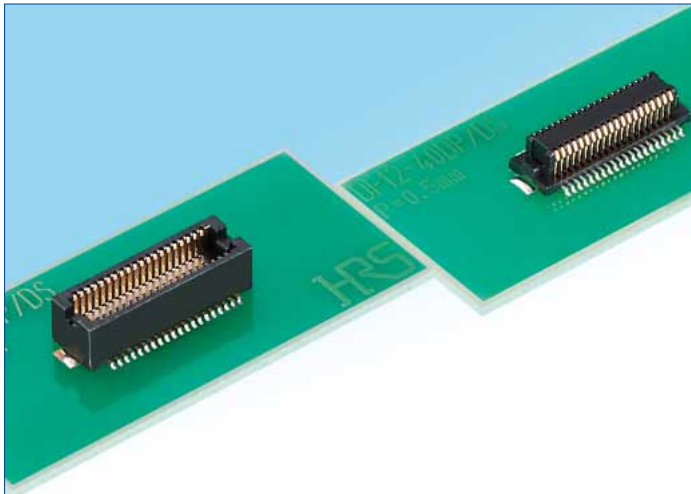


0.5mm Pitch SMT Board-to-Board Connectors

DF12N Series



Pick & Place Mounting

Vacuum Pick-up Area Available for Pick & Place Mounting Machines.

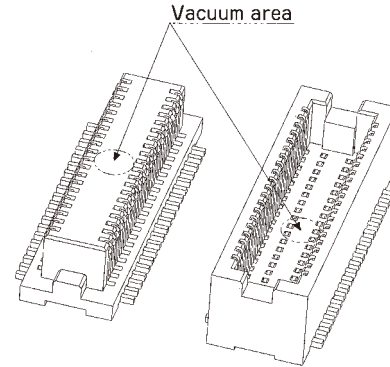
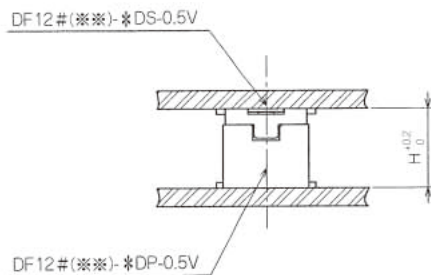


Fig.1

Features

1. Wide Variety of Stacking Heights

Stacking heights of 3mm, 3.5mm 4mm and 5mm are provided in addition to the ultra-compact size of 0.5mm pitch.



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)-*DP-0.5V	—	3.5
DF12#(4.0)-*DP-0.5V	—	4.0
DF12#(5.0)-*DP-0.5V	—	5.0

Note 1 : The (**) after DF12# indicates the stacking height.

Note 2 : The stacking height does not include the soldering paste thickness.

[Stacking Height Variations]

Stacking Height		3.0mm	3.5mm	4.0mm	5.0mm
No. of Pos.	10pos.	✓	—	—	—
	14pos.	✓	—	—	—
	20pos.	✓	✓	✓	✓
	30pos.	✓	✓	✓	✓
	32pos.	✓	—	✓	—
	36pos.	✓	✓	✓	✓
	40pos.	✓	✓	✓	✓
	50pos.	✓	✓	✓	✓
	60pos.	✓	✓	✓	✓
	80pos.	✓	—	—	—

Алматы (7273)495-231
Ангарск (3955)60-70-56
Архангельск (8182)63-90-72
Астрахань (8512)99-46-04
Барнаул (3852)73-04-60
Белгород (4722)40-23-64
Благовещенск (4162)22-76-07
Брянск (4832)59-03-52
Владивосток (423)249-28-31
Владикавказ (8672)28-90-48
Владимир (4922)49-43-18
Волгоград (844)278-03-48
Вологда (8172)26-41-59
Воронеж (473)204-51-73
Екатеринбург (343)384-55-89

Иваново (4932)77-34-06
Ижевск (3412)26-03-58
Иркутск (395)279-98-46
Казань (843)206-01-48
Калининград (4012)72-03-81
Калуга (4842)92-23-67
Кемерово (3842)65-04-62
Киров (8332)68-02-04
Коломна (4966)23-41-49
Кострома (4942)77-07-48
Краснодар (861)203-40-90
Красноярск (391)204-63-61
Курск (4712)77-13-04
Курган (3522)50-90-47
Липецк (4742)52-20-81

Магнитогорск (3519)55-03-13
Москва (495)268-04-70
Мурманск (8152)59-64-93
Набережные Челны (8552)20-53-41
Нижний Новгород (831)429-08-12
Новокузнецк (3843)20-46-81
Ноябрьск (3496)41-32-12
Новосибирск (383)227-86-73
Омск (3812)21-46-40
Орел (4862)44-53-42
Оренбург (3532)37-68-04
Пенза (8412)22-31-16
Петрозаводск (8142)55-98-37
Псков (8112)59-10-37
Пермь (342)205-81-47

Ростов-на-Дону (863)308-18-15
Рязань (4912)46-61-64
Самара (846)206-03-16
Санкт-Петербург (812)309-46-40
Саратов (845)249-38-78
Севастополь (8692)22-31-93
Саранск (8342)22-96-24
Симферополь (3652)67-13-56
Смоленск (4812)29-41-54
Сочи (862)225-72-31
Ставрополь (8652)20-65-13
Сургут (3462)77-98-35
Сыктывкар (8212)25-95-17
Тамбов (4752)50-40-97
Тверь (4822)63-31-35

Тольятти (8482)63-91-07
Томск (3822)98-41-53
Тула (4872)33-79-87
Тюмень (3452)66-21-18
Ульяновск (8422)24-23-59
Улан-Удэ (3012)59-97-51
Уфа (347)229-48-12
Хабаровск (4212)92-98-04
Чебоксары (8352)28-53-07
Челябинск (351)202-03-61
Череповец (8202)49-02-64
Чита (3022)38-34-83
Якутск (4112)23-90-97
Ярославль (4852)69-52-93

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Киргизия +996(312)96-26-47

<https://hirose.nt-rt.ru/> || hes@nt-rt.ru

Product Specifications

Ratings	Rated Current 0.3A	Operating Temperature -55 to +125°C (Note 1)	Storage Temperature Range -10 to +60°C (Note 2)
	Rated Voltage 50V AC	Operating Humidity Range 40 to 80%	Storage Humidity Range 40 to 70% (Note 2)

Items	Specifications	Conditions
1. Insulation Resistance	500MΩ min.	100V DC
2. Withstanding Voltage	No flashover or insulation breakdown.	150V AC per min.
3. Contact Resistance	50mΩ max.	20mV AC or less 1kHz, 1mA.
4. Vibration	No electrical discontinuity of 1μs or more	Frequency : 10 to 55 Hz, single amplitude of 0.75mm, 2 hours in each of the 3 directions.
5. Humidity (Steady State)	Contact resistance : 50mΩ max. Insulation resistance : 500MΩ min	96 hours at temperature of 40±2°C and humidity of 90% to 95%
6. Temperature Cycle	Contact resistance : 50mΩ max. Insulation resistance : 500MΩ min	(-65°C : 30 minutes 5 to 35°C : 3 minutes 125°C : 30 minutes 5 to 35°C : 3 minutes) 5 cycles
7. Mating Durability	Contact resistance : 50mΩ max.	50 cycles
8. Resistance to Soldering Heat	No deformation of components affecting performance.	SMT Type Reflow : At the recommended temperature profile
		Manual soldering : 350°C for 3 seconds

Note 1 : Includes temperature rise due to current flow. (105°C in automotive vibration environment)

Note 2 : The term "storage" refers to products stored for long period of time prior to mounting and use. Operating Temperature Range and Humidity range covers non conducting condition of installed connectors in storage, shipment or during transportation.

Materials / Finish

Product	Part	Material	Finish	Remarks
Receptacle/Header	Insulator	Polyamide	Black	UL94V-0
	Contact	Phosphor Copper	Gold Plated	—
	Solder Tab	Brass	Tin Plated	—

Product Number Structure

Refer to the chart below when determining the product specifications from the product number.

Please select from the product numbers listed in this catalog when placing orders.

Receptacle

DF12 # (※※) - * DS - 0.5 V (※※)

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

① Series Name : DF12		③ Stacking Height 3.0 : 3.0mm Blank : 3.5 to 5.0mm		⑥ Contact Pitch : 0.5mm							
② Type		④ No. of Pos. : 10, 14, 20, 30, 32, 36, 40, 50, 60, 80		⑦ Contact Style V : Straight SMT							
<table border="1"><tr><td></td><td>Solder Tab</td></tr><tr><td>NB</td><td>✓</td></tr><tr><td>NC</td><td>×</td></tr></table>			Solder Tab	NB	✓	NC	×	⑤ Connector Type DS : Double-row Receptacle		⑧ Packaging Type (51) : Embossed Tape Packaging (1,000pcs/reel)	
	Solder Tab										
NB	✓										
NC	×										

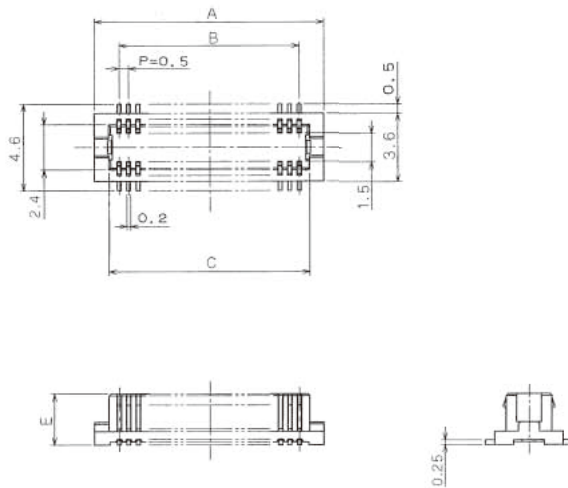
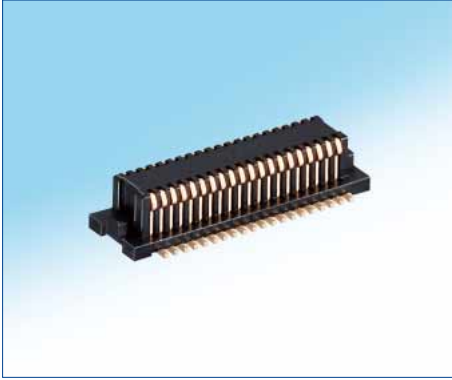
Header

DF12 # (※※) - * DP - 0.5 V (※※)

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

① Series Name : DF12		③ Stacking Height <table><tr><th>Indication</th><th>Stacking Height</th></tr><tr><td>3.0</td><td>3.0mm</td></tr><tr><td>3.5</td><td>3.5mm</td></tr><tr><td>4.0</td><td>4.0mm</td></tr><tr><td>5.0</td><td>5.0mm</td></tr></table>	Indication	Stacking Height	3.0	3.0mm	3.5	3.5mm	4.0	4.0mm	5.0	5.0mm	⑤ Connector Type DP : Double-row Pin Header	
Indication	Stacking Height													
3.0	3.0mm													
3.5	3.5mm													
4.0	4.0mm													
5.0	5.0mm													
② Type <table><tr><td></td><td>Solder Tab</td></tr><tr><td>NB</td><td>✓</td></tr><tr><td>NC</td><td>×</td></tr></table>			Solder Tab	NB	✓	NC	×	⑥ Contact Pitch : 0.5mm						
	Solder Tab													
NB	✓													
NC	×													
		⑦ Contact Style V : Straight SMT												
		⑧ Packaging Type (51) : Embossed Tape Packaging (1,000pcs/reel)												
		④ No. of Pos. : 10, 14, 20, 30, 32, 36, 40, 50, 60, 80												

■Receptacle Without Solder Tab



●Stacking Height : 3mm Product

Unit : mm

Part No.	HRS No.	No. of Pos.	A	B	C	E	Remarks	RoHS
DF12NC(3.0)-10DS-0.5V(51)	537-0191-0 51	10	4.6	2.0	3.1	2.2	Without Solder Tab	YES
DF12NC(3.0)-14DS-0.5V(51)	537-0192-0 51	14	5.6	3.0	4.1			
DF12NC(3.0)-20DS-0.5V(51)	537-0193-0 51	20	7.1	4.5	5.6			
DF12NC(3.0)-30DS-0.5V(51)	537-0194-0 51	30	9.6	7.0	8.1			
DF12NC(3.0)-32DS-0.5V(51)	537-0195-0 51	32	10.1	7.5	8.6			
DF12NC(3.0)-36DS-0.5V(51)	537-0196-0 51	36	11.1	8.5	9.6			
DF12NC(3.0)-40DS-0.5V(51)	537-0197-0 51	40	12.1	9.5	10.6			
DF12NC(3.0)-50DS-0.5V(51)	537-0198-0 51	50	14.6	12.0	13.1			
DF12NC(3.0)-60DS-0.5V(51)	537-0199-0 51	60	17.1	14.5	15.6			
DF12NC(3.0)-80DS-0.5V(51)	537-0285-0 51	80	22.1	19.5	20.6			

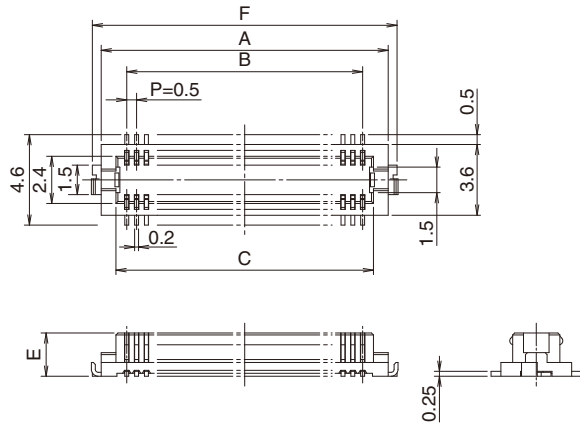
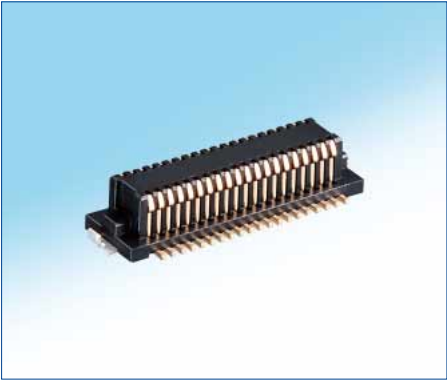
●Stacking Height : 3.5 to 5mm Product

Unit : mm

Part No.	HRS No.	No. of Pos.	A	B	C	E	Remarks	RoHS
DF12NC-20DS-0.5V(51)	537-0292-0 51	20	7.1	4.5	5.6	2.7	Without Solder Tab	YES
DF12NC-30DS-0.5V(51)	537-0293-0 51	30	9.6	7.0	8.1			
DF12NC-32DS-0.5V(51)	537-0294-0 51	32	10.1	7.5	8.6			
DF12NC-36DS-0.5V(51)	537-0295-0 51	36	11.1	8.5	9.6			
DF12NC-40DS-0.5V(51)	537-0296-0 51	40	12.1	9.5	10.6			
DF12NC-50DS-0.5V(51)	537-0297-0 51	50	14.6	12.0	13.1			
DF12NC-60DS-0.5V(51)	537-0298-0 51	60	17.1	14.5	15.6			

Note : Please order the embossed tape packaging product per reel. (1,000pcs/reel)

■Receptacle With Solder Tab



●Stacking Height : 3mm Product

Unit : mm

Part No.	HRS No.	No. of Pos.	A	B	C	E	F	Remarks	RoHS
DF12NB(3.0)-10DS-0.5V(51)	537-0097-0 51	10	4.6	2.0	3.1	2.2	5.6	With Solder Tab	YES
DF12NB(3.0)-14DS-0.5V(51)	537-0098-0 51	14	5.6	3.0	4.1		6.6		
DF12NB(3.0)-20DS-0.5V(51)	537-0099-0 51	20	7.1	4.5	5.6		8.1		
DF12NB(3.0)-30DS-0.5V(51)	537-0185-0 51	30	9.6	7.0	8.1		10.6		
DF12NB(3.0)-32DS-0.5V(51)	537-0186-0 51	32	10.1	7.5	8.6		11.1		
DF12NB(3.0)-36DS-0.5V(51)	537-0187-0 51	36	11.1	8.5	9.6		12.1		
DF12NB(3.0)-40DS-0.5V(51)	537-0188-0 51	40	12.1	9.5	10.6		13.1		
DF12NB(3.0)-50DS-0.5V(51)	537-0189-0 51	50	14.6	12.0	13.1		15.6		
DF12NB(3.0)-60DS-0.5V(51)	537-0190-0 51	60	17.1	14.5	15.6		18.1		
DF12NB(3.0)-80DS-0.5V(51)	537-0095-0 51	80	22.1	19.5	20.6		23.1		

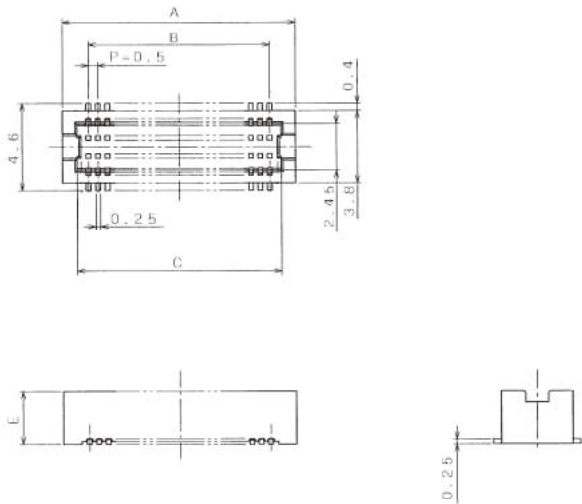
●Stacking Height : 3.5 to 5mm Product

Unit : mm

Part No.	HRS No.	No. of Pos.	A	B	C	E	F	Remarks	RoHS
DF12NB-20DS-0.5V(51)	537-0286-0 51	20	7.1	4.5	5.6	2.7	8.1	With Solder Tab	YES
DF12NB-30DS-0.5V(51)	537-0287-0 51	30	9.6	7.0	8.1		10.6		
DF12NB-32DS-0.5V(51)	537-0288-0 51	32	10.1	7.5	8.6		11.1		
DF12NB-36DS-0.5V(51)	537-0289-0 51	36	11.1	8.5	9.6		12.1		
DF12NB-40DS-0.5V(51)	537-0290-0 51	40	12.1	9.5	10.6		13.1		
DF12NB-50DS-0.5V(51)	537-0291-0 51	50	14.6	12.0	13.1		15.6		
DF12NB-60DS-0.5V(51)	537-0096-0 51	60	17.1	14.5	15.6		18.1		

Note : Please order the embossed tape packaging product per reel. (1,000pcs/reel)

Header Without Solder Tab



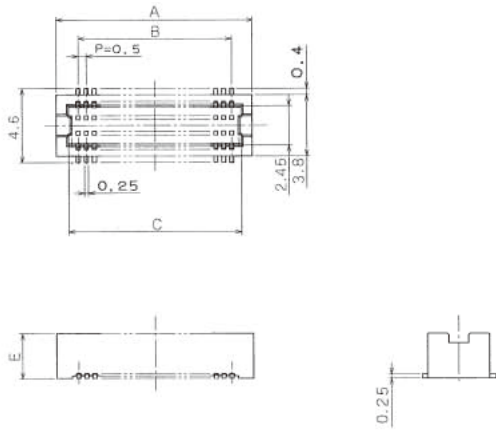
●Stacking Height : 3mm Product

Unit : mm

Part No.	HRS No.	No. of Pos.	A	B	C	E	Remarks	RoHS
DF12NC(3.0)-10DP-0.5V(51)	537-0396-0 51	10	4.7	2.0	3.2	2.3	Without Solder Tab	YES
DF12NC(3.0)-14DP-0.5V(51)	537-0397-0 51	14	5.7	3.0	4.2			
DF12NC(3.0)-20DP-0.5V(51)	537-0398-0 51	20	7.2	4.5	5.7			
DF12NC(3.0)-30DP-0.5V(51)	537-0399-0 51	30	9.7	7.0	8.2			
DF12NC(3.0)-32DP-0.5V(51)	537-0487-0 51	32	10.2	7.5	8.7			
DF12NC(3.0)-36DP-0.5V(51)	537-0488-0 51	36	11.2	8.5	9.7			
DF12NC(3.0)-40DP-0.5V(51)	537-0489-0 51	40	12.2	9.5	10.7			
DF12NC(3.0)-50DP-0.5V(51)	537-0490-0 51	50	14.7	12.0	13.2			
DF12NC(3.0)-60DP-0.5V(51)	537-0491-0 51	60	17.2	14.5	15.7			
DF12NC(3.0)-80DP-0.5V(51)	537-0492-0 51	80	22.2	19.5	20.7			

Note : Please order the embossed tape packaging product per reel. (1,000pcs/reel)

Header Without Solder Tab



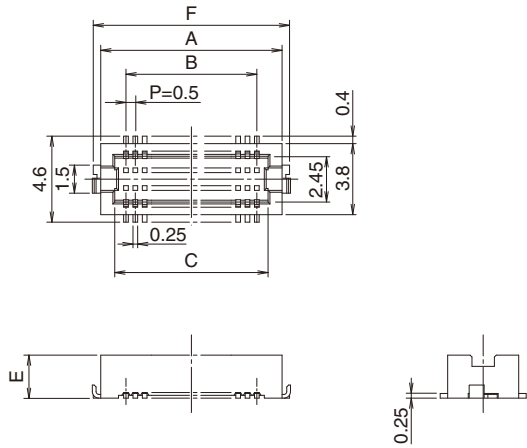
●Stacking Height : 3.5 to 5mm Product

Unit : mm

Part No.	HRS No.	No. of Pos.	A	B	C	E	Remarks	RoHS
DF12NC(3.5)-20DP-0.5V(51)	537-0499-0 51	20	7.2	4.5	5.7	2.8	Without Solder Tab	YES
DF12NC(3.5)-30DP-0.5V(51)	537-0587-0 51	30	9.7	7.0	8.2			
DF12NC(3.5)-36DP-0.5V(51)	537-0588-0 51	36	11.2	8.5	9.7			
DF12NC(3.5)-40DP-0.5V(51)	537-0589-0 51	40	12.2	9.5	10.7			
DF12NC(3.5)-50DP-0.5V(51)	537-0590-0 51	50	14.7	12.0	13.2			
DF12NC(3.5)-60DP-0.5V(51)	537-0591-0 51	60	17.2	14.5	15.7			
DF12NC(4.0)-20DP-0.5V(51)	537-0599-0 51	20	7.2	4.5	5.7	3.3		
DF12NC(4.0)-30DP-0.5V(51)	537-0699-0 51	30	9.7	7.0	8.2			
DF12NC(4.0)-32DP-0.5V(51)	537-0872-0 51	32	10.2	7.5	8.7			
DF12NC(4.0)-36DP-0.5V(51)	537-0873-0 51	36	11.2	8.5	9.7			
DF12NC(4.0)-40DP-0.5V(51)	537-0874-0 51	40	12.2	9.5	10.7			
DF12NC(4.0)-50DP-0.5V(51)	537-0875-0 51	50	14.7	12.0	13.2			
DF12NC(4.0)-60DP-0.5V(51)	537-0876-0 51	60	17.2	14.5	15.7	4.3		
DF12NC(5.0)-20DP-0.5V(51)	537-0883-0 51	20	7.2	4.5	5.7			
DF12NC(5.0)-30DP-0.5V(51)	537-0884-0 51	30	9.7	7.0	8.2			
DF12NC(5.0)-36DP-0.5V(51)	537-0885-0 51	36	11.2	8.5	9.7			
DF12NC(5.0)-40DP-0.5V(51)	537-0886-0 51	40	12.2	9.5	10.7			
DF12NC(5.0)-50DP-0.5V(51)	537-0887-0 51	50	14.7	12.0	13.2			
DF12NC(5.0)-60DP-0.5V(51)	537-0888-0 51	60	17.2	14.5	15.7			

Note : Please order the embossed tape packaging product per reel. (1,000pcs/reel)

Header With Solder Tab



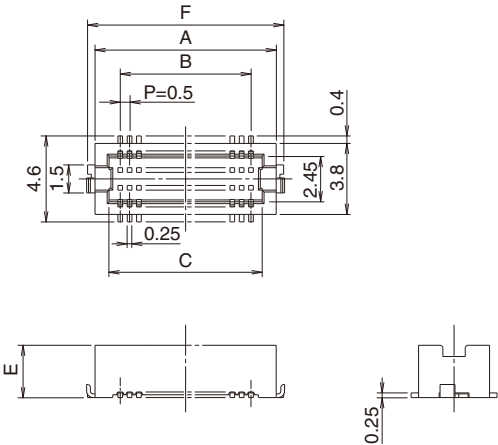
●Stacking Height : 3mm Product

Unit : mm

Part No.	HRS No.	No. of Pos.	A	B	C	E	F	Remarks	RoHS
DF12NB(3.0)-10DP-0.5V(51)	537-0299-0 51	10	4.7	2.0	3.2	2.3	5.6	With Solder Tab	YES
DF12NB(3.0)-14DP-0.5V(51)	537-0387-0 51	14	5.7	3.0	4.2		6.6		
DF12NB(3.0)-20DP-0.5V(51)	537-0388-0 51	20	7.2	4.5	5.7		8.1		
DF12NB(3.0)-30DP-0.5V(51)	537-0389-0 51	30	9.7	7.0	8.2		10.6		
DF12NB(3.0)-32DP-0.5V(51)	537-0390-0 51	32	10.2	7.5	8.7		11.1		
DF12NB(3.0)-36DP-0.5V(51)	537-0391-0 51	36	11.2	8.5	9.7		12.1		
DF12NB(3.0)-40DP-0.5V(51)	537-0392-0 51	40	12.2	9.5	10.7		13.1		
DF12NB(3.0)-50DP-0.5V(51)	537-0393-0 51	50	14.7	12.0	13.2		15.6		
DF12NB(3.0)-60DP-0.5V(51)	537-0394-0 51	60	17.2	14.5	15.7		18.1		
DF12NB(3.0)-80DP-0.5V(51)	537-0395-0 51	80	22.2	19.5	20.7		23.1		

Note : Please order the embossed tape packaging product per reel. (1,000pcs/reel)

Header With Solder Tab



Stacking Height : 3.5 to 5mm Product

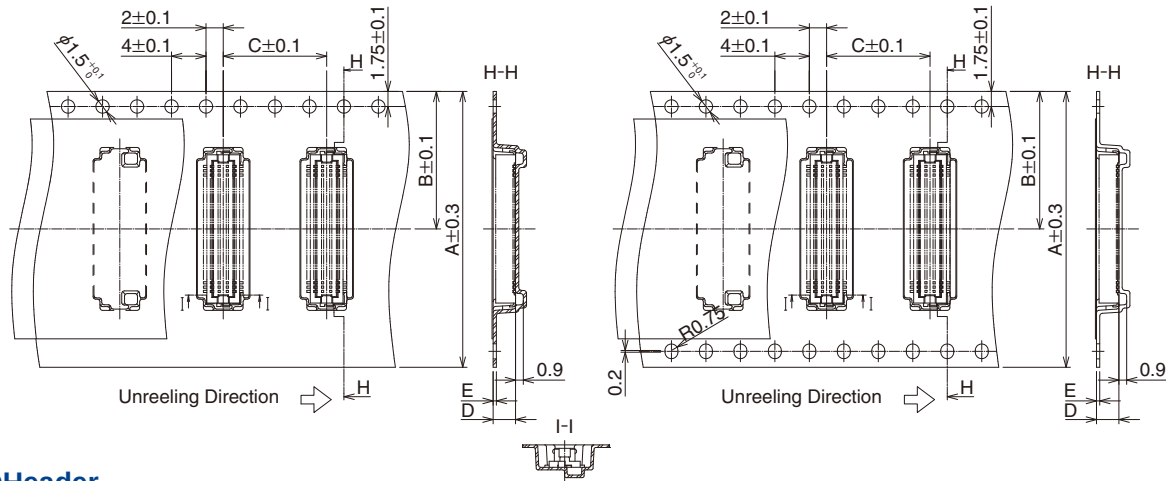
Unit : mm

Part No.	HRS No.	No. of Pos.	A	B	C	E	F	Remarks	RoHS
DF12NB(3.5)-20DP-0.5V(51)	537-0493-0 51	20	7.2	4.5	5.7	2.8	8.1	With Solder Tab	YES
DF12NB(3.5)-30DP-0.5V(51)	537-0494-0 51	30	9.7	7.0	8.2		10.6		
DF12NB(3.5)-36DP-0.5V(51)	537-0495-0 51	36	11.2	8.5	9.7		12.1		
DF12NB(3.5)-40DP-0.5V(51)	537-0496-0 51	40	12.2	9.5	10.7		13.1		
DF12NB(3.5)-50DP-0.5V(51)	537-0497-0 51	50	14.7	12.0	13.2		15.6		
DF12NB(3.5)-60DP-0.5V(51)	537-0498-0 51	60	17.2	14.5	15.7		18.1		
DF12NB(4.0)-20DP-0.5V(51)	537-0592-0 51	20	7.2	4.5	5.7	3.3	8.1		
DF12NB(4.0)-30DP-0.5V(51)	537-0593-0 51	30	9.7	7.0	8.2		10.6		
DF12NB(4.0)-32DP-0.5V(51)	537-0594-0 51	32	10.2	7.5	8.7		11.1		
DF12NB(4.0)-36DP-0.5V(51)	537-0595-0 51	36	11.2	8.5	9.7		12.1		
DF12NB(4.0)-40DP-0.5V(51)	537-0596-0 51	40	12.2	9.5	10.7		13.1		
DF12NB(4.0)-50DP-0.5V(51)	537-0597-0 51	50	14.7	12.0	13.2		15.6		
DF12NB(4.0)-60DP-0.5V(51)	537-0598-0 51	60	17.2	14.5	15.7		18.1		
DF12NB(5.0)-20DP-0.5V(51)	537-0877-0 51	20	7.2	4.5	5.7	4.3	8.1		
DF12NB(5.0)-30DP-0.5V(51)	537-0878-0 51	30	9.7	7.0	8.2		10.6		
DF12NB(5.0)-36DP-0.5V(51)	537-0879-0 51	36	11.2	8.5	9.7		12.1		
DF12NB(5.0)-40DP-0.5V(51)	537-0880-0 51	40	12.2	9.5	10.7		13.1		
DF12NB(5.0)-50DP-0.5V(51)	537-0881-0 51	50	14.7	12.0	13.2		15.6		
DF12NB(5.0)-60DP-0.5V(51)	537-0882-0 51	60	17.2	14.5	15.7		18.1		

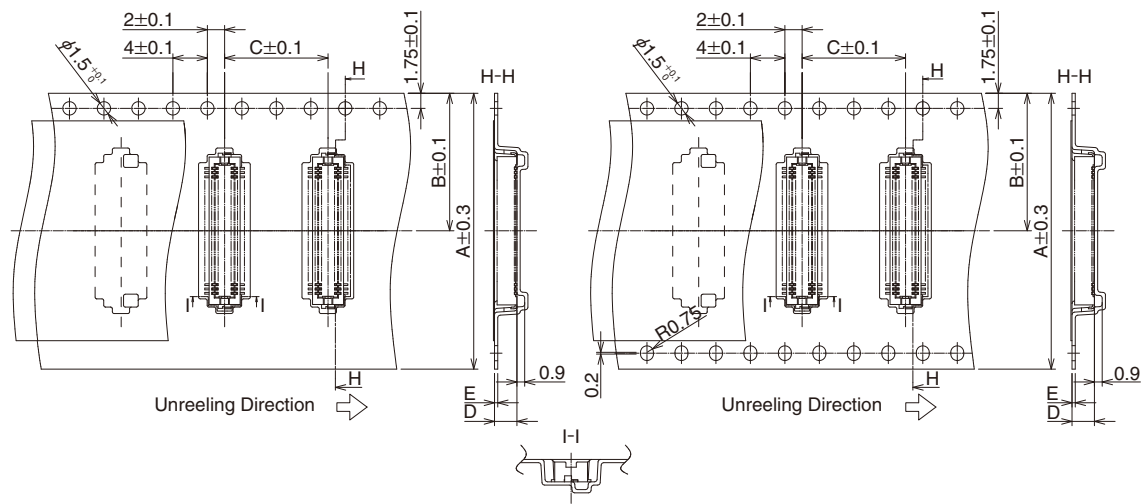
Note : Please order the embossed tape packaging product per reel. (1,000pcs/reel)

◆ Embossed Carrier Tape Dimensions

● Receptacle

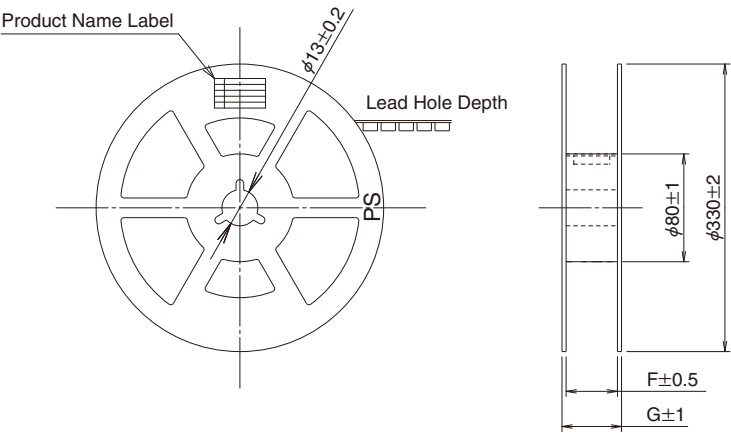


● Header



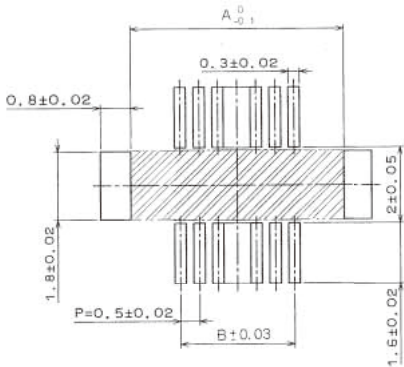
Connector	A	B	C	D	E	F	G	Connector	A	B	C	D	E	F	G							
DF12#(3.0)-10DS-0.5V	16	7.5			0.30	17.5	21.5	DF12#(3.5)-20DP-0.5V	16	7.5	12		0.38	17.5	21.5							
DF12#(3.0)-14DS-0.5V					24			11.5	DF12#(3.5)-30DP-0.5V	8						0.30	25.5	29.5				
DF12#(3.0)-20DS-0.5V									DF12#(3.5)-36DP-0.5V										12	0.38		
DF12#(3.0)-30DS-0.5V	32	14.2	DF12#(3.5)-40DP-0.5V	8		0.30																
DF12#(3.0)-32DS-0.5V			DF12#(3.5)-50DP-0.5V																			
DF12#(3.0)-36DS-0.5V			DF12#(3.5)-60DP-0.5V																			
DF12#(3.0)-40DS-0.5V	24	11.5		0.38	25.5	29.5	DF12#(4.0)-20DP-0.5V	16	7.5	12		0.38	17.5	21.5								
DF12#(3.0)-50DS-0.5V							32	14.2	DF12#(4.0)-30DP-0.5V						8	0.30						
DF12#(3.0)-60DS-0.5V									DF12#(4.0)-32DP-0.5V													
DF12#(3.0)-80DS-0.5V	DF12#(4.0)-36DP-0.5V																					
DF12#(3.0)-10DP-0.5V	16	7.5	12	2.6	0.30	17.5	21.5	DF12#(4.0)-40DP-0.5V	24	11.5	8	3.6	0.30	25.5	29.5							
DF12#(3.0)-14DP-0.5V					DF12#(4.0)-50DP-0.5V			12								0.38						
DF12#(3.0)-20DP-0.5V					DF12#(4.0)-60DP-0.5V																	
DF12#(3.0)-30DP-0.5V	24	11.5		0.38	25.5	29.5	DF12#(5.0)-20DP-0.5V		16	7.5	12		0.38	25.5	29.5							
DF12#(3.0)-32DP-0.5V							DF12#(5.0)-30DP-0.5V	8	0.30													
DF12#(3.0)-36DP-0.5V							DF12#(5.0)-36DP-0.5V															
DF12#(3.0)-40DP-0.5V	32	14.2			33.5	37.5	DF12#(5.0)-40DP-0.5V			24	11.5	12		0.38	33.5	37.5						
DF12#(3.0)-50DP-0.5V							DF12#(5.0)-50DP-0.5V															
DF12#(3.0)-60DP-0.5V							DF12#(5.0)-60DP-0.5V															
DF12#(3.0)-80DP-0.5V	44	20.2				45.5	49.5															
DF12#-20DS-0.5V	16	7.5					0.30	25.5	29.5													
DF12#-30DS-0.5V										24	11.5	8	0.38									
DF12#-32DS-0.5V			12	8										0.30								
DF12#-36DS-0.5V	32	14.2			12		0.38	33.5	37.5													
DF12#-40DS-0.5V										44	20.2				0.30	33.5	37.5					
DF12#-50DS-0.5V			16	7.5															0.30	33.5	37.5	
DF12#-60DS-0.5V	24	11.5			8	0.38	33.5	37.5														
									32	14.2	12		0.38		33.5	37.5						
			44	20.2														0.38	33.5	37.5		
	16	7.5					0.38	33.5													37.5	
									24	11.5	8	0.38	33.5		37.5							
			32	14.2										12			0.38	33.5	37.5			
	44	20.2					0.38	33.5												37.5		
									16	7.5			0.38		33.5						37.5	
			24	11.5										8		0.38	33.5	37.5				
	32	14.2			12		0.38	33.5											37.5			
									44	20.2			0.38		33.5					37.5		
			16	7.5													0.38	33.5			37.5	
	24	11.5			8	0.38	33.5	37.5														
									32	14.2	12		0.38		33.5				37.5			
			44	20.2													0.38	33.5		37.5		
	16	7.5					0.38	33.5													37.5	
									24	11.5	8	0.38	33.5		37.5							
			32	14.2										12			0.38	33.5	37.5			
	44	20.2					0.38	33.5												37.5		
									16	7.5			0.38		33.5						37.5	
			24	11.5										8		0.38	33.5	37.5				
	32	14.2			12		0.38	33.5											37.5			
									44	20.2			0.38		33.5					37.5		
			16	7.5													0.38	33.5			37.5	
	24	11.5			8	0.38	33.5	37.5														
									32	14.2	12		0.38		33.5				37.5			
			44	20.2													0.38	33.5		37.5		
	16	7.5					0.38	33.5													37.5	
									24	11.5	8	0.38	33.5		37.5							
			32	14.2										12			0.38	33.5	37.5			
	44	20.2					0.38	33.5												37.5		
									16	7.5			0.38		33.5						37.5	
			24	11.5										8		0.38	33.5	37.5				
	32	14.2			12		0.38	33.5											37.5			
									44	20.2			0.38		33.5					37.5		
			16	7.5													0.38	33.5			37.5	
	24	11.5			8	0.38	33.5	37.5														
									32	14.2	12		0.38		33.5				37.5			
			44	20.2													0.38	33.5		37.5		
	16	7.5					0.38	33.5													37.5	
									24	11.5	8	0.38	33.5		37.5							
			32	14.2										12			0.38	33.5	37.5			
	44	20.2					0.38	33.5												37.5		
									16	7.5			0.38		33.5						37.5	
			24	11.5										8		0.38	33.5	37.5				
	32	14.2			12		0.38	33.5											37.5			
									44	20.2			0.38		33.5					37.5		
			16	7.5													0.38	33.5			37.5	
	24	11.5			8	0.38	33.5	37.5														
									32	14.2	12		0.38		33.5				37.5			
			44	20.2													0.38	33.5		37.5		
	16	7.5					0.38	33.5													37.5	
									24	11.5	8	0.38	33.5		37.5							
			32	14.2										12			0.38	33.5	37.5			
	44	20.2					0.38	33.5												37.5		
									16	7.5			0.38		33.5						37.5	
			24	11.5										8		0.38	33.5	37.5				
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			16	7.5													0.38	33.5			37.5	
	24	11.5			8	0.38	33.5	37.5														
									32	14.2	12		0.38		33.5				37.5			
			44	20.2													0.38	33.5		37.5		
	16	7.5					0.38	33.5													37.5	
									24	11.5	8	0.38	33.5		37.5							
			32	14.2										12			0.38	33.5	37.5			
	44	20.2					0.38	33.5												37.5		
									16	7.5			0.38		33.5						37.5	
			24	11.5										8		0.38	33.5	37.5				
	32	14.2			12		0.38	33.5											37.5			
									44	20.2			0.38		33.5					37.5		
			16	7.5													0.38	33.5			37.5	
	24	11.5			8	0.38	33.5	37.5														
									32	14.2	12		0.38		33.5				37.5			
			44	20.2													0.38	33.5		37.5		
	16	7.5					0.38	33.5													37.5	
									24	11.5	8	0.38	33.5		37.5							
			32	14.2										12			0.38	33.5	37.5			
	44	20.2					0.38	33.5												37.5		
									16	7.5			0.38		33.5						37.5	
			24	11.5										8		0.38	33.5	37.5				
	32	14.2			12		0.38	33.5											37.5			
									44	20.2			0.38		33.5					37.5		
			16	7.5													0.38	33.5			37.5	
	24	11.5			8	0.38	33.5	37.5														
									32	14.2	12		0.38		33.5				37.5			
			44	20.2													0.38	33.5		37.5		
	16	7.5					0.38	33.5													37.5	
									24	11.5	8	0.38	33.5		37.5							
			32	14.2										12			0.38	33.5	37.5			
	44	20.2					0.38	33.5												37.5		
									16	7.5			0.38		33.5						37.5	
			24	11.5										8		0.38	33.5	37.5				
	32	14.2			12		0.38	33.5											37.5			
									44	20.2			0.38		33.5					37.5		
			16	7.5													0.38	33.5			37.5	
	24	11.5			8	0.38	33.5	37.5														
									32	14.2	12		0.38		33.5				37.5			
			44	20.2													0.38	33.5		37.5		
	16	7.5					0.38	33.5													37.5	
									24	11.5	8	0.38	33.5		37.5							
			32	14.2										12			0.38	33.5	37.5			
	44	20.2					0.38	33.5												37.5		
									16	7.5			0.38		33.5						37.5	
			24	11.5										8		0.38	33.5	37.5				
	32	14.2			12		0.38	33.5											37.5			
									44	20.2			0.38		33.5					37.5		
			16	7.5													0.38	33.5			37.5	
	24	11.5			8	0.38	33.5	37.5														
									32	14.2	12		0.38		33.5				37.5			
			44	20.2													0.38	33.5		37.5		
	16	7.5					0.38	33.5													37.5	
									24	11.5	8	0.38	33.5		37.5							
			32	14.2										12			0.38	33.5	37.5			

●Reel Dimensions

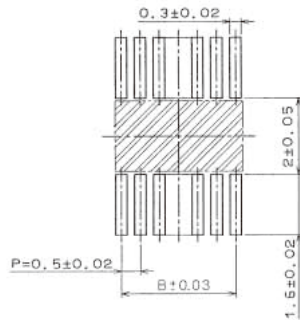


◆Recommended PCB mounting pattern

■DF12N with Solder Tab



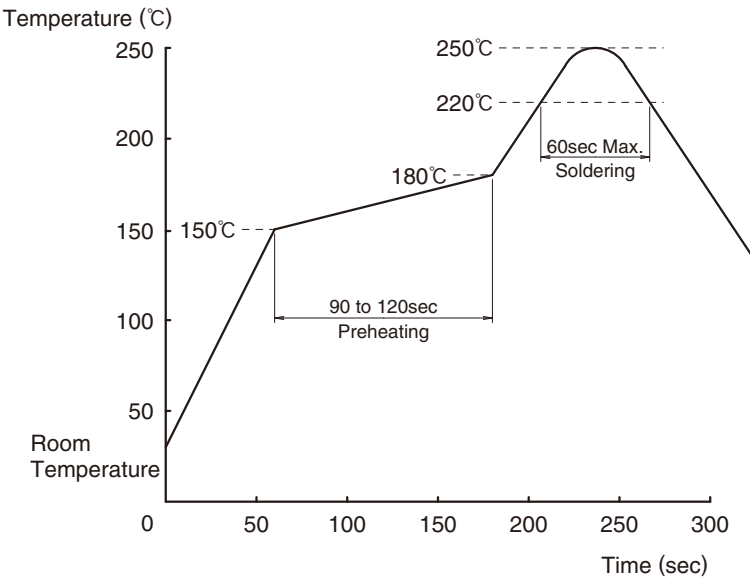
■DF12N without Solder Tab



Note 1 : Refer to 3 to 8 for dimensions A and B.

Note 2 :  If there is a pattern on the shaded area and no resist is applied, it may come into contact with the connector contact.

◆ Precautions for Use

1.Recommended Temperature Profile (SMT)	 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 temperature of the surface of the connector lead.
2.Recommended Manual Soldering Condition (SMT)	Soldering iron temperature : 350°C, Soldering time : Within 3 seconds
3.Recommended Screen Thickness and Open Area Ratio(Pattern Area Ratio)	0.12mm Open area ratio : 70%
4.Board Warp(SMT)	Maximum 0.02mm in the connector center area, based on both connector edges
5.Cleaning Condition	Refer to "Nylon Connector Use Handbook".
6.Cautions	■ The receptacle is designed with the contacts exposed. Touching the contacts with bare hands may cause contact failure or damage to the device due to static electricity. ■ Insertion/extraction when not mounted to the board may result in damage or contact deformation. ■ Avoid securing the board only with the connector. Please use other methods to secure the board. ■ Excessive prying during insertion and extraction may result in damage. ■ Do not apply flux that will result in flux rise during manual soldering. ■ The color of the mold may differ slightly depending on the production lot however this does not affect the performance.

DF37 Series

0.4mm Pitch, 0.98/1.5mm Stacking Height, FPC-to-Board Connectors



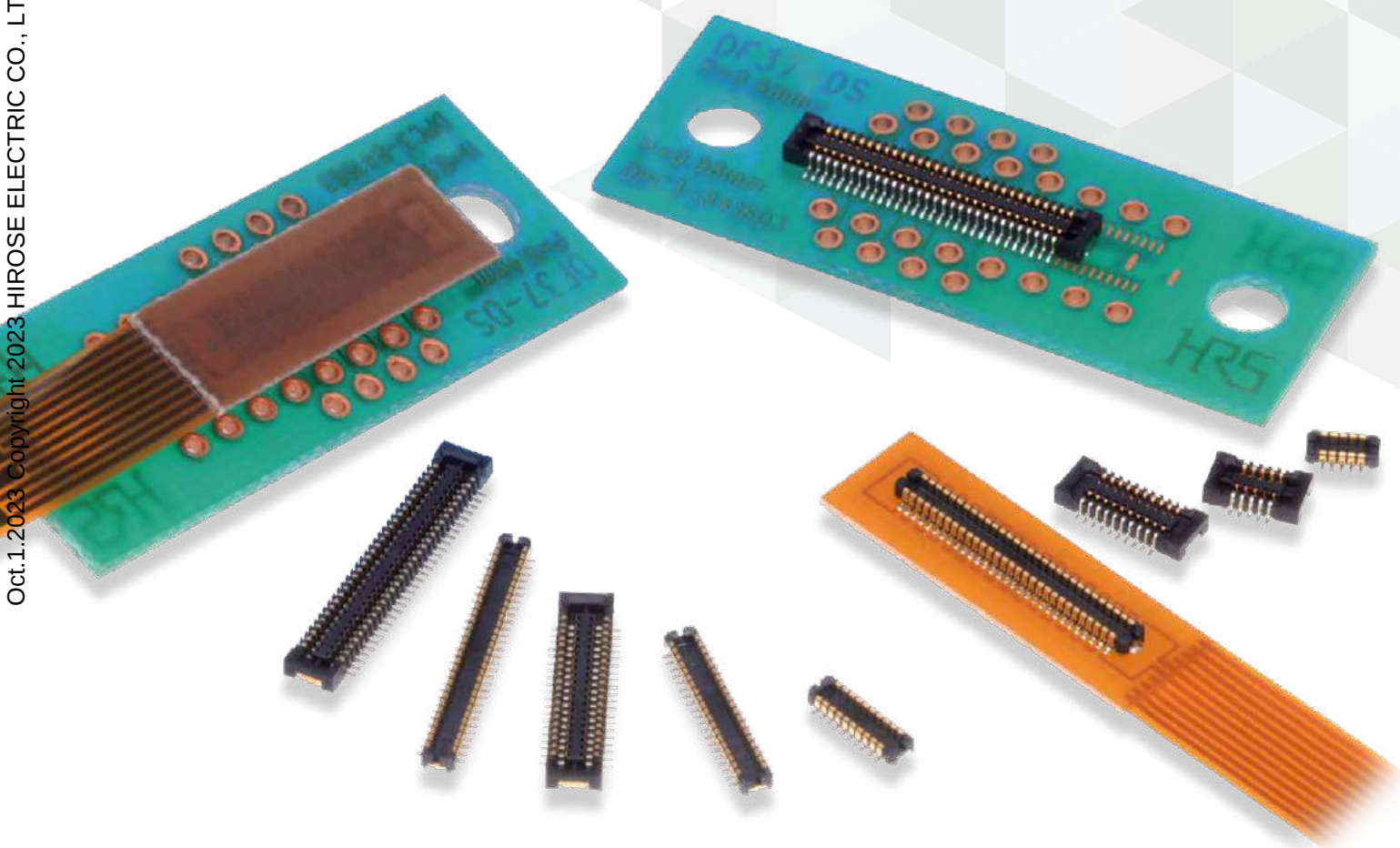
Space Saving



Contact Reliability



Wide Variation



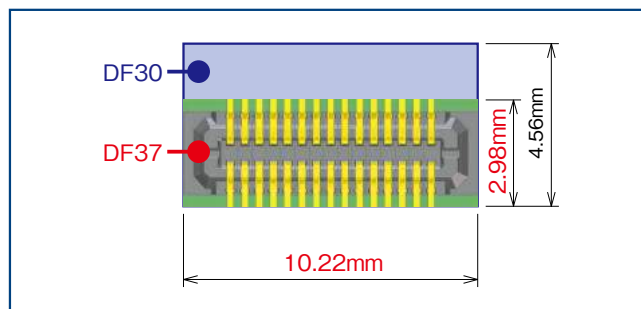
Features

1. Contributes to End Product Size Reduction

Space-saving design with minimal connector depth and an automatic placement area that does not interfere with mounting (tested).

Depth: When mated 2.98mm

Header 1.98mm



PCB Mounting Space Comparison(40pos., 0.4mm Pitch, 0.98mm Height)

2. High Contact Reliability

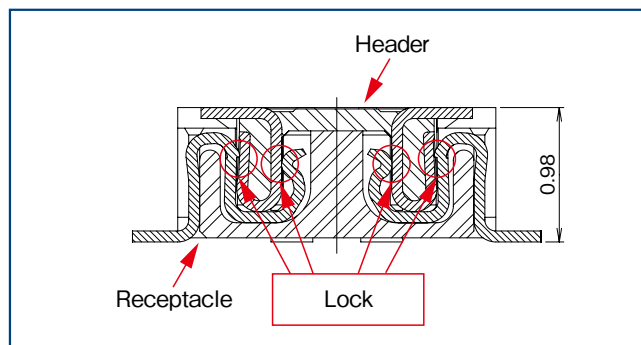
DF37 has an effective mating length of 0.25mm, one of the longest for connectors with a 1.0mm mated height. The clear tactile click prevents incomplete mating and the 2-point contact design provides a high mating force.

3. Wide Mating Self-Alignment Range

The guide ribs effectively utilize dead space, enabling a self alignment range of 0.3mm.

4. Robust Design with Shock Absorbing Contacts

Locks on both sides of the 2-point contact absorb stress on impact.

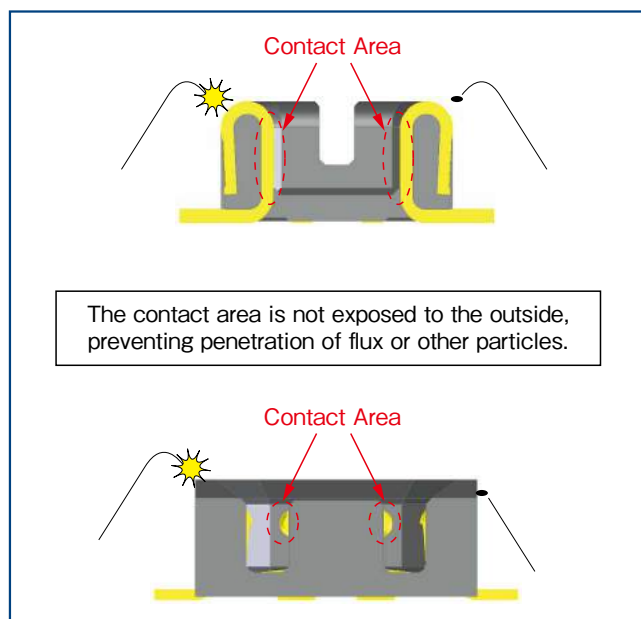


5. Solder Wicking Prevention

The receptacle with nickel barrier and the insert molder header prevent solder wicking.

6. Contamination Protection

Insulator walls protect the contact areas against flux splatter or other physical particle contamination.



Product Specifications

Rated Current	0.3A	Operating Temperature (Note 1)	-35 to +85°C
Rated Voltage	30V AC/DC	Storage Temperature (Note 2)	-10 to +60°C
		Operating Humidity Range	20-80%
		Storage Humidity Range (Note 2)	40-70%

Item	Specification	Conditions
Insulation Resistance	50M Ω Min.	100V DC
Withstanding Voltage	No flashover or insulation breakdown	100V AC / 1minute
Contact Resistance	100m Ω Max.	20mV AC, 1kHz, 1mA
Vibration	No electrical discontinuity of 1 μ s or longer	Frequency : 10 to 55 Hz, single amplitude of 0.75mm, 2 hours, 3 axis
Humidity	Contact resistance : 100m Ω Max., Insulation resistance : 25M Ω Min.	96 hours at 40 $\pm$ 2°C and humidity of 90 to 95% No damage or parts dislocation
Temperature Cycle	Contact resistance : 100m Ω Max., Insulation resistance : 50M Ω Min.	-55°C $\rightarrow$ +5 to +35°C $\rightarrow$ +85°C $\rightarrow$ +5 to +35°C Time: 30 min. $\rightarrow$ 10 min. $\rightarrow$ 30 min. $\rightarrow$ 10 min. 5 cycles
Mating Durability	Contact resistance : 100m Ω Max.	10 cycles
Solder Heat Resistance	No deformation of components affecting performance	Reflow : At the recommended temperature profile Hand solder : Solder iron temperature of 350°C for 3 seconds Max.

Note 1 : Includes temperature rise caused by current flow.

Note 2 : Storage refers to long-term storage of unused items before they are mounted on the PCB.

Operating temperature and humidity range apply when the product is not powered after PCB mounting and when temporarily stored during transportation.

Materials / Finish

Product	Part	Material	Finish	Remarks
Receptacle Header	Insulator	LCP	Color: Black	UL94V-0
	Contacts	Phosphor Bronze	Gold Plated	-

Product Number Structure

Refer to the chart below when determining the product specifications from the product number.
Please select from the product numbers listed in this catalog when placing orders.

■ Receptacle

DF37 # (##) - # **DS** - **0.4** V (##)

1

2

3

4

5

6

7

8

1 Series Name	DF37	4 No. of Pos.	
2 Configuration	NB : With Retention Tabs NC : Without Retention Tabs	5 Connector Type	DS : Receptacle
		6 Contact Pitch	0.4mm
		7 Termination Type	V : SMT Vertical Mount
3 Stacking Height	Blank : 0.98mm 1.5 : 1.5mm	8 Packaging	(51) Stacking Height 0.98mm : Embossed Tape Packaging (8,000pcs per reel) (51) Stacking Height 1.5mm : Embossed Tape Packaging (5,000pcs per reel) (53) : Embossed Tape Packaging (1,000pcs per reel)

■ Header

DF37 # - # **DP** - **0.4** V (##)

1

2

3

4

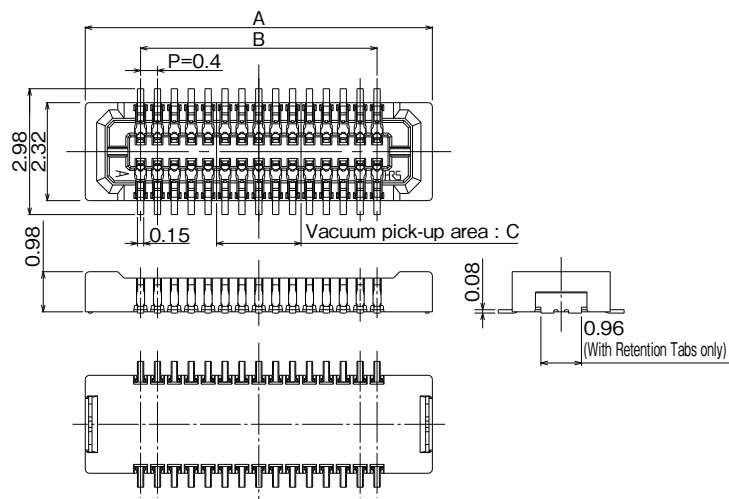
5

6

7

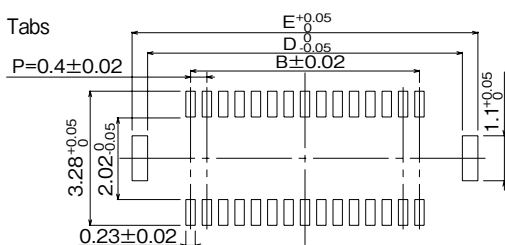
1 Series Name	DF37	5 Contact Pitch	0.4mm
2 Configuration	B : With Retention Tabs C : Without Retention Tabs	6 Termination Type	V : SMT Vertical Mount
3 No. of Pos.		7 Packaging	(51) : Embossed Tape Packaging (8,000pcs per reel) (53) : Embossed Tape Packaging (1,000pcs per reel)
4 Connector Type	DP : Double Row Header		

Receptacle (Stacking Height=0.98mm)

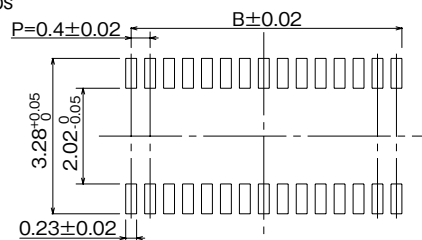


Recommended PCB Layout

DF37NB
With Retention Tabs

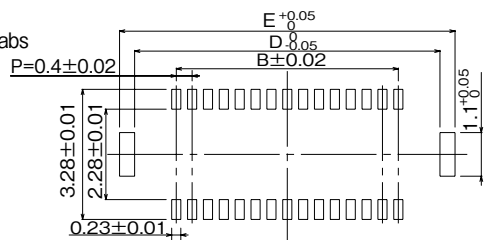


DF37NC
Without Retention Tabs

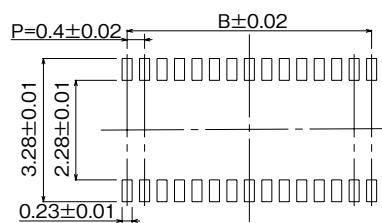


Recommended Metal Mask Dimensions

DF37NB
With Retention Tabs



DF37NC
Without Retention Tabs



● With Retention Tabs

Unit : mm

Part No.	HRS No.	No. of Pos.	A	B	C	D	E	Purchase Unit (##) : (51)	Purchase Unit (##) : (53)
DF37NB-10DS-0.4V(##)	CL0684-3301-6-##	10	4.22	1.6	0.8	3.7	4.46	8,000pcs per reel	1,000pcs per reel
DF37NB-16DS-0.4V(##)	CL0684-3302-9-##	16	5.42	2.8	1.2	4.9	5.66		
DF37NB-20DS-0.4V(##)	CL0684-3303-1-##	20	6.22	3.6	1.6	5.7	6.46		
DF37NB-24DS-0.4V(##)	CL0684-3304-4-##	24	7.02	4.4	2	6.5	7.26		
DF37NB-30DS-0.4V(##)	CL0684-3305-7-##	30	8.22	5.6		7.7	8.46		
DF37NB-34DS-0.4V(##)	CL0684-3082-4-##	34	9.02	6.4	2.4	8.5	9.26		
DF37NB-40DS-0.4V(##)	CL0684-3306-0-##	40	10.22	7.6		9.7	10.46		
DF37NB-44DS-0.4V(##)	CL0684-3407-7-##	44	11.02	8.4	2.8	10.5	11.26		
DF37NB-50DS-0.4V(##)	CL0684-3307-2-##	50	12.22	9.6		11.7	12.46		
DF37NB-60DS-0.4V(##)	CL0684-3308-5-##	60	14.22	11.6	3.2	13.7	14.46		
DF37NB-70DS-0.4V(##)	CL0684-3409-2-##	70	16.22	13.6	3.6	15.7	16.46		

● Without Retention Tabs

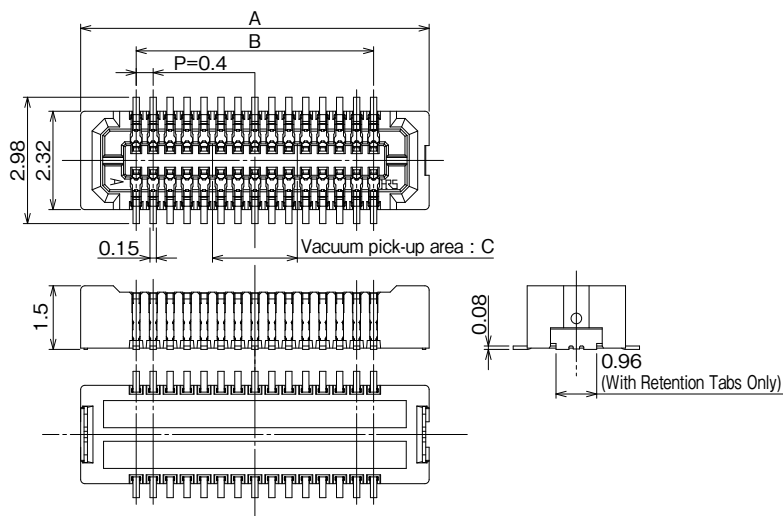
Unit : mm

Part No.	HRS No.	No. of Pos.	A	B	C	Purchase Unit (##) : (51)	Purchase Unit (##) : (53)
DF37NC-10DS-0.4V(##)	CL0684-3309-8-##	10	4.22	1.6	0.8	8,000pcs per reel	1,000pcs. per reel
DF37NC-16DS-0.4V(##)	CL0684-3310-7-##	16	5.42	2.8	1.2		
DF37NC-20DS-0.4V(##)	CL0684-3311-0-##	20	6.22	3.6	1.6		
DF37NC-24DS-0.4V(##)	CL0684-3312-2-##	24	7.02	4.4	2		
DF37NC-30DS-0.4V(##)	CL0684-3313-5-##	30	8.22	5.6			
DF37NC-34DS-0.4V(##)	CL0684-3083-7-##	34	9.02	6.4	2.4		
DF37NC-40DS-0.4V(##)	CL0684-3314-8-##	40	10.22	7.6			
DF37NC-44DS-0.4V(##)	CL0684-3324-1-##	44	11.02	8.4	2.8		
DF37NC-50DS-0.4V(##)	CL0684-3315-0-##	50	12.22	9.6			
DF37NC-60DS-0.4V(##)	CL0684-3316-3-##	60	14.22	11.6	3.2		
DF37NC-70DS-0.4V(##)	CL0684-3084-0-##	70	16.22	13.6	3.6		

Note 1 : The position of the HRS and CAV marks may differ from the diagram.

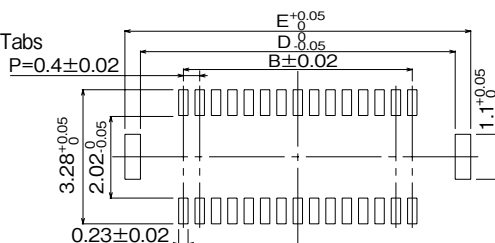
Note 2 : This connector is NOT polarized.

Receptacle (Stacking Height=1.5mm)

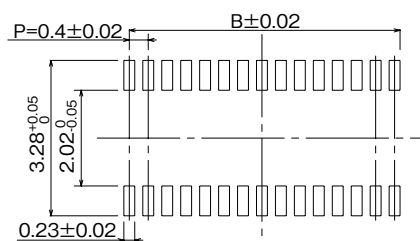


Recommended PCB Layout

DF37NB
With Retention Tabs

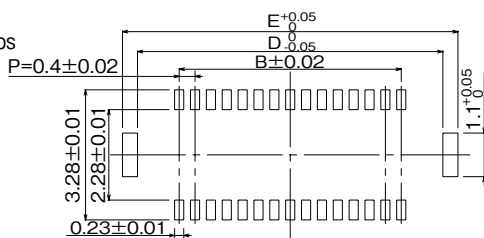


DF37NC
Without Retention Tabs

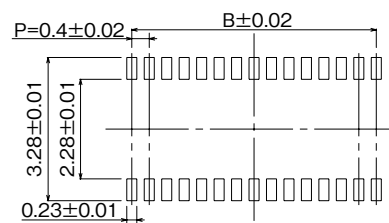


Recommended Metal Mask Dimensions

DF37NB
With Retention Tabs



DF37NC
Without Retention Tabs



● With Retention Tabs

Unit : mm

Part No.	HRS No.	No. of Pos.	A	B	C	D	E	Purchase Unit (##) : (51)	Purchase Unit (##) : (53)
DF37NB(1.5)-24DS-0.4V(##)	CL0684-3602-2-##	24	7.02	4.4	2	6.5	7.26	5,000pcs per reel	1,000pcs per reel

● Without Retention Tabs

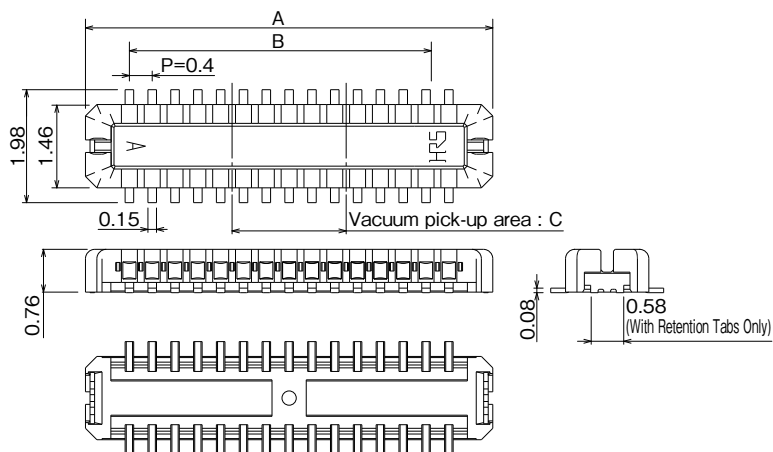
Unit : mm

Part No.	HRS No.	No. of Pos.	A	B	C	Purchase Unit (##) : (51)	Purchase Unit (##) : (53)
DF37NC(1.5)-24DS-0.4V(##)	CL0684-3603-5-##	24	7.02	4.4	2	5,000pcs per reel	1,000pcs per reel
DF37NC(1.5)-30DS-0.4V(##)	CL0684-3604-8-##	30	8.22	5.6			
DF37NC(1.5)-34DS-0.4V(##)	CL0684-3618-0-##	34	9.02	6.4	2.4		
DF37NC(1.5)-40DS-0.4V(##)	CL0684-3606-3-##	40	10.22	7.6			
DF37NC(1.5)-50DS-0.4V(##)	CL0684-3610-0-##	50	12.22	9.6	2.8		
DF37NC(1.5)-60DS-0.4V(##)	CL0684-3613-9-##	60	14.22	11.6	3.2		
DF37NC(1.5)-70DS-0.4V(##)	CL0684-3614-1-##	70	16.22	13.6	3.6		

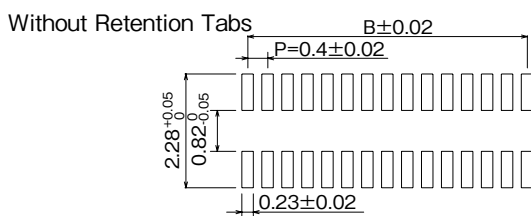
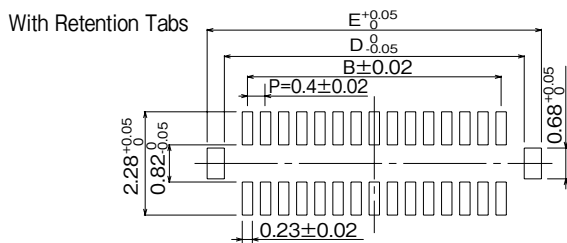
Note 1 : The position of the HRS and CAV marks may differ from the diagram.

Note 2 : This connector is NOT polarized.

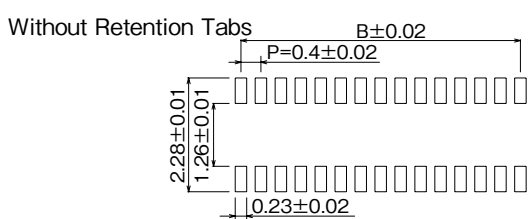
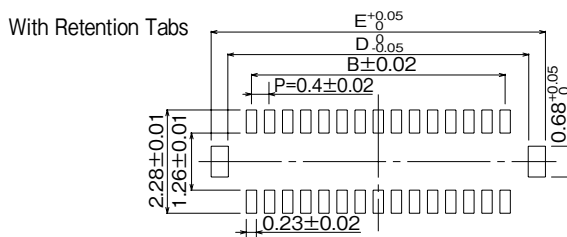
Header



Recommended PCB Layout



Recommended Metal Mask Dimensions



● With Retention Tabs

Unit : mm

Part No.	HRS No.	No. of Pos.	A	B	C	D	E	Purchase Unit (##) : (51)	Purchase Unit (##) : (53)
DF37B-10DP-0.4V(##)	CL0684-3037-0-##	10	3.14	1.6	0.8	2.62	3.38	8,000pcs per reel	1,000pcs per reel
DF37B-16DP-0.4V(##)	CL0684-3057-7-##	16	4.34	2.8	1.2	3.82	4.58		
DF37B-20DP-0.4V(##)	CL0684-3008-1-##	20	5.17	3.6	1.6	4.62	5.38		
DF37B-24DP-0.4V(##)	CL0684-3009-4-##	24	5.94	4.4	2	5.42	6.18		
DF37B-30DP-0.4V(##)	CL0684-3010-3-##	30	7.14	5.6		6.62	7.38		
DF37B-34DP-0.4V(##)	CL0684-3064-2-##	34	7.94	6.4	2.4	7.42	8.18		
DF37B-40DP-0.4V(##)	CL0684-3011-6-##	40	9.14	7.6		8.62	9.38		
DF37B-44DP-0.4V(##)	CL0684-3408-0-##	44	9.94	8.4	2.8	9.42	10.18		
DF37B-50DP-0.4V(##)	CL0684-3012-9-##	50	11.14	9.6		10.62	11.38		
DF37B-60DP-0.4V(##)	CL0684-3013-1-##	60	13.14	11.6	3.2	12.62	13.38		
DF37B-70DP-0.4V(##)	CL0684-3014-4-##	70	15.14	13.6	3.6	14.62	15.38		

● Without Retention Tabs

Unit : mm

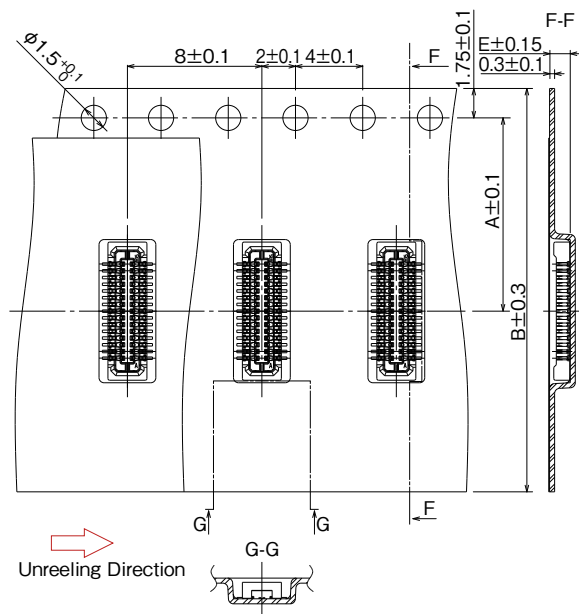
Part No.	HRS No.	No. of Pos.	A	B	C	Purchase Unit (##) : (51)	Purchase Unit (##) : (53)
DF37C-10DP-0.4V(##)	CL0684-3039-5-##	10	3.14	1.6	0.8	8,000pcs per reel	1,000pcs per reel
DF37C-16DP-0.4V(##)	CL0684-3058-0-##	16	4.34	2.8	1.2		
DF37C-20DP-0.4V(##)	CL0684-3024-8-##	20	5.17	3.6	1.6		
DF37C-24DP-0.4V(##)	CL0684-3025-0-##	24	5.94	4.4	2		
DF37C-30DP-0.4V(##)	CL0684-3026-3-##	30	7.14	5.6			
DF37C-34DP-0.4V(##)	CL0684-3085-2-##	34	7.94	6.4	2.4		
DF37C-40DP-0.4V(##)	CL0684-3027-6-##	40	9.14	7.6			
DF37C-44DP-0.4V(##)	CL0684-3089-3-##	44	9.94	8.4	2.8		
DF37C-50DP-0.4V(##)	CL0684-3028-9-##	50	11.14	9.6			
DF37C-60DP-0.4V(##)	CL0684-3029-1-##	60	13.14	11.6	3.2		
DF37C-70DP-0.4V(##)	CL0684-3030-0-##	70	15.14	13.6	3.6		

Note 1 : The position of the HRS and CAV marks may differ from the diagram.

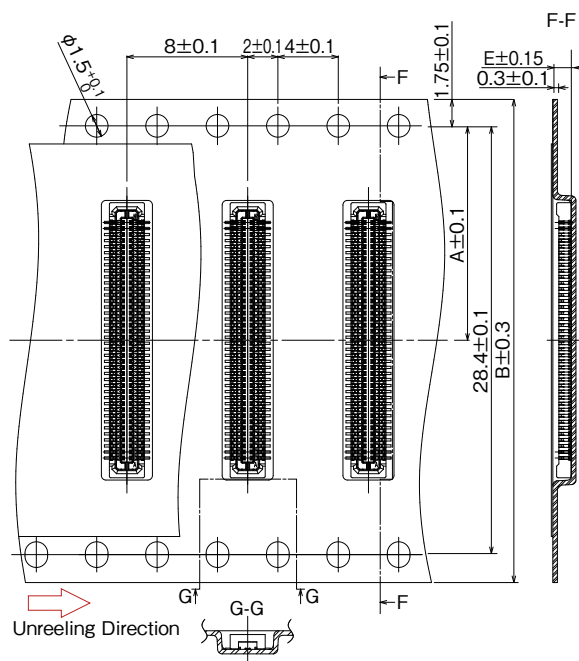
Note 2 : This connector is NOT polarized.

Embossed Carrier Tape Dimensions (JIS C 0806 Standard)

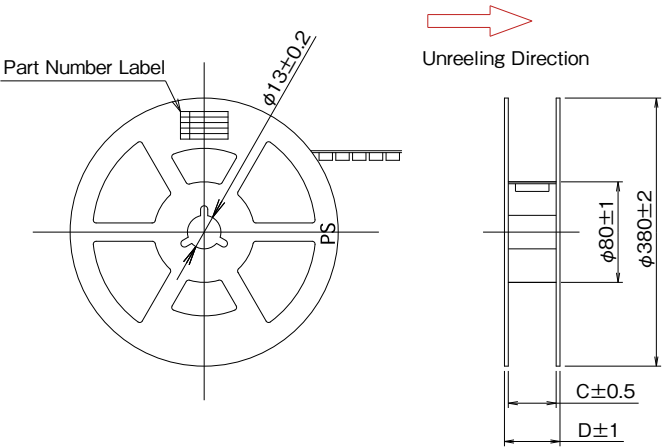
● Receptacle (Less Than 70 Positions)



● Receptacle (70 Positions)



● Reel Dimensions



Unit : mm

Part No.	A	B	C	D	E
DF37#-10DS-0.4V(##)	7.5	16	17.5	21.5	1.23
DF37#-16DS-0.4V(##)					
DF37#-20DS-0.4V(##)					
DF37#-24DS-0.4V(##)					
DF37#-30DS-0.4V(##)	11.5	24	25.5	29.5	
DF37#-34DS-0.4V(##)					
DF37#-40DS-0.4V(##)					
DF37#-44DS-0.4V(##)					
DF37#-50DS-0.4V(##)					
DF37#-60DS-0.4V(##)					
DF37#-70DS-0.4V(##)	14.2	32	33.5	37.5	

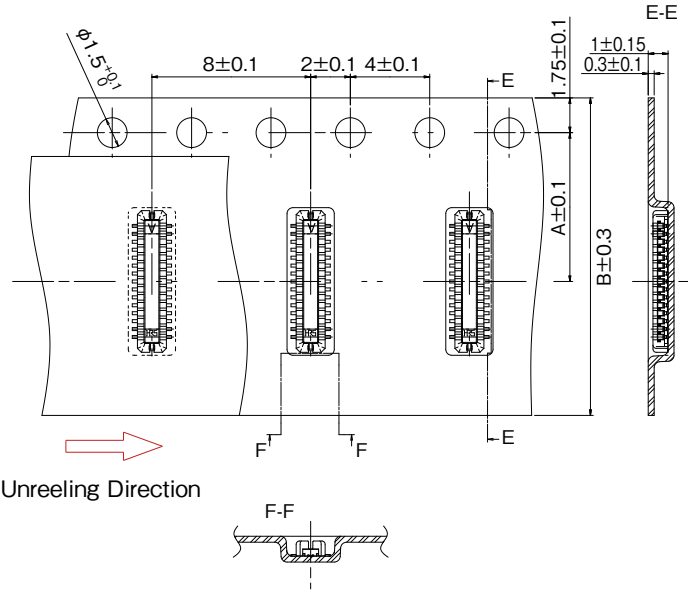
: NB or NC
Tape and reel packaging (8,000pcs per reel).

Unit : mm

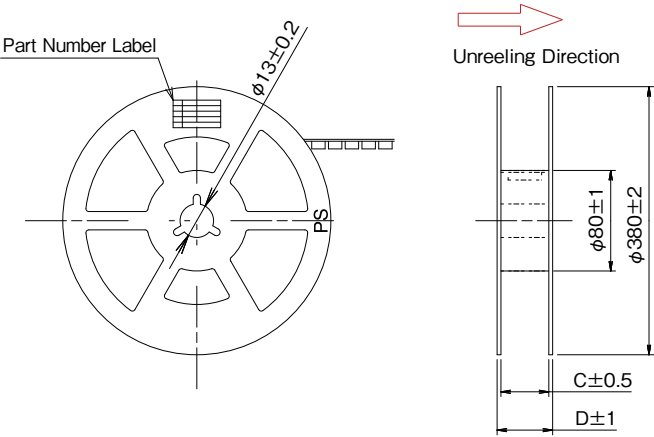
Part No.	A	B	C	D	E
DF37#(1.5)-24DS-0.4V(##)	7.5	16	17.5	21.5	1.75
DF37#(1.5)-30DS-0.4V(##)	11.5	24	25.5	29.5	
DF37#(1.5)-34DS-0.4V(##)					
DF37#(1.5)-40DS-0.4V(##)					
DF37#(1.5)-50DS-0.4V(##)					
DF37#(1.5)-60DS-0.4V(##)					
DF37#(1.5)-70DS-0.4V(##)	14.2	32	33.5	37.5	

: NB or NC
Tape and reel packaging (5,000pcs per reel).

● Header



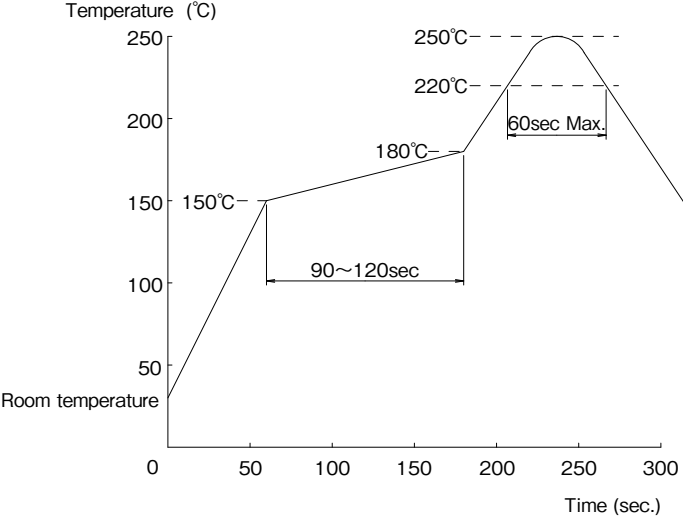
● Reel Dimensions



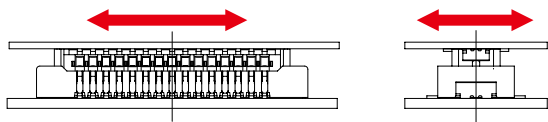
Unit : mm				
Part No.	A	B	C	D
DF37#-10DP-0.4V(##)	5.5	12	13.5	17.5
DF37#-16DP-0.4V(##)	7.5	16	17.5	21.5
DF37#-20DP-0.4V(##)				
DF37#-24DP-0.4V(##)				
DF37#-30DP-0.4V(##)	11.5	24	25.5	29.5
DF37#-34DP-0.4V(##)				
DF37#-40DP-0.4V(##)				
DF37#-44DP-0.4V(##)				
DF37#-50DP-0.4V(##)				
DF37#-60DP-0.4V(##)				
DF37#-70DP-0.4V(##)				

: B, C
Tape and reel packaging (8,000pcs per reel).

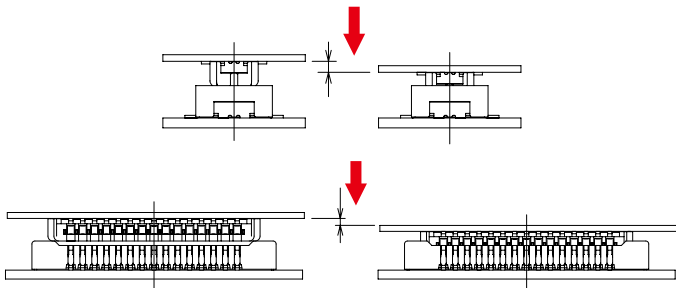
Usage Precautions

1. Recommended Temperature Profile	 Temperature (°C) 250°C 220°C 180°C 150°C 100 50 Room temperature Time (sec.) 0 50 100 150 200 250 300 90~120sec 60sec Max 【Conditions】 1. Peak Temperature: Maximum of 250°C 2. Heating : 220°C min. for 60 sec. max. 3. Preheating : 150 to 180°C , 90 to 120 sec. 4. Number of Reflow Cycles : 2 cycles max. Note : The temperature refers to the surface temperature of the board near the connector lead.
2. Recommended Manual Soldering Conditions	Soldering Iron Temperature : $340 \pm 10^{\circ}\text{C}$; Soldering Time : within 3 seconds
3. Recommended Metal Mask Thickness and Open Area to PCB Pattern Area Ratio	Thickness : 0.12mm Open area ratio : Receptacle Side : 80%(NB/NC), Plug Side : 70%
4. Board Warpage	Max. of 0.02mm at the center in reference to both ends of the connector
5. Cleaning	Cleaning is not recommended. If you clean this product, please evaluate its performance before using it. (Cleaning may impair the mating/unmating properties and lower resistance to environmental factors)
6. Precautions	■ Be careful when mating/unmating the connector when it is not mounted on the PCB as it may cause damage/deformation to contacts. ■ Avoid supporting the PCB only with the connectors. Support it by other means such as bolts, screws, posts, etc. ■ Excessive prying during unmating/mating may result in damage.. ■ In the case of hand soldering, please do not apply any flux which could cause flux wicking. ■ This product may have slight color differences due to production lot variability, but this does not affect the performance. ■ Please refer to the following page for handling precautions when inserting and removing. ■ Because the product can disengage if dropped (or other impact), or by FPC routing, it is advised to secure the mated connectors to the board with housings and cushioning materials.

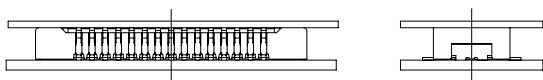
Handling Precautions for Connector Mating



1) When aligning, look for the guide port without applying excessive force. If excessive force is applied, the housing may be damaged or shaved resulting in poor contact resistance, so please be careful.

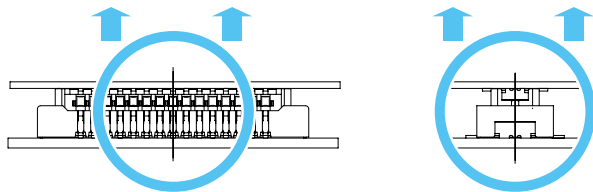


2) When fully aligned the connectors are parallel to each other with restricted longitudinal and lateral movement. Mate them parallel to each other.



Handling Precautions for Connector Removal

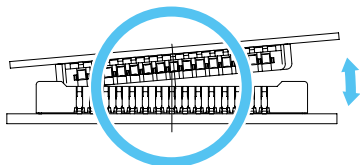
- 1) Pull out the connectors parallel to each other.



- 2) If the connector cannot be removed by pulling it out parallel to its mating partner, it can be removed by extracting the connector diagonally in the direction of the pitch as shown in the below figure.

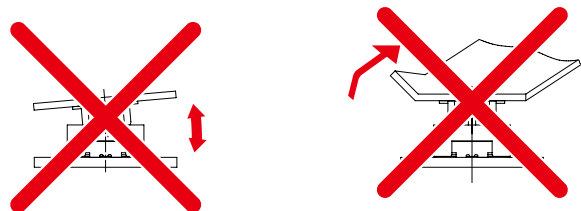
However, there is a risk that the connector may break if the FPC is not rigid.

Please confirm the FPC rigidity at the time of trial production.



- 3) Do not remove the connector by pulling from the FPC corner as shown below.

Pulling from the FPC corner may result in connector and contact damage.



- 4) Insufficient FPC rigidity may result in connector breakage as shown in the below figure.

Please check the repeated mechanical operation of the FPC before use.

Please request for evaluation results of FPC rigidity and various items.

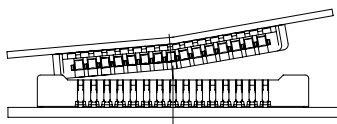
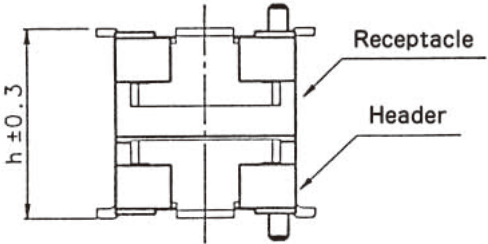
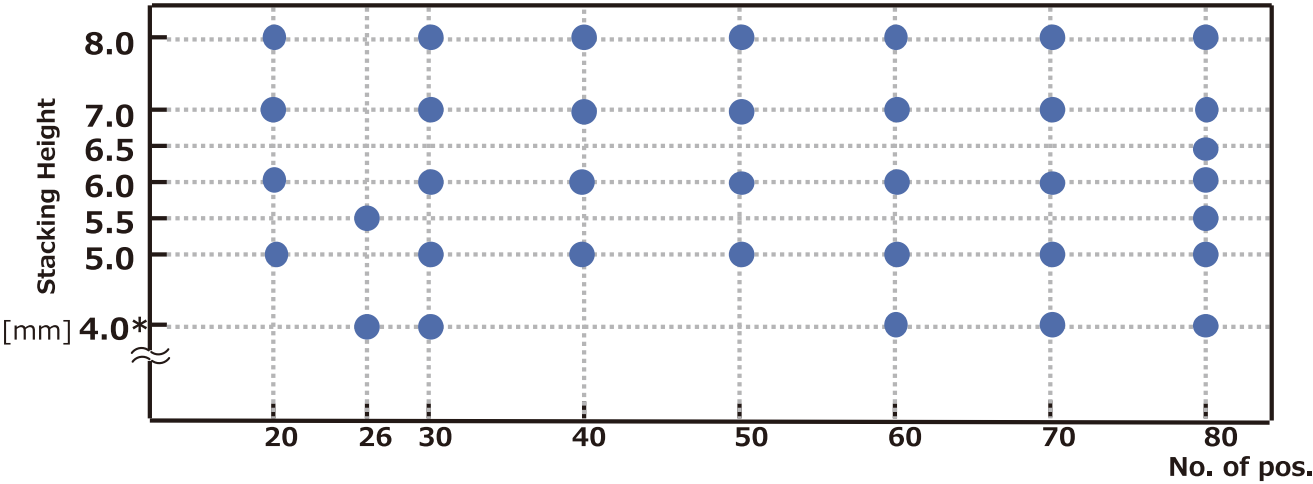


Fig.2



Header \ Receptacle		DF17#(□)-*DS-0.5V	
		3.0	4.0
DF17#(□)-*DP-0.5V	2.0	5mm	6mm
	2.5	5.5mm	6.5mm
	4.0	7mm	8mm

Header \ Receptacle		DF17(3.0H)-*DS-0.5V
Header	DF17(1.0H)-*DP-0.5V	4mm

Note : The stacking height doesn't include the solder paste thickness.

■Applications

Mobile phones, LCD, miniature equipment and so on

Product Specifications

Rating	Current rating Voltage rating	0.3A 50V AC	Operating Temperature Range Operating Humidity Range	-35 to 85°C (Note 1) 40 to 80%	Storage Temperature Range Storage Humidity Range	-10 to 60°C (Note 2) 40 to 70%
Items	Specifications		Conditions			
1. Insulation Resistance	500MΩ min.		100V DC			
2. Withstanding voltage	No flashover or insulation breakdown.		150V AC/1 minute			
3. Contact Resistance	60mΩ max.		100mA			
4. Vibration	No electrical discontinuity of 1μs or more		Frequency : 10 to 55 Hz, single amplitude of 0.75mm, 2 hours in each of the 3 directions.			
5. Humidity (Steady state)	Contact resistance : 60mΩ max. Insulation resistance : 250MΩ min.		96 hours at temperature of 40°C and humidity of 90% to 95%			
6. Temperature Cycle	Contact resistance : 60mΩ max. Insulation resistance : 500MΩ min.		(-55°C : 30 minutes 5 to 35°C : 10 minutes 85°C : 30 minutes 5 to 35°C : 10 minutes) 5 cycles			
7. Durability (Mating/un-mating)	Contact resistance : 60mΩ		50 cycles			
8. Resistance to Soldering heat	No deformation of components affecting performance.		Reflow : At the recommended temperature profile Manual soldering : 350°C for 3 seconds			

Note 1 : Includes temperature rise caused by current flow.

Note 2 : The term "storage" refers to products stored for long period of time prior to mounting and use. Operating Temperature Range and Humidity range covers non conducting condition of installed connectors in storage, shipment or during transportation.

Note 3 : 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 / Finish

Product	Part	Material	Finish	Remarks
Receptacle	Insulator	Polyamide	White	UL94V-0
	Contact	Phosphor copper	Gold plated (Note 1)	————
	Solder tab	Phosphor copper	Tin-lead plated	————
Header	Insulator	Polyamide	White	UL94V-0
	Contact	Phosphor copper	Gold plated (Note 2)	————
	Solder tab	Phosphor copper	Tin-lead plated	————

Note1 : DF17(0.3)-*DS-0.5V : Contact area : gold plating/lead area : flash gold plated

DF17(4.0)-*DS-0.5V : Contact area : gold plating/lead area : tin plated

DF17(4.0)-*DP-0.5V : Contact area : gold plating/lead area : tin plated

Note2 : The header gold plated product : Contact area : gold plating/lead area : tin plated

DF17(1.0H)-*DS-0.5V only : Contact area : gold plating/lead area : flash gold plated

Product Number Structure

Refer to the chart below when determining the product specifications from the product number.

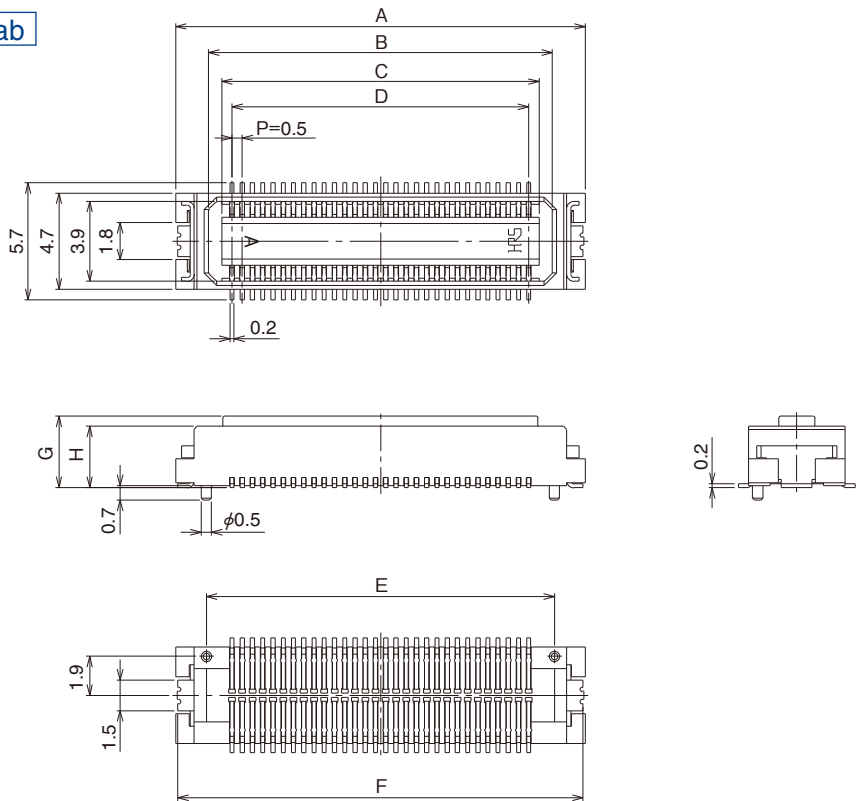
Please select from the product numbers listed in this catalog when placing orders.

●Receptacle/Header

DF17 # (**) - * DS - 0.5 V (**)
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧

① Series Name : DF17	④ Number of Pos. 20, 26, 30, 40, 50, 60, 70, 80 contacts									
② Type <table><tr><th></th><th>Solder tab</th><th>Boss</th></tr><tr><td>DF17</td><td>○</td><td>○</td></tr><tr><td>DF17B</td><td>○</td><td>×</td></tr></table>		Solder tab	Boss	DF17	○	○	DF17B	○	×	⑤ Connector Type DS : Receptacle DP : Header
	Solder tab	Boss								
DF17	○	○								
DF17B	○	×								
	⑥ Contact Pitch : 0.5mm									
	⑦ Contact Style V : Straight SMT									
③ Product height The stacking height can be determined by adding the figures in parentheses to receptacle and header.	⑧ Packaging Type (57) : Gold plated,embossed tape packaging									

■Receptacle With Solder Tab



● Stacking Height : 4mm

Part No.	HRS No.	Number of Pos.	A	B	C	D	E	F	G	H	RoHS
DF17(3.0H)-26DS-0.5V(57)	683-0253-2 57	26	11.5	8.3	7.0	6.0	8.5	11.3	3.0	3.0	YES
DF17(3.0H)-30DS-0.5V(57)	683-0268-0 57	30	12.5	9.3	8.0	7.0	9.5	12.3			
DF17(3.0H)-60DS-0.5V(57)	683-0361-5 57	60	20.0	16.8	15.5	14.5	17.0	19.8			
DF17(3.0H)-70DS-0.5V(57)	683-0393-1 57	70	22.5	19.3	18.0	17.0	19.5	22.3			
DF17(3.0H)-80DS-0.5V(57)	683-0369-7 57	80	25.0	21.8	20.5	19.5	22.0	24.8			

● Stacking Height : 5mm, 7mm

Part No.	HRS No.	Number of Pos.	A	B	C	D	E	F	G	H	RoHS
DF17(3.0)-20DS-0.5V(57)	683-0002-2 57	20	10.0	6.8	5.5	4.5	7.0	9.8	3.5	3.0	YES
DF17(3.0)-26DS-0.5V(57)	683-0241-3 57	26	11.5	8.3	7.0	6.0	8.5	11.3			
DF17(3.0)-30DS-0.5V(57)	683-0003-5 57	30	12.5	9.3	8.0	7.0	9.5	12.3			
DF17(3.0)-40DS-0.5V(57)	683-0004-8 57	40	15.0	11.8	10.5	9.5	12.0	14.8			
DF17(3.0)-50DS-0.5V(57)	683-0005-0 57	50	17.5	14.3	13.0	12.0	14.5	17.3			
DF17(3.0)-60DS-0.5V(57)	683-0006-3 57	60	20.0	16.8	15.5	14.5	17.0	19.8			
DF17(3.0)-70DS-0.5V(57)	683-0007-6 57	70	22.5	19.3	18.0	17.0	19.5	22.3			
DF17(3.0)-80DS-0.5V(57)	683-0008-9 57	80	25.0	21.8	20.5	19.5	22.0	24.8			

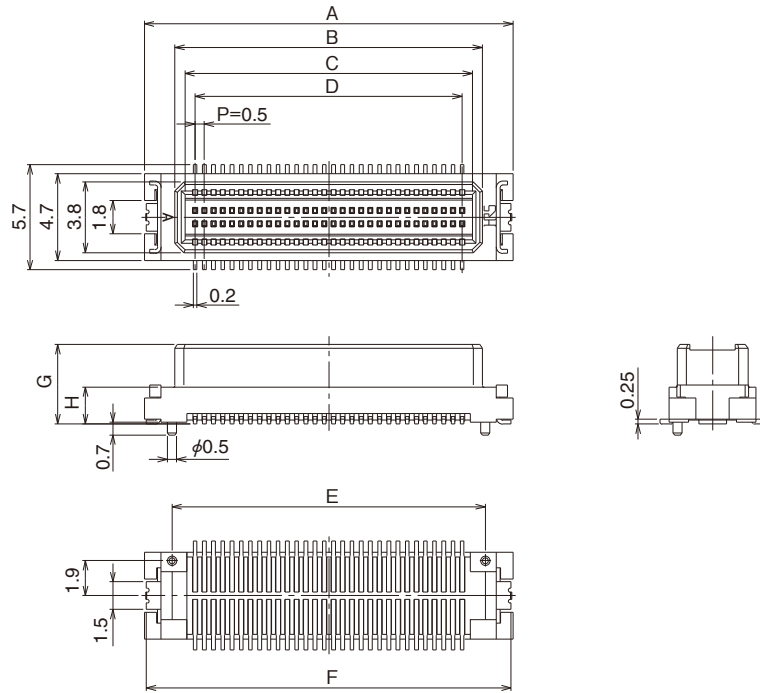
● Stacking Height : 6mm, 8mm

Part No.	HRS No.	Number of Pos.	A	B	C	D	E	F	G	H	RoHS
DF17(4.0)-20DS-0.5V(57)	683-0042-7 57	20	10.0	6.8	5.5	4.5	7.0	9.8	4.5	4.0	YES
DF17(4.0)-30DS-0.5V(57)	683-0043-0 57	30	12.5	9.3	8.0	7.0	9.5	12.3			
DF17(4.0)-40DS-0.5V(57)	683-0044-2 57	40	15.0	11.8	10.5	9.5	12.0	14.8			
DF17(4.0)-50DS-0.5V(57)	683-0045-5 57	50	17.5	14.3	13.0	12.0	14.5	17.3			
DF17(4.0)-60DS-0.5V(57)	683-0046-8 57	60	20.0	16.8	15.5	14.5	17.0	19.8			
DF17(4.0)-70DS-0.5V(57)	683-0047-0 57	70	22.5	19.3	18.0	17.0	19.5	22.3			
DF17(4.0)-80DS-0.5V(57)	683-0048-3 57	80	25.0	21.8	20.5	19.5	22.0	24.8			

Note 1 : In regard to this product, the embossed tape packaging is the standard packaging. (1000 pcs./ reel.)

Note 2 : If the without boss specification is required, please contact HRS sales department.

Header With Solder Tab



● Stacking Height : 4mm

Part No.	HRS No.	Number of Pos.	A	B	C	D	E	F	G	H	RoHS
DF17(1.0H)-26DP-0.5V(57)	683-0257-3 57	26	11.5	8.2	7.1	6.0	8.5	11.3	3.3	1.0	YES
DF17(1.0H)-30DP-0.5V(57)	683-0272-7 57	30	12.5	9.2	8.1	7.0	9.5	12.3			
DF17(1.0H)-60DP-0.5V(57)	683-0365-6 57	60	20.0	16.7	15.6	14.5	17.0	19.8			
DF17(1.0H)-70DP-0.5V(57)	683-0397-2 57	70	22.5	19.2	18.1	17.0	19.5	22.3			
DF17(1.0H)-80DP-0.5V(57)	683-0373-4 57	80	25.0	21.7	20.6	19.5	22.0	24.8			

● Stacking Height : 5mm, 6mm

Part No.	HRS No.	Number of Pos.	A	B	C	D	E	F	G	H	RoHS
DF17(2.0)-20DP-0.5V(57)	683-0082-1 57	20	10.0	6.7	5.6	4.5	7.0	9.8	4.3	2.0	YES
DF17(2.0)-30DP-0.5V(57)	683-0083-4 57	30	12.5	9.2	8.1	7.0	9.5	12.3			
DF17(2.0)-40DP-0.5V(57)	683-0084-7 57	40	15.0	11.7	10.6	9.5	12.0	14.8			
DF17(2.0)-50DP-0.5V(57)	683-0085-0 57	50	17.5	14.2	13.1	12.0	14.5	17.3			
DF17(2.0)-60DP-0.5V(57)	683-0086-2 57	60	20.0	16.7	15.6	14.5	17.0	19.8			
DF17(2.0)-70DP-0.5V(57)	683-0087-5 57	70	22.5	19.2	18.1	17.0	19.5	22.3			
DF17(2.0)-80DP-0.5V(57)	683-0088-8 57	80	25.0	21.7	20.6	19.5	22.0	24.8			

● Stacking Height : 7mm, 8mm

Part No.	HRS No.	Number of Pos.	A	B	C	D	E	F	G	H	RoHS
DF17(4.0)-20DP-0.5V(57)	683-0122-4 57	20	10.0	6.7	5.6	4.5	7.0	9.8	6.3	4.0	YES
DF17(4.0)-30DP-0.5V(57)	683-0123-7 57	30	12.5	9.2	8.1	7.0	9.5	12.3			
DF17(4.0)-40DP-0.5V(57)	683-0124-0 57	40	15.0	11.7	10.6	9.5	12.0	14.8			
DF17(4.0)-50DP-0.5V(57)	683-0125-2 57	50	17.5	14.2	13.1	12.0	14.5	17.3			
DF17(4.0)-60DP-0.5V(57)	683-0126-5 57	60	20.0	16.7	15.6	14.5	17.0	19.8			
DF17(4.0)-70DP-0.5V(57)	683-0127-8 57	70	22.5	19.2	18.1	17.0	19.5	22.3			
DF17(4.0)-80DP-0.5V(57)	683-0128-0 57	80	25.0	21.7	20.6	19.5	22.0	24.8			

● Stacking Height : 5.5mm, 6.5mm

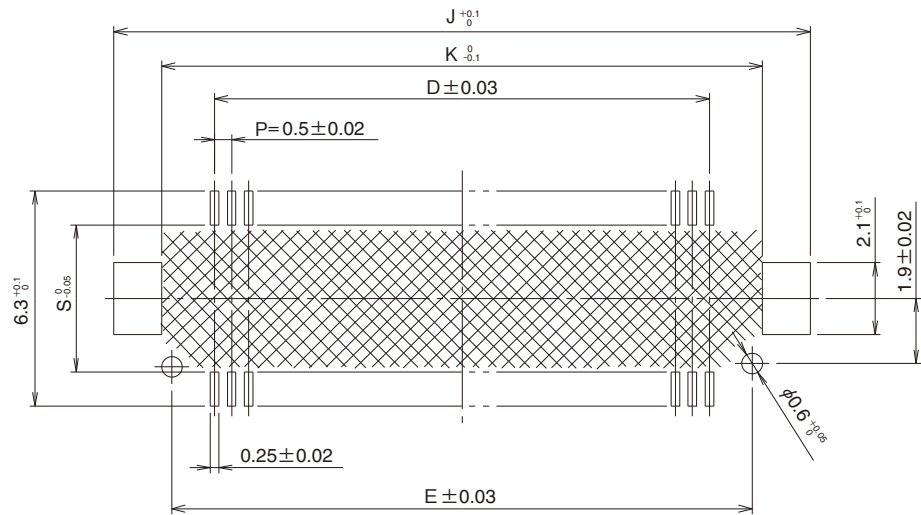
Part No.	HRS No.	Number of Pos.	A	B	C	D	E	F	G	H	RoHS
DF17(2.5)-26DP-0.5V(57)	683-0245-4 57	26	11.5	8.2	7.1	6.0	8.5	11.3	4.8	2.5	YES
DF17(2.5)-80DP-0.5V(57)	683-0168-5 57	80	25.0	21.7	20.6	19.5	22.0	24.8			

Note 1 : In regard to this product, the embossed tape packaging is the standard packaging. (1000 pcs./reel.)

Note 2 : If the without boss specification is required, please contact HRS sales department.

■PCB Mounting Pattern

- Receptacle
- Header



Number of Pos.	D	E	J	K
20	4.5	7.0	10.4	7.6
26	6.0	8.5	11.9	9.1
30	7.0	9.5	12.9	10.1
40	9.5	12.0	15.4	12.6
50	12.0	14.5	17.9	15.1
60	14.5	17.0	20.4	17.6
70	17.0	19.5	22.9	20.1
80	19.5	22.0	25.4	22.6

S	
Receptacle	4.3
Header	4

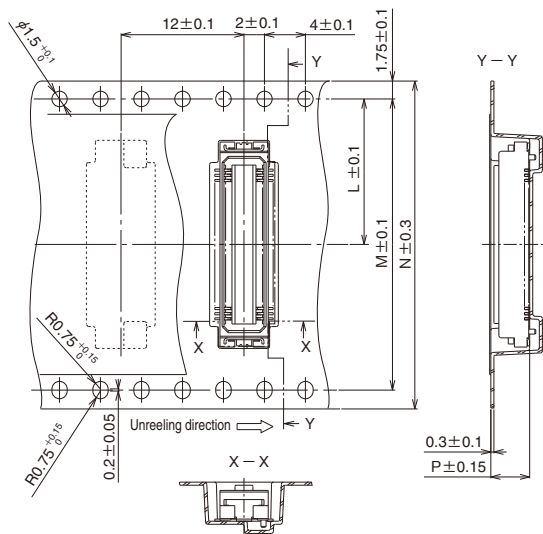
* The recommended solder paste thickness is 150μm.

- Note 1 :  If the pattern is included in the shaded area, and not treated with resist, it could touch the connector contact.
- Note 2 : If the boss isn't included, the boss hole shown in the above figure isn't required.

■Packaging Specification

●Embossed Carrier Tape Dimensions

■Receptacle



Connector	L	M	P	Q	R
DF17#(3.0)-20DS-0.5V	11.5	24	3.8	25.5	330
DF17#(3.0)-30DS-0.5V	11.5	24	3.8	25.5	330
DF17#(3.0)-40DS-0.5V	11.5	24	3.8	25.5	330
DF17#(3.0)-26DS-0.5V	11.5	24	3.8	25.5	330

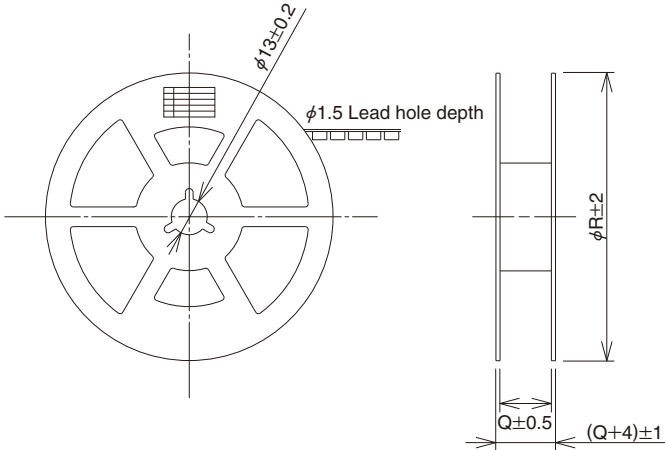
Connector	L	N	P	Q	R
DF17#(4.0)-20DS-0.5V	11.5	24	4.8	25.5	330
DF17#(4.0)-30DS-0.5V	11.5	24	4.8	25.5	330
DF17#(4.0)-40DS-0.5V	11.5	24	4.8	25.5	330

Connector	L	M	N	P	Q	R
DF17#(3.0)-50DS-0.5V	14.2	28.4	32	3.8	33.5	330
DF17#(3.0)-60DS-0.5V	14.2	28.4	32	3.8	33.5	330
DF17#(3.0)-70DS-0.5V	20.2	40.4	44	3.8	45.5	330
DF17#(3.0)-80DS-0.5V	20.2	40.4	44	3.8	45.5	330

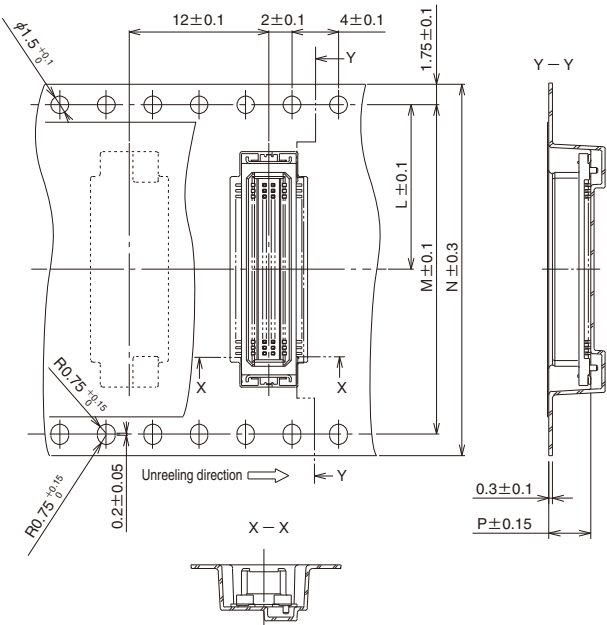
Connector	L	M	N	P	Q	R
DF17#(4.0)-50DS-0.5V	14.2	28.4	32	4.8	33.5	330
DF17#(4.0)-60DS-0.5V	14.2	28.4	32	4.8	33.5	330
DF17#(4.0)-70DS-0.5V	20.2	40.4	44	4.8	45.5	330
DF17#(4.0)-80DS-0.5V	20.2	40.4	44	4.8	45.5	330

Connector	L	M	N	P	Q	R
DF17#(3.0)-26DS-0.5V	11.5	-	24	3.3	25.5	330
DF17#(3.0)-30DS-0.5V	11.5	-	24	3.3	25.5	330
DF17#(3.0)-60DS-0.5V	14.2	28.4	32	3.3	33.5	330
DF17#(3.0)-70DS-0.5V	20.2	40.4	44	3.3	45.5	330
DF17#(3.0)-80DS-0.5V	20.2	40.4	44	3.3	45.5	330

●Reel Dimensions



■Header



Connector	L	N	P	Q	R
DF17#(2.0)-20DP-0.5V	11.5	24	4.6	25.5	330
DF17#(2.0)-30DP-0.5V	11.5	24	4.6	25.5	330
DF17#(2.0)-40DP-0.5V	11.5	24	4.6	25.5	330
DF17#(2.5)-26DP-0.5V	11.5	24	5.1	25.5	330
DF17#(2.5)-80DP-0.5V	20.2	44	5.1	45.5	330

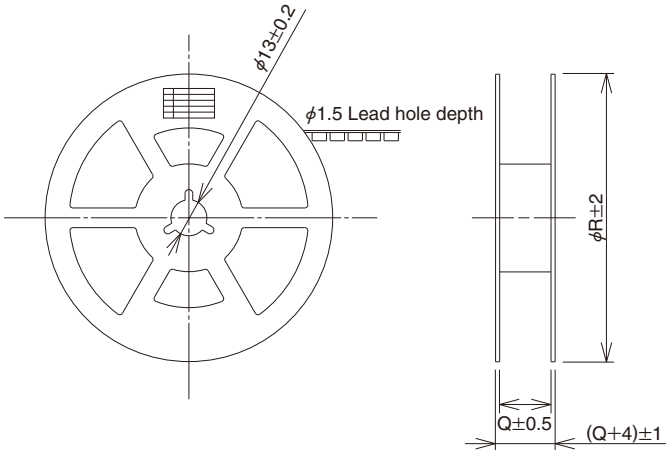
Connector	L	N	P	Q	R
DF17#(4.0)-20DP-0.5V	11.5	24	6.6	25.5	380
DF17#(4.0)-30DP-0.5V	11.5	24	6.6	25.5	380
DF17#(4.0)-40DP-0.5V	11.5	24	6.6	25.5	380

Connector	L	M	N	P	Q	R
DF17#(2.0)-50DP-0.5V	14.2	28.4	32	4.6	33.5	330
DF17#(2.0)-60DP-0.5V	14.2	28.4	32	4.6	33.5	330
DF17#(2.0)-70DP-0.5V	20.2	40.4	44	4.6	45.5	330
DF17#(2.0)-80DP-0.5V	20.2	40.4	44	4.6	45.5	330

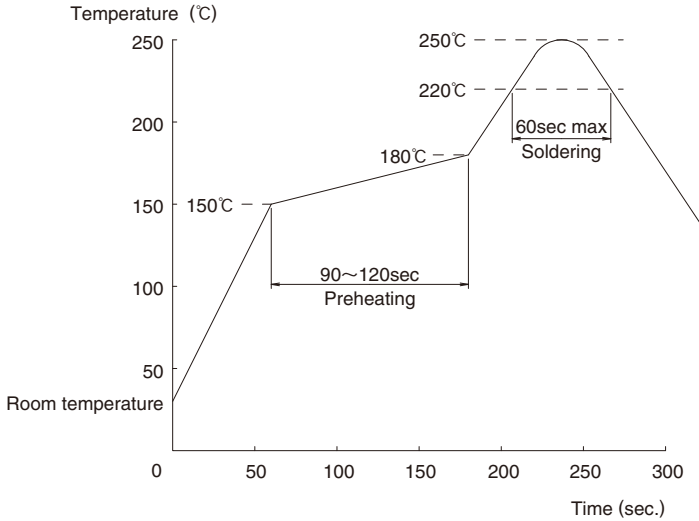
Connector	L	M	N	P	Q	R
DF17#(4.0)-50DP-0.5V	14.2	28.4	32	6.6	33.5	380
DF17#(4.0)-60DP-0.5V	14.2	28.4	32	6.6	33.5	380
DF17#(4.0)-70DP-0.5V	20.2	40.4	44	6.6	45.5	380
DF17#(4.0)-80DP-0.5V	20.2	40.4	44	6.6	45.5	380

Connector	L	M	N	P	Q	R
DF17(1.0H)-26DP-0.5V	11.5	-	24	3.6	25.5	330
DF17(1.0H)-30DP-0.5V	11.5	-	24	3.6	25.5	330
DF17(1.0H)-60DP-0.5V	14.2	28.4	32	3.6	33.5	330
DF17(1.0H)-70DP-0.5V	20.2	40.4	44	3.6	45.5	330
DF17(1.0H)-80DP-0.5V	20.2	40.4	44	3.6	45.5	330

●Reel Dimensions



■Precautions

1. Recommended Temperature Profile (SMT)	 Note1 : 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. Note2 : The temperature profile indicates the board surface temperature at the point of contacts with the connector terminals.
2. Recommended Manual Soldering Condition (SMT)	Soldering iron temperature: 350±3°C Soldering time: Within 2 seconds
3. Recommended Screen Thickness (SMT)	0.15mm
4. Board Warp(SMT)	Max 0.02mm in the connector center area, based on the both connector edges
5. Cleaning Condition	Refer to the "Nylon Connector Use Hand book".
6. Cautions	■ The header 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.

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