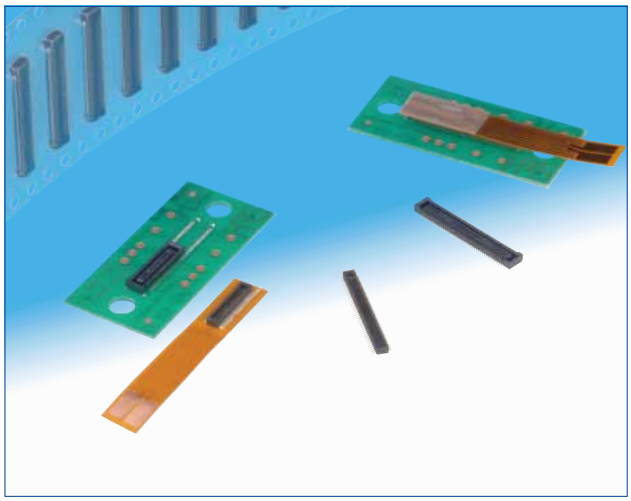
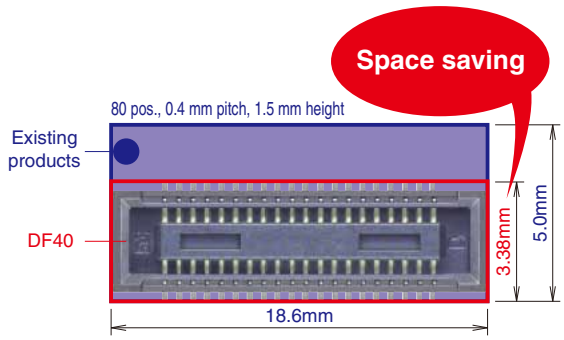
# 0.4mm Pitch, 1.5 to 4.0mm Height, Board-to-Board and Board-to-FPC Connectors

## DF40 Series

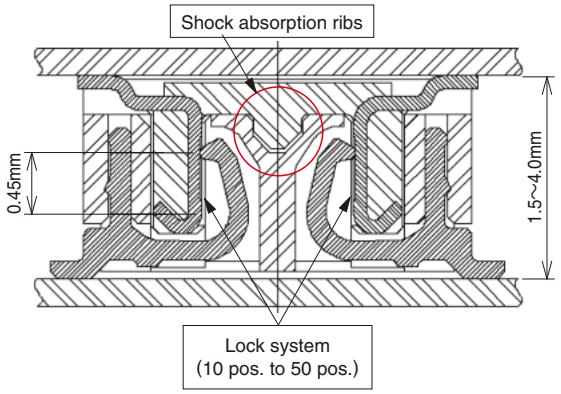
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### Space saving




### High contact reliability - effective mating length 0.45mm




## ■Features

### 1. High density mounting

Space saving design that has a minimum connector width, yet still retains a sufficient vacuum area for easy pick-and-place mounting
Minimum width : 3.38mm

### 2. Multiple stack height options

In addition to its space saving design, several stack heights are available and add versatility to any application. Stack heights : 1.5mm, 2.0mm, 2.5mm, 3.0mm, 3.5mm, and 4.0mm.

### 3. High contact reliability

Despite its small stature and low profile, the contacts deliver strong contact forces and an effective mating length of 0.45mm on the 1.5mm stacking height.
This connector utilizes a locking system that prevents accidental unmating issues and emits a clear tactile click to ensure that mating has been completed.

### 4. Excellent self-aligning range

The use of guide ribs allows 0.33mm of self-alignment on this connector.

### 5. Reinforced structure with shock absorbing ribs

Both sides of the connector have been reinforced with the addition of shock absorbing ribs.

### 6. Solder wicking prevention

Nickel-plated barriers were added to protect the contact areas from potential solder wicking.

### 7. Contamination resistant design

When mated, the connector's design covers the contacts which help to keep dust and other debris away from the contacts. The SMT leads are kept very close to the connector housing which also helps to prevent shorts caused by debris on the exposed contacts.

### 8. RoHS compliant

Environment friendly and does not use RoHS specified prohibited materials.
All materials and substances used to produce these parts comply with the RoHS standards.

### 9. High speed signal with noise prevention

The shielded type can support high speed signal transmissions with noise prevention.

### Stacking height variations

Standard type

| Stacking height | | 1.5 mm | 2.0 mm | 2.5 mm | 3.0 mm | 3.5 mm | 4.0 mm |
|---|---|---|---|---|---|---|---|
| No. of Contacts | 10 | ○ | – | ○ | – | – | – |
| | 12 | ○ | ○ | – | – | – | – |
| | 20 | ○ | ○ | ○ | – | ○ | – |
| | 24 | ○ | ○ | – | – | – | – |
| | 30 | ○ | ○ | ○ | ○ | ○ | – |
| | 34 | ○ | – | – | – | – | – |
| | 40 | ○ | ○ | ○ | ○ | ○ | – |
| | 44 | – | ○ | – | ○ | – | – |
| | 50 | ○ | ○ | ○ | ○ | ○ | ○ |
| | 60 | ○ | ○ | ○ | ○ | ○ | ○ |
| | 70 | ○ | ○ | – | ○ | – | – |
| | 80 | ○ | ○ | – | ○ | ○ | ○ |
| | 90 | ○ | – | – | ○ | – | ○ |
| | 100 | ○ | – | – | ○ | – | – |

Shielded type

| Stacking height | | 1.5 mm | 3.0 mm |
|---|---|---|---|
| No. of Contacts | 30 | ○ | – |
| | 48 | ○ | ○ |
| | 70 | – | ○ |

## ■Product Specifications

| | | | |
|---|---|---|---|
| Ratings | Rated Current 0.3A<br>Rated Voltage AC, DC 30V | Operating Temperature Range<br>-35 to +85℃ (Note 1)<br>Operating Humidity Range<br>20 to 80% | Storage Temperature Range<br>-10 to +60℃ (Note 2)<br>Storage Humidity Range<br>40 to 70% (Note 2) |

| Items | Specifications | Conditions |
|---|---|---|
| 1. Insulation Resistance | 50MΩ min | Measured with DC 100V |
| 2. Withstanding Voltage | No flashover or breakdown | Apply AC 100V for 1 minute |
| 3. Contact Resistance | 90mΩ max | Measured with AC 20mV, 1 kHz and 1mA |
| 4. Vibration Resistance | No electrical discontinuity of 1μs or greater | Frequency 10-55 Hz, half amplitude 0.75mm, 3 directions for 2 hours |
| 5. Humidity Resistance | Contact resistance : 90mΩ max<br>Insulation resistance : 25mΩ min | Left at temperature 40 ± 2℃, humidity 90 to 95%, 96 hours |
| 6. Temperature Cycles | Contact resistance : 90mΩ max<br>Insulation resistance : 50mΩ min | (-55℃ : 30 minutes → 5~35℃ : 10 minutes → 85℃ : 30 minutes → 5~35℃ : 10 minutes) 5 cycles |
| 7. Durability | Contact resistance : 90mΩ max | 30 mating cycles |
| 8. Soldering Heat Resistance | Should be no melting of resin parts that affects its performance | Reflow : according to the Recommended Temperature Profile<br>Hand solder : Soldering iron temperature 350℃, no more than 3 seconds. |

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. The operating temperature and humidity range covers the non-energized condition of connectors after board mounting and the temporary storage conditions during transportation, etc.

## ■Materials (Standard, non shielded type) / Finish

| Product | Component | Materials | Finish | UL Regulation |
|---|---|---|---|---|
| Receptacle | Insulator | LCP | Black | UL94V-0 |
| | Contact | Phosphor bronze | Gold plating | ———— |
| Header | Insulator | LCP | Black | UL94V-0 |
| | Contact | Phosphor bronze | Gold plating | ———— |

## ■Materials (Shielded type) / Finish

| Product | Component | Materials | Finish | UL Regulation |
|---|---|---|---|---|
| Receptacle | Insulator | LCP | Black | UL94V-0 |
| | Contact | Phosphor bronze | Gold plating | ———— |
| | Shield plate | | | ———— |
| Header | Insulator | LCP | Black | UL94V-0 |
| | Contact | Phosphor bronze | Gold plating | ———— |
| | Reinforcing metal fitting | | | ———— |

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## ■Product Number Structure (Standard, non-shielded type)

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

### ●Receptacle

DF40 # – (**) – * DS – 0.4 V (**)
❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽

| | | |
|---|---|---|
| ❶ Series Name: DF40 | ❸ Stacking height | ❹ No. of Contacts |
| ❷ Style<br>B : With reinforcing metal fitting<br>HB : With reinforcing metal fitting<br>(The H denotes a stacking height 2.5mm or above)<br>C : Without reinforcing metal fitting<br>HC : Without reinforcing metal fitting<br>(The H denotes a stacking height 2.5mm or above) | | ❺ Connector Type<br>DS : Double row receptacle<br>❻ Contact Pitch : 0.4mm<br>❼ Mating direction Shape V : Vertical SMT<br>❽ Packaging Type<br>(51) Embossed tape packaging |

| Display | 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 |

### ●Header

DF40 # – * DP – 0.4 V (**)
❶ ❷ ❸ ❹ ❺ ❻ ❼

| | | |
|---|---|---|
| ❶ Series Name : DF40 | ❸ No. of Contacts | ❺ Contact Pitch : 0.4mm |
| ❷ Style<br>C : Without reinforcing metal fitting | ❹ Connector Type<br>DP : Double row pin header | ❻ Mating direction V : Vertical SMT<br>❼ Packaging Type<br>(51) Embossed tape packaging |

## ■Shielded type

### ●Receptacle

DF40 GB – (**) – * DS – 0.4 V (**)
❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽

| | | |
|---|---|---|
| ❶ Series Name : DF40 | ❸ Stacking height | ❺ Connector Type<br>DS : Double row receptacle |
| ❷ Style<br>GB : With shield | | ❻ Contact Pitch : 0.4mm<br>❼ Mating direction V : Vertical SMT |
| | ❹ No. of Contacts | ❽ Packaging Type<br>(51) Embossed tape packaging |

| Display | Stacking height |
|---|---|
| 1.5 | 1.5mm |
| 3.0 | 3.0mm |

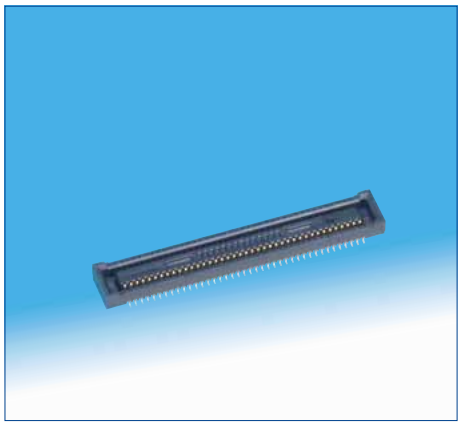
### ●Header

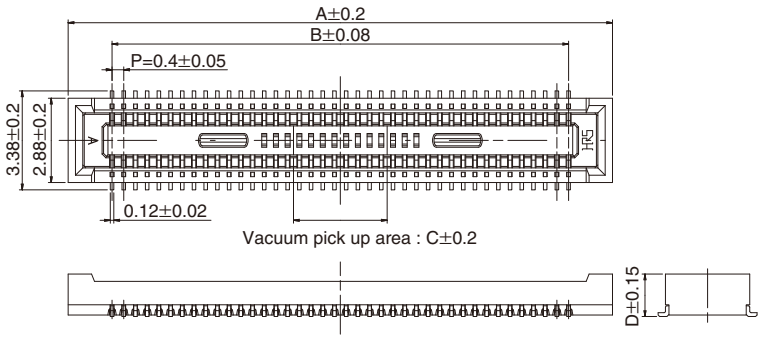
DF40 GB – * DP – 0.4 V (**)
❶ ❷ ❸ ❹ ❺ ❻ ❼

| | | |
|---|---|---|
| ❶ Series Name : DF40 | ❸ No. of Contacts | ❺ Contact Pitch : 0.4mm |
| ❷ Style<br>GB : With reinforcing metal fitting<br>(For use with shielded product ) | ❹ Connector Type<br>DP : Double row pin header | ❻ Mating direction V : Vertical SMT<br>❼ Packaging Type<br>(51) Embossed tape packaging |

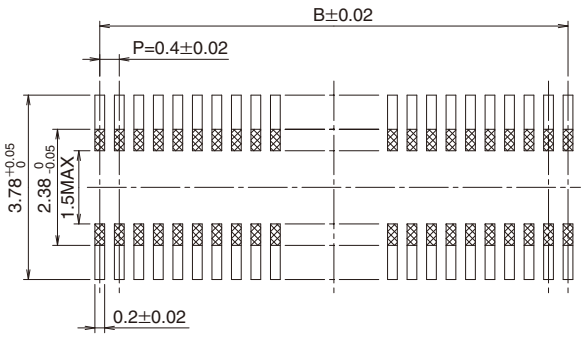
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## ■Receptacle (Stacking height 1.5mm)

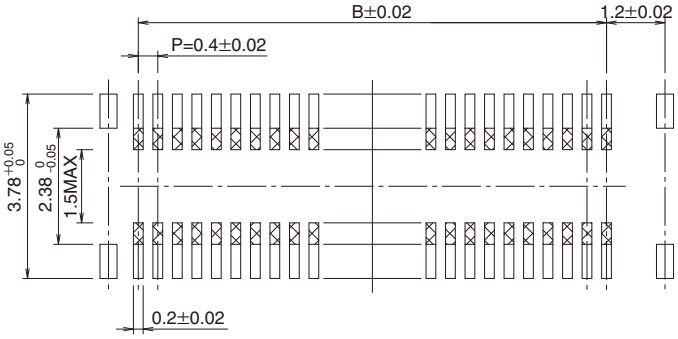





## ◆Recommended PCB layout




DF40C(Without reinforcing metal fitting)




DF40B(With reinforcing metal fitting)

## ■Stacking height 1.5mm

【Specification No.】
(51) : Embossed package 5,000 pcs/reel

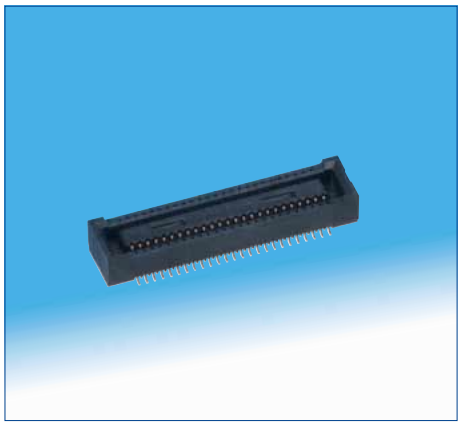
Unit : mm

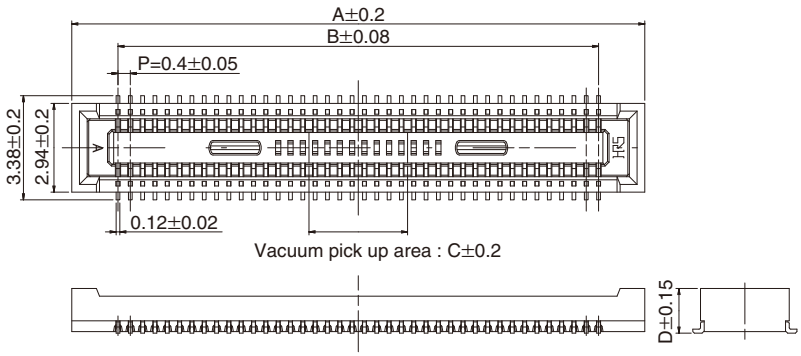
| Part No. | HRS No. | No. of Contacts | A | B | C | D |
|---|---|---|---|---|---|---|
| DF40B-10DS-0.4V(51) | 684-4038-8 51 | 10 | 4.6 | 1.6 | 1.0 | 1.45 |
| DF40B-12DS-0.4V(51) | 684-4152-3 51 | 12 | 5.0 | 2.0 | | |
| DF40B-30DS-0.4V(51) | 684-4090-8 51 | 30 | 8.6 | 5.6 | 1.5 | |
| DF40B-50DS-0.4V(51) | 684-4018-0 51 | 50 | 12.6 | 9.6 | 3.2 | |
| DF40B-60DS-0.4V(51) | 684-4049-4 51 | 60 | 14.6 | 11.6 | | |
| DF40B-80DS-0.4V(51) | 684-4052-9 51 | 80 | 18.6 | 15.6 | | |
| DF40C-20DS-0.4V(51) | 684-4005-9 51 | 20 | 6.6 | 3.6 | 1.0 | |
| DF40C-24DS-0.4V(51) | 684-4006-1 51 | 24 | 7.4 | 4.4 | 1.2 | |
| DF40C-30DS-0.4V(51) | 684-4007-4 51 | 30 | 8.6 | 5.6 | 1.5 | |
| DF40C-34DS-0.4V(51) | 684-4023-0 51 | 34 | 9.4 | 6.4 | 2.3 | |
| DF40C-40DS-0.4V(51) | 684-4008-7 51 | 40 | 10.6 | 7.6 | 3.2 | |
| DF40C-50DS-0.4V(51) | 684-4009-0 51 | 50 | 12.6 | 9.6 | | |
| DF40C-60DS-0.4V(51) | 684-4004-6 51 | 60 | 14.6 | 11.6 | | |
| DF40C-70DS-0.4V(51) | 684-4016-5 51 | 70 | 16.6 | 13.6 | | |
| DF40C-80DS-0.4V(51) | 684-4002-0 51 | 80 | 18.6 | 15.6 | | |
| DF40C-90DS-0.4V(51) | 684-4124-8 51 | 90 | 20.6 | 17.6 | | |
| DF40C-100DS-0.4V(51) | 684-4033-4 51 | 100 | 22.6 | 19.6 | | |

Note 1 : Please place orders by full reel.
Note 2 : The surface of the 60 to 100 pos. parts have a small, concave section that will not affect the vacuum pick up operation.
Note 3 : ▨ Resist coating area.
Note 4 : This connector is NOT polarized.

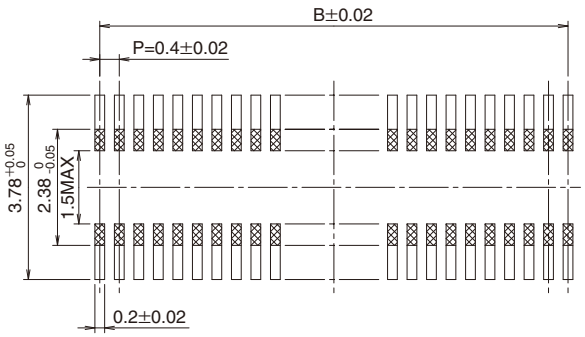
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## ■Receptacle (Stacking height 2.0mm)

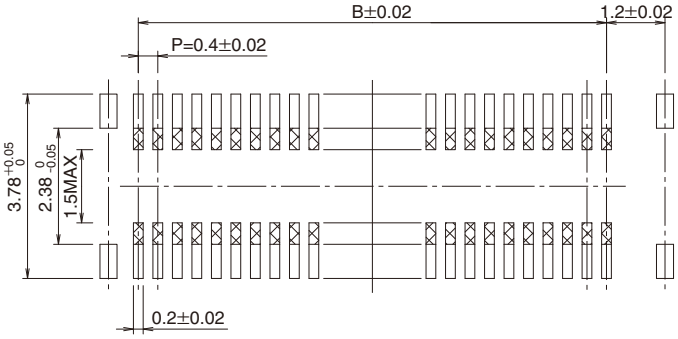





## ◆Recommended PCB layout




DF40C(Without reinforcing metal fitting)




DF40B(With reinforcing metal fitting)

## ■Stacking height 2.0mm

【Specification No.】
(51) : Embossed package 4,000 pcs/reel

Unit : mm

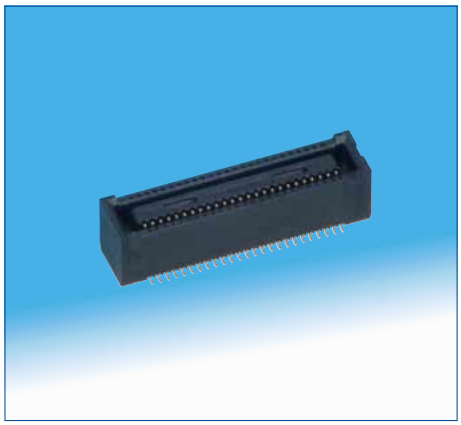
| Part No. | HRS No. | No. of Contacts | A | B | C | D |
|---|---|---|---|---|---|---|
| DF40B(2.0)-12DS-0.4V(51) | 684-4150-8 51 | 12 | 5.0 | 2.0 | 1.0 | 1.95 |
| DF40B(2.0)-80DS-0.4V(51) | 684-4128-9 51 | 80 | 18.6 | 15.6 | 3.2 | |
| DF40C(2.0)-20DS-0.4V(51) | 684-4040-0 51 | 20 | 6.6 | 3.6 | 1.0 | |
| DF40C(2.0)-24DS-0.4V(51) | 684-4021-2 51 | 24 | 7.4 | 4.4 | 1.2 | |
| DF40C(2.0)-30DS-0.4V(51) | 684-4058-5 51 | 30 | 8.6 | 5.6 | 1.5 | |
| DF40C(2.0)-40DS-0.4V(51) | 684-4042-5 51 | 40 | 10.6 | 7.6 | 3.2 | |
| DF40C(2.0)-50DS-0.4V(51) | 684-4091-0 51 | 50 | 12.6 | 9.6 | | |
| DF40C(2.0)-60DS-0.4V(51) | 684-4034-7 51 | 60 | 14.6 | 11.6 | | |
| DF40C(2.0)-70DS-0.4V(51) | 684-4147-3 51 | 70 | 16.6 | 13.6 | | |
| DF40C(2.0)-80DS-0.4V(51) | 684-4132-6 51 | 80 | 18.6 | 15.6 | | |

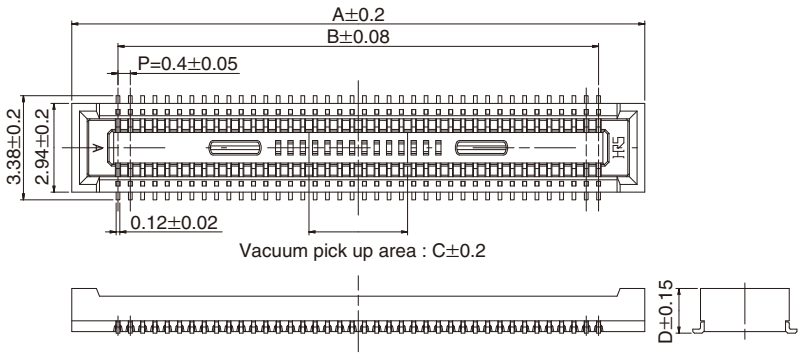
Note 1 : Please place orders by full reel.
Note 2 : The surface of the 60 to 100 pos. parts have a small, concave section that will not affect the vacuum pick up operation.
Note 3 : ▨ Resist coating area.
Note 4 : This connector is NOT polarized.

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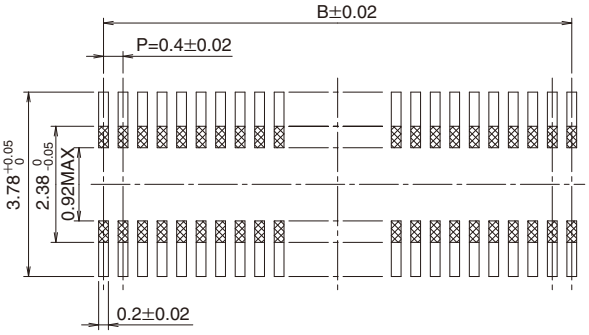
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## ■Receptacle (Stacking height 2.5mm to 4.0mm)

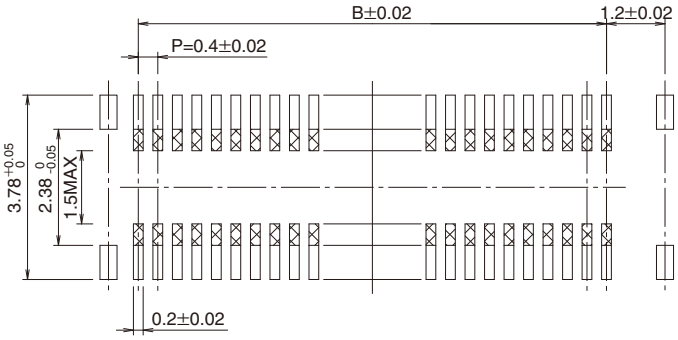





## ◆Recommended PCB layout




DF40HC(Without reinforcing metal fitting)




DF40HB(With reinforcing metal fitting)

## ■Stacking height 2.5mm

【Specification No.】
(51) : Embossed package 3,000 pcs/reel

Unit : mm

| Part No. | HRS No. | No. of Contacts | A | B | C | D |
|---|---|---|---|---|---|---|
| DF40HB(2.5)-10DS-0.4V(51) | 684-4189-3 51 | 10 | 4.6 | 1.6 | 1.0 | 2.4 |
| DF40HC(2.5)-20DS-0.4V(51) | 684-4126-3 51 | 20 | 6.6 | 3.6 | | |
| DF40HC(2.5)-40DS-0.4V(51) | 684-4112-9 51 | 40 | 10.6 | 7.6 | 3.2 | |
| DF40HC(2.5)-50DS-0.4V(51) | 684-4101-2 51 | 50 | 12.6 | 9.6 | | |
| DF40HC(2.5)-60DS-0.4V(51) | 684-4085-8 51 | 60 | 14.6 | 11.6 | | |

## ■Stacking height 3.0mm

【Specification No.】
(51) : Embossed package 3,000 pcs/reel

Unit : mm

| Part No. | HRS No. | No. of Contacts | A | B | C | D |
|---|---|---|---|---|---|---|
| DF40HC(3.0)-30DS-0.4V(51) | 684-4098-0 51 | 30 | 8.6 | 5.6 | 1.5 | 2.9 |
| DF40HC(3.0)-40DS-0.4V(51) | 684-4169-6 51 | 40 | 10.6 | 7.6 | 3.2 | |
| DF40HC(3.0)-44DS-0.4V(51) | 684-4076-7 51 | 44 | 11.4 | 8.4 | | |
| DF40HC(3.0)-50DS-0.4V(51) | 684-4099-2 51 | 50 | 12.6 | 9.6 | | |
| DF40HC(3.0)-60DS-0.4V(51) | 684-4100-0 51 | 60 | 14.6 | 11.6 | | |
| DF40HC(3.0)-70DS-0.4V(51) | 684-4138-2 51 | 70 | 16.6 | 13.6 | | |
| DF40HC(3.0)-80DS-0.4V(51) | 684-4180-9 51 | 80 | 18.6 | 15.6 | | |
| DF40HC(3.0)-90DS-0.4V(51) | 684-4161-4 51 | 90 | 20.6 | 17.6 | | |
| DF40HC(3.0)-100DS-0.4V(51) | 684-4151-0 51 | 100 | 22.6 | 19.6 | | |

Note 1 : Please place orders by full reel.
Note 2 : The surface of the 60 to 100 pos. parts have a small, concave section that will not affect the vacuum pick up operation.
Note 3 : ▨ Resist coating area.
Note 4 : This connector is NOT polarized.

## ■Stacking height 3.5mm

【Specification No.】
(51) : Embossed package 2,000 pcs/reel

Unit : mm

| Part No. | HRS No. | No. of Contacts | A | B | C | D |
|---|---|---|---|---|---|---|
| DF40HC(3.5)-20DS-0.4V(51) | 684-4188-0 51 | 20 | 6.6 | 3.6 | 1.0 | 3.4 |
| DF40HC(3.5)-30DS-0.4V(51) | 684-4136-7 51 | 30 | 8.6 | 5.6 | 1.5 | |
| DF40HC(3.5)-40DS-0.4V(51) | 684-4209-9 51 | 40 | 10.6 | 7.6 | 3.2 | |
| DF40HC(3.5)-50DS-0.4V(51) | 684-4109-4 51 | 50 | 12.6 | 9.6 | | |
| DF40HC(3.5)-60DS-0.4V(51) | 684-4102-5 51 | 60 | 14.6 | 11.6 | | |
| DF40HC(3.5)-80DS-0.4V(51) | 684-4162-7 51 | 80 | 18.6 | 15.6 | | |

## ■Stacking height 4.0mm

【Specification No.】
(51) : Embossed package 2,000 pcs/reel

Unit : mm

| Part No. | HRS No. | No. of Contacts | A | B | C | D |
|---|---|---|---|---|---|---|
| DF40HB(4.0)-50DS-0.4V(51) | 684-4104-0 51 | 50 | 12.6 | 9.6 | 3.2 | 3.9 |
| DF40HC(4.0)-50DS-0.4V(51) | 684-4215-1 51 | 50 | 12.6 | | | |
| DF40HC(4.0)-60DS-0.4V(51) | 684-4133-9 51 | 60 | 14.6 | 11.6 | | |
| DF40HC(4.0)-80DS-0.4V(51) | 684-4140-4 51 | 80 | 18.6 | 15.6 | | |
| DF40HC(4.0)-90DS-0.4V(51) | 684-4165-5 51 | 90 | 20.6 | 17.6 | | |

Note 1 : Please place orders by full reel.
Note 2 : The surface of the 60 to 100 pos. parts have a small, concave section that will not affect the vacuum pick up operation.
Note 3 : ▨ Resist coating area.
Note 4 : This connector is NOT polarized.

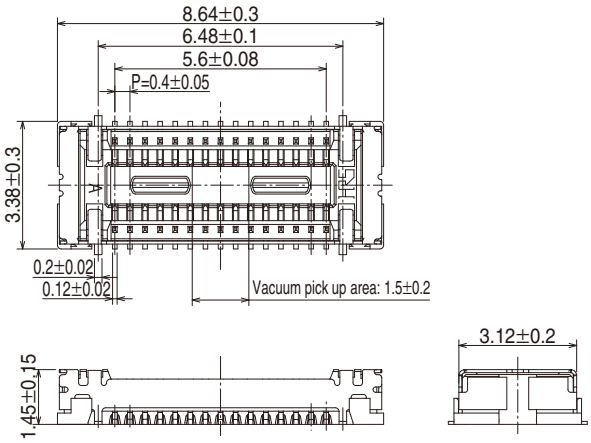
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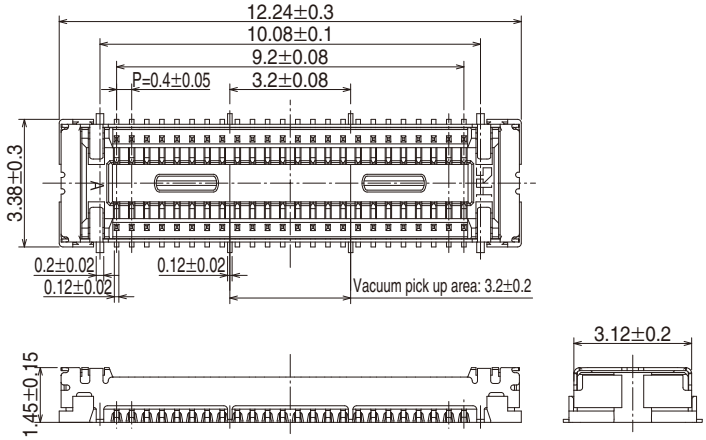
# ■Receptacle (Stacking height 1.5mm, with shield)



**< 30 contact >**

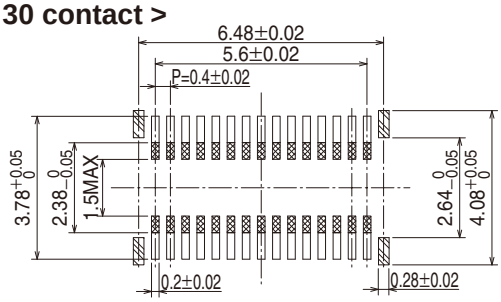



**< 48 contact >**

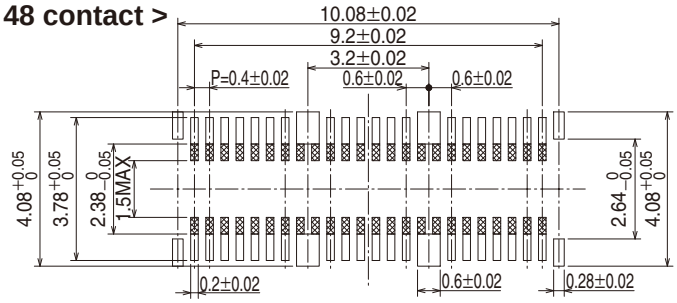



# ◆Recommended PCB layout

**< 30 contact >**




**< 48 contact >**




# ■Stacking height 1.5mm

【Specification No.】
(51) : Embossed package 5,000 pcs/reel

Unit : mm

| Part No. | HRS No. | No. of Contacts | Signal contact | Ground contact |
|---|---|---|---|---|
| DF40GB(1.5)-30DS-0.4V(51) | 684-4198-4 51 | 30 | 30 | 4 |
| DF40GB(1.5)-48DS-0.4V(51) | 684-4194-3 51 | 48 | 40 | 12 |

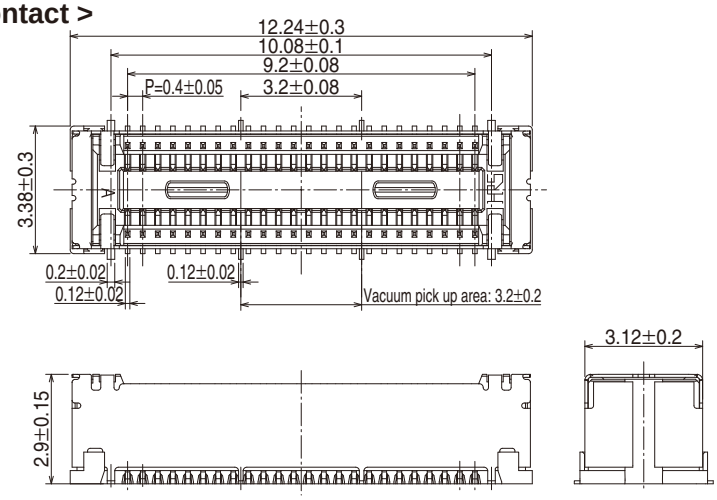
Note 1 : Please place orders by full reel.
Note 2 : ▨ Resist coating area.
Note 3 : This connector is NOT polarized.

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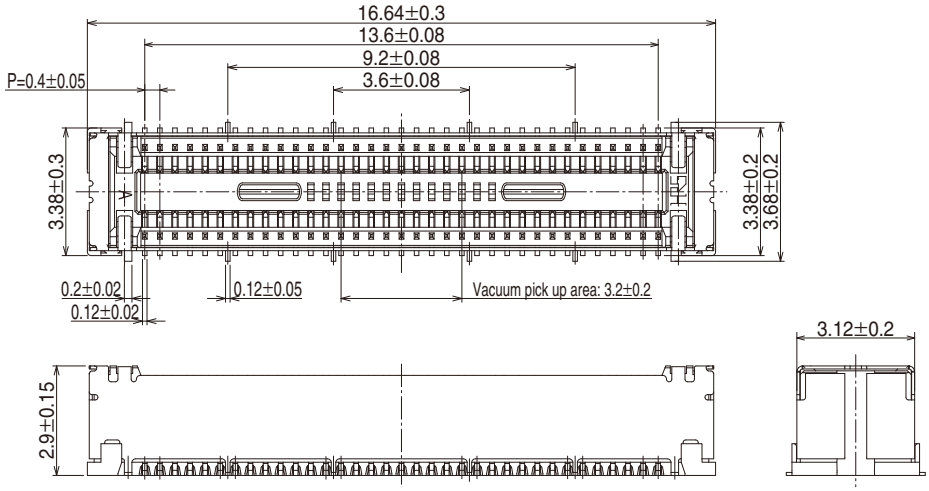
## ■Receptacle (Stacking height 3.0mm, with shield)



**< 48 contact >**

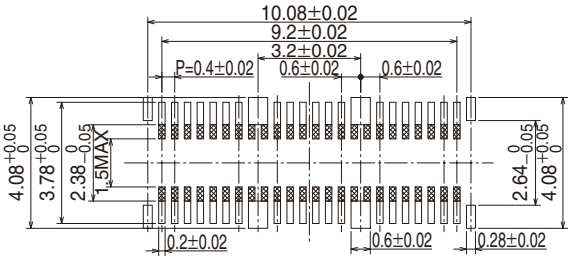



**< 70 contact >**

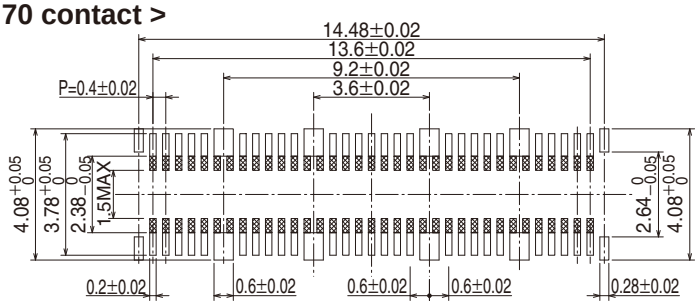



## ◆Recommended PCB layout

**< 48 contact >**




**< 70 contact >**




## ■Stacking height 3.0mm

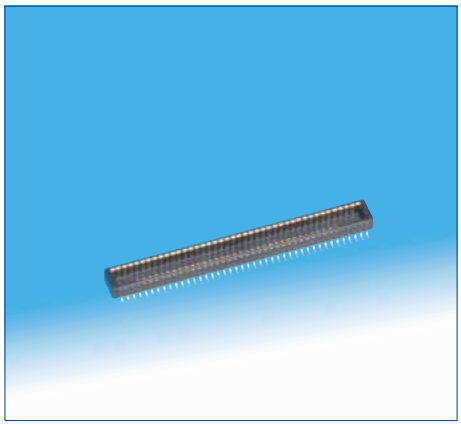
【Specification No.】
(51) : Embossed package 3,000 pcs/reel

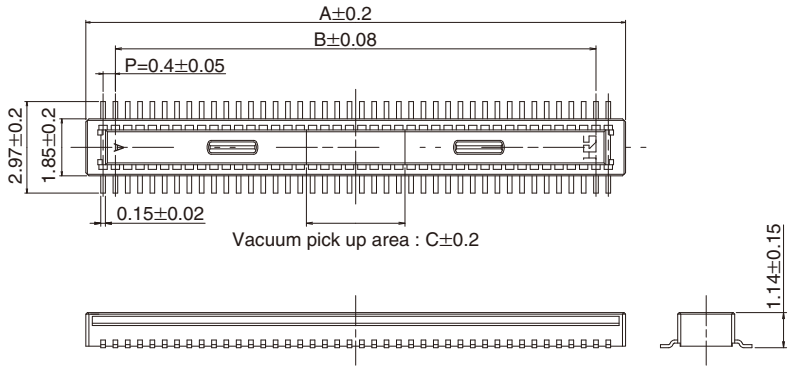
Unit : mm

| Part No. | HRS No. | No. of Contacts | Signal contact | Ground contact |
|---|---|---|---|---|
| DF40GB(3.0)-48DS-0.4V(51) | 684-4197-1 51 | 48 | 40 | 12 |
| DF40GB(3.0)-70DS-0.4V(51) | 684-4196-9 51 | 70 | 54 | 20 |

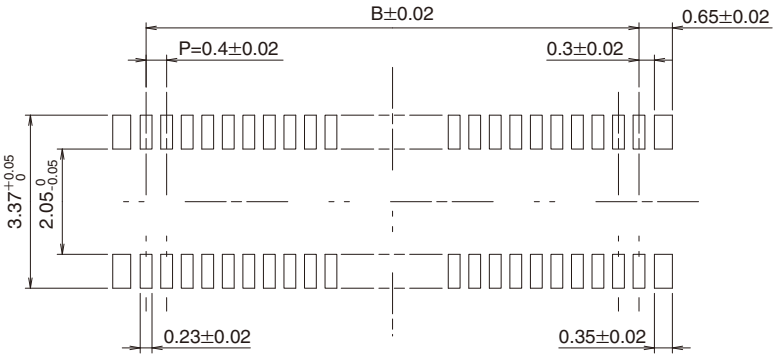
Note 1 : Please place orders by full reel.
Note 2 : The surface of the 70 pos. part have a small, concave section that will not affect the vacuum pick up operation.
Note 3 : ▨ Resist coating area.
Note 4 : This connector is NOT polarized.

## ■Header






## ◆Recommended PCB layout



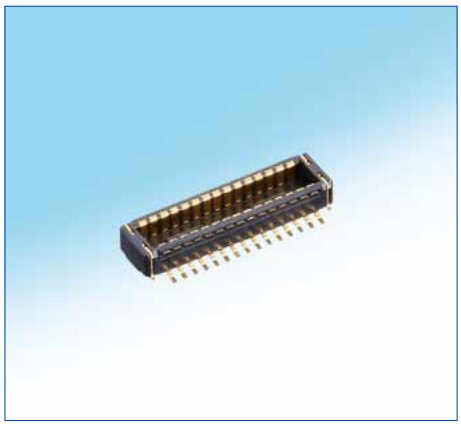

Unit : mm

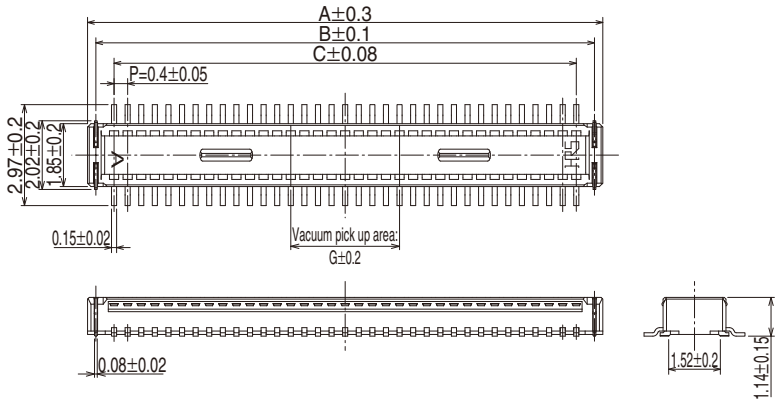
| Part No. | HRS No. | No. of Contacts | A | B | C |
|---|---|---|---|---|---|
| DF40C-10DP-0.4V(51) | 684-4035-0 51 | 10 | 3.52 | 1.6 | 1.0 |
| DF40C-12DP-0.4V(51) | 684-4149-9 51 | 12 | 3.92 | 2.0 | |
| DF40C-20DP-0.4V(51) | 684-4010-9 51 | 20 | 5.52 | 3.6 | |
| DF40C-24DP-0.4V(51) | 684-4011-1 51 | 24 | 6.32 | 4.4 | 1.2 |
| DF40C-30DP-0.4V(51) | 684-4012-4 51 | 30 | 7.52 | 5.6 | 1.5 |
| DF40C-34DP-0.4V(51) | 684-4024-3 51 | 34 | 8.32 | 6.4 | 2.3 |
| DF40C-40DP-0.4V(51) | 684-4013-7 51 | 40 | 9.52 | 7.6 | 3.2 |
| DF40C-44DP-0.4V(51) | 684-4077-0 51 | 44 | 10.32 | 8.4 | |
| DF40C-50DP-0.4V(51) | 684-4014-0 51 | 50 | 11.52 | 9.6 | |
| DF40C-60DP-0.4V(51) | 684-4003-3 51 | 60 | 13.52 | 11.6 | |
| DF40C-70DP-0.4V(51) | 684-4015-2 51 | 70 | 15.52 | 13.6 | |
| DF40C-80DP-0.4V(51) | 684-4001-8 51 | 80 | 17.52 | 15.6 | |
| DF40C-90DP-0.4V(51) | 684-4125-0 51 | 90 | 19.52 | 17.6 | |
| DF40C-100DP-0.4V(51) | 684-4032-1 51 | 100 | 21.52 | 19.6 | |

Note 1 : Please place orders by full reel.
Note 2 : There are no concave parts on the header side contact part to increase the mating strength for 60 pos. or above.
Note 3 : Use the contacts at the four corners as metal fittings. Do not use them as signal or power contacts.
Note 4 : The surface of the 90 pos and higher parts have a small, concave section that will not affect the vacuum pick up operation.
Note 5 : This connector is NOT polarized.

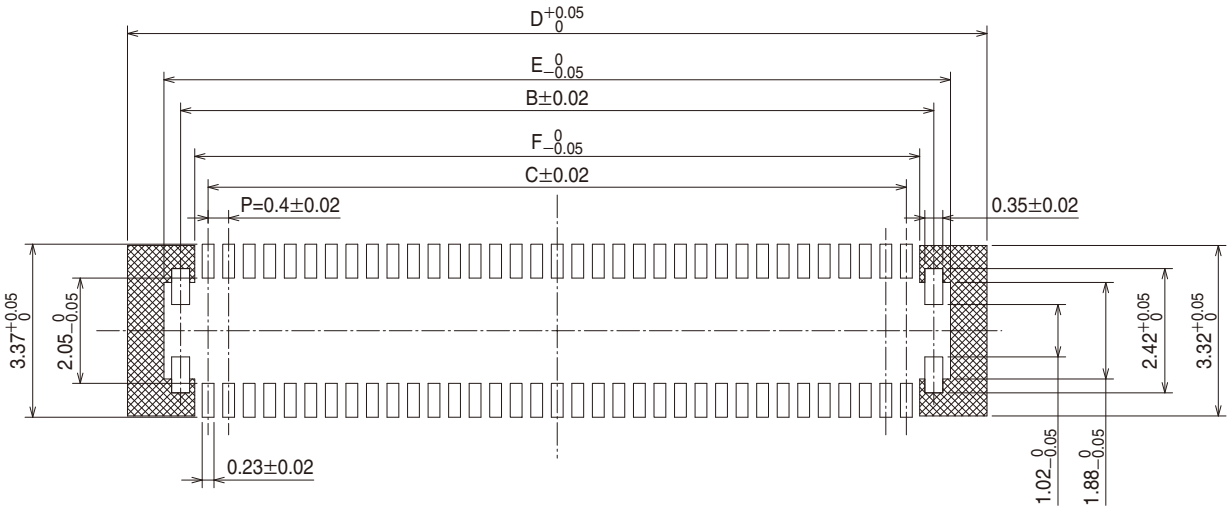
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## ■Header (For use with shielded product)






## ◆Recommended PCB layout




Unit : mm

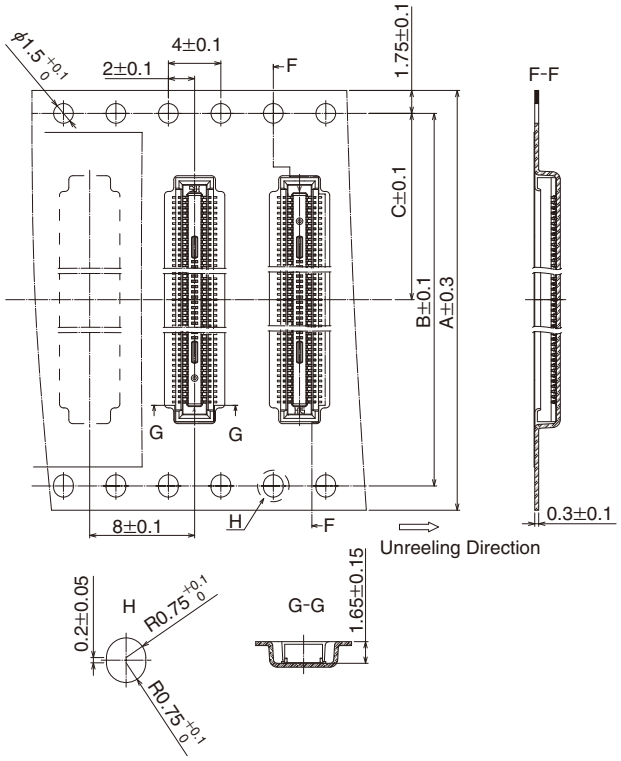
| Part No. | HRS No. | No. of Contacts | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|---|---|
| DF40GB-30DP-0.4V(51) | 684-4200-4 51 | 30 | 7.16 | 6.67 | 5.6 | 8.74 | 7.32 | 6.12 | 1.5 |
| DF40GB-48DP-0.4V(51) | 684-4195-6 51 | 48 | 10.76 | 10.27 | 9.2 | 12.34 | 10.92 | 9.72 | 3.2 |
| DF40GB-70DP-0.4V(51) | 684-4199-7 51 | 70 | 15.16 | 14.67 | 13.6 | 16.74 | 15.32 | 14.12 | 3.2 |

Note 1 : Please place orders by full reel.
Note 2 : There are no concave parts of header side contact part to increase the mating strength for 60 pos. or above.
Note 3 : ▨ Resist coating area.
Note 4 : This connector is NOT polarized.

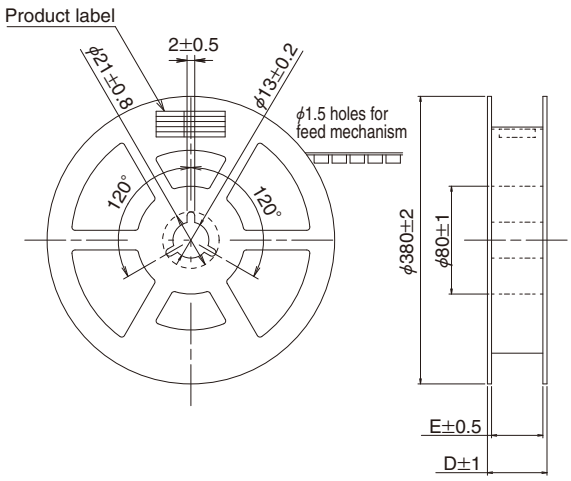
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# ◆Embossed Carrier Tape Dimensions (JIS C 0806 compliant)

## ●Receptacle (Stacking height 1.5mm)




## ●Reel Condition Dimensions




# ■Stacking height 1.5mm

Unit : mm

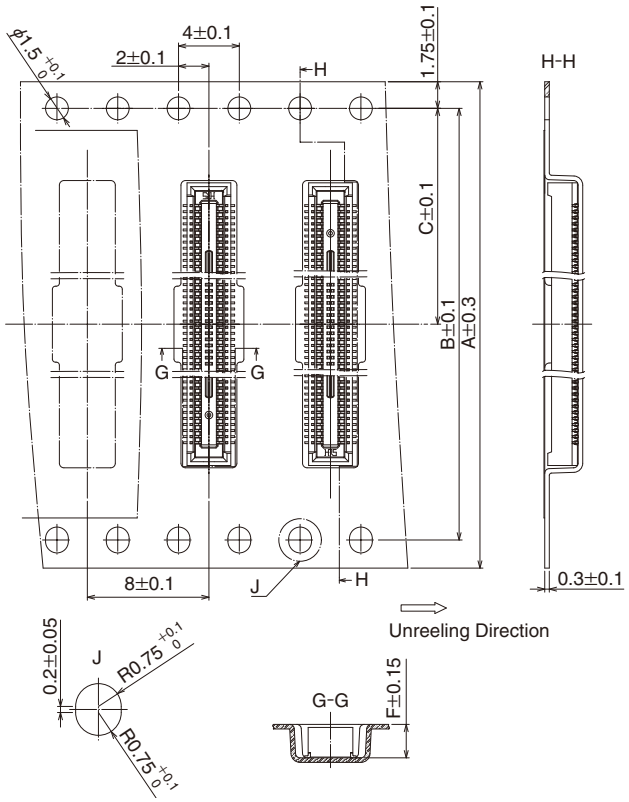
| Part No. | A | B | C | D | E |
|---|---|---|---|---|---|
| DF40#-10DS-0.4V(51) | 16 | — | 7.5 | 21.5 | 17.5 |
| DF40#-12DS-0.4V(51) | | — | | | |
| DF40#-20DS-0.4V(51) | | — | | | |
| DF40#-24DS-0.4V(51) | | — | | | |
| DF40#-30DS-0.4V(51) | 24 | — | 11.5 | 29.5 | 25.5 |
| DF40#-34DS-0.4V(51) | | — | | | |
| DF40#-40DS-0.4V(51) | | — | | | |
| DF40#-50DS-0.4V(51) | | — | | | |
| DF40#-60DS-0.4V(51) | | — | | | |
| DF40#-70DS-0.4V(51) | 32 | 28.4 | 14.2 | 37.5 | 33.5 |
| DF40#-80DS-0.4V(51) | | | | | |
| DF40#-90DS-0.4V(51) | 44 | 40.4 | 20.2 | 49.5 | 45.5 |
| DF40#-100DS-0.4V(51) | | | | | |
| DF40GB(1.5)-30DS-0.4V(51) | 24 | — | 11.5 | 29.5 | 25.5 |
| DF40GB(1.5)-48DS-0.4V(51) | | — | | | |

Note 1 : For 10 to 60 contact position parts, the carrier tape only has one row of holes. The carrier for parts with 70 contacts and above has two rows of holes.

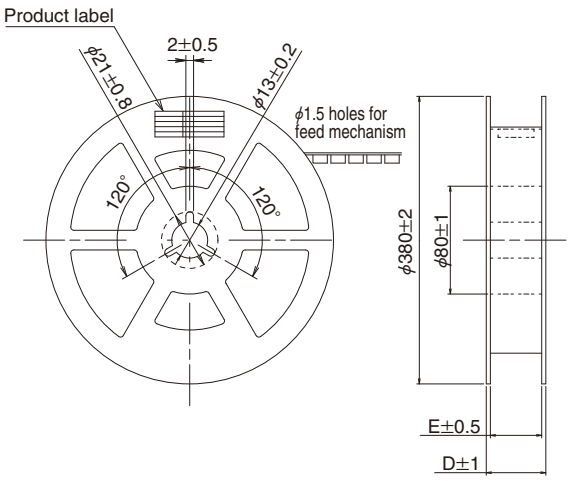
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# ◆Embossed Carrier Tape Dimensions (JIS C 0806 compliant)

●Receptacle (Stacking height 2.0mm to 2.5mm)




●Reel Dimensions




## ■Stacking height 2.0mm

Unit : mm

| Part No. | A | B | C | D | E | F |
|---|---|---|---|---|---|---|
| DF40#(2.0)-12DS-0.4V(51) | 16 | — | 7.5 | 21.5 | 17.5 | 2.2 |
| DF40#(2.0)-20DS-0.4V(51) | | — | | | | |
| DF40#(2.0)-24DS-0.4V(51) | | — | | | | |
| DF40#(2.0)-30DS-0.4V(51) | 24 | — | 11.5 | 29.5 | 25.5 | |
| DF40#(2.0)-40DS-0.4V(51) | | — | | | | |
| DF40#(2.0)-50DS-0.4V(51) | | — | | | | |
| DF40#(2.0)-60DS-0.4V(51) | | — | | | | |
| DF40#(2.0)-70DS-0.4V(51) | 32 | 28.4 | 14.2 | 37.5 | 33.5 | |
| DF40#(2.0)-80DS-0.4V(51) | | | | | | |

## ■Stacking height 2.5mm

Unit : mm

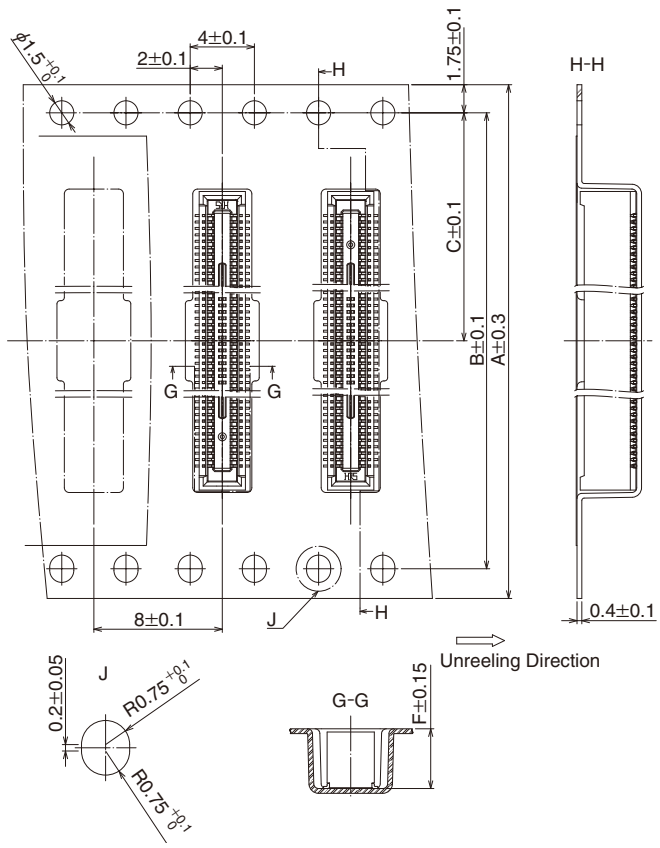
| Part No. | A | B | C | D | E | F |
|---|---|---|---|---|---|---|
| DF40H#(2.5)-10DS-0.4V(51) | 16 | — | 7.5 | 21.5 | 17.5 | 2.72 |
| DF40H#(2.5)-20DS-0.4V(51) | | — | | | | |
| DF40H#(2.5)-40DS-0.4V(51) | 24 | — | 11.5 | 29.5 | 25.5 | |
| DF40H#(2.5)-50DS-0.4V(51) | | — | | | | |
| DF40H#(2.5)-60DS-0.4V(51) | | — | | | | |

Note 1 : For 10 to 60 contact position parts, the carrier tape only has one row of holes. The carrier for parts with 70 contacts and above has two rows of holes.

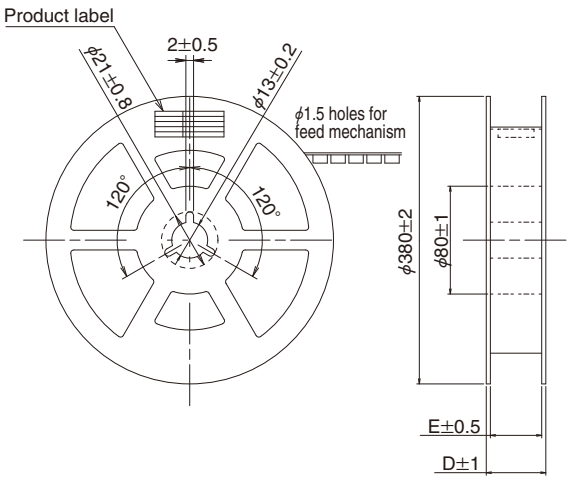
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# ◆Embossed Carrier Tape Dimensions (JIS C 0806 compliant)

●Receptacle (Stacking height 3.0mm to 4.0mm)




●Reel Condition Dimensions




## ■Stacking height 3.0mm

Unit : mm

| Part No. | A | B | C | D | E | F |
|---|---|---|---|---|---|---|
| DF40H#(3.0)-30DS-0.4V(51) | 24 | — | 11.5 | 29.5 | 25.5 | 3.15 |
| DF40H#(3.0)-40DS-0.4V(51) | | — | | | | |
| DF40H#(3.0)-44DS-0.4V(51) | | — | | | | |
| DF40H#(3.0)-50DS-0.4V(51) | | — | | | | |
| DF40H#(3.0)-60DS-0.4V(51) | | — | | | | |
| DF40H#(3.0)-70DS-0.4V(51) | 32 | 28.4 | 14.2 | 37.5 | 33.5 | |
| DF40H#(3.0)-80DS-0.4V(51) | | | | | | |
| DF40H#(3.0)-90DS-0.4V(51) | 44 | 40.4 | 20.2 | 49.5 | 45.5 | |
| DF40H#(3.0)-100DS-0.4V(51) | | | | | | |
| DF40GB(3.0)-48DS-0.4V(51) | 24 | — | 11.5 | 29.5 | 25.5 | |
| DF40GB(3.0)-70DS-0.4V(51) | 32 | 28.4 | 14.2 | 37.5 | 33.5 | |

## ■Stacking height 3.5mm

Unit : mm

| Part No. | A | B | C | D | E | F |
|---|---|---|---|---|---|---|
| DF40H#(3.5)-20DS-0.4V(51) | 16 | — | 7.5 | 21.5 | 17.5 | 3.72 |
| DF40H#(3.5)-30DS-0.4V(51) | 24 | — | 11.5 | 29.5 | 25.5 | |
| DF40H#(3.0)-40DS-0.4V(51) | | — | | | | |
| DF40H#(3.5)-50DS-0.4V(51) | | — | | | | |
| DF40H#(3.5)-60DS-0.4V(51) | | — | | | | |

## ■Stacking height 4.0mm

Unit : mm

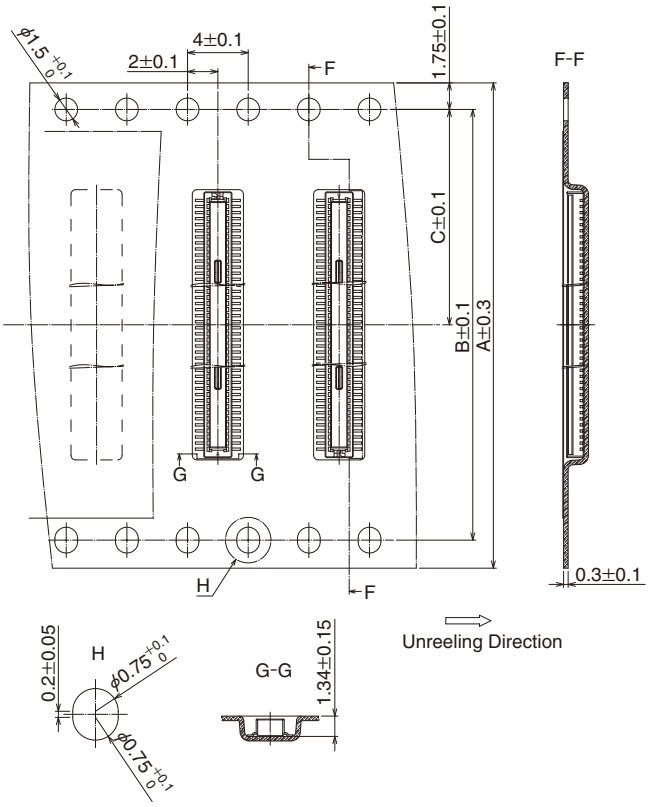
| Part No. | A | B | C | D | E | F |
|---|---|---|---|---|---|---|
| DF40H#(4.0)-50DS-0.4V(51) | 24 | — | 11.5 | 29.5 | 25.5 | 4.15 |
| DF40H#(4.0)-60DS-0.4V(51) | | — | | | | |
| DF40H#(4.0)-80DS-0.4V(51) | 32 | 28.4 | 14.2 | 37.5 | 33.5 | |
| DF40H#(4.0)-90DS-0.4V(51) | 44 | 40.4 | 20.2 | 49.5 | 45.5 | |

Note 1 : For 10 to 60 contact position parts, the carrier tape only has one row of holes. The carrier for parts with 70 contacts and above has two rows of holes.

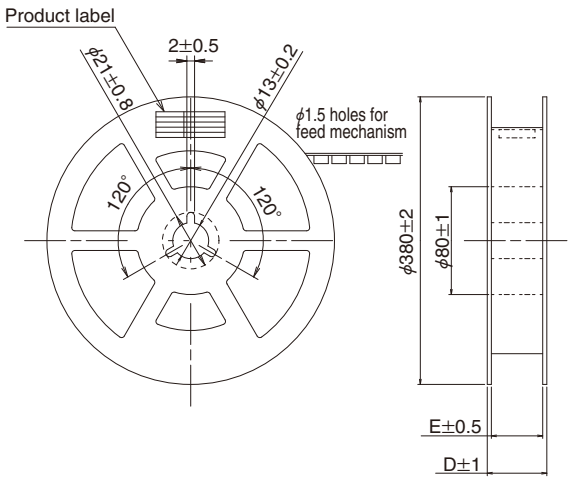
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## ●Header




## ●Reel Dimensions

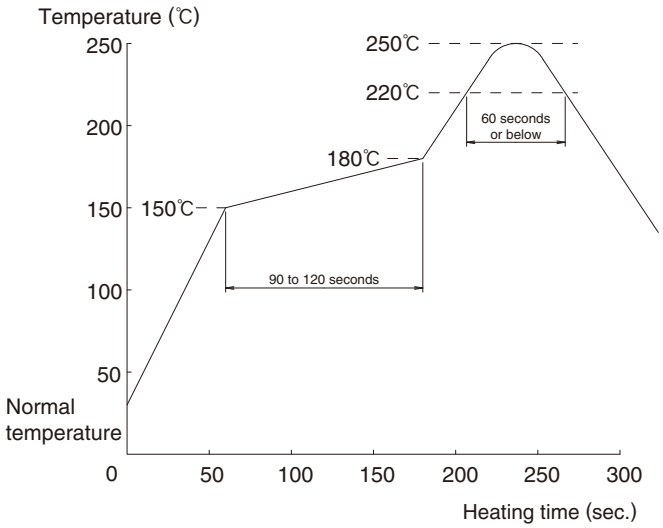



Unit : mm

| Part No. | A | B | C | D | E |
|---|---|---|---|---|---|
| DF40C-10DP-0.4V(51) | 12 | — | 5.5 | 17.5 | 13.5 |
| DF40C-12DP-0.4V(51) | | — | | | |
| DF40C-20DP-0.4V(51) | 16 | — | 7.5 | 21.5 | 17.5 |
| DF40C-24DP-0.4V(51) | | — | | | |
| DF40C-30DP-0.4V(51) | | — | | | |
| DF40C-34DP-0.4V(51) | 24 | — | 11.5 | 29.5 | 25.5 |
| DF40C-40DP-0.4V(51) | | — | | | |
| DF40C-44DP-0.4V(51) | | — | | | |
| DF40C-50DP-0.4V(51) | | — | | | |
| DF40C-60DP-0.4V(51) | | — | | | |
| DF40C-70DP-0.4V(51) | 32 | 28.4 | 14.2 | 37.5 | 33.5 |
| DF40C-80DP-0.4V(51) | | | | | |
| DF40C-90DP-0.4V(51) | 44 | 40.4 | 20.2 | 49.5 | 45.5 |
| DF40C-100DP-0.4V(51) | | | | | |
| DF40GB-30DP-0.4V(51) | 16 | — | 7.5 | 21.5 | 17.5 |
| DF40GB-48DP-0.4V(51) | 24 | — | 11.5 | 29.5 | 25.5 |
| DF40GB-70DP-0.4V(51) | | — | | | |

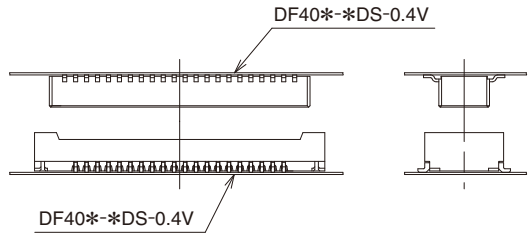
Note 1 : For 10 to 60 contact position parts, the carrier tape only has one row of holes. The carrier for parts with 70 contacts and above has two rows of holes.

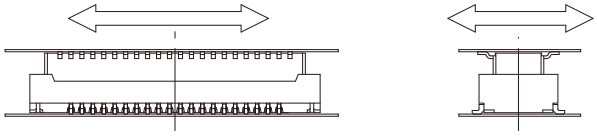
## ◆Operating Precautions

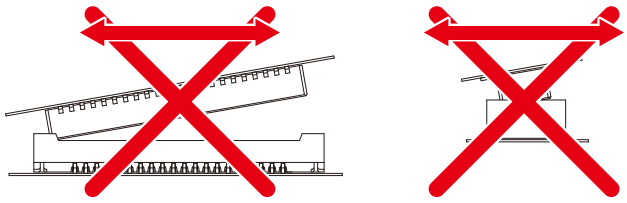
| | |
|---|---|
| 1. Recommended Solder Profile | <br>【Conditions】<br>1. Peak temperature Maximum of 250℃<br>2. Heating part Minimum of 220℃ within 60 seconds<br>3. Preheating part 150 to 180℃ 90 to 120 seconds<br>4. Number of times Maximum of 2 cycles<br>Note 1 : The temperature shows PCB surface temperature near the connector lead part. |
| 2. Recommended hand solder conditions | Soldering iron temperature 340 ±10℃, solder time no more than 3 seconds |
| 3. Recommended screen thickness: Opening ratio (pattern area ratio) | Thickness : 0.12mm<br>Opening ratio : DS side 80% DP side 80% |
| 4. Leaning of PCB | Max 0.02mm at the center of connector (using both edges of connector as criteria) |
| 5. Washing | Cleaning/washing is not recommended for this connector. Cleaning agents can deteriorate the mechanical operation and the environmental resistance of this connector. |
| 6. Precautions | ■ Do not mate or unmate these connectors until they are mounted, failure to follow this precaution can lead to deformation or damage to these connectors.<br>■ Provide another form of support to the PCB, this connector was not designed to be the main form of support.<br>■ Mating and unmating with excessive force can cause damage.<br>■ Do not apply excessive amounts of flux as it may cause excess solder and flux wicking.<br>■ There may be a slight variance in the color of the molding between production lots, this variance will not affect the performance of the connector.<br>■ Refer to the next page for the handling precautions when mating and unmating the connectors.<br>■ If the connector becomes disconnected due to impact, a fall or a counterforce to the FPC, it may be necessary to hold the connector in place with an addition to the device's case or other cushioning material to hold the connector in place. |

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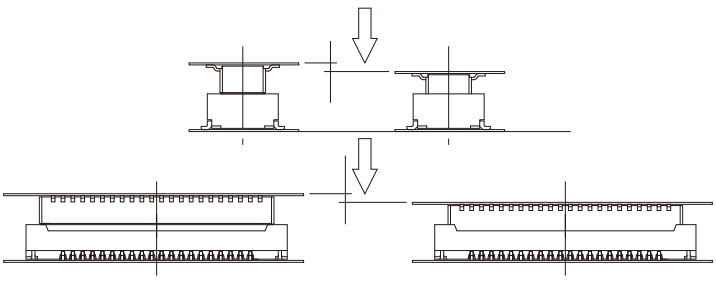
## ◆Precautions when connector mating





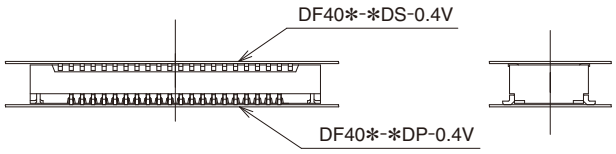
Prior to mating, locate the guidance ribs and align the header.
Do not apply excess force to the connector during mating. Doing so can lead to contact damage.

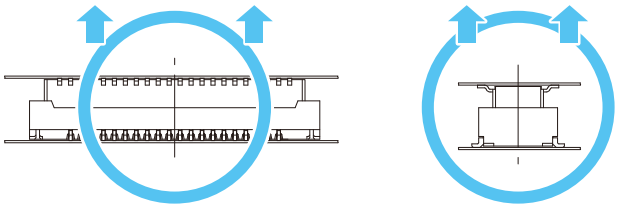


Make sure that the connector is parallel to the other side, it then will drop down slightly. Continue to press it down until it is fully mated while maintaining the angle. Do not apply excessive force as it may damage the contacts.

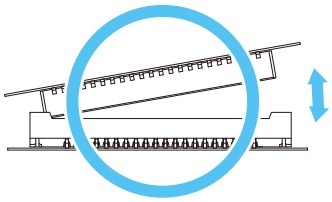
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## ◆Precautions when unmating a connector

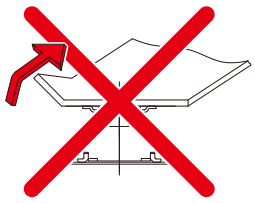


To unmate this connector, lift evenly across the header, making sure that each side stays parallel to each other.



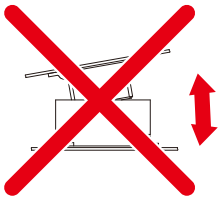
Pitch direction



Corner direction

If circumstances prevent the connectors from staying parallel to each other, then one side may be lifted as shown in the diagram. This method is only approved if the connector is mounted onto an extremely rigid circuit board. If the board were to warp during this process it may result in damage to the connector or its solder joints.

Do not try to disconnect these connectors by pulling on one side or a corner, or unmate it while it is securely mounted onto a rigid FPC. These actions may lead to deformities and ultimately a damaged connector.

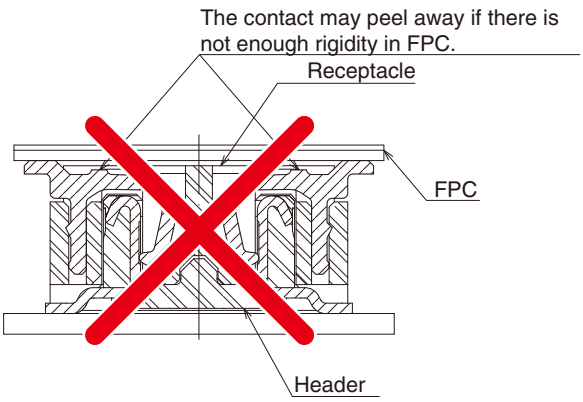


Width direction

As shown in the figure to the left, do not unmate it from the width direction (front to back), it may damage contacts.

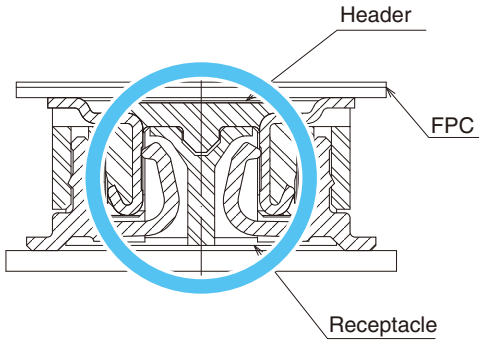
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## Precautions when unmating a connector

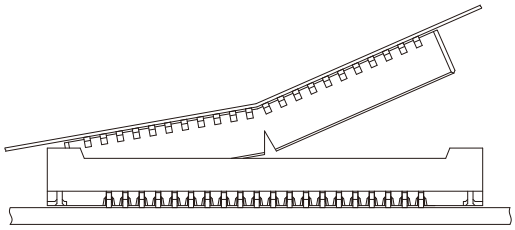



When mounting the receptacle side to FPC which does not have enough rigidity, the contact may peel away soldered connection.

We recommended to mount the header side to the FPC.




We have conducted evaluations on the requirements needed for FPC rigidity. If you need to mount the receptacle to the FPC, contact your local Hirose Rep for this data.



Even when mounting the header side to FPC, if the rigidity of FPC is low, the connector may break as shown in the left figure. Please check the strength and durability of FPC before using.

For the evaluation results of each item and FPC rigidity, please contact us.

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