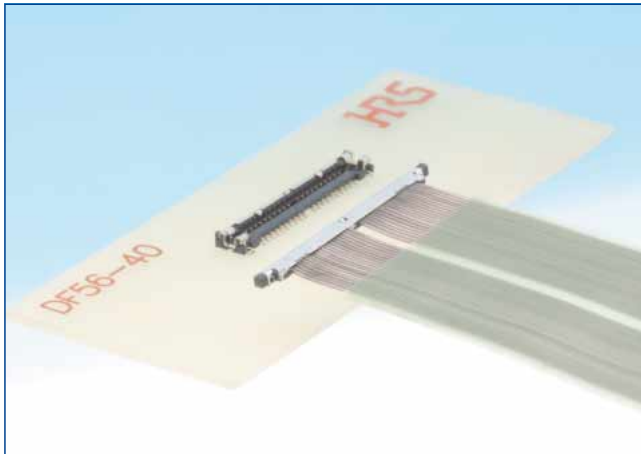


# 0.3 mm Pitch, Vertical mating, Board-to-Micro Coaxial Cable Connectors

## DF56 Series



### High contact reliability

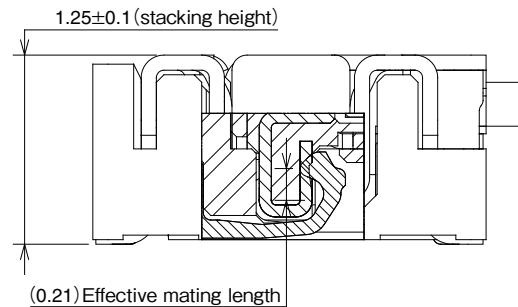


Fig.1

## ■ Features

### 1.Small mated height and board occupied space

Small pitch (0.3mm) and mated height (1.25mm) allows use in space-restricted areas. It's a small connector with mated height of 1.25mm (1.35mm MAX) and depth of 2.6mm.

### 2.Compatibility with small diameter hinges

AWG44 x 40 are compatible with hinge diameters of  $\phi 2.8\text{mm}$ , which allows wiring in small hinge in side devices.

### 3.Reliable electrical and mechanical connection

Despite its small mated height, unique contact configuration assures highly reliable connection, with effective mating length of 0.21mm.(Fig.1)

### 4.Durable plug construction

Formed metal shells on the top and side surfaces form a strong and rigid assembly.

### 5.Enhanced shielding and ground connections

Metal shells on the plug and receptacle connect to each other with a reliable multi-point ground contacts, assuring reliable ground connection and EMC protection. (Fig.2)

### 6.Reliable lock

Fully mated condition is assured with reliable locks at 4 locations, confirming it with a distinct tactile click. (Fig.3)

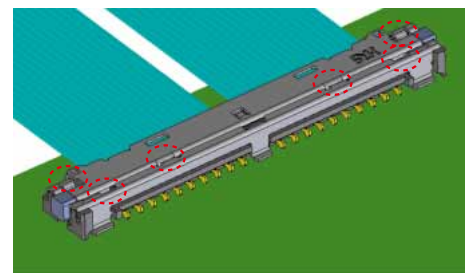
### 7.Solder wicking prevention

Nickel barriers prevent solder wicking in the critical contact areas.

### 8.RoHS, Halogen-free\*

\*As defined by IEC61249-2-21  
Br-900 ppm maximum, Cl-900 ppm maximum,  
Cl + Br combined-1,500 ppm maximum.

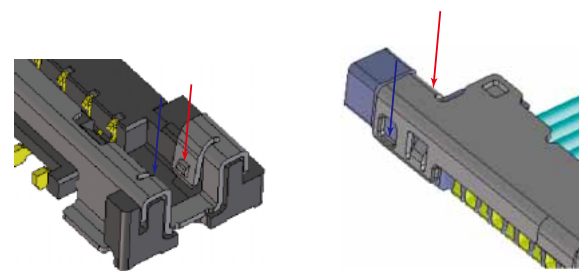
### Enhanced shielding



Multi-point ground contacts

Fig.2

### Distinct tactile click



4-point lock : 2 points at each end

Fig.3

## ■ Connectors for conductivity tests

We have a line-up of plug and receptacle connectors for inspection, usable for electrical testing.

## Specifications

Ratings	Current rating	Wire size AWG #42 0.20A Wire size AWG #44 0.15A (Note3) Wire size AWG #46 0.10A	Operating temperature range: Operating humidity range:	-35 to +85°C (Note 1) 20% to 80% RH
	Voltage rating 30 Vrms AC	30V AC	Storage temperature range: Storage humidity range:	-10 to +60°C (Note 2) 40% to 70% RH

Item	Specification	Conditions
1. Insulation resistance	50 MΩ min.	100 V DC
2. Withstanding voltage	No flashover or insulation breakdown	100 Vrms AC / 1 minute
3. Contact resistance	Signal:80mΩ max,Ground 80mΩ max	100 mA (DC or 1,000Hz)
4. Vibration	No electrical discontinuity of 1 μs or longer	Frequency: 10 to 55 Hz, single amplitude of 0.75mm, 10 cycles in each of the 3 axis
5. Humidity	Contact resistance (change from initial value) 50 mΩ max. Insulation resistance: 25 MΩ min.	96 hours at of 40 ±2°C, and humidity of 90 to 95%
6. Temperature cycle	Contact resistance (change from initial value) 50 mΩ max. Insulation resistance: 25 MΩ min.	-55°C → 5 to 35°C → 85°C → 5 to 35°C Time: 30 min. → 2 to 3 min. → 30 min. → 2 to 3 min. 5 cycles
7. Durability	Contact resistance (change from initial value) 50 mΩ max.	20 cycles
8. Resistance to soldering heat	No deformation of affecting performance	Reflow: At the recommended temperature profile Manual soldering: 350°C for 3 seconds

Note1: Includes temperature rise caused by current flow.

Note2: The term "storage" refers to products stored for a long period prior to mounting and use. The operating temperature and humidity range covers the non-conducting condition of installed connectors in storage, shipment or during transportation after board mounting.

Note3: Temperature rise of connector body only, and that of case is not included.

## Materials

Product	Part	Material	Finish	Remarks
Receptacle	Insulator	LCP	Color:Black	UL94V-0
	Contacts	Phosphor bronze	Gold plated	——
	Metal fittings	Phosphor bronze	Tin plated	——
Plug	Insulator	LCP	Color:Black	UL94V-0
	Contacts	Phosphor bronze	Gold plated	——
	Metal cover	Stainless	Tin plated	——
Shell	Metal cover	Stainless	Tin plated	——

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## Ordering information

### Connector

**DF** **56** **J** - **\*** **S** - **0.3** **V** (**\*\***)  
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧  
**DF** **56** **J** - **\*** **P** - **SHL**  
 ① ② ③ ④ ⑤ ⑨

① Series name : DF	⑥ Contact pitch:0.3mm
② Series No. : 56	
③ Connector style C : Stand-off type (No pattern prohibited area under connector) J : Connector for conductivity tests Blank : Standard (With pattern prohibited area under connector)	⑦ Termination type V : Straight SMT SD: Fine coaxial cable plug
④ Number of positions C : Stand-off type 26, 30, 40 Standard : 40, 50	⑧ Packaging (51):Embossed tape packaging
⑤ Connector type S : Receptacle P : Plug	⑨ Installation item (separate) SHL : Metal cover

## Combinations

### [Standard use]

DF56-\*S-0.3V(\*\*) + DF56-\*P-ASSY  
 [DF56-\*P-0.3SD(\*\*)]  
 [DF56-\*P-SHL]

Note : The product specification of the above combination is shown on page 2.

### [Receptacle conductivity test]

DF56-\*S-0.3V(\*\*) + DF56J-\*P-ASSY(Note)  
 [DF56-\*P-0.3SD(\*\*)]  
 [DF56J-\*P-SHL]

Note : This harness item is only usable for the receptacle test.

For the product specification of the above combination, please contact our sales department.

### [Plug for conductivity test]

DF56J-\*S-0.3V(\*\*)(Note) + DF56-\*P-ASSY  
 [DF56-\*P-0.3SD(\*\*)]  
 [DF56-\*P-SHL]  
 DF56CJ-\*S-0.3V(\*\*) + DF56-\*P-ASSY  
 [DF56-\*P-0.3SD(\*\*)]  
 [DF56-\*P-SHL]

Note : This harness item is only usable for the plugs and receptacles test.

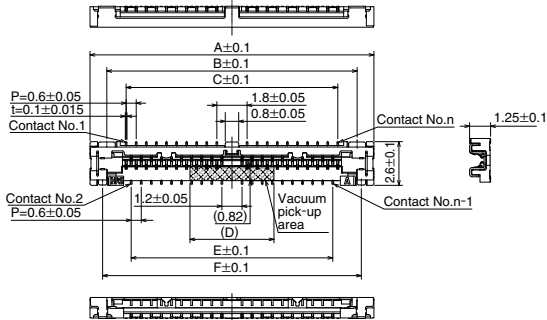
For the product specification of the above combination, please contact our sales department.

\* : ASSY means a harness item.

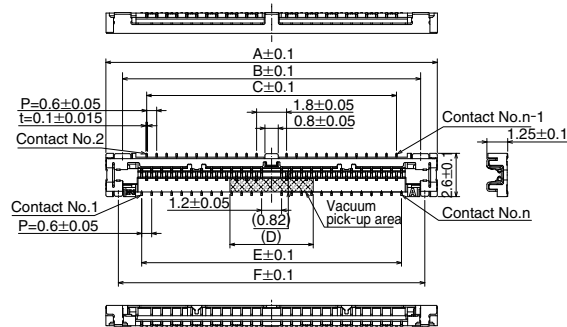
## Receptacle (SMT)



### 40 pos



### 50 pos



Note: The position of contact No.1 is different depending on No. of positions.

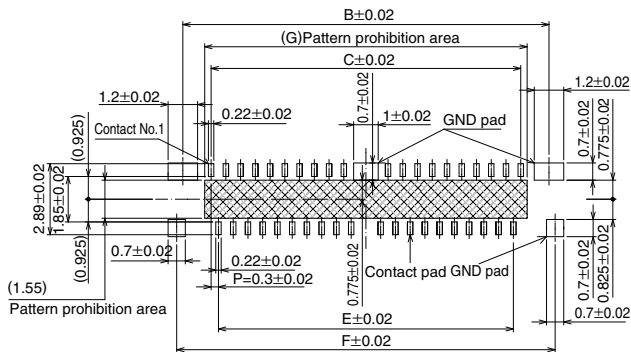
[Specifications number] - \*\*, (\*\*)  
(51) : Embossed tape packaging

Unit : mm

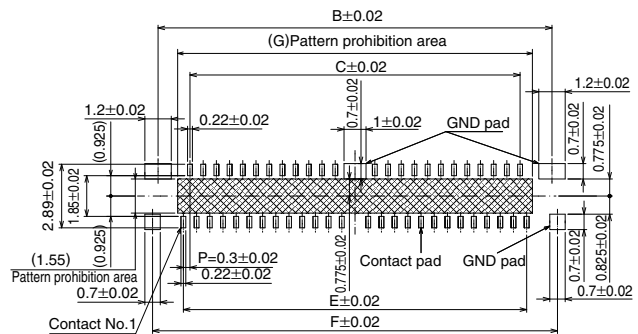
Part No.	HRS No.	No. of contacts	A	B	C	D	E	F
DF56-40S-0.3V(**)	662-5600-0 **	40	16.90	14.90	12.60	(5.00)	12.00	15.40
DF56-50S-0.3V(**)	662-5606-7 **	50	19.90	17.90	15.00		15.60	18.40

## Recommended PCB mounting pattern

### 40 pos



### 50 pos



Note: The position of contact No.1 is different depending on No. of positions.

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

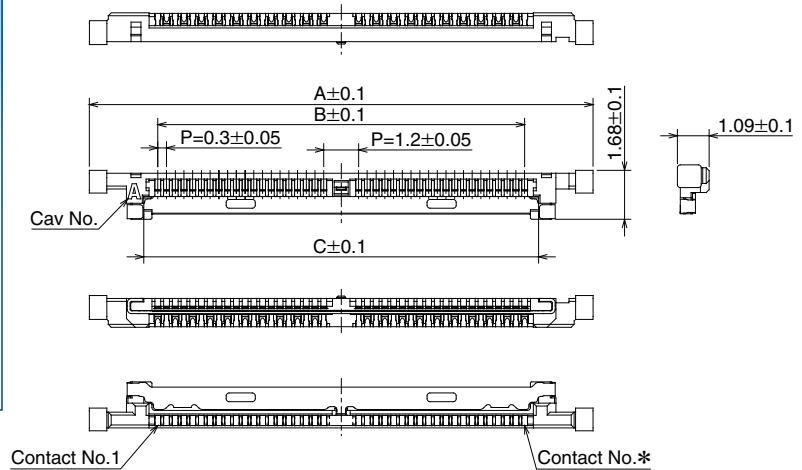
Unit : mm

Part No.	HRS No.	No. of contacts	B	C	D	E	F	G
DF56-40S-0.3V(**)	662-5600-0 **	40	14.90	12.60	(5.00)	12.00	15.40	13.12
DF56-50S-0.3V(**)	662-5606-7 **	50	17.90	15.00		15.60	18.40	16.12

Note 1: Tape and reel packaging (5,000 pcs/reel).  
Order by number of reels.



## Plug



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

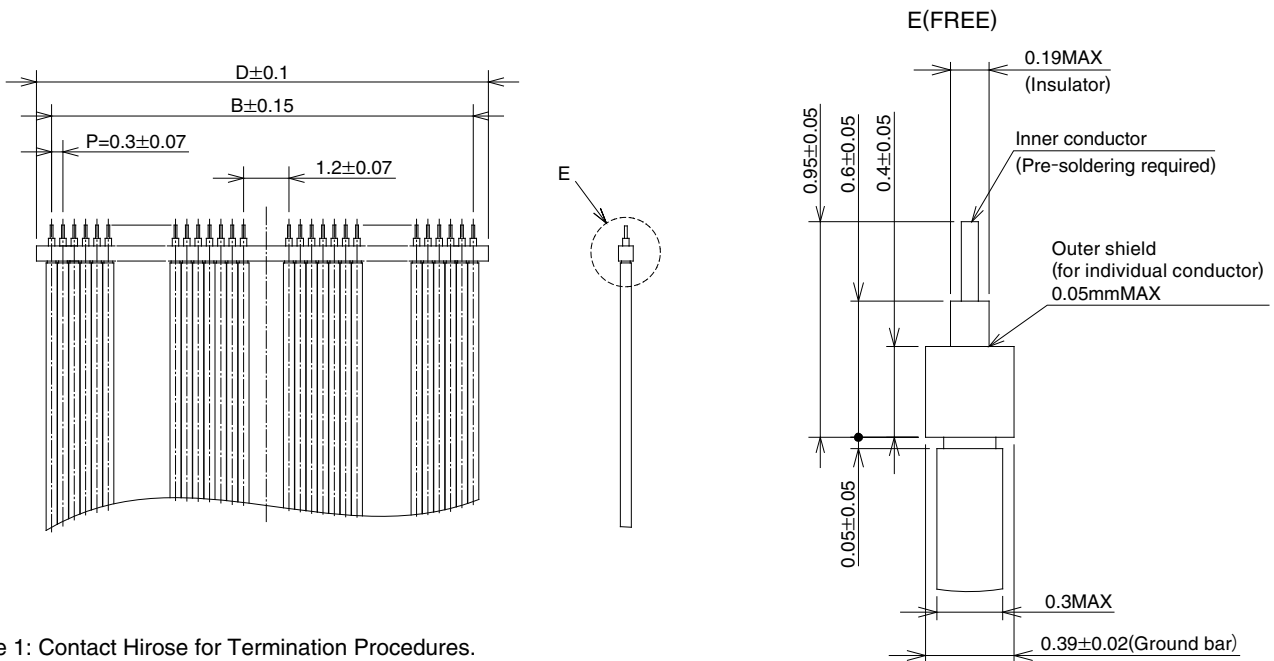
Unit : mm

Part No.	HRS No.	No. of contacts	A	B	C	D
DF56-26P-0.3SD(**)	662-5604-1 **	26	13.10	8.40	9.36	9.20
DF56-30P-0.3SD(**)	662-5617-3 **	30	14.30	9.60	10.56	10.40
DF56-40P-0.3SD(**)	662-5601-3 **	40	17.30	12.60	13.56	13.40
DF56-50P-0.3SD(**)	662-5607-0 **	50	20.30	15.60	16.56	16.40

Note 1: Tape and reel packaging (10,000 pcs/reel). Order by number of reels.

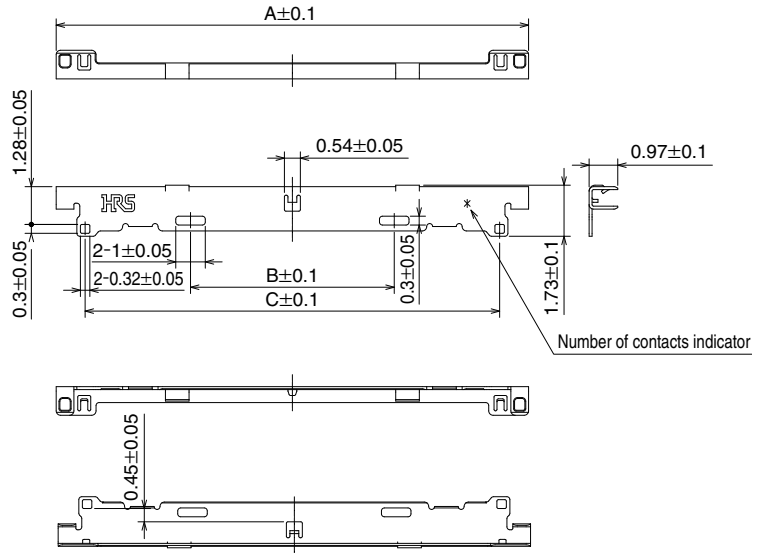
Note 2: The metal cover (DF56-\*P-SHL) is required for micro coaxial cable termination.

## Recommended Micro Coaxial Cable Preparation



Note 1: Contact Hirose for Termination Procedures.

## ■ Metal cover



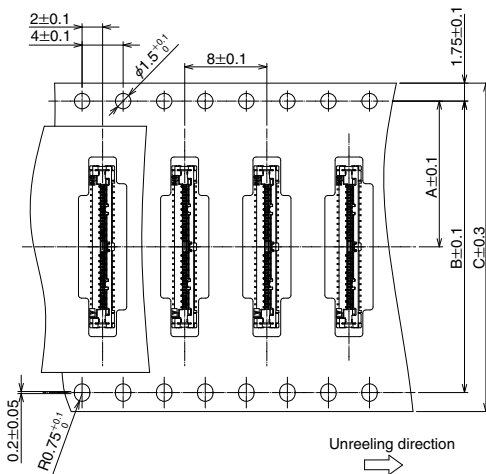
Unit : mm

Part No.	HRS No.	No. of contacts	A	B	C
DF56-26P-SHL	662-5605-4	26	11.80	3.90	9.84
DF56-30P-SHL	662-5618-6	30	13.00	3.90	11.04
DF56-40P-SHL	662-5602-6	40	16.00	6.90	14.04
DF56-50P-SHL	662-5608-2	50	19.00	7.50	17.04

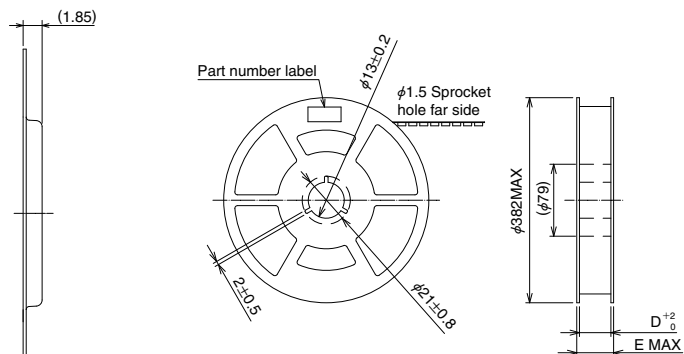
Note 1: Tape and reel packaging (10,000 pcs/reel). Order by number of reels.

## ◆ Packaging Specification

### ● Embossed Carrier Tape Dimensions—Receptacles



### ● Reel Dimensions



Unit : mm

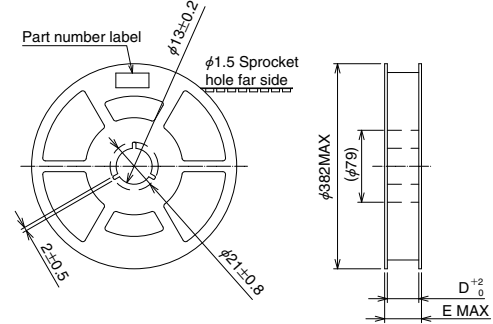
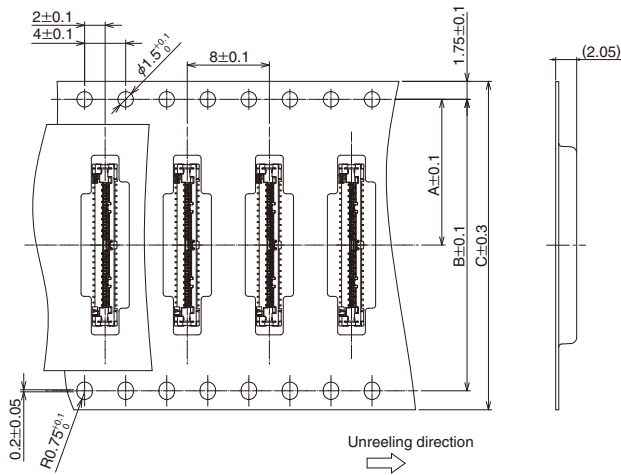
Part No.	HRS No.	No. of contacts	A	B	C	D	E
DF56-40S-0.3V(51)	662-5600-0 51	40	14.2	28.4	32.0	32.4	38.4
DF56-50S-0.3V(51)	662-5606-7 51	50					

Note: When the number of contacts is 30 or less, the feed holes are only on one side of the tape. (Top of figure φ1.5 hole only)

## ◆ Embossed tape dimensions (JIS C 0806 compliant).....Stand-off type

### ● Receptacles

### ● Reel Dimensions



Unit : mm

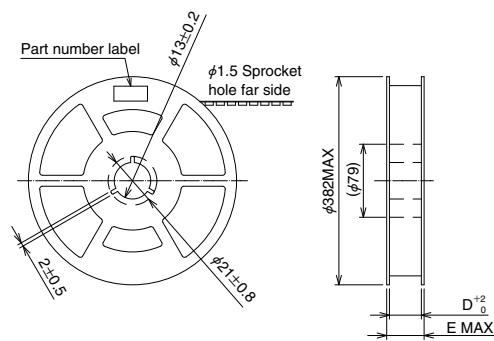
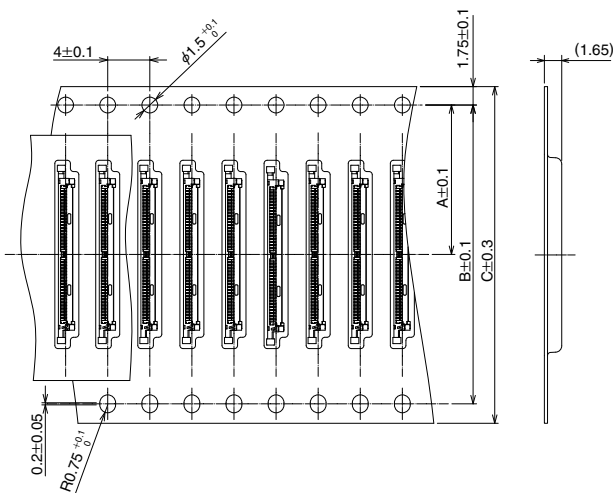
Part No.	HRS No.	No. of contacts	A	B	C	D	E
DF56C-26S-0.3V(51)	662-5603-9 51	26	11.5	—	24.0	24.4	30.4
DF56C-30S-0.3V(51)	662-5616-0 51	30					
DF56C-40S-0.3V(51)	662-5619-9 51	40	14.2	28.4	32.0	32.4	38.4

Note: When the number of contacts is 30 or less, the feed holes are only on one side of the tape. (Top of figure φ1.5 hole only)

## ◆ Packaging Specification

### ● Embossed Carrier Tape Dimensions—Plugs

### ● Reel Dimensions



Unit : mm

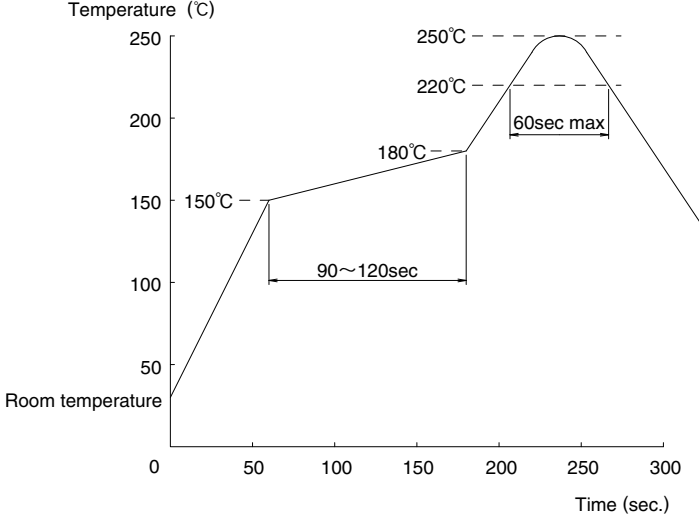
Part No.	HRS No.	No. of contacts	A	B	C	D	E
DF56-26P-0.3SD(51)	662-5604-1 51	26	14.2	28.4	32.0	32.4	38.4
DF56-30P-0.3SD(51)	662-5617-3 51	30					
DF56-40P-0.3SD(51)	662-5601-3 51	40					
DF56-50P-0.3SD(51)	662-5607-0 51	50					



## ◆ Extraction tool

For details about the extraction tool, please contact your Hirose sales representative.

## ◆ Usage Recommendations

<p>1.Recommended temperature profile</p>	 <p><b>Applicable Conditions</b></p> <ol style="list-style-type: none"> <li>1. Peak Temperature : 250°C max.</li> <li>2. Heating : 220°C min. for 60 seconds max.</li> <li>3. Pre-heating : 150 to 180°C for 90 to 120 seconds.</li> <li>4. Number of cycles : Up to 2 cycles</li> </ol> <p>*Solder composition : Sn-3Ag-0.5Cu (Note 1) Values in this temperature profile are one of the recommendations.</p>
<p>2.Recommended manual soldering</p>	<p>Temperature of the soldering iron: 350°C max. Soldering time: 3 seconds max.</p>
<p>3.Recommended screen thickness and open area ratio (Pattern area ratio)</p>	<p>Standard thickness 0.1mm C: Stand-off type Opening ratio: Lead 100%, ground 100% None: Standard type Opening ratio: Lead 60%, ground 100%</p>
<p>4.Board warpage</p>	<p>Maximum of 0.02 mm at the connector center, with both ends of the connector as reference points.</p>
<p>5.Cleaning conditions</p>	<p>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.)</p>

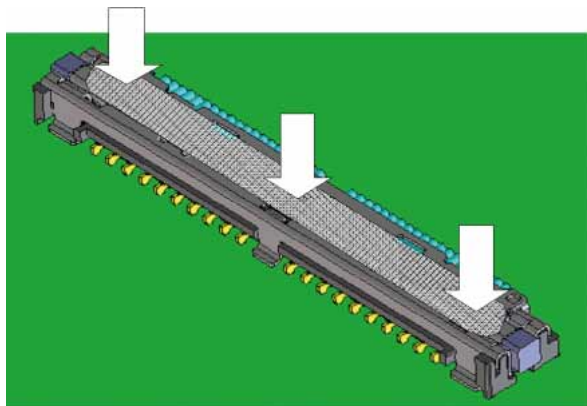
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## ◆ Precautions

### Precautions

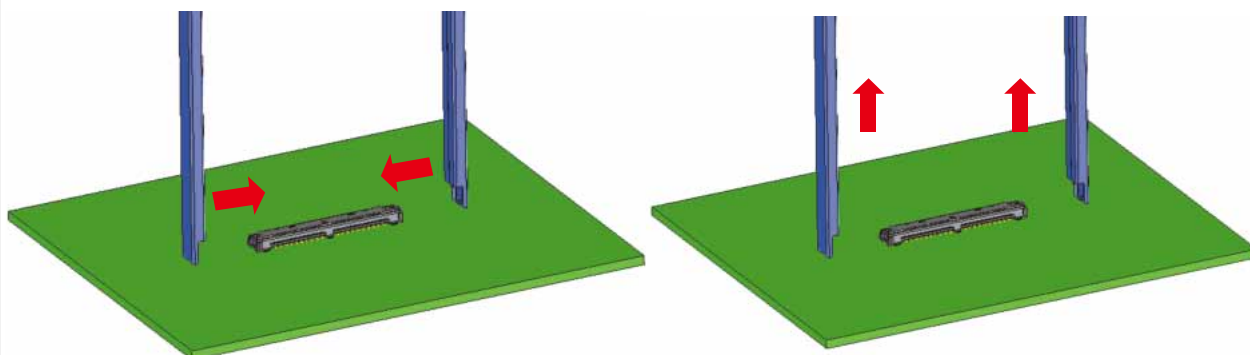
#### ■ Mating

Mate the plug with receptacle by pressing straight against the entire plug surface.  
Do NOT mate the plug while holding by the terminated cable.



#### ■ Un-mating

Use a dedicated extraction tool to un-mate the plug.  
Insert the tool under either end of the plug and pull straight up as illustrated.



- Do not mate / un-mate the connectors when receptacle is not mounted on the board.
- In the manual soldering process, don't carry out the flux coating which will cause a flux blister on the connector.
- Excessive scoop insertion or extraction may result in damage.



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