

Product specification

1. Scope

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

Applicable Product Model: FFC05047 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 Voltage	50V AC
Rated Current	0.5A
Operating Temperature	-40°C~+105°C (including terminal temperature rise)

4. Appearance and Dimensions

4.1 Appearance: Product surface without defect, dirt, crack, and mechanical damage, Contacts without rust; plating without oxidation and peeling.

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

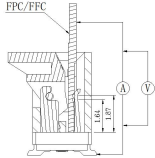
5. Materials

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)	-

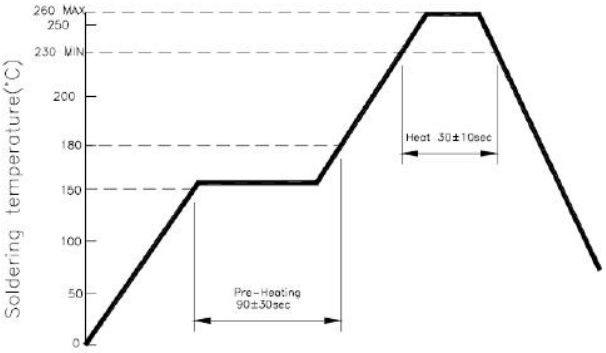
6. TEST CONDITION

The test and measurement, unless otherwise specified, shall be carried out at a temperature of 15 to 35°C, 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°C, 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	Apply 150 V AC voltage between adjacent circuits of the unmated connector for 1 min	No flashover or insulation breakdown
3	Contact Resistance	Connect the sample to the corresponding FPC, apply a limited current of 1 mA (DC or 1000 Hz) for impedance testing 	Contact Resistance: 50 mΩ Max
4	Insulation Resistance	Apply 100 V DC voltage between adjacent circuits of the unmate connector for 1 min to test insulation resistance	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

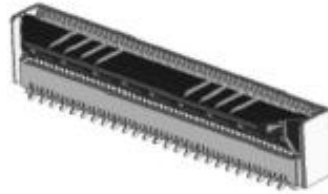
6	FPC/FFC Retention Force	After closing the Actuator and connecting with FFC/FPC, test the FFC/FPC pulling force at a speed of (25.4±3) mm/min	0.040kgf/PIN Min. (PIN<13) 0.030kgf/PIN Min. (PIN≥13)
7	Durability	Operation speed: maximum 10 times/min; durability cycle times: 20 times	Contact Resistance: 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: 50 G; shock time: 11 ms (half-sine wave) ; cycle times: 3 times for each X, Y, Z axis, total 9 times (JIS C0041/MIL-STD-202 Method 213)	
Environmental Performance			
10	Temperature Rising	Connect the sample to the corresponding FPC, measure the temperature rise of the contact point when passing the maximum rated mating current	Temperature rise: 30 °C Max
11	Solder Ability	Immerse the tip of the solder tail and positioning pin into molten solder at (245±5) °C, 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

<p>12</p>	<p>Resistance to Reflow Soldering Heat</p>	<p>Preheating: 150~180 °C for (90±30) s; heating: minimum 230 °C for (30±10) s; peak temperature: (260±0/-5) °C, duration ≤10 s; cycle times: 3 times</p> 	<p>Appearance: no component deformation affecting performance</p>
<p>13</p>	<p>Thermal Shock</p>	<p>Temperature range: -40~+105 °C; start from -40 °C, keep constant temperature for 30 min, then switch to +105 °C, transition time ≤30 s; total cycle times: 5 times</p>	<p>Appearance: no damage; contact resistance: 50 mΩ Max</p>
<p>14</p>	<p>Humidity-Temperature Cycle</p>	<p>Temperature (40±2) °C, 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, Condition A)</p>	<p>Appearance: no damage; contact resistance: 50 mΩ Max; insulation resistance: 50 MΩ Min</p>
<p>15</p>	<p>Temperature Life</p>	<p>The connector is in the mated state and placed at 105 °C for 96 h</p>	<p>Contact resistance: 50 mΩ Max</p>
<p>16</p>	<p>Salt Spray</p>	<p>Salt concentration: 5%, temperature: (35±2) °C, test time: (24±2) h; after the test, rinse residual salt with clean water, wipe dry before measurement (EIA-364-26A Condition A)</p>	<p>Appearance: no damage; contact resistance: 50 mΩ Max</p>

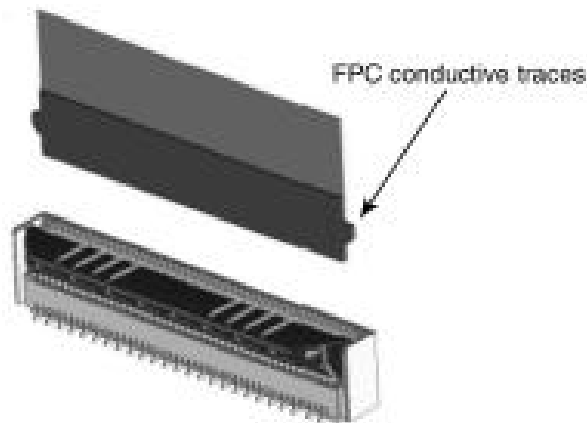
8. Operation and Precautions

8.1. FPC/FFC Insertion

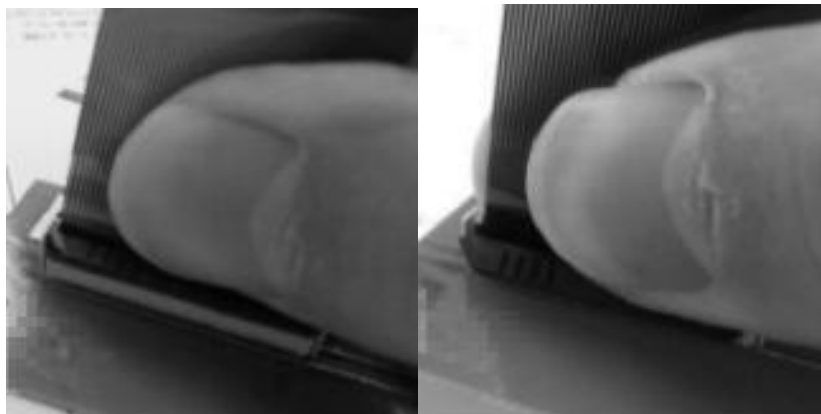
8.1.1 Verify that the actuator is positioned upright. If the actuator has rotated to the side, carefully rotate it upright.



8.1.2 Insert the FPC/FFC vertically in the connector slot assuring that the conductive traces of the FPC/FFC are facing away from the actuator.



8.1.3 Press down the actuator in the direction shown.



8.2. FPC/FFC removal

8.2.1 Rotate the actuator upward and withdraw the FPC/FFC.



8.3. Precautions

8.3.1 Avoid forcing the actuator up or down without the FPC/FFC inserted.



8.3.2 Application of excessive force to the inserted FPC may cause damage to connector and may affect the reliability of electrical connection.

Do not insert the FPC diagonally. Doing so will result in the corners of the FPC catching on the contacts and will cause deformation of the contacts.

8.3.3 Disengage the actuator to release the lock and extract the FPC/FFC (refer to the picture below). By utilizing your thumb and index finger, you can easily manipulate the actuator to disengage the lock.

During the design phase of the PCB layout, make sure to incorporate enough space to engage/disengage the actuator on this connector when inserting or removing the FPC.

