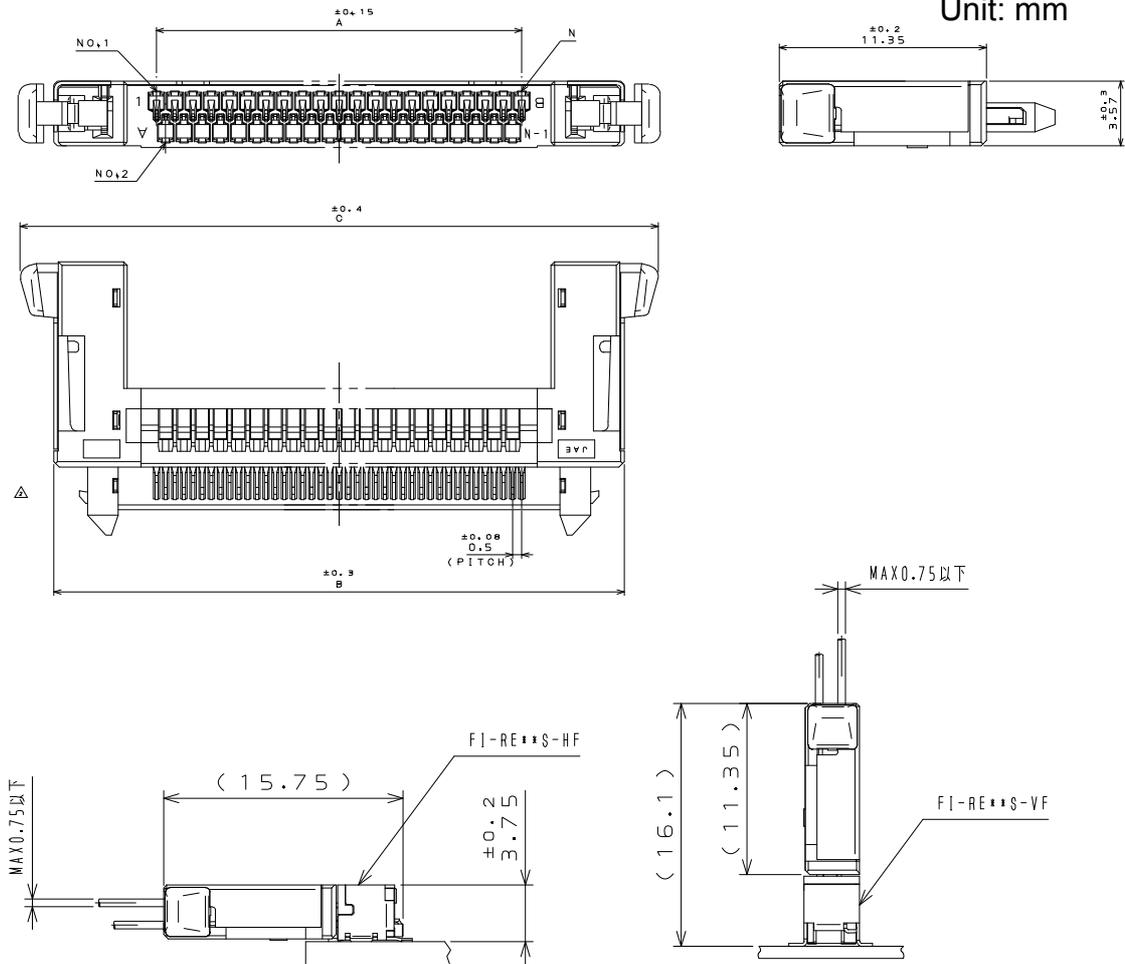


Ordering Information

Plug, Crimp Type (Lock, shell type)  
Individual Connector (SJ103279)



Unit: mm



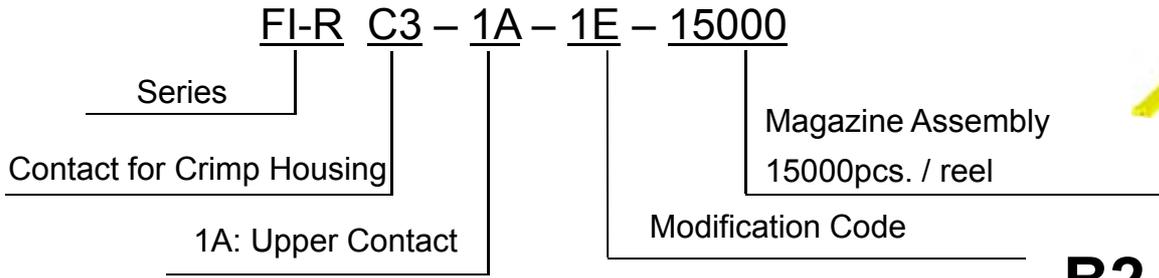
Drawing when mated (for reference)

Dimensions

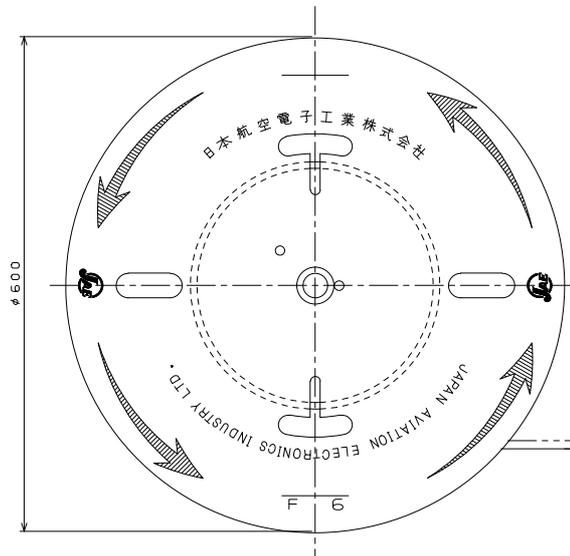
NO.OF CONTACTS (N)	DEMENSION		
	A	B	C
21	10	21.25	24.95
31	15	26.25	29.95
41	20	31.25	34.95
51	25	36.25	39.95

Ordering Information

Upper Contact for Crimp Housing (SJ103060)

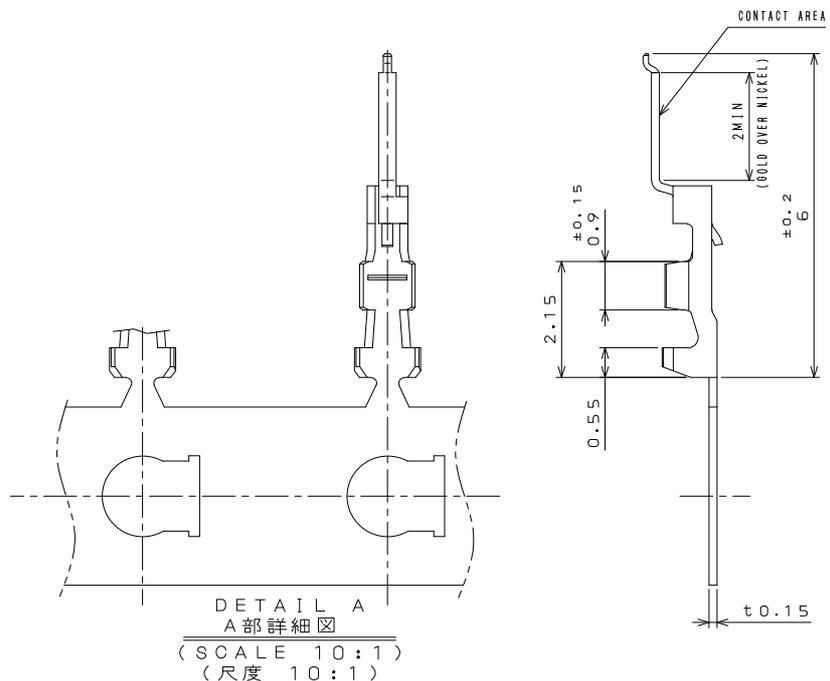


**B2**



Unit: mm

EXCLUDING CRIMP POT  
 クリンプポット部は除く



Ordering Information

Lower Contact for Crimp Housing (SJ103061)

FI-R C3 - 1B - 1E - 15000

Series

Contact for Crimp Housing

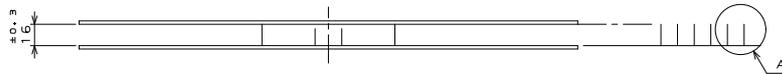
1B: Lower Contact

Magazine Assembly  
15000pcs. / reel

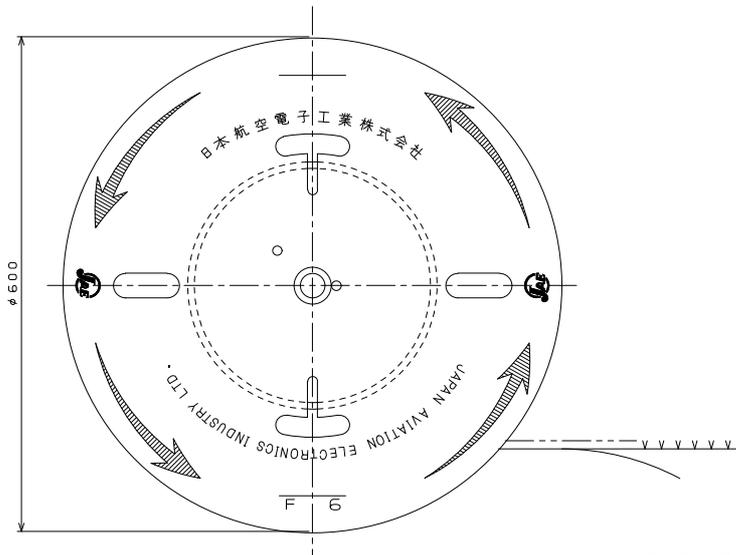
Modification Code



**B3**

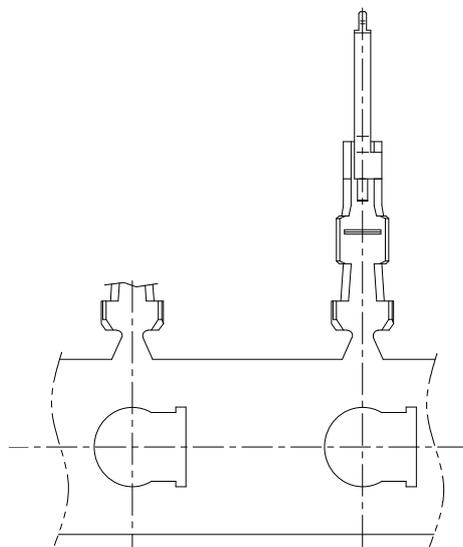


Unit: mm

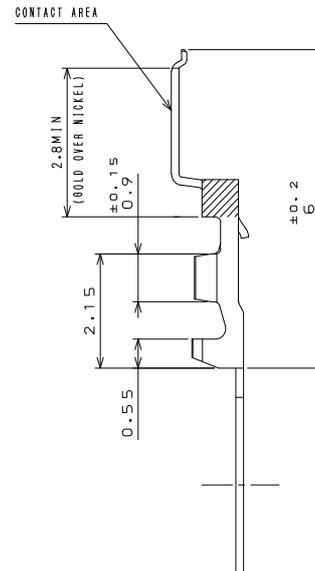


EXCLUDING CRIMP POT

クリンプポット部は除く

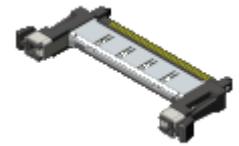
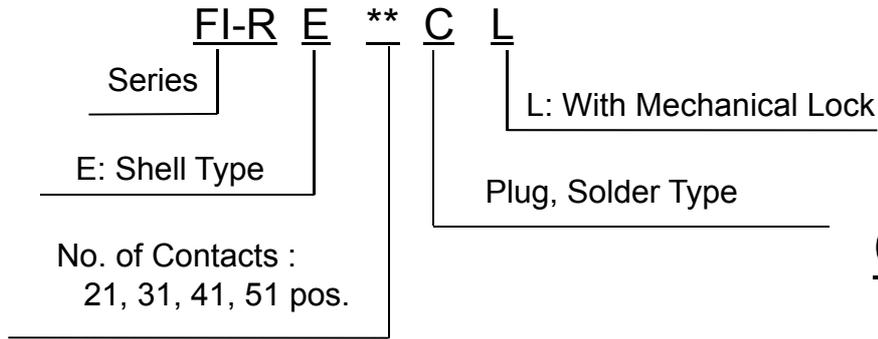


DETAIL A  
A部詳細図  
(SCALE 10:1)  
(尺度 10:1)



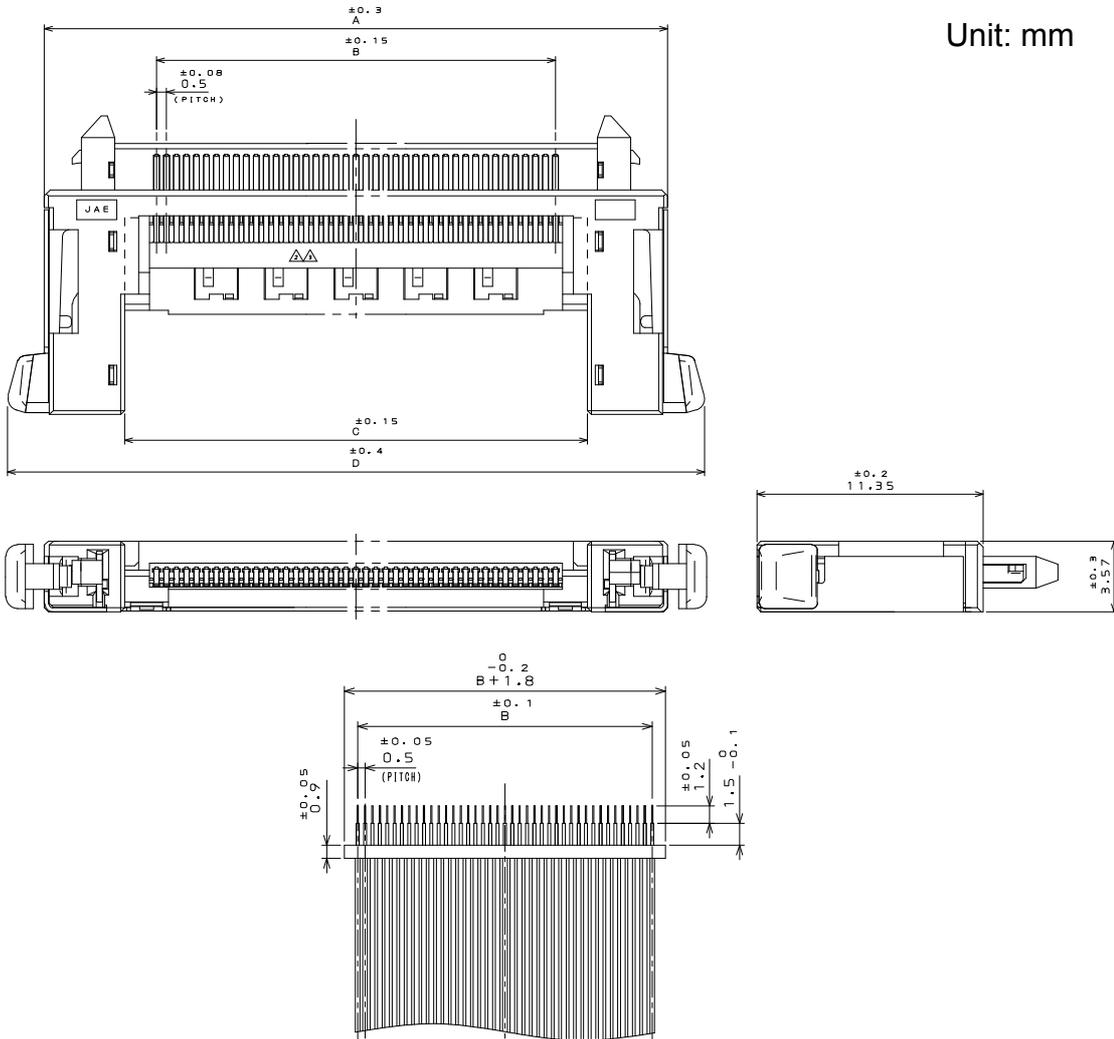
Ordering Information

Plug, Solder Type (Lock, shell type)  
(SJ104311)



**C1**

Unit: mm



Drawing when cable is connected (for reference)

Dimensions

DIMENSION NO. OF CONTACTS (N)	A	B	C	D
21	21.25	10.0	13.2	24.95
31	26.25	15.0	18.2	29.95
41	31.25	20.0	23.2	34.95
51	36.25	25.0	28.2	39.95

Ordering Information

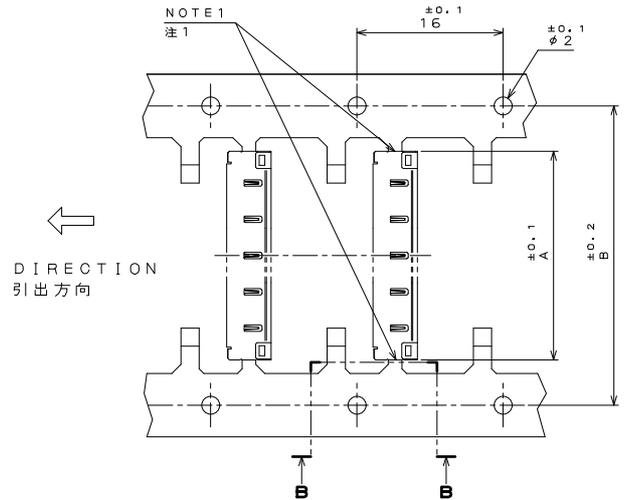
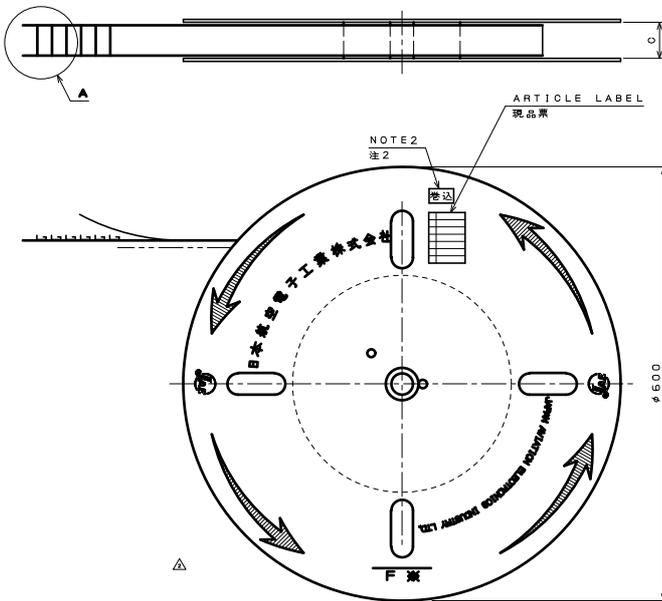
Cover Shell for Solder Type (SJ104716)

**FI-R E \*\* C L - SH2 - 3000**  
 Series  
 E: Shell Type  
 No. of Contacts :  
 21, 31, 41, 51 pos.  
 Embossed Tape  
 3000pcs. per reel  
 Cover Shell  
 L: With Mechanical Lock  
 Plug Solder Type



**C2**

Unit: mm

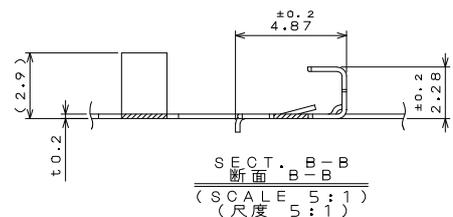


Dimensions

NO. OF CONTACT 芯数	A	B	C
21	13.0	19.0	26.0
31	18.0	28.0	40.0
41	23.0	35.0	50.0
51	28.0	34.0	40.0



DETAIL A  
 A部詳細図  
 (SCALE 2:1)  
 (尺度 2:1)



SECT. B-B  
 断面 B-B  
 (SCALE 5:1)  
 (尺度 5:1)

## Lineup

## Receptacle



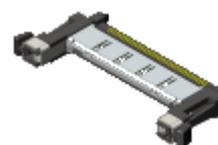
Number of Contacts	Type	Mounting Direction	Part Number	Reel Part Number
21	Shell	Right-angle	FI-RE21S-HF	FI-RE21S-HF-R1500
		Straight	FI-RE21S-VF	FI-RE21S-VF-R1300
31	Shell	Right-angle	FI-RE31S-HF	FI-RE31S-HF-R1500
		Straight	FI-RE31S-VF	FI-RE31S-VF-R1300
41	Shell	Right-angle	FI-RE41S-HF	FI-RE41S-HF-R1500
		Straight	FI-RE41S-VF	FI-RE41S-VF-R1300
51	Shell	Right-angle	FI-RE51S-HF	FI-RE51S-HF-R1500
		Straight	FI-RE51S-VF	FI-RE51S-VF-R1300

## Plug, Crimp Type



Number of Contacts	Type	Mechanical Lock	Part Number
21	Shell	Yes	FI-RE21HL
31	Shell	Yes	FI-RE31HL
41	Shell	Yes	FI-RE41HL
51	Shell	Yes	FI-RE51HL

## Plug, Solder Type



Number of Contacts	Type	Mechanical Lock	Part Number	Cover Shell Part Number
21	Shell	Yes	FI-RE21CL	FI-RE21CL-SH2-3000
31			FI-RE31CL	FI-RE31CL-SH2-3000
41			FI-RE41CL	FI-RE41CL-SH2-3000
51			FI-RE51CL	FI-RE51CL-SH2-3000

Related Documents
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- Contact Crimp Tool (Manual)

Part Number: CT150-4C-FIR  
Handling Instruction: T700276

- Contact Crimp Tool (Semi-automatic machine)

Press Machine

Part Number: CT215-4B  
Handling Instruction: T707064

Applicator

Part Number: 350-FI-2B  
Handling Instruction: T703263

**Notice:**

- The values specified in this brochure are only for reference. The products and their specifications are subject to change without notice. Contact our sales staff for further information before considering or ordering any of our products. For purchase, a product specification must be agreed upon.
- Users are requested to provide protection circuits and redundancy circuits to ensure safety of the equipment, and sufficiently review the suitability of JAE's products to the equipment.
- The products presented in this brochure are designed for the uses recommended below. We strongly suggest you contact our sales staff when considering use of any of the products in any other way than the recommended applications or for a specific use that requires an extremely high reliability.
  - Applications that require consultation:
    - Please contact us if you are considering use involving a quality assurance program that you specify or that is peculiar to the industry, such as:  
Automotive electrical components, train control, telecommunications devices (mainline), traffic light control, electric power, combustion control, fire prevention or security systems, disaster prevention equipment, etc.
    - We may separately give you our support with a quality assurance program that you specify, when you think of a use such as:  
Aviation or space equipment, submarine repeaters, nuclear power control systems, medical equipment for life support, etc.
  - Recommended applications include:  
Computers, office appliances, telecommunications devices (terminals, mobile units), measuring equipment, audiovisual equipment, home electric appliances, factory automation equipment, etc.

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\* The specifications in this brochure are subject to change without notice. Please contact JAE for information.