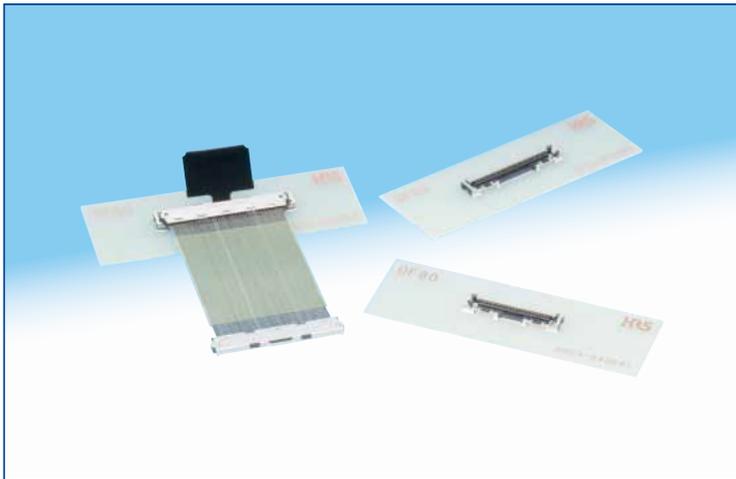


NEW

0.5mm Pitch, Vertical Connection Board-to-Micro Coaxial Cable Connectors

DF80 Series



Excellent mating workability

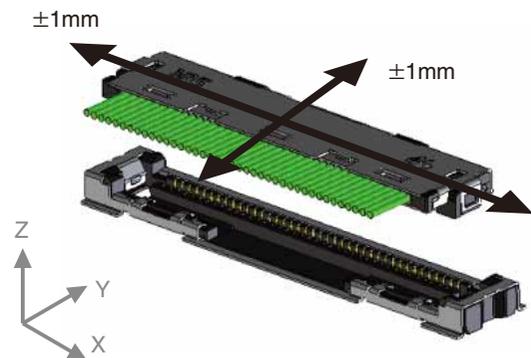


Figure 1

■ Features

1.High speed signal connector

With its excellent signal characteristics, this series conforms to ver 1.2 of eDP™ [Embedded DisplayPort™] with 2.7 Gbps and 5.4 Gbps signal transmission speed.

2.Space saving and low mated height

Designed to be a space saving connector, it features a 0.5mm pitch, low mated height, single row contact arrangement and vertical connection type.

3.Excellent mating workability

The mating position can be easily identified visually and has a long insertion guide for mating. The length of the guide is $\pm 1\text{mm}$ (Fig. 1)

4.Highly reliable contact structure

The DF80 series utilizes its effective contact length of 0.5mm and its pinching type 2 point contacting structure, to ensure high contact reliability. (Fig. 2)

5.Effective Shielding Enhanced

Utilizing multiple contact areas between the plug shell and the receptacle shell provides stability and contact reliability. (Fig. 3)

6.Durable plug structure

The metal shell is comprised of two sheets to cover up the plug and form a rigid structure.

7.Secure lock structure with a tactile click

A tactile click ensures that the lock function has been completed and the actuator is secured. This structure also delivers excellent lock retention.

8.Adaptable Structure

The structure was designed to allow a pull tab to be utilized to aid in the removal of the connectors.

9.Halogen free and RoHS Compliant

Chlorine and Bromine are not used in amounts that exceed the standard values in these connectors.

*Defined according to IEC 61249-2-21

Br: 900ppm or less, Cl: 900ppm or less and (Br + Cl): 1,500ppm or less

High contact reliability

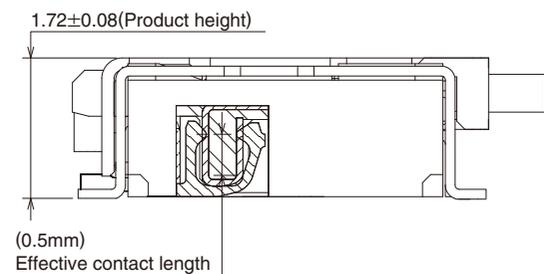
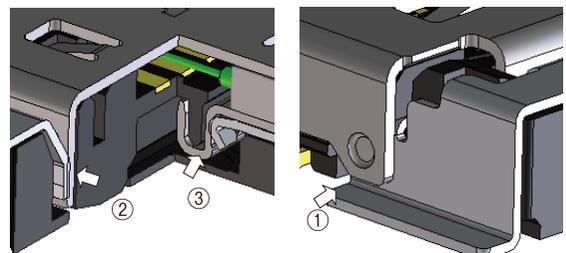
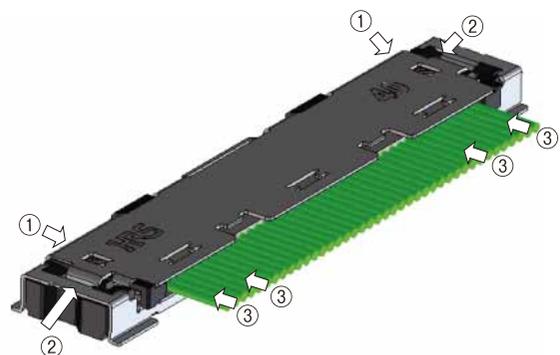


Figure 2

Enhancement of shielding effectiveness



Many ground springs are used (8 locations)

Figure 3

Product specification

| | | | | | |
|---------|----------------|---|----------|---|--|
| Ratings | Current rating | [Discreet cable] AWG32 : 0.5A AWG36 : 0.35A [Micro coaxial cable] AWG40 : 0.2A AWG42 : 0.2A AWG44 : 0.15A AWG46 : 0.1A | (Note 3) | Operating temperature range Operating humidity range | -35 - 85°C (Note 1) 20 - 80% |
| | Voltage rating | AC/DC 50V | | Storage temperature range Storage humidity range | -10 - 60°C (Note 2) 40 - 70% (Note 2) |

| Items | Specifications | Condition |
|--|--|--|
| 1. Insulation resistance | 50MΩ min. | Measured at DC 100V |
| 2. Withstanding voltage | No flashover and insulation breakdown | AC 150V for one minute |
| 3. Contact resistance | Signal: 80mΩ max. GND: 80mΩ max. | Measured at 100mA (DC or 1000Hz) |
| 4. Vibration resistance | No electrical discontinuity of 1 μs or more | Frequency: 10 to 55Hz, single amplitude of 0.75mm, 3 directions, 10 cycles for each direction |
| 5. Humidity resistance | Contact resistance (amount of variation from the start): 50mΩ max. Insulation resistance: 25MΩ min. | Exposed for 96 hours at the temperature of 40±2°C and the humidity of 90 to 95% |
| 6. Temperature cycle | Contact resistance (amount of variation from the start): 50mΩ max. Insulation resistance: 25MΩ min. | (-55°C: 30 minutes → 5 to 35°C: 2 to 3 minutes → 85°C: 30 minutes → 5 to 35°C: 2 to 3 minutes) 5 cycles |
| 7. Number of mating and un-mating cycles | Contact resistance (amount of variation from the start): 50mΩ max. | 30 mating and un-mating cycles |
| 8. Resistance to soldering heat | No melting of resin part that affects to performance | Reflow: At the recommended temperature profile Manual soldering: The temperature of the soldering iron of 350°C for 3 seconds |

(Note 1) This shall include the temperature rise caused by current flow.

(Note 2) The term "storage" refers to products stored for long period of time prior to mounting on the board and use. The operating temperature and humidity range covers the non-conducting conditions of connectors after being mounted on the board and the temporary storage conditions during transportation.

(Note 3) Current rating shall be set according to the value of the temperature rise of only connector part.

(Note 4) The specification shown above represents general requirements for this series. Please refer to "Delivery Specification" for a specific official agreement.

Material

| Product | Part | Material | Finish | Specification |
|------------|-------------------|----------------------------------|-------------|---------------|
| Receptacle | Insulator | LCP (Liquid Crystalline Polymer) | Black color | UL94V-0 |
| | Contacts | Phosphor bronze | Gold plated | ———— |
| | Metal fitting | Phosphor bronze | Tin plated | ———— |
| Plug | Insulator | LCP | Black color | UL94V-0 |
| | Contacts | Phosphor bronze | Gold plated | ———— |
| | Outer metal shell | Stainless steel | Tin plated | ———— |
| Shell | Outer metal shell | Stainless steel | Tin plated | ———— |

Ordering information

Please use the information below when identifying the specification of the product based on the numbering.

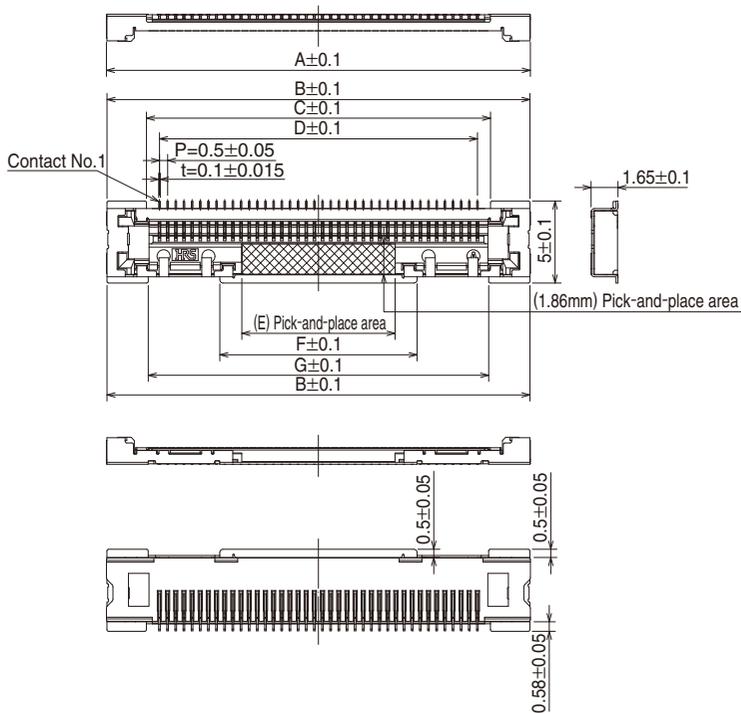
Please select a product based on the ordering information described on page 4 to 8 of this catalog when ordering.

Connector

DF **80** - ***** **S** - **0.5** **V** (******)
 ① ② ③ ④ ⑤ ⑥ ⑦
DF **80** - ***** **P** - **SHL**
 ① ② ③ ④ ⑧

| | |
|---|--|
| ① | Series name: DF |
| ② | Series number: 80 |
| ③ | Number of contacts: 30, 40 and 50 |
| ④ | Connector type S: Receptacle P: Plug |
| ⑤ | Contact pitch: 0.5mm |
| ⑥ | Termination type V: Straight SMT SD: Micro coaxial cable plug |
| ⑦ | Packaging type (51): Embossed tape packaging product |
| ⑧ | Attached parts SHL: Outer metal shell |

■ Receptacle (SMT)



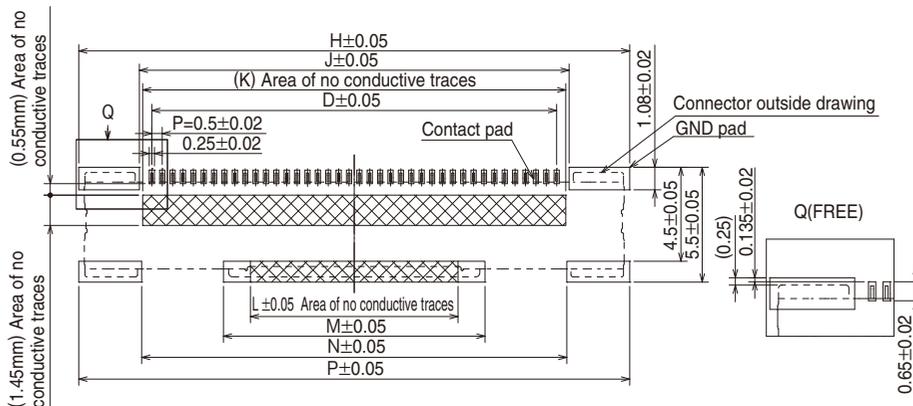
[Specification number] -**, (**)
(51): Embossed tape packaging

Unit: mm

| Part number | HRS No. | Number of contacts | A | B | C | D | E | F | G |
|-------------------|------------------|--------------------|-------|-------|-------|-------|-------|-------|-------|
| DF80-30S-0.5V(**) | CL662-8004-0-**- | 30 | 21.00 | 20.94 | 16.10 | 14.50 | 4.40 | 7.10 | 15.88 |
| DF80-40S-0.5V(**) | CL662-8001-2-**- | 40 | 26.00 | 25.94 | 21.10 | 19.50 | 9.40 | 12.10 | 20.88 |
| DF80-50S-0.5V(**) | CL662-8007-9-**- | 50 | 31.00 | 30.94 | 26.10 | 24.50 | 14.40 | 17.10 | 25.88 |

(Note 1) Please order by number of reels for embossed tape packaging products. (5,000 pieces per reel)

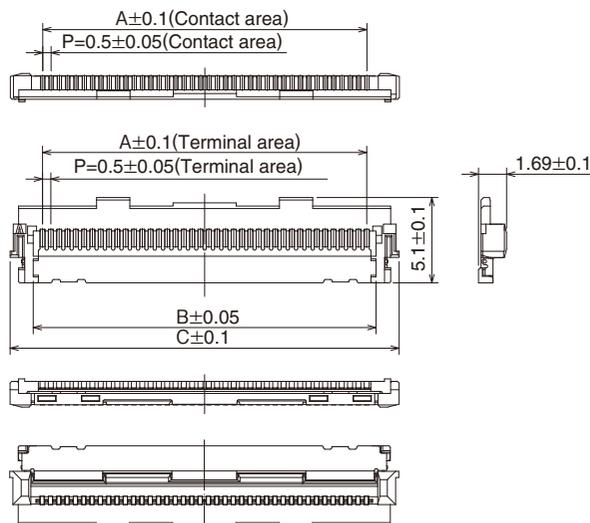
◆ Recommended Pattern Drawing



Unit: mm

| Part number | HRS No. | Number of contacts | H | J | K | D | L | M | N | P |
|-------------------|------------------|--------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| DF80-30S-0.5V(**) | CL662-8004-0-**- | 30 | 21.54 | 15.70 | 15.38 | 14.50 | 5.00 | 7.60 | 15.48 | 21.54 |
| DF80-40S-0.5V(**) | CL662-8001-2-**- | 40 | 26.54 | 20.70 | 20.38 | 19.50 | 10.00 | 12.60 | 20.48 | 26.54 |
| DF80-50S-0.5V(**) | CL662-8007-9-**- | 50 | 31.54 | 25.70 | 25.38 | 24.50 | 15.00 | 17.60 | 25.48 | 31.54 |

Plug



[Specification number] -**, (**)
(51): Embossed tape packaging

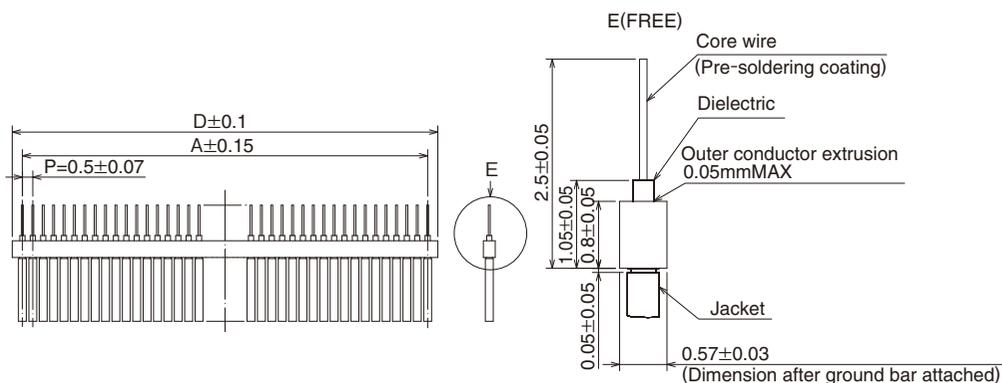
Unit: mm

| Part number | HRS No. | Number of contacts | A | B | C | D |
|--------------------|-----------------|--------------------|-------|-------|-------|-------|
| DF80-30P-0.5SD(**) | CL662-8005-3-** | 30 | 14.50 | 15.62 | 18.40 | 15.48 |
| DF80-40P-0.5SD(**) | CL662-8002-5-** | 40 | 19.50 | 20.62 | 23.40 | 20.48 |
| DF80-50P-0.5SD(**) | CL662-8008-1-** | 50 | 24.50 | 25.62 | 28.40 | 25.48 |

(Note 1) Please order by number of reels for embossed tape packaging products. (5,000 pieces per reel)

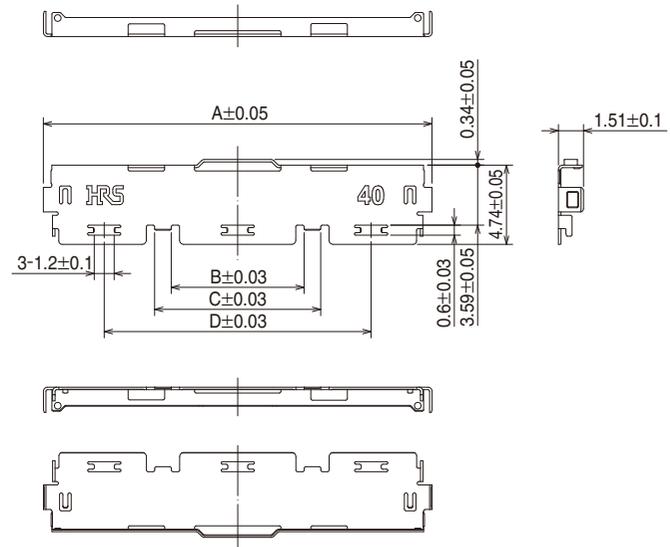
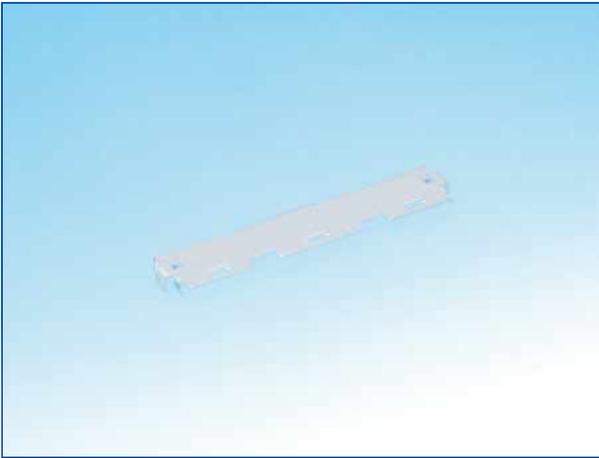
(Note 2) The outer metal shell (DF80-*P-SHL) is required for fine coaxial cable termination.

Recommended fine coaxial cable preparation



(Note 1) Core conductor requires pre-soldering (lead free) treatment.

Outer metal shell



Unit: mm

| Part number | HRS No. | Number of contacts | A | B | C | D |
|--------------|--------------|--------------------|-------|-------|-------|-------|
| DF80-30P-SHL | CL662-8006-6 | 30 | 18.40 | 4.50 | 6.50 | 11.07 |
| DF80-40P-SHL | CL662-8003-8 | 40 | 23.40 | 8.00 | 10.00 | 16.07 |
| DF80-50P-SHL | CL662-8009-4 | 50 | 28.40 | 10.00 | 12.00 | 21.07 |

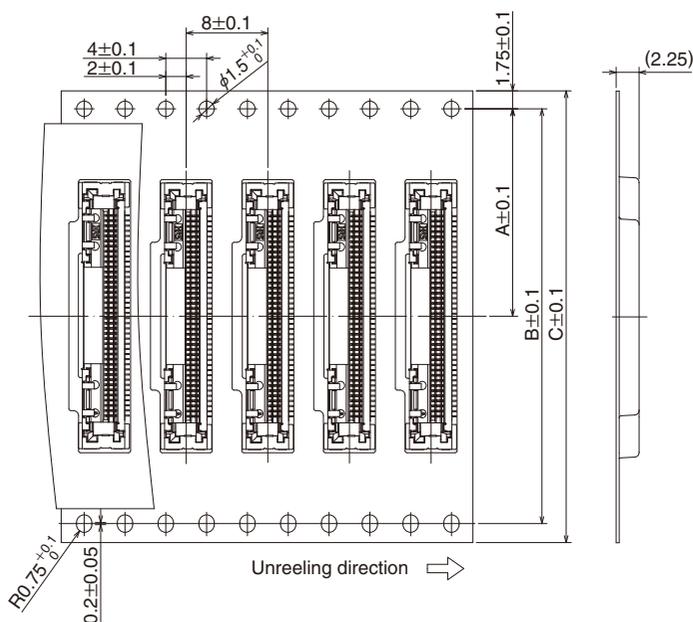
(Note 1) Amount of sale is by number of reels. Please order by number of reels. (10,000 pieces per reel)

Precautions for use

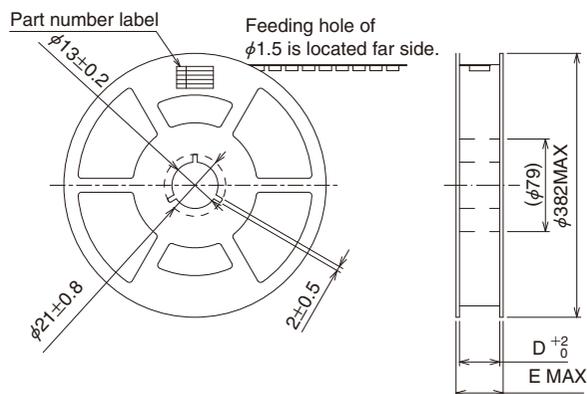
| | |
|---|--|
| 1. Recommended temperature profile (Applicable to temperature profile for lead free mounting) | <p>Applicable conditions</p> <ol style="list-style-type: none"> 1. Peak temperature : 250°C max. 2. Heating : 220°C min. for 60 seconds max. 3. Pre-heating : 150 to 180°C for 90 to 120 seconds 4. Number of cycles : Up to 2 cycles <p>* Solder composition : Sn-3Ag-0.5Cu</p> <p>(Note 1) Values in this temperature profile are one of the recommendations.</p> |
| 2. Recommended manual soldering conditions | Temperature of the soldering iron: 350°C max. Soldering time: 3 seconds max. |
| 3. Recommended screen thickness and open area ration (Pattern area ratio) | Thickness: 0.1mm Open area ratio: Lead terminal: 100% Ground terminal: 100% |
| 4. Board distortion | Maximum of 0.02mm at the center of the connector with both ends of the connector as reference points |
| 5. Cleaning conditions | IPA (Isopropyl Alcohol) cleaning is permitted. (Cleaning is not recommended as it may change the feel of the mating and un-mating of the connector. Please contact your Hirose sales representative for information if you plan to use any other cleaning agents.) |

◆ Embossed carrier tape dimensional drawing (In accordance with JIS C 0806)

● Receptacle



● Reel status dimensional drawing

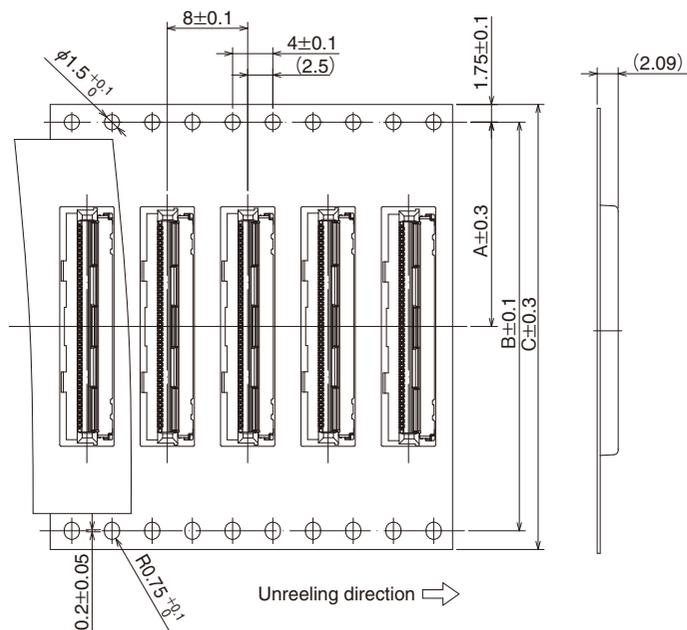


Unit: mm

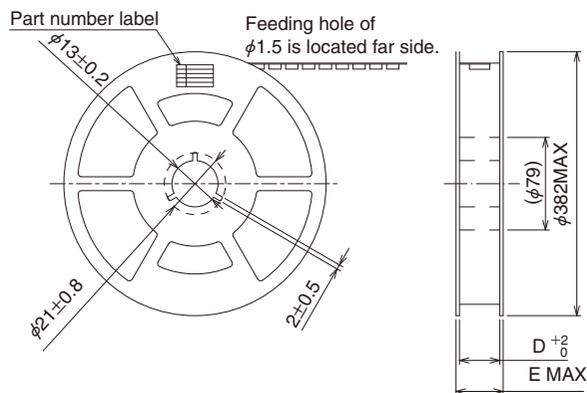
| Part number | HRS No. | Number of contacts | A | B | C | D | E |
|-------------------|-----------------|--------------------|------|------|------|------|------|
| DF80-30S-0.5V(51) | CL662-8004-0-51 | 30 | 20.2 | 40.4 | 44.0 | 44.4 | 50.4 |
| DF80-40S-0.5V(51) | CL662-8001-2-51 | 40 | 20.2 | 40.4 | 44.0 | 44.4 | 50.4 |
| DF80-50S-0.5V(51) | CL662-8007-9-51 | 50 | 20.2 | 40.4 | 44.0 | 44.4 | 50.4 |

◆ Embossed carrier tape dimensional drawing

● Plug



● Reel status dimensional drawing



Unit: mm

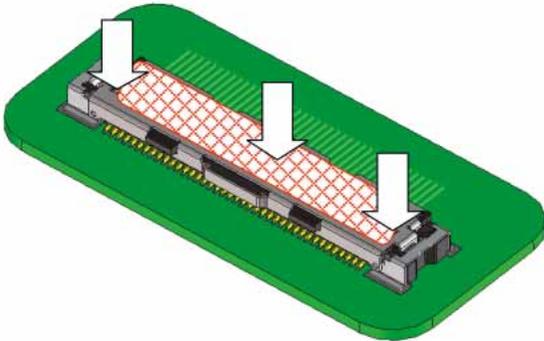
| Part number | HRS No. | Number of contacts | A | B | C | D | E |
|--------------------|-----------------|--------------------|------|------|------|------|------|
| DF80-30P-0.5SD(51) | CL662-8005-3-51 | 30 | 20.2 | 40.4 | 44.0 | 44.4 | 50.4 |
| DF80-40P-0.5SD(51) | CL662-8002-5-51 | 40 | 20.2 | 40.4 | 44.0 | 44.4 | 50.4 |
| DF80-50P-0.5SD(51) | CL662-8008-1-51 | 50 | 20.2 | 40.4 | 44.0 | 44.4 | 50.4 |

◆ Precautions for use

Alert notes

■ Mating insertion operation

- When inserting the plug, press straight down on the entire surface of the plug into place.
- Please note that inserting the plug while holding the terminal cable may cause an inclined insertion and may result in breakage of the connector.

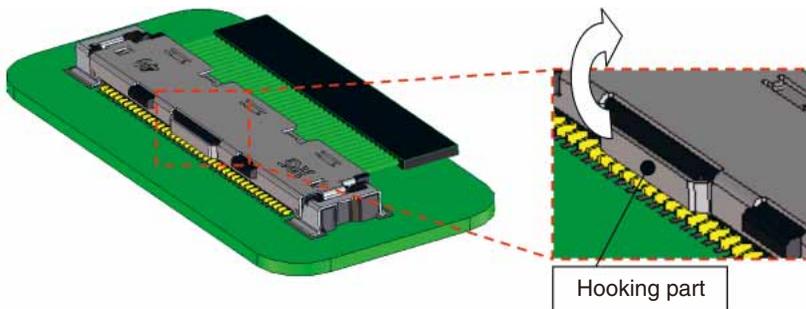


■ Removal operation

- There are two ways to remove the plug. [Removing it with your fingers or pulling it out with a pull tab]
- Do NOT pull-out the plug while holding the terminal cable. It may cause a disconnection of the cable and breakage of the connector.

[Removing with fingers]

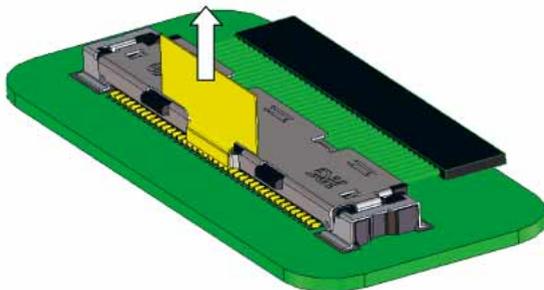
To un-mate the plug with your fingers, lift up the hooking part that is installed on the metal shell of the plug connector.



- Please be careful when trying to manipulate the hooking part as it is made of metal and it may hurt your finger or damage your finger nail.

[Removal via the pull tab]

Un-mate the plug by pulling-out the pull tab, installed on the plug connector, toward the direction of arrow (in a vertical direction).



- Do NOT insert or pull-out the plug while the connector is not mounted to a board. It may cause breakage of the connector or deformation of the terminal.
- Do NOT insert or pull-out the plug with excessive force. It may cause breakage of the connector.
- Do NOT apply the flux in the manual soldering process. It may cause a flux blister on the connector.

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