

DF40T/DF40GT Series

0.4mm Pitch, 3.38mm Depth, 125°C Heat Resistance, Board-to-Board/FPC-to-Board Connector for Automotive



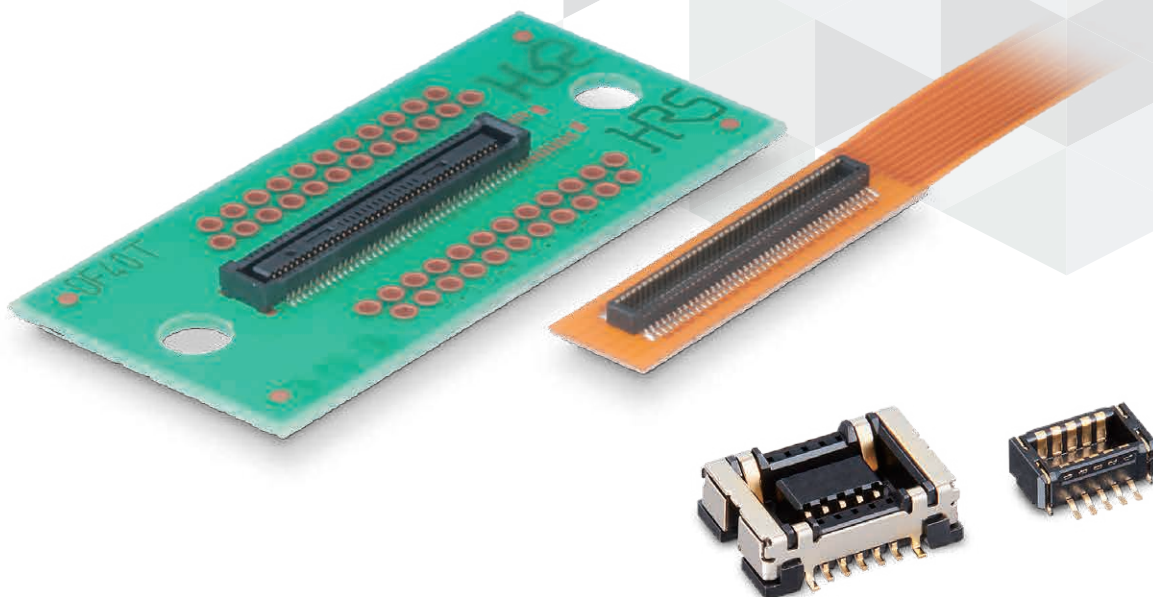
High Temp



Wide Variation



Compact



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
Волгодонск (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

Россия +7(495)268-04-70

Магнитогорск (3519)55-03-13
Москва (495)268-04-70
Мурманск (8152)59-64-93
Набережные Челны (8552)20-53-41
Нижегород (831)429-08-12
Новокузнецк (3843)20-46-81
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

Казахстан +7(7172)727-132

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

Киргизия +996(312)96-26-47

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

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

Features

1. Space-Saving Design and Wide Variations

The space-saving design with 0.4mm pitch and 3.38mm depth, a wide variety of number of pos. and height variation.

(1.5, 2.0, 2.5, 3.0, 3.5, 4.0mm).

(Note)

MP : Mass Production

UP : Under Planning

UD : Under Development

Stacking Height (mm)	1.5	2.0	2.5	3.0	3.5	4.0
10pos.	MP	—	—	—	—	—
20pos.	UP	UD	MP	MP	MP	MP
30pos.	MP	UP	MP	MP	MP	MP
34pos.	MP	—	—	—	—	—
40pos.	MP	UP	UP	MP	MP	MP
50pos.	MP	—	MP	—	—	MP
60pos.	UP	—	—	—	—	—
120pos.	MP	—	—	—	—	—

2. 125°C Heat Resistant Contact Design

Design and Materials for Heat Resistance, Stable Contact Resistance

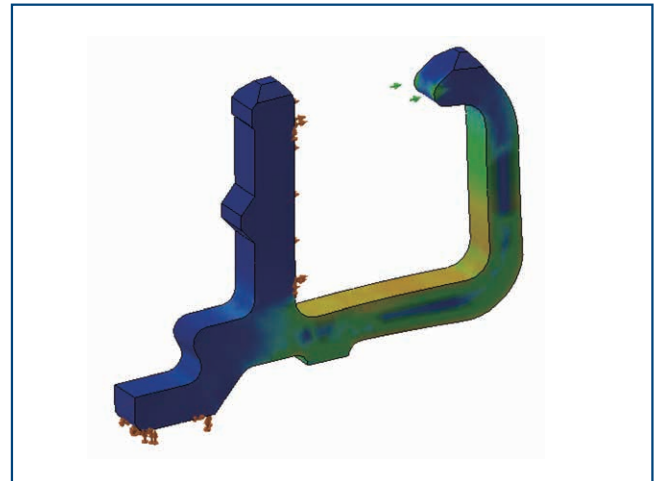
Heat resistance test 125°C after 1,000h

Contact resistance AVG : Initial 19.05 → after 1,000h 18.62mΩ

Temperature cycle test -55 to +125°C after 1,000 cycles

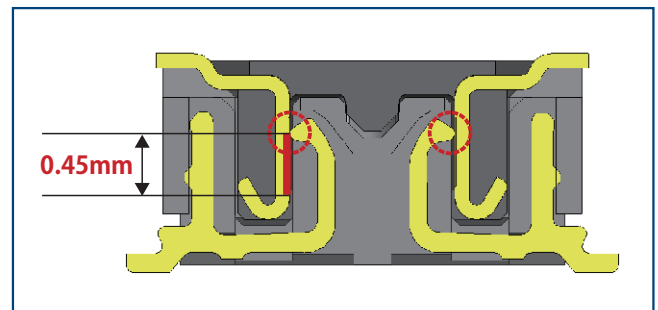
Contact resistance AVG :

Initial 19.76 → after 1,000 cycles 20.05mΩ



3. World Longest Class Effective Mating Length

Stable connection with the world's largest effective mating length realization

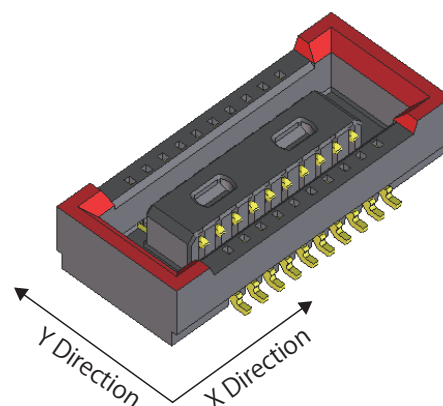


4. Guide Ribs for Wide Self Alignment Range

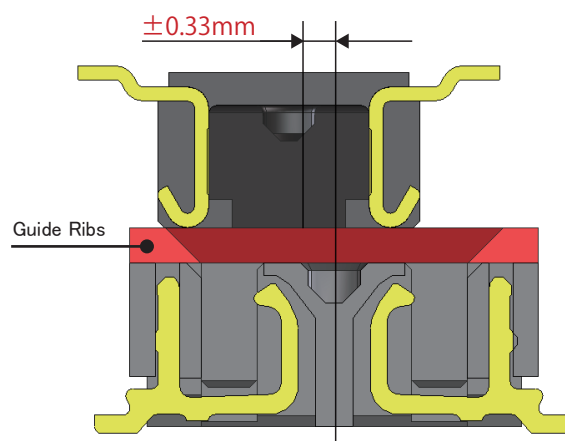
Self Alignment Range:

$\pm 0.33\text{mm}$ in X and Y Directions

Achieves smooth Mating Operation



Broaden the range of self alignment during mating, efficiently using dead space.

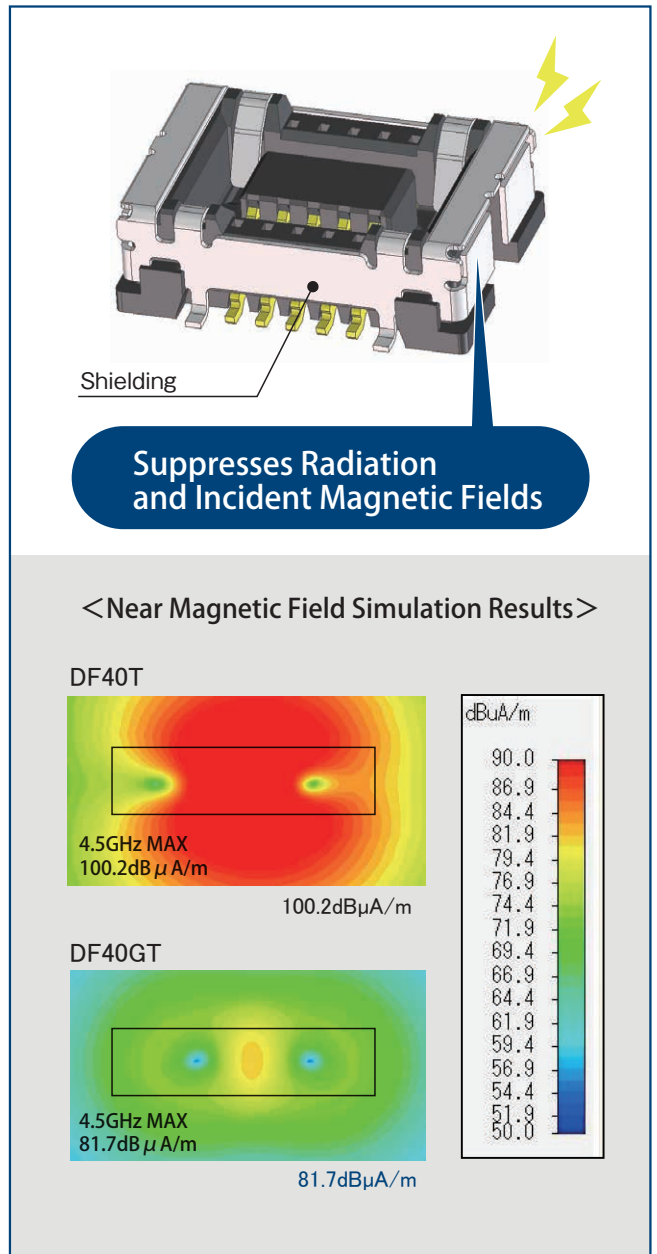


5. Supports PCI-ex Gen4(16Gbps)

All DF40T series is applicable to the PCI-ex Gen4 transmission.

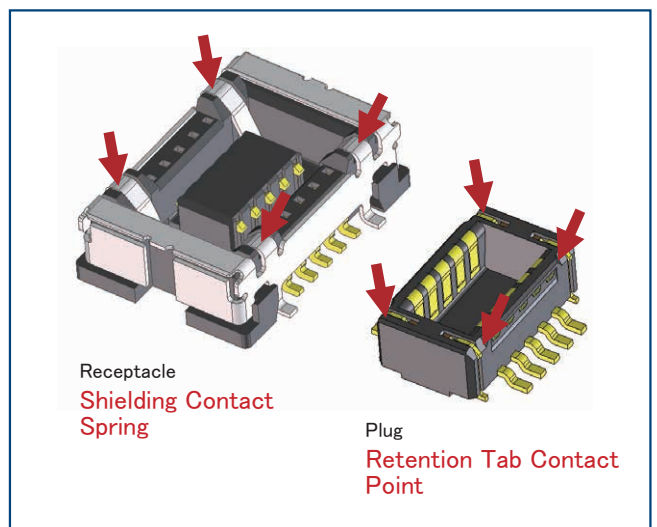
6. Metal Shielding for Superior EMI [DF40GT]

EMI prevention by shield plate on receptacle side.
Magnetic Field Reduced by 18.5dB $\mu\text{A}/\text{m}$ with
Shield Plate



7. Reliable Ground Design [DF40GT]

The contact area between the shield plate and the retention tab placed at the four corners strengthens grounding.



Ground connection on dead space

Applications

It can be used as a FPC-to-Board connector inside in-vehicle applications such as cameras, millimeter-wave radar, and LiDAR.

Product Specifications

Rated Current	0.3A	Operating Temperature (Note 1)(Note 2)	-55 to +125°C
Rated Voltage	30V AC/DC	Storage Temperature (Note 3)	-10 to +60°C

Item	Specifications	Conditions
Contact Resistance	90m Ω Max.	Measured at 20mV AC, 1kHz, 1mA
Insulation Resistance	50M Ω Min.	Measured at 100V DC
Withstand Voltage	No Flashover or Breakdown	100V AC for 1 min.
Mating Durability	Contact Resistance : 90m Ω Max. No damage, cracks or part dislocation.	10 times
Vibration Resistance	There should be no electrical interruption of 1 μ s Min. No damage, cracks or part dislocation.	Frequency 10 to 500Hz, Acceleration 49m/s ² Swept speed 1oct/min 8 hours each of 3-axis direction
Heat Resistance	Contact Resistance : 90m Ω Max. No damage, cracks or part dislocation.	Left for 1000 hours at Temperature 125 $\pm$ 2°C
Moisture Resistance	Contact Resistance : 90m Ω Max. Insulation Resistance : 25M Ω Min. No damage, cracks or part dislocation.	Temperature -10 $\rightarrow$ +65°C , RH In 90 - 96% Left for 10 cycles (240 hours)
Temperature Cycles	Contact Resistance : 90m Ω Max. No damage, cracks or part dislocation.	Temperature -55°C : 30min. $\rightarrow$ +125°C : 30min., 1000 cycles (Tank transfer time : 2 to 3min.)
Solder Heat Resistance	No deformation in appearance or significant damage to contacts.	Reflow : According to the Recommended Temperature Profile Hand Soldering : 350°C within 3 sec.

Note 1 : Includes the temperature rise due to current flow.

Note 2 : Use without condensation.

Note 3 : 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

■ 125°C Heat Resistant Standard Type (DF40T)

Product	Component	Material	Color / Finish	Remarks
Plug Receptacle	Housing	LCP	Black	UL94V-0
	Signal Contact	Copper Alloy	Gold Plating	-

■ 125°C Heat Resistant Shielded Type (DF40GT)

Product	Component	Material	Color / Finish	Remarks
Plug	Housing	LCP	Black	UL94V-0
	Signal Contact	Copper Alloy	Gold Plating	-
	Retention Tab	Copper Alloy	Gold Plating	-
Receptacle	Housing	LCP	Black	UL94V-0
	Signal Contact	Copper Alloy	Gold Plating	-
	Shield	Copper Alloy	Gold Plating	-

Product Number Structure

Please utilize the below part number chart when selecting.

■ DF40T (125°C Heat Resistant Standard Type)

● Plug

DF40 # - # DP - 0.4 V (##)

① ② ③ ④ ⑤ ⑥ ⑦

① Series Name	DF40	⑤ Contact Pitch	0.4mm
② Shape Symbol	TC : No Retention Tab	⑥ Contact Type	V : Straight SMT
③ No. of Pos.	10, 20, 30, 34, 40, 50, 60, 120	⑦ Packaging Type	(51) : Embossed Packaging (88) : Embossed Packaging
④ Connector Type	DP : Double Row Pin Plug		

● Receptacle

DF40 # (##) - # DS - 0.4 V (##)

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

① Series Name	DF40	④ No. of Pos.	10, 20, 30, 34, 40, 50, 60, 120
② Shape Symbol.	TB : Retention Tab TC : No Retention Tab	⑤ Connector Type	DS : Double Row Receptacle
③ Stacking Height	None : 1.5mm 2.0 : 2.0mm 2.5 : 2.5mm 3.0 : 3.0mm 3.5 : 3.5mm 4.0 : 4.0mm	⑥ Contact Pitch	0.4mm
		⑦ Contact Type	V : Straight SMT
		⑧ Packaging Type	(51) : Embossed Packaging (88) : Embossed Packaging

■ DF40GT (125°C Heat Resistant Shield Type)

● Plug

DF40 GT - # DP - 0.4 V (51)

① ② ③ ④ ⑤ ⑥ ⑦

① Series Name	DF40	⑤ Contact Pitch	0.4mm
② Shape Symbol	GT : With Shield	⑥ Contact Type	V : Straight SMT
③ No. of Pos.	10	⑦ Packaging Type	(51) : Embossed Packaging
④ Connector Type	DP : Double Row Pin Plug		

● Receptacle

DF40 GT (##) - # DS - 0.4 V (51)

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

① Series Name	DF40	⑤ Connector Type	DS : Double Row Receptacle
② Shape Symbol	GT : With Shield	⑥ Contact Pitch	0.4mm
③ Stacking Height	1.5 : 1.5mm	⑦ Contact Type	V : Straight SMT
④ No. of Pos.	10	⑧ Packaging Type	(51) : Embossed Packaging

Combinations

■ 125°C Heat Resistant Standard Type (DF40T)

Unit : mm

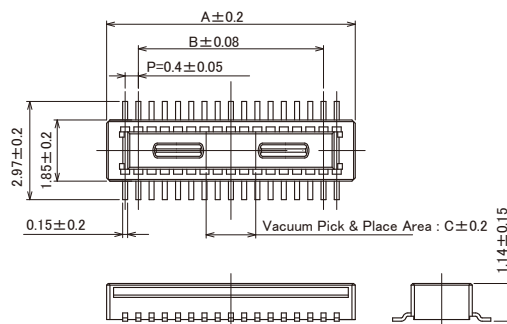
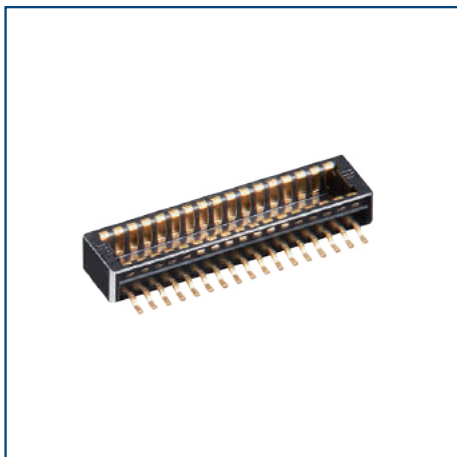
Receptacle/Plug	DF40TC-##DP-0.4V(51) Stacking Height
DF40TC-##DS-0.4V(51)	1.5
DF40TC(2.0)-##DS-0.4V(51)	2.0
DF40TC(2.5)-##DS-0.4V(51)	2.5
DF40TC(3.0)-##DS-0.4V(51)	3.0
DF40TC(3.5)-##DS-0.4V(51)	3.5
DF40TC(4.0)-##DS-0.4V(51)	4.0

■ 125°C Heat Resistant Shielded Type (DF40GT)

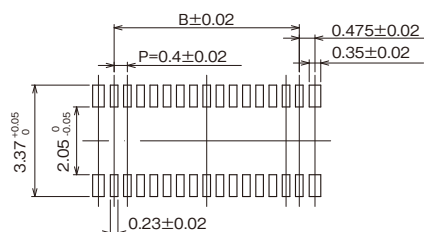
Unit : mm

Receptacle/Plug	DF40GT-10DP-0.4V(51) Stacking Height
DF40GT(1.5)-10DS-0.4V(51)	1.5

DF40T (125°C Heat Resistant Standard Type) Plug



●Recommended PCB Layout



Recommended Metal Mask Thickness : 0.12mm, Open Area Ratio : 80%

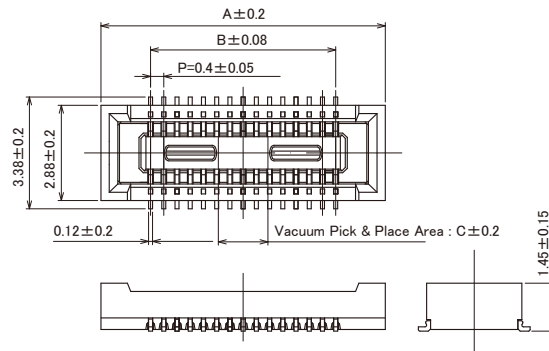
Unit : mm

Part No.	HRS No.	No. of Pos.	A	B	C	Purchase Unit
DF40TC-10DP-0.4V(51)	CL0684-4269-0-51	10	3.52	1.60	1.00	5,000pcs per reel
DF40TC-20DP-0.4V(51)	CL0684-4262-0-51	20	5.52	3.60	1.00	
DF40TC-30DP-0.4V(51)	CL0684-4263-0-51	30	7.52	5.60	1.50	
DF40TC-34DP-0.4V(51)	CL0684-4255-0-51	34	8.32	6.40	2.30	
DF40TC-40DP-0.4V(51)	CL0684-4264-0-51	40	9.52	7.60	3.20	
DF40TC-50DP-0.4V(51)	CL0684-4268-0-51	50	11.52	9.60	3.20	
DF40TC-60DP-0.4V(51)	Under Planning	60	13.52	11.60	3.20	
DF40TC-120DP-0.4V(88)	CL0684-4295-0-88	120	25.52	23.60	3.20	

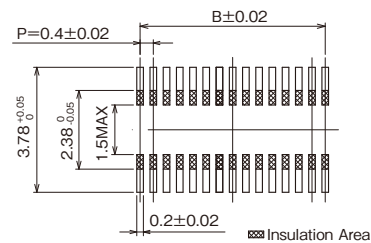
Note 1 : Please order embossed tape packaged items by the reel.

Note 2 : This connector has no polarity.

DF40T (125°C Heat Resistant Standard Type) Receptacle (Stacking Height 1.5mm)



● Recommended PCB Pattern



Recommended Metal Mask Thickness : 0.12mm, Aperture Ratio : 80%

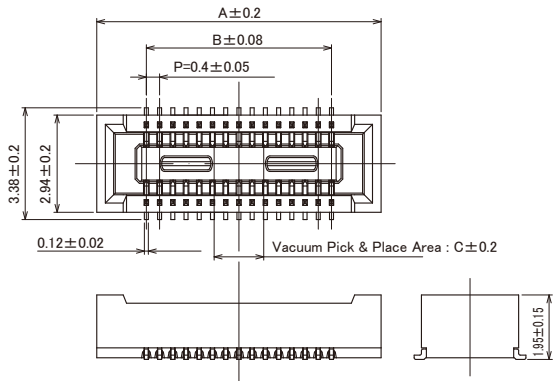
Unit : mm

Part No.	HRS No.	No. of Pos.	A	B	C	Purchase Unit
DF40TB-10DS-0.4V(51)	CL0684-4273-0-51	10	4.6	1.6	1.0	5,000pcs per reel
DF40TC-20DS-0.4V(51)	Under Planning	20	6.6	3.6	1.0	
DF40TC-30DS-0.4V(51)	CL0684-4261-0-51	30	8.6	5.6	1.5	
DF40TC-34DS-0.4V(51)	CL0684-4240-0-51	34	9.4	6.4	2.3	
DF40TC-40DS-0.4V(51)	CL0684-4272-0-51	40	10.6	7.6	3.2	
DF40TC-50DS-0.4V(51)	CL0684-4249-0-51	50	12.6	9.6	3.2	
DF40TC-60DS-0.4V(51)	Under Planning	60	14.6	11.6	3.2	
DF40TC-120DS-0.4V(88)	CL0684-4296-0-88	120	26.6	23.6	3.2	

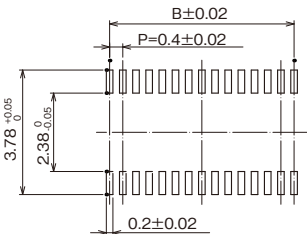
Note 1 : Please order embossed tape packaged items by the reel.

Note 2 : This connector has no polarity.

DF40T (125°C Heat Resistant Standard Type) Receptacle (Stacking Height 2.0mm)



●Recommended PCB Pattern



Recommended Metal Mask Thickness : 0.12mm, Aperture Ratio : 80%

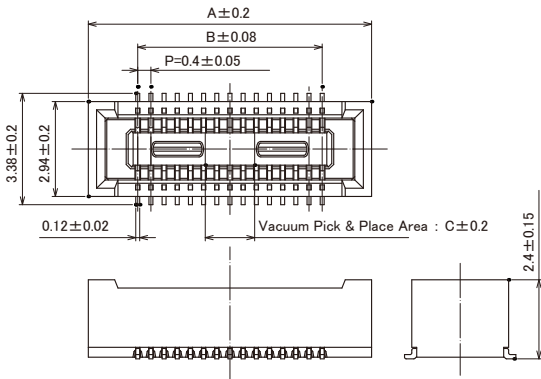
Unit : mm

Part No.	HRS No.	No. of Pos.	A	B	C	Purchase Unit
DF40TC(2.0)-20DS-0.4V(51)	Under Development	20	6.6	3.6	1.0	4,000pcs per reel
DF40TC(2.0)-30DS-0.4V(51)	Under Planning	30	8.6	5.6	1.5	
DF40TC(2.0)-40DS-0.4V(51)	Under Planning	40	10.6	7.6	3.2	

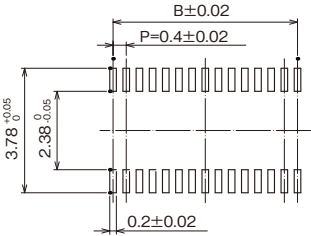
Note 1 : Please order embossed tape packaged items by the reel.
Note 2 : This connector has no polarity.

DF40T (125°C Heat Resistant Standard Type) Receptacle (Stacking Height 2.5mm to 4.0mm)

●Stacking Height 2.5mm



●Recommended PCB Pattern



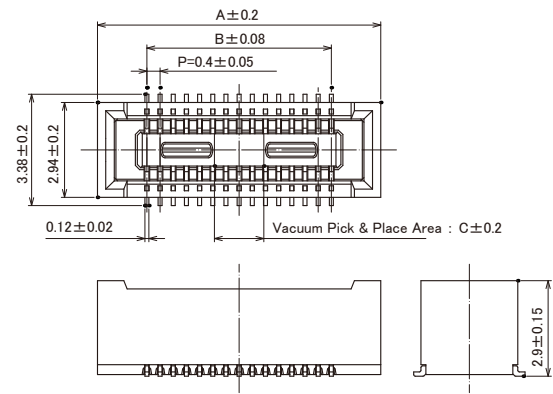
Recommended Metal Mask Thickness : 0.12mm, Open Area Ratio : 80%

Unit : mm

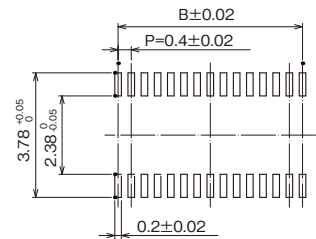
Part No.	HRS No.	No. of Pos.	A	B	C	Purchase Unit
DF40TC(2.5)-20DS-0.4V(51)	CL0684-4280-0-51	20	6.6	3.6	1.0	3,000pcs per reel
DF40TC(2.5)-30DS-0.4V(51)	CL0684-4266-0-51	30	8.6	5.6	1.5	
DF40TC(2.5)-40DS-0.4V(51)	Under Planning	40	10.6	7.6	3.2	
DF40TC(2.5)-50DS-0.4V(51)	CL0684-4279-0-51	50	12.6	9.6	3.2	

Note 1 : Please order embossed tape packaged items by the reel.
Note 2 : This connector has no polarity.

●Stacking Height 3.0mm



●Recommended PCB Pattern



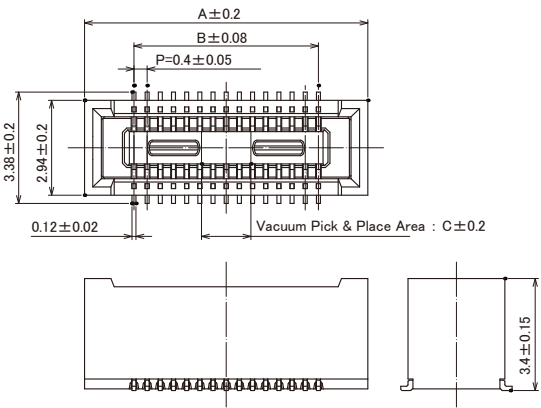
Recommended Metal Mask Thickness : 0.12mm, Open Area Ratio : 80%

Unit : mm

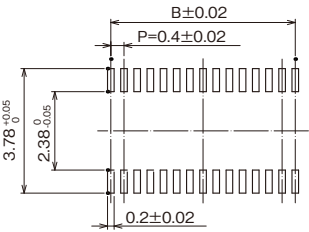
Part No.	HRS No.	No. of Pos.	A	B	C	Purchase Unit
DF40TC(3.0)-20DS-0.4V(51)	CL0684-4275-0-51	20	6.6	3.6	1.0	3,000pcs per reel
DF40TC(3.0)-30DS-0.4V(51)	CL0684-4242-0-51	30	8.6	5.6	1.5	
DF40TC(3.0)-40DS-0.4V(51)	CL0684-4276-0-51	40	10.6	7.6	3.2	

Note 1 : Please order embossed tape packaged items by the reel.
Note 2 : This connector has no polarity.

●Stacking Height 3.5mm



●Recommended PCB Pattern



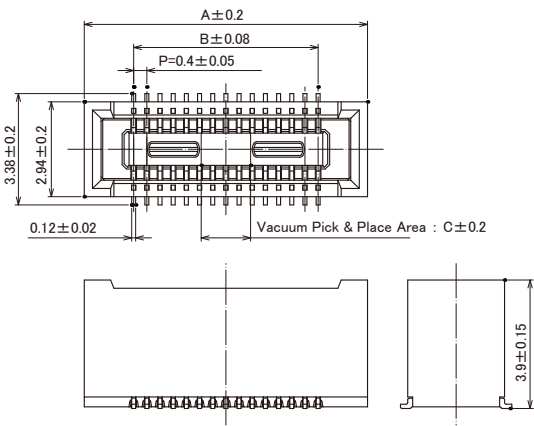
Recommended Metal Mask Thickness : 0.12mm, Open Area Ratio : 80%

Unit : mm

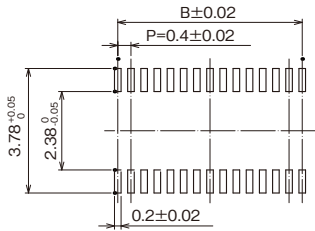
Part No.	HRS No.	No. of Pos.	A	B	C	Purchase Unit
DF40TC(3.5)-20DS-0.4V(51)	CL0684-4253-0-51	20	6.6	3.6	1.0	2,000pcs per reel
DF40TC(3.5)-30DS-0.4V(51)	CL0684-4237-0-51	30	8.6	5.6	1.5	
DF40TC(3.5)-40DS-0.4V(51)	CL0684-4254-0-51	40	10.6	7.6	3.2	

Note 1 : Please order embossed tape packaged items by the reel.
Note 2 : This connector has no polarity.

●Stacking Height 4.0mm



●Recommended PCB Pattern



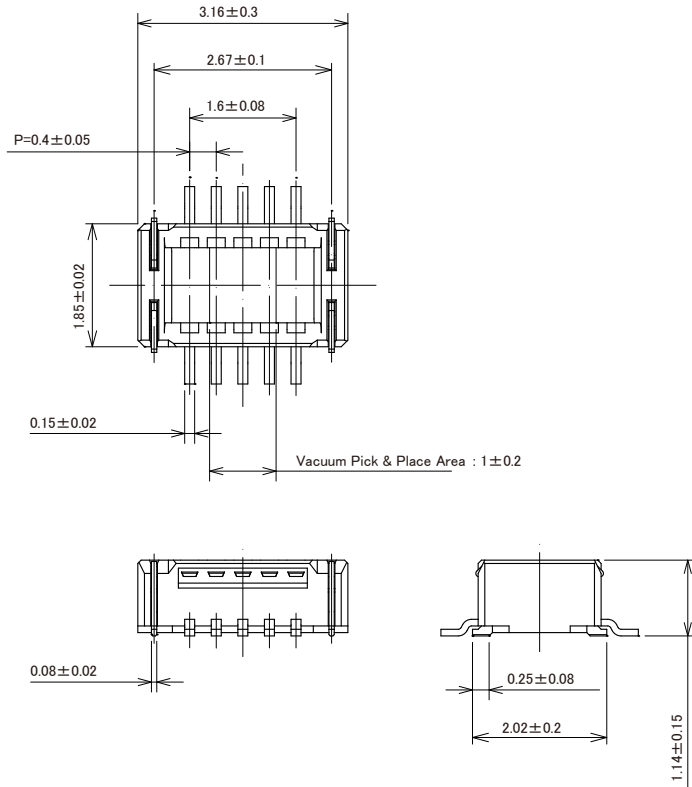
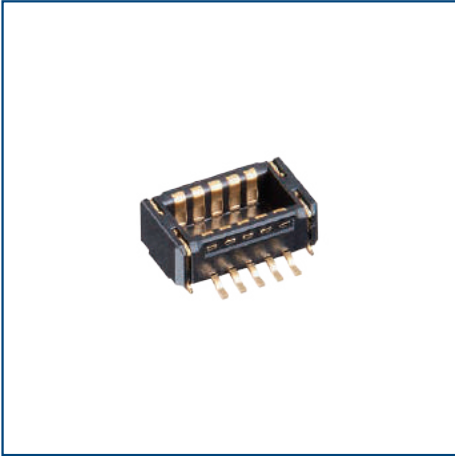
Recommended Metal Mask Thickness : 0.12mm, Open Area Ratio : 80%

Unit : mm

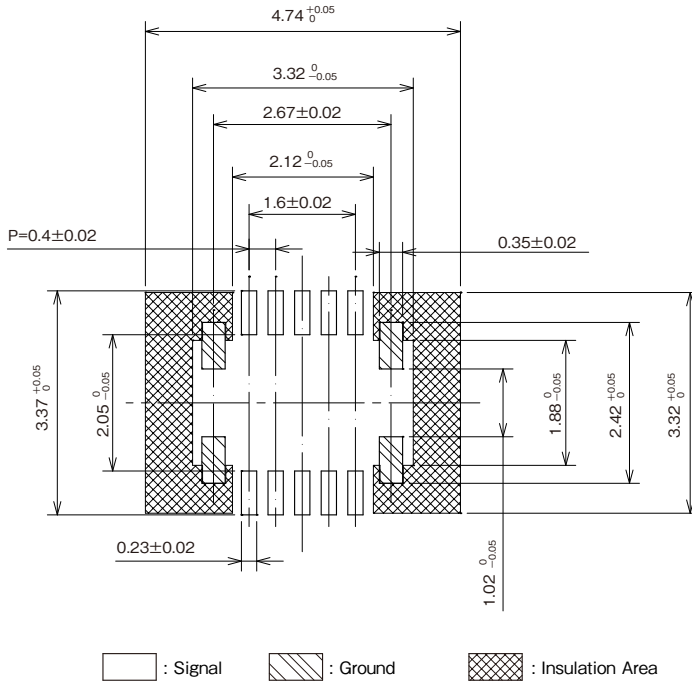
Part No.	HRS No.	No. of Pos.	A	B	C	Purchase Unit
DF40TC(4.0)-20DS-0.4V(51)	CL0684-4258-0-51	20	6.6	3.6	1.0	2,000pcs per reel
DF40TC(4.0)-30DS-0.4V(51)	CL0684-4256-0-51	30	8.6	5.6	1.5	
DF40TC(4.0)-40DS-0.4V(51)	CL0684-4259-0-51	40	10.6	7.6	3.2	
DF40TC(4.0)-50DS-0.4V(51)	CL0684-4297-0-51	50	12.6	9.6	3.2	

Note 1 : Please order embossed tape packaged items by the reel.
Note 2 : This connector has no polarity.

DF40GT (125°C Heat Resistant With Shield Type) Plug



●Recommended PCB Pattern



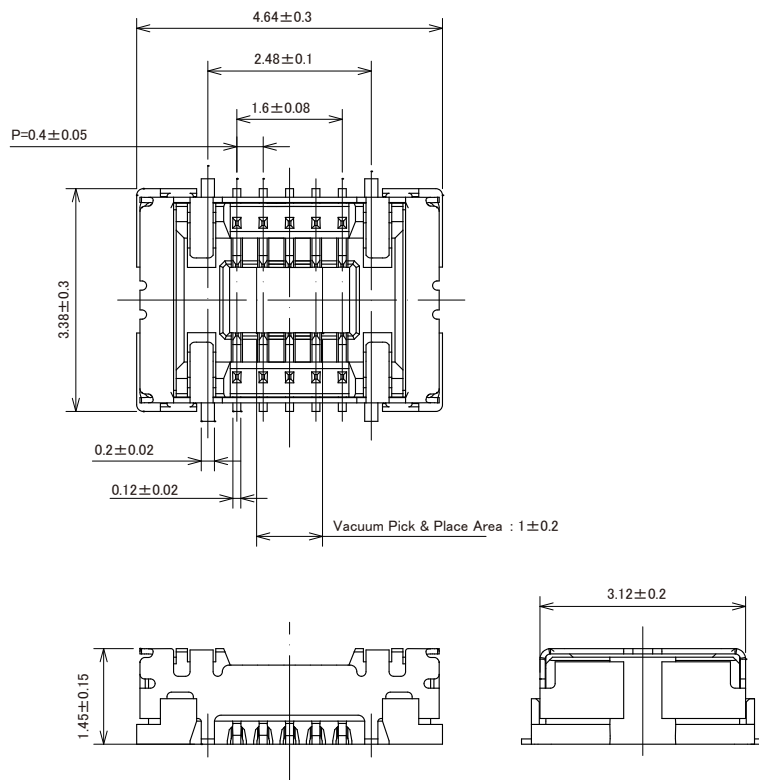
Recommended Metal Mask Thickness : 0.12mm, Aperture Ratio : 80%

Unit : mm

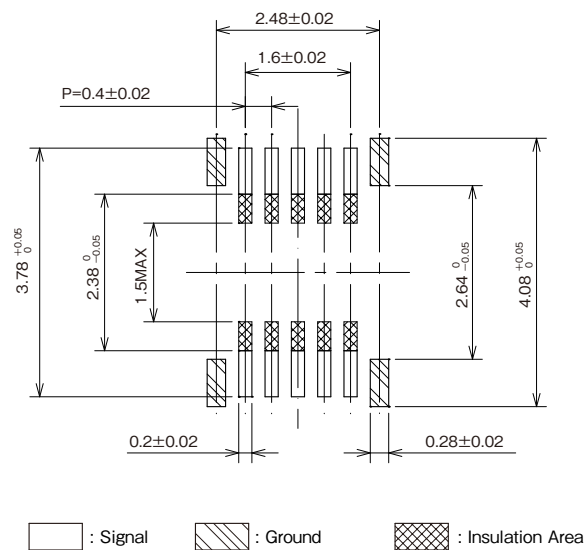
Part No.	HRS No.	No. of Pos.	Purchase Unit
DF40GT-10DP-0.4V(51)	CL0684-4260-0-51	10	5,000pcs per reel

Note 1 : Please order embossed tape packaged items by the reel.
Note 2 : This connector has no polarity.

DF40T (125°C Heat Resistant With Shield Type) Receptacle



● Recommended PCB Pattern



Recommended Metal Mask Thickness : 0.12mm, Open Area Ratio : 80%

Unit : mm

Part No.	HRS No.	No. of Pos.	Purchase Unit
DF40GT(1.5)-10DS-0.4V(51)	CL0684-4248-0-51	10	5,000pcs per reel

Note 1 : Please order embossed tape packaged items by the reel.

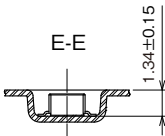
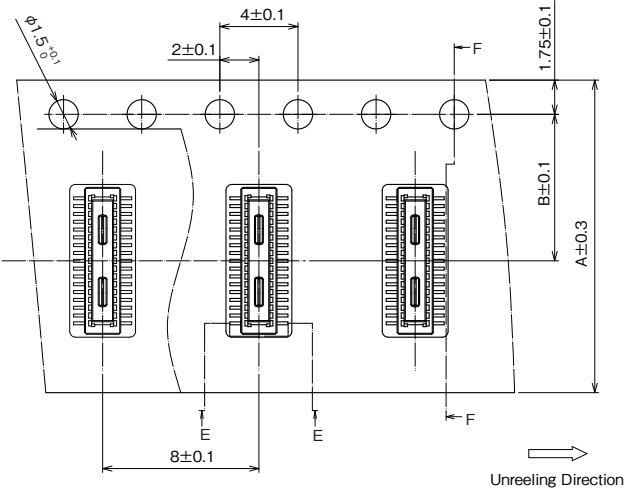
Note 2 : This connector has no polarity.

Packaging Specifications Diagram (JIS C 0806, IEC 60286 -3 Compliant)

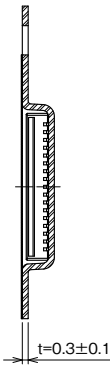
DF40T (125°C Heat Resistant Standard Type)

Plug

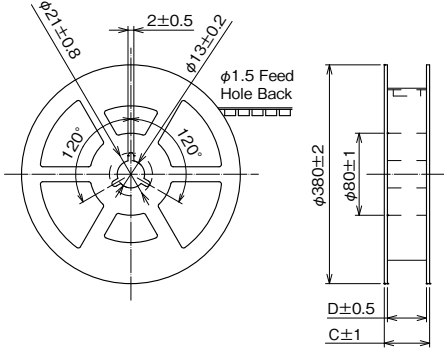
Embossed Tape Dimensions



F-F



Reel Dimensions



Unit : mm

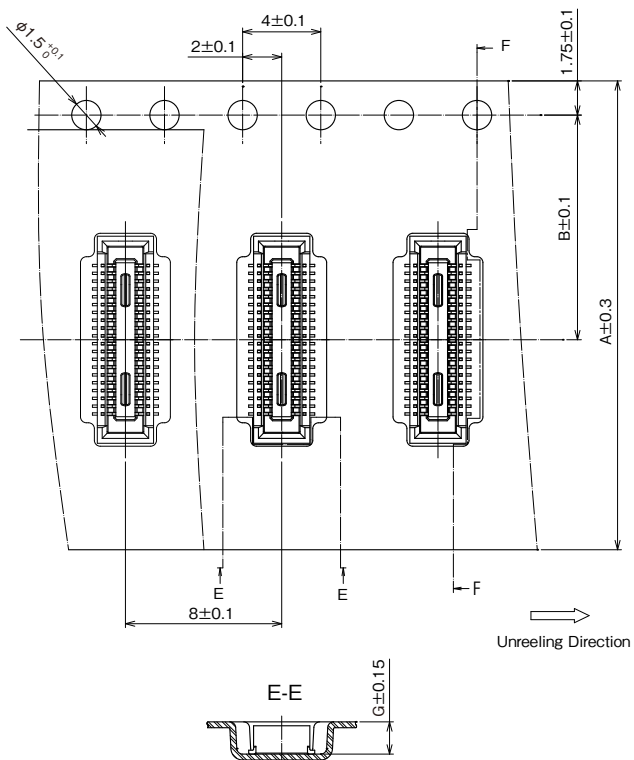
Part No.	HRS No.	A	B	C	D	Purchase Unit
DF40TC-10DP-0.4V(51)	CL0684-4269-0-51	12	5.5	17.5	13.5	5,000pcs per reel
DF40TC-20DP-0.4V(51)	CL0684-4262-0-51	16	7.5	21.5	17.5	
DF40TC-30DP-0.4V(51)	CL0684-4263-0-51	16	7.5	21.5	17.5	
DF40TC-34DP-0.4V(51)	CL0684-4255-0-51	24	11.5	29.5	25.5	
DF40TC-40DP-0.4V(51)	CL0684-4264-0-51	24	11.5	29.5	25.5	
DF40TC-50DP-0.4V(51)	CL0684-4268-0-51	24	11.5	29.5	25.5	
DF40TC-60DP-0.4V(51)	Under Planning	24	11.5	29.5	25.5	
DF40TC-120DP-0.4V(88)	CL0684-4295-0-88	44	40.4	49.5	45.5	

Note : The hole of the carrier tape for 10 to 60pos. will be only one side.

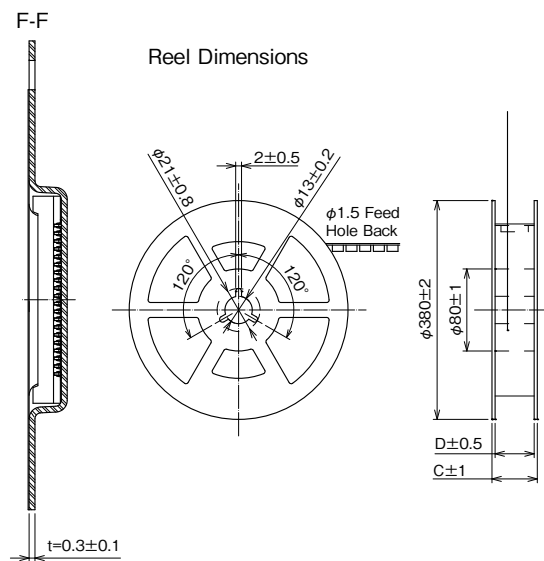
Receptacle

- Stacking Height 1.5 to 3.0mm

Embossed Tape Dimensions

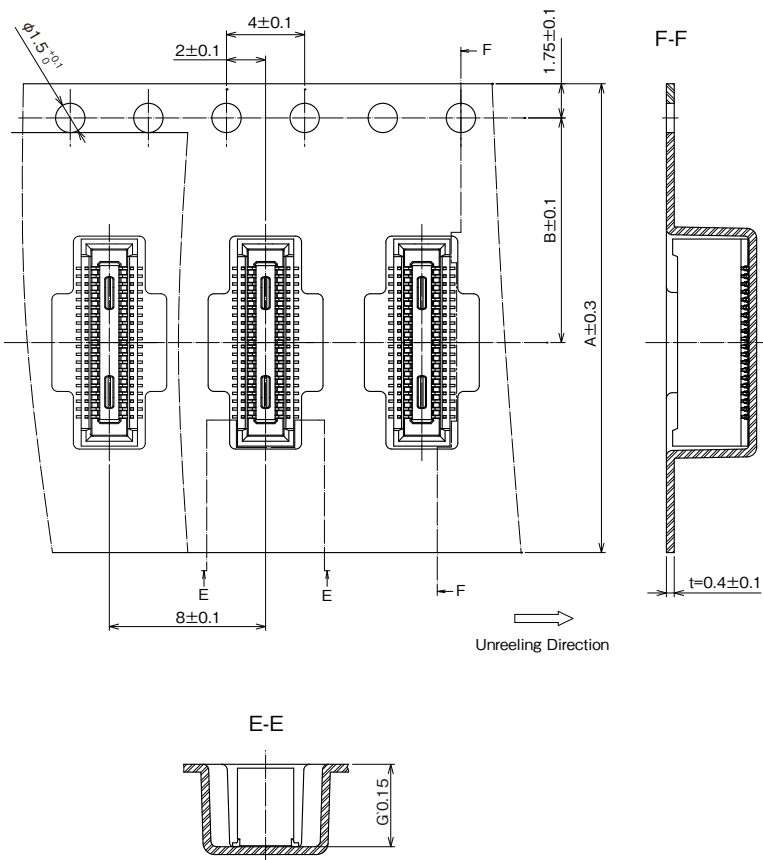


Reel Dimensions

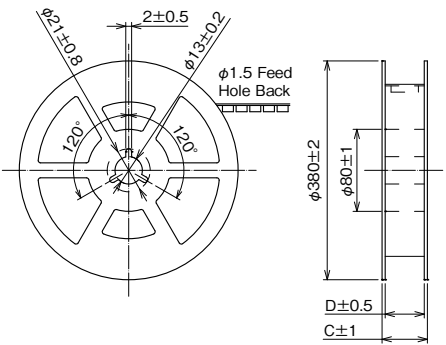


● Stacking Height 3.5 to 4.0mm

Embossed Tape Dimensions



Reel Dimensions



● Stacking Height 1.5mm

Unit : mm

Part No.	HRS No.	A	B	C	D	G	Purchase Unit
DF40TB-10DS-0.4V(51)	CL0684-4273-0-51	16	7.5	21.5	17.5	1.65	5,000pcs per reel
DF40TC-20DS-0.4V(51)	Under Planning	16	7.5	21.5	17.5	1.65	
DF40TC-30DS-0.4V(51)	CL0684-4261-0-51	24	11.5	29.5	25.5	1.65	
DF40TC-34DS-0.4V(51)	CL0684-4240-0-51	24	11.5	29.5	25.5	1.65	
DF40TC-40DS-0.4V(51)	CL0684-4272-0-51	24	11.5	29.5	25.5	1.65	
DF40TC-50DS-0.4V(51)	CL0684-4249-0-51	24	11.5	29.5	25.5	1.65	
DF40TC-60DS-0.4V(51)	Under Planning	24	11.5	29.5	25.5	1.65	
DF40TC-120DS-0.4V(88)	CL0684-4296-0-88	44	40.4	49.5	45.5	1.65	

Note : The hole of the carrier tape for 10 to 60pos. will be only one side.

● Stacking Height 2.0mm

Unit : mm

Part No.	HRS No.	A	B	C	D	G	Purchase Unit
DF40TC(2.0)-20DS-0.4V(51)	Under Development	16	7.5	21.5	17.5	2.2	4,000pcs per reel
DF40TC(2.0)-30DS-0.4V(51)	Under Planning	24	11.5	29.5	25.5	2.2	
DF40TC(2.0)-40DS-0.4V(51)	Under Planning	24	11.5	29.5	25.5	2.2	

● Stacking Height 2.5mm

Unit : mm

Part No.	HRS No.	A	B	C	D	G	Purchase Unit
DF40TC(2.5)-20DS-0.4V(51)	CL0684-4280-0-51	16	7.5	21.5	17.5	2.72	3,000pcs per reel
DF40TC(2.5)-30DS-0.4V(51)	CL0684-4266-0-51	24	11.5	29.5	25.5	2.72	
DF40TC(2.5)-40DS-0.4V(51)	Under Planning	24	11.5	29.5	25.5	2.72	
DF40TC(2.5)-50DS-0.4V(51)	CL0684-4279-0-51	24	11.5	29.5	25.5	2.72	

● Stacking Height 3.0mm

Unit : mm

Part No.	HRS No.	A	B	C	D	G	Purchase Unit
DF40TC(3.0)-20DS-0.4V(51)	CL0684-4275-0-51	16	7.5	21.5	17.5	3.15	3,000pcs per reel
DF40TC(3.0)-30DS-0.4V(51)	CL0684-4242-0-51	24	11.5	29.5	25.5	3.15	
DF40TC(3.0)-40DS-0.4V(51)	CL0684-4276-0-51	24	11.5	29.5	25.5	3.15	

● Stacking Height 3.5mm

Unit : mm

Part No.	HRS No.	A	B	C	D	G	Purchase Unit
DF40TC(3.5)-20DS-0.4V(51)	CL0684-4253-0-51	16	7.5	21.5	17.5	3.72	2,000pcs per reel
DF40TC(3.5)-30DS-0.4V(51)	CL0684-4237-0-51	24	11.5	29.5	25.5	3.72	
DF40TC(3.5)-40DS-0.4V(51)	CL0684-4254-0-51	24	11.5	29.5	25.5	3.72	

● Stacking Height 4.0mm

Unit : mm

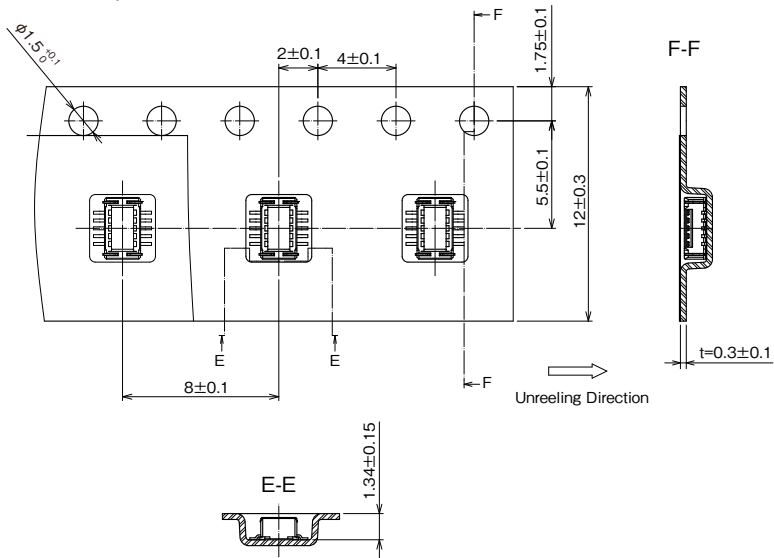
Part No.	HRS No.	A	B	C	D	G	Purchase Unit
DF40TC(4.0)-20DS-0.4V(51)	CL0684-4258-0-51	16	7.5	21.5	17.5	4.22	2,000pcs per reel
DF40TC(4.0)-30DS-0.4V(51)	CL0684-4256-0-51	24	11.5	29.5	25.5	4.22	
DF40TC(4.0)-40DS-0.4V(51)	CL0684-4259-0-51	24	11.5	29.5	25.5	4.22	
DF40TC(4.0)-50DS-0.4V(51)	CL0684-4297-0-51	24	11.5	29.5	25.5	4.22	

■ DF40GT

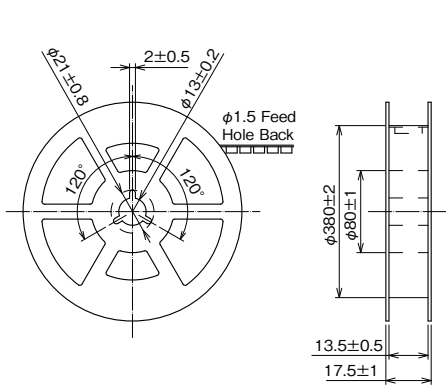
(125°C Heat Resistant Standard Type)

Plug

Embossed Tape Dimensions



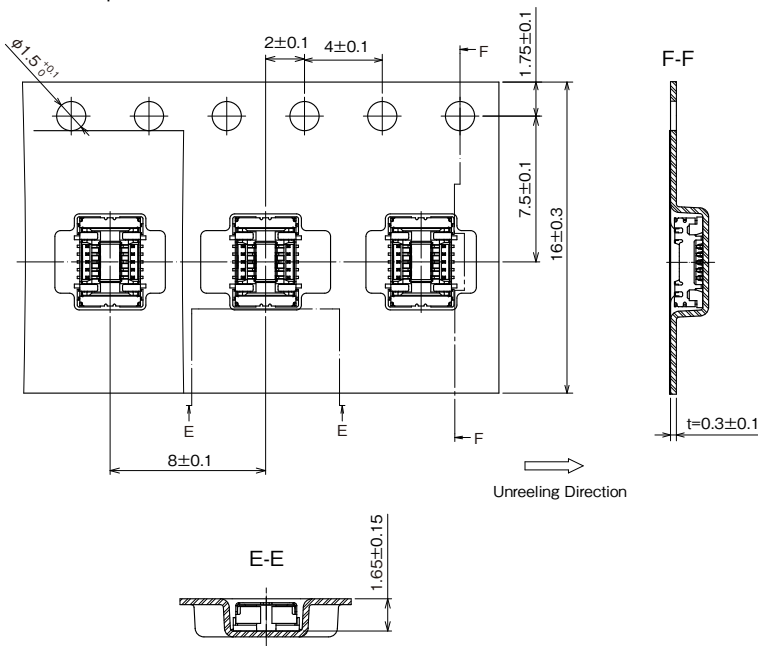
Reel Dimensions



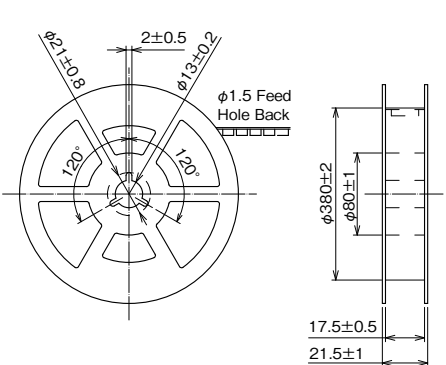
Part No.	HRS No.	No. of Pos.	Purchase Unit
DF40GT-10DP-0.4V(51)	CL0684-4260-0-51	10	5,000pcs per reel

Receptacle

Embossed Tape Dimensions

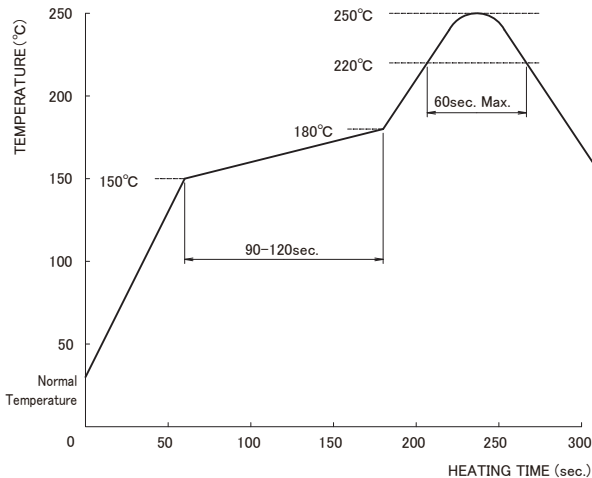


Reel Dimensions



Part No.	HRS No.	No. of Pos.	Purchase Unit
DF40GT(1.5)-10DS-0.4V(51)	CL0684-4248-0-51	10	5,000pcs per reel

Precautions

Recommended Temperature Profile	 【Conditions】 1. Peak Temperature : 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. * Temperature refers to the surface temperature of the board near the connector lead. We recommend reflow mounting in a nitrogen environment.
Recommended Manual Soldering Conditions	Soldering iron temperature : $340 \pm 10^{\circ}\text{C}$, Soldering Time : Within 3 sec.
Recommended Metal Mask Thickness and Open Area to PCB Pattern (Area Ratio)	Thickness : 0.12mm, Aperture Ratio : DS 80% DP 80%
Board Warpage	Max. of 0.02mm at the center in reference to both ends of the connector
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.)
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. • Do not use the connector in non-recommended conditions (i.e., rated current, rated voltage, PCB design and operating environment, etc.). Such usage could lead to material outgassing, ignition, or short-circuit, etc. Refer to the specifications and guidelines for board pattern dimensions, board cautions, and connector treatment. Please contact Hirose if connector usage in conditions other than those described in the specifications and the guidelines is being considered.

Precautions for Handling During Use

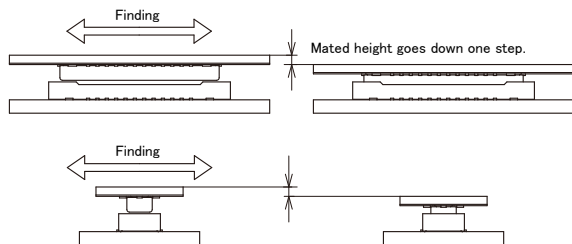
【Mating Method of Connector】

When Mating this Item, please do so by hand.

Mating Method

1. Locate the guide port and align. This product has a guide rib on the plug to ensure proper engagement. Once aligned, the connector engages. You can feel the mated height of the connector lower.

Move the connector forward and backward, left and right to find the guide port.



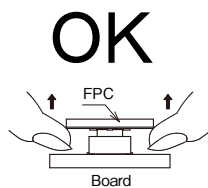
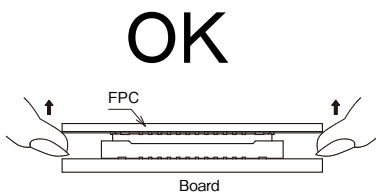
2. In the engaged state, the connectors are parallel to each other, and the connectors cannot move forward, backward, left, or right. Complete mating from this state.



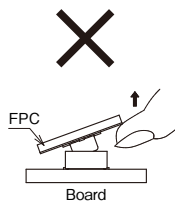
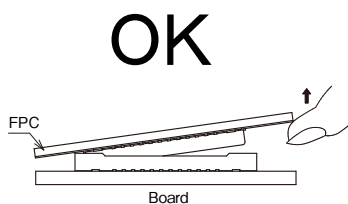
3. Check that mating is completed.
If one side is floating, or if it is mated at a diagonal, remove and re-mate.

【Handling Precautions for Connector Removal】

1. When removing the connector, it is preferable to pull it out in the upward direction from the connector mounting surface.
However, when removing the FPC from the circuit board it becomes more difficult to remove it vertically with higher pin counts and thin FPCs.



2. If difficult to remove, extract the connector diagonally in the direction of the pitch.
Note that removal from the widthwise side will apply a large load to the contacts.



DF40F Series

Small Floating Board-to-Board Connector, 125°C Heat Resistance for Automotive



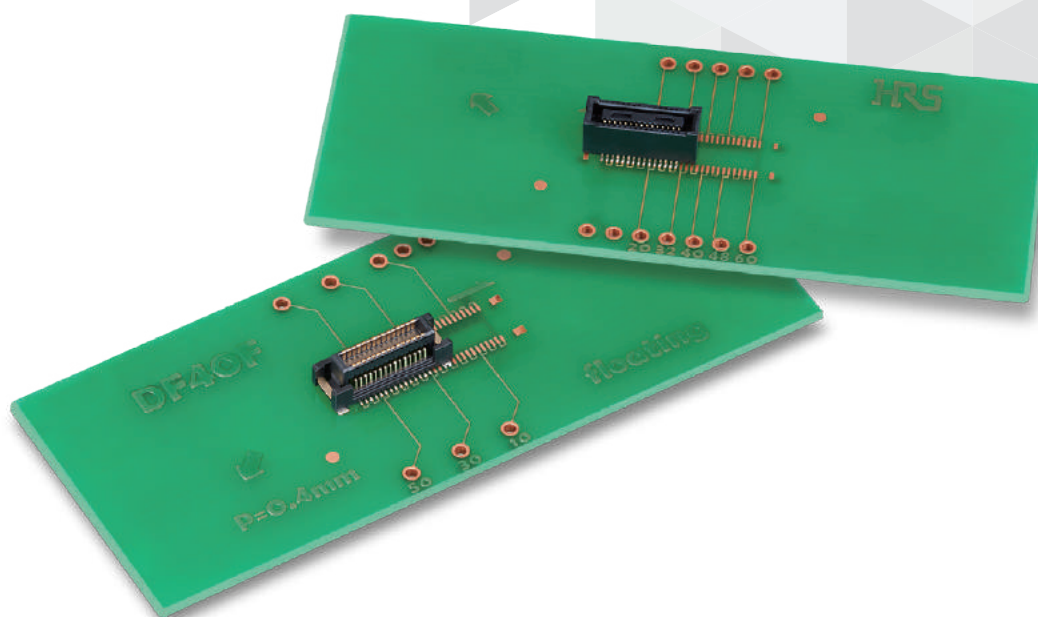
Compact



Floating



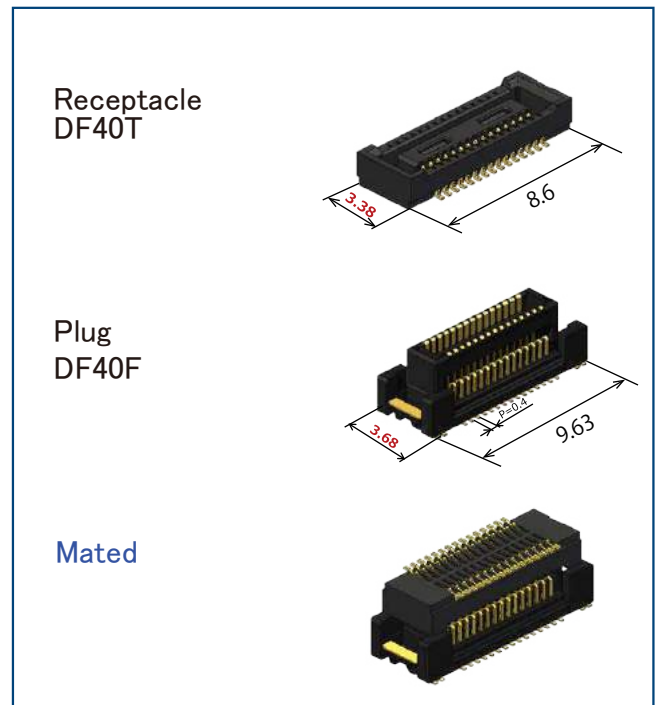
High Temp



Features

1. 0.4mm Pitch, 3.68mm Width, Stacking Height 3.5 to 6.0mm World's Smallest Width Class in Floating Board-to-Board Connectors

It contributes to making board design space-saving. Significantly reduces the area occupied on mounting part.



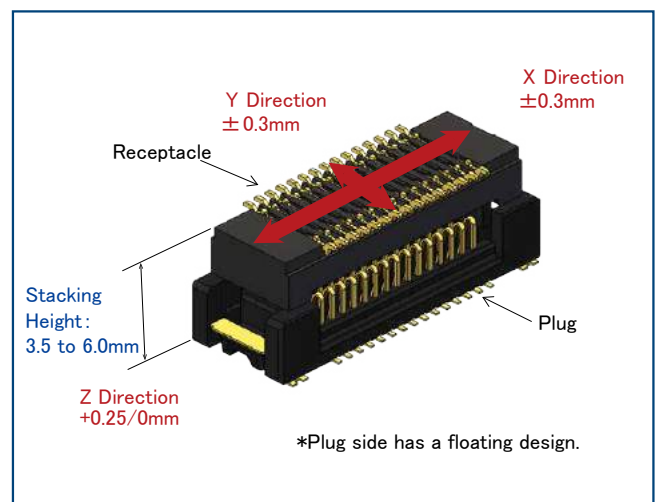
Small & Space-Saving (e.g. 30pos.)

2. Absorption of Misalignment

X and Y Directions :
Floating Range $\pm 0.3\text{mm}$

Z Direction :
Effective Mating Length
 $\pm 0.25/0\text{mm}$

The board mounting misalignment and misalignment due to board warpage can be absorbed by the connector.



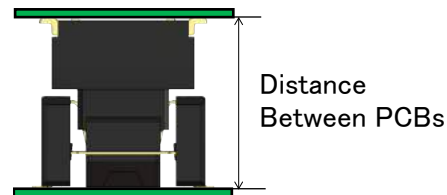
Large Floating Range & Effective Mating Length

3. Wide Variety of Stacking Heights by Mating Combination with DF40T

Plug DF40F and Receptacle DF40T are used in combination.

Stacking Height can be changed by changing receptacle side.

- DF40F : 1 Type
- DF40T : 6 Types



Unit : mm

Stacking Height	Distance Between PCBs
3.5	3.5 to 3.75mm
4.0 *	4.0 to 4.25mm
4.5	4.5 to 4.75mm
5.0	5.0 to 5.25mm
5.5	5.5 to 5.75mm
6.0	6.0 to 6.25mm

*Stacking Height in Under Planning

Stacking Height Variation

4. 125°C Heat Resistance for Automotive Specifications

5. Supports High Speed Transmission

All heights support these standards.

PCI-ex Gen.4 (16Gbps)

- Pin Assign : GGGSSGSSGGG
- Reference Impedance : 85Ω

MIPI D-PHY Ver.1.1 (1.5Gbps)

- Pin Assign : GGSGSGSGSGG
- Reference Impedance : 100Ω

Applications

It can be used for in-vehicle applications for front cameras, Rear/Side Cameras, Millimeter-Wave Radar LiDAR and other devices that require misalignment absorption of the substrate by small size floating. It can also be used in devices that require absorption of the substrate misalignment for consumer and industrial equipment.

Product Specifications

Rated Current	0.3A	Operating Temperature (Note 1)(Note 2)	-55 to +125°C
Rated Voltage	30V AC/DC	Storage Temperature (Note 3)	-10 to +60°C

Item	Specifications	Conditions
Contact Resistance	90m Ω Max.	Measured at 20mV AC, 1kHz, 1mA
Insulation Resistance	50M Ω Min.	Measured at 100V DC
Withstanding Voltage	No Flashover or Breakdown	100V AC for 1 min.
Mating Durability	Contact Resistance : 90m Ω Max. No damage, cracks or part dislocation.	10 times
Vibration Resistance	There should be no electrical interruption of 1 μ s Min. No damage, cracks or part dislocation.	Frequency 10 to 500Hz, Acceleration 49m/s ² Swept speed 1oct/min 8 hours each of 3-axis direction
Heat Resistance	Contact Resistance : 90m Ω Max. No damage, cracks or part dislocation.	Left for 1000 hours at Temperature 125 $\pm$ 2°C
Moisture Resistance	Contact Resistance : 90m Ω Max. Insulation Resistance : 25M Ω Min. No damage, cracks or part dislocation.	Temperature -10 $\rightarrow$ +65°C , RH In 90 - 96% Left for 10 cycles (240 hours)
Temperature Cycles	Contact Resistance : 90m Ω Max. No damage, cracks or part dislocation.	Temperature -55°C : 30min. $\rightarrow$ +125°C : 30min., 1000 cycles (Tank transfer time : 2 to 3min.)
Solder Heat Resistance	No deformation in appearance or significant damage to contacts.	Reflow : According to the Recommended Temperature Profile Hand Soldering : 350°C within 3 sec.

Note 1 : Includes the temperature rise due to current flow.

Note 2 : Use without condensation.

Note 3 : 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

Item	Component	Material	Color/Finish
Plug DF40F	Insulator	LCP	Black
	Contact	Copper Alloy	Gold Plating (Nickel Underplating)
	Retention Tab	Copper Alloy	Gold Plating (Nickel Underplating)
Receptacle DF40T	Insulator	LCP	Black
	Contact	Copper Alloy	Gold Plating (Nickel Underplating)

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.

■ Plug

DF40 F (2.0) - 30 DP - 0.4 V (51)

1

2

3

4

5

6

7

8

■ Receptacle

DF40 TC (4.0) - 30 DS - 0.4 V (51)

1

2

3

4

5

6

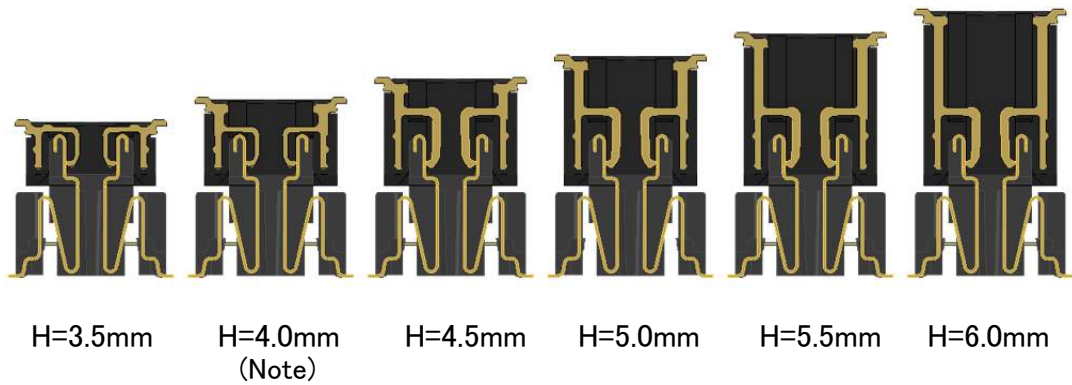
7

8

1 Series Name	DF40	5 Connector Type	DP : Double Row Plug DS : Double Row Receptacle
2 Shape Symbol	F : Floating TC : No Retention Tab	6 Contact Pitch	0.4mm
3 Stacking Height	3.5, 4.0, 4.5, 5.0, 5.5, 6.0 mm Stacking Height is total value of (a) and (b) below. Plug (a) : 2.0 Receptacle (b) : 1.5, 2.0, 2.5, 3.0, 3.5, 4.0 (Note 1) (Note 2)	7 Contact Type	V : Straight SMT
4 No. of Pos.	30	8 Packaging Type	(51) : Embossed Tape Packaging, DF40F 3,000pcs/reel DF40TC 5,000pcs/reel DF40TC(2.5) 3,000pcs/reel DF40TC(3.0) 3,000pcs/reel DF40TC(3.5) 2,000pcs/reel DF40TC(4.0) 2,000pcs/reel (53) : Embossed Tape Packaging, 500pcs/reel (For trial production)

Note 1 : (1.5) of the Receptacle will be blank. (e.g. : DF40TC-30DS-0.4V(51))
Note 2 : (2.0) for Receptacle is under planning.

Combinations

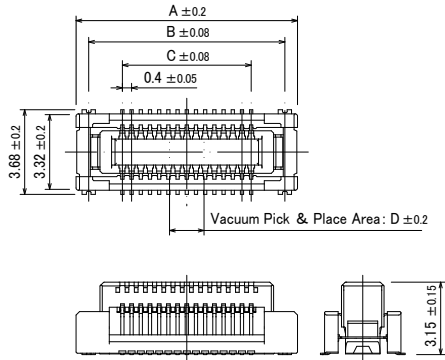


Unit : mm

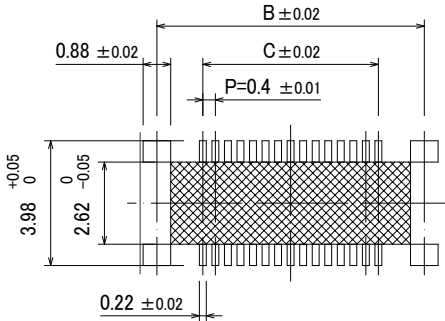
Receptacle/Plug	DF40F(2.0)-30DP-0.4V(##) Stacking Height
DF40TC-30DS-0.4V(##)	3.5
DF40TC(2.0)-30DS-0.4V(##) (Note)	4.0 (Note)
DF40TC(2.5)-30DS-0.4V(##)	4.5
DF40TC(3.0)-30DS-0.4V(##)	5.0
DF40TC(3.5)-30DS-0.4V(##)	5.5
DF40TC(4.0)-30DS-0.4V(##)	6.0

Note : Stacking Height in Under Planning

DF40F (125°C Heat Resistant Floating Type) Plug

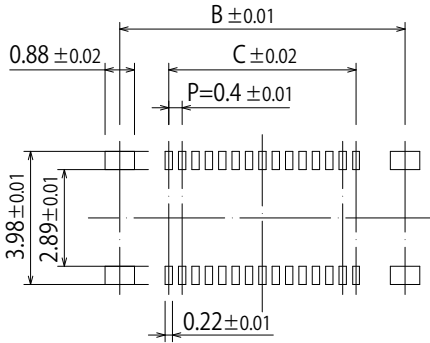


●Recommended PCB Layout



Pattern Prohibited Area

●Recommended Metal Mask Dimensions



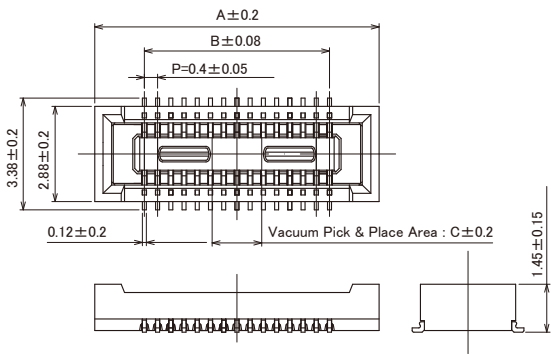
Recommended Metal Mask Thickness : 0.12mm, Open Area Ratio : 80%

Unit : mm

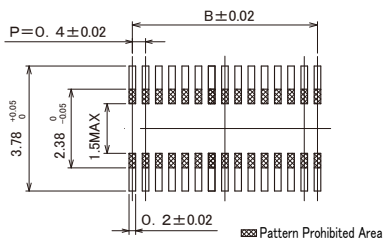
Part No.	HRS No.	No. of Pos.	A	B	C	D	Purchase Unit (##) : (51)	Purchase Unit (##) : (53)
DF40F(2.0)-30DP-0.4V(##)	CL0684-4501-0-##	30	9.63	8.53	5.6	1.5	3,000pcs per reel	500pcs per reel

Note : This connector has no polarity.

DF40T (125°C Heat Resistant Standard Type) Receptacle (Stacking Height 3.5mm)



● Recommended PCB Layout



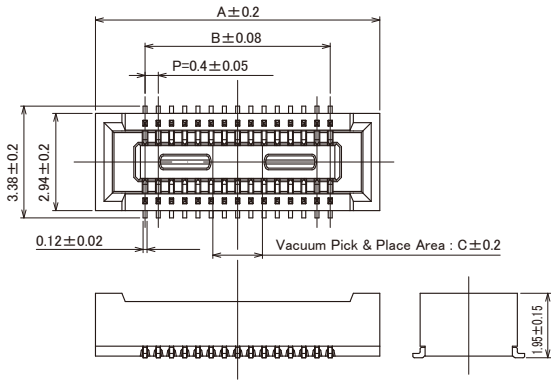
Recommended Metal Mask Thickness : 0.12mm, Open Area Ratio : 80%

Unit : mm

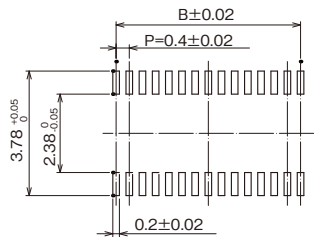
Part No.	HRS No.	No. of Pos.	A	B	C	Purchase Unit (##) : (51)	Purchase Unit (##) : (53)
DF40TC-30DS-0.4V(##)	CL0684-4261-0-##	30	8.6	5.6	1.5	5,000pcs per reel	500pcs per reel

Note : This connector has no polarity.

DF40T (125°C Heat Resistant Standard Type) Receptacle (Stacking Height 4.0mm)



●Recommended PCB Layout



Recommended Metal Mask Thickness : 0.12mm, Open Area Ratio : 80%

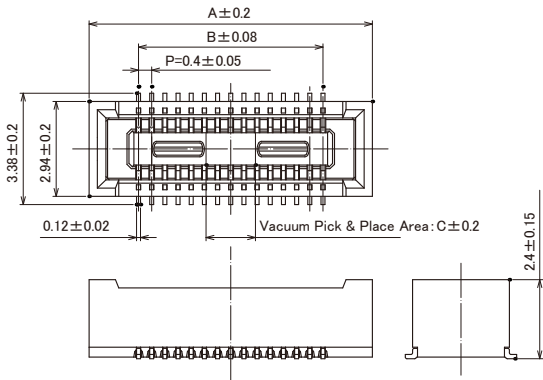
Unit : mm

Part No.	HRS No.	No. of Pos.	A	B	C	Purchase Unit (##) : (51)	Purchase Unit (##) : (53)
DF40TC(2.0)-30DS-0.4V(##)	Under Planning (Note1)	30	8.6	5.6	1.5	4,000pcs per reel	500pcs per reel

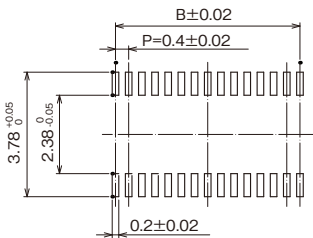
Note 1 : Contact positions without HRS No. are currently under planning.
Please contact a Hirose representative regarding questions on pin count variation development.
Note 2 : This connector has no polarity.

DF40T (125°C Heat Resistant Standard Type) Receptacle (Stacking Height 4.5 to 6.0mm)

●Stacking Height 4.5mm



●Recommended PCB Layout



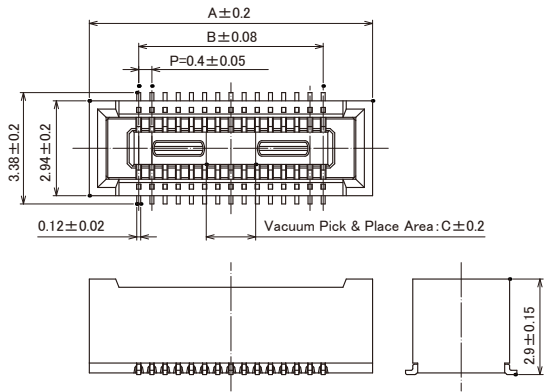
Recommended Metal Mask Thickness : 0.12mm, Open Area Ratio : 80%

Unit : mm

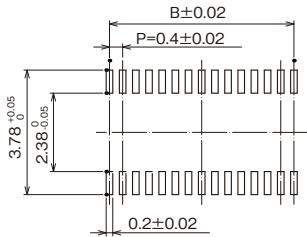
Part No.	HRS No.	No. of Pos.	A	B	C	Purchase Unit (##) : (51)	Purchase Unit (##) : (53)
DF40TC(2.5)-30DS-0.4V(##)	CL0684-4266-0-##	30	8.6	5.6	1.5	3,000pcs per reel	500pcs per reel

Note : This connector has no polarity.

●Stacking Height 5.0mm



●Recommended PCB Layout



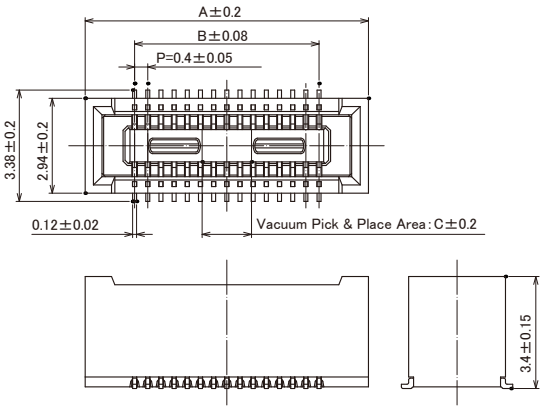
Recommended Metal Mask Thickness : 0.12mm, Open Area Ratio : 80%

Unit : mm

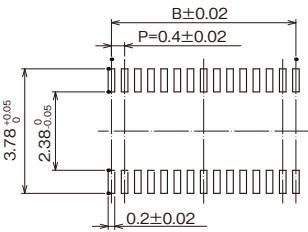
Part No.	HRS No.	No. of Pos.	A	B	C	Purchase Unit (##) : (51)	Purchase Unit (##) : (53)
DF40TC(3.0)-30DS-0.4V(##)	CL0684-4242-0-##	30	8.6	5.6	1.5	3,000pcs per reel	500pcs per reel

Note : This connector has no polarity.

●Stacking Height 5.5mm



●Recommended PCB Layout



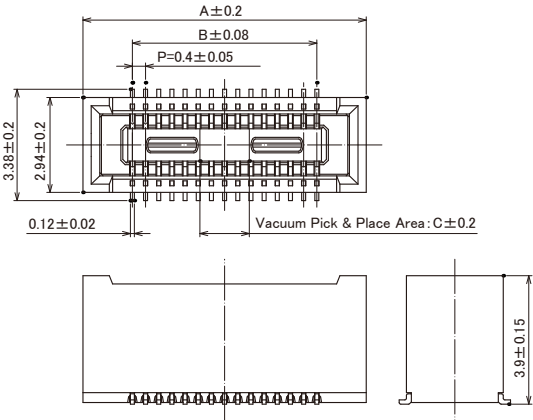
Recommended Metal Mask Thickness : 0.12mm, Open Area Ratio : 80%

Unit : mm

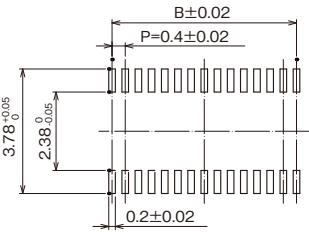
Part No.	HRS No.	No. of Pos.	A	B	C	Purchase Unit (##) : (51)	Purchase Unit (##) : (53)
DF40TC(3.5)-30DS-0.4V(##)	CL0684-4237-0-##	30	8.6	5.6	1.5	2,000pcs per reel	500pcs per reel

Note : This connector has no polarity.

●Stacking Height 6.0mm



●Recommended PCB Layout



Recommended Metal Mask Thickness : 0.12mm, Open Area Ratio : 80%

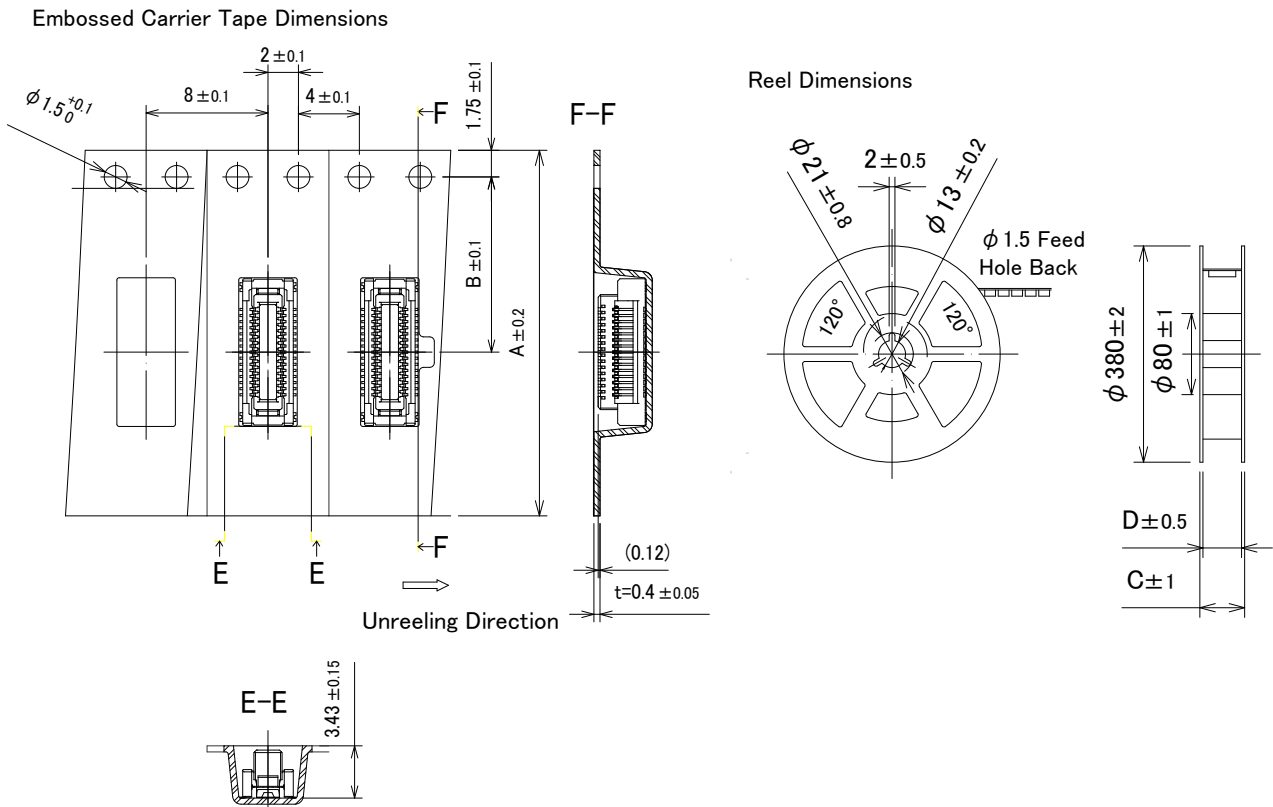
Unit : mm

Part No.	HRS No.	No. of Pos.	A	B	C	Purchase Unit (##) : (51)	Purchase Unit (##) : (53)
DF40TC(4.0)-30DS-0.4V(##)	CL0684-4256-0-##	30	8.6	5.6	1.5	2,000pcs per reel	500pcs per reel

Note : This connector has no polarity.

Packaging Specifications Diagram (JIS C 0806, IEC 60286-3 Compliant)

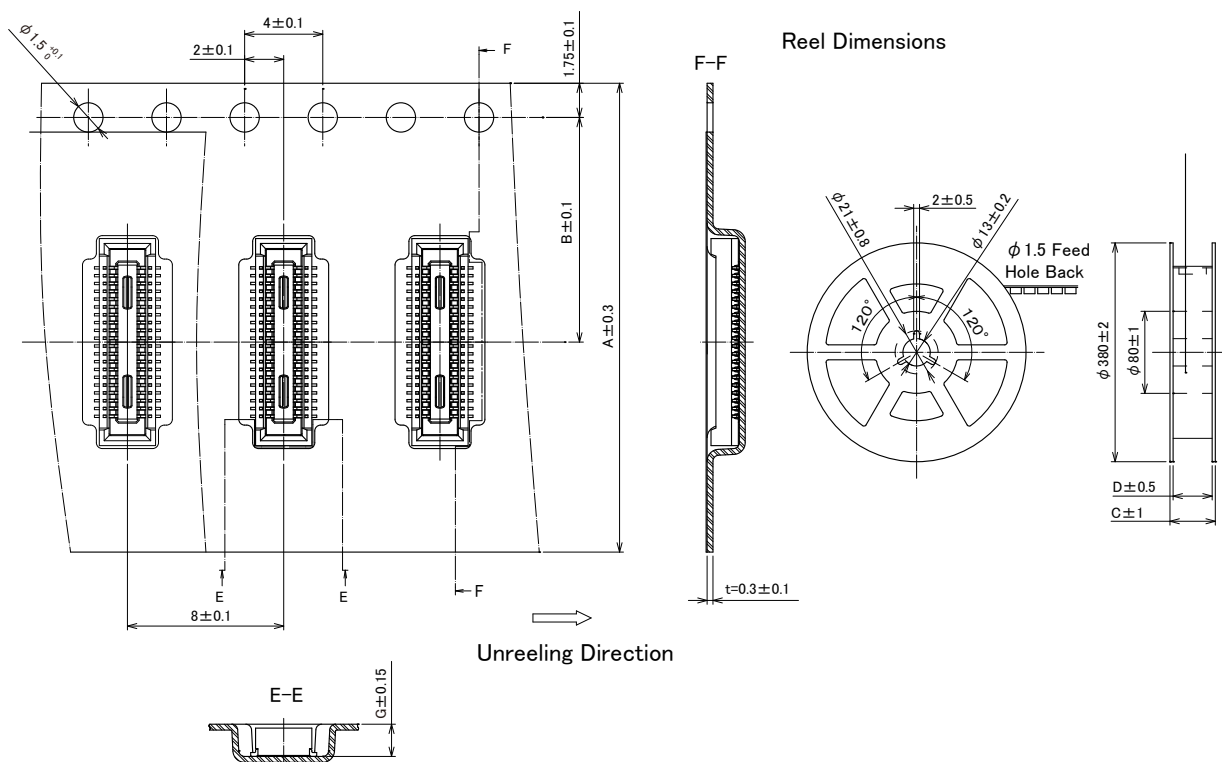
DF40F Plug



Part No.	HRS No.	A	B	C	D	Purchase Unit (#) : (51)	Purchase Unit (#) : (53)
DF40F(2.0)-30DP-0.4V(##)	CL0684-4501-0-##	24	11.5	29.5	25.5	3,000pcs per reel	500pcs per reel

- Stacking Height 3.5 to 5.0mm

Reel Dimensions

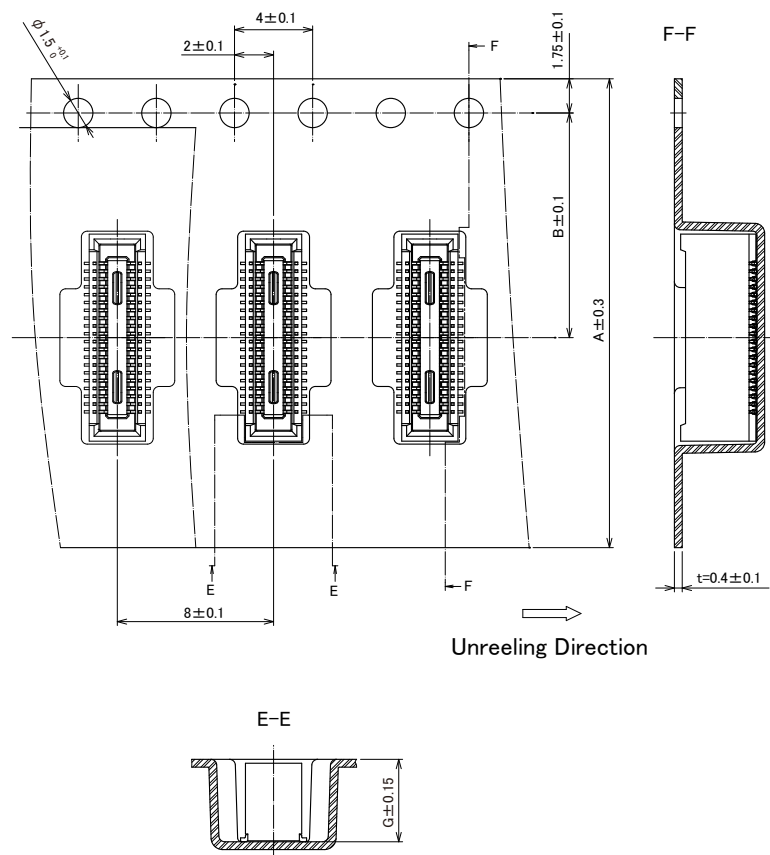


Part No.	HRS No.	A	B	C	D	G	Purchase Unit (##) : (51)	Purchase Unit (##) : (53)
DF40TC-30DS-0.4V(##)	CL0684-4261-0-##	24	11.5	29.5	25.5	1.65	5,000pcs per reel	500pcs per reel
DF40TC(2.0)-30DS-0.4V(##)	Under Planning (Note)	24	11.5	29.5	25.5	2.2	4,000pcs per reel	500pcs per reel
DF40TC(2.5)-30DS-0.4V(##)	CL0684-4266-0-##	24	11.5	29.5	25.5	2.72	3,000pcs per reel	500pcs per reel
DF40TC(3.0)-30DS-0.4V(##)	CL0684-4242-0-##	24	11.5	29.5	25.5	3.15		

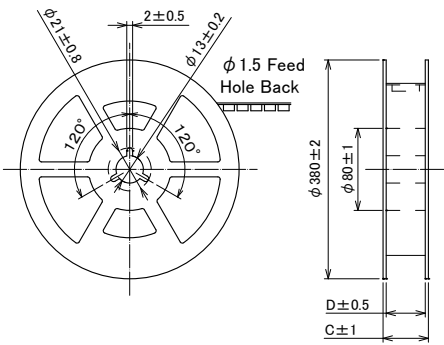
Note : Contact positions without HRS No. are currently under planning.
Please contact a Hirose representative regarding questions on pin count variation development.

●Stacking Height 5.5 to 6.0mm

Embossed Carrier Tape Dimensions



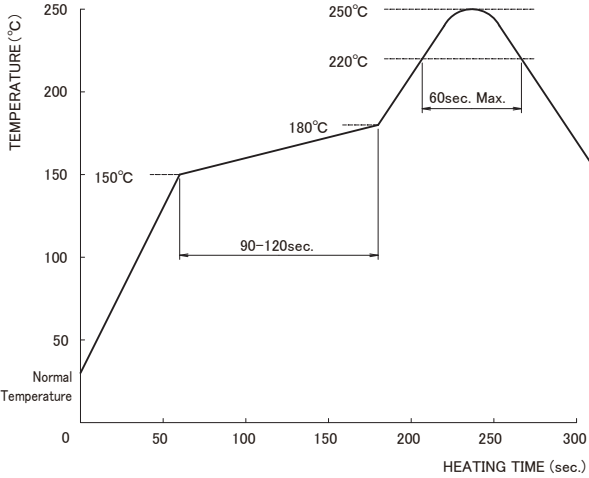
Reel Dimensions



Unit : mm

Part No.	HRS No.	A	B	C	D	G	Purchase Unit (##) : (51)	Purchase Unit (##) : (53)
DF40TC(3.5)-30DS-0.4V(##)	CL0684-4237-0-##	24	11.5	29.5	25.5	3.72	2,000pcs per reel	500pcs per reel
DF40TC(4.0)-30DS-0.4V(##)	CL0684-4256-0-##	24	11.5	29.5	25.5	4.22		

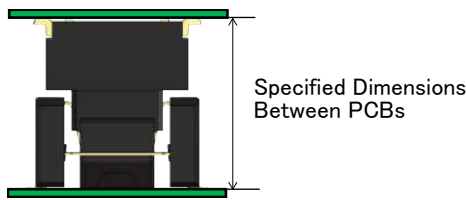
Precautions

Recommended Temperature Profile	 【Conditions】 1. Peak Temperature : 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. * Temperature refers to the surface temperature of the board near the connector lead. We recommend reflow mounting in a nitrogen environment.
Recommended Manual Soldering Conditions	Soldering iron temperature : 340 ± 10°C , Soldering Time : Within 3 sec.
Recommended Metal Mask Thickness and Open Area to PCB Pattern (Area Ratio)	Thickness : 0.12mm, Aperture Ratio : Plug 80% / Receptacle 80%
Board Warpage	Max. of 0.02mm at the center in reference to both ends of the connector
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.)
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. • Do not use the connector in non-recommended conditions (i.e., rated current, rated voltage, PCB design and operating environment, etc.). Such usage could lead to material outgassing, ignition, or short-circuit, etc. Refer to the specifications and guidelines for board pattern dimensions, board cautions, and connector treatment. Please contact Hirose if connector usage in conditions other than those described in the specifications and the guidelines is being considered.

Precautions for Handling During Use

●About Setting The Distance Between PCBs

Use within the specified dimensions between PCBs below.



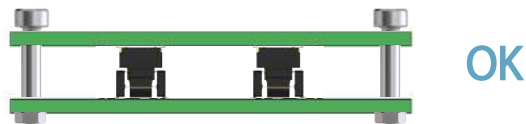
Stacking Height	Specified Dimensions Between PCBs	Plug	Receptacle
3.5mm	3.5 to 3.75mm	DF40F(2.0)-30DP-0.4V	DF40TC-30DS-0.4V
4.0mm*	4.0 to 4.25mm		DF40TC(2.0)-30DS-0.4V*
4.5mm	4.5 to 4.75mm		DF40TC(2.5)-30DS-0.4V
5.0mm	5.0 to 5.25mm		DF40TC(3.0)-30DS-0.4V
5.5mm	5.5 to 5.75mm		DF40TC(3.5)-30DS-0.4V
6.0mm	6.0 to 6.25mm		DF40TC(4.0)-30DS-0.4V

*Stacking Height in Under Planning

●Securing PCBs

This connector can absorb misalignment between PCBs, but not vibration.
If you support PCBs only with the connectors without taking any fixing measures, the load on the connectors will be excessive and may cause broken or contact failure.
Be sure to secure PCBs except for the connectors as shown below to prevent the board from moving. This connector connects the board to the board.
When using mounting to FPC, fasten the board and FPC to the case separately.

Fixing PCBs with a Spacer or Case



Do not use the product without fixing PCBs together.

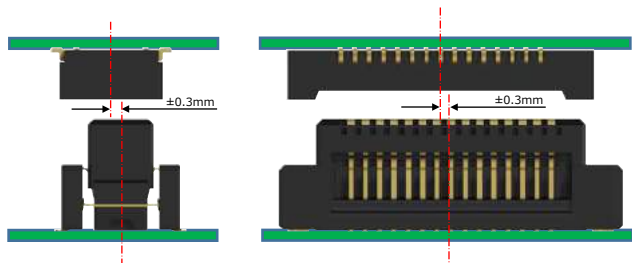


● Mating Precautions

1. Mating

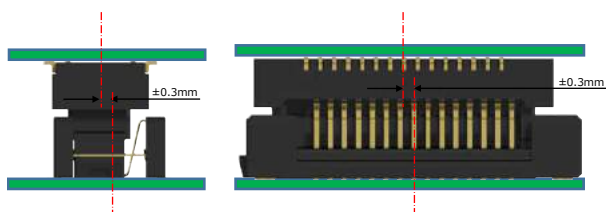
The alignment dimension is $\pm 0.3\text{mm}$ in the X and Y directions.

After the start of mating, follow the alignment and mate perpendicularly to the board without applying an overloading to the connector.



2. Misalignment Allowance in Mated Condition (Floating Range)

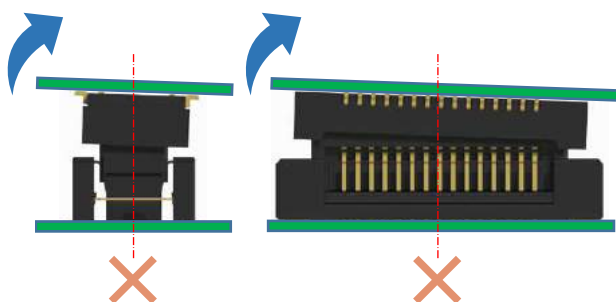
Because of floating design, this connector has a $\pm 0.3\text{mm}$ board misalignment tolerance in the X and Y directions when mated. However, it is not suitable for absorption when the range of misalignment constantly changes due to vibration, etc. The number of repetitions of floating movable operations is stipulated to be no more than 10 times.



3. Removing

When removing the connector, pull it out in parallel.

If it is removed in an inclined position, connector may deform.



FX23/FX23L Series

High Speed Transmission, 0.5mm Pitch Board-to-Board Floating Connectors

FunctionMAX™



Power / Signal



High Speed



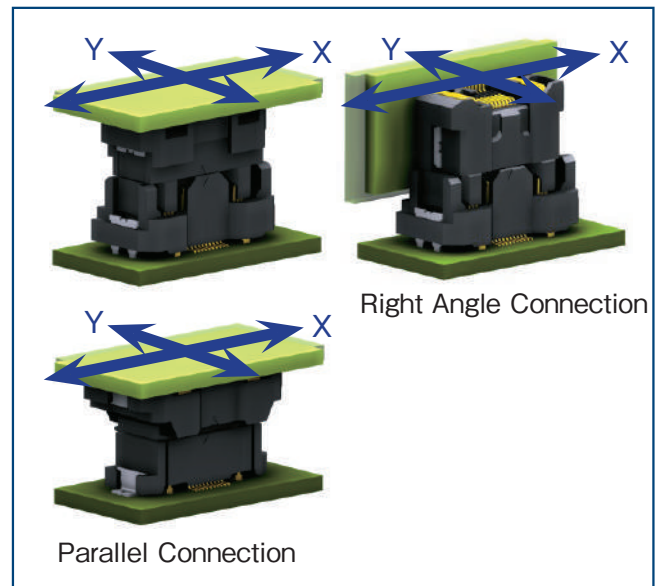
Floating



Features

1. Pitch: 0.5mm
2. Connection Type:
Stacking (Height 8 to 30mm)/Right Angle
3. Positions Available:
20/40/60/80/100/120 for signal + 4 pins for power
4. Floating Range
: X Direction: $\pm 0.6\text{mm}$
: Y Direction: $\pm 0.6\text{mm}$

A floating movement above the connector pitch is possible.

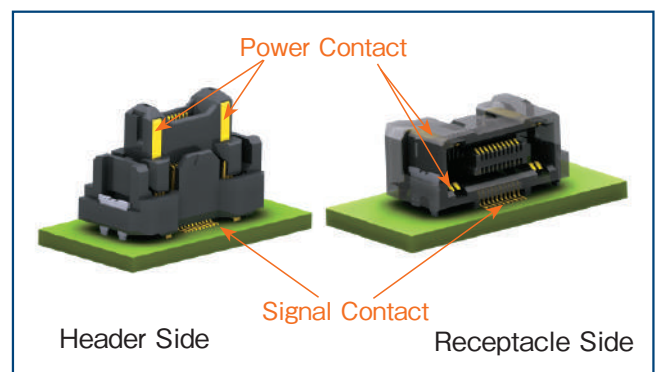


Floating Range: $\pm 0.6\text{mm}$ in the X and Y directions

5. High Speed Transmission (8⁺Gbps)

6. Hybrid Power Design (3A/pin×4 lines)

The guide posts on both sides of the connector are equipped with 4 lines of power contacts in addition to signal contacts.



Hybrid Power/Signal Contacts

- 7. Current Capacity:**
Signal Contact 0.5A/pin
Power Contact 3A/pin

- 8. Pick & Place (suction tape attached as standard)**

- 9. Large guide post for excellent mating performance**

Easy mating operation due to large self-alignment range.

■ Signal Integrity

● ICR (Insertion-loss-to-Crosstalk-Ratio)

The ICR containing cross-talk from 5 adjacent differential pairs provides adequate margin in comparison with the criteria based on the specification of IEEE802.3ap.

● Differential Impedance

Differential impedance is $100 \pm 10 \Omega$ at the rise time of 87.5ps (20 to 80%).

Product Specifications

Rated Current	Signal	Power	Operating Temperature (Note 1)	-55 to +105℃
	0.5A	3A	Storage Temperature Range (Note 2)	-10 to +60℃
Rated Voltage	Signal	Power		
	50V AC	200V AC		

Operating Humidity Range	90% or less relative humidity (No dew condensation)	Storage Humidity Range	90% or less relative humidity (No dew condensation)
--------------------------	---	------------------------	---

Items	Specifications	Conditions
Contact Resistance	Signal : 70m Ω Max. Power : 20m Ω Max.	Measured at 100mA
Insulation Resistance	Signal : 100M Ω Max. Power : 1,000M Ω Max.	Signal : Measured at 100V DC Power : Measured at 250V DC
Withstanding Voltage	No insulation breakdown.	Signal Contacts Energized at 150V AC for 1 min. Power Contacts Energized at 600V AC for 1 min.
Mating Durability	Contact resistance of the signal part 80m Ω Max. Power part 30m Ω Max.	100 times
Vibration Proof	No electrical discontinuity of 1 μ s or more	Frequency 10 - 55Hz, half amplitude 0.75mm, 10 cycles in each of the 3-axis directions each for 5 minutes per cycle
Shock Resistance	No electrical discontinuity of 1 μ s or more	Acceleration of 490m/s ² ; duration 11ms, sine half-wave, 3 cycles in each of the 3 axes each in both directions.
Moisture Resistance	Contact Resistance Signal : 80m Ω Max. / Power : 30m Ω Max. Insulation Resistance Signal : 100M Ω Min. / Power : 1,000M Ω Min.	Left to stand for 96 hours at a temperature of +40℃ and a humidity of 90 to 95%
Temperature Cycle	Contact Resistance Signal : 80m Ω Max. / Power : 30m Ω Max. Insulation Resistance Signal : 100M Ω Min. / Power : 1,000M Ω Min.	Temperature -55 → +85℃ 5 cycles for a series of time periods : 30 minutes → 30 minutes

Note 1 : Includes temperature rise due to current flow.

Note 2 : The term "storage" refers to the long-term storage condition of unused products before mounting on PCB.

Materials / Finish

Part	Materials		Finish	UL Standard	
Insulator (FX23)	Header	Polyamide Resin	Black Color	UL94V-0	
	Receptacle	LCP Resin			
Insulator (FX23L)	Header	Polyamide Resin		Contacted Part : Gold Plating Signal Contact-mounting Part : Gold Plating Power Contact-mounting Part : Pure Tin Plating	UL94V-0
	Receptacle				
Contact	Header	Copper Alloy	Contacted Part : Gold Plating Signal Contact-mounting Part : Gold Plating Power Contact-mounting Part : Pure Tin Plating		-
	Receptacle				
Retention Tab	Brass			Pure Tin Plating	-

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.

Straight Header

FX23 - 120 P - 0.5 SV 15
① ② ③ ④ ⑤ ⑥

Straight Receptacle

FX23 - 120 S - 0.5 SV 10
① ② ③ ④ ⑤ ⑥

Right Angle Receptacle

FX23 - 120 S - 0.5 SH
① ② ③ ④ ⑤

① Series Name	FX23	④ Contact Pitch	0.5mm
② No. of Pos.	20, 40, 60, 80, 100, 120	⑤ Product Type	SV : Straight SH : Right angle type
③ Connector Type	P : Header type S : Receptacle type	⑥ Product Height Type	Mated Height [mm] = Numerical value on the header side + Numerical value on the receptacle side

Straight Header

FX23L - 120 P - 0.5 SV 8
① ② ③ ④ ⑤ ⑥

Straight Receptacle

FX23L - 120 S - 0.5 SV 10
① ② ③ ④ ⑤ ⑥

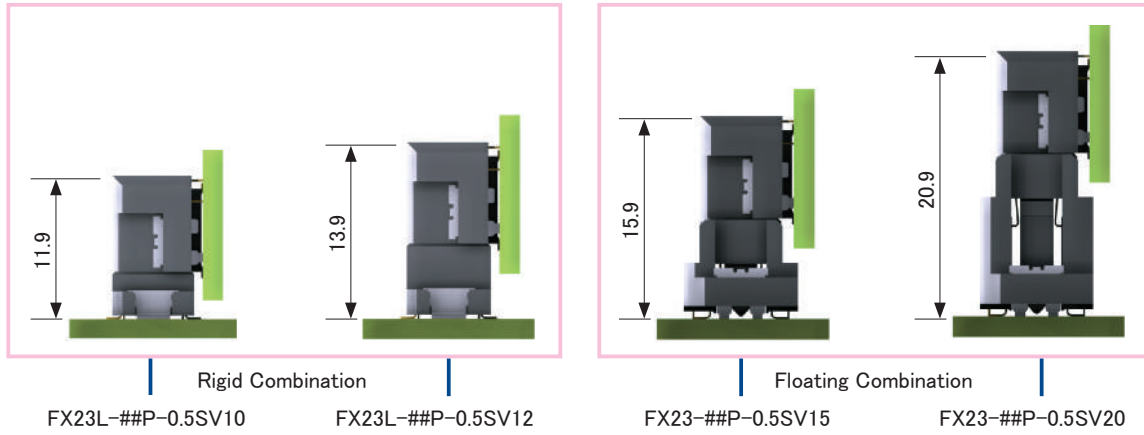
① Series Name	FX23L	④ Contact Pitch	0.5mm
② No. of Pos.	20, 40, 60, 80, 100, 120	⑤ Product Type	SV : Straight
③ Connector Type	P : Header type S : Receptacle type	⑥ Product Height Type	Mated Height [mm] = Numerical value on the header side

List of Connection Variations

● Right Angle Connection

Right Angle Receptacle

FX23-##S-0.5SH



Straight Header

##⇒Number of Positions : 20, 40, 60, 80, 100, 120

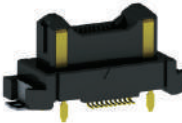
Note : FX23L-##P-0.5SV8 and FX23-##S-0.5SH cannot engage due to interference of the retention tab.

● Parallel Connection

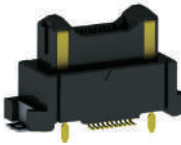
Height Variation



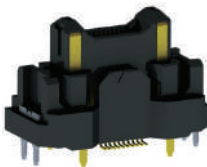
FX23L-##P-0.5SV8
Rigid Type



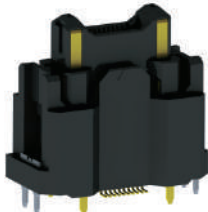
FX23L-##P-0.5SV10
Rigid Type



FX23L-##P-0.5SV12
Rigid Type



FX23-##P-0.5SV15
Floating Type



FX23-##P-0.5SV20
Floating Type

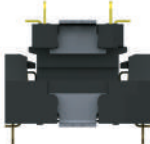


FX23L-##S-0.5SV
Floating Type

FX23L Series

Standard Type

Floating Range :
±0.6mm in the X and Y directions



8mm



10mm



12mm

FX23 × FX23L Series

Double Floating Type

Floating Range :
±1.2mm in the X and Y directions



14mm



19mm

FX23 × FX23L Series

Rigid Type

 No floating ability



9mm



11mm



13mm



FX23-##S-0.5SV
Rigid Type



19mm



21mm



23mm

FX23 Series

Standard Type

Floating Range :
±0.6mm in the X and Y directions



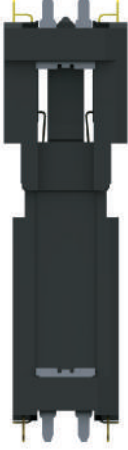
15mm



20mm



25mm



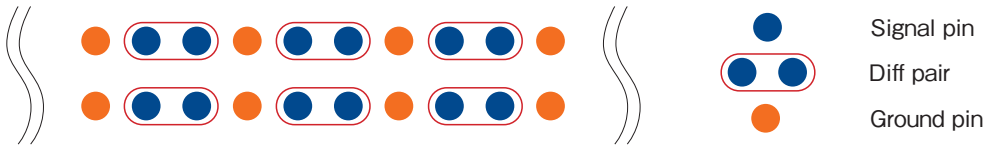
30mm

8

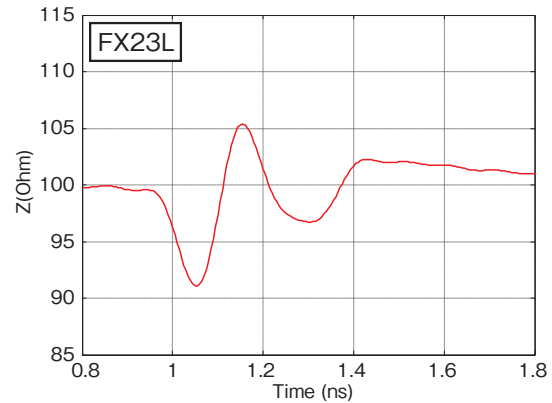
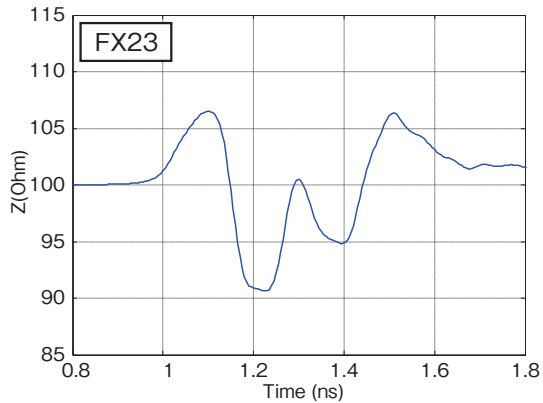
High Speed Transmission Properties (FX23 : h=15mm, FX23L : h=12mm)

● Pin Assignment

The following pin arrangement is recommended to match the 100Ω differential impedance and to contain cross-talk.

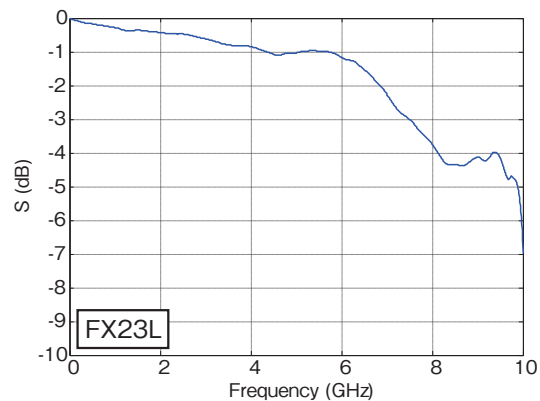
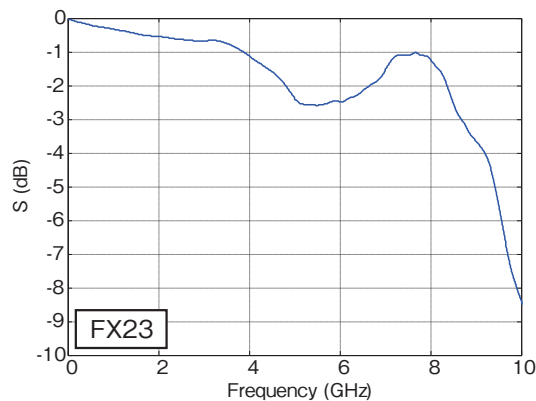


● Differential Impedance 80ps Rise Time (20 to 80%)

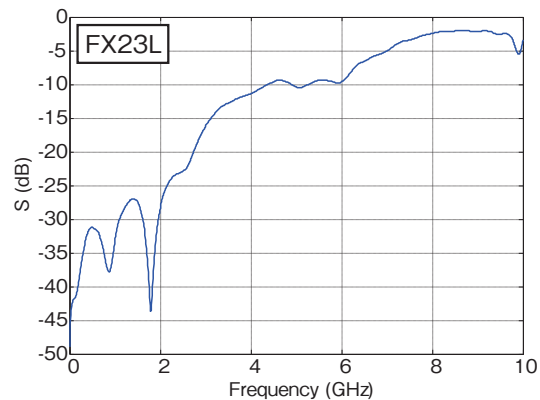
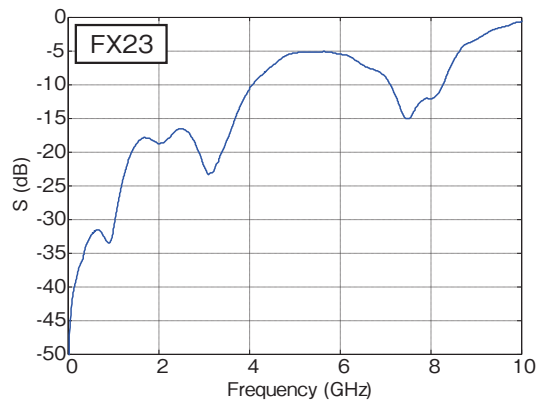


Meets the criterion of $100 \pm 10\Omega$ at the rise time of 80ps (20 to 80%).

● Insertion Loss

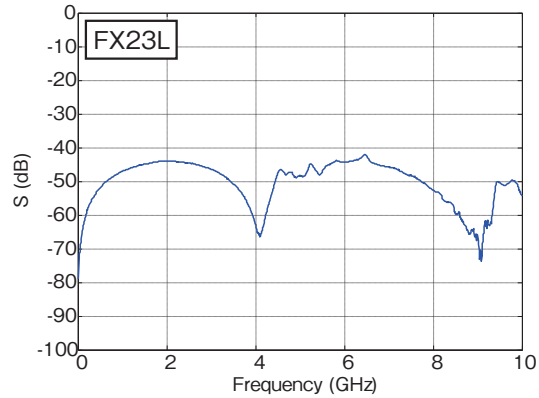
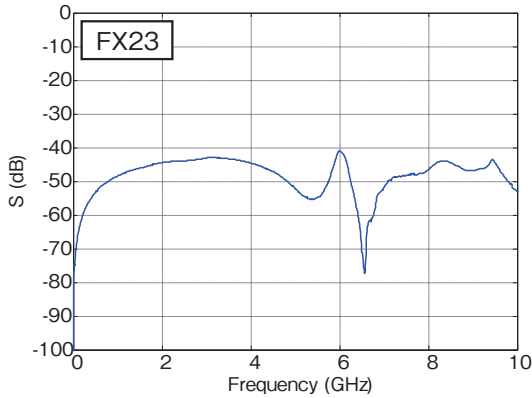


● Return Loss

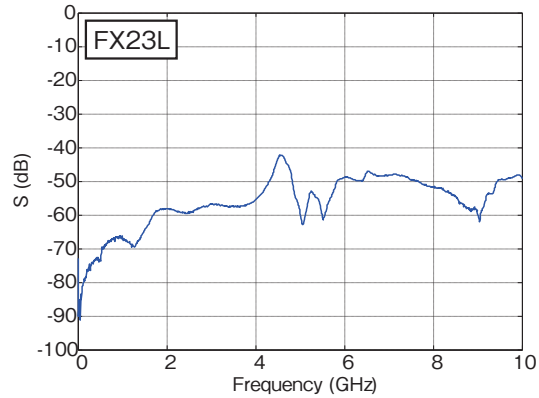
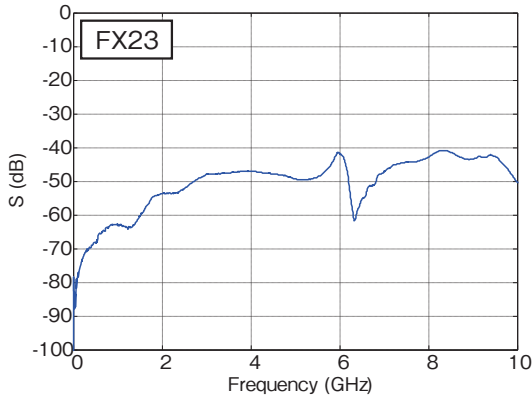


Superior insertion loss and return loss characteristics up to 5GHz.

● Near End Cross-talk (NEXT)

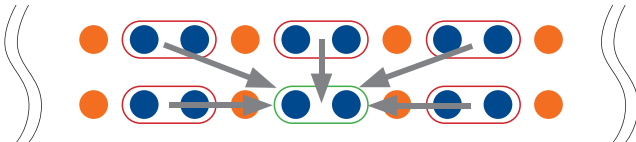


● Far End Cross-talk (FEXT)

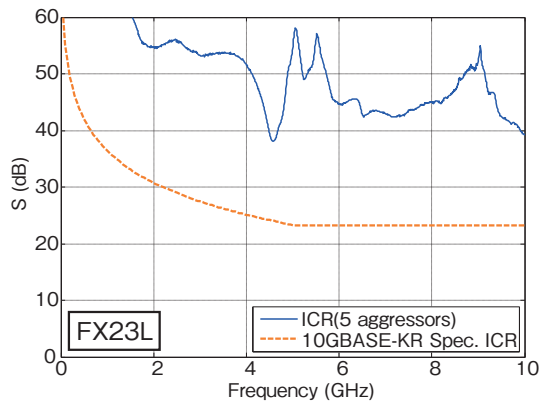
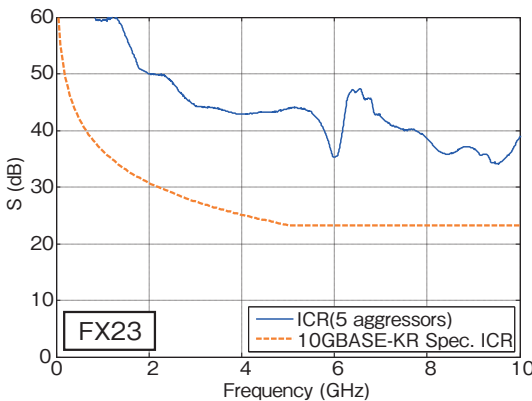


Low cross-talk up to 10GHz.

● Insertion Loss/Cross-talk Ratio (ICR) for FEXT



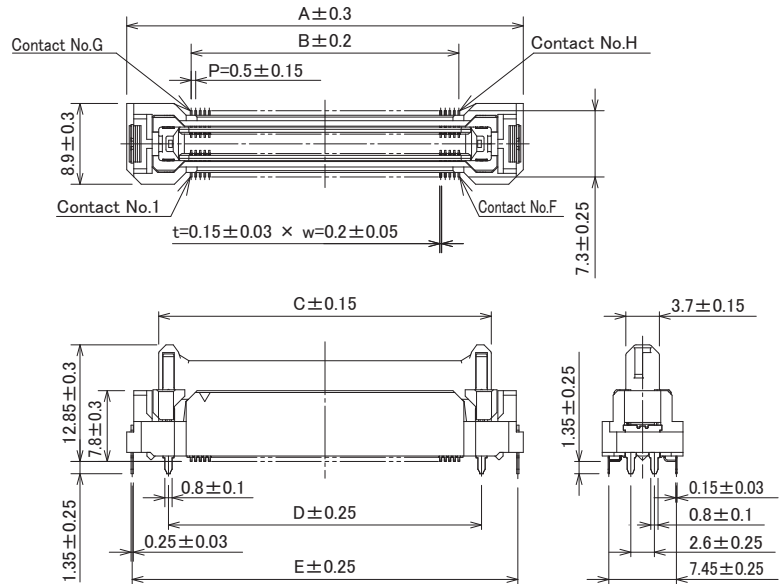
- Signal pin
- Victim Diff pair
- Aggressor Diff pair
- Ground pin



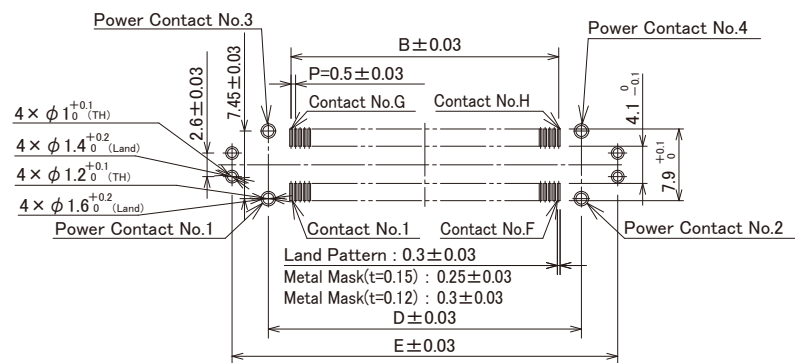
Insertion loss/cross-talk ratio (ICR) for FEXT using 5 sets of Aggressors has an adequate margin according to the specification of IEEE802.3ap.

Product Dimensions FX23 Series

● Straight Header [FX23-##P-0.5SV15]



● Recommended PCB Layout



Unit : mm

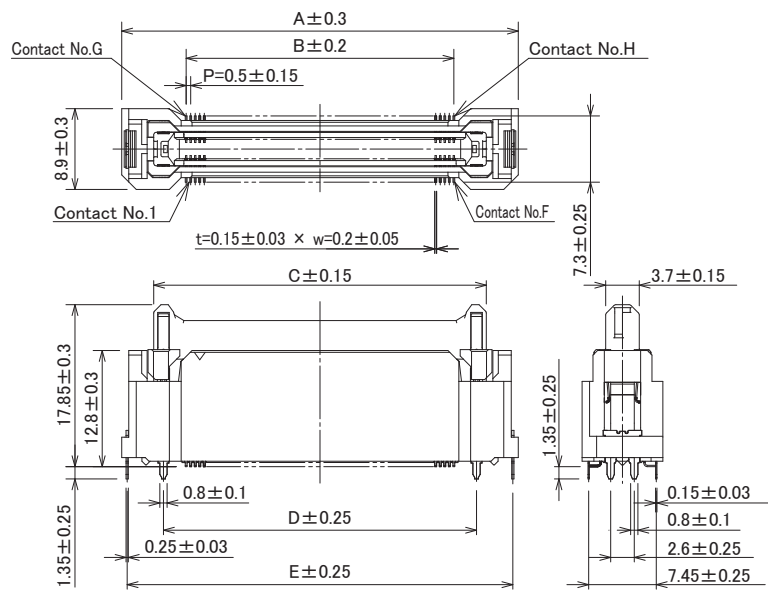
Part No.	HRS No.	No. of Pos.	A	B	C	D	E	F	G	H
FX23-20P-0.5SV15(##)	CL0573-3001-0-##	20	18.7	4.5	11.65	9.5	17.5	10	11	20
FX23-40P-0.5SV15(##)	CL0573-3002-3-##	40	23.7	9.5	16.65	14.5	22.5	20	21	40
FX23-60P-0.5SV15(##)	CL0573-3003-6-##	60	28.7	14.5	21.65	19.5	27.5	30	31	60
FX23-80P-0.5SV15(##)	CL0573-3004-9-##	80	33.7	19.5	26.65	24.5	32.5	40	41	80
FX23-100P-0.5SV15(##)	CL0573-3005-1-##	100	38.7	24.5	31.65	29.5	37.5	50	51	100
FX23-120P-0.5SV15(##)	CL0573-3006-4-##	120	43.7	29.5	36.65	34.5	42.5	60	61	120

[Specification Number] (##), ##

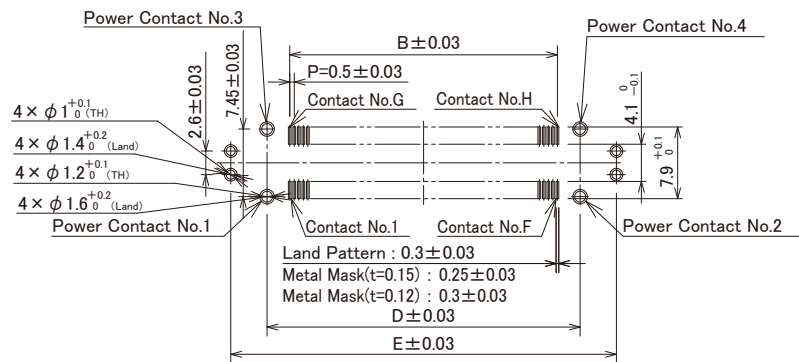
(00) : Tray Packaging

(20) : Embossed Packaging

[FX23-##P-0.5SV20]



● Recommended PCB Layout

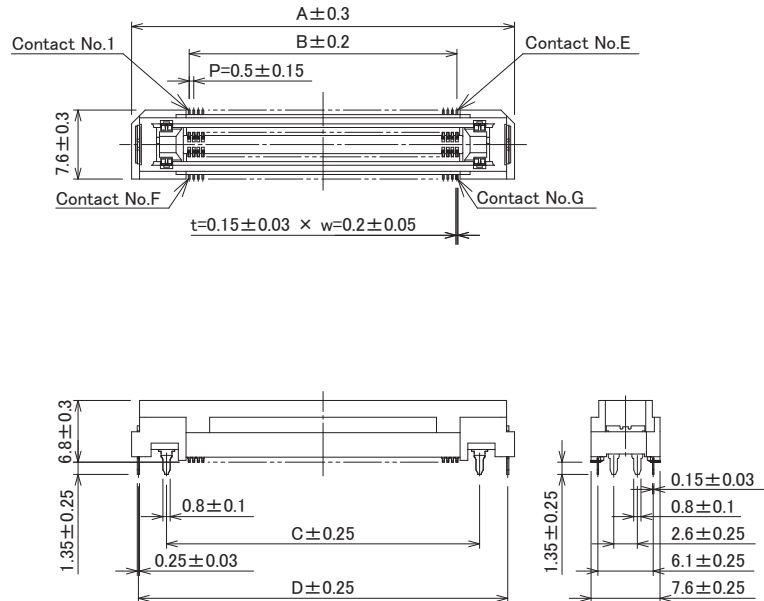
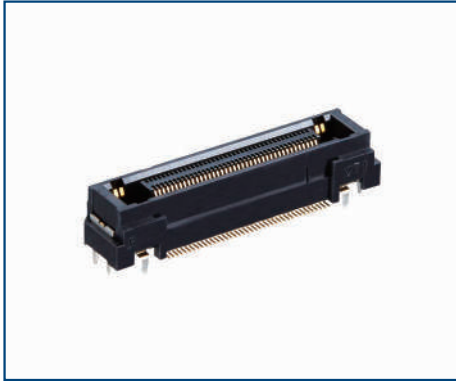


Unit : mm

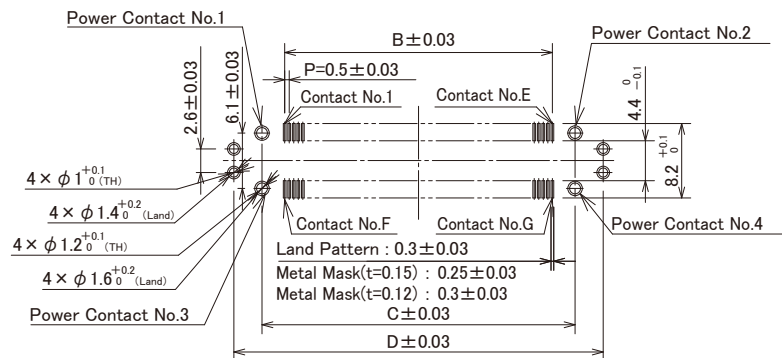
Part No.	HRS No.	No. of Pos.	A	B	C	D	E	F	G	H
FX23-20P-0.5SV20(##)	CL0573-3101-5-##	20	18.7	4.5	11.65	9.5	17.5	10	11	20
FX23-40P-0.5SV20(##)	CL0573-3102-8-##	40	23.7	9.5	16.65	14.5	22.5	20	21	40
FX23-60P-0.5SV20(##)	CL0573-3103-0-##	60	28.7	14.5	21.65	19.5	27.5	30	31	60
FX23-80P-0.5SV20(##)	CL0573-3104-3-##	80	33.7	19.5	26.65	24.5	32.5	40	41	80
FX23-100P-0.5SV20(##)	CL0573-3105-6-##	100	38.7	24.5	31.65	29.5	37.5	50	51	100
FX23-120P-0.5SV20(##)	CL0573-3106-9-##	120	43.7	29.5	36.65	34.5	42.5	60	61	120

[Specification Number] (##), ##
(00) : Tray Packaging
(20) : Embossed Packaging

● Straight Receptacle [FX23-##S-0.5SV]



● Recommended PCB Layout



Unit : mm

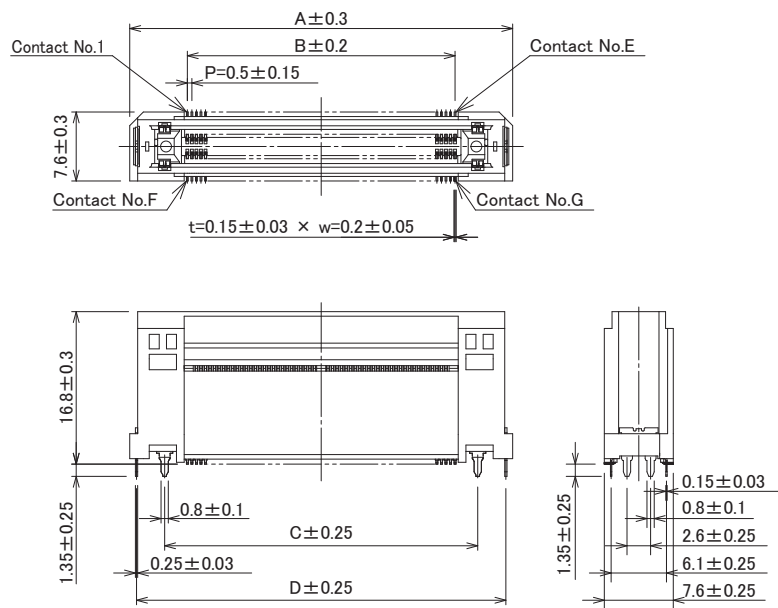
Part No.	HRS No.	No. of Pos.	A	B	C	D	E	F	G
FX23-20S-0.5SV(##)	CL0573-3201-0-##	20	17.2	4.5	9.5	15.7	10	11	20
FX23-40S-0.5SV(##)	CL0573-3202-2-##	40	22.2	9.5	14.5	20.7	20	21	40
FX23-60S-0.5SV(##)	CL0573-3203-5-##	60	27.2	14.5	19.5	25.7	30	31	60
FX23-80S-0.5SV(##)	CL0573-3204-8-##	80	32.2	19.5	24.5	30.7	40	41	80
FX23-100S-0.5SV(##)	CL0573-3205-0-##	100	37.2	24.5	29.5	35.7	50	51	100
FX23-120S-0.5SV(##)	CL0573-3206-3-##	120	42.2	29.5	34.5	40.7	60	61	120

[Specification Number] (##), ##

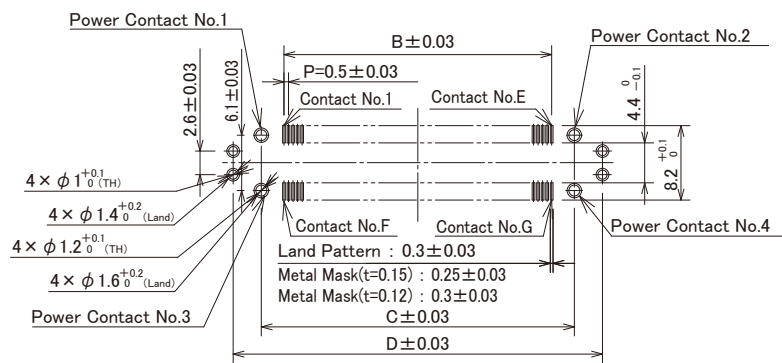
(00) : Tray Packaging

(20) : Embossed Packaging

[FX23-##S-0.5SV10]



● Recommended PCB Layout



Unit : mm

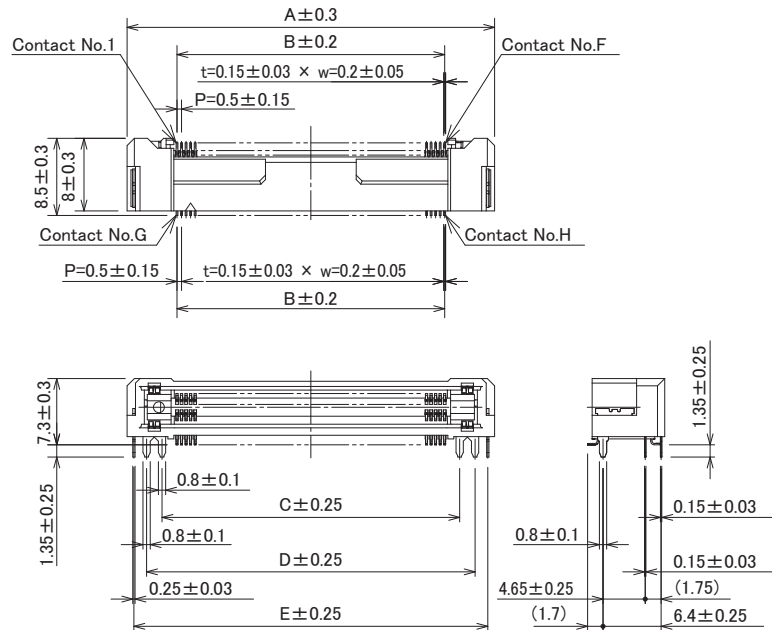
Part No.	HRS No.	No. of Pos.	A	B	C	D	E	F	G
FX23-20S-0.5SV10(##)	CL0573-3301-4-##	20	17.2	4.5	9.5	15.7	10	11	20
FX23-40S-0.5SV10(##)	CL0573-3302-7-##	40	22.2	9.5	14.5	20.7	20	21	40
FX23-60S-0.5SV10(##)	CL0573-3303-0-##	60	27.2	14.5	19.5	25.7	30	31	60
FX23-80S-0.5SV10(##)	CL0573-3304-2-##	80	32.2	19.5	24.5	30.7	40	41	80
FX23-100S-0.5SV10(##)	CL0573-3305-5-##	100	37.2	24.5	29.5	35.7	50	51	100
FX23-120S-0.5SV10(##)	CL0573-3306-8-##	120	42.2	29.5	34.5	40.7	60	61	120

[Specification Number] (##), ##

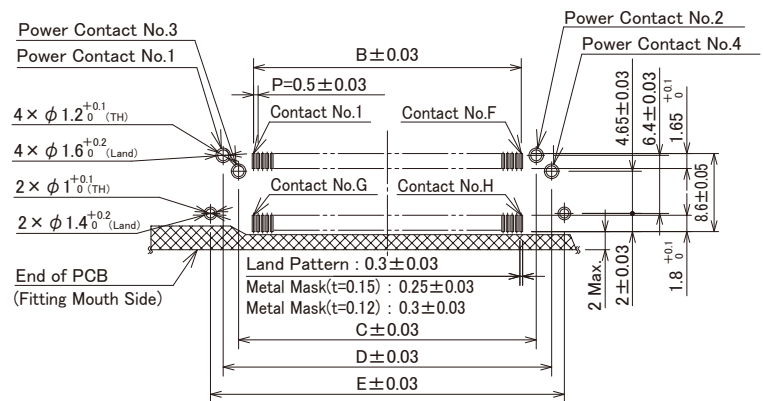
(00) : Tray Packaging

(20) : Embossed Packaging

● Right Angle Receptacle [FX23-##S-0.5SH]



● Recommended PCB Layout



Unit : mm

Part No.	HRS No.	No. of Pos.	A	B	C	D	E	F	G	H
FX23-20S-0.5SH(##)	CL0573-3401-9-##	20	15.5	4.5	7.8	11.2	14	10	11	20
FX23-40S-0.5SH(##)	CL0573-3402-1-##	40	20.5	9.5	12.8	16.2	19	20	21	40
FX23-60S-0.5SH(##)	CL0573-3403-4-##	60	25.5	14.5	17.8	21.2	24	30	31	60
FX23-80S-0.5SH(##)	CL0573-3404-7-##	80	30.5	19.5	22.8	26.2	29	40	41	80
FX23-100S-0.5SH(##)	CL0573-3405-0-##	100	35.5	24.5	27.8	31.2	34	50	51	100
FX23-120S-0.5SH(##)	CL0573-3406-2-##	120	40.5	29.5	32.8	36.2	39	60	61	120

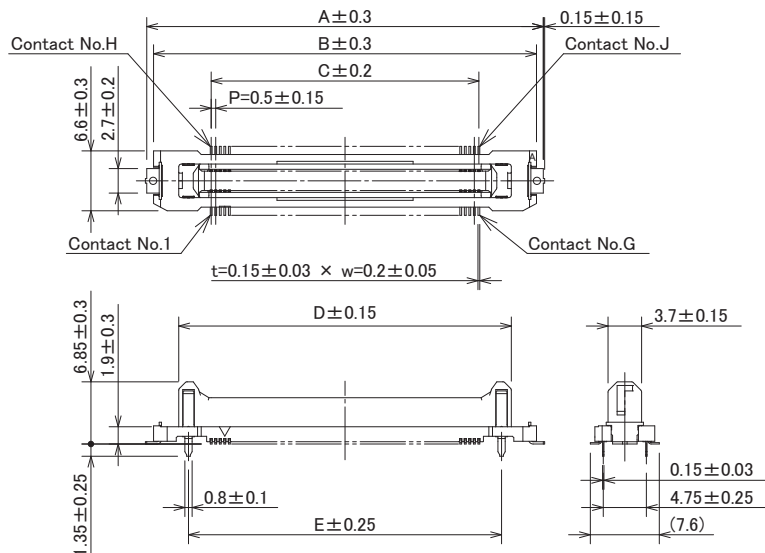
【Specification Number】(##), ##

(00) : Tray Packaging

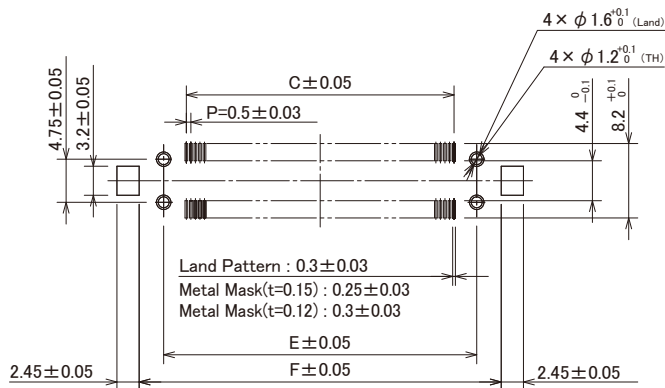
(20) : Embossed Packaging

Product Dimensions FX23L Series

● Straight Header [FX23L-##P-0.5SV8]



● Recommended PCB Layout



Unit : mm

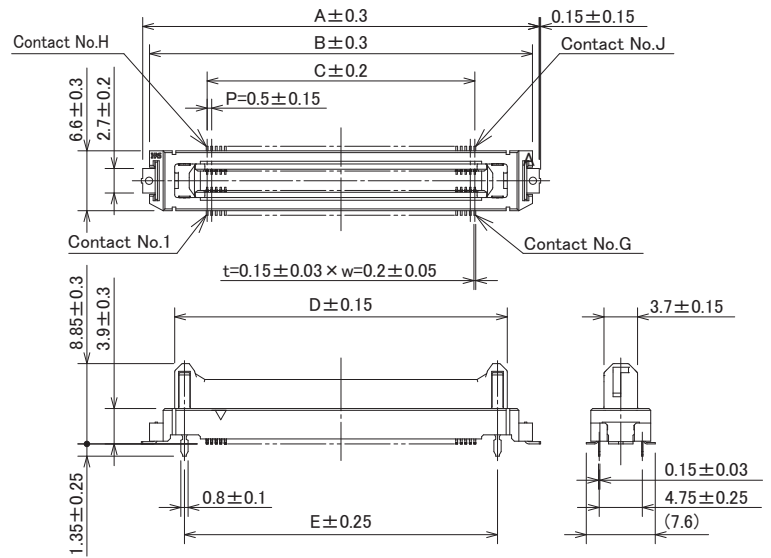
Part No.	HRS No.	No. of Pos.	A	B	C	D	E	F	G	H	J
FX23L-20P-0.5SV8(##)	CL0573-2001-5-##	20	18.7	17.2	4.5	11.65	9.5	14.9	10	11	20
FX23L-40P-0.5SV8(##)	CL0573-2002-8-##	40	23.7	22.2	9.5	16.65	14.5	19.9	20	21	40
FX23L-60P-0.5SV8(##)	CL0573-2003-0-##	60	28.7	27.2	14.5	21.65	19.5	24.9	30	31	60
FX23L-80P-0.5SV8(##)	CL0573-2004-3-##	80	33.7	32.2	19.5	26.65	24.5	29.9	40	41	80
FX23L-100P-0.5SV8(##)	CL0573-2005-6-##	100	38.7	37.2	24.5	31.65	29.5	34.9	50	51	100
FX23L-120P-0.5SV8(##)	CL0573-2006-9-##	120	43.7	42.2	29.5	36.65	34.5	39.9	60	61	120

[Specification Number] (##), ##

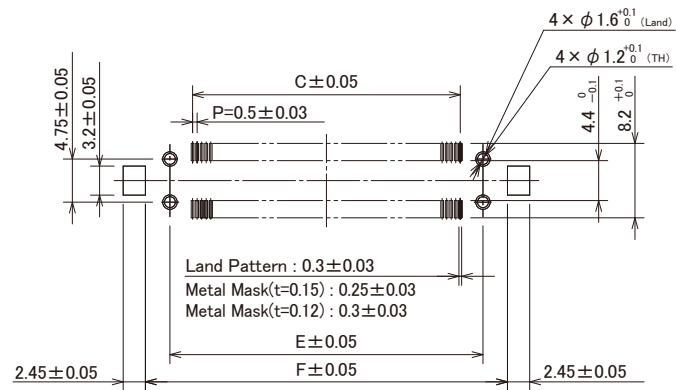
(00) : Tray Packaging

(20) : Embossed Packaging

[FX23L-##P-0.5SV10]



● Recommended PCB Layout



Unit : mm

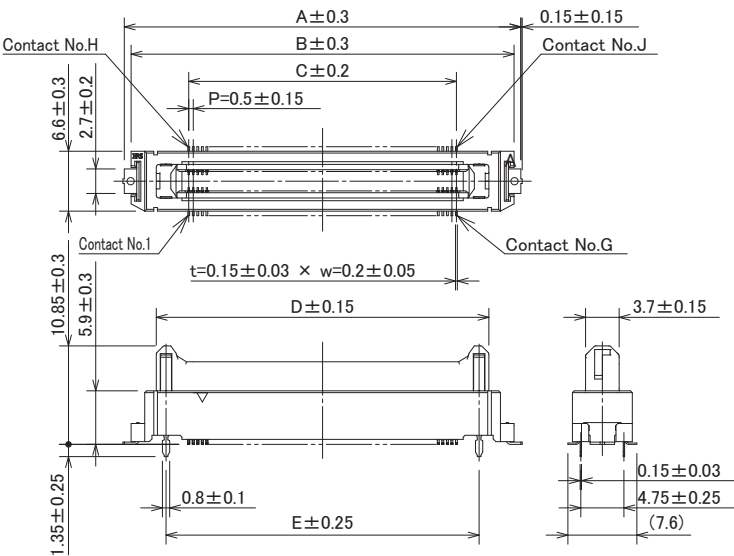
Part No.	HRS No.	No. of Pos.	A	B	C	D	E	F	G	H	J
FX23L-20P-0.5SV10(##)	CL0573-2101-0-##	20	18.7	17.2	4.5	11.65	9.5	14.9	10	11	20
FX23L-40P-0.5SV10(##)	CL0573-2102-2-##	40	23.7	22.2	9.5	16.65	14.5	19.9	20	21	40
FX23L-60P-0.5SV10(##)	CL0573-2103-5-##	60	28.7	27.2	14.5	21.65	19.5	24.9	30	31	60
FX23L-80P-0.5SV10(##)	CL0573-2104-8-##	80	33.7	32.2	19.5	26.65	24.5	29.9	40	41	80
FX23L-100P-0.5SV10(##)	CL0573-2105-0-##	100	38.7	37.2	24.5	31.65	29.5	34.9	50	51	100
FX23L-120P-0.5SV10(##)	CL0573-2106-3-##	120	43.7	42.2	29.5	36.65	34.5	39.9	60	61	120

[Specification Number] (##), ##

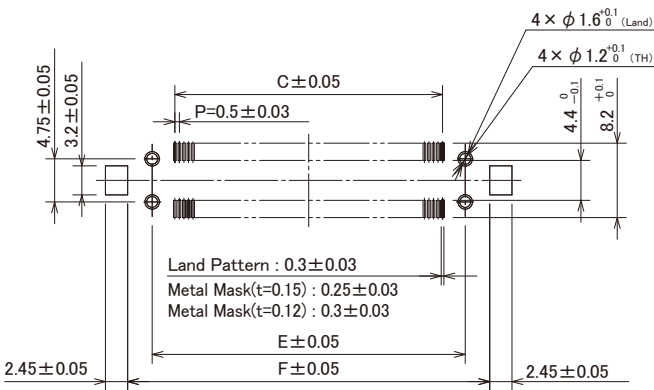
(00) : Tray Packaging

(20) : Embossed Packaging

[FX23L-##P-0.5SV12]



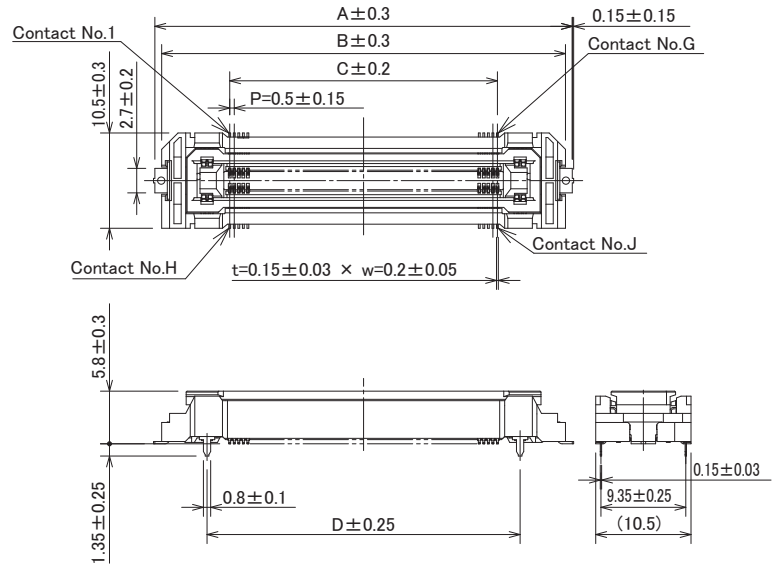
● Recommended PCB Layout



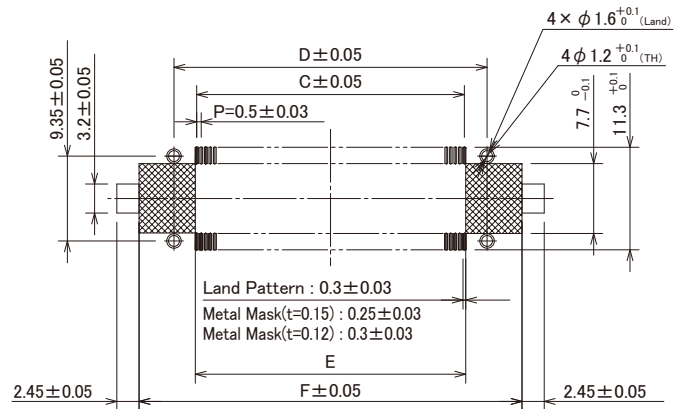
Unit : mm											
Part No.	HRS No.	No. of Pos.	A	B	C	D	E	F	G	H	J
FX23L-20P-0.5SV12(##)	CL0573-2201-4-##	20	18.7	17.2	4.5	11.65	9.5	14.9	10	11	20
FX23L-40P-0.5SV12(##)	CL0573-2202-7-##	40	23.7	22.2	9.5	16.65	14.5	19.9	20	21	40
FX23L-60P-0.5SV12(##)	CL0573-2203-0-##	60	28.7	27.2	14.5	21.65	19.5	24.9	30	31	60
FX23L-80P-0.5SV12(##)	CL0573-2204-2-##	80	33.7	32.2	19.5	26.65	24.5	29.9	40	41	80
FX23L-100P-0.5SV12(##)	CL0573-2205-5-##	100	38.7	37.2	24.5	31.65	29.5	34.9	50	51	100
FX23L-120P-0.5SV12(##)	CL0573-2206-8-##	120	43.7	42.2	29.5	36.65	34.5	39.9	60	61	120

[Specification Number] (##), ##
(00) : Tray Packaging
(20) : Embossed Packaging

● Straight Receptacle [FX23L-##S-0.5SV]



● Recommended PCB Layout



Unit : mm

Part No.	HRS No.	No. of Pos.	A	B	C	D	E	F	G	H	J
FX23L-20S-0.5SV(##)	CL0573-2301-9-##	20	21	19.5	4.5	9.5	4.8	17.2	10	11	20
FX23L-40S-0.5SV(##)	CL0573-2302-1-##	40	26	24.5	9.5	14.5	9.8	22.2	20	21	40
FX23L-60S-0.5SV(##)	CL0573-2303-4-##	60	31	29.5	14.5	19.5	14.8	27.2	30	31	60
FX23L-80S-0.5SV(##)	CL0573-2304-7-##	80	36	34.5	19.5	24.5	19.8	32.2	40	41	80
FX23L-100S-0.5SV(##)	CL0573-2305-0-##	100	41	39.5	24.5	29.5	24.8	37.2	50	51	100
FX23L-120S-0.5SV(##)	CL0573-2306-2-##	120	46	44.5	29.5	34.5	29.8	42.2	60	61	120

【Specification Number】(##), ##

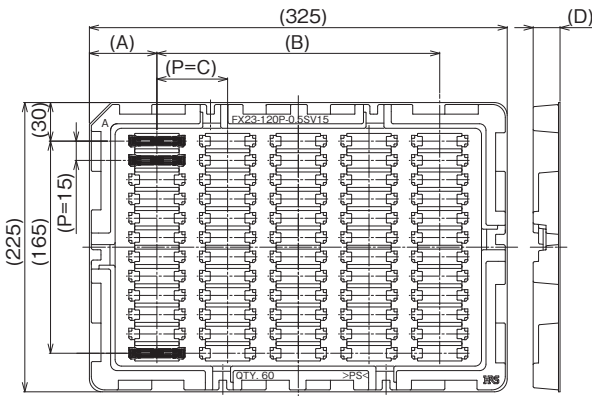
(00) : Tray Packaging

(20) : Embossed Packaging

Packaging Specifications

Tray Packaging for FX23

● Straight Header

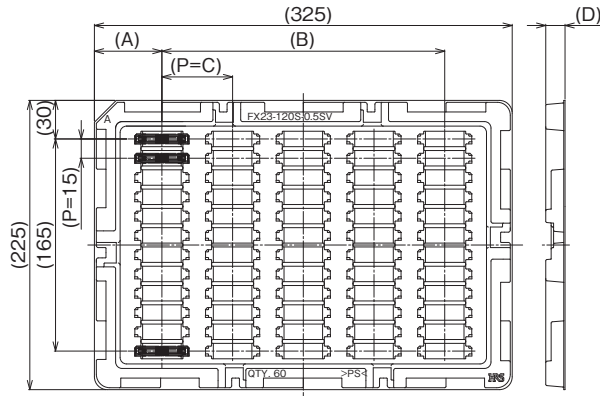


Unit : mm

Part No.	Packing Quantity (pcs/tray)	A	B	C	D
FX23-20P-0.5SV15	84	50	225	37.5	20.9
FX23-40P-0.5SV15	84	50	225	37.5	20.9
FX23-60P-0.5SV15	84	50	225	37.5	20.9
FX23-80P-0.5SV15	72	50	225	45	20.9
FX23-100P-0.5SV15	72	47.5	230	46	20.9
FX23-120P-0.5SV15	60	52.5	220	55	20.9
FX23-20P-0.5SV20	84	50	225	37.5	25.9
FX23-40P-0.5SV20	84	50	225	37.5	25.9
FX23-60P-0.5SV20	84	50	225	37.5	25.9
FX23-80P-0.5SV20	72	47.5	230	46	25.9
FX23-100P-0.5SV20	72	47.5	230	46	25.9
FX23-120P-0.5SV20	60	52.5	220	55	25.9

Note : Order tray packaging in multiples of purchase unit.

● Straight Receptacle

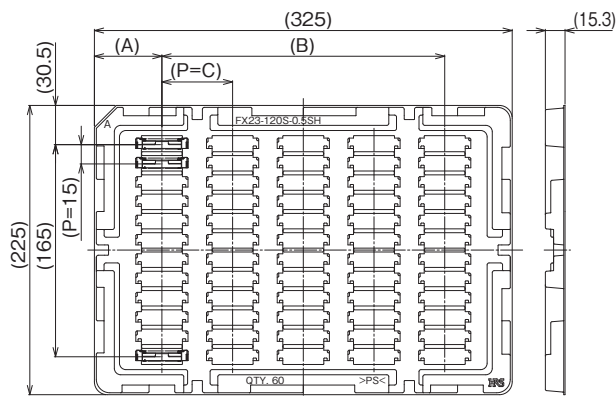


Unit : mm

Part No.	Packing Quantity (pcs/tray)	A	B	C	D
FX23-20S-0.5SV	84	50	225	37.5	15
FX23-40S-0.5SV	84	50	225	37.5	15
FX23-60S-0.5SV	84	50	225	37.5	15
FX23-80S-0.5SV	72	47.5	230	46	15
FX23-100S-0.5SV	72	47.5	230	46	15
FX23-120S-0.5SV	60	52.5	220	55	15
FX23-20S-0.5SV10	84	50	225	37.5	25.2
FX23-40S-0.5SV10	84	50	225	37.5	25.2
FX23-60S-0.5SV10	84	50	225	37.5	25.2
FX23-80S-0.5SV10	72	47.5	230	46	25.2
FX23-100S-0.5SV10	72	47.5	230	46	25.2
FX23-120S-0.5SV10	60	52.5	220	55	25.2

Note : Order tray packaging in multiples of purchase unit.

● Right Angle Receptacle



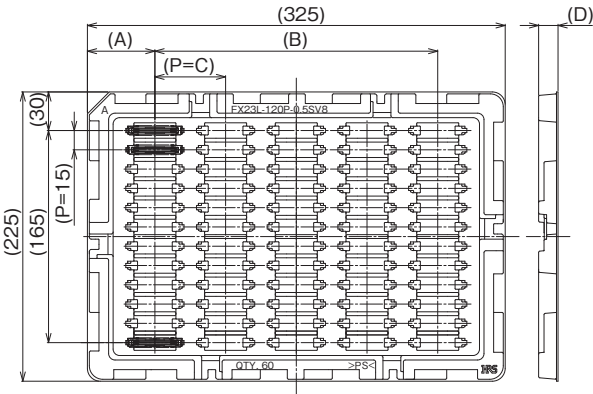
Unit : mm

Part No.	Packing Quantity (pcs/tray)	A	B	C
FX23-20S-0.5SH	84	50	225	37.5
FX23-40S-0.5SH	84	50	225	37.5
FX23-60S-0.5SH	84	50	225	37.5
FX23-80S-0.5SH	72	50	225	45
FX23-100S-0.5SH	72	47.5	230	46
FX23-120S-0.5SH	60	52.5	220	55

Note : Order tray packaging in multiples of purchase unit.

Tray Packaging for FX23L

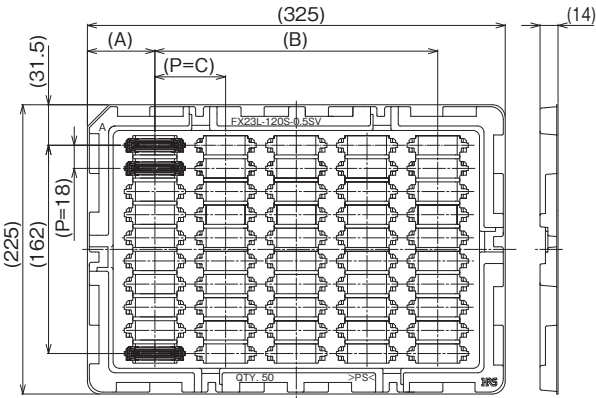
● Straight Header



Unit : mm					
Part No.	Packing Quantity (pcs/tray)	A	B	C	D
FX23L-20P-0.5SV8	96	40	245	35	15.1
FX23L-40P-0.5SV8	84	50	225	37.5	15.1
FX23L-60P-0.5SV8	72	50	225	45	15.1
FX23L-80P-0.5SV8	72	50	225	45	15.1
FX23L-100P-0.5SV8	60	52.5	220	55	15.1
FX23L-120P-0.5SV8	60	52.5	220	55	15.1
FX23L-20P-0.5SV10	96	40	245	35	17.1
FX23L-40P-0.5SV10	84	50	225	37.5	17.1
FX23L-60P-0.5SV10	72	50	225	45	17.1
FX23L-80P-0.5SV10	72	50	225	45	17.1
FX23L-100P-0.5SV10	60	52.5	220	55	17.1
FX23L-120P-0.5SV10	60	52.5	220	55	17.1
FX23L-20P-0.5SV12	96	40	245	35	19.1
FX23L-40P-0.5SV12	84	50	225	37.5	19.1
FX23L-60P-0.5SV12	72	50	225	45	19.1
FX23L-80P-0.5SV12	72	50	225	45	19.1
FX23L-100P-0.5SV12	60	52.5	220	55	19.1
FX23L-120P-0.5SV12	60	52.5	220	55	19.1

Note : Order tray packaging in multiples of purchase unit.

● Straight Receptacle



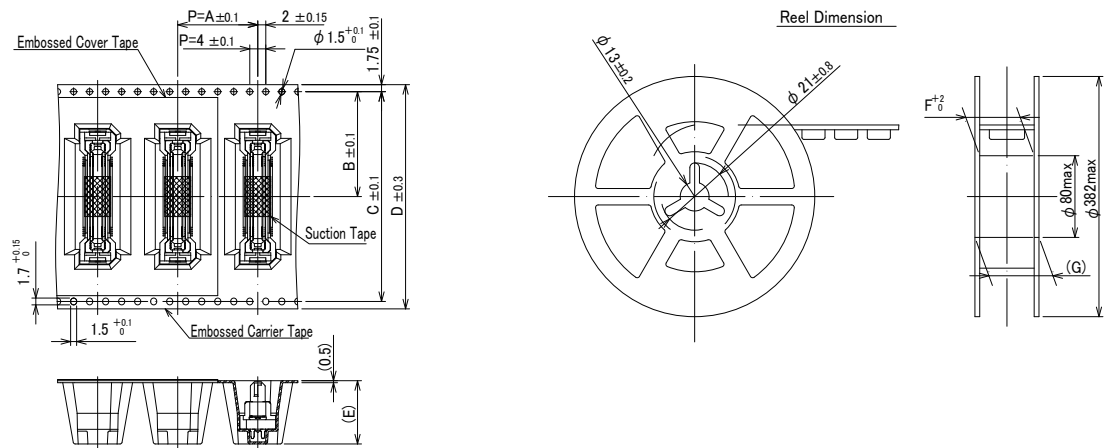
Unit : mm

Part No.	Packing Quantity (pcs/tray)	A	B	C
FX23L-20S-0.5SV	90	38.5	248	31
FX23L-40S-0.5SV	80	40	245	35
FX23L-60S-0.5SV	70	42.5	240	40
FX23L-80S-0.5SV	60	47.5	230	46
FX23L-100S-0.5SV	50	52.5	220	55
FX23L-120S-0.5SV	50	52.5	220	55

Note : Order tray packaging in multiples of purchase unit.

Embossed Carrier Tape Dimensions for FX23

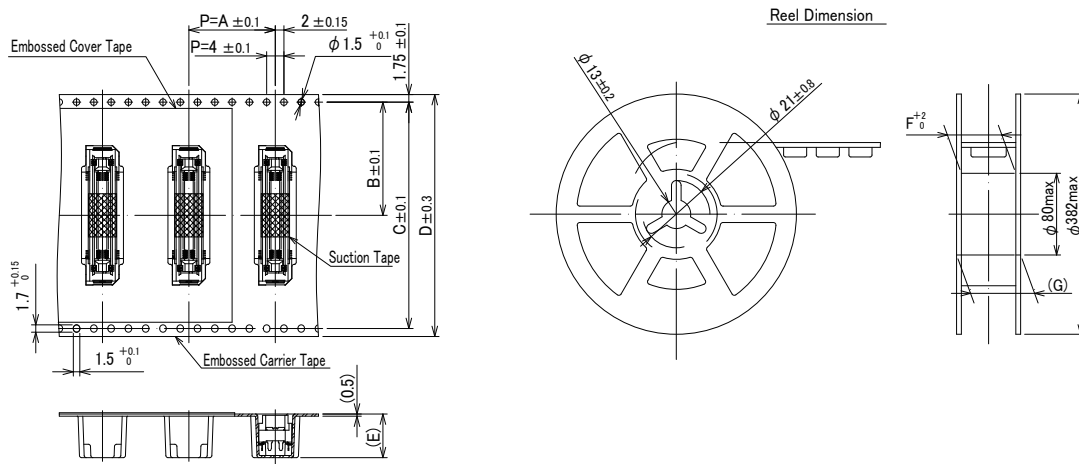
● Straight Header



Unit : mm

Part No.	Packing Quantity (pcs/reel)	A	B	C	D	E	F	G
FX23-20P-0.5SV15(20)	250	20	20.2	40.4	44	15.8	44.4	50.4
FX23-40P-0.5SV15(20)	250	20	20.2	40.4	44	15.8	44.4	50.4
FX23-60P-0.5SV15(20)	250	20	20.2	40.4	44	15.8	44.4	50.4
FX23-80P-0.5SV15(20)	250	20	26.2	52.4	56	15.8	56.4	62.4
FX23-100P-0.5SV15(20)	250	20	26.2	52.4	56	15.8	56.4	62.4
FX23-120P-0.5SV15(20)	250	20	34.2	68.4	72	15.8	72.4	78.4
FX23-20P-0.5SV20(20)	150	24	20.2	40.4	44	20.45	44.4	50.4
FX23-40P-0.5SV20(20)	150	24	20.2	40.4	44	20.45	44.4	50.4
FX23-60P-0.5SV20(20)	150	24	26.2	52.4	56	20.45	56.4	62.4
FX23-80P-0.5SV20(20)	150	24	26.2	52.4	56	20.45	56.4	62.4
FX23-100P-0.5SV20(20)	150	24	26.2	52.4	56	20.45	56.4	62.4
FX23-120P-0.5SV20(20)	150	24	34.2	68.4	72	20.45	72.4	78.4

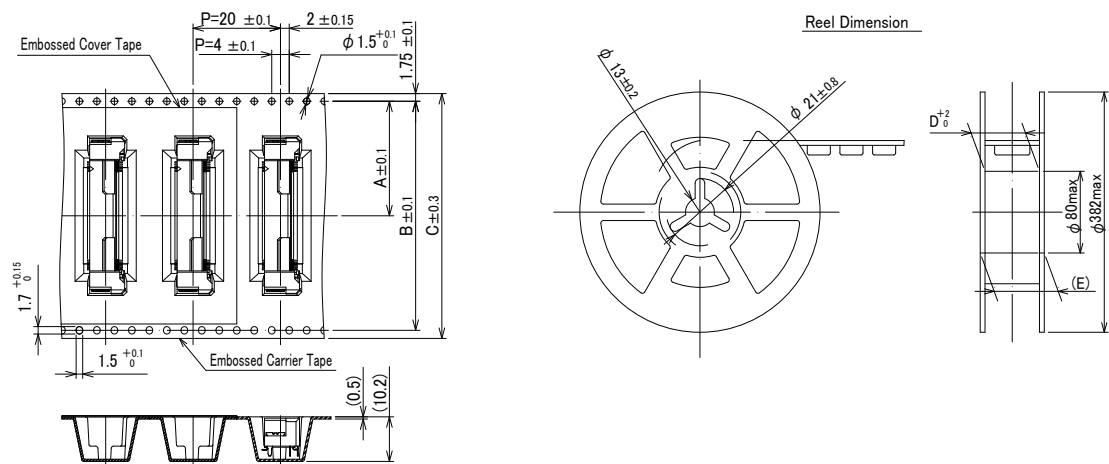
● Straight Receptacle



Unit : mm

Part No.	Packing Quantity (pcs/reel)	A	B	C	D	E	F	G
FX23-20S-0.5SV(20)	400	20	14.2	28.4	32	10.10	32.4	38.4
FX23-40S-0.5SV(20)	400	20	20.2	40.4	44	10.10	44.4	50.4
FX23-60S-0.5SV(20)	400	20	20.2	40.4	44	10.10	44.4	50.4
FX23-80S-0.5SV(20)	400	20	26.2	52.4	56	10.10	56.4	62.4
FX23-100S-0.5SV(20)	400	20	26.2	52.4	56	10.10	56.4	62.4
FX23-120S-0.5SV(20)	400	20	26.2	52.4	56	10.10	56.4	62.4
FX23-20S-0.5SV10(20)	150	24	20.2	40.4	44	19.85	44.4	50.4
FX23-40S-0.5SV10(20)	150	24	20.2	40.4	44	19.85	44.4	50.4
FX23-60S-0.5SV10(20)	150	24	26.2	52.4	56	19.85	56.4	62.4
FX23-80S-0.5SV10(20)	150	24	26.2	52.4	56	19.85	56.4	62.4
FX23-100S-0.5SV10(20)	150	24	26.2	52.4	56	19.85	56.4	62.4
FX23-120S-0.5SV10(20)	150	24	34.2	68.4	72	19.85	72.4	78.4

● Right Angle Receptacle

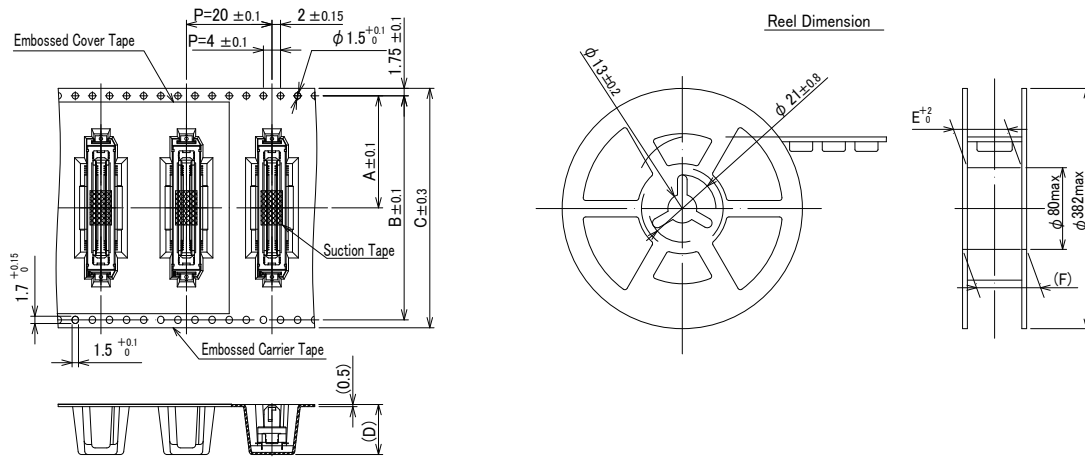


Unit : mm

Part No.	Packing Quantity (pcs/reel)	A	B	C	D	E
FX23-20S-0.5SH(20)	400	14.2	28.4	32	32.4	38.4
FX23-40S-0.5SH(20)	400	20.2	40.4	44	44.4	50.4
FX23-60S-0.5SH(20)	400	20.2	40.4	44	44.4	50.4
FX23-80S-0.5SH(20)	400	20.2	40.4	44	44.4	50.4
FX23-100S-0.5SH(20)	400	26.2	52.4	56	56.4	62.4
FX23-120S-0.5SH(20)	400	26.2	52.4	56	56.4	62.4

Embossed Carrier Tape Dimensions for FX23L

● Straight Header

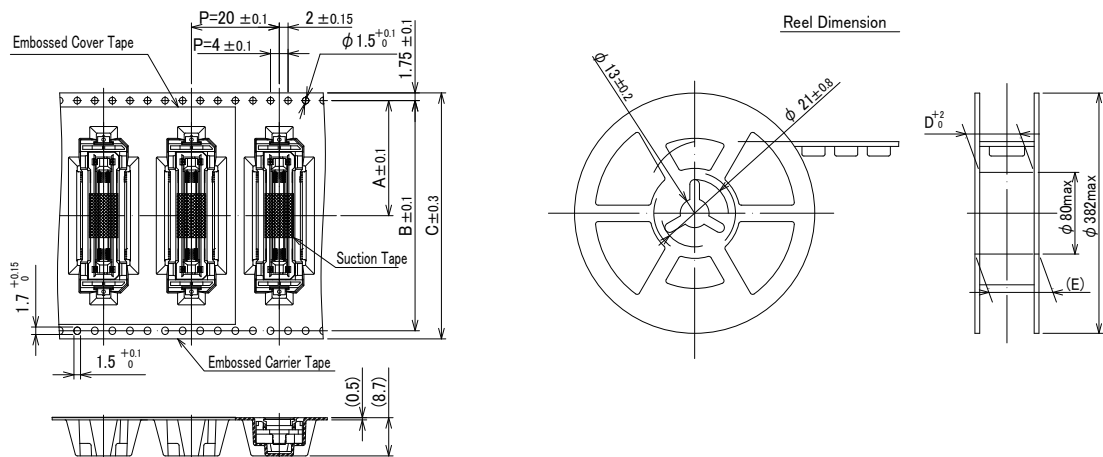


Unit : mm

Part No.	Packing Quantity (pcs/reel)	A	B	C	D	E	F
FX23L-20P-0.5SV8(20)	450	20.2	40.4	44	9.7	44.4	50.4
FX23L-40P-0.5SV8(20)	450	20.2	40.4	44	9.7	44.4	50.4
FX23L-60P-0.5SV8(20)	-	-	-	-	-	-	-
FX23L-80P-0.5SV8(20)	-	-	-	-	-	-	-
FX23L-100P-0.5SV8(20)	450	26.2	52.4	56	9.7	56.4	62.4
FX23L-120P-0.5SV8(20)	-	-	-	-	-	-	-
FX23L-20P-0.5SV10(20)	350	20.2	40.4	44	11.7	44.4	50.4
FX23L-40P-0.5SV10(20)	350	20.2	40.4	44	11.7	44.4	50.4
FX23L-60P-0.5SV10(20)	350	26.2	52.4	56	11.7	56.4	62.4
FX23L-80P-0.5SV10(20)	350	26.2	52.4	56	11.7	56.4	62.4
FX23L-100P-0.5SV10(20)	350	26.2	52.4	56	11.7	56.4	62.4
FX23L-120P-0.5SV10(20)	-	-	-	-	-	-	-
FX23L-20P-0.5SV12(20)	300	20.2	40.4	44	13.7	44.4	50.4
FX23L-40P-0.5SV12(20)	300	20.2	40.4	44	13.7	44.4	50.4
FX23L-60P-0.5SV12(20)	300	26.2	52.4	56	13.7	56.4	62.4
FX23L-80P-0.5SV12(20)	-	-	-	-	-	-	-
FX23L-100P-0.5SV12(20)	-	-	-	-	-	-	-
FX23L-120P-0.5SV12(20)	-	-	-	-	-	-	-

Note : For item whose dimensions are "-", please contact our sales representative.

● Straight Receptacle



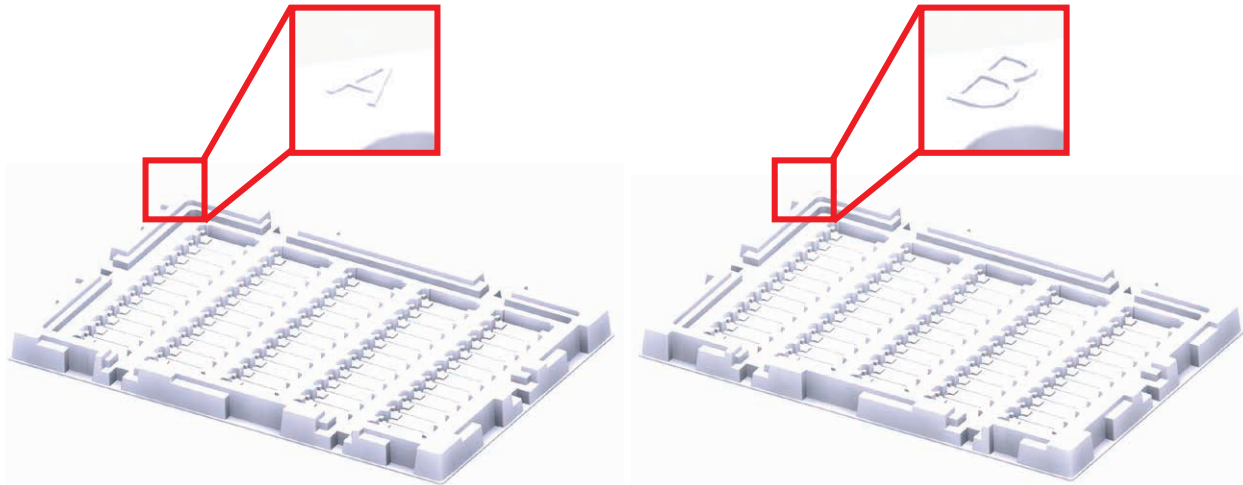
Unit : mm						
Part No.	Packing Quantity (pcs/reel)	A	B	C	D	E
FX23L-20S-0.5SV(20)	500	20.2	40.4	44	44.4	50.4
FX23L-40S-0.5SV(20)	500	20.2	40.4	44	44.4	50.4
FX23L-60S-0.5SV(20)	500	26.2	52.4	56	56.4	62.4
FX23L-80S-0.5SV(20)	500	26.2	52.4	56	56.4	62.4
FX23L-100S-0.5SV(20)	500	26.2	52.4	56	56.4	62.4
FX23L-120S-0.5SV(20)	-	-	-	-	-	-

Note : For item whose dimensions are "-", please contact our sales representative.

Storing FX23 Series

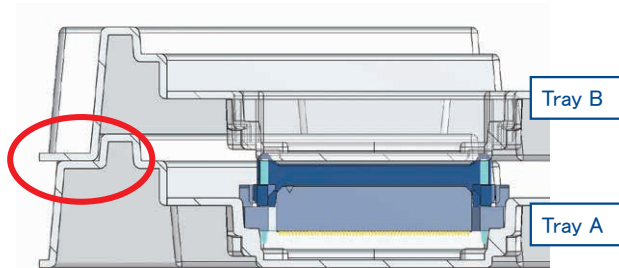
There are two types of trays (A and B) for the FX23 Series.

These have been designed to stack in alternating order (A-B-A-B...) for shipping and storage.



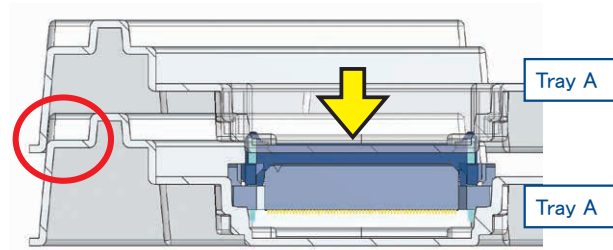
If tray A is stacked on top of another tray A, or if tray B is stacked on top of another tray B, the trays will put a load on the connectors, potentially causing connector breakage or deformation.

OK



When stacked correctly, the outer structure of the trays will prevent any load from being placed on the connectors below.

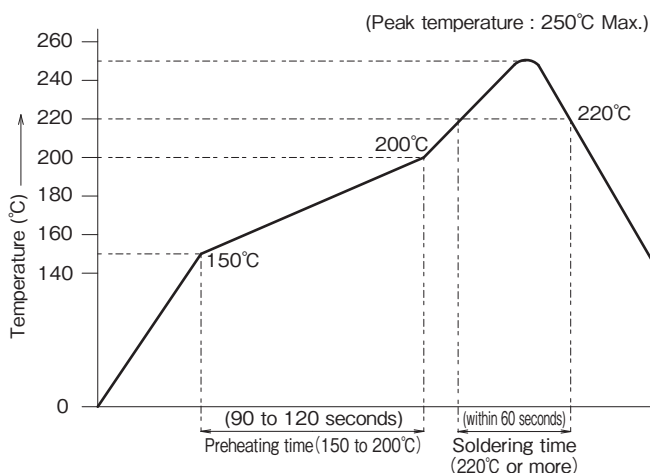
X



When stacked incorrectly, the outer structure of the trays will not function, resulting in a load added to the connector.

When storing the FX23 Series, please ensure that the trays are stacked in alternating order.

Recommended Temperature Profile



< Applicable Conditions >

Test PCB Dimensions : 110 × 60 × 1.6mm
 Material : Glass epoxy
 Solder Composition : Sn-3Ag-0.5Cu
 Flux Content : 11wt%
 Metal Mask Thickness : 0.12mm, 0.15mm
 Number of Reflow Times : 2 times Max.

*The temperature profile is a reference under the condition of the above settings : Temperature profile may change depending on solder paste types, manufacturers, PCB size, and other soldering materials. Please fully check the mounting conditions before use.

Cleaning Conditions

● Cleaning with Organic Solvent

Solvent	Cleaning at Normal Temperature	Heated Cleaning
IPA (Isopropyl alcohol)	○	○

● Cleaning with Water

When water-type cleaning agents (terpene, alkaline saponification agents) are used, select cleaning agents based on the 'Table of Influence' on metals and resins issued by the cleaning agent manufacturer.
 Caution : Do not leave with any water content left.

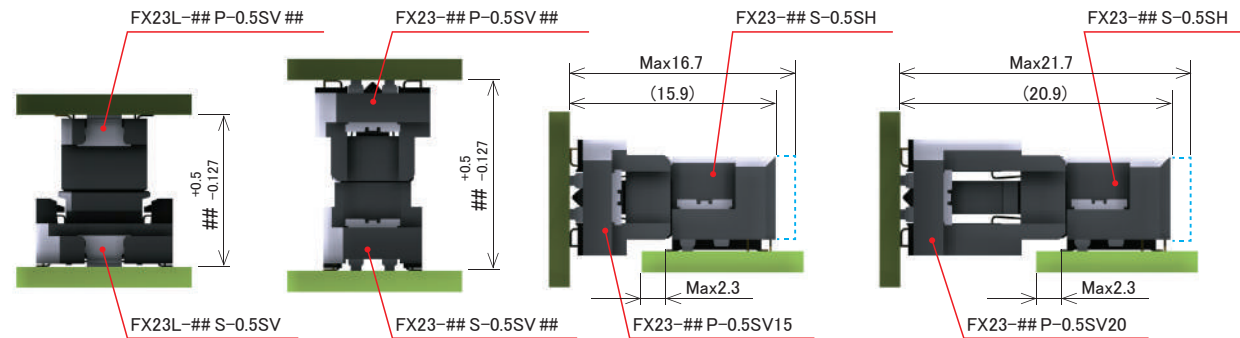
● Cleaning Precautions

When cleaning the parts with organic solvents and water-type agents, if flux or cleaning agents remain in the connector, it could cause the deterioration of electric performance. Please be sure to check if adequate cleaning has been carried out.

Usage Precautions

● About the Specified Dimension Between PCBs

The dimension between PCBs shall be within the following range :

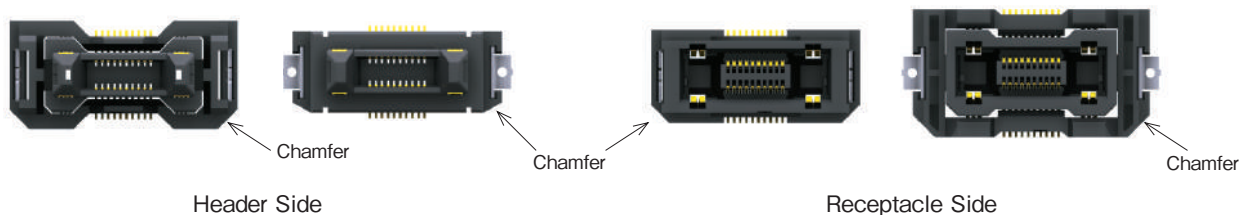


● Securing PCBs

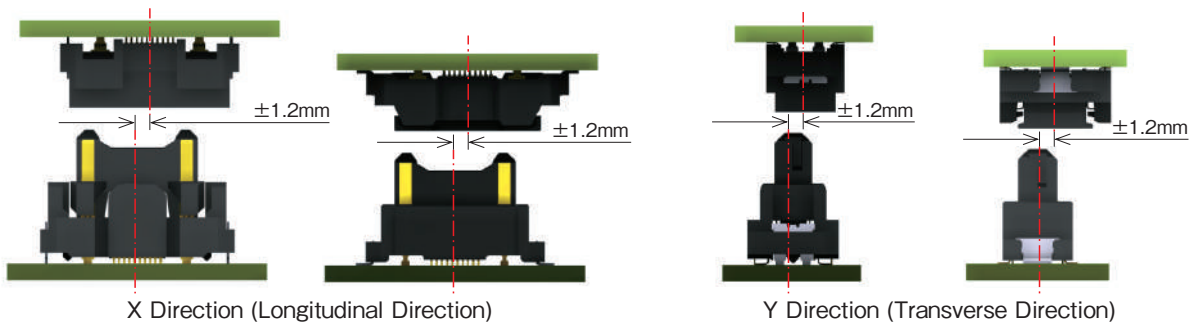
Please take measures to secure the PCB other than using connectors. Using only the connectors to support the board may result in a load to the connector that results in damage or contact failure.

● Cautions in Mating Operations

- This connector is designed to prevent reverse insertion. The connector could be damaged if excessive force is exerted when mating.
 Avoid excessive force when mating. Mate only after confirming the following connector properties (chamfer of the external face) :



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- When mating/un-mating, it is strongly recommended to insert or remove in a straight line. If not possible due to board layout, insertion and removal should be carried out within the following inclination angle.
Moreover, during the mating operation, be sure to proceed without forcibly applying a load to the connector.
Allow the connector to be placed straight when the mating operation is completed.
X Direction (Longitudinal Direction) $\Rightarrow$ for 20, 40, 60pos. : within 2°
for 80, 100, 120pos. : within 10°
Y Direction (Transverse Direction) $\Rightarrow$ within 0.5°

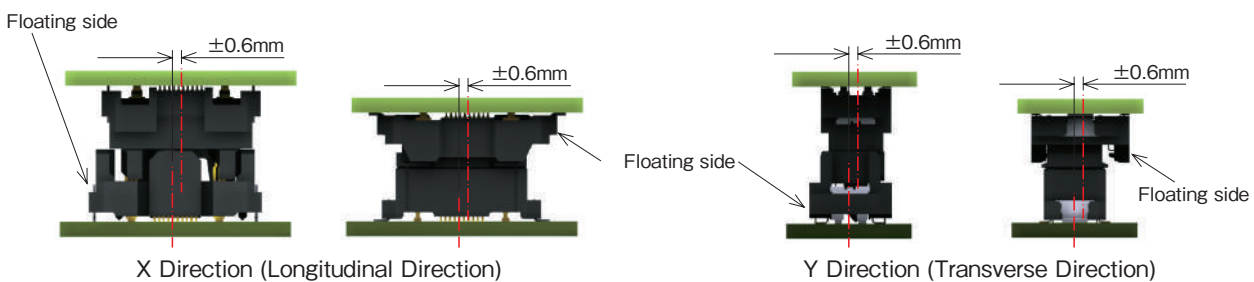


Note : This is not a recommended operation. Damage to the connector could occur.

● Permissible Misalignment in the Mated State (Floating Amount)

This connector is designed to float when mated. The permissible misalignment between PCBs in the mated state is $\pm 0.6\text{mm}$ in both the X and Y directions.

However, this connector is not suitable for misalignment absorption when the misalignment amount is constantly changing due to vibration, etc. Be sure to secure PCBs after mating. Additionally, the number of repetitive floating operations shall be according to the number of connector insertion/withdrawal cycles.(100 times Max.)



140°C Heat and Vibration Resistant Board-to-Board Floating Connector

FX26 Series



Suitable for
Powertrain
Applications



Floating



Vibration Absorb



140°C

High Temp

■ Features

1. Vibration Resistance

Design absorbs the amplitude of the boards that occur in the Z direction (connector mating direction) that occurs in a vibration environment.

2. Heat Resistance up to 140°C

The special contact design enables product use under high temperature environments. Additionally the two-point contact design enhances reliability.

3. Board Misalignment Absorption

- X and Y Directions : $\pm 0.7\text{mm}$ Floating Range
- Z Direction : $\pm 0.75\text{mm}$ Effective Mating Length

4. Contact Pitch : 1mm

5. Connection Type : Stacking

Height : 15mm/18mm/20mm/23mm/25mm

6. Pin Count Variations : 20/30/40/50/60

7. Rated Current : 0.5A/pin

8. Pick and Place Mounting

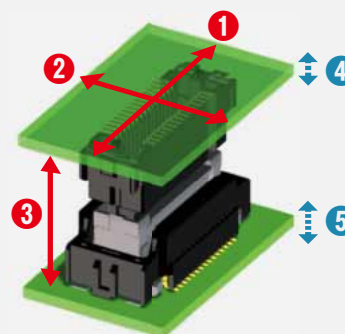
Dustproof and suction caps are installed on standard product. (Reel Packaging)

9. Excellent mating performance with large guide post

Large self-alignment range for easy mating operation.



Inverter

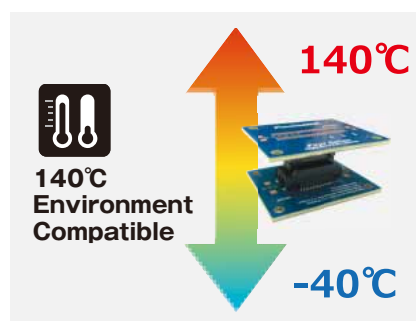


**Board Misalignment
Absorption**

- ① X Direction : $\pm 0.7\text{mm}$
- ② Y Direction : $\pm 0.7\text{mm}$
- ③ Z Direction : $\pm 0.75\text{mm}$

**Board Amplitude
Absorption**

- ④ ⑤ Vibration Absorption
- $\Delta Z : 0.05\text{mm}$



■Product Specifications

Ratings	Rated Current : 0.5A	Operating Temperature : -40 to 140°C (Note 1)
		Storage Temperature Range : -10 to 60°C (Note 2)
	Rated Voltage : 125V AC/DC (Note 3)	Operating Humidity Range : 85% Max. relative humidity (No dew condensation)
		Storage Humidity Range : 60% Max. relative humidity (No dew condensation)

Items	Specifications	Conditions
1. Contact Resistance	65mΩ Max.	Measured at 100mA
2. Insulation Resistance	1000MΩ Min.	Measured at 250V DC
3. Withstanding Voltage	No flashover or breakdown.	375V AC for 1 min.
4. Mating Durability	Contact resistance : 75mΩ Max.	10 insertion / extraction cycles.
5. Vibration Resistance	No electrical discontinuity of 1μs or more.	Frequency 50 to 100 → 100 to 150 → 150 to 300Hz Acceleration 98 → 98 to 294 → 294m/s ² , test for 3 hours in the 3-axis direction for 1 complete cycle. (Note 4)
6. Shock Resistance	No electrical discontinuity of 1μs or more.	Acceleration of 980m/s ² ; duration 6ms, sine half-wave, 3 cycles in each of the 3 axes each in both directions.
7. Moisture Resistance	Contact Resistance : 75mΩ Max. Insulation Resistance : 1000mΩ Min.	Left for 1000 hours at 60°C and 90 to 95% RH
8. Temperature Cycles	Contact Resistance : 75mΩ Max. Insulation Resistance : 1000MΩ Min.	Temperature : -40 → 140°C Time : 30 → 30min. for 1,000 cycles
9. Heat Resistance	Contact Resistance : 75mΩ Max.	Left at 140°C for 1,000 hours

Note 1 : Includes the temperature rise due to current flow.

Note 2 : Storage refers to to long-term storage of the unused product before mounting on board.

Note 3 : The creepage distance is 32V AC when based on IEC 60664-1 Pollution degree 2.

Note 4 : The board amplitude of the connector mounting portion is kept below 0.05mm.

■Materials / Finish

Part	Materials	Color / Finish	Standard
Insulator	Polyamide Resin	Black	UL94V-0
Contact	Copper Alloy	Contact Portion : Gold Plating Mounting Portion : Gold Plating	—
Solder Tab	Phosphor Bronze	Pure 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.

●Straight Header

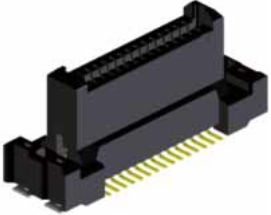
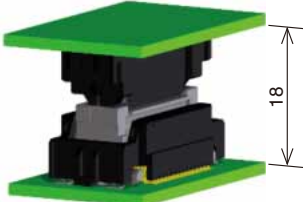
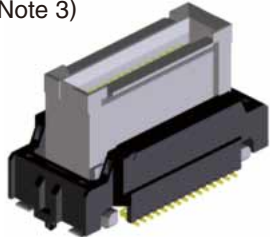
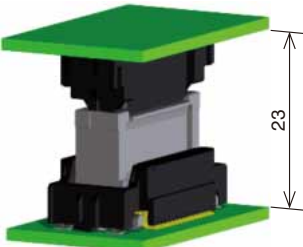
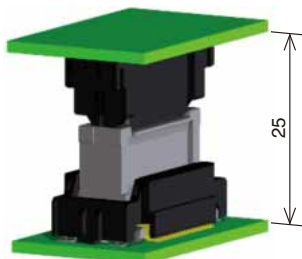
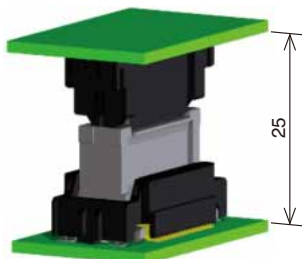
FX26 - 30 P - 1 SV
① ② ③ ④ ⑤

●Straight Receptacle

FX26 - 30 S - 1 SV 20
① ② ③ ④ ⑤ ⑥

①Series	: FX26
②No. of Pos.	
③Connector Type	P : Header S : Receptacle
④Contact Pitch	: 1mm
⑤Product Type	SV : Straight Type
⑥Product Height	: Mated height [mm] =Numerical value on the header side + Numerical value on the receptacle side

Connection Variations Overview

		[mm]		
Receptacle Header				
		FX26-**-S-1SV15	FX26-**-S-1SV18	FX26-**-S-1SV20
				
	FX26-**-P-1SV	15	18	20
(Note 3)				
	FX26-**-P-1SV5			
		23	23	25

Note 1 : ** correspond to pin counts.
Note 2 : Please contact a Hirose representative for release status.
Note 3 : This type (height 23, 25mm) is a custom product. Please contact a Hirose representative for more information.

[FX26-**-1SV]



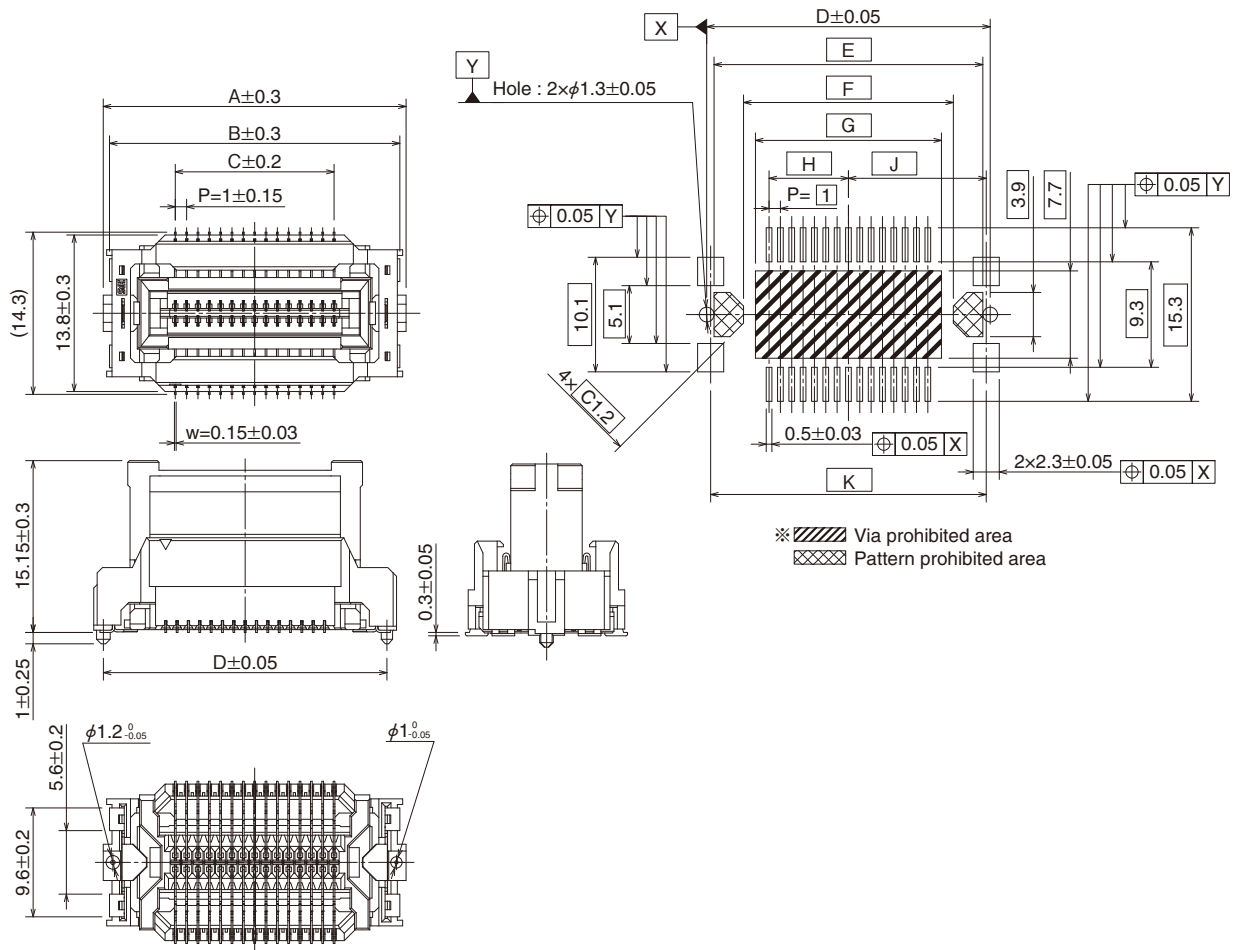
Part No.	HRS No.	No. of Pos.	A	B	C	D	E	F	G	H	J	K	Packaging Quantity
FX26-20P-1SV	576-1002-0 00	20	21.7	20.6	9	20	18.7	13.5	11.4	4.5	9.65	19.3	250 pcs per reel
FX26-30P-1SV	576-1003-0 00	30	26.7	25.6	14	25	23.7	18.5	16.4	7	12.15	24.3	
FX26-40P-1SV	576-1004-0 00	40	31.7	30.6	19	30	28.7	23.5	21.4	9.5	14.65	29.3	
FX26-50P-1SV	576-1005-0 00	50	36.7	35.6	24	35	33.7	28.5	26.4	12	17.15	34.3	
FX26-60P-1SV	576-1006-0 00	60	41.7	40.6	29	40	38.7	33.5	31.4	14.5	19.65	39.3	

Part Dimensions

[FX26-**-P-1SV5]



Recommended Land Pattern Diagram



Unit : mm

Part No.	HRS No.	No. of Pos.	A	B	C	D	E	F	G	H	J	K	Packaging Quantity
FX26-20P-1SV5	Upon Request (Note 1)	20	21.7	20.6	9	20	18.7	13.5	11.4	4.5	9.65	19.3	200 pcs per reel
FX26-30P-1SV5	Upon Request (Note 1)	30	26.7	25.6	14	25	23.7	18.5	16.4	7	12.15	24.3	
FX26-40P-1SV5	Upon Request (Note 1)	40	31.7	30.6	19	30	28.7	23.5	21.4	9.5	14.65	29.3	
FX26-50P-1SV5	Upon Request (Note 1)	50	36.7	35.6	24	35	33.7	28.5	26.4	12	17.15	34.3	
FX26-60P-1SV5	576-1506-0 00	60	41.7	40.6	29	40	38.7	33.5	31.4	14.5	19.65	39.3	

Note 1 : Pin counts with the HRS No. left blank can be developed upon request.

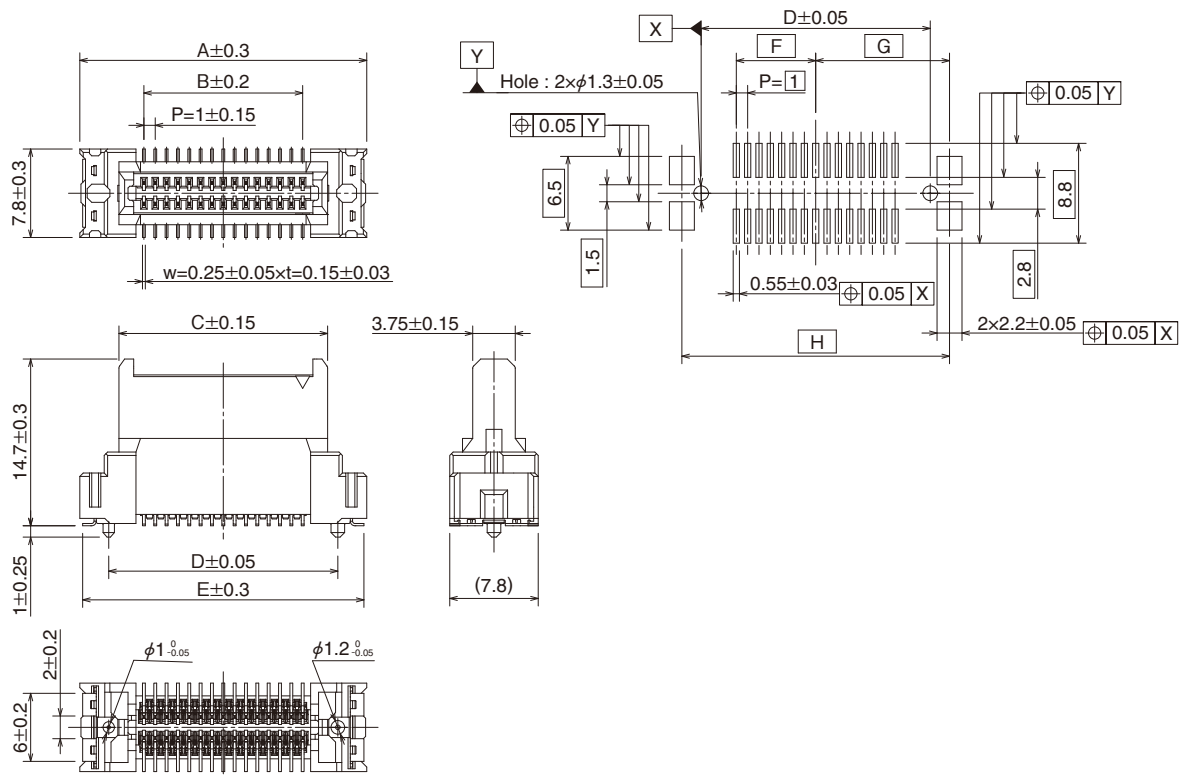
For details contact a Hirose sales representative.

Part Dimensions

[FX26-**-S-1SV18]



Recommended Land Pattern Diagram



Unit : mm

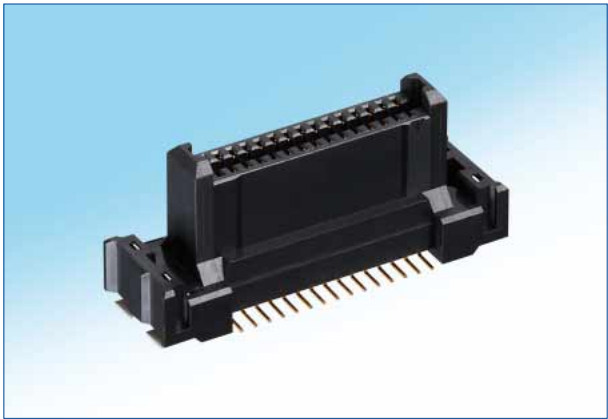
Part No.	HRS No.	No. of Pos.	A	B	C	D	E	F	G	H	Packaging Quantity
FX26-20S-1SV18	Under Development (Note 1)	20	20.3	9	13.4	15.2	19.8	4.5	9.3	18.6	200 pcs per reel
FX26-30S-1SV18	Under Development (Note 1)	30	25.3	14	18.4	20.2	24.8	7	11.8	23.6	
FX26-40S-1SV18	576-1404-0 00	40	30.3	19	23.4	25.2	29.8	9.5	14.3	28.6	
FX26-50S-1SV18	576-1405-0 00	50	35.3	24	28.4	30.2	34.8	12	16.8	33.6	
FX26-60S-1SV18	Under Development (Note 1)	60	40.3	29	33.4	35.2	39.8	14.5	19.3	38.6	

Note 1 : Pin counts with the HRS No. left blank are currently under development.

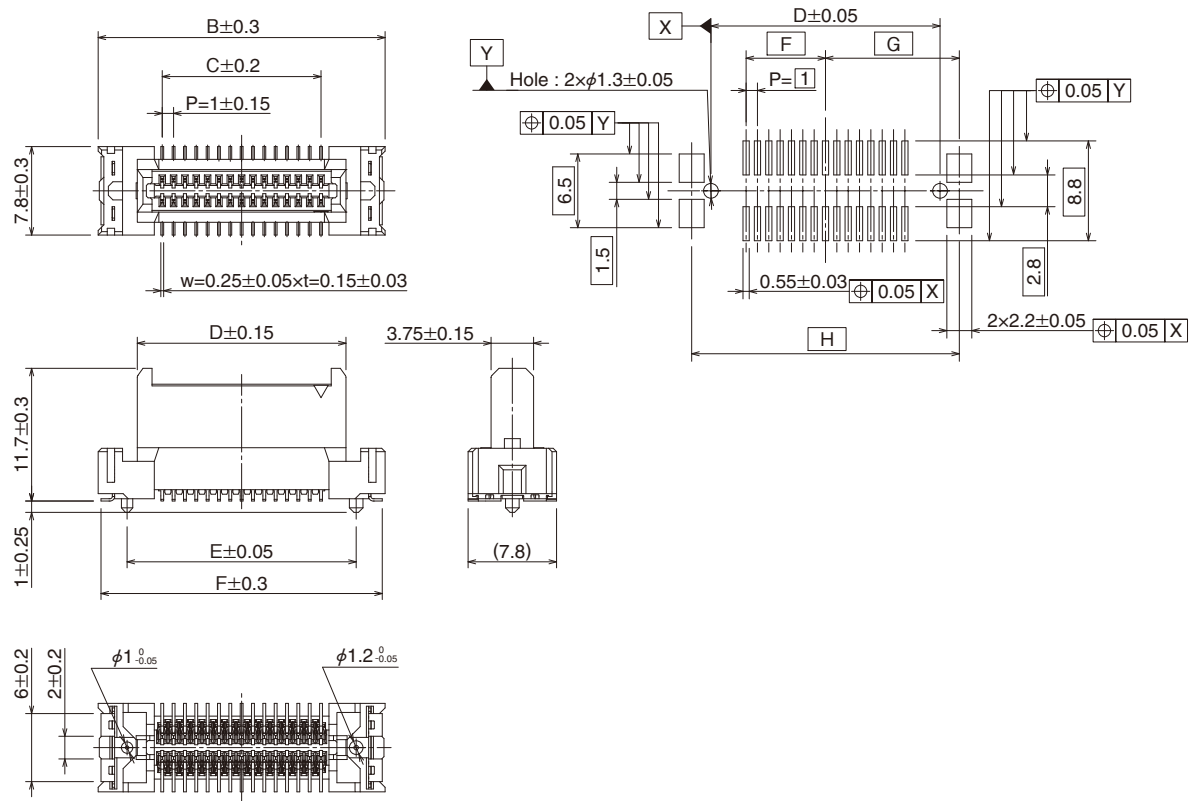
For details contact a Hirose sales representative.

Part Dimensions

[FX26-**S-1SV15]



Recommended Land Pattern Diagram



Unit : mm

Part No.	HRS No.	No. of Pos.	A	B	C	D	E	F	G	H	Packaging Quantity
FX26-20S-1SV15	Under Development (Note 1)	20	20.3	9	13.4	15.2	19.8	4.5	9.3	18.6	250 pcs per reel
FX26-30S-1SV15	576-1203-0 00	30	25.3	14	18.4	20.2	24.8	7	11.8	23.6	
FX26-40S-1SV15	Under Development (Note 1)	40	30.3	19	23.4	25.2	29.8	9.5	14.3	28.6	
FX26-50S-1SV15	Under Development (Note 1)	50	35.3	24	28.4	30.2	34.8	12	16.8	33.6	
FX26-60S-1SV15	Under Development (Note 1)	60	40.3	29	33.4	35.2	39.8	14.5	19.3	38.6	

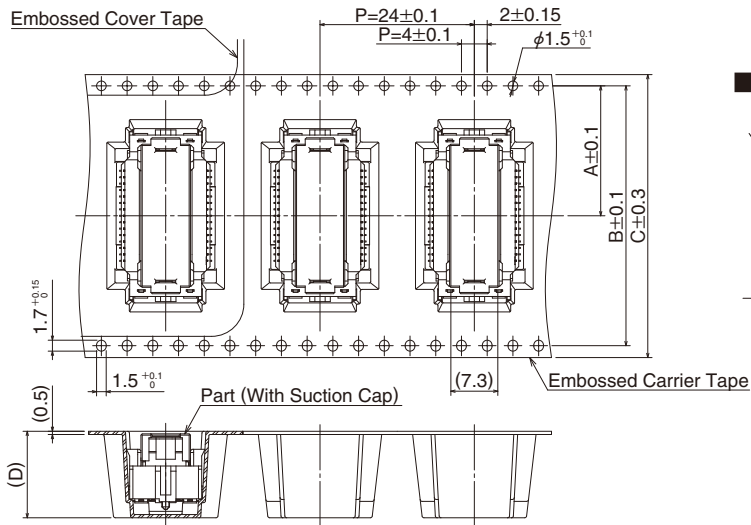
Note 1 : Pin counts with the HRS No. left blank are currently under development.
For details contact a Hirose sales representative.

■ Embossed Packaging Diagram

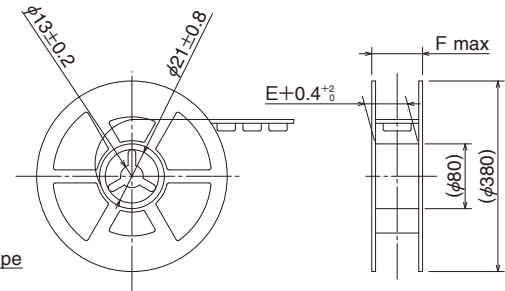
● Straight Header

[FX26-***P-1SV]

[FX26-***P-1SV5]



■ Reel Diagram



Unit : mm

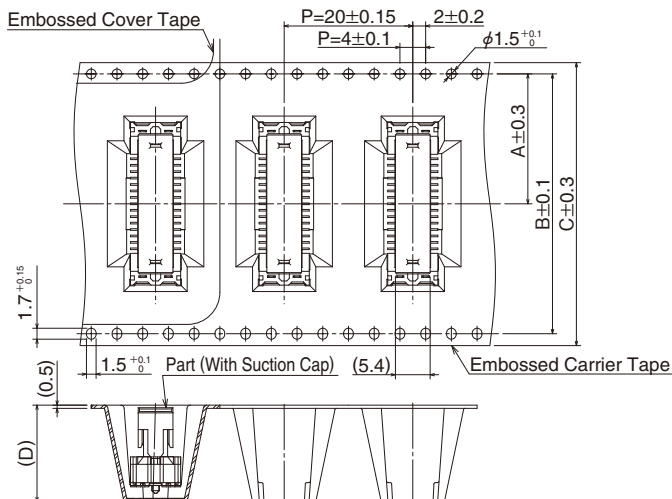
Part No.	No. of Pos.	A	B	C	D	E	F	Packaging Quantity
FX26-***P-1SV	20, 30	20.2	40.4	44	13.45	44.4	50.4	250 pcs per reel
	40, 50, 60	26.2	52.4	56		56.4	62.4	
FX26-***P-1SV5	20, 30	20.2	40.4	44	18.45	44.4	50.4	200 pcs per reel
	40, 50, 60	26.2	52.4	56		56.4	62.4	

● Straight Receptacle

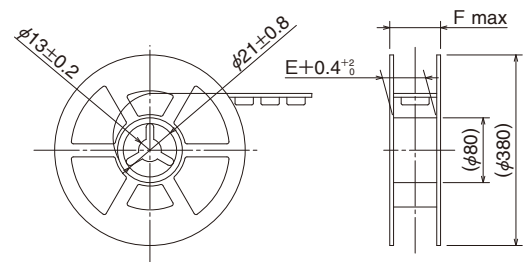
[FX26-***S-1SV20]

[FX26-***S-1SV18]

[FX26-***S-1SV15]



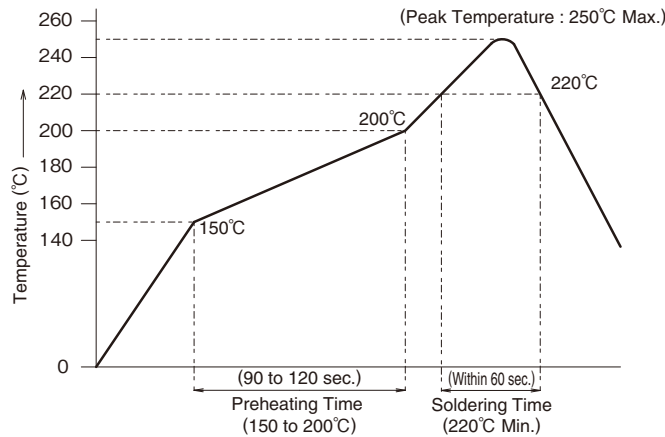
■ Reel Diagram



Unit : mm

Part No.	No. of Pos.	A	B	C	D	E	F	Packaging Quantity
FX26-***S-1SV20	20, 30	20.2	40.4	44	20	44.4	50.4	200 pcs per reel
	40, 50, 60	26.2	52.4	56		56.4	62.4	
FX26-***S-1SV18	20, 30	20.2	40.4	44	18	44.4	50.4	200 pcs per reel
	40, 50, 60	26.2	52.4	56		56.4	62.4	
FX26-***S-1SV15	20, 30	20.2	40.4	44	15	44.4	50.4	250 pcs per reel
	40, 50, 60	26.2	52.4	56		56.4	62.4	

■Recommended Temperature Profile



<Applicable Conditions>
Test Board Measurements : 110×85×1.6mm
Material : Glass Epoxy
Solder Composition : Sn-3Ag-0.5Cu
Flux Content : 11wt%
Metal Mask Thickness : 0.15mm
Reflow Times : 2 times Max.

※The temperature profile is a reference under the above conditions. Temperature profile may change depending on the solder paste types, manufacturers, PCB size, and other soldering materials. Please fully check the mounting conditions before use.

■Cleaning Conditions

●Cleaning with Organic Solvent

Solvent	Cleaning at Normal Temperature	Heated Cleaning
IPA (Isopropyl Alcohol)	○	○

●Cleaning with Water

When water-type cleaning agents (terpene, alkaline saponification agents) are used, select cleaning agents based on the 'table of influence' on metals and resins issued by the cleaning agent manufacturer.
Caution : Do not leave the connector with any water content left on it.

●Cleaning Precautions

If flux or cleaning agent remains on the connector during part cleaning with organic solvent and water-based agents, it may cause deterioration of electrical performance. Confirm cleaning is performed properly.

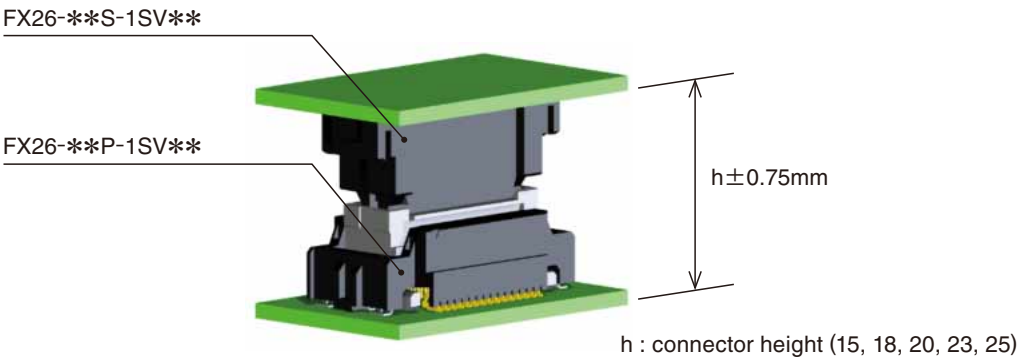
■Usage Precautions

●Securing Boards Together

If the board is supported only by the connector, an excessive load may be applied, causing damage or poor contact. Use other methods to secure the board other than connectors.

●About Board-to-Board Set Up Dimensions

The dimensions between PCBs shall be within the following range :



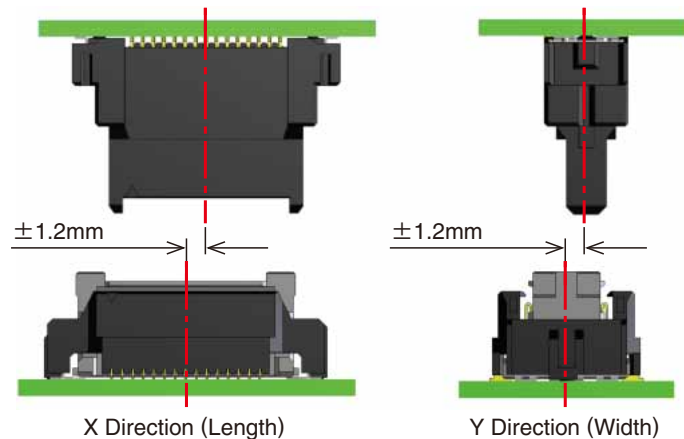
※The above ±0.75mm intersection is different from board amplitude. Refer to the next page for board amplitude.

● Mating Operations Cautions

It is recommended to operate straight and without tilting.

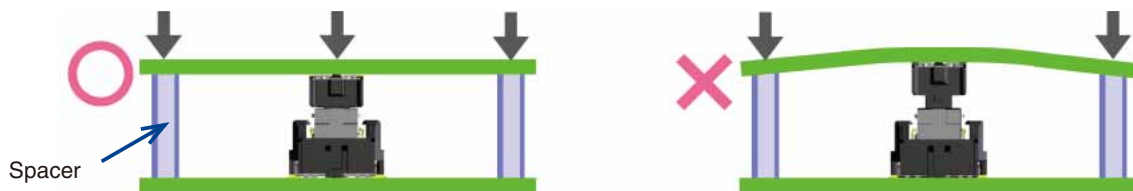
- The mating self-alignment is $\pm 1.2\text{mm}$ in the X and Y directions.

Mate the connector while following the self-alignment guide and without applying excessive force.



※ Rotational insertion and extraction are not recommended as it may damage the connector.

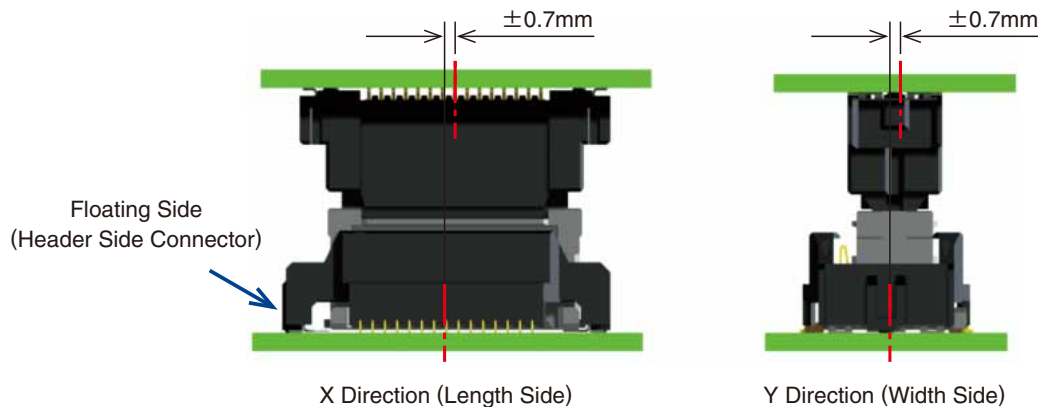
- To prevent incomplete mating or mating failure, install a backup on the back surface of the connector mounting portion during mating. Fix the board with screws after mating it securely.



● Permissible Misalignment in the Mated State (Floating Range)

This connector is designed to float when mated, with a permissible misalignment of $\pm 0.7\text{mm}$ in both the X and Y directions.

However, it is not applicable to absorbing when the misalignment amount is continually changing due to vibration, etc. Be sure to secure PCBs after mating.



● Board Amplitude Under Vibration Conditions

This connector can absorb the board amplitude in the Z direction (connector mating direction).

However, it cannot absorb any vibration in the Z direction. The maximum absorption is 0.05mm.

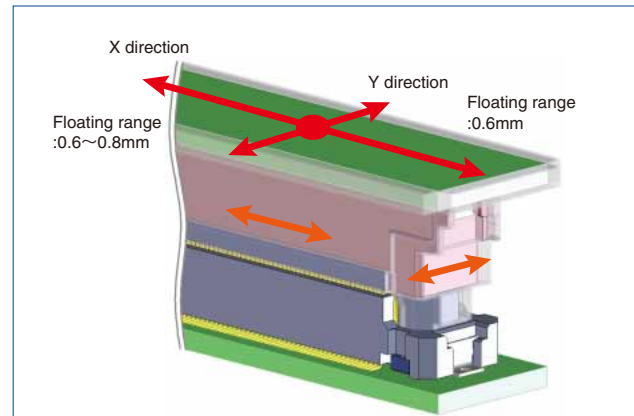
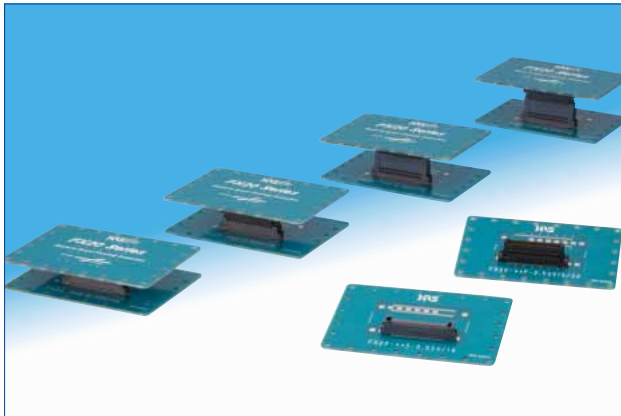
Make a board design that suppresses the amplitude (Amount of change in height between substrates) of the connector mounting portion to 0.05mm or less under a vibration environment in use.

Also, design the fastening position, fastening method and case.

- Pay attention to board resonance.
- When frequency exceeds 1000Hz under constant and sweep vibrations, reduce the acceleration applied to the connector and connector mating portion to 5G or less.

0.5mm Pitch, Board to Board Connector with Floating Structure

FX20 Series



■Features

1. 0.5mm pitch
2. Connection type: Right angle / Vertical
3. Pin counts : 20, 40, 60, 80, 100, 120 and 140
4. Floating range : ± 0.6 to 0.8mm in the X direction and ± 0.6 mm in the Y direction
5. A double beam contact structure produces a highly reliable contact (Refer to the figure on the right)
6. Current capacity : 0.5A per pin
7. Effective mating length of 1.5mm
8. No conductive trace surface is not specified
9. Contains the vacuum pick up area needed to allow automatic mounting
10. Self-aligning and self-guiding structure

This connector utilizes a 1.5mm effective mating length for signal contacts and provides a sufficient margin for its mating stroke.

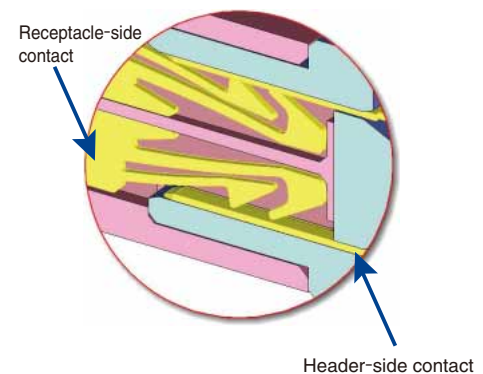
8. No conductive trace surface is not specified

9. Contains the vacuum pick up area needed to allow automatic mounting

10. Self-aligning and self-guiding structure

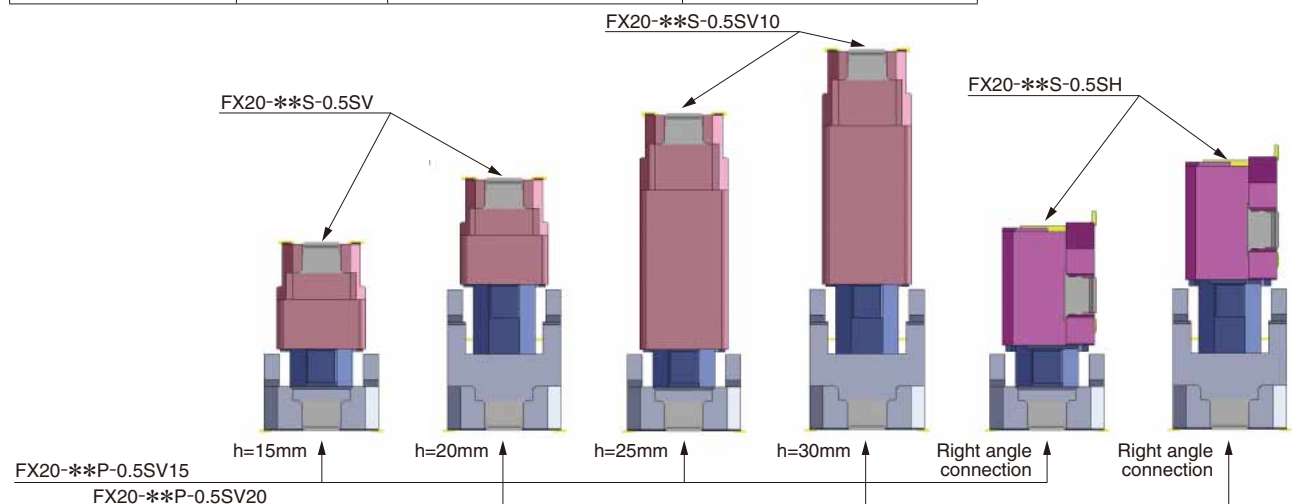
Built-in guide posts enable self-alignment and ensure a secure connection

Enlarged view of the contact area



■Stacking height chart

Receptacle	Header	FX20-***P-0.5SV15	FX20-***P-0.5SV20
FX20-***S-0.5SV		h=15mm	h=20mm
FX20-***S-0.5SV10		h=25mm	h=30mm
FX20-***S-0.5SH		Right angle connection	Right angle connection
Floating range	X direction	± 0.6 mm	± 0.8 mm
	Y direction	± 0.6 mm	± 0.6 mm



Product Specifications

Ratings	Rated current 0.5A Rated voltage AC 50V	Operating temperature range : -55 to 85°C (Note 1) Storage temperature range : -10 to 60°C (Note 2)
---------	--	--

Item	Standards	Condition
1. Contact resistance	70mΩ max.	100mA(DC or 1000Hz)
2. Insulation resistance	100MΩ min.	100V DC.
3. Voltage proof	No flashover or breakdown.	150V AC for 1 min.
4. Mechanical operation	Contact resistance : Variation from initial value 20mΩ or less. No damage, crack and looseness of parts.	50 times insertions and extractions.
5. Vibration	No electrical discontinuity of 1μs. No damage, crack and looseness of parts.	Frequency : 10 to 55 to 10Hz, approx 5 min Single amplitude : 0.75mm, 10 cycles for 3 axial directions.
6. Shock		490m/s ² , duration of pulse 11ms at 3 times for 3 both axial directions.
7. Damp heat (Steady state)	Contact resistance : Variation from initial value 20mΩ or less.	Exposed at 40±2°C, 90~95%, 96h.
8. Rapid change of temperature	Insulation resistance : 100MΩ min. No damage, crack and looseness of parts.	Temperature : -55 → +85°C Time : 30 → 30 min. Under 5 cycles(relocation time to chamber : within 2~3min)

Note 1 : Includes temperature rise caused by current flow.

Note 2 : The term "storage" here refers to products stored for a long period prior to board mounting and use.

Materials / Finish

Part	Material		Finish	UL standard
Insulator	Header	PA	Black	UL94V-0
	Receptacle	LCP	Black	UL94V-0
Contacts	Header	Copper alloy	Contact area: Gold plated	_____
	Receptacle	Phosphor bronze	Mounting area: Gold plated	_____
Metal Fitting	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.

●Straight receptacle

FX20 - **60** **S** - **0.5** **SV** **10**
 ① ② ③ ④ ⑤ ⑥

●Straight header

FX20 - **60** **P** - **0.5** **SV** **15**
 ① ② ③ ④ ⑤ ⑥

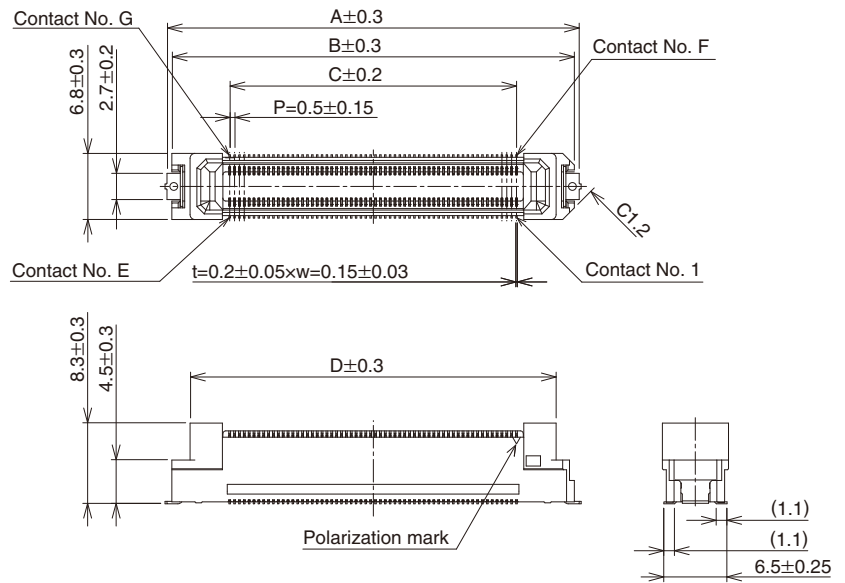
●Right angle receptacle

FX20 - **60** **S** - **0.5** **SH**
 ① ② ③ ④ ⑤

① Series name	: FX20
② Number (contacts) :	
③ Connector type	S : Receptacle type P : Header type
④ Contact pitch	: 0.5mm
⑤ Housing configuration	: SV : Straight type SH : Right angle type
⑥ Stacking height type	Mating height [mm] = Height of the receptacle-side + Height of the header-side

●Straight receptacle

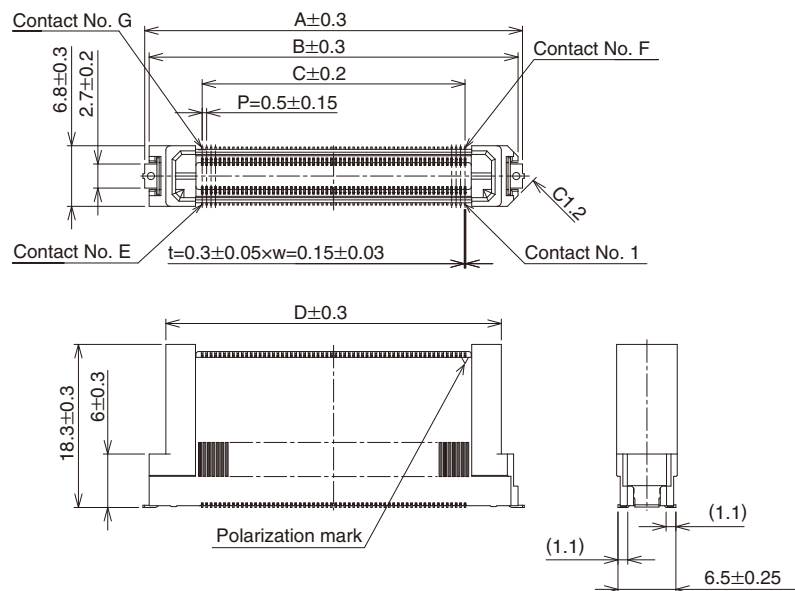
[FX20-**-S-0.5SV]



Unit : mm

Part No.	HRS No.	No. of contacts	A	B	C	D	E	F	G
FX20-20S-0.5SV	570-1114-7	20	17.4	16.4	4.5	12.65	10	11	20
FX20-40S-0.5SV	570-1101-5	40	22.4	21.4	9.5	17.65	20	21	40
FX20-60S-0.5SV	570-1102-8	60	27.4	26.4	14.5	22.65	30	31	60
FX20-80S-0.5SV	570-1103-0	80	32.4	31.4	19.5	27.65	40	41	80
FX20-100S-0.5SV	570-1104-3	100	37.4	36.4	24.5	32.65	50	51	100
FX20-120S-0.5SV	570-1105-6	120	42.4	41.4	29.5	37.65	60	61	120
FX20-140S-0.5SV	570-1106-9	140	47.4	46.4	34.5	42.65	70	71	140

[FX20-**-S-0.5SV10]

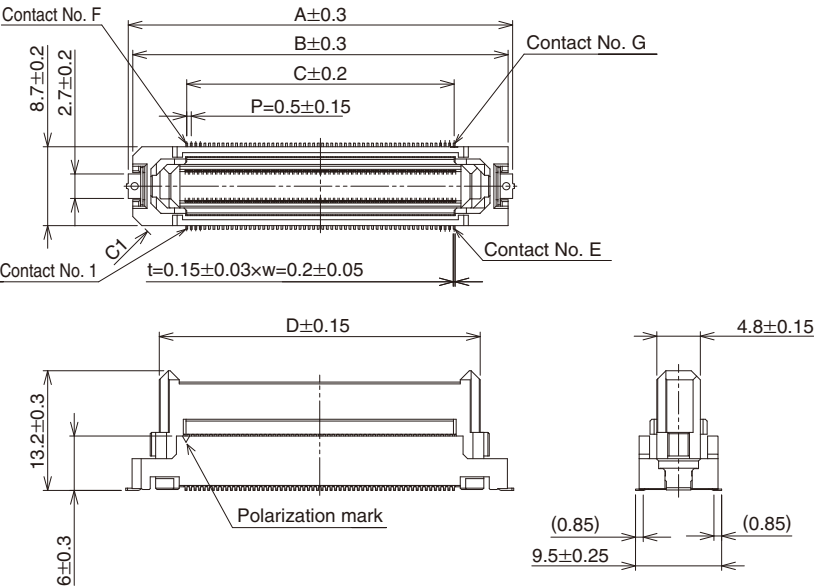


Unit : mm

Part No.	HRS No.	No. of contacts	A	B	C	D	E	F	G
FX20-20S-0.5SV10	570-1115-0	20	17.4	16.4	4.5	12.65	10	11	20
FX20-40S-0.5SV10	570-1107-1	40	22.4	21.4	9.5	17.65	20	21	40
FX20-60S-0.5SV10	570-1108-4	60	27.4	26.4	14.5	22.65	30	31	60
FX20-80S-0.5SV10	570-1109-7	80	32.4	31.4	19.5	27.65	40	41	80
FX20-100S-0.5SV10	570-1110-6	100	37.4	36.4	24.5	32.65	50	51	100
FX20-120S-0.5SV10	570-1111-9	120	42.4	41.4	29.5	37.65	60	61	120
FX20-140S-0.5SV10	570-1112-1	140	47.4	46.4	34.5	42.65	70	71	140

●Straight header

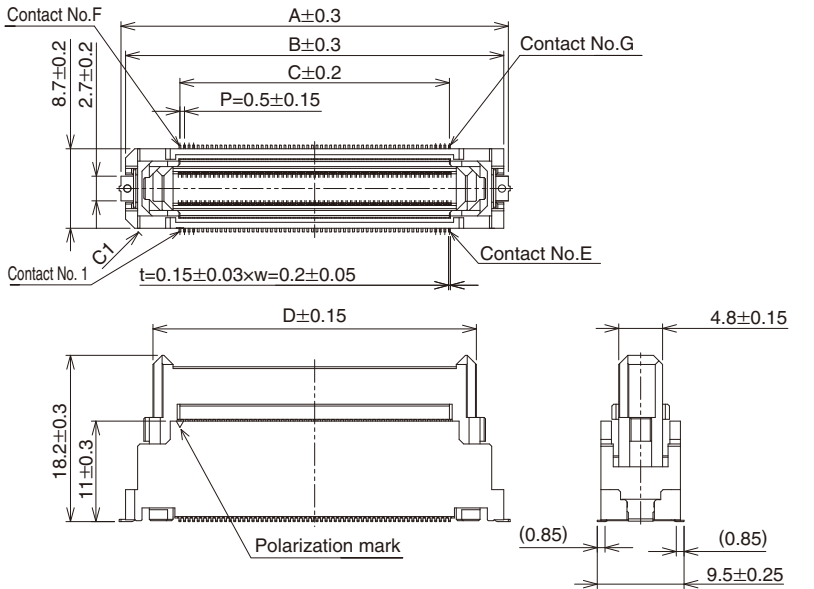
[FX20-**P-0.5SV15]



Unit : mm

Part No.	HRS No.	No. of contacts	A	B	C	D	E	F	G
FX20-20P-0.5SV15	570-1014-2	20	17.4	16.4	4.5	10.4	10	11	20
FX20-40P-0.5SV15	570-1001-0	40	22.4	21.4	9.5	15.4	20	21	40
FX20-60P-0.5SV15	570-1002-3	60	27.4	26.4	14.5	20.4	30	31	60
FX20-80P-0.5SV15	570-1003-6	80	32.4	31.4	19.5	25.4	40	41	80
FX20-100P-0.5SV15	570-1004-9	100	37.4	36.4	24.5	30.4	50	51	100
FX20-120P-0.5SV15	570-1005-1	120	42.4	41.4	29.5	35.4	60	61	120
FX20-140P-0.5SV15	570-1006-4	140	47.4	46.4	34.5	40.4	70	71	140

[FX20-**P-0.5SV20]

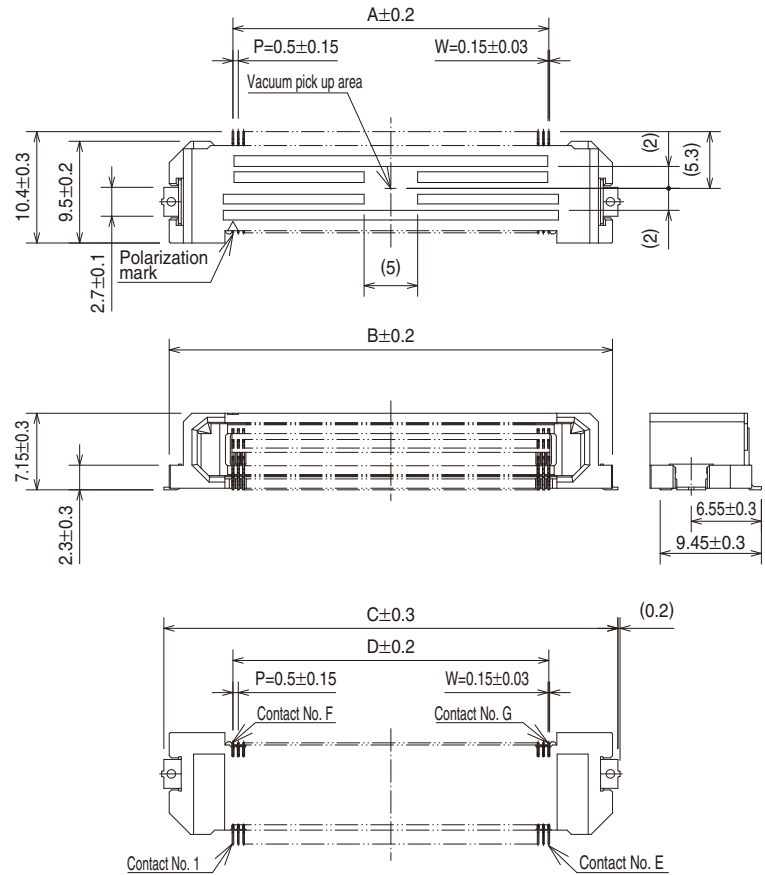


Unit : mm

Part No.	HRS No.	No. of contacts	A	B	C	D	E	F	G
FX20-20P-0.5SV20	570-1015-5	20	17.4	16.4	4.5	10.4	10	11	20
FX20-40P-0.5SV20	570-1007-7	40	22.4	21.4	9.5	15.4	20	21	40
FX20-60P-0.5SV20	570-1008-0	60	27.4	26.4	14.5	20.4	30	31	60
FX20-80P-0.5SV20	570-1009-2	80	32.4	31.4	19.5	25.4	40	41	80
FX20-100P-0.5SV20	570-1010-1	100	37.4	36.4	24.5	30.4	50	51	100
FX20-120P-0.5SV20	570-1011-4	120	42.4	41.4	29.5	35.4	60	61	120
FX20-140P-0.5SV20	570-1012-7	140	47.4	46.4	34.5	40.4	70	71	140

●Right angle receptacle

[FX20-**S-0.5SH]



Unit : mm

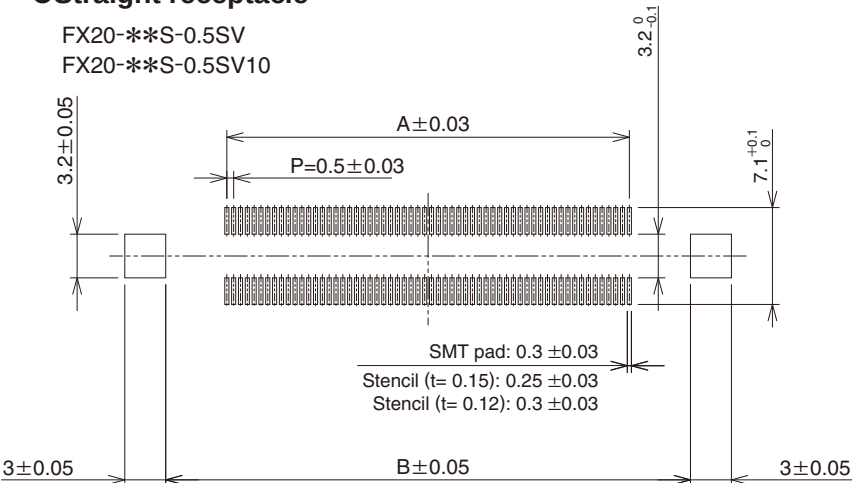
Part No.	HRS No.	No. of contacts	A	B	C	D	E	F	G
FX20-20S-0.5SH	570-1611-1	20	4.5	16.4	17.4	4.5	10	11	20
FX20-40S-0.5SH	570-1601-8	40	9.5	21.4	22.4	9.5	20	21	40
FX20-60S-0.5SH	570-1602-0	60	14.5	26.4	27.4	14.5	30	31	60
FX20-80S-0.5SH	570-1603-3	80	19.5	31.4	32.4	19.5	40	41	80
FX20-100S-0.5SH	570-1604-6	100	24.5	36.4	37.4	24.5	50	51	100
FX20-120S-0.5SH	570-1605-9	120	29.5	41.4	42.4	29.5	60	61	120
FX20-140S-0.5SH	570-1606-1	140	34.5	46.4	47.4	34.5	70	71	140

◆Recommended PCB layout

(PCB thickness: t= 1.6 mm/Stencil thickness: t= 0.15 mm, t= 0.12 mm)

●Straight receptacle

FX20-**-S-0.5SV
FX20-**-S-0.5SV10

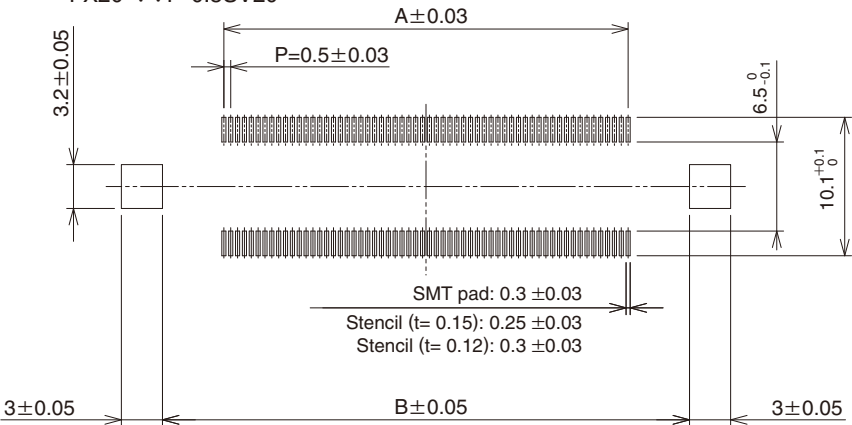


Unit: mm

**	A	B
20	4.5	13.46
40	9.5	18.46
60	14.5	23.46
80	19.5	28.46
100	24.5	33.46
120	29.5	38.46
140	34.5	43.46

●Straight header

FX20-**-P-0.5SV15
FX20-**-P-0.5SV20

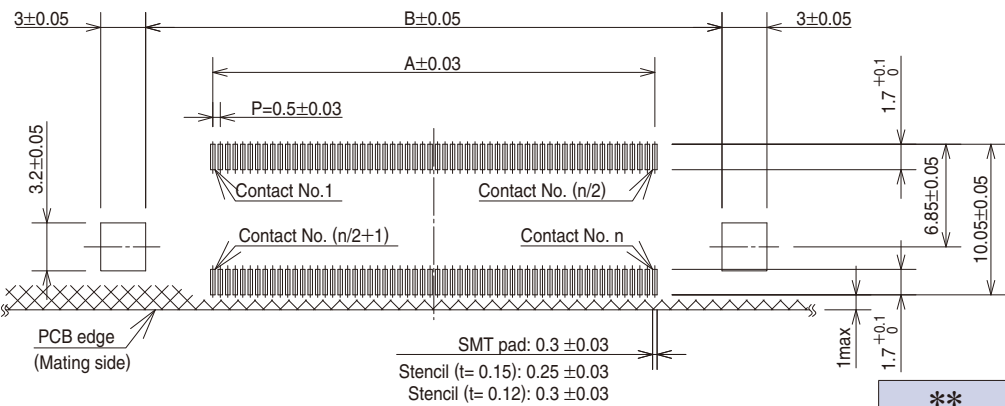


Unit: mm

**	A	B
20	4.5	13.46
40	9.5	18.46
60	14.5	23.46
80	19.5	28.46
100	24.5	33.46
120	29.5	38.46
140	34.5	43.46

●Right angle receptacle

FX20-**-S-0.5SH

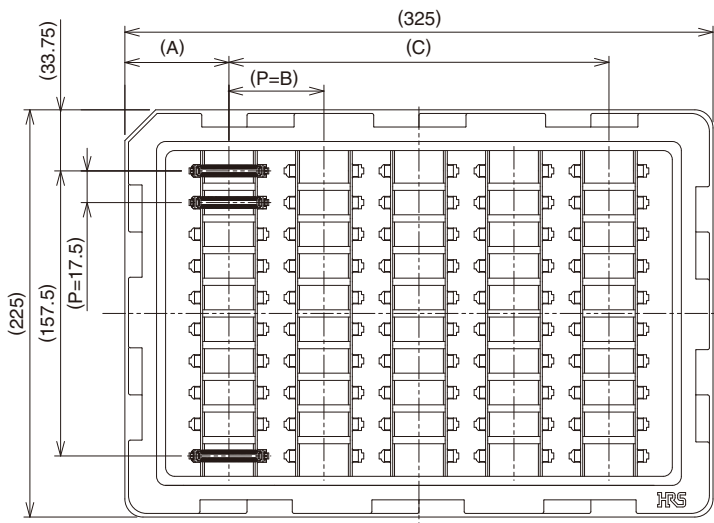


Unit: mm

**	A	B
20	4.5	13.46
40	9.5	18.46
60	14.5	23.46
80	19.5	28.46
100	24.5	33.46
120	29.5	38.46
140	34.5	43.46

Tray package drawing

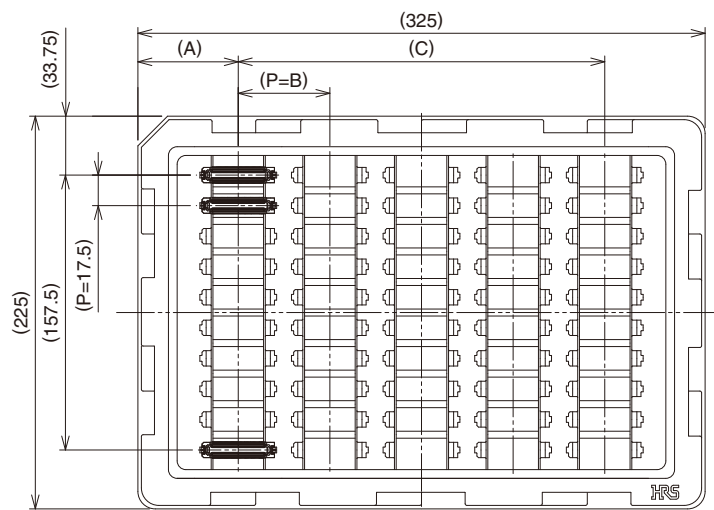
●Straight receptacle



Unit: mm

Part No.	Quantity	A	B	C
FX20-20S-0.5SV	90	42.5	30	240
FX20-20S-0.5SV10				
FX20-40S-0.5SV	80	40	35	245
FX20-40S-0.5SV10				
FX20-60S-0.5SV	70	50	37.5	225
FX20-60S-0.5SV10				
FX20-80S-0.5SV	60	50	45	225
FX20-80S-0.5SV10				
FX20-100S-0.5SV	60	47.5	46	230
FX20-100S-0.5SV10				
FX20-120S-0.5SV	50	57.5	52.5	210
FX20-120S-0.5SV10				
FX20-140S-0.5SV	50	51.5	55.5	222
FX20-140S-0.5SV10				

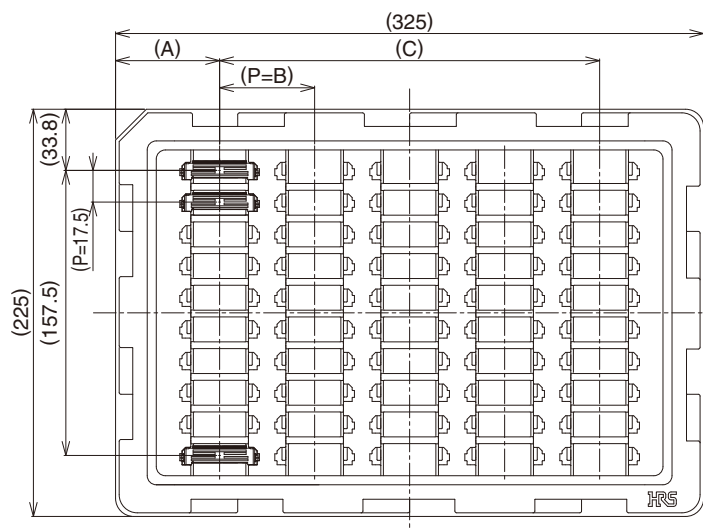
●Straight header



Unit: mm

Part No.	Quantity	A	B	C
FX20-20P-0.5SV15	90	42.5	30	240
FX20-20P-0.5SV20				
FX20-40P-0.5SV15	80	40	35	245
FX20-40P-0.5SV20				
FX20-60P-0.5SV15	70	50	37.5	225
FX20-60P-0.5SV20				
FX20-80P-0.5SV15	60	50	45	225
FX20-80P-0.5SV20				
FX20-100P-0.5SV15	60	47.5	46	230
FX20-100P-0.5SV20				
FX20-120P-0.5SV15	50	57.5	52.5	210
FX20-120P-0.5SV20				
FX20-140P-0.5SV15	50	51.5	55.5	222
FX20-140P-0.5SV20				

●Right angle receptacle

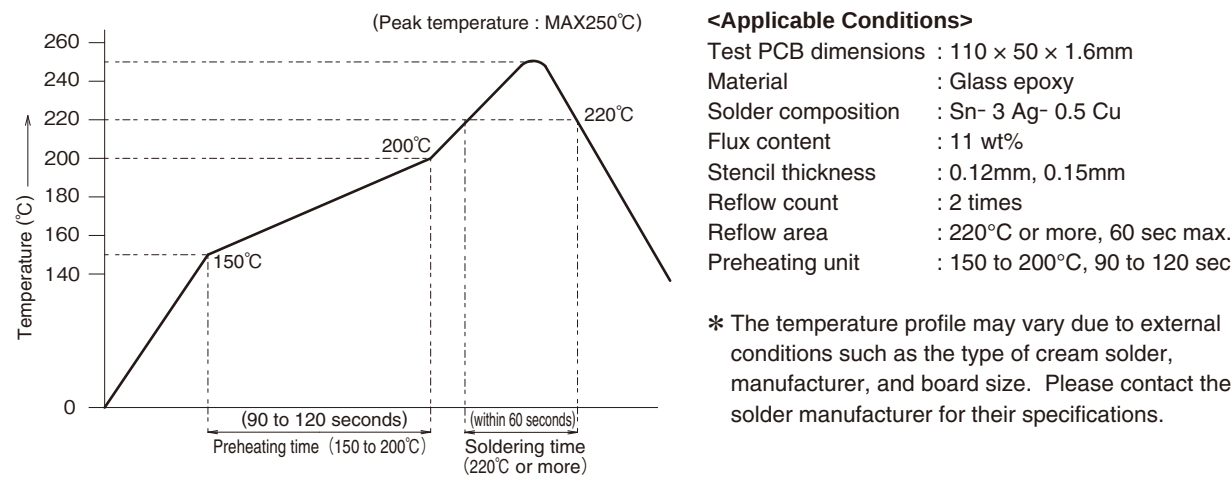


Unit: mm

Part No.	Quantity	A	B	C
FX20- 20S-0.5SH	90	42.5	30	240
FX20- 40S-0.5SH	80	40	35	245
FX20- 60S-0.5SH	70	50	37.5	225
FX20- 80S-0.5SH	60	50	45	225
FX20-100S-0.5SH	60	47.5	46	230
FX20-120S-0.5SH	50	57.5	52.5	210
FX20-140S-0.5SH	50	51.5	55.5	222

◆Recommended Solder

●This temperature profile is based on the setting conditions shown below and is for reference only. For individual applications, the temperature profile may vary in accordance with the conditions. Please confirm the profile before mounting.



◆Cleaning condition

●Organic solvent-based cleaning

Solvent type	Room temperature cleaning	Heated cleaning
IPA (Isopropyl alcohol)	○	○

●Water based cleaning

When using water based cleaning agents (including terpene, and alkali saponifiers), pay special attention to how the cleaning agent will react to specific metals and plastics before selecting one of them. Various cleaning agent manufacturers publish reaction tables for their cleaning agents. Do not leave connectors with moisture remaining on them.

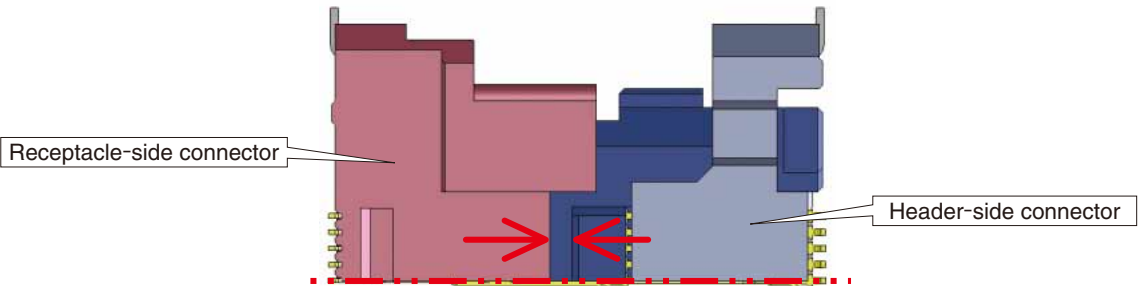
●Caution when washing

The electrical performance may deteriorate if the flux or cleaning detergent is left on the connector after the cleaning. Check thoroughly to ensure that there is no residue left on any of the surfaces.

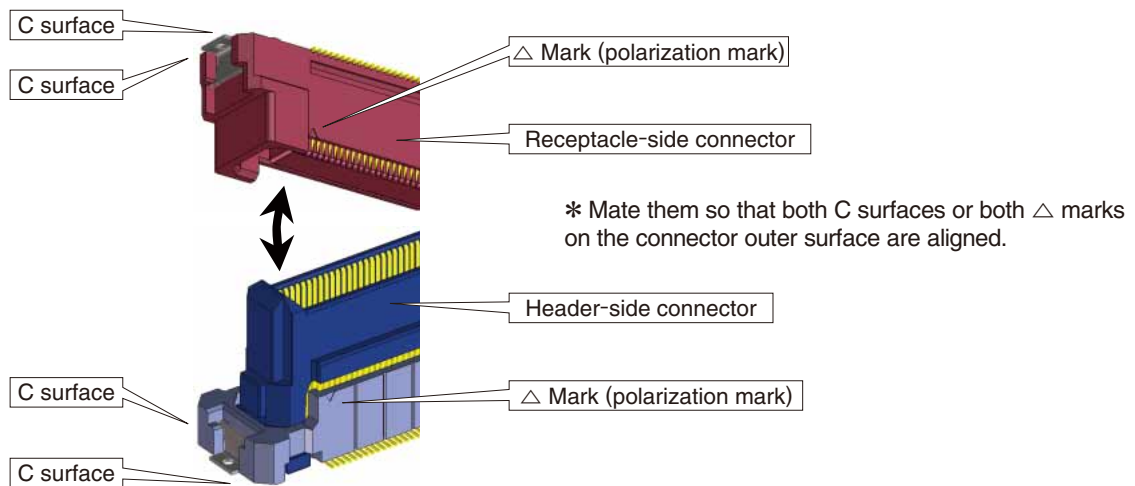
◆Precautions

●Tolerance clearance on mating

The effective contact length of each product is 1.5mm. In the mated condition, the header and receptacle shall have a clearance or gap between them of no more than 1mm.



- Using excessive force when mating these connectors may result in damage and alter their performance. Although they are designed with a prevention mechanism to resist incorrect insertion, do not forcibly mate them. Before mating the connector, confirm the connector polarity as shown below.

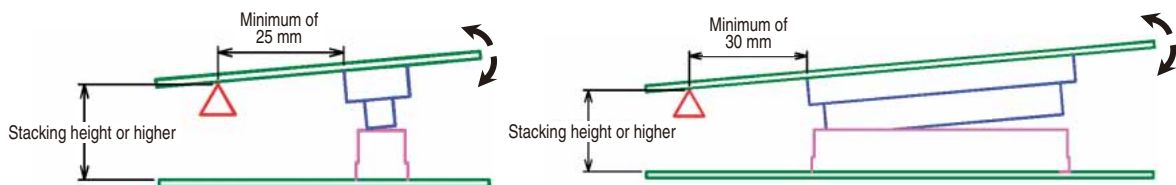


- Provide another form of support to the PCB. This connector was not designed to be the main form of support.
- Mating and un-mating with excessive prying force or rotating force may result in damage to the connector or contact failure.

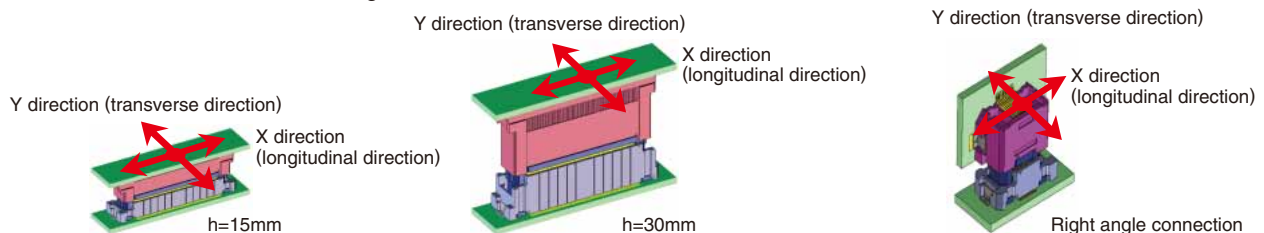


If you have no choice but to mate and un-mate with prying force based on your usage environment, use a point as a pivot shown by △ mark in the figure below when you apply those forces. The point shall be a certain distance away from the connector end and has equal or higher height of the mating height.

(Please refer to the guideline for details including the relationship between the pivot position and the connector position, and usage examples.)



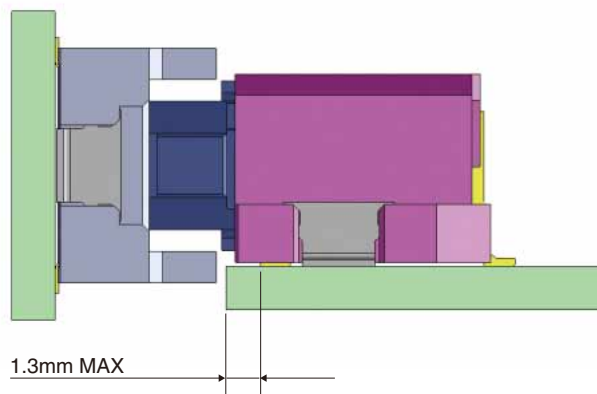
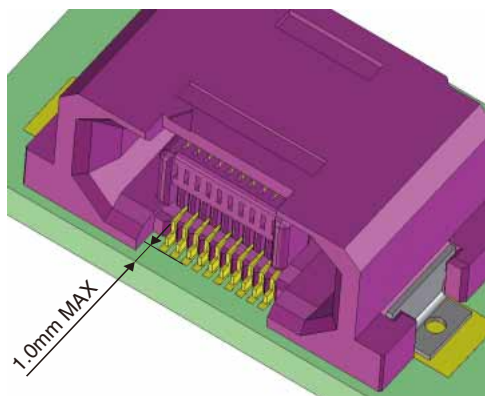
- This connector has a floating structure, but the floating range may vary depending on the height of connector on the header side (which has a floating mechanism).



Header-side	Receptacle-side	Stack height	Floating range	
			X direction (longitudinal direction)	Y direction (transverse direction)
FX20-**-P-0.5SV15	FX20-**-S-0.5SV	15mm	0.6mm	0.6mm
FX20-**-P-0.5SV20		20mm	0.8mm	0.6mm
FX20-**-P-0.5SV15	FX20-**-S-0.5SV10	25mm	0.6mm	0.6mm
FX20-**-P-0.5SV20		30mm	0.8mm	0.6mm
FX20-**-P-0.5SV15	FX20-**-S-0.5SH	—	0.6mm	0.6mm
FX20-**-P-0.5SV20		—	0.8mm	0.6mm

- If the right angle type connector is positioned too far back from the recommended connector mounting position, the straight type connector will make contact with the PCB, and these may lead to damaged product or abnormal connections.

The location of right angle type SMT pad should be set to within 1mm from the edge of the PCB, and the mounting position should be set so that the clearance from the head of the connector to the edge of the PCB is 1.3mm or less.



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