DF12N Series Guideline

	承認	WR.FUKUCHI	20210922
	査閲	TS.MIYAZAKI	20210922
	担当	RT.OSAKI	**20210922**

REVISIONS			RevNo **0**
担当	査閲	承認	DATE

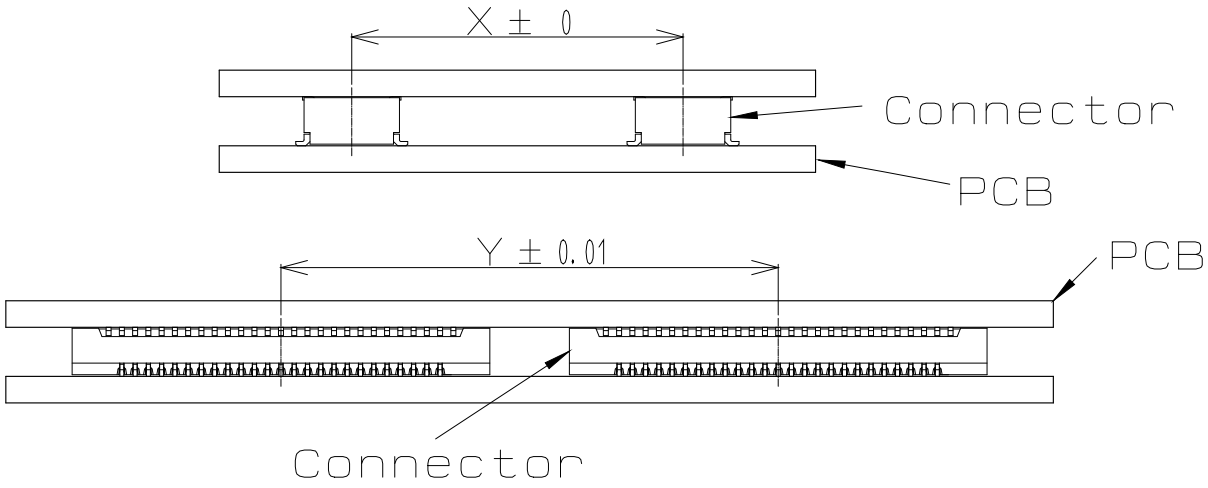
TABLE OF CONTENTS

1 Design requirements

1.1 Mechanical requirements

1.1.1 When using two sets connectors

When using two sets of connectors on one board, the following mounting accuracy is required.



As mentioned above, very tight tolerances are required.
It is impossible to satisfy this tolerance in consideration of the board and mounting accuracy. Therefore, the use of more than one set of connector on a single board is prohibited.
When using two sets or more of connectors, please use the divided board for the one side.

1.1.2 Precautions for PWB to PWB connection

In order to connect PWB to PWB, precision of necessary components and mounter or screw fitting is required, and direct stress to the connector is avoidable. Avoid fixing PWBs with connecters only, and stabilize them with other tools.
Keep connector warpage within 0.02 mm in connector longitudinal direction.

1.2 PWB requirements

- Solder wicking and flux penetration could occur by applying different PWB layout from the recommended. Please contact us for the different PWB pattern from the recommended PWB layout.

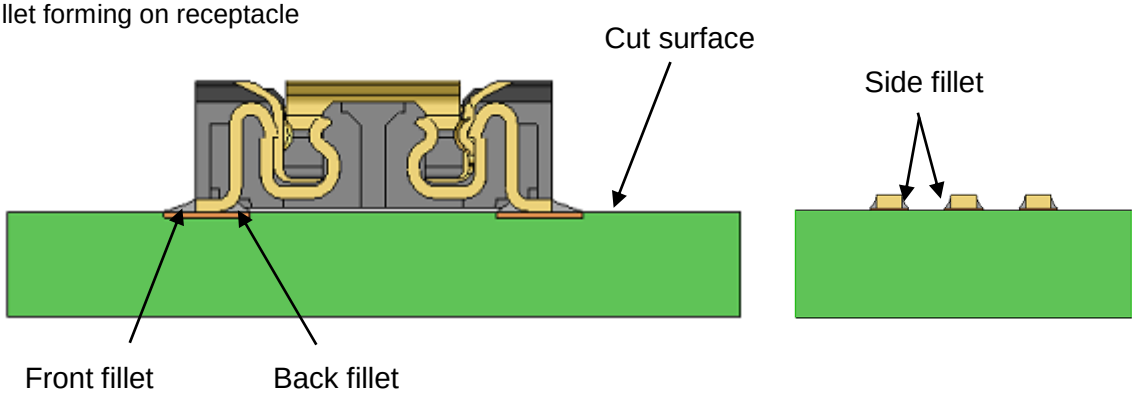
- Although standoff is provided, interference to the connector body by pattern, via hole and solder resist beneath the connector may cause solder defects and poor fillet formation.

2 Mounting requirements

2.1 Fillet forming

For the judgment of fillet forming quality, check side fillet forming as an indication.

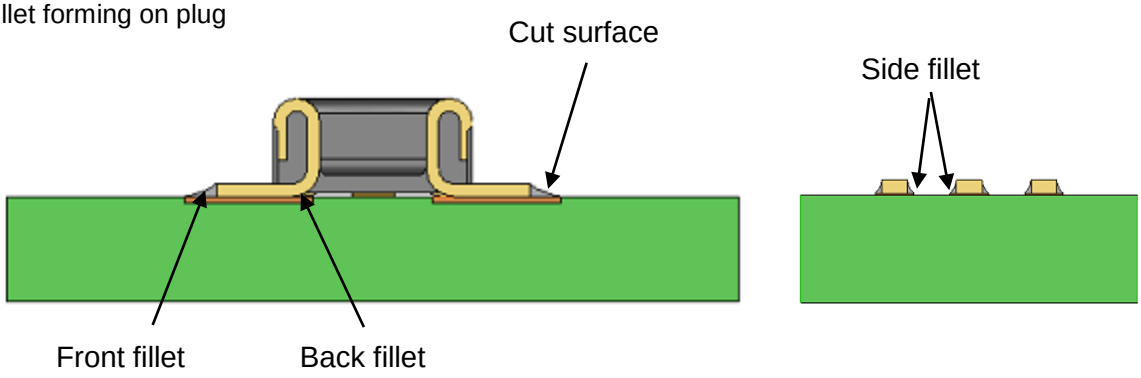
Fillet forming on receptacle



※The illustration is for a representative product

Recommended condition is that fillet thickness is one third of contact thickness (0.20 mm) or more, and solder is wetted completely.

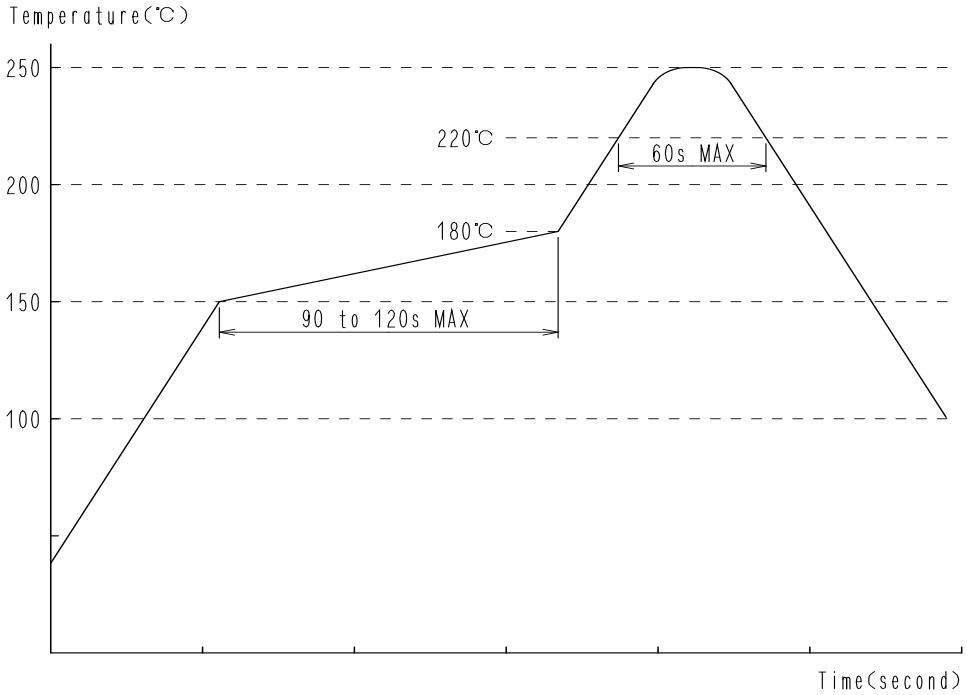
Fillet forming on plug



※The illustration is for a representative product

Recommended condition is that fillet thickness is one third of contact thickness (0.25 mm) or more, and solder is wetted completely.

2.2 Reflow profile



1) Temperature measuring point
The temperature indicates the PWB surface temperature at the connector lead area.
2) Reflow cycles
Up to 2 cycles of reflow soldering are acceptable under the recommended reflow profile of DF40 Series.
3) Reflow heating method and condition
Far-infrared heater and hot convective blowers used in combination, normal atmosphere, or nitrogen atmosphere.
Please contact us for oxygen density in nitrogen atmosphere reflow.
4) For the printing of soldering paste, screen printing method is recommended.

2.4 Repairing (hand soldering)

Repairing condition:
- Soldering iron 350 °C, 3 seconds MAX.

Notice:
- Do not apply stress to the terminals.
- Avoid touching housing with a soldering iron.

3 Connector handling requirements

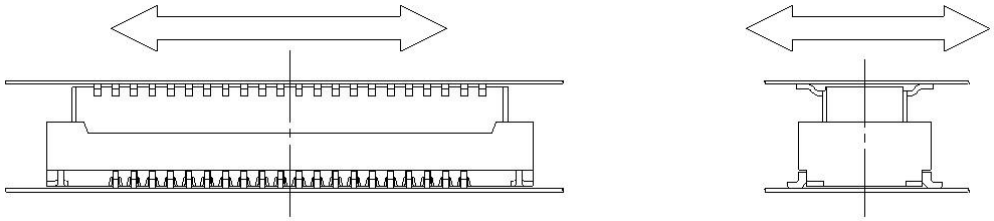
3.1 Connector mating operation

Make sure to mate DF12N Series connectors by hands.

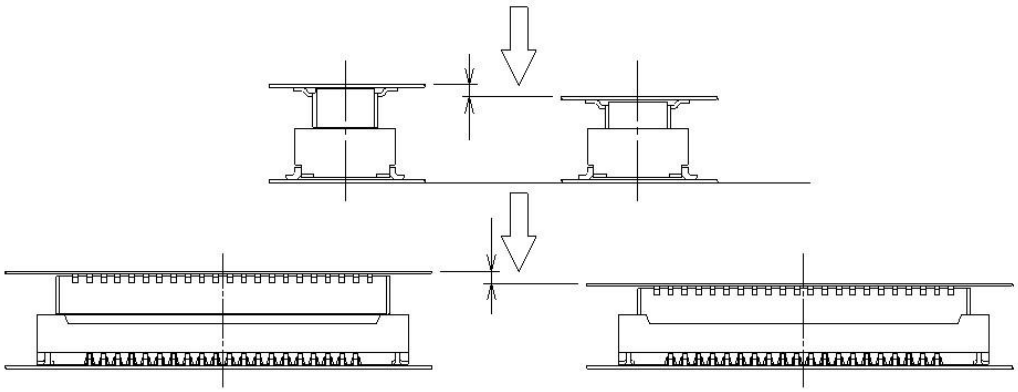
Mating procedures

1) Feel for the mating guide with hands to locate the connectors in the appropriate mating position.

Self-alignment of X direction = 0.2mm Self-alignment of Y direction = 0.2mm



2) When positioned, the connector is led into the mating pair by self alignment function.

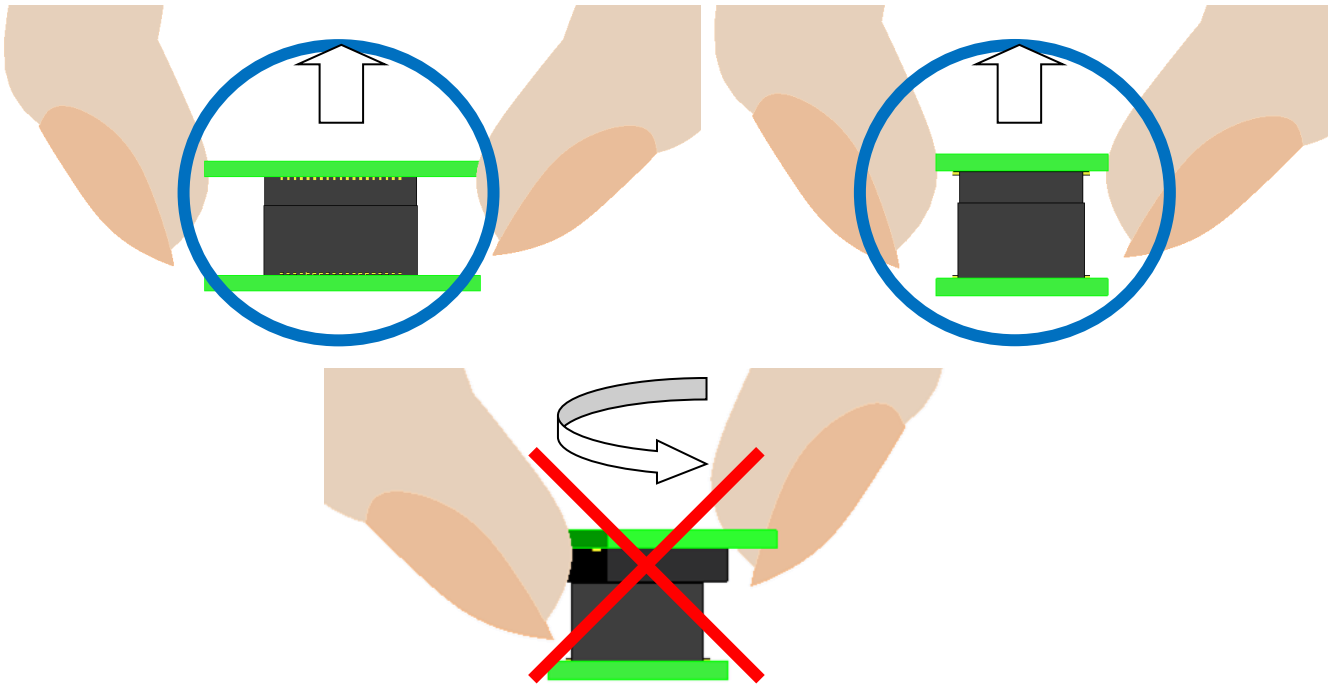


3) Once aligned, the connector pair does not move back and forth and around as they are located in a parallel position. Mate the connectors completely by applying force in this condition.
We recommend to push the connector with two fingers for 50 pins or more to press down the whole connector evenly. One end might not be inserted enough to result in half mating for high pin counts.

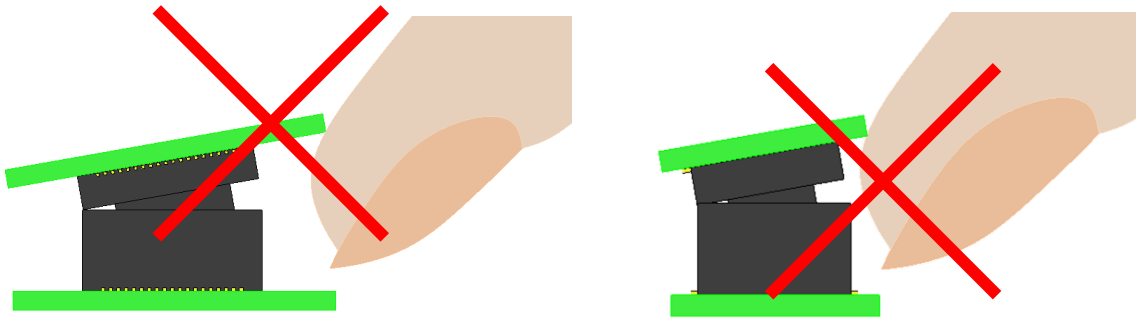
4) Make sure that the connectors are mated completely. When the PWBs are not parallel, unmate the connector, and then mate them again according to the above procedures from the beginning.

3.2 Connector unmating operation

1) It is desirable to unmate the connector vertically to the mounted surface.
If you pull it out by twisting it, the case may be damaged.
It is desirable to pull it straight out.



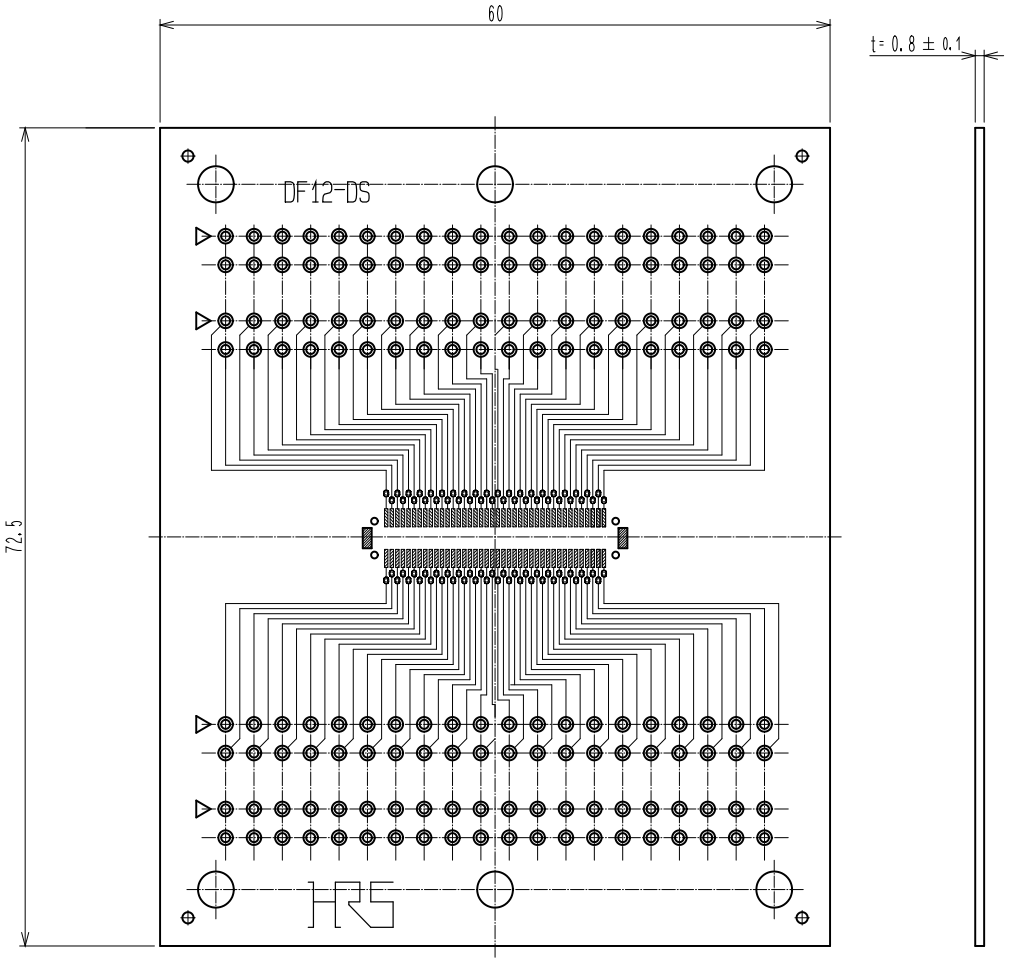
2) Do not unmate the connector in connector width direction and pitch direction otherwise the contacts could receive great stress.



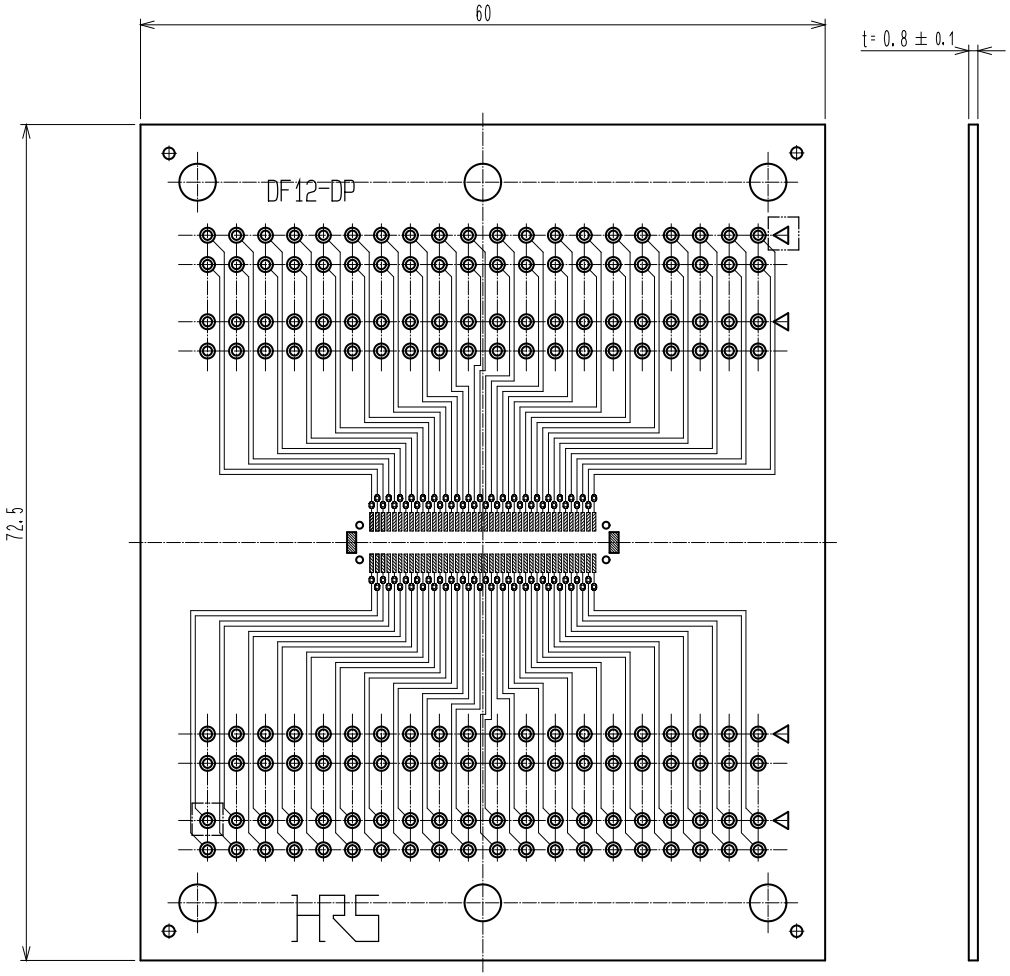
4 PWB and solder paste applied for evaluation test

4.1 PWB applied for evaluation test

Glass epoxy board for receptacle



Glass epoxy board for plug



4.2 Solder paste applied for evaluation test

Lead-free solder paste manufactured by Senju Metal Industry Co., Ltd.
M705-GRN360-K2-V

5 Additional information

5.1 PWB cleaning

1) Control the cleaning liquid in order not to contaminate the connector contact area by cleaning liquid.
2) Some cleaning liquid is too strong and may dissolve connectors. Cleaning liquid made from pure water is recommended. Before using other cleaning liquid, please contact us.
3) Alcohol cleaning could make the connector housing white.

5.2 PWB handling

In the operation which could give stress to the mounted connector, including cutting or bending PWB, keep soldering area from mechanical stress.

5.3 Connector storage

1) This product is equivalent to JEDEC / MSL 1 and does not require processing such as baking, but please control it at the storage temperature listed in the product standard table.
2) Depending on the production LOT of the connector, its housing color could be varied, or ultraviolet during storage changes connector surface color. However, these color differences do not affect the connector performance.
3) During PWB assembly and module assembly, make sure not to apply excessive stress to the stored connectors.
4) Avoid storing connectors in dusty area, or it could cause contact failure.