Product specification

1. Scope

This specification applies to the pitch 0.5mm series of FPC/FFC connectors, specifying the products' performance indicators, test methods and test requirements.

Applicable Product Model: FFC05046 series

2. Applicable Standards

In the event of conflict between the requirements of this specification and the product drawing, the product drawing shall take precedence. In the event of conflict between the requirements of this specification and the referenced documents, this specification shall take precedence.

3. Parameter Range

Parameter Name	Value & Unit
Rated Current	0.5A
Rated Voltage	50V AC
Operating Temperature Range	-40 ℃ ~+105 ℃

4. Appearance and Dimensions

4.1 Appearance: Product surface shall be free of defects, dirt, cracks, and mechanical damage, Contacts shall be free of rust, and the plating shall be free of oxidation and peeling.

4.2 Appearance and dimensions shall comply with the requirements of product drawings.

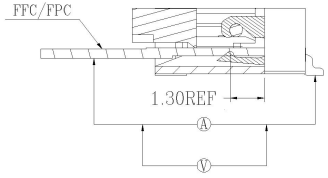
5. Materials

Component	Material Specification	Color
Housing	LCP (UL94V-0)	Natural
Actuator	LCP (UL94V-0)	Black
Terminal	Copper Alloy (Gold plated on contact area and solder area, nickel under plated overall)	-
Solder Tab	Copper Alloy (Tin-Plated)	-

6. TEST CONDITION

The test and measurement, unless otherwise specified, shall be carried out at a temperature of 15 to 35℃, Relative humidity of 25 to 85% ,and atmospheric pressure of 86 to 106KPa. However, when any doubt arises on the judgment value under it,the test and measurement shall be carry out at a temperature of 20±2℃, relative humidity of 60 to 70%, and atmospheric pressure of 86 to 106KPa.

7. Test Requirements and Procedures Summary

Serial No.	Item	Test Method	Technical Requirements
1	Examination of Product	Visual inspection	Meet the drawing requirements, no damage or abnormality in visual appearance
Electrical Requirement			
2	Dielectric Withstanding Voltage	150 V AC for 1 minute Test between adjacent circuits of unmated connector.	No flashover or insulation breakdown
3	Contact Resistance	Connect the sample to the corresponding FFC/FPC, apply a limited current of 1 mA (DC or 1000 Hz) for impedance testing 	Contact Resistance：50 mΩ Max
4	Insulation Resistance	100 V DC for 1 minute，Test between adjacent circuits of unmated connector.	Insulation Resistance：500 MΩ Min
Mechanical Characteristics			
5	Terminal/Solder Tab Retention Force	Apply axial pulling force to the terminal/Solder Tab assembled in the housing at a rate of (25.4±3) mm/min	0.15kgf Min
6	FPC/FFC Retention Force	After closing the Actuator and connecting with FFC/FPC, test the FPC/FFC pulling force at a speed of (25.4±3) mm/min	0.040kgf/PIN Min.(PIN<13) 0.030kgf/PIN Min.(PIN≥13)

7	Durability	Operation speed: maximum 10 times/min; durability cycle times: 20 times	Contact Resistance：50 mΩ Max
8	Vibration	Frequency: 10~55 Hz; single amplitude: 0.75 mm; 10 cycles in each of three directions	Appearance: no damage; contact resistance: 50 mΩ Max; power-off time: 1 μs Max
9	Mechanical Shock	The connector is soldered on the printed circuit board; acceleration: 100 G; shock time: 6 ms（half-sine wave）; cycle times: 3 times for each X, Y, Z axis, total 9 times （JIS C0041/MIL-STD-202 Method 213）	Appearance: no damage; contact resistance: 50 mΩ Max; power-off time: 1 μs Max
Environmental Performance			
10	Temperature Rising	Connect the sample to the corresponding FPC/FFC, measure the temperature rise of the contact point when passing the maximum rated mating current	Temperature rise: 30 ℃ Max
11	Solder Ability	Immerse the tip of the solder tail and positioning pin into molten solder at (245±5) ℃, immersion depth to 0.1 mm from the bottom of the housing, for (3±0.5) s	Wettability: more than 95% of the immersed area has no voids, pinholes and missing solder
12	Resistance to Reflow Soldering Heat	Preheating: 150~180 ℃ for (90±30) s; heating: minimum 230 ℃ for (30±10) s; peak temperature: (260±0/-5) ℃, duration ≤10 s; cycle times: 3 times	Appearance: no component deformation affecting performance
13	Thermal Shock	Temperature range: -45~+105 ℃; start from -45 ℃, keep constant temperature for 30 min, then switch to +105 ℃, transition time ≤30 s; total cycle times: 5 times	Appearance: no damage; contact resistance: 50 mΩ Max
14	Humidity-Temperature Cycle	Temperature (40±2) ℃, relative humidity 90~95% for 96 h; after the test, place the connector at room temperature for 1~2 h before testing （EIA-364-31A,Method Ⅱ,conditionA）	Appearance: no damage; contact resistance: 50 mΩ Max; insulation resistance:50 MΩ Min

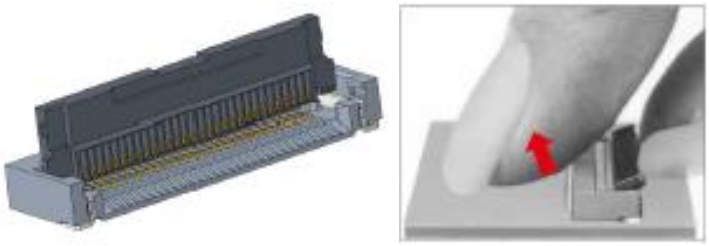
15	Temperature Life	The connector is in the mated state and placed at 105 ℃ for 96 h	Contact resistance: 50 mΩ Max
16	Salt Spray	Salt concentration: 5%, temperature: (35±2) ℃, test time: (24±2) h; after the test, rinse residual salt with clean water, wipe dry before measurement (EIA-364-26A Condition A)	Appearance: no damage; contact resistance: 50 mΩ Max

8. OPERATION AND PRECAUTIONS

(1).FPC/FFC Insertion

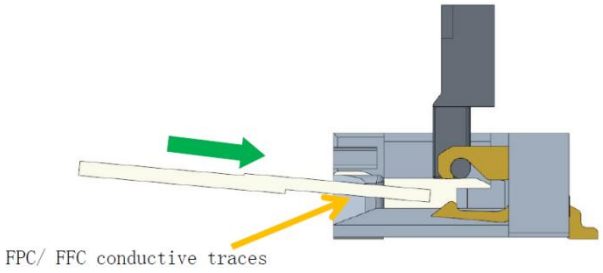
①Lift the actuator upward. (Lock release)

You can easily pop it up with the thumbnail or index-finger nail.

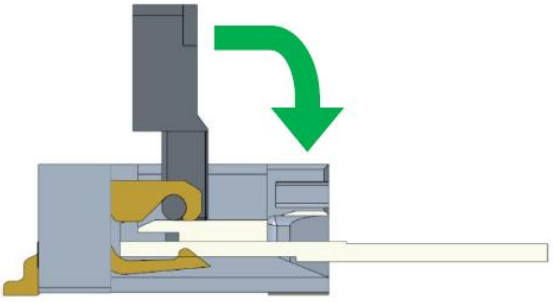


②Insert the FPC or FFC with the exposed conductive traces facing down.

When connecting a tabbed FPC/FFC, ensure that the FPC/FFC is inserted at an angle of approximately 10°with respect to the board surface and perpendicular to the connector.

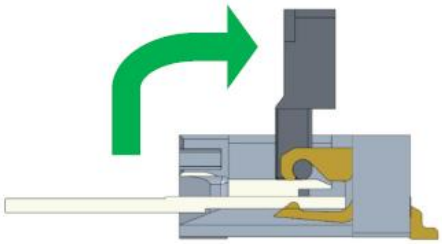


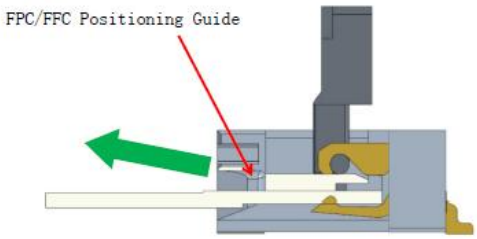
③Rotate down the actuator until firmly closed.



(2).FPC/FFC removal

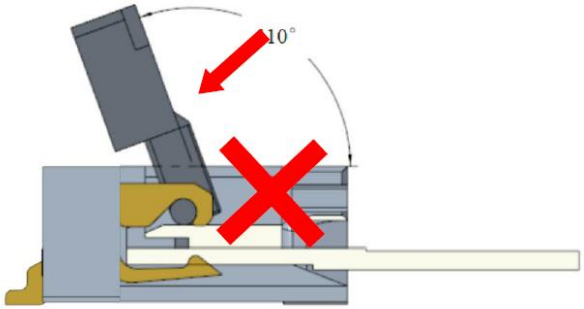
① Lift the actuator upward. After the lock has been released slightly lift up the FPC/FFC and pull it out.





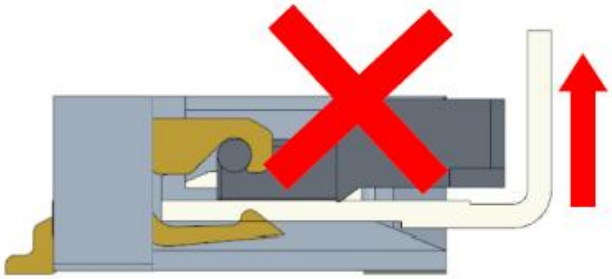
(3).Precautions

①The FFC05046 Series actuator does not rotate open beyond 110°. Do not apply a force to open it beyond this point. The actuator may come off or be permanently damaged.



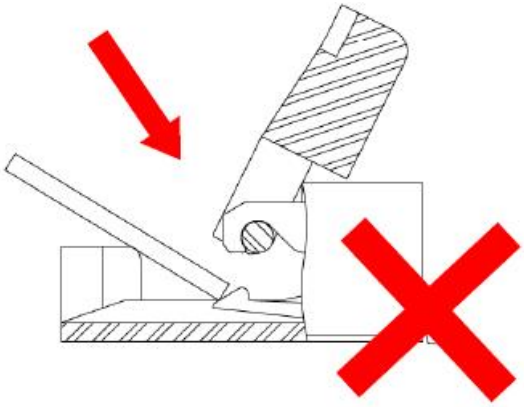
②The connector does not have a strong upward tensile strength due to its design.

Secure the FPC or FFC when it is subjected to a tensile force.



③When inserting an FPC or FFC, do not rub it vigorously against the bottom side of the connector opening.

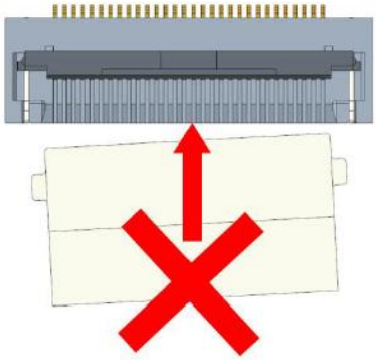
Excessive contact between the contacts and the FPC or FFC may result in the deformation of contacts, peeling of conductive traces, or other faults.

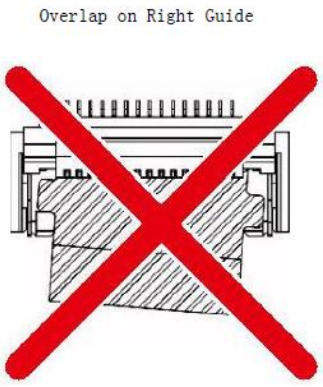


(4).Precautions when mating/ un-mating

①Avoid insertion in diagonal direction

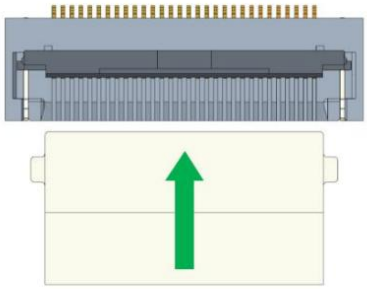
Do not insert the cable in diagonal direction.The corner of the cable may touch the contact, resulting in contact deformation.



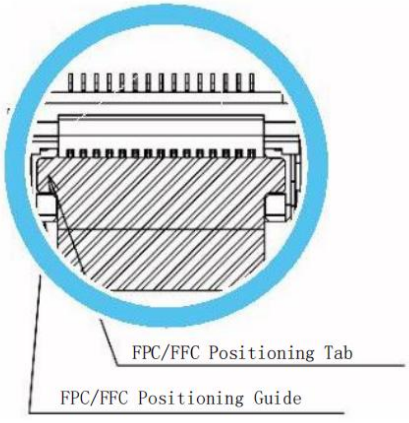


②Be sure to insert the FPC or FFC straight into the connector opening.

Correct Insertion



Perpendicular to the Connector



③Insert the cable so that the tabs align in the interspace between the mold walls on both ends of the cable insertion port and the guide walls on the insides of both sides of the connector.