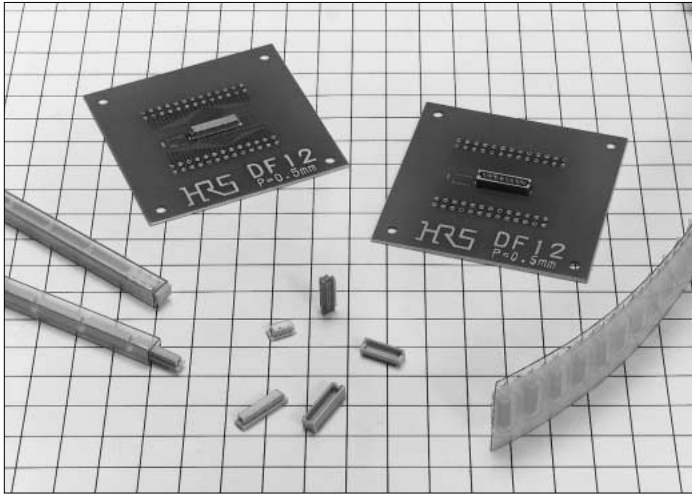


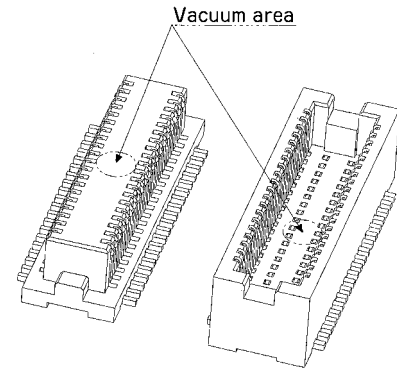
0.5mm Pitch SMT Board to Board Connector

DF12 Series



Correspond to automatic mounting

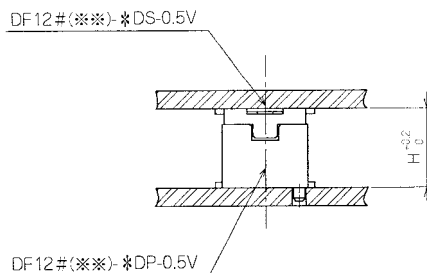
The vacuum pick-up area secures the automatic mounting machine for pick and place.



■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.

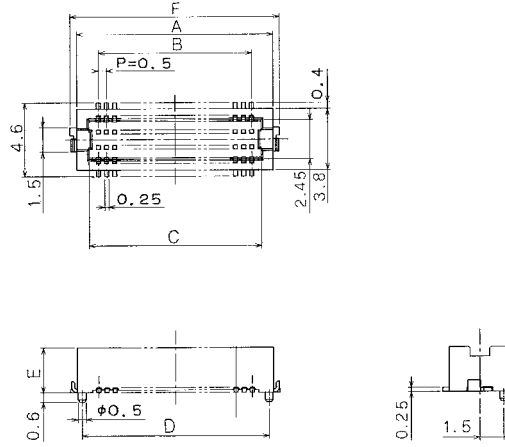
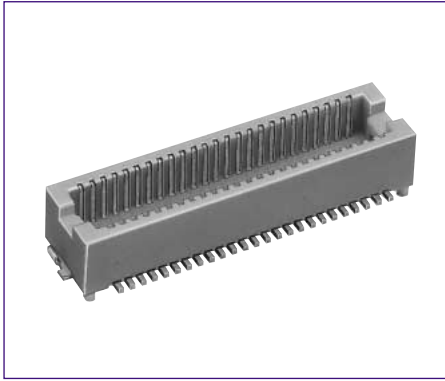
3. Metal Fitting Available

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

Header With metal fitting



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

Unit: mm

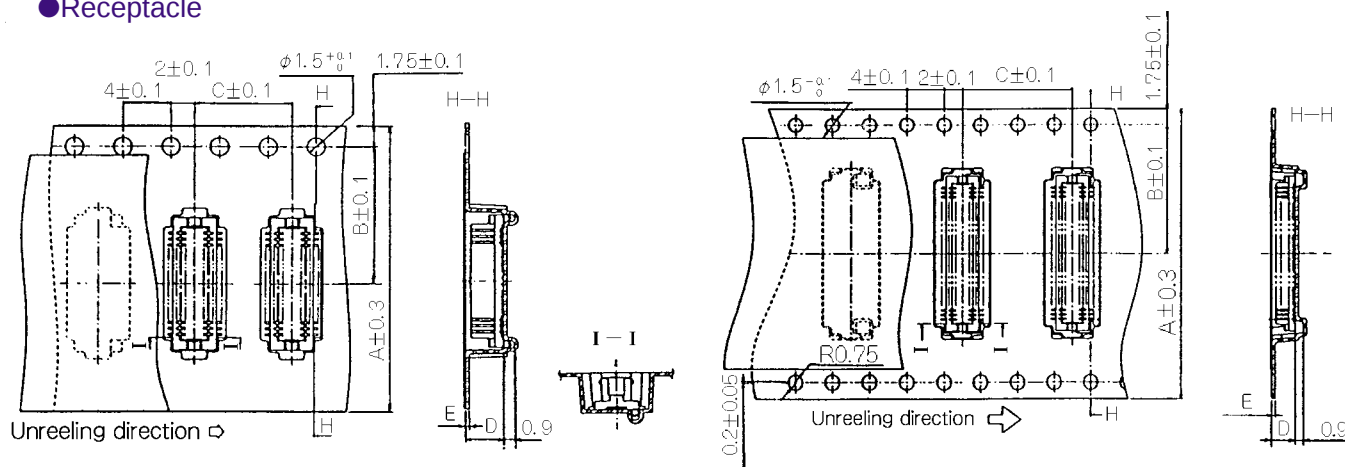
●Stacking Height: 3.5~5mm Product

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	3.3	8.0	
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	4.3	8.0	
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	—	3.3	8.0	
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	—	4.3	8.0	
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	

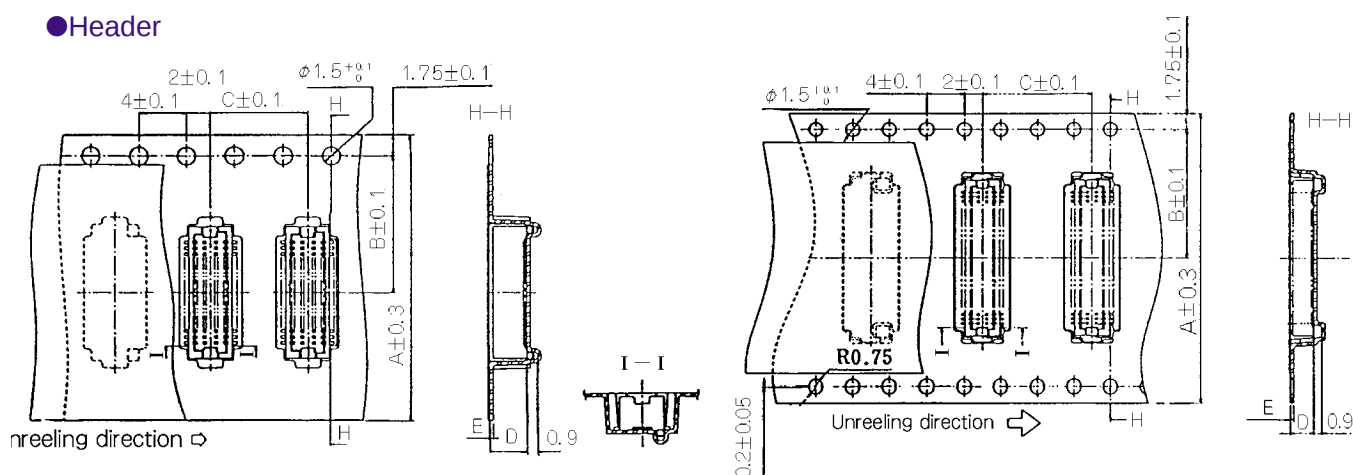
Note : Please order the embossed tape packaging product per reel. (1000 pcs./reel)

◆ Embossed Carrier tape Dimensions

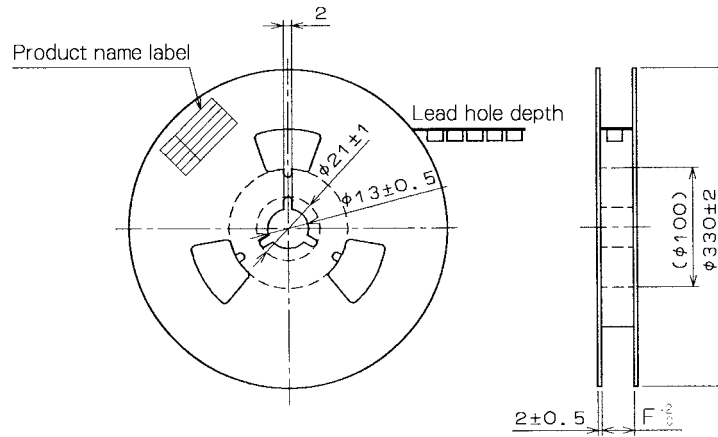
● Receptacle



● Header

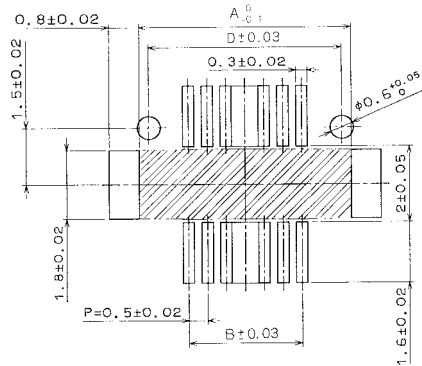


Connector	A	B	C	D	E	F	Connector	A	B	C	D	E	F
DF12# (3.0)-20DS-0.5V	16.0	7.5	12.0	2.6	0.38	16.4	DF12# (3.5)-20DP-0.5V	16.0	7.5	12.0	3.1	0.38	16.4
DF12# (3.0)-30DS-0.5V	24.0	11.5	12.0	2.6	0.38	24.4	DF12# (3.5)-30DP-0.5V	24.0	11.5	12.0	3.1	0.38	24.4
DF12# (3.0)-32DS-0.5V	24.0	11.5	12.0	2.6	0.38	24.4	DF12# (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							

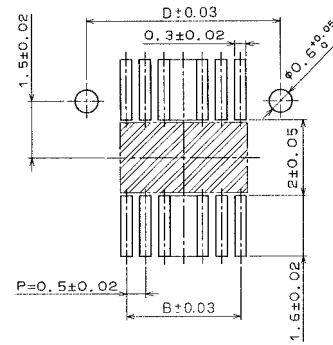


◆Recommended PCB Footprints

■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

1.Recommended Temperature Profile (SMT)	Temperature IR reflow condition Preheating area 150℃ for 30~90 seconds Soldering area 235±5℃ for 10 seconds Max 220℃ Min for 10~20 seconds Max 240℃ 220℃ Preheating area Soldering area 0 Sec 50 Sec 100 Sec 150 Sec 200 Sec Time 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. Note 2 : The temperature indicates the board surface temperature In the connector lead area.
2.Recommended Manual Soldering Condition (SMT)	Soldering iron temperature: 290±10℃, Soldering time: Within 2 seconds
3.Recommended Screen Thickness (SMT)	0.12mm When the 0.15mm thickness is used, set the metal mask open area to 85% as a target.
4.Board Warp(SMT)	Maximum 0.02mm in the connector center area, based on both connector edges
5.Cleaning Condition	Refer to "Nylon Connector Instruction Manual".
6.Cautions	■ The receptacle is designed in a structure where contacts are exposed. Touching it with bare hands would cause contact failure or electrostatic element damage. ■ Where no board is mounted, the insertion or extraction will cause damage or contact deformation. ■ Avoid retaining the board with the connector only, and fix the board by any other means than the connector. ■ Excessive scoop insertion or extraction may result in damage. ■ In the manual soldering process, don't carry out the flux coating which will cause a flux blister on the connector. ■ 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.