Standard Specifications

(The document is for reference only. We reserve the right to update it at any time without prior notice. Please contact the business department for the latest standards.)

FPC 0.5 pitch pull-type flat cable connector (SMT series)

0.5 pitch FPC/FFC

1. Scope

This specification covers the 0.5-pitch pull-out SMT series FPC/FFC connectors.

2. Order information:

A F 3 A XX B * S 0 T 1 0
1 2 3 4 5 6

1.AF3 Series		FPC 0.5mm pitch series
2.A		A-TYPE (Pull-out)
3.PIN number		4 ~ 60
4. Type	A	Top contact
	B	Lower contact
5.MARK	0 No MARK	1 ″ ZY″ MARK
6. Packaging method	T1 tube	P1 Disk Pack

3. Connector size

See the attached diagram

4. Materials

Plastic body	Glass-filled LCP
	Color: Natural
	Ignition point: (UL94V-0)
Plastic Cover	LCP Glass Filled
	Color: Black
	Ignition point: (UL94V-0)
Terminal	Phosphor bronze

a. Nickel plating thickness 40~60u
b. Gold plating on nickel with a thickness of 1u

5. Features:

Number of circuits: 4-60 valid circuits

Current: 0.4A (AC, DC)

Temperature range: -25℃+/85℃

Insulator withstand voltage: at least 200V (AC) per minute

Contact resistance: ≤20mΩ

Insulator impedance: ≥500MΩ

6. Reliability testing

6.1 Appearance:

-Detection methods: visual inspection or use of a tool microscope.

-Acceptable criteria:

No stains, no adhesion, no oxidation, no cracks, no mechanical damage, the mark must be clear.

6.2 Insertion & Pull-out Forces (FPC Connector)

Test steps/environment:

*Extract the FFC along the connector's central axis at a speed of 1-5mm per second. The extraction force refers to the maximum force required to separate the FFC from the connector.

*Sample preparation: paired, locked samples.

-Acceptable standards:

*Insertion force ≤1.5N/PIN

Initial extraction force ≥0.4N/PIN

10 draws force ≥0.3N/PIN

6.3 Retention Force (Terminal/Plastic Body)

*Terminal/plastic body

-Test steps/environment:

Withdraw a single contact along the central axis of the shielded housing at a speed of 1 to 5mm per second. The holding force is the maximum force measured when a single terminal is separated from the plastic body.

-Acceptable criteria:

Hold force ≥1.5N/PIN

* Welding sheet/plastic body

-Test steps/environment:

Withdraw individual welding sheets along the central axis of the plastic body at a speed of 1 to 5mm per second. The holding force refers to the maximum force measured when a single welding sheet is separated from the plastic body.

-Acceptable criteria:

Hold force ≥1.5N/PIN

6.4 Life:

-Detection steps/environment;

No power

* Insert or withdraw the test sample 20 times along the connector's central axis

-Acceptable criteria:

Contact resistance ≤40mΩ

6.5 Contact resistance:

-Test steps/environment:

*Detect current: 10mA

*Detect voltage: up to 20mV

* Connection between A and B

*Initial contact resistance ≤20mΩ

*After environmental testing, contact resistance ≤40mΩ

6.6 Insulator Impedance

-Test steps/environment:

* The detection point is located between any two plastic bodies and terminals.

* Detection voltage: 500V (AC)

*Time before detection: 60 seconds.

-Acceptable criteria:

The insulation resistance is ≥500 MΩ

6.7 Insulator voltage withstand test:

-Test steps/environment:

*Test voltage: 250V (AC)

*Delay: 60 seconds;

* No power failure or flash, no combustion caused by short circuit, no insulation damage.

6.8 Thermal shock

-Test steps/environment:

*Special preparation: paired connectors

* Low temperature: -25℃ (+2/℃-2℃)

* High temperature: +85℃ (+2℃/-2℃)

*Time: 3 minutes

*Number of times: 5

*Conversion time: ≤5 minutes

*Recovery time: 2 hours

This test operation complies with the GB5096.6_11d standard.

-Acceptable criteria:

*No functional impairment

*The maximum contact resistance is 40mΩ

6.9 High temperature test

-Test steps/environment:

*Special preparation: paired connectors

* Temperature: +85℃ (+2℃/-2℃)

*Time: 96 hours

This test operation complies with JISC0021 standard.

-Acceptable criteria:

*No functional impairment

6.10 Low temperature test

-Test steps/environment:

*Special preparation: paired connectors

* temperature ： -40℃

* Time: 96 hours.

This test operation complies with JISC0020 standard.

-Acceptable standards:

*No functional impairment

6.11 Humidity test:

-Check the step 'Environment:'

*Special preparation: paired connectors

* temperature ： -40℃

Relative humidity: 90% -95%

*Delay: 96 hours

This test operation complies with JISC0022 standard.

-Acceptable criteria:

*Contact resistance: up to 40mΩ

*Insulator resistance: minimum 500MΩ

Insulator withstand voltage: no power failure, no functional damage

6.12 Salt spray test

*Test steps/environment:

*Special preparation: paired connectors

* Temperature: 35℃ (+2℃/-2℃)

* Concentration: 5%

*Delay: 48 hours

After testing, the sample must be rinsed and dried

This test operation complies with the JISC0023 standard.

-Acceptable criteria:

*Contact resistance: up to 40mΩ

No exposed copper wire, no severe corrosion

6.13 Weldability

-Test steps/environment:

*Temperature: 250℃ (+5/℃-0.5) seconds

*Time: 2 (0.5/-0.5) seconds

This test operation complies with GB5096.6-12A standard.

-Acceptable criteria:

The terminal can be soldered, and the soldered area must cover 90% of the total area

6.14 Anti-welding heat

-Test steps/environment:

(Operational testing shall comply with GB5096.6-12B standard)

*Temperature: 250℃ (+5/℃-0.5) seconds

*Delay: 10 (+0.5/-0.5) seconds

-Acceptable standards:

No functional impairment

6.15 Flame retardancy

-Test procedure//Environment: (This test operation complies with UL94V standard)

*The material complies with UL94V-0 standard. (See attachment)

The attachment is the material certificate of the sample provided to the customer.