NUMBER	CATEGORY	Amphenol FCi	
GS-20-098	APPLICATION SPECIFICATION		
TITLE		PAGE	REVISION
0.5mm pitch SMT type connector for FPC “ 59453 (SFVL) series ”		1 of 8	D
		GUARDIAN (VERIFIED BY)	DATE
		S.Watanabe	12/27/23
		APPROVED BY	
		Y.Kameda	
		CLASSIFICATION : UNRESTRICTED	

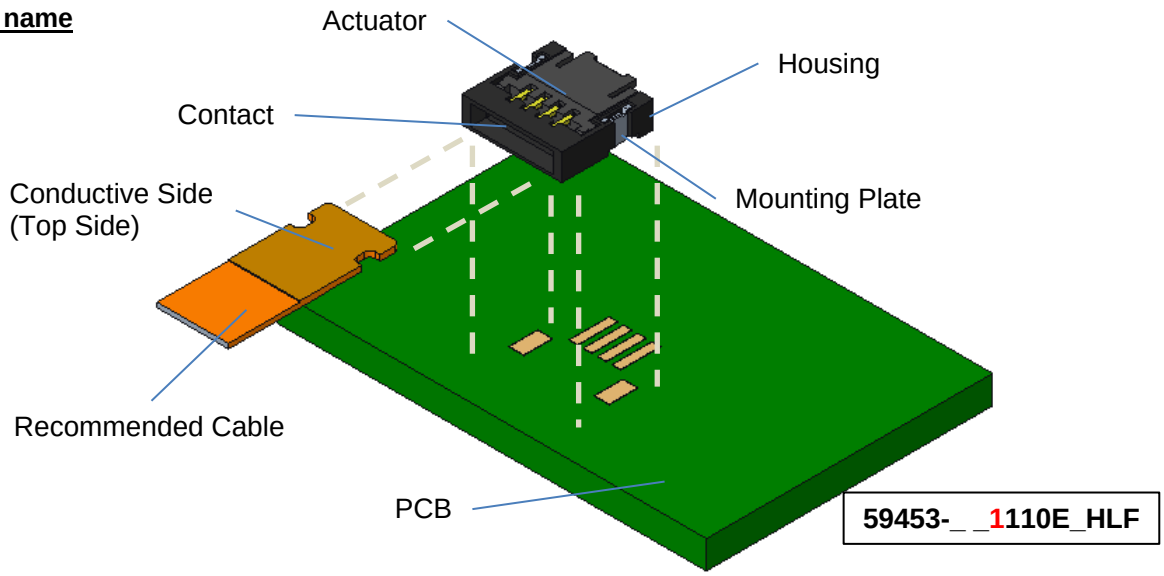
1. Scope

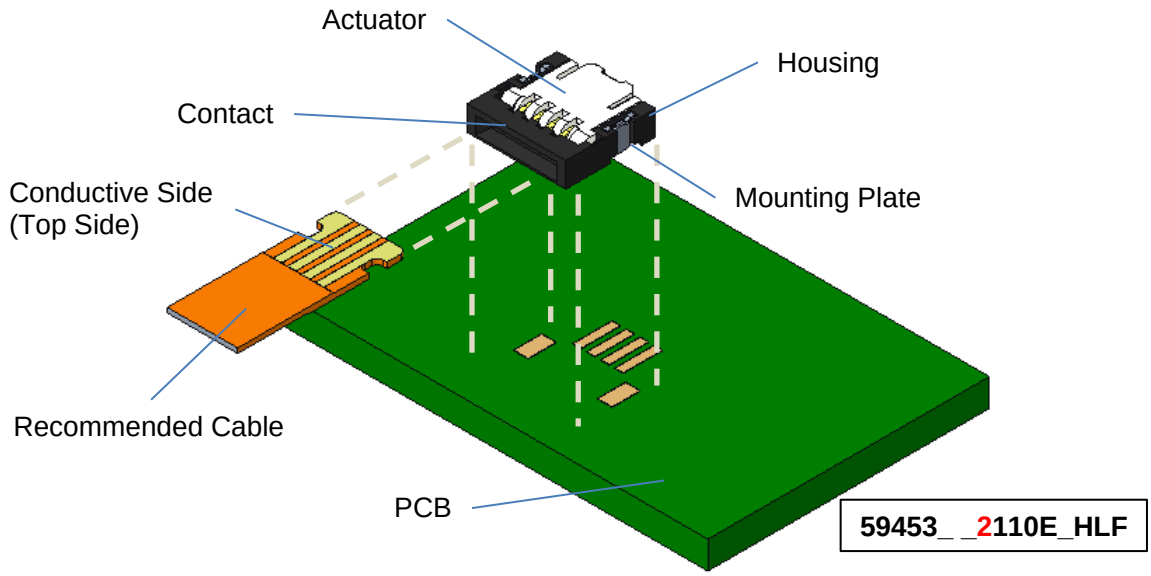
This specification summarizes the important items for using the 0.5mm pitch connector for FPC ”59453 (SFVL) Series”. Before this connector is used, please be sure to look through these specifications.

2. Application product

TITLE	Product No.
0.5mm pitch SMT type connector for FPC ”59453 (SFVL) Series”	59453-_ _ _110E_HLF

3. Each part name





4. Recommendation stencil condition and Application conductor (FPC)

Refer to each drawing.

5. Mounting method of the connector on the PCB

This connector has adopted the form of automatic mounting and the surface mount match.
Therefore, please mount the connector to PCB with the automatic mounting machine.
Then, please perform reflow soldering by the following our recommendation conditions.

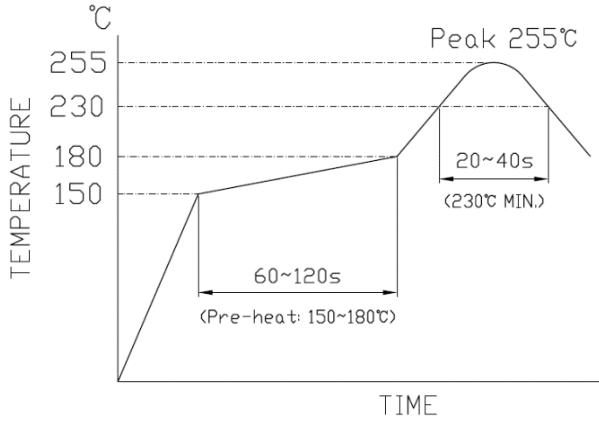
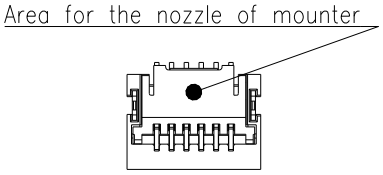


Fig.2 Recommendation reflow temperature profile

Notes;

Appropriate quantity of solder paste should be applied so that neither the flux nor solder gets into the inside of the connector. If flux or solder gets into the connector, contact fault, performance degradation, etc. may occur.

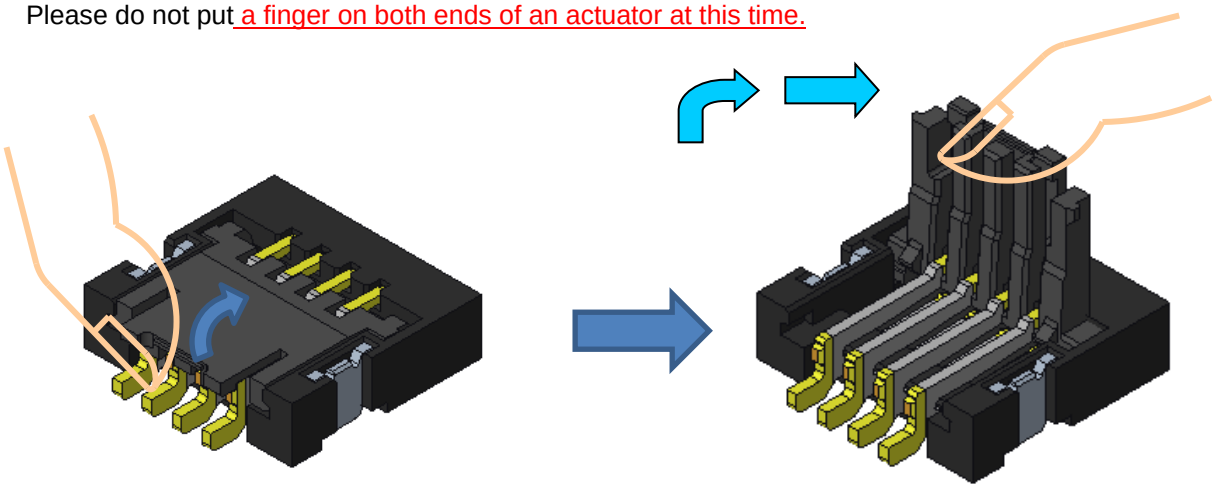
No.	Procedure	Remarks
5-1	Mounting on PCB 1) By using automatic mounting machine (One by one system) which copes with plastic tape packing. Mount the connector on predetermined position on PCB coated with solder paste.  Top view 2) Recommended solder paste SAC305 (Sn - 3.0Ag - 0.5Cu) 3) Recommended number of reflow : up to 2 times	- Please confirm carefully mounting accuracy of automatic mounting machine and dimensional accuracy of PCB. - Use by selecting adequate one for vacuum nozzle diameter of automatic mounting machine. - Please coat solder paste with adequate quantity by adjusting thickness of stencil. - For the stencil condition like as PCB pattern dimensions, thickness and open ratio are referred to each drawing.

6. FPC insertion operation method

6.1 Actuator opening

Please hang finger on the central part of the actuator, rotate about 100 degrees to the arrow direction of the following figure, and confirm that the actuator holds.

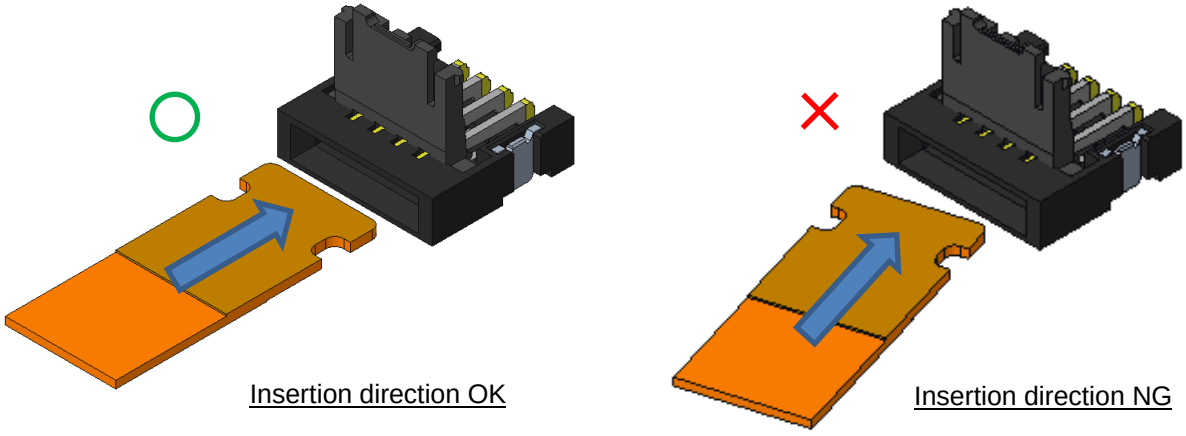
Please do not put a finger on both ends of an actuator at this time.



Notes: Please keep in mind that it may lead to breakage of a connector when both end of actuator arm area (upper part of a housing opening) is touched by hand, or is put a finger at the time of operation and an actuator is rotated 105 degrees or more (after the actuator had opened when the load more than 1N is applied), an actuator is twisted, or operation with the direction of slant impossible for is performed.

6.2 FPC insertion

Where the conductor of FPC is matched to the connecting side of the connector, please insert straightly until it reaches in the end of the connector inside. In the actuator open condition, the insertion condition of FPC can check visually from the connector upper side. (Refer to the following figure)

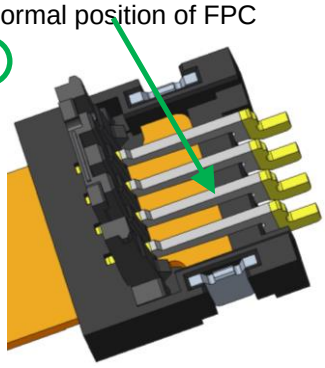


Insertion direction OK

Insertion direction NG

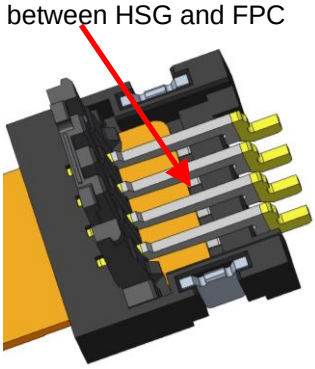
Notes : If FPC is inserted aslant to the connector, the short circuit may occur.

Normal position of FPC



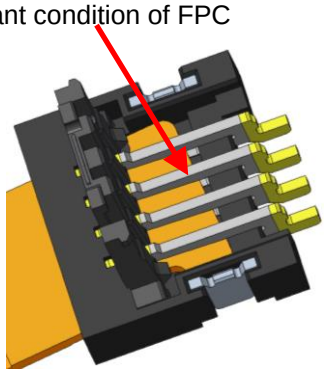
Insertion condition OK

Gap between HSG and FPC



Insertion condition NG (Gap)

Slant condition of FPC



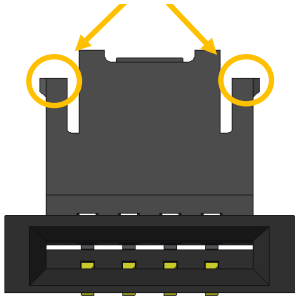
Insertion condition NG (Slant)

Notes : In the actuator open condition, the insertion condition of FPC can check visually from the connector upper side. (Refer to the following figure)

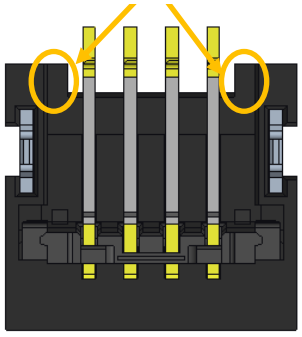
6.3 Actuator lock

Please check that FPC is the normal position and rotate the actuator about 100 degrees.
If the actuator is closed correctly, the actuator lock portion will fit into the actuator holding portion in the housing, and the housing and actuator will be flat.

Actuator lock portion



Actuator holding portion in housing



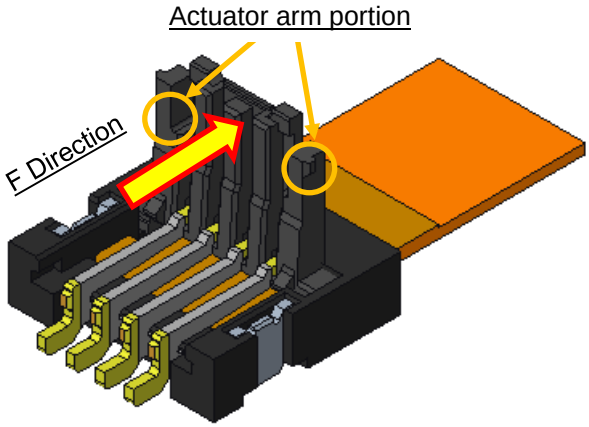
Actuator closing condition

Notes : If the actuator is locked while FPC has been slanting, there is possibility of the short circuit with adjacent conductor on the FPC. Therefore, please lock actuator when FPC is the normal position above figure. It is possible to break, both ends of actuator arm portion participate excessive force when open the actuator. Please make sure to close the actuator at center.

7. FPC extraction operation method

7.1 Actuator opening

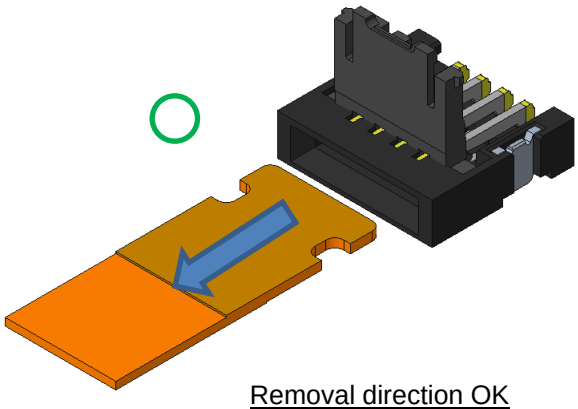
Please hang finger on the central part of the actuator, rotate it about 100 degrees, and confirm that the actuator holds. (The same method as 6.1.)



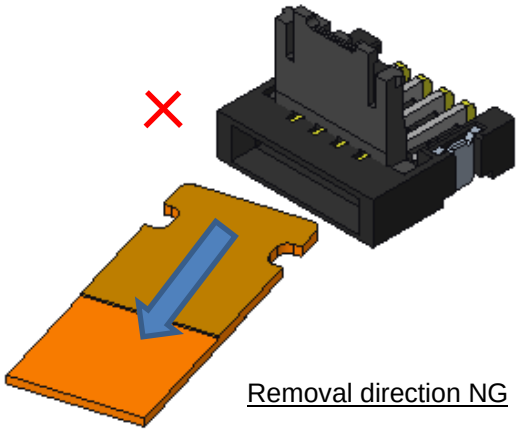
Notes: There would be broken if excessive force (over 1N) enforced to open in the F direction. It is possible to break, both ends of actuator arm portion participate excessive force when open the actuator.
Please make sure to open the actuator at center.
An actuator is twisted, or operation with the direction of slant impossible for is performed.

7.2. FPC removal

When actuator is in perfect open condition, please extract FPC straightly by operation contrary to



Removal direction OK

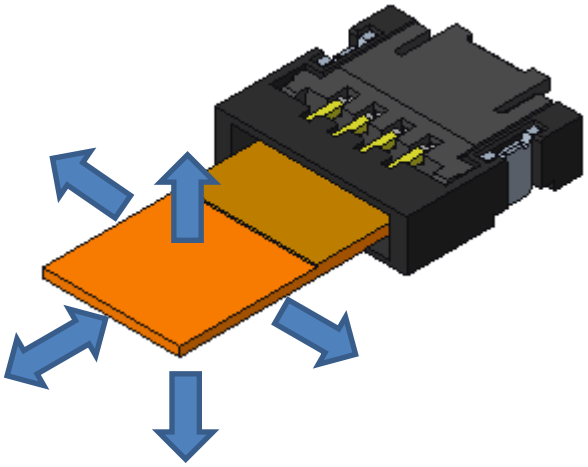


Removal direction NG

Notes: The direction of slant, and when FPC is extracted twisting, it becomes the cause of breakage, deformation, and performance fall of the connector.
Moreover, if FPC is extracted in the condition that the actuator does not open completely, it will become damage on the FPC conductor, and contact performance fall.

8. Other handling notes

8.1 When cable is pulled or pushed by excessive force to following direction or twists too much after cable insertion (over 2N), connector deformation, contact fault, performance degradation, breakage, etc. may occur. Do not apply excessive force to the cable after cable insertion.



8.2 Ensure connector is properly mounted and secured onto PCB.
If force is continually being applied to the connector, cracks on soldering area, connector deformation, contact fault, performance degradation, breakage, etc. may occur.

8.3 Please do not insert cable prior to soldering process.

8.4 Please do not insert any other items into the connector except the specified cable.

8.5 If force is applied to the connector prior to mounting, connector deformation, contact fault, performance degradation, breakage, etc. may occur.
(Including insertion of application cable before mounting, etc.)

8.6 Any rework soldering by manual soldering process should not be applied directly to the connector insulator.
Maximum condition should be 350°C at soldering tip and a heating time of not more than 2 seconds.
When using wire solder for rework process, take note of solder and flux should not leak into the connector.

9. Handling in storage of the connector

9.1 Please avoid contact terminals from dust, oil, water, etc. as it may affect the connector performance.

9.2 Please avoid direct sunlight as it may cause deformation of packing material, connector discoloration and poor contact and solder performance.

9.3 Recommendation conditions.
If stored for long periods under high temperature and humidity, it will impact to the connector performance. Therefore, please keep the connector at the following recommended conditions.
In addition, when kept out of the following condition, please confirm the performance of the connector before use. (In that case, please consult to our company as much as possible.)

<Recommendation storage conditions>

Temperature	:	5 ~ 40 °C
Humidity	:	10 ~ 75 %RH
Air pressure	:	70 ~ 106 kPa
Period	:	Less than 6 months

－End－

9. Revision record

REV	PAGES	DESCRIPTION	EC #	DATE
A	ALL	NEW RELEASED	J08-0299	07/09/08
B	ALL	REVISED	J08-0319	07/30/08
C	ALL 7	FORMAT CHANGE AND REMOVED JAPANESE CONTENTS RENEW CHANGE RECOMMENDED STRAGE CONDITION TO MATCH WITH GS-20-060	ELX-J-50189	12/22/23
D	8	CRRECT AN ERROR FOR THE REVISION RECORD	ELX-J-50227	12/27/23