

FPC and FFC Connector Use Hand Book

1. FPC and FFC Specifications

FPC: Flexible Printed Circuit

FFC: Flexible Flat Cable

1-1. FPC and FFC Dimensions

FPC and FFC dimensions have a large influence on connectors and contact reliability. Dimensions should follow the FPC and FFC recommended dimensions that are contained in the catalog pages of the various products.

1-2. Stiffener

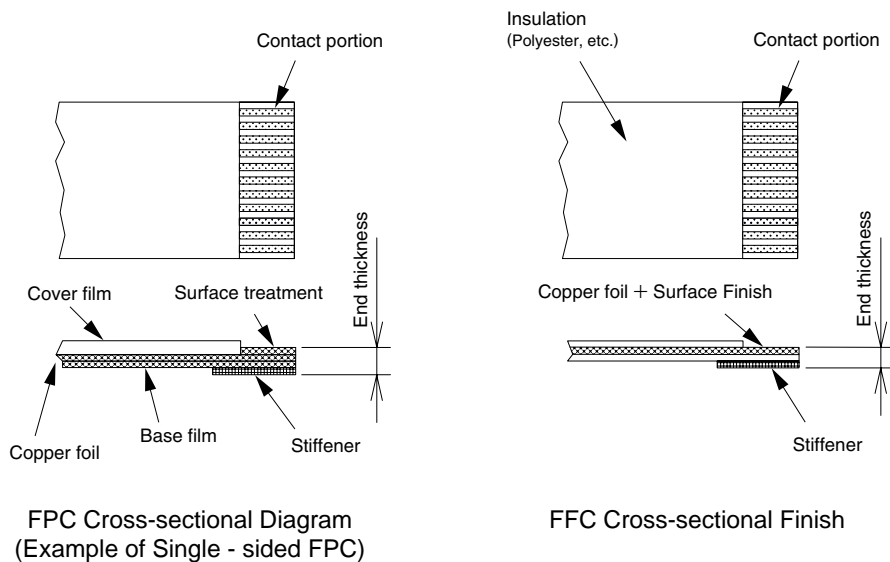
The quality and thickness of the Stiffener influences contact reliability. Please observe any instructions in the FPC/FFC recommended dimensions of the catalog.

– Examples of Listing –

- Use polyamide and heat-hardened adhesive for the FPC reinforcement material.
- The FPC/FFC Stiffener thickness should be 0.188 mm (7.5 mil) min.

1-3. FPC/FFC Contact Portion Surface Finish

Hirose Electric's standard plating specification for FPC and FFC connectors is Tin-lead plating. Please use either tin plating or Tin-lead plating for the surface finish of FPC and FFC contact portions. When the FPC/FFC connector is of a gold plating standard, please use gold plating for the surface finish of FPC and FFC contact portions. The combination of Tin-lead plating and gold plating causes the contacts to corrode resulting in a poor contact and should be avoided.



2. Handling of FPC and FFC

2-1. Handling of the FPC/FFC Contact Portion

Please be careful not to touch the contact portion since doing so will cause corrosion and result in poor contact. Also please make efforts so that dust and foreign material does not adhere to the FPC/FFC contact portion when disconnecting and connecting to the connector.

2-2. Bending FPC and FFC

When FPC/FFC is folded or bent in an application, please follow the recommended conditions of the FPC/FFC manufacturer to avoid problems such as disconnection, etc.

3. Ratings, Operation, and Storage Conditions

3-1. Operation and Storage Conditions

The operation and storage conditions which appear in the catalog pages of the various products, are as described below.

Operation temperature (humidity) range: Conditions on the board regardless of whether or not current is supplied.
Storage temperature (humidity): Packaged condition prior to board mounting.

3-2. Ratings

The rated current which appears in the catalog pages of the various products, represent the allowable current per contact; however, when all contacts will be carrying current, they should be used at 70% of the listed rating. If the FPC/FFC operation conditions and ratings are lower than those of the connector, then use the FPC/FFC conditions.

4. Surface Mounting Precautions

4-1. Temperature Profile and Metal Mask Thickness

The "Recommended Temperature Profile" which appears in this catalog is a recommendation for the temperature conditions at the time of mounting. This task should be performed after checking the mounting conditions since it can change depending on a variety of conditions (including the volume of the reflow layer and the size of the board).

4-2. Metal Mask Thickness

The metal mask thickness which appears in this catalog is a recommendation for thickness of the metal mask that determines the thickness of the solder paste. This task should be performed after checking the mounting conditions since it can change depending on a variety of conditions (including the type and the amount of solder paste).

4-3. Performing Reflow Twice

Performing the reflow twice is permitted using the recommended temperature profile of the FPC/FFC connectors; however, the second reflow cycle should be performed after returning the product to room temperature following the first reflow.

4-4. Silk Screen Printing

When there is silk screen printing on the PCB under the connectors, the connectors will be raised by that thickness and this may make soldering difficult. In view of this, care should be taken so that silk screen printing is not applied at the bottom portion of the connectors.

4-5. Changes in Color After Reflow

The molded material may slightly change color after reflow if the reflow temperature is too high.

This color change is not a quality concern, however, the temperature should be checked.

5. Cleaning recommendations

5-1. Organic Solvent Cleaning

| Solvent type | Normal Temperature Cleaning | Heated Cleaning |
|-----------------------------------|-----------------------------|-----------------|
| IPA (Isopropyl alcohol) | ✓ | ✓ |
| HCFC (Hydrochlorofluorocarbon) | ✓ | ✓ |

5-2. Water Based Cleaning

When using aqueous type cleaning agents (e.g., terpene, and alkali saponifiers), select the cleaning agent based on the documentation issued by the various manufacturers of cleaning agents which describes the effects on metals and resins. Please be careful that parts are not left with moisture remaining on them.

5-3. Cleaning Precautions

Residual flux or cleaning agent on the connectors when washing with organic solvents or aqueous type cleaners can give rise to the deterioration of electrical performance. In this regard it is important to check whether a thorough washing has been performed.

6. Connector Packaging

Depending on the product, packaging of FPC/FFC connectors is available in embossed tape packaging and tube packaging. Sales quantities will differ depending on the packaging.

(1) Embossed tape packaging

Product will be shipped by the reel unit so we request that orders be placed in number of reels. The quantity per reel will differ according to the product and this information appears on the corresponding pages of this catalog.

(2) Tube packaging

Some products are shipped in tube packaging with a specific number of product per tube. This tube quantity will differ according to the product and this information is listed in the catalog.

Examples: For a tube packaging quantity of 39 pieces, please order 39 pieces, 78 pieces, 117 pieces, etc.