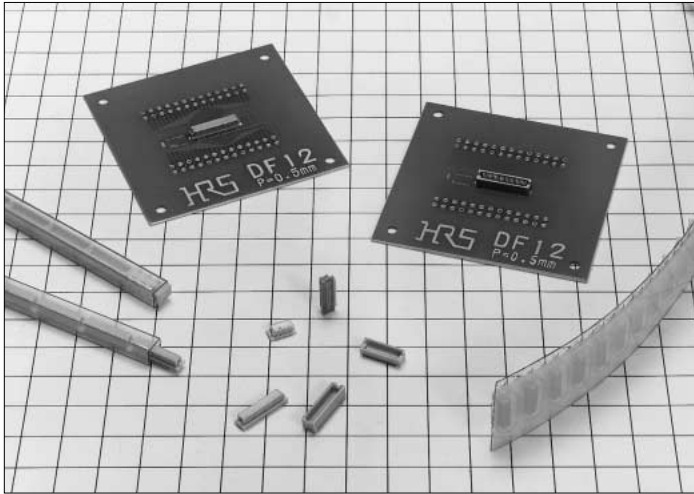


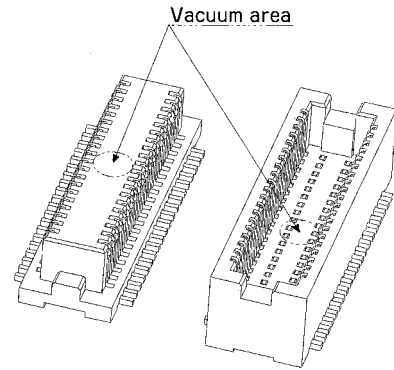
# 0.5mm Pitch SMT Board to Board Connector

## DF12 Series



### Correspond to automatic mounting

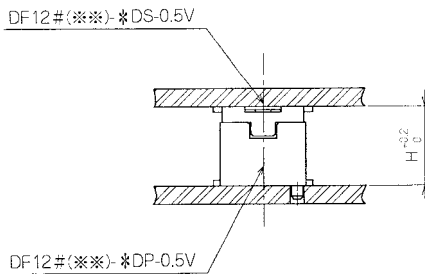
The vacuum pick-up area secures the automatic mounting machine for pick and place.



## ■ Features

### 1. Broad Variations of Stacking Height

In addition to 0.5mm pitch ultra-miniature size connector, the stacking height of 3mm, 3.5mm, 4mm, and 5mm are provided.



Header/Receptacle	DF12#(3.0)-*DS-0.5V Combination stacking height	DF12#-*DS-0.5V Combination stacking height
DF12#(3.0)-*DP-0.5V	3.0	—————
DF12#(3.5)-VDP-0.5V	—————	3.5
DF12#(4.0)-*DP-0.5V	—————	4.0
DF12#(5.0)-*DP-0.5V	—————	5.0

Note 1 : (\*\*) of the product name DF12# (\*\*) indicates the stacking height.  
 Note 2 : The stacking height doesn't include the soldering paste thickness.

### [Stacking Height Variation]

Stacking Height		3.0mm	3.5mm	4.0mm	5.0mm
Number of Contacts	20 contacts	○	○	○	○
	30 contacts	○	○	○	○
	32 contacts	○	—————	—————	—————
	38 contacts	○	○	○	○
	40 contacts	○	○	○	○
	50 contacts	○	○	○	○
	60 contacts	○	○	○	○

### 2. Corresponding to Automatic Mounting

The connector has the vacuum pick-up area to enable automatic mounting with the embossed tape packaging.

### 3. Metal Fitting Available

The product including the metal fitting to prevent solder peeling is provided, considering the mounting on FPC.

## ■ Applications

Mobile phone, LCD(Liquid Crystal Display), MO(Optical Disk), Note PC

## Product Specifications

Rating	Rated Current 0.3A	Operating Temperature Range -45~+125°C Note 1.	Storage Temperature Range -10~+60°C Note 2.
	Rated Voltage 50V AC	Operating Humidity Range 40~80%	Storage Humidity Range 40~70%

Item	Specification	Condition	
1. Insulation Resistance	500Ω min.	Measured at 100V DC	
2. Withstand voltage	Neither short or insulation breakdown	150V AC for 1 minute	
3. Contact Resistance	50mΩ max.	Measured at 100mA	
4. Vibration	Electrical discontinuity, 1μS max. 1	0~55Hz and single amplitude 0.75mm in 3 directions for 2 hours, respectively.	
5. Moisture Resistance	Contact resistance: 50mΩ max. Insulation resistance:500MΩ min	Exposed to temperature 40±2°C and humidity 90~95% for 96 hours	
6. Temperature Cycle	Contact resistance: 50mΩ max. Insulation resistance:500MΩ min	(-55°C: 30 minutes 5~35°C: 10 minutes 85°C: 30 minutes 5~35°C: 10 minutes) 5 cycles	
7. Operating Life	Contact resistance: 50mΩ max.	50 cycles	
8. Resistance to Soldering heat	No resion area fusion to degrade performance	SMT Type	Reflow : According to the recommended temperature profile Manual soldering : Soldering iron temperature: 300°C for 3 seconds

Note 1: Temperature rise included when energized

Note 2: This storage indicates a long-term storage state for the unused product before the board mounted.

The operating temperature and humidity ranges are applied to the non-energized state after the connector has been installed to the board.

Note 3: The above standards represent this series. Individual formal agreement should be based on the "Specification".

## Material

Product	Part	Material	Finish	Remarks
Receptacle/Header	Insulator	Polyamide	Beige	UL94-V0
	Contact	Phosphor copper	Gold plating	————
	Fitting	Brass	Solder plating	————

## Ordering Information

Please determine the specific product. If needed, please select and order products from the product No. as listed on catalog page A299~A305.

### Receptacle

**DF 12 # (※※) - \* DS - 0.5 V (\*\*)**

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

① Series Name : DF	<table border="1"> <thead> <tr> <th>Symbol</th> <th>Fitting</th> <th>Boss</th> </tr> </thead> <tbody> <tr> <td>None</td> <td>○</td> <td>○</td> </tr> <tr> <td>A</td> <td>×</td> <td>○</td> </tr> <tr> <td>B</td> <td>○</td> <td>×</td> </tr> <tr> <td>C</td> <td>×</td> <td>×</td> </tr> </tbody> </table>	Symbol	Fitting	Boss	None	○	○	A	×	○	B	○	×	C	×	×	④ Stacking height 3.0 : 3.0mm None : 3.5~5.0mm	⑦ Contact Pitch : 0.5mm
Symbol		Fitting	Boss															
None		○	○															
A	×	○																
B	○	×																
C	×	×																
② Series No. : 12	⑤ Number of Contacts : 20, 30, 32, 36, 40, 50, 60 (The 32 contacts connector includes the stacking height 3mm only.)	⑧ Contact Style V: Straight SMT																
③ Type Symbol	⑥ Connector Type DS : Double-row receptacle	⑨ Packaging Type (81) : Embossed tape packaging																

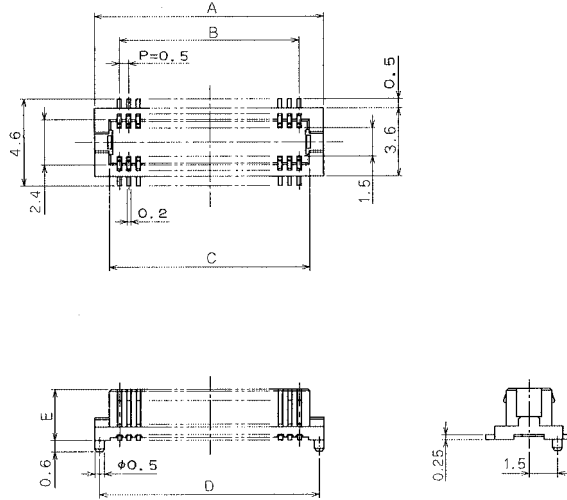
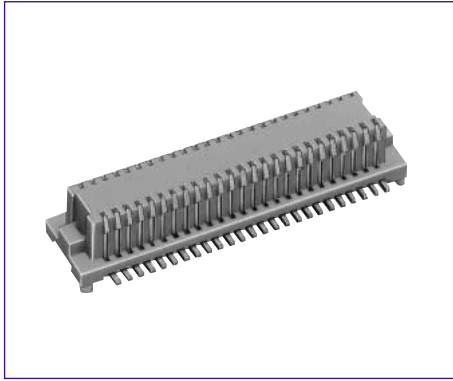
### Header

**DF 12 # (※※) - \* DP - 0.5 V (\*\*)**

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

③ Type Symbol	<table border="1"> <thead> <tr> <th>Symbol</th> <th>Fitting</th> <th>Boss</th> </tr> </thead> <tbody> <tr> <td>None</td> <td>○</td> <td>○</td> </tr> <tr> <td>B</td> <td>○</td> <td>×</td> </tr> <tr> <td>D</td> <td>×</td> <td>○</td> </tr> <tr> <td>E</td> <td>×</td> <td>×</td> </tr> </tbody> </table>	Symbol	Fitting	Boss	None	○	○	B	○	×	D	×	○	E	×	×	④ Stacking height	⑥ Connector Type DP: Double-row pin header
Symbol		Fitting	Boss															
None		○	○															
B		○	×															
D		×	○															
E	×	×																
	④ Stacking height																	
	④ Stacking height																	
	④ Stacking height																	
	④ Stacking height																	

## ■ Receptacle Without metal fitting



[Specific No.] – \*\*, (\*\*)  
(81): Gold plating embossed tape packaging

### ● Product Height: 3mm Product

Unit: mm

Product No.	HRS No.	Number of Contacts	A	B	C	D	E	Remarks
DF12A (3.0)-20DS-0.5V (**)	CL537-0628-4-**-	20	7.1	4.5	5.6	6.6	2.2	Without metal fitting With boss
DF12A (3.0)-30DS-0.5V (**)	CL537-0630-6-**-	30	9.6	7.0	8.1	9.1		
DF12A (3.0)-32DS-0.5V (**)	CL537-0637-5-**-	32	10.1	7.5	8.6	9.6		
DF12A (3.0)-36DS-0.5V (**)	CL537-0631-9-**-	36	11.1	8.5	9.6	10.6		
DF12A (3.0)-40DS-0.5V (**)	CL537-0632-1-**-	40	12.1	9.5	10.6	11.6		
DF12A (3.0)-50DS-0.5V (**)	CL537-0634-7-**-	50	14.6	12.0	13.1	14.1		
DF12A (3.0)-60DS-0.5V (**)	CL537-0636-2-**-	60	17.1	14.5	15.6	16.6		
DF12C (3.0)-20DS-0.5V (**)	CL537-0688-6-**-	20	7.1	4.5	5.6	—	2.2	Without metal fitting Without boss
DF12C (3.0)-30DS-0.5V (**)	CL537-0690-8-**-	30	9.6	7.0	8.1	—		
DF12C (3.0)-32DS-0.5V (**)	CL537-0697-7-**-	32	10.1	7.5	8.6	—		
DF12C (3.0)-36DS-0.5V (**)	CL537-0691-0-**-	36	11.1	8.5	9.6	—		
DF12C (3.0)-40DS-0.5V (**)	CL537-0692-3-**-	40	12.1	9.5	10.6	—		
DF12C (3.0)-50DS-0.5V (**)	CL537-0694-9-**-	50	14.6	12.0	13.1	—		
DF12C (3.0)-60DS-0.5V (**)	CL537-0696-4-**-	60	17.1	14.5	15.6	—		

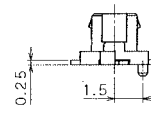
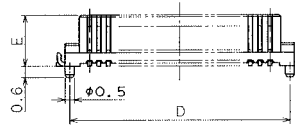
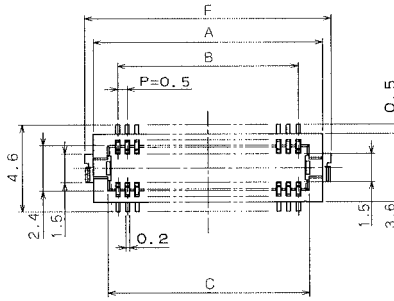
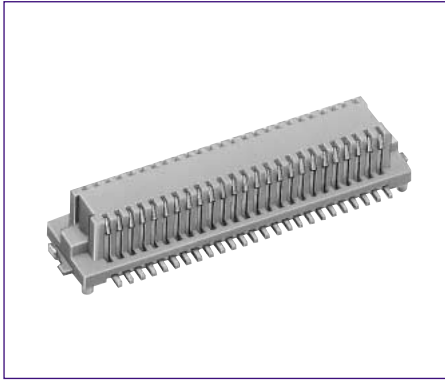
### ● Product Height: 3.5~5mm Product

Unit: mm

Product No.	HRS No.	Number of Contacts	A	B	C	D	E	Remarks
DF12A-20DS-0.5V (**)	CL537-0078-5-**-	20	7.1	4.5	5.6	6.6	2.7	Without metal fitting With boss
DF12A-30DS-0.5V (**)	CL537-0080-7-**-	30	9.6	7.0	8.1	9.1		
DF12A-36DS-0.5V (**)	CL537-0081-0-**-	36	11.1	8.5	9.6	10.6		
DF12A-40DS-0.5V (**)	CL537-0082-2-**-	40	12.1	9.5	10.6	11.6		
DF12A-50DS-0.5V (**)	CL537-0084-8-**-	50	14.6	12.0	13.1	14.1		
DF12A-60DS-0.5V (**)	CL537-0086-3-**-	60	17.1	14.5	15.6	16.6		
DF12C-20DS-0.5V (**)	CL537-0203-5-**-	20	7.1	4.5	5.6	—	2.7	Without metal fitting Without boss
DF12C-30DS-0.5V (**)	CL537-0205-0-**-	30	9.6	7.0	8.1	—		
DF12C-36DS-0.5V (**)	CL537-0206-3-**-	36	11.1	8.5	9.6	—		
DF12C-40DS-0.5V (**)	CL537-0207-6-**-	40	12.1	9.5	10.6	—		
DF12C-50DS-0.5V (**)	CL537-0209-1-**-	50	14.6	12.0	13.1	—		
DF12C-60DS-0.5V (**)	CL537-0211-3-**-	60	17.1	14.5	15.6	—		

Note 1: Please order the embossed tape packaging product per reel. (1000 pcs./reel)

## ■Receptacle With metal fitting



[Specific No.] – \*\*, (\*\*)  
(81): Gold plating embossed tape packaging

### ●Product Height: 3mm Product

Unit: mm

Product No.	HRS No.	Number of Contacts	A	B	C	D	E	F	Remarks
DF12 (3.0)-20DS-0.5V (**)	CL537-0603-3- **	20	7.1	4.5	5.6	6.6	2.2	8.0	With metal fitting With boss
DF12 (3.0)-30DS-0.5V (**)	CL537-0605-9- **	30	9.6	7.0	8.1	9.1		10.5	
DF12 (3.0)-32DS-0.5V (**)	CL537-0612-4- **	32	10.1	7.5	8.6	9.6		11.0	
DF12 (3.0)-36DS-0.5V (**)	CL537-0606-1- **	36	11.1	8.5	9.6	10.6		12.0	
DF12 (3.0)-40DS-0.5V (**)	CL537-0607-4- **	40	12.1	9.5	10.6	11.6		13.0	
DF12 (3.0)-50DS-0.5V (**)	CL537-0609-0- **	50	14.6	12.0	13.1	14.1		15.5	
DF12 (3.0)-60DS-0.5V (**)	CL537-0611-1- **	60	17.1	14.5	15.6	16.6		18.0	
DF12B (3.0)-20DS-0.5V (**)	CL537-0653-1- **	20	7.1	4.5	5.6	—	2.2	8.0	With metal fitting Without boss
DF12B (3.0)-30DS-0.5V (**)	CL537-0655-7- **	30	9.6	7.0	8.1	—		10.5	
DF12B (3.0)-32DS-0.5V (**)	CL537-0662-2- **	32	10.1	7.5	8.6	—		11.0	
DF12B (3.0)-36DS-0.5V (**)	CL537-0656-0- **	36	11.1	8.5	9.6	—		12.0	
DF12B (3.0)-40DS-0.5V (**)	CL537-0657-2- **	40	12.1	9.5	10.6	—		13.0	
DF12B (3.0)-50DS-0.5V (**)	CL537-0659-8- **	50	14.6	12.0	13.1	—		15.5	
DF12B (3.0)-60DS-0.5V (**)	CL537-0661-0- **	60	17.1	14.5	15.6	c		18.0	

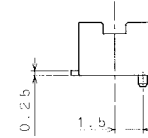
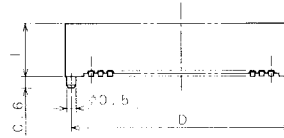
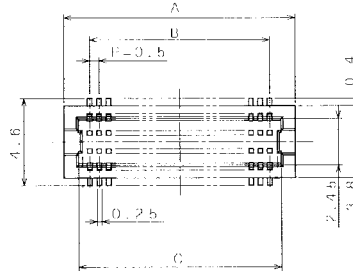
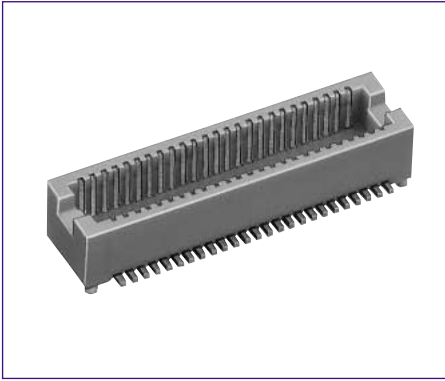
### ●Stacking Height: 3.5~5mm Product

Unit: mm

Product No.	HRS No.	Number of Contacts	A	B	C	D	E	F	Remarks
DF12-20DS-0.5V (**)	CL537-0003-6- **	20	7.1	4.5	5.6	6.6	2.7	8.0	With metal fitting With boss
DF12-30DS-0.5V (**)	CL537-0005-1- **	30	9.6	7.0	8.1	9.1		10.5	
DF12-36DS-0.5V (**)	CL537-0006-4- **	36	11.1	8.5	9.6	10.6		12.0	
DF12-40DS-0.5V (**)	CL537-0007-7- **	40	12.1	9.5	10.6	11.6		13.0	
DF12-50DS-0.5V (**)	CL537-0009-2- **	50	14.6	12.0	13.1	14.1		15.5	
DF12-60DS-0.5V (**)	CL537-0011-4- **	60	17.1	14.5	15.6	16.6		18.0	
DF12B-20DS-0.5V (**)	CL537-0303-0- **	20	7.1	4.5	5.6	—		2.7	
DF12B-30DS-0.5V (**)	CL537-0305-5- **	30	9.6	7.0	8.1	—	10.5		
DF12B-36DS-0.5V (**)	CL537-0306-8- **	36	11.1	8.5	9.6	—	12.0		
DF12B-40DS-0.5V (**)	CL537-0307-0- **	40	12.1	9.5	10.6	—	13.0		
DF12B-50DS-0.5V (**)	CL537-0309-6- **	50	14.6	12.0	13.1	—	15.5		
DF12B-60DS-0.5V (**)	CL537-0311-8- **	60	17.1	14.5	15.6	—	18.0		

Note : Please order the embossed tape packaging product per reel. (1000 pcs./reel)

## Header Without metal fitting



[Specific No.] – \*\*, (\*\*)  
(81): Gold plating embossed tape packaging

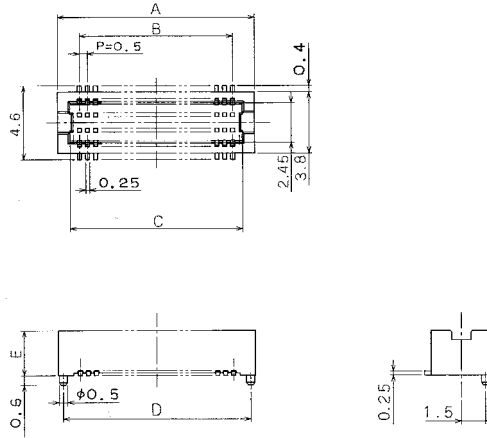
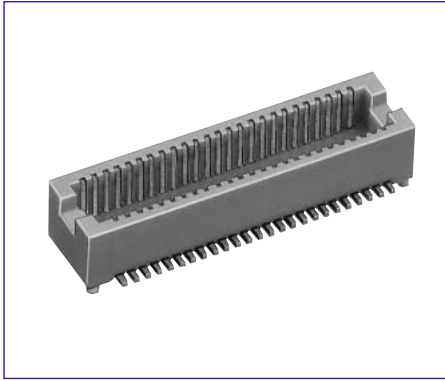
### ●Stacking Height: 3.5~5mm Product

Unit: mm

Product No.	HRS No.	Number of Contacts	A	B	C	D	E	Remarks
DF12D (3.0)-20DP-0.5V (**)	CL537-0793-0- **	20	7.2	4.5	5.7	6.6	2.3	Without metal fitting With boss
DF12D (3.0)-30DP-0.5V (**)	CL537-0795-6- **	30	9.7	7.0	8.2	9.1		
DF12D (3.0)-32DP-0.5V (**)	CL537-0802-0- **	32	10.2	7.5	8.7	9.6		
DF12D (3.0)-36DP-0.5V (**)	CL537-0796-9- **	36	11.2	8.5	9.7	10.6		
DF12D (3.0)-40DP-0.5V (**)	CL537-0797-1- **	40	12.2	9.5	10.7	11.6		
DF12D (3.0)-50DP-0.5V (**)	CL537-0799-7- **	50	14.7	12.0	13.2	14.1		
DF12D (3.0)-60DP-0.5V (**)	CL537-0801-7- **	60	17.2	14.5	15.7	16.6		
DF12E (3.0)-20DP-0.5V (**)	CL537-0828-3- **	20	7.2	4.5	5.7	—	2.3	Without metal fitting Without boss
DF12E (3.0)-30DP-0.5V (**)	CL537-0830-5- **	30	9.7	7.0	8.2	—		
DF12E (3.0)-32DP-0.5V (**)	CL537-0837-4- **	32	10.2	7.5	8.7	—		
DF12E (3.0)-36DP-0.5V (**)	CL537-0831-8- **	36	11.2	8.5	9.7	—		
DF12E (3.0)-40DP-0.5V (**)	CL537-0832-0- **	40	12.2	9.5	10.7	—		
DF12E (3.0)-50DP-0.5V (**)	CL537-0834-6- **	50	14.7	12.0	13.2	—		
DF12E (3.0)-60DP-0.5V (**)	CL537-0836-1- **	60	17.2	14.5	15.7	—		

Note : Order the emboss package product per reel. (1000 pcs./reel)

**Header** Without metal fitting



[Specific No.] – \*\*, (\*\*)  
(81): Gold plating embossed tape packaging

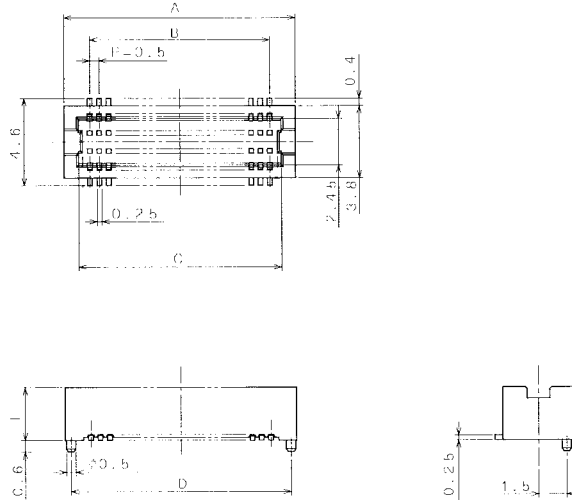
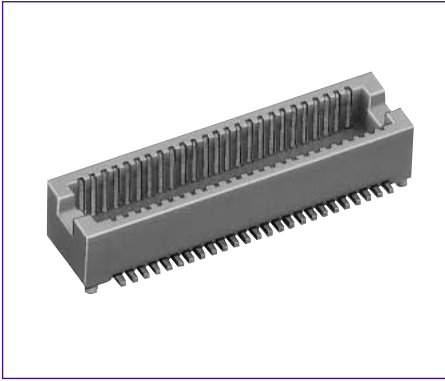
● Stacking Height: 3.5~5mm Product

Unit: mm

Product No.	HRS No.	Number of Contacts	A	B	C	D	E	Remarks
DF12D (3.5)-20DP-0.5V (**)	CL537-0428-5- **	20	7.2	4.5	5.7	6.6	2.8	Without metal fitting With boss
DF12D (3.5)-30DP-0.5V (**)	CL537-0430-7- **	30	9.7	7.0	8.2	9.1		
DF12D (3.5)-36DP-0.5V (**)	CL537-0431-0- **	36	11.2	8.5	9.7	10.6		
DF12D (3.5)-40DP-0.5V (**)	CL537-0432-2- **	40	12.2	9.5	10.7	11.6		
DF12D (3.5)-50DP-0.5V (**)	CL537-0434-8- **	50	14.7	12.0	13.2	14.1		
DF12D (3.5)-60DP-0.5V (**)	CL537-0436-3- **	60	17.2	14.5	15.7	16.6		
DF12D (4.0)-20DP-0.5V (**)	CL537-0453-2- **	20	7.2	4.5	5.7	6.6	3.3	
DF12D (4.0)-30DP-0.5V (**)	CL537-0455-8- **	30	9.7	7.0	8.2	9.1		
DF12D (4.0)-36DP-0.5V (**)	CL537-0456-0- **	36	11.2	8.5	9.7	10.6		
DF12D (4.0)-40DP-0.5V (**)	CL537-0457-3- **	40	12.2	9.5	10.7	11.6		
DF12D (4.0)-50DP-0.5V (**)	CL537-0459-9- **	50	14.7	12.0	13.2	14.1		
DF12D (4.0)-60DP-0.5V (**)	CL537-0461-0- **	60	17.2	14.5	15.7	16.6		
DF12D (5.0)-20DP-0.5V (**)	CL537-0478-3- **	20	7.2	4.5	5.7	6.6	4.3	
DF12D (5.0)-30DP-0.5V (**)	CL537-0480-5- **	30	9.7	7.0	8.2	9.1		
DF12D (5.0)-36DP-0.5V (**)	CL537-0481-8- **	36	11.2	8.5	9.7	10.6		
DF12D (5.0)-40DP-0.5V (**)	CL537-0482-0- **	40	12.2	9.5	10.7	11.6		
DF12D (5.0)-50DP-0.5V (**)	CL537-0484-6- **	50	14.7	12.0	13.2	14.1		
DF12D (5.0)-60DP-0.5V (**)	CL537-0486-1- **	60	17.2	14.5	15.7	16.6		
DF12E (3.5)-20DP-0.5V (**)	CL537-0528-0- **	20	7.2	4.5	5.7	—	2.8	Without metal fitting Without boss
DF12E (3.5)-30DP-0.5V (**)	CL537-0530-1- **	30	9.7	7.0	8.2	—		
DF12E (3.5)-36DP-0.5V (**)	CL537-0531-4- **	36	11.2	8.5	9.7	—		
DF12E (3.5)-40DP-0.5V (**)	CL537-0532-7- **	40	12.2	9.5	10.7	—		
DF12E (3.5)-50DP-0.5V (**)	CL537-0534-2- **	50	14.7	12.0	13.2	—		
DF12E (3.5)-60DP-0.5V (**)	CL537-0536-8- **	60	17.2	14.5	15.7	—		
DF12E (4.0)-20DP-0.5V (**)	CL537-0553-7- **	20	7.2	4.5	5.7	—	3.3	
DF12E (4.0)-30DP-0.5V (**)	CL537-0555-2- **	30	9.7	7.0	8.2	—		
DF12E (4.0)-36DP-0.5V (**)	CL537-0556-5- **	36	11.2	8.5	9.7	—		
DF12E (4.0)-40DP-0.5V (**)	CL537-0557-8- **	40	12.2	9.5	10.7	—		
DF12E (4.0)-50DP-0.5V (**)	CL537-0559-3- **	50	14.7	12.0	13.2	—		
DF12E (4.0)-60DP-0.5V (**)	CL537-0561-5- **	60	17.2	14.5	15.7	—		
DF12E (5.0)-20DP-0.5V (**)	CL537-0578-8- **	20	7.2	4.5	5.7	—	4.3	
DF12E (5.0)-30DP-0.5V (**)	CL537-0580-0- **	30	9.7	7.0	8.2	—		
DF12E (5.0)-36DP-0.5V (**)	CL537-0581-2- **	36	11.2	8.5	9.7	—		
DF12E (5.0)-40DP-0.5V (**)	CL537-0582-5- **	40	12.2	9.5	10.7	—		
DF12E (5.0)-50DP-0.5V (**)	CL537-0584-0- **	50	14.7	12.0	13.2	—		
DF12E (5.0)-60DP-0.5V (**)	CL537-0586-6- **	60	17.2	14.5	15.7	—		

Note : Please order the embossed tape packaging product per reel. (1000 pcs./reel)

## Header With metal fitting



[Specific No.] – \*\*, (\*\*)  
(81): Gold plating embossed tape packaging

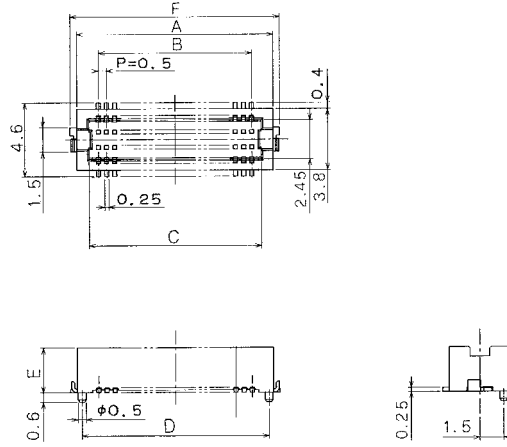
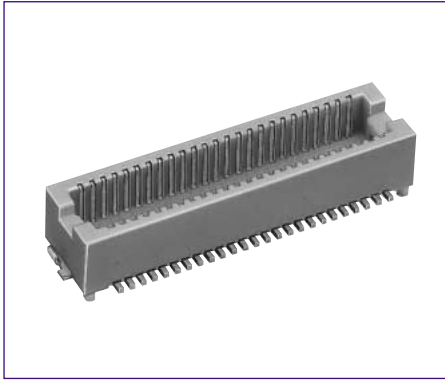
### ●Stacking Height: 3mm Product

Unit: mm

Product No.	HRS No.	Number of Contacts	A	B	C	D	E	F	Remarks
DF12 (3.0)-20DP-0.5V (**)	CL537-0723-5- **	20	7.2	4.5	5.7	6.6	2.3	8.0	With metal fitting With boss
DF12 (3.0)-30DP-0.5V (**)	CL537-0725-0- **	30	9.7	7.0	8.2	9.1		10.5	
DF12 (3.0)-32DP-0.5V (**)	CL537-0732-6- **	32	10.2	7.5	8.7	9.6		11.0	
DF12 (3.0)-36DP-0.5V (**)	CL537-0726-3- **	36	11.2	8.5	9.7	10.6		12.0	
DF12 (3.0)-40DP-0.5V (**)	CL537-0727-6- **	40	12.2	9.5	10.7	11.6		13.0	
DF12 (3.0)-50DP-0.5V (**)	CL537-0729-1- **	50	14.7	12.0	13.2	14.1		15.5	
DF12 (3.0)-60DP-0.5V (**)	CL537-0731-3- **	60	17.2	14.5	15.7	16.6		18.0	
DF12B (3.0)-20DP-0.5V (**)	CL537-0758-0- **	20	7.2	4.5	5.7	—	2.3	8.0	With metal fitting Without boss
DF12B (3.0)-30DP-0.5V (**)	CL537-0760-1- **	30	9.7	7.0	8.2	—		10.5	
DF12B (3.0)-32DP-0.5V (**)	CL537-0767-0- **	32	10.2	7.5	8.7	—		11.0	
DF12B (3.0)-36DP-0.5V (**)	CL537-0761-4- **	36	11.2	8.5	9.7	—		12.0	
DF12B (3.0)-40DP-0.5V (**)	CL537-0762-7- **	40	12.2	9.5	10.7	—		13.0	
DF12B (3.0)-50DP-0.5V (**)	CL537-0764-2- **	50	14.7	12.0	13.2	—		15.5	
DF12B (3.0)-60DP-0.5V (**)	CL537-0766-8- **	60	17.2	14.5	15.7	—		18.0	

Note : Please order the embossed tape packaging product per reel. (1000 pcs./reel)

**Header** With metal fitting



[Specific No.] – \*\*, (\*\*)  
(81): Gold plating embossed tape packaging

Unit: mm

● Stacking Height: 3.5~5mm Product

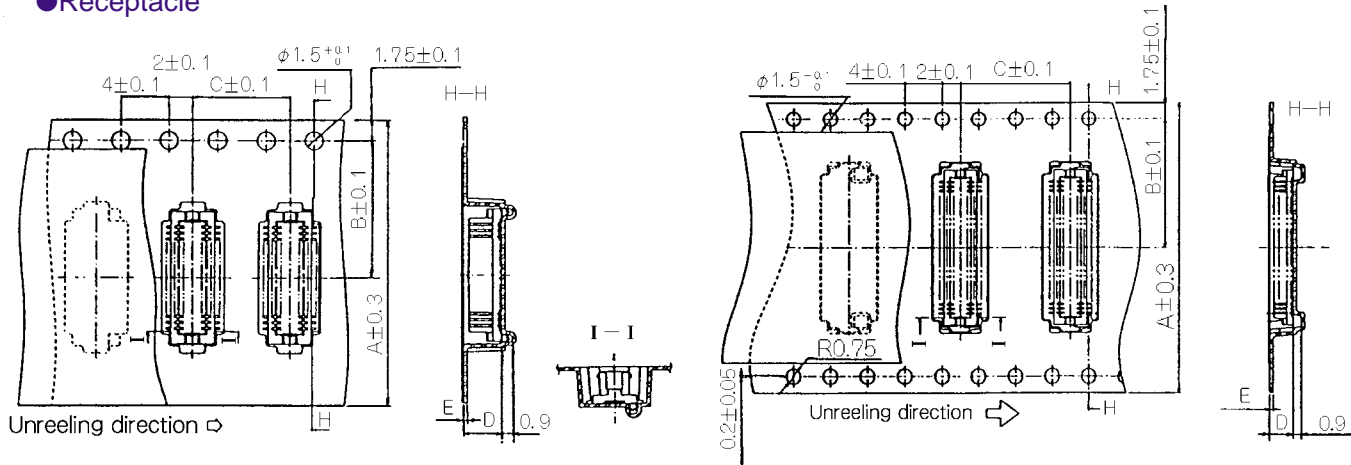
Product No.	HRS No.	Number of Contacts	A	B	C	D	E	F	Remarks
DF12 (3.5)-20DP-0.5V (**)	CL537-0028-7- **	20	7.2	4.5	5.7	6.6	2.8	8.0	With metal fitting With boss
DF12 (3.5)-30DP-0.5V (**)	CL537-0030-9- **	30	9.7	7.0	8.2	9.1		10.5	
DF12 (3.5)-36DP-0.5V (**)	CL537-0031-1- **	36	11.2	8.5	9.7	10.6		12.0	
DF12 (3.5)-40DP-0.5V (**)	CL537-0032-4- **	40	12.2	9.5	10.7	11.6		13.0	
DF12 (3.5)-50DP-0.5V (**)	CL537-0034-0- **	50	14.7	12.0	13.2	14.1		15.5	
DF12 (3.5)-60DP-0.5V (**)	CL537-0036-5- **	60	17.2	14.5	15.7	16.6		18.0	
DF12 (4.0)-20DP-0.5V (**)	CL537-0053-4- **	20	7.2	4.5	5.7	6.6	8.0	3.3	
DF12 (4.0)-30DP-0.5V (**)	CL537-0055-0- **	30	9.7	7.0	8.2	9.1	10.5		
DF12 (4.0)-36DP-0.5V (**)	CL537-0056-2- **	36	11.2	8.5	9.7	10.6	12.0		
DF12 (4.0)-40DP-0.5V (**)	CL537-0057-5- **	40	12.2	9.5	10.7	11.6	13.0		
DF12 (4.0)-50DP-0.5V (**)	CL537-0059-0- **	50	14.7	12.0	13.2	14.1	15.5		
DF12 (4.0)-60DP-0.5V (**)	CL537-0061-2- **	60	17.2	14.5	15.7	16.6	18.0		
DF12 (5.0)-20DP-0.5V (**)	CL537-0153-9- **	20	7.2	4.5	5.7	6.6	8.0	4.3	
DF12 (5.0)-30DP-0.5V (**)	CL537-0155-4- **	30	9.7	7.0	8.2	9.1	10.5		
DF12 (5.0)-36DP-0.5V (**)	CL537-0156-7- **	36	11.2	8.5	9.7	10.6	12.0		
DF12 (5.0)-40DP-0.5V (**)	CL537-0157-0- **	40	12.2	9.5	10.7	11.6	13.0		
DF12 (5.0)-50DP-0.5V (**)	CL537-0159-5- **	50	14.7	12.0	13.2	14.1	15.5		
DF12 (5.0)-60DP-0.5V (**)	CL537-0161-7- **	60	17.2	14.5	15.7	16.6	18.0		
DF12B (3.5)-20DP-0.5V (**)	CL537-0328-0- **	20	7.2	4.5	5.7	—	2.8	8.0	With metal fitting Without boss
DF12B (3.5)-30DP-0.5V (**)	CL537-0330-2- **	30	9.7	7.0	8.2	—		10.5	
DF12B (3.5)-36DP-0.5V (**)	CL537-0331-5- **	36	11.2	8.5	9.7	—		12.0	
DF12B (3.5)-40DP-0.5V (**)	CL537-0332-8- **	40	12.2	9.5	10.7	—		13.0	
DF12B (3.5)-50DP-0.5V (**)	CL537-0334-3- **	50	14.7	12.0	13.2	—		15.5	
DF12B (3.5)-60DP-0.5V (**)	CL537-0336-9- **	60	17.2	14.5	15.7	—		18.0	
DF12B (4.0)-20DP-0.5V (**)	CL537-0353-8- **	20	7.2	4.5	5.7	—	8.0	3.3	
DF12B (4.0)-30DP-0.5V (**)	CL537-0355-3- **	30	9.7	7.0	8.2	—	10.5		
DF12B (4.0)-36DP-0.5V (**)	CL537-0356-6- **	36	11.2	8.5	9.7	—	12.0		
DF12B (4.0)-40DP-0.5V (**)	CL537-0357-9- **	40	12.2	9.5	10.7	—	13.0		
DF12B (4.0)-50DP-0.5V (**)	CL537-0359-4- **	50	14.7	12.0	13.2	—	15.5		
DF12B (4.0)-60DP-0.5V (**)	CL537-0361-6- **	60	17.2	14.5	15.7	—	18.0		
DF12B (5.0)-20DP-0.5V (**)	CL537-0378-9- **	20	7.2	4.5	5.7	—	8.0	4.3	
DF12B (5.0)-30DP-0.5V (**)	CL537-0380-0- **	30	9.7	7.0	8.2	—	10.5		
DF12B (5.0)-36DP-0.5V (**)	CL537-0381-3- **	36	11.2	8.5	9.7	—	12.0		
DF12B (5.0)-40DP-0.5V (**)	CL537-0382-6- **	40	12.2	9.5	10.7	—	13.0		
DF12B (5.0)-50DP-0.5V (**)	CL537-0384-1- **	50	14.7	12.0	13.2	—	15.5		
DF12B (5.0)-60DP-0.5V (**)	CL537-0386-7- **	60	17.2	14.5	15.7	—	18.0		

Note : Please order the embossed tape packaging product per reel. (1000 pcs./reel)

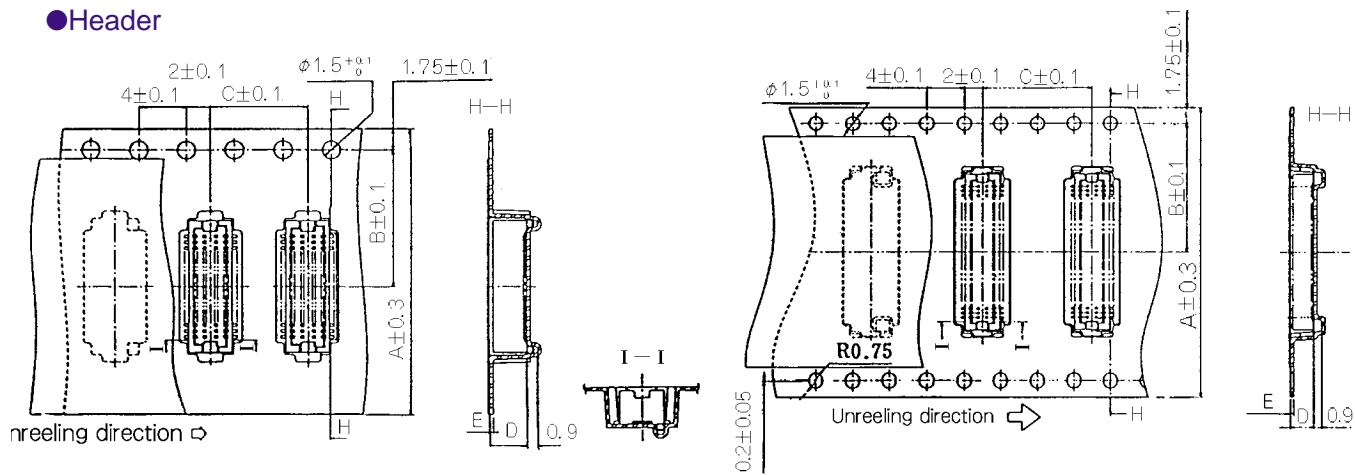


# ◆ Embossed Carrier tape Dimensions

## ● Receptacle

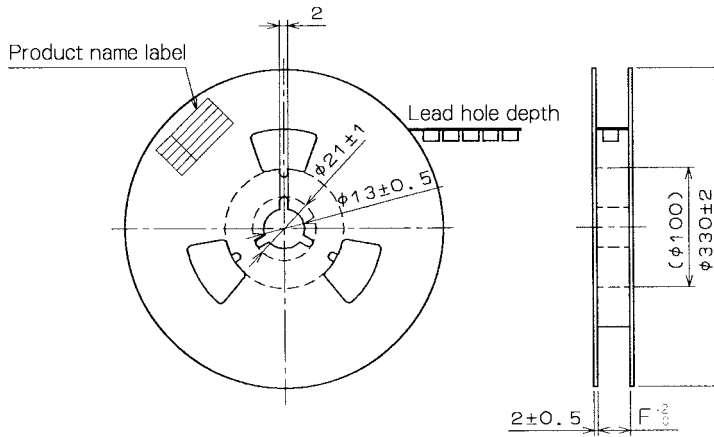


## ● Header



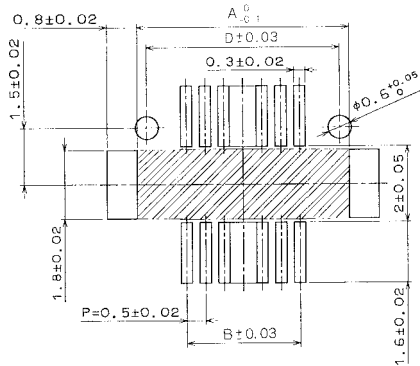
Connector	A	B	C	D	E	F	Connector	A	B	C	D	E	F
DF12# (3.0)-20DS-0.5V	16.0	7.5	12.0	2.6	0.38	16.4	DF12# (3.5)-20DP-0.5V	16.0	7.5	12.0	3.1	0.38	16.4
DF12# (3.0)-30DS-0.5V	24.0	11.5	12.0	2.6	0.38	24.4	DF12# (3.5)-30DP-0.5V	24.0	11.5	12.0	3.1	0.38	24.4
DF12# (3.0)-32DS-0.5V	24.0	11.5	12.0	2.6	0.38	24.4	DF12# (3.5)-36DP-0.5V	24.0	11.5	8.0	3.1	0.30	24.4
DF12# (3.0)-36DS-0.5V	24.0	11.5	12.0	2.6	0.38	24.4	DF12# (3.5)-40DP-0.5V	24.0	11.5	12.0	3.1	0.38	24.4
DF12# (3.0)-40DS-0.5V	24.0	11.5	12.0	2.6	0.38	24.4	DF12# (3.5)-50DP-0.5V	24.0	11.5	8.0	3.1	0.30	24.4
DF12# (3.0)-50DS-0.5V	24.0	11.5	12.0	2.6	0.38	24.4	DF12# (3.5)-60DP-0.5V	32.0	14.2	12.0	3.1	0.38	32.4
DF12# (3.0)-60DS-0.5V	32.0	14.2	12.0	2.6	0.38	32.4	DF12# (4.0)-20DP-0.5V	16.0	7.5	12.0	3.6	0.38	16.4
DF12# (3.0)-20DP-0.5V	16.0	7.5	12.0	2.6	0.38	16.4	DF12# (4.0)-30DP-0.5V	24.0	11.5	12.0	3.6	0.38	24.4
DF12# (3.0)-30DP-0.5V	24.0	11.5	12.0	2.6	0.38	24.4	DF12# (4.0)-36DP-0.5V	24.0	11.5	8.0	3.6	0.30	24.4
DF12# (3.0)-32DP-0.5V	24.0	11.5	12.0	2.6	0.38	24.4	DF12# (4.0)-40DP-0.5V	24.0	11.5	12.0	3.6	0.38	24.4
DF12# (3.0)-36DP-0.5V	24.0	11.5	12.0	2.6	0.38	24.4	DF12# (4.0)-50DP-0.5V	24.0	11.5	8.0	3.6	0.30	24.4
DF12# (3.0)-40DP-0.5V	24.0	11.5	12.0	2.6	0.38	24.4	DF12# (4.0)-60DP-0.5V	32.0	14.2	12.0	3.6	0.38	32.4
DF12# (3.0)-50DP-0.5V	24.0	11.5	12.0	2.6	0.38	24.4	DF12# (5.0)-20DP-0.5V	16.0	7.5	12.0	4.6	0.38	16.4
DF12# (3.0)-60DP-0.5V	32.0	14.2	12.0	2.6	0.38	32.4	DF12# (5.0)-30DP-0.5V	24.0	11.5	12.0	4.6	0.38	24.4
DF12#-20DS-0.5V	16.0	7.5	12.0	3.1	0.38	16.4	DF12# (5.0)-36DP-0.5V	24.0	11.5	12.0	4.6	0.38	24.4
DF12#-30DS-0.5V	24.0	11.5	12.0	3.1	0.38	24.4	DF12# (5.0)-40DP-0.5V	24.0	11.5	12.0	4.6	0.38	24.4
DF12#-36DS-0.5V	24.0	11.5	8.0	3.1	0.30	24.4	DF12# (5.0)-50DP-0.5V	24.0	11.5	8.0	4.6	0.30	24.4
DF12#-40DS-0.5V	24.0	11.5	12.0	3.1	0.38	24.4	DF12# (5.0)-60DP-0.5V	32.0	14.2	12.0	4.6	0.38	32.4
DF12#-50DS-0.5V	24.0	11.5	8.0	3.1	0.30	24.4							
DF12#-60DS-0.5V	32.0	14.2	12.0	3.1	0.38	32.4							

●Reel Dimensions

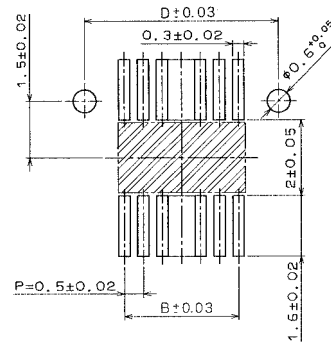


◆Recommended PCB Footprints

■DF12 with metal fitting




■DF12 without metal fitting



Note 1 : Refer to A299~A304 for sides A, B, and D.

Note 2 : If the boss isn't included, the boss shown in the above figure isn't required.

Note 3 :  If the pattern is included in the shaded area, and not treated with resist, it could touch the connector contact .

## ◆Precautions for Use

<p>1.Recommended Temperature Profile (SMT)</p>	<p>Temperature</p> <p>IR reflow condition</p> <p>Preheating area 150°C for 30~90 seconds</p> <p>Soldering area 235±5°C for 10 seconds Max 220°C Min for 10~20 seconds</p> <p>Max 240°C 220°C</p> <p>Time</p> <p>Note 1 : Maximum twice action is allowed under the same condition. However, the interval between the first and second actions must be maintained at the room temperature.</p> <p>Note 2 : The temperature indicates the board surface temperature In the connector lead area.</p>
<p>2.Recommended Manual Soldering Condition (SMT)</p>	<p>Soldering iron temperature: 290±10°C, Soldering time: Within 2 seconds</p>
<p>3.Recommended Screen Thickness (SMT)</p>	<p>0.12mm</p> <p>When the 0.15mm thickness is used, set the metal mask open area to 85% as a target.</p>
<p>4.Board Warp(SMT)</p>	<p>Maximum 0.02mm in the connector center area, based on both connector edges</p>
<p>5.Cleaning Condition</p>	<p>Refer to "Nylon Connector Instruction Manual".</p>
<p>6.Cautions</p>	<ul style="list-style-type: none"> <li>■ The receptacle is designed in a structure where contacts are exposed. Touching it with bare hands would cause contact failure or electrostatic element damage.</li> <li>■ Where no board is mounted, the insertion or extraction will cause damage or contact deformation.</li> <li>■ Avoid retaining the board with the connector only, and fix the board by any other means than the connector.</li> <li>■ Excessive scoop insertion or extraction may result in damage.</li> <li>■ In the manual soldering process, don't carry out the flux coating which will cause a flux blister on the connector.</li> <li>■ The color phase of this product may be slightly different from that of the formed product according to the manufacturing lot. However, the difference doesn't affect the performance.</li> </ul>