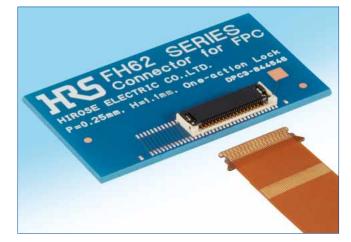
0.25mm pitch, 1.1mm high, Top Contact Single Action Lock, High FPC Retention Force FPC connector

FH62 Series



Features

Aug.1.2018 Copyright 2018 HIROSE ELECTRIC CO., LTD. All Rights Reserved.

1. Space-saving design

•Space saving design with 0.25mm pitch, 4.0mm width. (Fig.1)

2. Automatic single action lock design

- •Easy to use single action lock design by simply inserting FPC after mounting. (Fig.2) (Release the lock by operating or opening the lock lever when removing FPC.)
- •Operation of the lock lever is not required at the time of mating FPC.
- Can be operated with one hand.
- •Operation of the lock lever is not required at the time of mating FPC.
- Contributes to assembly time reduction.
- •Operation of the lock lever is not required at the time of mating FPC.
- Lock lever will not be damaged by operation.
- •Operation of the lock lever is not required at the time of mating FPC.
- No lever at insertion eliminates failures due to FPC movement during locking.

3. High FPC retention force

•The notches on both sides of FPC are held by the lock lever, generating a high FPC retention force in spite of the small size. (Fig.3)

4. Easy FPC insertion

·Wide guide for easy FPC insertion easy. (Fig.1)

5. Supports 0.3mm-thick FPC

•The design accommodates a rigid 0.3mm-thick FPC, which helps to prevent deformation of the FPC upon insertion.

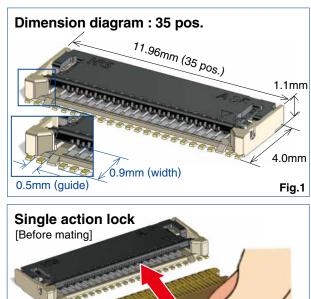
6. Supports high speed transmission

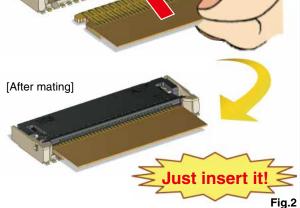
- •Supports high speed transmission with excellent impedance properties.
- By making a differential pair with the same type of contacts (even number-even number of contacts, odd number-odd-number of contacts) excellent transmission characteristics are achieved, supporting eDP (ver1.4), MIPI (D-PHY) and USB3.0 standards. (Fig.4)

7. Environmental

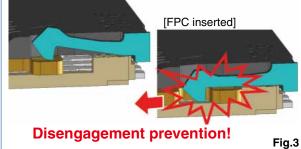
·Halogen free

*As defined by IEC 61249-2-21. Br : 900ppm max, Cl : 900ppm max, Br+Cl : 1,500ppm max

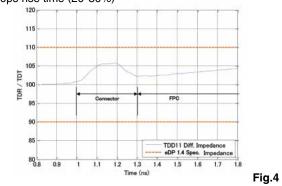








Supports high speed transmission (Differential impedance) 130ps rise time (20-80%)



2017.92 **KS** 1

In cases where the application will demand a high level of reliability, such as automotive, please contact a company representative for further information.

Product Specifications

	•							
Detier	Rated current	0.25A	Operating temperature range	-55	°C to +85°C (Note 1)	Storage temperature range	-10°C to +50°C (Note 2)	
Rating	Rated voltage	30V AC/DC	Operating humidity range	Relat	ive humidity 90% max. (No condensation)	Storage humidity range	Relative humidity 90% max. (No condensation)	
Adaptive FPC/FFC contact specifications	$hickness = 0.3\pm0.03mm$ (fold plated contact ti							
Item		Specif	ication		Conditions			
1. Insulation resistance	50Ω min.				100V DC			
2. Withstanding voltage	No flashove	r or insulation	breakdown		90V AC rms / 1 m	inute		
3. Contact resistance	100mΩ max. ★ Including FPC conductor resistance				1mA (AC)			
4. Durability (insertion / withdrawal)	Contact resistance : 100mΩ max. No damage, cracks, or parts dislocation				10 cycles			
5. Vibration	No electrical discontinuity of $1\mu s$ or more Contact resistance : $100m\Omega$ max. No damage, cracks, or parts dislocation				Frequency : 10 to 55Hz, single amplitude of 0.75mm, 10 cycles in each of the 3 directions			
6. Shock	No electrical discontinuity of $1\mu s$ or more Contact resistance : $100m\Omega$ max. No damage, cracks, or parts dislocation			Acceleration of 981m/s ² , duration of 6ms, sine half-wave waveform, 3 cycles in each of the 3 axes				
7. Humidity (Steady state)	Contact resistance : $100m\Omega$ max. Insulation resistance : $50M\Omega$ min. No damage, cracks, or parts dislocation				96 hours at temperature of 40° and humidity of 90% to 95%			
8. Temperature cycle	Contact resistance : $100m\Omega$ max. Insulation resistance : $50M\Omega$ min. No damage, cracks, or parts dislocation				$\begin{array}{ccc} \text{Temperature}: -55^{\circ}\text{C} \rightarrow +15^{\circ}\text{C} \text{ to } +35^{\circ}\text{C} \rightarrow +85^{\circ}\text{C} \rightarrow +15^{\circ}\text{C} \text{ to } +35^{\circ}\text{C} \\ \text{Time}: & 30 \rightarrow & 2 \text{ to } 3 \rightarrow & 30 \rightarrow 2 \text{ to } 3 \text{ (Minutes)} \\ \text{5 cycles} \end{array}$			
9. Resistance to soldering heat	No deformation of components affecting performance				Reflow : See recommended temperature profile (Page 8) Manual soldering: 350 \pm 10°C 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.

Materials / Finish

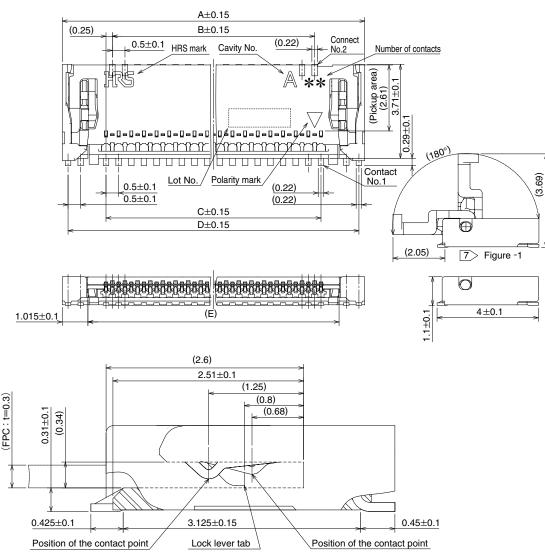
Part	Material	Color / Finish	Remarks	
Inculator	LCP	Beige	- UL94V-0	
Insulator	Polyamide	Black		
Contacts	Copper alloy	Gold plated		

Product Number Structure

Refer to the chart below when datermining the product specifications from the product number. Please select from the product numbers listed in this catalog when placing orders.

$\frac{FH}{\bullet} \frac{62}{\bullet} - \frac{35S}{\bullet} - \frac{0.25}{\bullet}$	<u>SHW (10)</u> 6 6				
Series name : FH	5 Termination type				
2 Series No. : 62	SHW····SMT Horizontal staggered				
3 Number of contacts : 35	array mounting type				
4 Contact pitch : 0.25mm	6 Specifications				
	(10) : Standard (5,000pcs/reel) (99) : 500pcs/reel				

Connector Dimensions



Note

1 : The dimension in parentheses are for reference.

- 2 : Lead co-planarity including reinforced chucking metals shall be 0.1 max.
- 3 : To be delivered with tape and reel packages.
- See the packaging specifications for details.
- 4 : Note that preventive hole for sink mark or slit could be added for improvement.

5 : The quality remains good, even with the dark spots, which could occasionally occur on molded plastic.

6 : This product satisfies halogen free requirements defined as 900ppm maximum chlorine,

900ppm maximum bromine, and 1500ppm maximum total of chlorine and bromine.

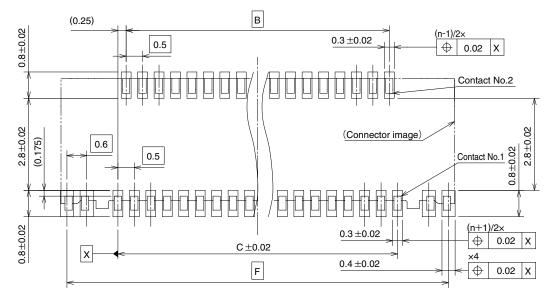
7 Figure-1 Shows the state of opened lock cover. FPC can be pulled out by opening the lock lever by 45 degrees or more.

Connector Dimensions

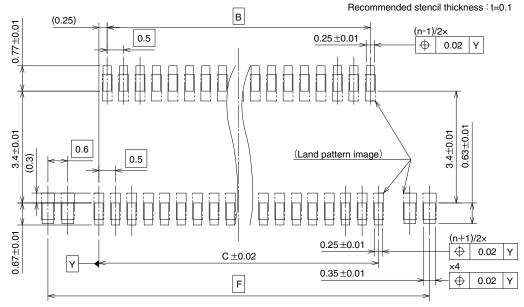
						(JIII.5 . IIIIII
Part No.	HRS No.	No. of contacts	А	В	С	D	E
FH62-13S-0.25SHW(**)	Under planning (Note 1)	13	6.46	2.5	3	6	4.43
FH62-15S-0.25SHW(**)	Under planning (Note 1)	15	6.96	3	3.5	6.5	4.93
FH62-17S-0.25SHW(**)	Under planning (Note 1)	17	7.46	3.5	4	7	5.43
FH62-19S-0.25SHW(**)	Under planning (Note 1)	19	7.96	4	4.5	7.5	5.93
FH62-21S-0.25SHW(**)	Under planning (Note 1)	21	8.46	4.5	5	8	6.43
FH62-23S-0.25SHW(**)	Under planning (Note 1)	23	8.96	5	5.5	8.5	6.93
FH62-25S-0.25SHW(**)	Under planning (Note 1)	25	9.46	5.5	6	9	7.43
FH62-27S-0.25SHW(**)	Under planning (Note 1)	27	9.96	6	6.5	9.5	7.93
FH62-31S-0.25SHW(**)	Under planning (Note 1)	31	10.96	7	7.5	10.5	8.93
FH62-35S-0.25SHW(**)	580-4300-0 **	35	11.96	8	8.5	11.5	9.93
FH62-39S-0.25SHW(**)	Under planning (Note 1)	39	12.96	9	9.5	12.5	10.93
FH62-41S-0.25SHW(**)	Under planning (Note 1)	41	13.46	9.5	10	13	11.43
FH62-51S-0.25SHW(**)	Under planning (Note 1)	51	15.96	12	12.5	15.5	13.93
FH62-55S-0.25SHW(**)	Under planning (Note 1)	55	16.96	13	13.5	16.5	14.93
FH62-61S-0.25SHW(**)	Under planning (Note 1)	61	18.46	14.5	15	18	16.43

Note 1 : Contact positions without HRS No. are currently under planning. Please contact hirose for detailed information about product variation. I Inits · mm

Recommended PCB Mounting Pattern



Recommended Stencil Pattern



Note 8 : 'n' shows the number of contacts.

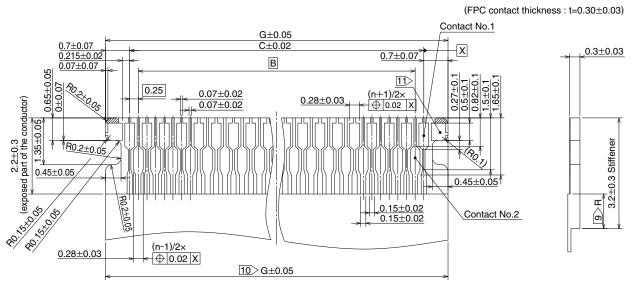
Recommended Dimensions of PCB Mounting Pattern and Stencil Pattern Units : mm

Part No.	HRS No.	No. of contacts	В	С	F
FH62-13S-0.25SHW(**)	Under planning (Note 1)	13	2.5	3	6.1
FH62-15S-0.25SHW(**)	Under planning (Note 1)	15	3	3.5	6.6
FH62-17S-0.25SHW(**)	Under planning (Note 1)	17	3.5	4	7.1
FH62-19S-0.25SHW(**)	Under planning (Note 1)	19	4	4.5	7.6
FH62-21S-0.25SHW(**)	Under planning (Note 1)	21	4.5	5	8.1
FH62-23S-0.25SHW(**)	Under planning (Note 1)	23	5	5.5	8.6
FH62-25S-0.25SHW(**)	Under planning (Note 1)	25	5.5	6	9.1
FH62-27S-0.25SHW(**)	Under planning (Note 1)	27	6	6.5	9.6
FH62-31S-0.25SHW(**)	Under planning (Note 1)	31	7	7.5	10.6
FH62-35S-0.25SHW(**)	580-4300-0 **	35	8	8.5	11.6
FH62-39S-0.25SHW(**)	Under planning (Note 1)	39	9	9.5	12.6
FH62-41S-0.25SHW(**)	Under planning (Note 1)	41	9.5	10	13.1
FH62-51S-0.25SHW(**)	Under planning (Note 1)	51	12	12.5	15.6
FH62-55S-0.25SHW(**)	Under planning (Note 1)	55	13	13.5	16.6
FH62-61S-0.25SHW(**)	Under planning (Note 1)	61	14.5	15	18.1

Note 1 : Contact positions without HRS No. are currently under planning.

Please contact hirose for detailed information about product variation.

● Diagram of a recommended FPC dimension (when using plated lead part)



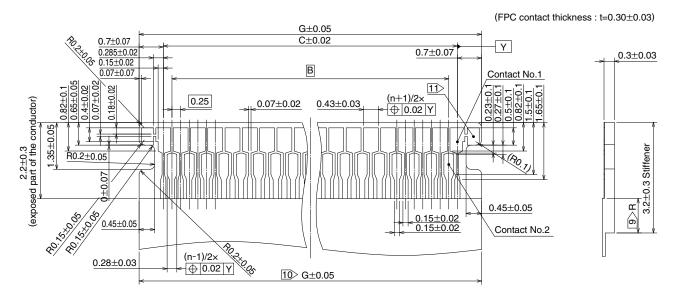
Note

 \bigcirc Dimension R must be 0.5mm minimum.

10 Indicated tolerance is applicable to the exposed conductor.

11 Both end sides of contact pad on FPC cannot be used for signal transmission.

Recommended FPC dimension (when not using plated lead part)



Note

Dimension R must be 0.5mm minimum.

10 Indicated tolerance is applicable to the exposed conductor.

11 Both end sides of contact pad on FPC cannot be used for signal transmission.

Recommended FPC Dimensions

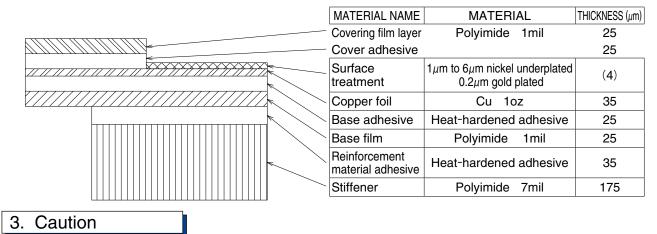
					Units : mm
Part No.	HRS No.	No. of contacts	В	С	G
FH62-13S-0.25SHW(**)	Under planning (Note 1)	13	2.5	3	4.4
FH62-15S-0.25SHW(**)	Under planning (Note 1)	15	3	3.5	4.9
FH62-17S-0.25SHW(**)	Under planning (Note 1)	17	3.5	4	5.4
FH62-19S-0.25SHW(**)	Under planning (Note 1)	19	4	4.5	5.9
FH62-21S-0.25SHW(**)	Under planning (Note 1)	21	4.5	5	6.4
FH62-23S-0.25SHW(**)	Under planning (Note 1)	23	5	5.5	6.9
FH62-25S-0.25SHW(**)	Under planning (Note 1)	25	5.5	6	7.4
FH62-27S-0.25SHW(**)	Under planning (Note 1)	27	6	6.5	7.9
FH62-31S-0.25SHW(**)	Under planning (Note 1)	31	7	7.5	8.9
FH62-35S-0.25SHW(**)	580-4300-0 **	35	8	8.5	9.9
FH62-39S-0.25SHW(**)	Under planning (Note 1)	39	9	9.5	10.9
FH62-41S-0.25SHW(**)	Under planning (Note 1)	41	9.5	10	11.4
FH62-51S-0.25SHW(**)	Under planning (Note 1)	51	12	12.5	13.9
FH62-55S-0.25SHW(**)	Under planning (Note 1)	55	13	13.5	14.9
FH62-61S-0.25SHW(**)	Under planning (Note 1)	61	14.5	15	16.4

I Inite · mm

Note 1 : Contact positions without HRS No. are currently under planning.

Please contact hirose for detailed information about product variation.

● FPC Construction (Recommended Specifications)



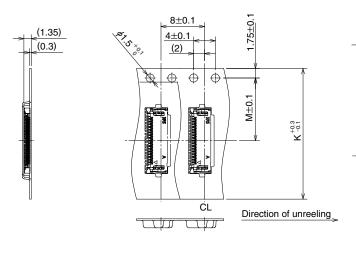
1. Material composition of FPC is a reference example. Please adjust the thickness of the FPC mating section to 0.3±0.03mm in reference to the material composition.

2. For the details of the material composition, please contact each FPC manufacturer.

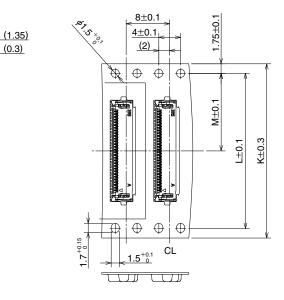
(0.3)

Packaging Specifications

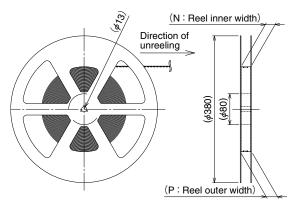
Embossed Carrier Tape Dimensions (Tape width up to 24mm)



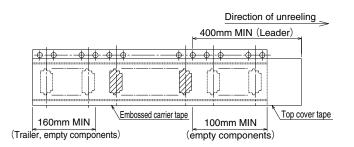
Embossed Carrier Tape Dimensions (Tape width 32mm and over)



Reel Dimensions



Leader, Trailer Dimensions



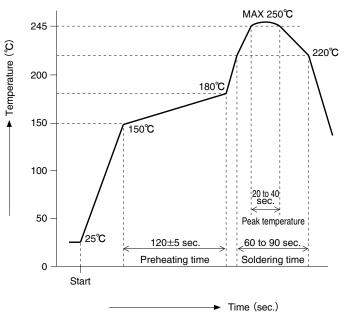
Units : mm Part No. HRS No. No. of contacts Κ L Μ Ν Ρ FH62-13S-0.25SHW(**) Under planning (Note 1) 13 16 7.5 17.4 21.4 FH62-15S-0.25SHW(**) Under planning (Note 1) 15 FH62-17S-0.25SHW(**) Under planning (Note 1) 17 FH62-19S-0.25SHW(**) Under planning (Note 1) 19 FH62-21S-0.25SHW(**) Under planning (Note 1) 21 FH62-23S-0.25SHW(**) Under planning (Note 1) 23 FH62-25S-0.25SHW(**) Under planning (Note 1) 29.4 25 24 11.5 25.4 FH62-27S-0.25SHW(**) Under planning (Note 1) 27 FH62-31S-0.25SHW(**) Under planning (Note 1) 31 FH62-35S-0.25SHW(**) 580-4300-0 ** 35 FH62-39S-0.25SHW(**) Under planning (Note 1) 39 FH62-41S-0.25SHW(**) 41 Under planning (Note 1) FH62-51S-0.25SHW(**) Under planning (Note 1) 51 FH62-55S-0.25SHW(**) Under planning (Note 1) 55 32 28.4 14.2 33.4 37.4 FH62-61S-0.25SHW(**) Under planning (Note 1) 61

Note 1 : Contact positions without HRS No. are currently under planning.

Please contact hirose for detailed information about product variation.



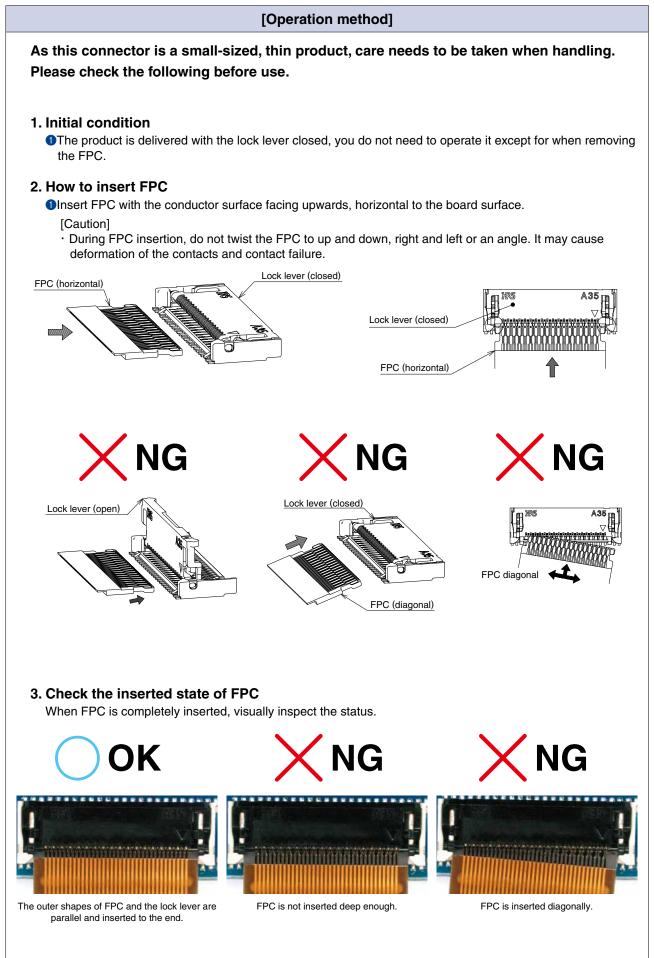
Temperature Profile



Applicable Conditions						
: IR/Hot air						
: Room air						
: Paste type Sn/3.0Ag/0.5Cu						
(M705-GRN360-K2-V made by Senju						
Metal Industry Co.)						
: PCB material and size						
Glass epoxy 32.85×18.3×0.8mm						
Land size, per recommended on page 4.						
: Thickness and opening size						
Per recommended on page 4.						

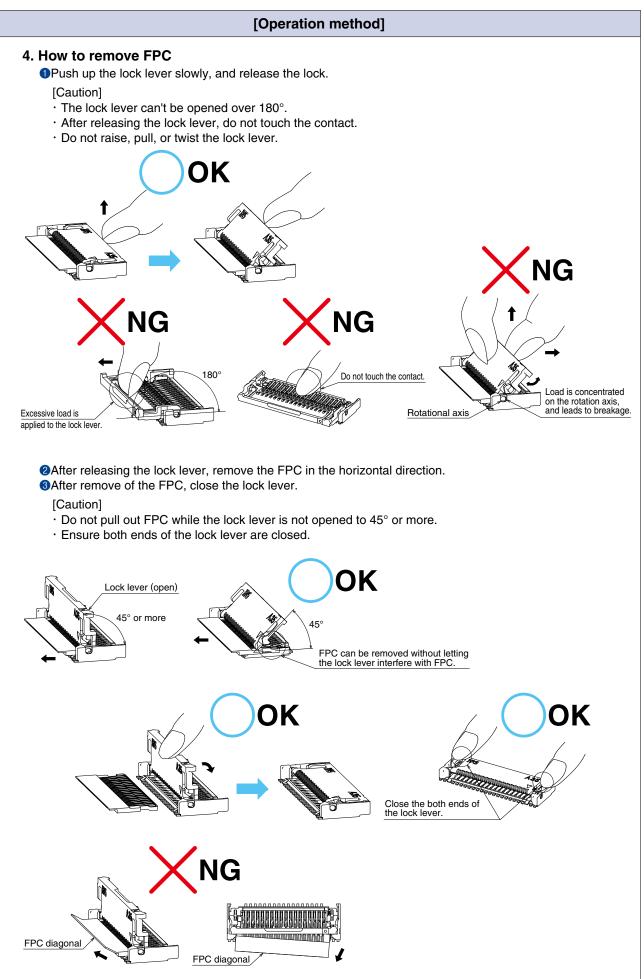
This temperature profile is based on the above conditions. It may vastly depending on solder paste type, manufacturer, PCB size and mounting materials. Please use only after checking the mounting conditions.

Connector operation and points to note



RS 9

Connector operation and points to note



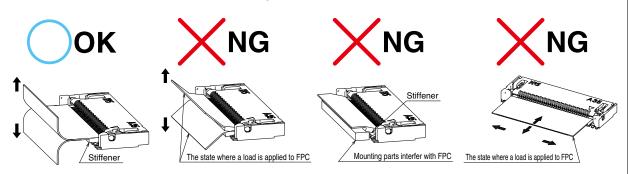
Connector operation and points to note

[Operation methods]

5. FPC routing after connection

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

- · Make sure that FPC and stiffener do not contact chassis.
- · Avoid applying forces to FPC in vertical or horizontal directions.
- In addition, avoid pulling up and down on the FPC.
- When fixing FPC after FPC cabling, avoid pulling FPC, and route the wire FPC with slack. In this regard, the stiffener is parallel to the PCB.
- · Do not mount other components touching to the FPC underneath the FPC stiffener.



[Cautions when Mounting PCB]

♦ Warp of PCB

Minimize warp of the PCB as much as possible. Lead co-planarity including reinforced metals is 0.1mm or less. Too much wrap of the PCB may result in a soldering failure.

Flexible board design

Please make sure to put a stiffener on the backside of the flexible board. We recommend a glass epoxy material with the thickness of 0.3mm MIN.

Load to Connector

Do not add 1.0N or greater external force when unreel or pick and place the connector etc, or it may get broken.

In addition, do not insert the FPC or operate the connector before mounting.

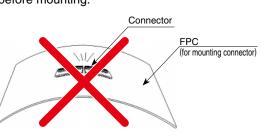
Load to PCB

- ·Splitting a large PCB into several pieces
- ·Screwing the PCB

Avoid the handling described above so that no force is exerted on the PCB during the assembly process. Otherwise, the connector may become defective.

Instructions on manual soldering

Follow the instructions shown below when soldering the connector manually during work, etc.



Do not perform any reflow or hand soldering operation while FPC is inserted in the connector.
Do not apply extreme heat, or allow the soldering iron to touch anything other than the connector lead. This could cause the connector to be deformed or melted.

3Do not supply excessive solder (flux).

If excessive solder (flux) is applied to the contact, the solder or flux could adhere on the contact point and cause contact failure.

USA:

HIROSE ELECTRIC (U.S.A.), INC. HEADQUARTERS CHICAGO OFFICE 2300 Warrenville Road, Suite 150, Downers Grove, IL 60515 Phone : +1-630-282-6700

USA:

HIROSE ELECTRIC (U.S.A.), INC. BOSTON OFFICE

300 Brickstone Square Suite 201, Andover, MA 01810 Phone : +1-978-662-5255

http://www.hirose.com/us/

GERMANY:

HIROSE ELECTRIC EUROPE B.V. NUREMBERG OFFICE

Neumeyerstrasse 22-26, 90411 Nurnberg Phone : +49-911 32 68 89 63 Fax : +49-911 32 68 89 69 http://www.hirose.com/eu/

UNITED KINGDOM: HIROSE ELECTRIC EUROPE BV (UK BRANCH)

4 Newton Court, Kelvin Drive, Knowlhill, Milton Keynes, MK5 8NH Phone : +44-1908 202050 Fax : +44-1908 202058 http://www.hirose.com/eu/

CHINA:

HIROSE ELECTRIC TECHNOLOGIES (SHENZHEN) CO., LTD.

Room 09-13, 19/F, Office Tower Shun Hing Square, Di Wang Commercial Centre, 5002 Shen Nan Dong Road, Shenzhen City, Guangdong Province, 518008 Phone : +86-755-8207-0851 Fax : +86-755-8207-0873 http://www.hirose.com/cn/

KOREA:

HIROSE KOREA CO., LTD.

143, Gongdan 1-daero, Siheung-si, Gyeonggi-do, 15084, Korea Phone : +82-31-496-7000 Fax : +82-31-496-7100 http://www.hirose.co.kr/

INDIA:

HIROSE ELECTRIC SINGAPORE PTE. LTD. BANGALORE LIAISON OFFICE

Unit No-403, 4th Floor, No-84, Barton Centre, Mahatma Gandhi (MG) Road, Bangalore 560 001, Karnataka, India Phone : +91-80-4120 1907 Fax : +91-80-4120 9908 http://www.hirose.com/sg/

USA:

HIROSE ELECTRIC (U.S.A.), INC. SAN JOSE OFFICE

2841 Junction Ave, Suite 200 San Jose, CA. 95134 Phone : +1-408-253-9640 Fax : +1-408-253-9641 http://www.hirose.com/us/

THE NETHERLANDS: HIROSE ELECTRIC EUROPE B.V.

Hogehillweg #8 1101 CC Amsterdam Z-0 Phone : +31-20-6557460 Fax : +31-20-6557469 http://www.hirose.com/eu/

GERMANY:

HIROSE ELECTRIC EUROPE B.V. HANOVER OFFICE

Bayernstr. 3, Haus C 30855 Langenhagen, Germany Phone : +49-511 97 82 61 30 Fax : +49-511 97 82 61 35 http://www.hirose.com/eu/

CHINA:

HIROSE ELECTRIC (SHANGHAI) CO., LTD.

18, Enterprise Center Tower 2, 209# Gong He Road, Jing'an District, Shanghai, CHINA 200070 Phone : +86-21-6391-3355 Fax : +86-21-6391-3335 http://www.hirose.com/cn/

HONG KONG:

HIROSE ELECTRIC HONGKONG TRADING CO., LTD.

Room 1001, West Wing, Tsim Sha Tsui Centre, 66 Mody Road, Tsim Sha Tsui East, Kowloon, Hong Kong Phone : +852-2803-5338 Fax : +852-2591-6560 http://www.hirose.com/hk/

SINGAPORE:

HIROSE ELECTRIC SINGAPORE PTE. LTD.

03, Anson Road, #20-01, Springleaf Tower, Singapore 079909 Phone : +65-6324-6113 Fax : +65-6324-6123 http://www.hirose.com/sg/

MALAYSIA: PENANG REPRESENTATIVE OFFICE

73-3-1, Ideal@The One, Jalan Mahsuri, Bayan Lepas Penang, 11950, Malaysia Phone : +604-648-5536 http://www.hirose.com/sg/

USA:

HIROSE ELECTRIC (U.S.A.), INC. DETROIT OFFICE (AUTOMOTIVE)

17197 N. Laurel Park Drive, Suite 253, Livonia, MI 48152 Phone : +1-734-542-9963 Fax : +1-734-542-9964 http://www.hirose.com/us/

GERMANY:

HIROSE ELECTRIC EUROPE B.V. GERMAN BRANCH

Schoenbergstr. 20, 73760 ostfildern Phone : +49-711-456002-1 Fax : +49-711-456002-299 http://www.hirose.com/eu/

FRANCE:

HIROSE ELECTRIC EUROPE B.V. PARIS OFFICE

130 Avenue Joseph Kessel, Bat E, 78960 Voisins le Bretonneux, France Phone : +33-1-85764886 Fax : +33-1-85764823 http://www.hirose.com/eu/

CHINA:

HIROSE ELECTRIC (SHANGHAI) CO., LTD. BEIJING BRANCH

A1001, Ocean International Center, Building 56# East 4th Ring Middle Road, ChaoYang District, Beijing, 100025 Phone : +86-10-5165-9332 Fax : +86-10-5908-1381 http://www.hirose.com/cn/

TAIWAN:

HIROSE ELECTRIC TAIWAN CO., LTD.

103 8F, No.87, Zhengzhou Rd., Taipei Phone : +886-2-2555-7377 Fax : +886-2-2555-7350 http://www.hirose.com/tw/

INDIA:

HIROSE ELECTRIC SINGAPORE PTE. LTD. DELHI LIAISON OFFICE

Office N0.552, Regus-Green Boulevard, Level5, Tower C, Sec62, Plot B-9A, Block B, Noida, 201301, Uttar Pradesh, India Phone : +91-12-660-8018 Fax : +91-120-4804949 http://www.hirose.com/sg/

THAILAND:

BANGKOK OFFICE (REPRESENTATIVE OFFICE)

Unit 4703, 47th FL., 1 Empire Tower, South Sathorn Road, Yannawa, Sathorn, Bangkok 10120 Thailand Phone : +66-2-686-1255 Fax : +66-2-686-3433 http://www.hirose.com/sg/



HIROSE ELECTRIC CO., LTD.

2-6-3,Nakagawa Chuoh,Tsuzuki-Ku,Yokohama-Shi 224-8540,JAPAN TEL: +81-45-620-3526 Fax: +81-45-591-3726 http://www.hirose.com http://www.hirose-connectors.com