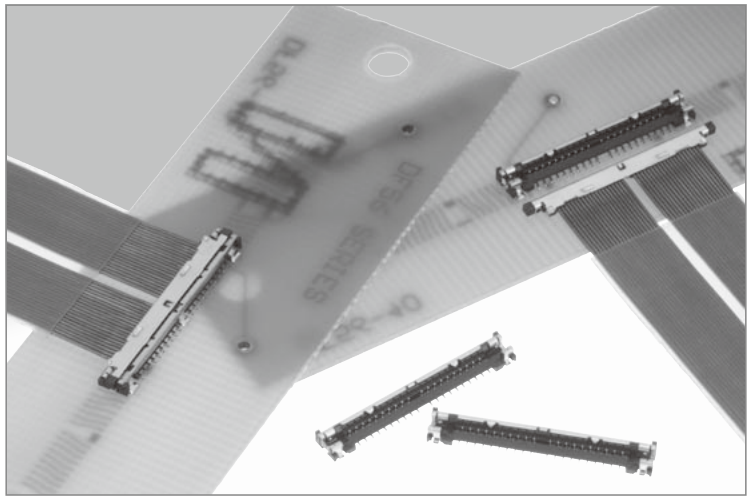
NEW

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

DF56 Series



High contact reliability

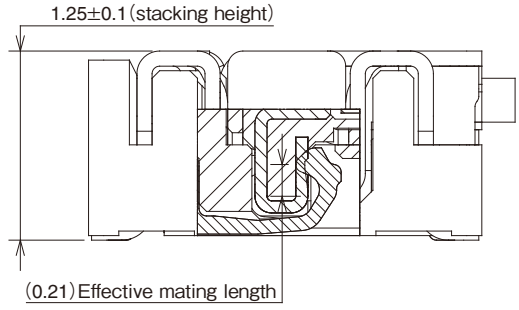
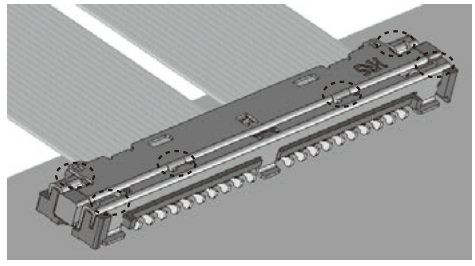


Figure. 1

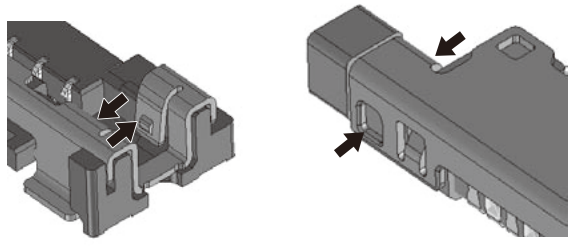
Enhanced shielding



Multi-point ground contacts

Figure. 2

Distinct tactile click



4-point lock : 2 points at each end

Figure. 3

■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 minor diameter hinges

AWG44 x 40 are compatible with hinge diameters of ϕ2.8mm, and minor diameter hinges can be passed through internal equipment.

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.

■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 0.2A 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) RH 20% to 80%
	Voltage rating 30 Vrms AC	30V AC	Storage temperature range: Storage humidity range:	-10 to +60°C (Note 2) RH 40% to 70%

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	NContact 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: With only the connector portion at an elevated temperature level, the rated current value is set.
Note4: Information contained in this catalog represents general requirements for this Series. Contact us for the drawings and specifications for a specific part number shown.

■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	———
	Contacts	Phosphor bronze	Gold plated	UL94V-0
	Metal cover	Stainless	Tin plated	———
Shell	Metal cover	Stainless	Tin plated	———

■Ordering information

●Connector

DF 56 J – ＊ S – 0.3 V (＊＊)
❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽

DF 56 J – ＊ P – SHL
❶ ❷ ❸ ❹ ❺ ❻

❶ Series name : DF	❻ Contact pitch:0.3mm
❷ Series No. : 56	❼ Termination type V : Straight SMT SD:Fine coaxial cable plug
❸ Connector style Receptacle/Shell J : Connector for conductivity tests Blank : Standard	❽ Packaging (51):Embossed tape packaging
❹ Nomber of positions Standard:20,30,40,50 Connector for conductivity tests : 20.30.40.50	❾ Installation item (separate) SHL : Metal cover
❺ Connector type S : Receptacle P : Plug	

■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.

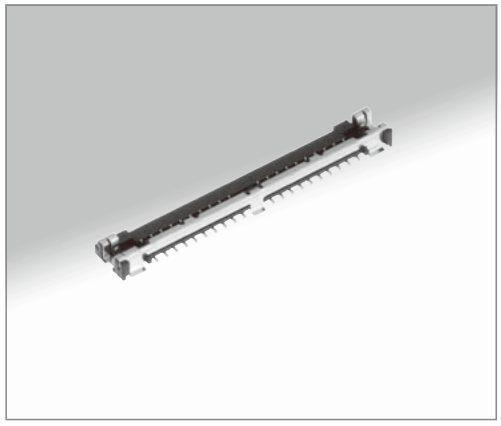
[Plug for conductivity test]

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

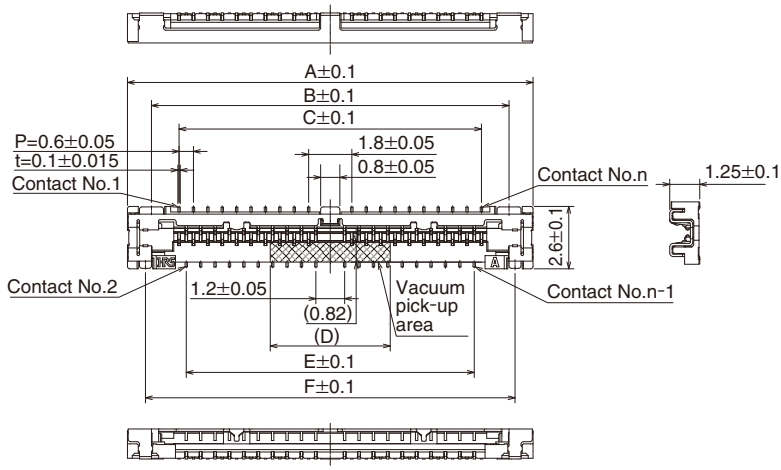
Note : This harness item is only usable for the plugs and receptacles test.
For the product specification of the above combination, please contact our sales department.

＊ : ASSY means a harness item.

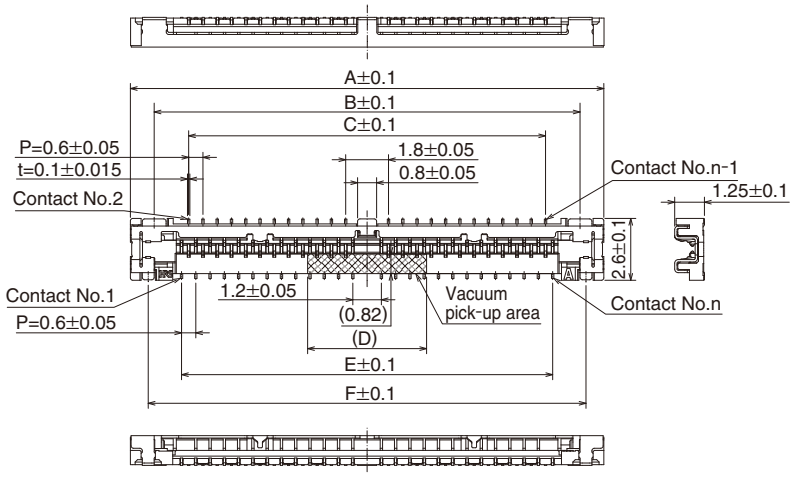
■Receptacles (SMT)



●20pos/40pos



●30pos/50pos



[Specifications number] - ∗∗, (∗∗)
(51) : Embossed tape packaging
(5,000 pieces per reel)

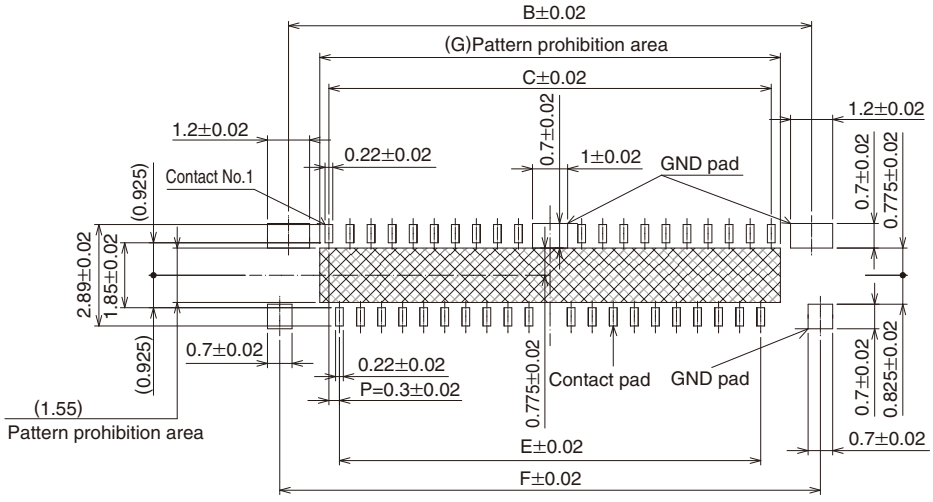
The position of contact No.1 is different depending on No. of positions.

Unit : mm

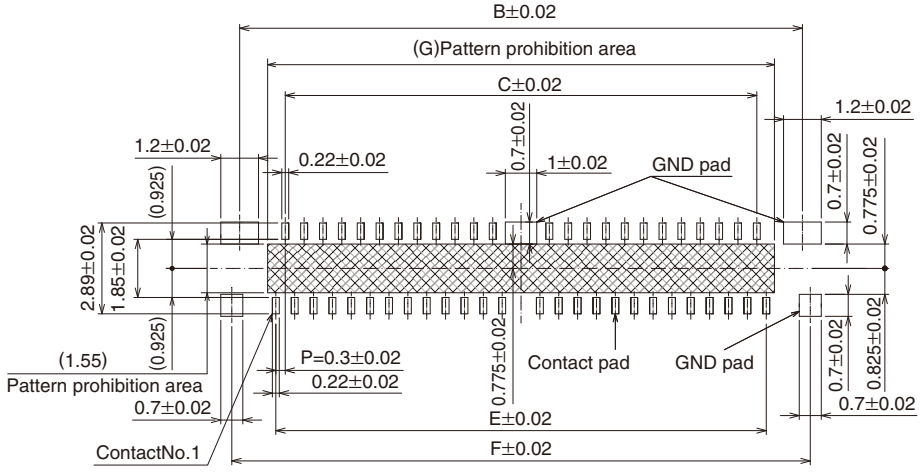
Part Number	CL No.	Number of contacts	A	B	C	D	E	F
DF56-20S-0.3V(∗∗)	Under planning	20	10.90	8.90	6.60	(5.00)	6.00	9.40
DF56-30S-0.3V(∗∗)	Under planning	30	13.90	11.90	9.00	(5.00)	9.60	12.40
DF56-40S-0.3V(∗∗)	662-5600-0-∗∗	40	16.90	14.90	12.60	(5.00)	12.00	15.40
DF56-50S-0.3V(∗∗)	662-5606-7-∗∗	50	19.90	17.90	15.00	(5.00)	15.60	18.40

■Recommended PCB mounting pattern

●20pos/40pos



●30pos/50pos



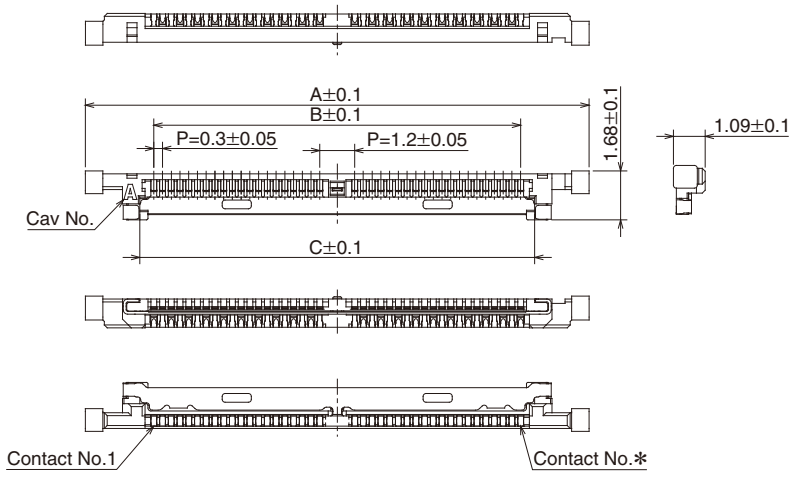
[Specifications number] - ∗∗, (∗∗)
(51) : Embossed tape packaging
(5,000 pieces per reel)

Unit : mm

Part Number	CL No.	Number of contacts	A	B	C	D	E	F	G
DF56-20S-0.3V(∗∗)	Under planning	20	10.90	8.90	6.60	(5.00)	6.00	9.40	7.12
DF56-30S-0.3V(∗∗)	Under planning	30	13.90	11.90	9.00	(5.00)	9.60	12.40	10.12
DF56-40S-0.3V(∗∗)	662-5600-0-∗∗	40	16.90	14.90	12.60	(5.00)	12.00	15.40	13.12
DF56-50S-0.3V(∗∗)	662-5606-7-∗∗	50	19.90	17.90	15.00	(5.00)	15.60	18.40	16.12

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

■Plugs



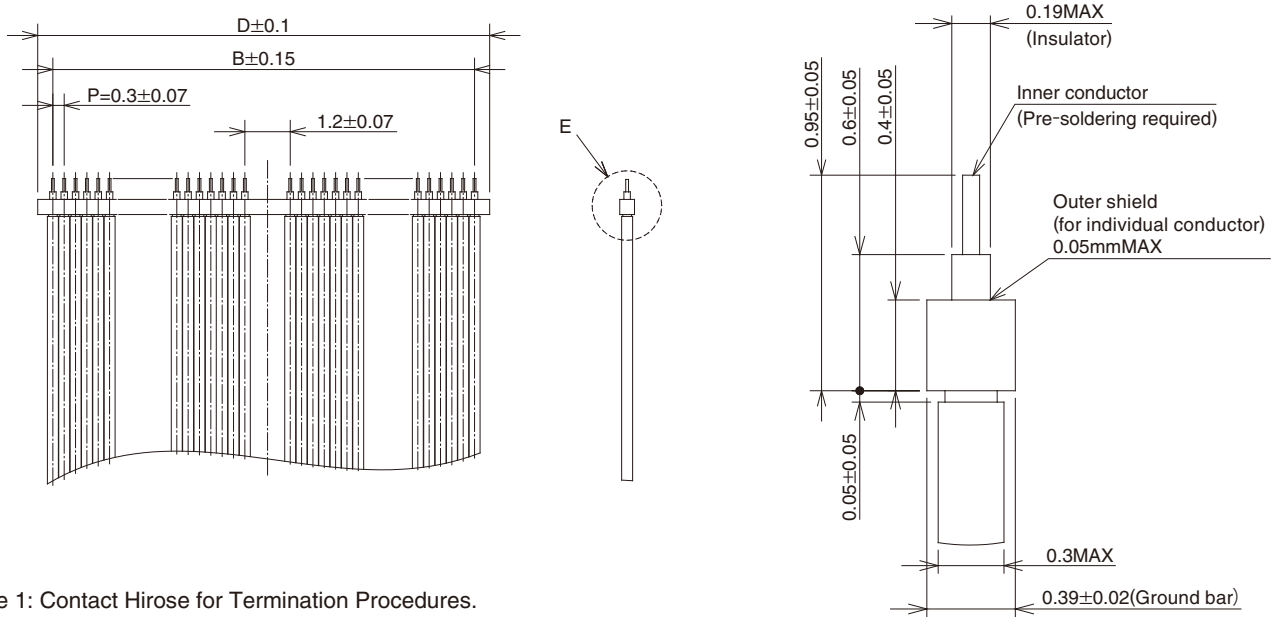
[Specifications number] - ∗∗, (∗∗)
(51) : Embossed tape packaging
(10,000 pieces per reel)

Unit : mm

Part Number	CL No.	Number of contacts	A	B	C	D
DF56-20P-0.3SD(∗∗)	Under planning	20	11.3	6.6	7.56	7.4
DF56-30P-0.3SD(∗∗)	Under planning	30	14.3	9.6	10.56	10.4
DF56-40P-0.3SD(∗∗)	662-5601-3-∗∗	40	17.3	12.6	13.56	13.4
DF56-50P-0.3SD(∗∗)	662-5607-0-∗∗	50	20.3	15.6	16.56	16.4

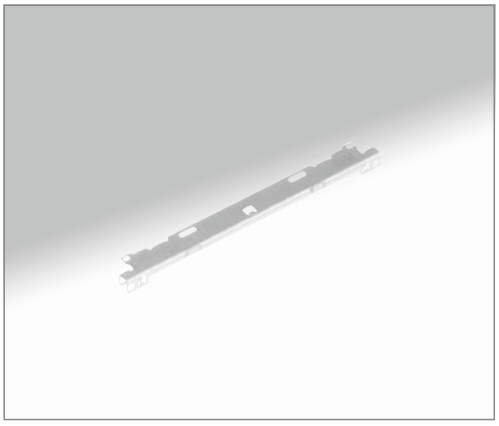
Note 1: Tape and reel packaging (10,000 pieces/reel). Order by number of reels.
Note 2: The metal cover(DF56-∗P-SHL) is required for fine coaxial cable termination.

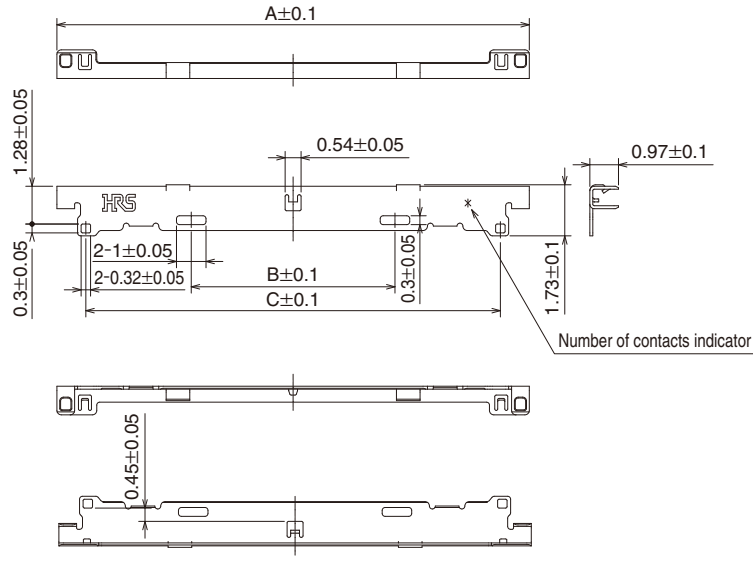
■Recommended Fine Coaxial Cable Preparation



Note 1: Contact Hirose for Termination Procedures.

■Metal cover





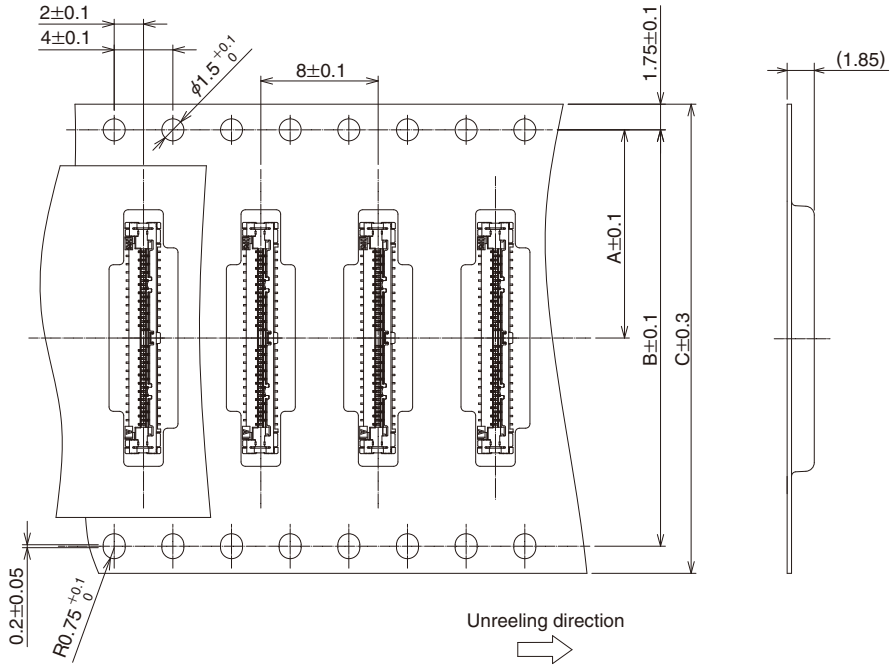
Unit : mm

Part Number	CL No.	Number of contacts	A	B	C
DF56-20P-SHL	Under planning	20	10.0	※	8.04
DF56-30P-SHL	Under planning	30	13.0	※	11.04
DF56-40P-SHL	662-5602-6	40	16.0	6.9	14.04
DF56-50P-SHL	662-5608-2	50	19.0	7.5	17.04

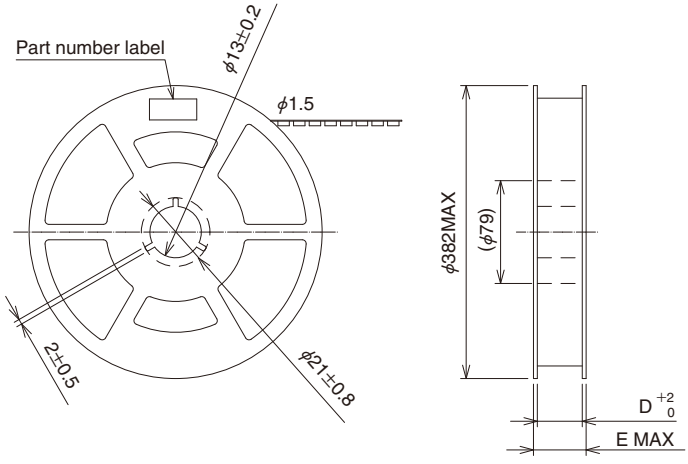
Note 1: Tape and reel packaging (10,000 pieces/reel). Order by number of reels.
Note 2: ※dimensions will be set separately during development.

■Packaging Specification

●Embossed Carrier Tape Dimensions—Receptacles



●Reel Dimensions



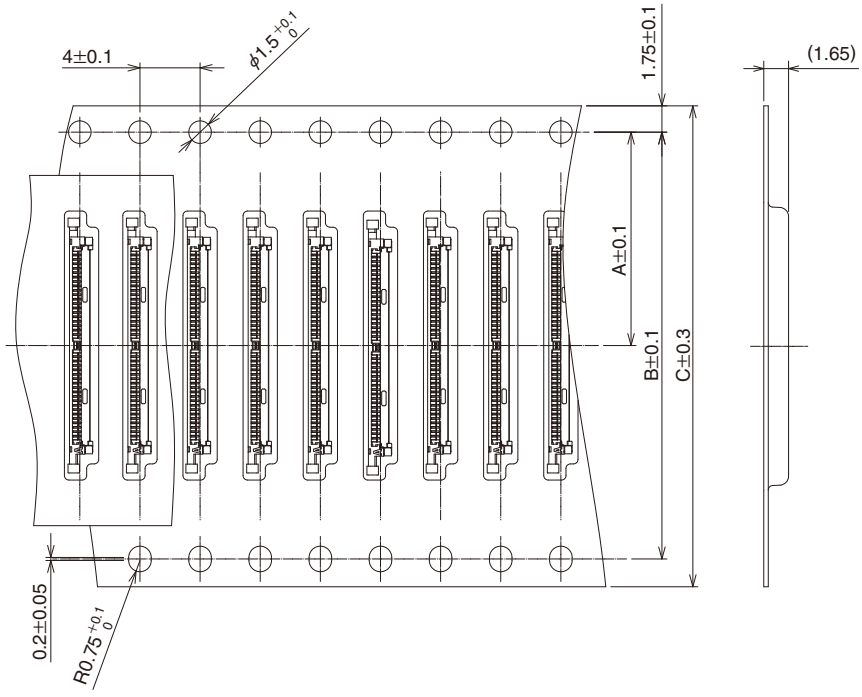
Unit : mm

Part Number	CL No.	Number of contacts	A	B	C	D	E
DF56-20S-0.3V(51)	Under planning	20	11.5	—	24.0	24.4	30.4
DF56-30S-0.3V(51)	Under planning	30	11.5	—	24.0	24.4	30.4
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	14.2	28.4	32.0	32.4	38.4

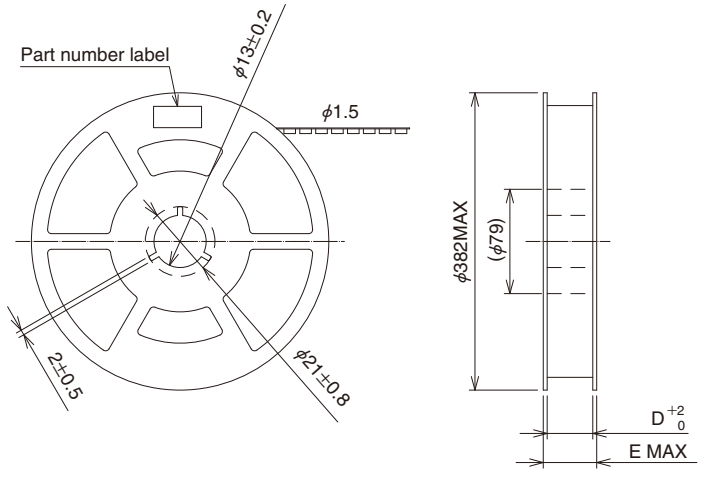
Embossed tape will have perforated feed holes on single side(20pos. and 30pos.)

■Packaging Specification

●Embossed Carrier Tape Dimensions—Plugs



●Reel Dimensions



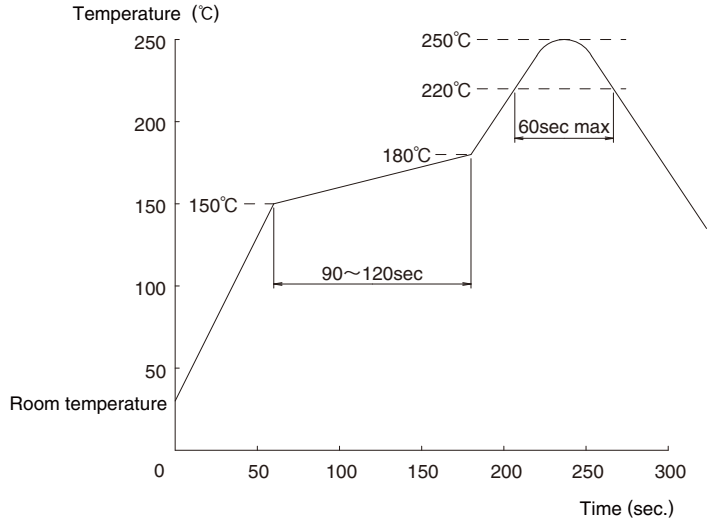
Unit : mm

Part Number	CL No.	Number of contacts	A	B	C	D	E
DF56-20P-0.3SD(51)	Under planning	20	14.2	28.4	32.0	32.4	38.4
DF56-30P-0.3SD(51)	Under planning	30	14.2	28.4	32.0	32.4	38.4
DF56-40P-0.3SD(51)	662-5601-3-**	40	14.2	28.4	32.0	32.4	38.4
DF56-50P-0.3SD(51)	662-5607-0-**	50	14.2	28.4	32.0	32.4	38.4

■Extraction tool

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

■Usage Recommendations

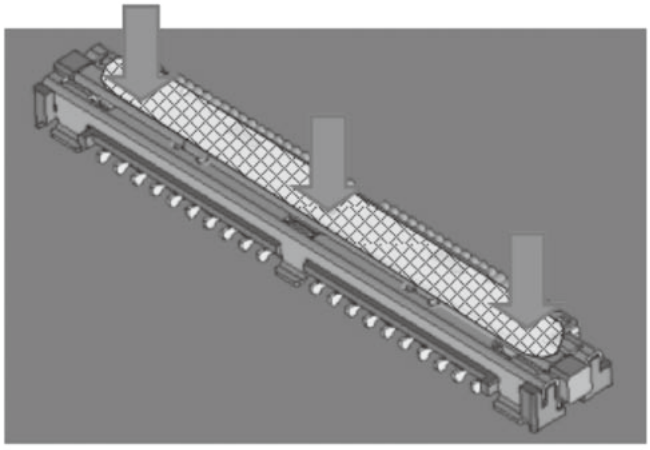
1.Recommended temperature profile	 Solder composition, 96.5%Sn/3.0%Ag/0.5%Cu Note 1: Up to 2 cycles of Reflow soldering are possible under the same conditions, provided that there is a return to normal temperature between the first and second cycle. Note 2: The temperature profile indicates the board surface temperature at the point of contacts with the connector terminals.
2.Recommended manual soldering	Manual soldering: 350℃ for 3 seconds Do NOT use flux compound when manual soldering.
3.Recommended screen thickness and open area ratio (Pattern area ratio)	Standard thickness 0.1mm Open area ratios : Lead terminal 60% : Ground terminal 100%
4.Board warpage	Maximum of 0.02 mm at the connector center, with both ends of the connector as reference points.
5.Cleaning conditions	Refer to "Nylon Connector Use Handbook".

■Precautions

Precautions

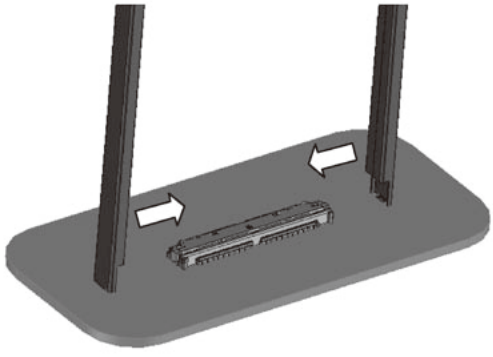
■Mating

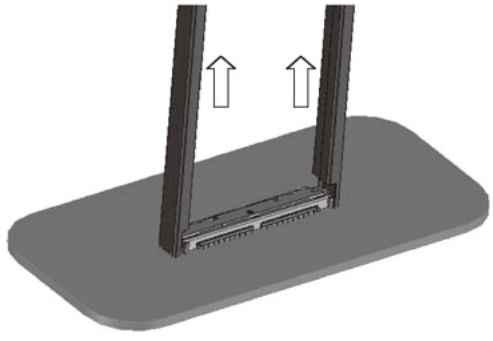
Mate the plug with receptacle by pressing straight against the entire plug surface.
Do NOT mate the plug while holding by the teminated cable.



■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.