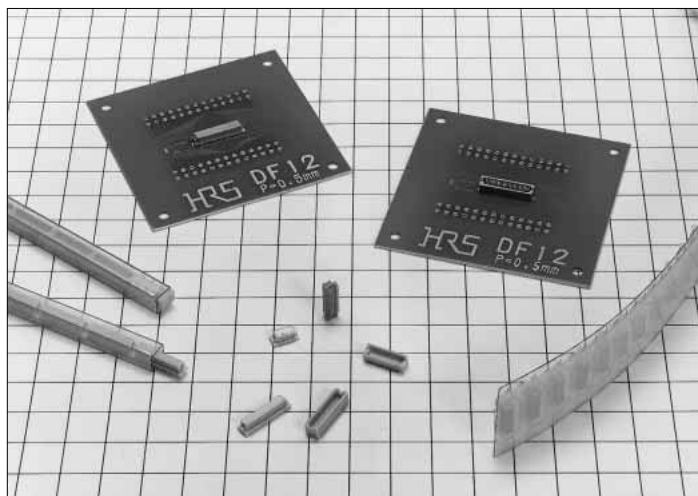


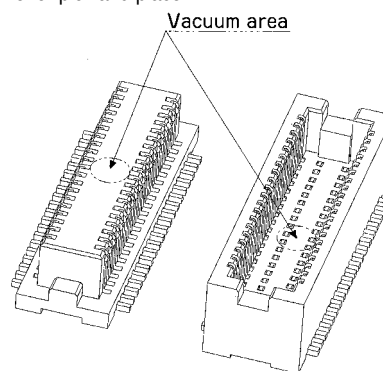
# 0.5mm Pitch SMT Board to Board Connector

## DF12 Series



### Correspond to automatic mounting

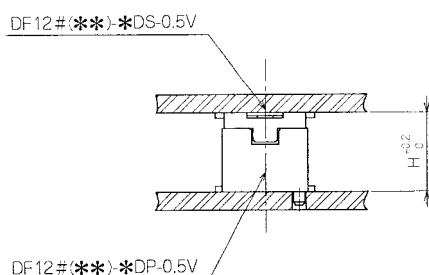
The vacuum pick-up area secures the automatic mounting machine for pick and place.



## Features

### 1. Broad Variations of Stacking Height

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



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

Note 1 : (\*\*) of the product name DF12# (\*\*) indicates the stacking height.

Note 2 : The stacking height doesn't include the soldering paste thickness.

### [Stacking Height Variation]

| Stacking Height    |             | 3.0mm | 3.5mm | 4.0mm | 5.0mm |
|--------------------|-------------|-------|-------|-------|-------|
| Number of Contacts | 10 contacts | ○     | —     | —     | —     |
|                    | 14 contacts | ○     | —     | —     | —     |
|                    | 20 contacts | ○     | ○     | ○     | ○     |
|                    | 30 contacts | ○     | ○     | ○     | ○     |
|                    | 32 contacts | ○     | —     | ○     | —     |
|                    | 36 contacts | ○     | ○     | ○     | ○     |
|                    | 40 contacts | ○     | ○     | ○     | ○     |
|                    | 50 contacts | ○     | ○     | ○     | ○     |
|                    | 60 contacts | ○     | ○     | ○     | ○     |
|                    | 80 contacts | ○     | —     | —     | —     |

### 2. Corresponding to Automatic Mounting

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

### 3. Metal Fitting Available

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

## Applications

Mobile phone, LCD(Liquid Crystal Display), Note PC

## DF12 Series 0.5mm Pitch SMT Board to Board Connector

### Product Specifications

|        |                       |                                                    |                                                 |
|--------|-----------------------|----------------------------------------------------|-------------------------------------------------|
| Rating | Current rating 0.3A   | Operating Temperature Range -45 to +125°C (Note 1) | Storage Temperature Range -10 to +60°C (Note 2) |
|        | Voltage rating 50V AC | Operating Humidity Range 40 to 80%                 | Storage Humidity Range 40 to 70%                |

| Item                             | Specification                                                          | Condition                                                                                  |
|----------------------------------|------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| 1. Insulation Resistance         | 500M ohms min.                                                         | 100V DC                                                                                    |
| 2. Withstanding voltage          | No flashover or insulation breakdown.                                  | 150V AC/1 minute                                                                           |
| 3. Contact Resistance            | 50m ohms max.                                                          | 100mA                                                                                      |
| 4. Vibration                     | No electrical discontinuity of 1μs or more                             | Frequency: 10 to 55 Hz, single amplitude of 0.75 mm, 2 hours in each of the 3 directions.  |
| 5. Humidity (Steady state)       | Contact resistance: 50m ohms max. Insulation resistance: 500M ohms min | 96 hours at temperature of 40±2°C and humidity of 90% to 95%                               |
| 6. Temperature Cycle             | Contact resistance: 50m ohms max. Insulation resistance: 500M ohms min | (-65°C: 30 minutes 5 to 35°C: 10 minutes 125°C: 30 minutes 5 to 35°C: 10 minutes) 5 cycles |
| 7. Durability (Mating/un-mating) | Contact resistance: 50m ohms max.                                      | 50 cycles                                                                                  |
| 8. Resistance to Soldering heat  | No deformation of components affecting performance.                    | Reflow: At the recommended temperature profile                                             |
|                                  |                                                                        | Manual soldering: 350°C for 3 seconds                                                      |

Note 1: Includes temperature rise caused by current flow.

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

Note 3: Information contained in this catalog represents general requirements for this Series. Contact us for the drawings and specifications for a specific part number shown.

### Material

| Product           | Part      | Material        | Finish      | Remarks |
|-------------------|-----------|-----------------|-------------|---------|
| Receptacle/Header | Insulator | Polyamide       | Beige       | UL94-V0 |
|                   | Contact   | Phosphor copper | Gold plated | _____   |
|                   | Fitting   | Brass           | Tin plated  | _____   |

### Ordering Information

#### Receptacle

**DF12** **#** **(\*\*)** - **\*** **DS** - **0.5** **V** **(\*\*)**

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

|                                                                                                                                                                                                                                                                                                   |         |         |      |       |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                        |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|---------|------|-------|---|---|---|---|---|---|---|---|---|---|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>① Series Name</b> : DF12<br><b>② Type</b> <table border="1"> <tr> <td></td><td>Fitting</td><td>Boss</td></tr> <tr> <td>Blank</td><td>○</td><td>○</td></tr> <tr> <td>A</td><td>×</td><td>○</td></tr> <tr> <td>B</td><td>○</td><td>×</td></tr> <tr> <td>C</td><td>×</td><td>×</td></tr> </table> |         | Fitting | Boss | Blank | ○ | ○ | A | × | ○ | B | ○ | × | C | × | × | <b>③ Stacking height</b><br>3.0 : 3.0mm<br>Blank : 3.5 to 5.0mm<br><b>④ Number of Contacts</b> : 10, 14, 20, 30, 32, 36, 40, 50, 60, 80<br>(The 32 contacts connector includes the stacking height 3mm only.)<br><b>⑤ Connector Type</b><br>DS : Double-row receptacle | <b>⑥ Contact Pitch</b> : 0.5mm<br><b>⑦ Contact Style</b><br>V: Straight SMT<br><b>⑧ Packaging Type</b><br>(81) : Embossed tape packaging (A, C type)<br>(86) : Embossed tape packaging (Blank, B type) |
|                                                                                                                                                                                                                                                                                                   | Fitting | Boss    |      |       |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                        |
| Blank                                                                                                                                                                                                                                                                                             | ○       | ○       |      |       |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                        |
| A                                                                                                                                                                                                                                                                                                 | ×       | ○       |      |       |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                        |
| B                                                                                                                                                                                                                                                                                                 | ○       | ×       |      |       |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                        |
| C                                                                                                                                                                                                                                                                                                 | ×       | ×       |      |       |   |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                        |

#### Header

**DF12** **#** **(\*\*)** - **\*** **DP** - **0.5** **V** **(\*\*)**

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

② Type

|       |         |      |
|-------|---------|------|
|       | Fitting | Boss |
| Blank | ○       | ○    |
| B     | ○       | ×    |
| D     | ×       | ○    |
| E     | ×       | ×    |

③ Stacking height

| Indication | Stacking Height |
|------------|-----------------|
| 3.0        | 3.0mm           |
| 3.5        | 3.5mm           |
| 4.0        | 4.0mm           |
| 5.0        | 5.0mm           |

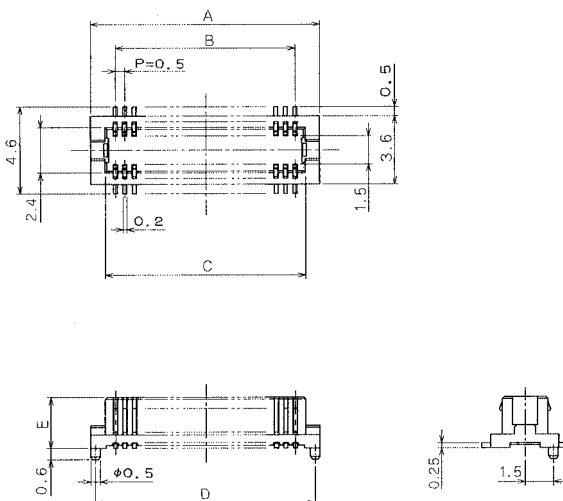
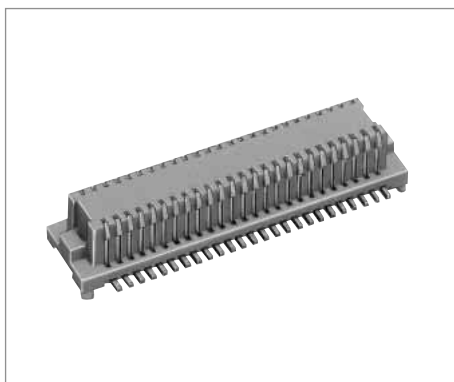
⑤ Connector Type

DP: Double-row pin header

(81) : Embossed tape packaging (D,E type)

(86) : Embossed tape packaging (Blank, B type)

## ■Receptacle Without metal fitting



### ●Product Height: 3mm Product

Unit: mm

| Part Number                | CL No.        | Number of Contacts | A    | B    | C    | D    | E   | Remarks                               | RoHS |
|----------------------------|---------------|--------------------|------|------|------|------|-----|---------------------------------------|------|
| DF12A (3.0)-10DS-0.5V (81) | 537-0626-9-81 | 10                 | 4.6  | 2.0  | 3.1  | 4.1  | 2.2 | Without metal fitting<br>With boss    | YES  |
| DF12A (3.0)-14DS-0.5V (81) | 537-0915-6-81 | 14                 | 5.6  | 3.0  | 4.1  | 5.1  |     |                                       |      |
| DF12A (3.0)-20DS-0.5V (81) | 537-0628-4-81 | 20                 | 7.1  | 4.5  | 5.6  | 6.6  |     |                                       |      |
| DF12A (3.0)-30DS-0.5V (81) | 537-0630-6-81 | 30                 | 9.6  | 7.0  | 8.1  | 9.1  |     |                                       |      |
| DF12A (3.0)-32DS-0.5V (81) | 537-0637-5-81 | 32                 | 10.1 | 7.5  | 8.6  | 9.6  |     |                                       |      |
| DF12A (3.0)-36DS-0.5V (81) | 537-0631-9-81 | 36                 | 11.1 | 8.5  | 9.6  | 10.6 |     |                                       |      |
| DF12A (3.0)-40DS-0.5V (81) | 537-0632-1-81 | 40                 | 12.1 | 9.5  | 10.6 | 11.6 |     |                                       |      |
| DF12A (3.0)-50DS-0.5V (81) | 537-0634-7-81 | 50                 | 14.6 | 12.0 | 13.1 | 14.1 |     |                                       |      |
| DF12A (3.0)-60DS-0.5V (81) | 537-0636-2-81 | 60                 | 17.1 | 14.5 | 15.6 | 16.6 |     |                                       |      |
| DF12A (3.0)-80DS-0.5V (81) | 537-0638-8-81 | 80                 | 22.1 | 19.5 | 20.6 | 21.6 |     |                                       |      |
| DF12C (3.0)-10DS-0.5V (81) | 537-0686-0-81 | 10                 | 4.6  | 2.0  | 3.1  | —    | 2.2 | Without metal fitting<br>Without boss |      |
| DF12C (3.0)-14DS-0.5V (81) | 537-0917-1-81 | 14                 | 5.6  | 3.0  | 4.1  | —    |     |                                       |      |
| DF12C (3.0)-20DS-0.5V (81) | 537-0688-6-81 | 20                 | 7.1  | 4.5  | 5.6  | —    |     |                                       |      |
| DF12C (3.0)-30DS-0.5V (81) | 537-0690-8-81 | 30                 | 9.6  | 7.0  | 8.1  | —    |     |                                       |      |
| DF12C (3.0)-32DS-0.5V (81) | 537-0697-7-81 | 32                 | 10.1 | 7.5  | 8.6  | —    |     |                                       |      |
| DF12C (3.0)-36DS-0.5V (81) | 537-0691-0-81 | 36                 | 11.1 | 8.5  | 9.6  | —    |     |                                       |      |
| DF12C (3.0)-40DS-0.5V (81) | 537-0692-3-81 | 40                 | 12.1 | 9.5  | 10.6 | —    |     |                                       |      |
| DF12C (3.0)-50DS-0.5V (81) | 537-0694-9-81 | 50                 | 14.6 | 12.0 | 13.1 | —    |     |                                       |      |
| DF12C (3.0)-60DS-0.5V (81) | 537-0696-4-81 | 60                 | 17.1 | 14.5 | 15.6 | —    |     |                                       |      |
| DF12C (3.0)-80DS-0.5V (81) | 537-0212-6-81 | 80                 | 22.1 | 19.5 | 20.6 | —    |     |                                       |      |

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

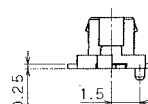
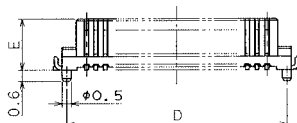
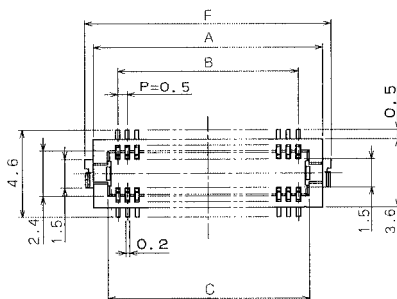
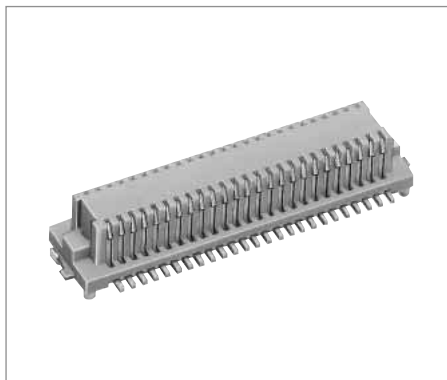
Unit: mm

| Part Number          | CL No.        | Number of Contacts | A    | B    | C    | D    | E   | Remarks                               | RoHS |
|----------------------|---------------|--------------------|------|------|------|------|-----|---------------------------------------|------|
| DF12A-20DS-0.5V (81) | 537-0078-5-81 | 20                 | 7.1  | 4.5  | 5.6  | 6.6  | 2.7 | Without metal fitting<br>With boss    | YES  |
| DF12A-30DS-0.5V (81) | 537-0080-7-81 | 30                 | 9.6  | 7.0  | 8.1  | 9.1  |     |                                       |      |
| DF12A-32DS-0.5V (81) | 537-0087-6-81 | 32                 | 10.1 | 7.5  | 8.6  | 9.6  |     |                                       |      |
| DF12A-36DS-0.5V (81) | 537-0081-0-81 | 36                 | 11.1 | 8.5  | 9.6  | 10.6 |     |                                       |      |
| DF12A-40DS-0.5V (81) | 537-0082-2-81 | 40                 | 12.1 | 9.5  | 10.6 | 11.6 |     |                                       |      |
| DF12A-50DS-0.5V (81) | 537-0084-8-81 | 50                 | 14.6 | 12.0 | 13.1 | 14.1 |     |                                       |      |
| DF12A-60DS-0.5V (81) | 537-0086-3-81 | 60                 | 17.1 | 14.5 | 15.6 | 16.6 | 2.7 | Without metal fitting<br>Without boss |      |
| DF12C-20DS-0.5V (81) | 537-0203-5-81 | 20                 | 7.1  | 4.5  | 5.6  | ——   |     |                                       |      |
| DF12C-30DS-0.5V (81) | 537-0205-0-81 | 30                 | 9.6  | 7.0  | 8.1  | ——   |     |                                       |      |
| DF12C-32DS-0.5V (81) | 537-0212-6-81 | 32                 | 10.1 | 7.5  | 8.6  | ——   |     |                                       |      |
| DF12C-36DS-0.5V (81) | 537-0206-3-81 | 36                 | 11.1 | 8.5  | 9.6  | ——   |     |                                       |      |
| DF12C-40DS-0.5V (81) | 537-0207-6-81 | 40                 | 12.1 | 9.5  | 10.6 | ——   |     |                                       |      |
| DF12C-50DS-0.5V (81) | 537-0209-1-81 | 50                 | 14.6 | 12.0 | 13.1 | ——   |     |                                       |      |
| DF12C-60DS-0.5V (81) | 537-0211-3-81 | 60                 | 17.1 | 14.5 | 15.6 | ——   |     |                                       |      |

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

## DF12 Series 0.5mm Pitch SM Board to Board Connector

### ■Receptacle With metal fitting



### ●Product Height: 3mm Product

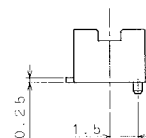
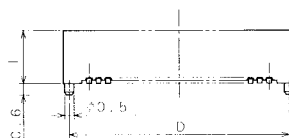
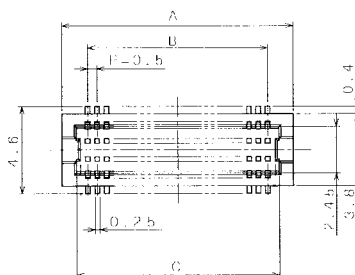
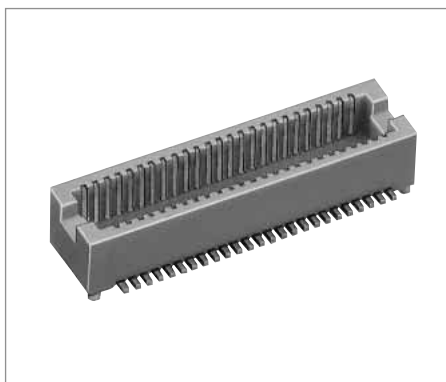
Unit: mm

| Part Number                | CL No.        | Number of Contacts | A    | B    | C    | D    | E   | F    | Remarks                            | RoHS |
|----------------------------|---------------|--------------------|------|------|------|------|-----|------|------------------------------------|------|
| DF12 (3.0)-10DS-0.5V (86)  | 537-0601-8-86 | 10                 | 4.6  | 2.0  | 3.1  | 4.1  | 2.2 | 5.5  | With metal fitting<br>With boss    | YES  |
| DF12 (3.0)-14DS-0.5V (86)  | 537-0914-3-86 | 14                 | 5.6  | 3.0  | 4.1  | 5.1  |     | 6.5  |                                    |      |
| DF12 (3.0)-20DS-0.5V (86)  | 537-0603-3-86 | 20                 | 7.1  | 4.5  | 5.6  | 6.6  |     | 8.0  |                                    |      |
| DF12 (3.0)-30DS-0.5V (86)  | 537-0605-9-86 | 30                 | 9.6  | 7.0  | 8.1  | 9.1  |     | 10.5 |                                    |      |
| DF12 (3.0)-32DS-0.5V (86)  | 537-0612-4-86 | 32                 | 10.1 | 7.5  | 8.6  | 9.6  |     | 11.0 |                                    |      |
| DF12 (3.0)-36DS-0.5V (86)  | 537-0606-1-86 | 36                 | 11.1 | 8.5  | 9.6  | 10.6 |     | 12.0 |                                    |      |
| DF12 (3.0)-40DS-0.5V (86)  | 537-0607-4-86 | 40                 | 12.1 | 9.5  | 10.6 | 11.6 |     | 13.0 |                                    |      |
| DF12 (3.0)-50DS-0.5V (86)  | 537-0609-0-86 | 50                 | 14.6 | 12.0 | 13.1 | 14.1 |     | 15.5 |                                    |      |
| DF12 (3.0)-60DS-0.5V (86)  | 537-0611-1-86 | 60                 | 17.1 | 14.5 | 15.6 | 16.6 |     | 18.0 |                                    |      |
| DF12 (3.0)-80DS-0.5V (86)  | 537-0613-7-86 | 80                 | 22.1 | 19.5 | 20.6 | 21.6 |     | 23.0 |                                    |      |
| DF12B (3.0)-10DS-0.5V (86) | 537-0651-6-86 | 10                 | 4.6  | 2.0  | 3.1  | 4.1  | 2.2 | 5.5  | With metal fitting<br>Without boss |      |
| DF12B (3.0)-14DS-0.5V (86) | 537-0916-9-86 | 14                 | 5.6  | 3.0  | 4.1  | 5.1  |     | 6.5  |                                    |      |
| DF12B (3.0)-20DS-0.5V (86) | 537-0653-1-86 | 20                 | 7.1  | 4.5  | 5.6  | —    |     | 8.0  |                                    |      |
| DF12B (3.0)-30DS-0.5V (86) | 537-0655-7-86 | 30                 | 9.6  | 7.0  | 8.1  | —    |     | 10.5 |                                    |      |
| DF12B (3.0)-32DS-0.5V (86) | 537-0662-2-86 | 32                 | 10.1 | 7.5  | 8.6  | —    |     | 11.0 |                                    |      |
| DF12B (3.0)-36DS-0.5V (86) | 537-0656-0-86 | 36                 | 11.1 | 8.5  | 9.6  | —    |     | 12.0 |                                    |      |
| DF12B (3.0)-40DS-0.5V (86) | 537-0657-2-86 | 40                 | 12.1 | 9.5  | 10.6 | —    |     | 13.0 |                                    |      |
| DF12B (3.0)-50DS-0.5V (86) | 537-0659-8-86 | 50                 | 14.6 | 12.0 | 13.1 | —    |     | 15.5 |                                    |      |
| DF12B (3.0)-60DS-0.5V (86) | 537-0661-0-86 | 60                 | 17.1 | 14.5 | 15.6 | c    |     | 18.0 |                                    |      |
| DF12B (3.0)-80DS-0.5V (86) | 537-0663-5-86 | 80                 | 22.1 | 19.5 | 20.6 | 21.6 |     | 23.0 |                                    |      |

| Part Number          | CL No.         | Number of Contacts | A    | B    | C    | D    | E   | F    | Remarks                                | RoHS |
|----------------------|----------------|--------------------|------|------|------|------|-----|------|----------------------------------------|------|
| DF12-20DS-0.5V (86)  | 537-0003-6- 86 | 20                 | 7.1  | 4.5  | 5.6  | 6.6  | 2.7 | 8.0  | With metal fitting<br><br>With boss    | YES  |
| DF12-30DS-0.5V (86)  | 537-0005-1- 86 | 30                 | 9.6  | 7.0  | 8.1  | 9.1  |     | 10.5 |                                        |      |
| DF12-32DS-0.5V (86)  | 537-0012-7- 86 | 32                 | 10.1 | 7.5  | 8.6  | 9.6  |     | 11.0 |                                        |      |
| DF12-36DS-0.5V (86)  | 537-0006-4- 86 | 36                 | 11.1 | 8.5  | 9.6  | 10.6 |     | 12.0 |                                        |      |
| DF12-40DS-0.5V (86)  | 537-0007-7- 86 | 40                 | 12.1 | 9.5  | 10.6 | 11.6 |     | 13.0 |                                        |      |
| DF12-50DS-0.5V (86)  | 537-0009-2- 86 | 50                 | 14.6 | 12.0 | 13.1 | 14.1 |     | 15.5 |                                        |      |
| DF12-60DS-0.5V (86)  | 537-0011-4- 86 | 60                 | 17.1 | 14.5 | 15.6 | 16.6 |     | 18.0 |                                        |      |
| DF12B-20DS-0.5V (86) | 537-0303-0- 86 | 20                 | 7.1  | 4.5  | 5.6  | ——   | 2.7 | 8.0  | With metal fitting<br><br>Without boss |      |
| DF12B-30DS-0.5V (86) | 537-0305-5- 86 | 30                 | 9.6  | 7.0  | 8.1  | ——   |     | 10.5 |                                        |      |
| DF12B-32DS-0.5V (86) | 537-0312-0- 86 | 32                 | 10.1 | 7.5  | 8.6  | 9.6  |     | 11.0 |                                        |      |
| DF12B-36DS-0.5V (86) | 537-0306-8- 86 | 36                 | 11.1 | 8.5  | 9.6  | ——   |     | 12.0 |                                        |      |
| DF12B-40DS-0.5V (86) | 537-0307-0- 86 | 40                 | 12.1 | 9.5  | 10.6 | ——   |     | 13.0 |                                        |      |
| DF12B-50DS-0.5V (86) | 537-0309-6- 86 | 50                 | 14.6 | 12.0 | 13.1 | ——   |     | 15.5 |                                        |      |
| DF12B-60DS-0.5V (86) | 537-0311-8- 86 | 60                 | 17.1 | 14.5 | 15.6 | ——   |     | 18.0 |                                        |      |

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

## Header Without metal fitting



## Stacking Height: 3.5 to 5mm Product

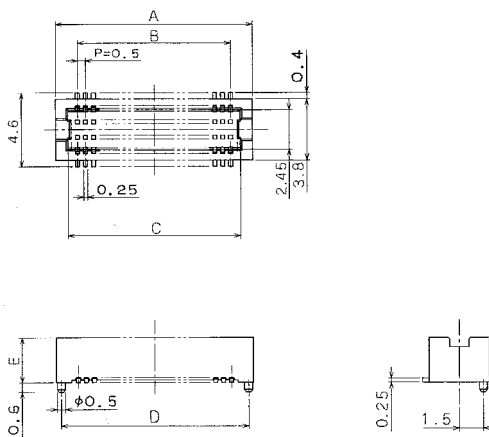
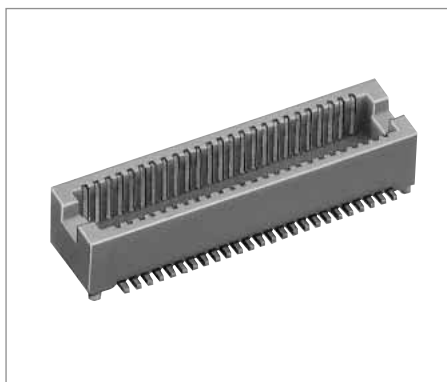
Unit: mm

| Part Number                | CL No.         | Number of Contacts | A    | B    | C    | D    | E   | Remarks                               | RoHS |
|----------------------------|----------------|--------------------|------|------|------|------|-----|---------------------------------------|------|
| DF12D (3.0)-10DP-0.5V (81) | 537-0791-5- 81 | 10                 | 4.7  | 2.0  | 3.2  | 4.1  | 2.3 | Without metal fitting<br>With boss    | YES  |
| DF12D (3.0)-14DP-0.5V (81) | 537-0920-6- 81 | 14                 | 5.7  | 3.0  | 4.2  | 5.1  |     |                                       |      |
| DF12D (3.0)-20DP-0.5V (81) | 537-0793-0- 81 | 20                 | 7.2  | 4.5  | 5.7  | 6.6  |     |                                       |      |
| DF12D (3.0)-30DP-0.5V (81) | 537-0795-6- 81 | 30                 | 9.7  | 7.0  | 8.2  | 9.1  |     |                                       |      |
| DF12D (3.0)-32DP-0.5V (81) | 537-0802-0- 81 | 32                 | 10.2 | 7.5  | 8.7  | 9.6  |     |                                       |      |
| DF12D (3.0)-36DP-0.5V (81) | 537-0796-9- 81 | 36                 | 11.2 | 8.5  | 9.7  | 10.6 |     |                                       |      |
| DF12D (3.0)-40DP-0.5V (81) | 537-0797-1- 81 | 40                 | 12.2 | 9.5  | 10.7 | 11.6 |     |                                       |      |
| DF12D (3.0)-50DP-0.5V (81) | 537-0799-7- 81 | 50                 | 14.7 | 12.0 | 13.2 | 14.1 |     |                                       |      |
| DF12D (3.0)-60DP-0.5V (81) | 537-0801-7- 81 | 60                 | 17.2 | 14.5 | 15.7 | 16.6 |     |                                       |      |
| DF12D (3.0)-80DP-0.5V (81) | 537-0803-2- 81 | 80                 | 22.2 | 19.5 | 20.7 | 21.6 |     |                                       |      |
| DF12E (3.0)-10DP-0.5V (81) | 537-0826-8- 81 | 10                 | 4.7  | 2.0  | 3.2  | ——   | 2.3 | Without metal fitting<br>Without boss |      |
| DF12E (3.0)-14DP-0.5V (81) | 537-0921-9- 81 | 14                 | 5.7  | 3.0  | 4.2  | ——   |     |                                       |      |
| DF12E (3.0)-20DP-0.5V (81) | 537-0828-3- 81 | 20                 | 7.2  | 4.5  | 5.7  | ——   |     |                                       |      |
| DF12E (3.0)-30DP-0.5V (81) | 537-0830-5- 81 | 30                 | 9.7  | 7.0  | 8.2  | ——   |     |                                       |      |
| DF12E (3.0)-32DP-0.5V (81) | 537-0837-4- 81 | 32                 | 10.2 | 7.5  | 8.7  | ——   |     |                                       |      |
| DF12E (3.0)-36DP-0.5V (81) | 537-0831-8- 81 | 36                 | 11.2 | 8.5  | 9.7  | ——   |     |                                       |      |
| DF12E (3.0)-40DP-0.5V (81) | 537-0832-0- 81 | 40                 | 12.2 | 9.5  | 10.7 | ——   |     |                                       |      |
| DF12E (3.0)-50DP-0.5V (81) | 537-0834-6- 81 | 50                 | 14.7 | 12.0 | 13.2 | ——   |     |                                       |      |
| DF12E (3.0)-60DP-0.5V (81) | 537-0836-1- 81 | 60                 | 17.2 | 14.5 | 15.7 | ——   |     |                                       |      |
| DF12E (3.0)-80DP-0.5V (81) | 537-0838-7- 81 | 80                 | 22.2 | 19.5 | 20.7 | ——   |     |                                       |      |

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

## DF12 Series 0.5mm Pitch SM Board to Board Connector

### Header Without metal fitting



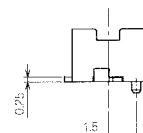
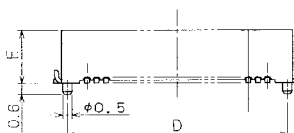
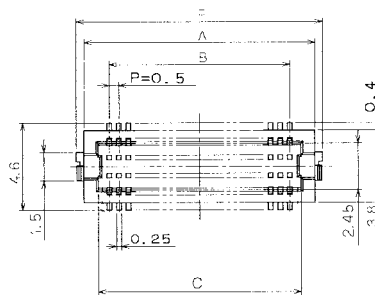
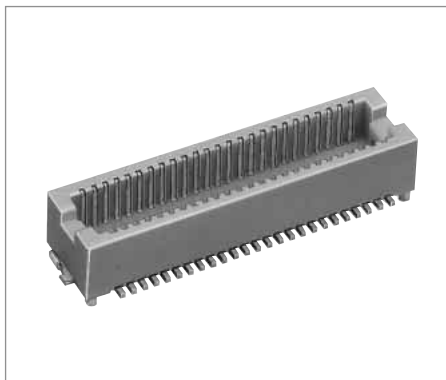
### Stacking Height: 3.5 to 5mm Product

Unit: mm

| Part Number                | CL No.         | Number of Contacts | A    | B    | C    | D    | E   | Remarks                            | RoHS |  |  |
|----------------------------|----------------|--------------------|------|------|------|------|-----|------------------------------------|------|--|--|
| DF12D (3.5)-20DP-0.5V (81) | 537-0428-5- 81 | 20                 | 7.2  | 4.5  | 5.7  | 6.6  | 2.8 | Without metal fitting<br>With boss | YES  |  |  |
| DF12D (3.5)-30DP-0.5V (81) | 537-0430-7- 81 | 30                 | 9.7  | 7.0  | 8.2  | 9.1  |     |                                    |      |  |  |
| DF12D (3.5)-36DP-0.5V (81) | 537-0431-0- 81 | 36                 | 11.2 | 8.5  | 9.7  | 10.6 |     |                                    |      |  |  |
| DF12D (3.5)-40DP-0.5V (81) | 537-0432-2- 81 | 40                 | 12.2 | 9.5  | 10.7 | 11.6 |     |                                    |      |  |  |
| DF12D (3.5)-50DP-0.5V (81) | 537-0434-8- 81 | 50                 | 14.7 | 12.0 | 13.2 | 14.1 |     |                                    |      |  |  |
| DF12D (3.5)-60DP-0.5V (81) | 537-0436-3- 81 | 60                 | 17.2 | 14.5 | 15.7 | 16.6 |     |                                    |      |  |  |
| DF12D (4.0)-20DP-0.5V (81) | 537-0453-2- 81 | 20                 | 7.2  | 4.5  | 5.7  | 6.6  | 3.3 |                                    |      |  |  |
| DF12D (4.0)-30DP-0.5V (81) | 537-0455-8- 81 | 30                 | 9.7  | 7.0  | 8.2  | 9.1  |     |                                    |      |  |  |
| DF12D (4.0)-36DP-0.5V (81) | 537-0456-0- 81 | 36                 | 11.2 | 8.5  | 9.7  | 10.6 |     |                                    |      |  |  |
| DF12D (4.0)-40DP-0.5V (81) | 537-0457-3- 81 | 40                 | 12.2 | 9.5  | 10.7 | 11.6 |     |                                    |      |  |  |
| DF12D (4.0)-50DP-0.5V (81) | 537-0459-9- 81 | 50                 | 14.7 | 12.0 | 13.2 | 14.1 |     |                                    |      |  |  |
| DF12D (4.0)-60DP-0.5V (81) | 537-0461-0- 81 | 60                 | 17.2 | 14.5 | 15.7 | 16.6 |     |                                    |      |  |  |
| DF12D (5.0)-20DP-0.5V (81) | 537-0478-3- 81 | 20                 | 7.2  | 4.5  | 5.7  | 6.6  | 4.3 |                                    |      |  |  |
| DF12D (5.0)-30DP-0.5V (81) | 537-0480-5- 81 | 30                 | 9.7  | 7.0  | 8.2  | 9.1  |     |                                    |      |  |  |
| DF12D (5.0)-36DP-0.5V (81) | 537-0481-8- 81 | 36                 | 11.2 | 8.5  | 9.7  | 10.6 |     |                                    |      |  |  |
| DF12D (5.0)-40DP-0.5V (81) | 537-0482-0- 81 | 40                 | 12.2 | 9.5  | 10.7 | 11.6 |     |                                    |      |  |  |
| DF12D (5.0)-50DP-0.5V (81) | 537-0484-6- 81 | 50                 | 14.7 | 12.0 | 13.2 | 14.1 |     |                                    |      |  |  |
| DF12D (5.0)-60DP-0.5V (81) | 537-0486-1- 81 | 60                 | 17.2 | 14.5 | 15.7 | 16.6 |     |                                    |      |  |  |
| DF12E (3.5)-20DP-0.5V (81) | 537-0528-0- 81 | 20                 | 7.2  | 4.5  | 5.7  | ——   | 2.8 |                                    |      |  |  |
| DF12E (3.5)-30DP-0.5V (81) | 537-0530-1- 81 | 30                 | 9.7  | 7.0  | 8.2  | ——   |     |                                    |      |  |  |
| DF12E (3.5)-36DP-0.5V (81) | 537-0531-4- 81 | 36                 | 11.2 | 8.5  | 9.7  | ——   |     |                                    |      |  |  |
| DF12E (3.5)-40DP-0.5V (81) | 537-0532-7- 81 | 40                 | 12.2 | 9.5  | 10.7 | ——   |     |                                    |      |  |  |
| DF12E (3.5)-50DP-0.5V (81) | 537-0534-2- 81 | 50                 | 14.7 | 12.0 | 13.2 | ——   |     |                                    |      |  |  |
| DF12E (3.5)-60DP-0.5V (81) | 537-0536-8- 81 | 60                 | 17.2 | 14.5 | 15.7 | ——   |     |                                    |      |  |  |
| DF12E (4.0)-20DP-0.5V (81) | 537-0553-7- 81 | 20                 | 7.2  | 4.5  | 5.7  | ——   | 3.3 |                                    |      |  |  |
| DF12E (4.0)-30DP-0.5V (81) | 537-0555-2- 81 | 30                 | 9.7  | 7.0  | 8.2  | ——   |     |                                    |      |  |  |
| DF12E (4.0)-36DP-0.5V (81) | 537-0556-5- 81 | 36                 | 11.2 | 8.5  | 9.7  | ——   |     |                                    |      |  |  |
| DF12E (4.0)-40DP-0.5V (81) | 537-0557-8- 81 | 40                 | 12.2 | 9.5  | 10.7 | ——   |     |                                    |      |  |  |
| DF12E (4.0)-50DP-0.5V (81) | 537-0559-3- 81 | 50                 | 14.7 | 12.0 | 13.2 | ——   |     |                                    |      |  |  |
| DF12E (4.0)-60DP-0.5V (81) | 537-0561-5- 81 | 60                 | 17.2 | 14.5 | 15.7 | ——   |     |                                    |      |  |  |
| DF12E (5.0)-20DP-0.5V (81) | 537-0578-8- 81 | 20                 | 7.2  | 4.5  | 5.7  | ——   | 4.3 |                                    |      |  |  |
| DF12E (5.0)-30DP-0.5V (81) | 537-0580-0- 81 | 30                 | 9.7  | 7.0  | 8.2  | ——   |     |                                    |      |  |  |
| DF12E (5.0)-36DP-0.5V (81) | 537-0581-2- 81 | 36                 | 11.2 | 8.5  | 9.7  | ——   |     |                                    |      |  |  |
| DF12E (5.0)-40DP-0.5V (81) | 537-0582-5- 81 | 40                 | 12.2 | 9.5  | 10.7 | ——   |     |                                    |      |  |  |
| DF12E (5.0)-50DP-0.5V (81) | 537-0584-0- 81 | 50                 | 14.7 | 12.0 | 13.2 | ——   |     |                                    |      |  |  |
| DF12E (5.0)-60DP-0.5V (81) | 537-0586-6- 81 | 60                 | 17.2 | 14.5 | 15.7 | ——   |     |                                    |      |  |  |

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

## Header With metal fitting



## ●Stacking Height: 3mm Product

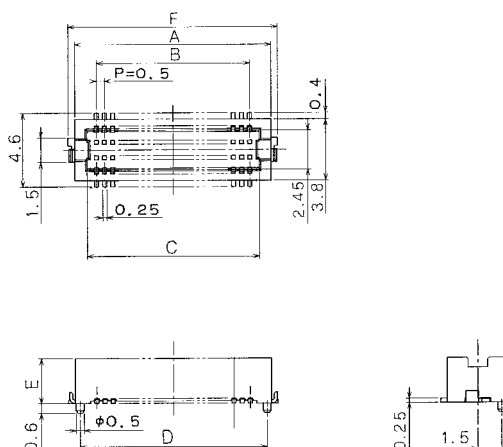
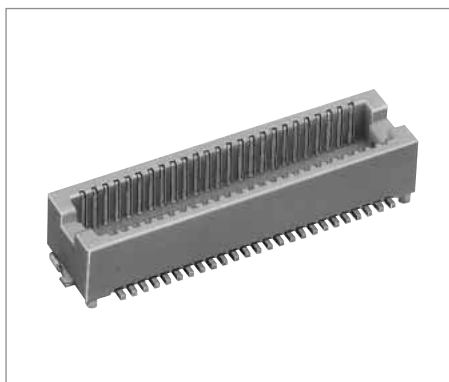
Unit: mm

| Part Number                | CL No.         | Number of Contacts | A    | B    | C    | D    | E   | F    | Remarks                            | RoHS |
|----------------------------|----------------|--------------------|------|------|------|------|-----|------|------------------------------------|------|
| DF12 (3.0)-10DP-0.5V (86)  | 537-0721-0- 86 | 10                 | 4.7  | 2.0  | 3.2  | 4.1  | 2.3 | 5.5  | With metal fitting<br>With boss    | YES  |
| DF12 (3.0)-14DP-0.5V (86)  | 537-0918-4- 86 | 14                 | 5.7  | 3.0  | 4.2  | 5.1  |     | 6.5  |                                    |      |
| DF12 (3.0)-20DP-0.5V (86)  | 537-0723-5- 86 | 20                 | 7.2  | 4.5  | 5.7  | 6.6  |     | 8.0  |                                    |      |
| DF12 (3.0)-30DP-0.5V (86)  | 537-0725-0- 86 | 30                 | 9.7  | 7.0  | 8.2  | 9.1  |     | 10.5 |                                    |      |
| DF12 (3.0)-32DP-0.5V (86)  | 537-0732-6- 86 | 32                 | 10.2 | 7.5  | 8.7  | 9.6  |     | 11.0 |                                    |      |
| DF12 (3.0)-36DP-0.5V (86)  | 537-0726-3- 86 | 36                 | 11.2 | 8.5  | 9.7  | 10.6 |     | 12.0 |                                    |      |
| DF12 (3.0)-40DP-0.5V (86)  | 537-0727-6- 86 | 40                 | 12.2 | 9.5  | 10.7 | 11.6 |     | 13.0 |                                    |      |
| DF12 (3.0)-50DP-0.5V (86)  | 537-0729-1- 86 | 50                 | 14.7 | 12.0 | 13.2 | 14.1 |     | 15.5 |                                    |      |
| DF12 (3.0)-60DP-0.5V (86)  | 537-0731-3- 86 | 60                 | 17.2 | 14.5 | 15.7 | 16.6 |     | 18.0 |                                    |      |
| DF12 (3.0)-80DP-0.5V (86)  | 537-0733-9- 86 | 80                 | 22.2 | 19.5 | 20.7 | 21.6 |     | 23.0 |                                    |      |
| DF12 (3.0)-10DP-0.5V (86)  | 537-0756-4- 86 | 10                 | 4.7  | 2.0  | 3.2  | ——   | 2.3 | 5.5  | With metal fitting<br>Without boss |      |
| DF12 (3.0)-14DP-0.5V (86)  | 537-0919-7- 86 | 14                 | 5.7  | 3.0  | 4.2  | ——   |     | 6.5  |                                    |      |
| DF12B (3.0)-20DP-0.5V (86) | 537-0758-0- 86 | 20                 | 7.2  | 4.5  | 5.7  | ——   |     | 8.0  |                                    |      |
| DF12B (3.0)-30DP-0.5V (86) | 537-0760-1- 86 | 30                 | 9.7  | 7.0  | 8.2  | ——   |     | 10.5 |                                    |      |
| DF12B (3.0)-32DP-0.5V (86) | 537-0767-0- 86 | 32                 | 10.2 | 7.5  | 8.7  | ——   |     | 11.0 |                                    |      |
| DF12B (3.0)-36DP-0.5V (86) | 537-0761-4- 86 | 36                 | 11.2 | 8.5  | 9.7  | ——   |     | 12.0 |                                    |      |
| DF12B (3.0)-40DP-0.5V (86) | 537-0762-7- 86 | 40                 | 12.2 | 9.5  | 10.7 | ——   |     | 13.0 |                                    |      |
| DF12B (3.0)-50DP-0.5V (86) | 537-0764-2- 86 | 50                 | 14.7 | 12.0 | 13.2 | ——   |     | 15.5 |                                    |      |
| DF12B (3.0)-60DP-0.5V (86) | 537-0766-8- 86 | 60                 | 17.2 | 14.5 | 15.7 | ——   |     | 18.0 |                                    |      |
| DF12B (3.0)-80DP-0.5V (86) | 537-0768-3- 86 | 80                 | 22.2 | 19.5 | 20.7 | ——   |     | 23.0 |                                    |      |

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

## DF12 Series 0.5mm Pitch SM Board to Board Connector

### Header With metal fitting



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

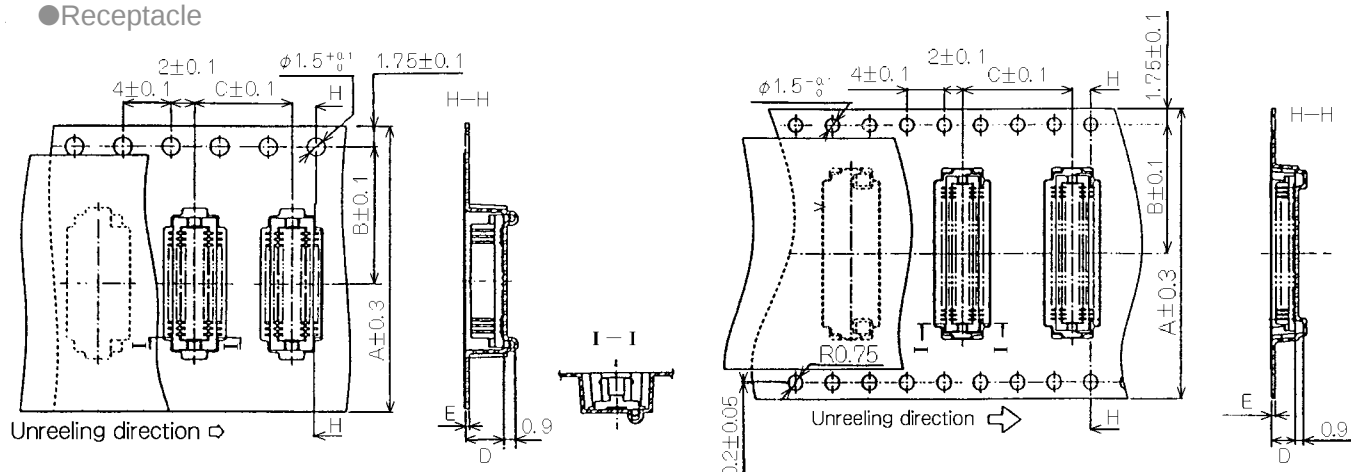
Unit: mm

| Part Number                | CL No.         | Number of Contacts | A    | B    | C    | D    | E    | F    | Remarks                            | RoHS |                                 |  |
|----------------------------|----------------|--------------------|------|------|------|------|------|------|------------------------------------|------|---------------------------------|--|
| DF12 (3.5)-20DP-0.5V (86)  | 537-0028-7- 86 | 20                 | 7.2  | 4.5  | 5.7  | 6.6  | 2.8  | 8.0  | With metal fitting<br>With boss    | YES  |                                 |  |
| DF12 (3.5)-30DP-0.5V (86)  | 537-0030-9- 86 | 30                 | 9.7  | 7.0  | 8.2  | 9.1  |      | 10.5 |                                    |      |                                 |  |
| DF12 (3.5)-36DP-0.5V (86)  | 537-0031-1- 86 | 36                 | 11.2 | 8.5  | 9.7  | 10.6 |      | 12.0 |                                    |      |                                 |  |
| DF12 (3.5)-40DP-0.5V (86)  | 537-0032-4- 86 | 40                 | 12.2 | 9.5  | 10.7 | 11.6 |      | 13.0 |                                    |      |                                 |  |
| DF12 (3.5)-50DP-0.5V (86)  | 537-0034-0- 86 | 50                 | 14.7 | 12.0 | 13.2 | 14.1 |      | 15.5 |                                    |      |                                 |  |
| DF12 (3.5)-60DP-0.5V (86)  | 537-0036-5- 86 | 60                 | 17.2 | 14.5 | 15.7 | 16.6 |      | 18.0 |                                    |      |                                 |  |
| DF12 (4.0)-20DP-0.5V (86)  | 537-0053-4- 86 | 20                 | 7.2  | 4.5  | 5.7  | 6.6  | 3.3  | 8.0  |                                    |      | With metal fitting<br>With boss |  |
| DF12 (4.0)-30DP-0.5V (86)  | 537-0055-0- 86 | 30                 | 9.7  | 7.0  | 8.2  | 9.1  |      | 10.5 |                                    |      |                                 |  |
| DF12 (4.0)-32DP-0.5V (86)  | 537-0926-2-86  | 32                 | 10.2 | 7.5  | 8.7  | 9.6  |      | 11.0 |                                    |      |                                 |  |
| DF12 (4.0)-36DP-0.5V (86)  | 537-0056-2- 86 | 36                 | 11.2 | 8.5  | 9.7  | 10.6 |      | 12.0 |                                    |      |                                 |  |
| DF12 (4.0)-40DP-0.5V (86)  | 537-0057-5- 86 | 40                 | 12.2 | 9.5  | 10.7 | 11.6 |      | 13.0 |                                    |      |                                 |  |
| DF12 (4.0)-50DP-0.5V (86)  | 537-0059-0- 86 | 50                 | 14.7 | 12.0 | 13.2 | 14.1 |      | 15.5 |                                    |      |                                 |  |
| DF12 (4.0)-60DP-0.5V (86)  | 537-0061-2- 86 | 60                 | 17.2 | 14.5 | 15.7 | 16.6 | 18.0 |      |                                    |      |                                 |  |
| DF12 (5.0)-20DP-0.5V (86)  | 537-0153-9- 86 | 20                 | 7.2  | 4.5  | 5.7  | 6.6  | 4.3  | 8.0  |                                    |      |                                 |  |
| DF12 (5.0)-30DP-0.5V (86)  | 537-0155-4- 86 | 30                 | 9.7  | 7.0  | 8.2  | 9.1  |      | 10.5 |                                    |      |                                 |  |
| DF12 (5.0)-36DP-0.5V (86)  | 537-0156-7- 86 | 36                 | 11.2 | 8.5  | 9.7  | 10.6 |      | 12.0 |                                    |      |                                 |  |
| DF12 (5.0)-40DP-0.5V (86)  | 537-0157-0- 86 | 40                 | 12.2 | 9.5  | 10.7 | 11.6 |      | 13.0 |                                    |      |                                 |  |
| DF12 (5.0)-50DP-0.5V (86)  | 537-0159-5- 86 | 50                 | 14.7 | 12.0 | 13.2 | 14.1 |      | 15.5 |                                    |      |                                 |  |
| DF12 (5.0)-60DP-0.5V (86)  | 537-0161-7- 86 | 60                 | 17.2 | 14.5 | 15.7 | 16.6 |      | 18.0 |                                    |      |                                 |  |
| DF12B (3.5)-20DP-0.5V (86) | 537-0328-0- 86 | 20                 | 7.2  | 4.5  | 5.7  | ——   | 2.8  | 8.0  | With metal fitting<br>Without boss |      |                                 |  |
| DF12B (3.5)-30DP-0.5V (86) | 537-0330-2- 86 | 30                 | 9.7  | 7.0  | 8.2  | ——   |      | 10.5 |                                    |      |                                 |  |
| DF12B (3.5)-36DP-0.5V (86) | 537-0331-5- 86 | 36                 | 11.2 | 8.5  | 9.7  | ——   |      | 12.0 |                                    |      |                                 |  |
| DF12B (3.5)-40DP-0.5V (86) | 537-0332-8- 86 | 40                 | 12.2 | 9.5  | 10.7 | ——   |      | 13.0 |                                    |      |                                 |  |
| DF12B (3.5)-50DP-0.5V (86) | 537-0334-3- 86 | 50                 | 14.7 | 12.0 | 13.2 | ——   |      | 15.5 |                                    |      |                                 |  |
| DF12B (3.5)-60DP-0.5V (86) | 537-0336-9- 86 | 60                 | 17.2 | 14.5 | 15.7 | ——   |      | 18.0 |                                    |      |                                 |  |
| DF12B (4.0)-20DP-0.5V (86) | 537-0353-8- 86 | 20                 | 7.2  | 4.5  | 5.7  | ——   | 3.3  | 8.0  |                                    |      |                                 |  |
| DF12B (4.0)-30DP-0.5V (86) | 537-0355-3- 86 | 30                 | 9.7  | 7.0  | 8.2  | ——   |      | 10.5 |                                    |      |                                 |  |
| DF12B (4.0)-32DP-0.5V (86) | 537-0927-5-86  | 32                 | 10.2 | 7.5  | 8.7  | ——   |      | 11.0 |                                    |      |                                 |  |
| DF12B (4.0)-36DP-0.5V (86) | 537-0356-6- 86 | 36                 | 11.2 | 8.5  | 9.7  | ——   |      | 12.0 |                                    |      |                                 |  |
| DF12B (4.0)-40DP-0.5V (86) | 537-0357-9- 86 | 40                 | 12.2 | 9.5  | 10.7 | ——   |      | 13.0 |                                    |      |                                 |  |
| DF12B (4.0)-50DP-0.5V (86) | 537-0359-4- 86 | 50                 | 14.7 | 12.0 | 13.2 | ——   |      | 15.5 |                                    |      |                                 |  |
| DF12B (4.0)-60DP-0.5V (86) | 537-0361-6- 86 | 60                 | 17.2 | 14.5 | 15.7 | ——   | 18.0 |      |                                    |      |                                 |  |
| DF12B (5.0)-20DP-0.5V (86) | 537-0378-9- 86 | 20                 | 7.2  | 4.5  | 5.7  | ——   | 4.3  | 8.0  |                                    |      |                                 |  |
| DF12B (5.0)-30DP-0.5V (86) | 537-0380-0- 86 | 30                 | 9.7  | 7.0  | 8.2  | ——   |      | 10.5 |                                    |      |                                 |  |
| DF12B (5.0)-36DP-0.5V (86) | 537-0381-3- 86 | 36                 | 11.2 | 8.5  | 9.7  | ——   |      | 12.0 |                                    |      |                                 |  |
| DF12B (5.0)-40DP-0.5V (86) | 537-0382-6- 86 | 40                 | 12.2 | 9.5  | 10.7 | ——   |      | 13.0 |                                    |      |                                 |  |
| DF12B (5.0)-50DP-0.5V (86) | 537-0384-1- 86 | 50                 | 14.7 | 12.0 | 13.2 | ——   |      | 15.5 |                                    |      |                                 |  |
| DF12B (5.0)-60DP-0.5V (86) | 537-0386-7- 86 | 60                 | 17.2 | 14.5 | 15.7 | ——   |      | 18.0 |                                    |      |                                 |  |

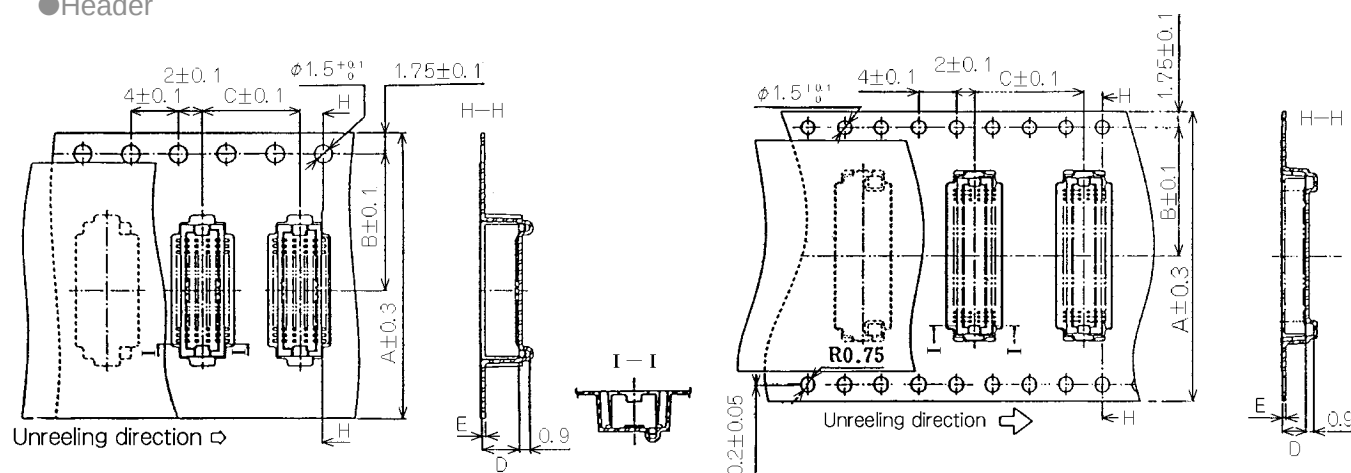
Note : Please order the embossed tape packaging product per reel. (1000 pcs./reel)

## ◆ Embossed Carrier tape Dimensions

### ● Receptacle



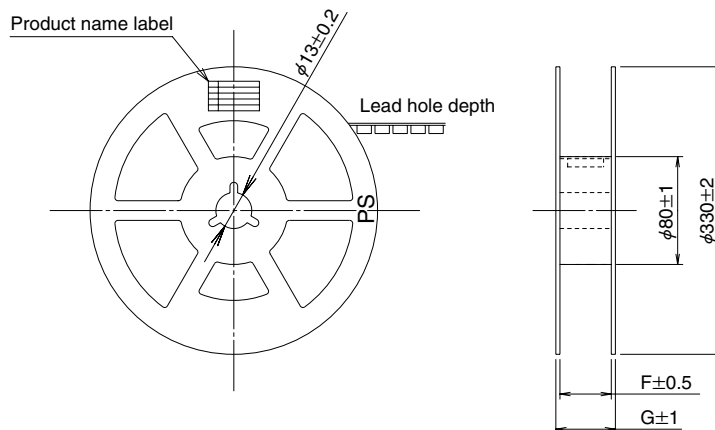
### ● Header



| Connector              | A  | B    | C  | D   | E    | F    | G    | Connector              | A  | B    | C  | D   | E    | F    | G    |
|------------------------|----|------|----|-----|------|------|------|------------------------|----|------|----|-----|------|------|------|
| DF12# (3.0) -10DS-0.5V | 16 | 7.5  | 12 | 2.6 | 0.30 | 17.5 | 21.5 | DF12# (3.5) -20DP-0.5V | 16 | 7.5  | 12 | 3.1 | 0.38 | 17.5 | 21.5 |
| DF12# (3.0) -14DS-0.5V | 16 | 7.5  | 12 | 2.6 | 0.38 | 17.5 | 21.5 | DF12# (3.5) -30DP-0.5V | 24 | 11.5 | 12 | 3.1 | 0.38 | 25.5 | 29.5 |
| DF12# (3.0) -20DS-0.5V | 16 | 7.5  | 12 | 2.6 | 0.38 | 17.5 | 21.5 | DF12# (3.5) -36DP-0.5V | 24 | 11.5 | 8  | 3.1 | 0.30 | 25.5 | 29.5 |
| DF12# (3.0) -30DS-0.5V | 24 | 11.5 | 12 | 2.6 | 0.38 | 25.5 | 29.5 | DF12# (3.5) -40DP-0.5V | 24 | 11.5 | 12 | 3.1 | 0.38 | 25.5 | 29.5 |
| DF12# (3.0) -32DS-0.5V | 24 | 11.5 | 12 | 2.6 | 0.38 | 25.5 | 29.5 | DF12# (3.5) -50DP-0.5V | 24 | 11.5 | 8  | 3.1 | 0.30 | 25.5 | 29.5 |
| DF12# (3.0) -36DS-0.5V | 24 | 11.5 | 12 | 2.6 | 0.38 | 25.5 | 29.5 | DF12# (3.5) -60DP-0.5V | 32 | 14.2 | 12 | 3.1 | 0.38 | 33.5 | 37.5 |
| DF12# (3.0) -40DS-0.5V | 24 | 11.5 | 12 | 2.6 | 0.38 | 25.5 | 29.5 | DF12# (3.5) -20DP-0.5V | 16 | 7.5  | 12 | 3.6 | 0.38 | 17.5 | 21.5 |
| DF12# (3.0) -50DS-0.5V | 24 | 11.5 | 12 | 2.6 | 0.38 | 25.5 | 29.5 | DF12# (4.0) -30DP-0.5V | 24 | 11.5 | 12 | 3.6 | 0.38 | 25.5 | 29.5 |
| DF12# (3.0) -60DS-0.5V | 32 | 14.2 | 12 | 2.6 | 0.38 | 33.5 | 37.5 | DF12# (4.0) -32DP-0.5V | 24 | 11.5 | 12 | 3.6 | 0.30 | 25.5 | 29.5 |
| DF12# (3.0) -80DS-0.5V | 44 | 20.2 | 12 | 2.6 | 0.38 | 45.5 | 49.5 | DF12# (4.0) -36DP-0.5V | 24 | 11.5 | 8  | 3.6 | 0.30 | 25.5 | 29.5 |
| DF12# (3.0) -10DP-0.5V | 16 | 7.5  | 12 | 2.6 | 0.30 | 17.5 | 21.5 | DF12# (4.0) -40DP-0.5V | 24 | 11.5 | 12 | 3.6 | 0.38 | 25.5 | 29.5 |
| DF12# (3.0) -14DP-0.5V | 16 | 7.5  | 12 | 2.6 | 0.38 | 17.5 | 21.5 | DF12# (4.0) -50DP-0.5V | 24 | 11.5 | 8  | 3.6 | 0.30 | 25.5 | 29.5 |
| DF12# (3.0) -20DP-0.5V | 16 | 7.5  | 12 | 2.6 | 0.38 | 17.5 | 21.5 | DF12# (4.0) -60DP-0.5V | 32 | 14.2 | 12 | 3.6 | 0.38 | 33.5 | 37.5 |
| DF12# (3.0) -30DP-0.5V | 24 | 11.5 | 12 | 2.6 | 0.38 | 25.5 | 29.5 | DF12# (5.0) -20DP-0.5V | 16 | 7.5  | 12 | 4.6 | 0.38 | 17.5 | 21.5 |
| DF12# (3.0) -32DP-0.5V | 24 | 11.5 | 12 | 2.6 | 0.38 | 25.5 | 29.5 | DF12# (5.0) -30DP-0.5V | 24 | 11.5 | 12 | 4.6 | 0.38 | 25.5 | 29.5 |
| DF12# (3.0) -36DP-0.5V | 24 | 11.5 | 12 | 2.6 | 0.38 | 25.5 | 29.5 | DF12# (5.0) -36DP-0.5V | 24 | 11.5 | 12 | 4.6 | 0.38 | 25.5 | 29.5 |
| DF12# (3.0) -40DP-0.5V | 24 | 11.5 | 12 | 2.6 | 0.38 | 25.5 | 29.5 | DF12# (5.0) -40DP-0.5V | 24 | 11.5 | 12 | 4.6 | 0.38 | 25.5 | 29.5 |
| DF12# (3.0) -50DP-0.5V | 24 | 11.5 | 12 | 2.6 | 0.38 | 25.5 | 29.5 | DF12# (5.0) -50DP-0.5V | 24 | 11.5 | 8  | 4.6 | 0.30 | 25.5 | 29.5 |
| DF12# (3.0) -60DP-0.5V | 32 | 14.2 | 12 | 2.6 | 0.38 | 33.5 | 37.5 | DF12# (5.0) -60DP-0.5V | 32 | 14.2 | 12 | 4.6 | 0.38 | 33.5 | 37.5 |
| DF12# (3.0) -80DP-0.5V | 44 | 20.2 | 12 | 2.6 | 0.38 | 45.5 | 49.5 |                        |    |      |    |     |      |      |      |
| DF12#-20DS-0.5V        | 16 | 7.5  | 12 | 3.1 | 0.38 | 17.5 | 21.5 |                        |    |      |    |     |      |      |      |
| DF12#-30DS-0.5V        | 24 | 11.5 | 12 | 3.1 | 0.38 | 25.5 | 29.5 |                        |    |      |    |     |      |      |      |
| DF12#-32DS-0.5V        | 24 | 11.5 | 12 | 3.1 | 0.30 | 25.5 | 29.5 |                        |    |      |    |     |      |      |      |
| DF12#-36DS-0.5V        | 24 | 11.5 | 8  | 3.1 | 0.30 | 25.5 | 29.5 |                        |    |      |    |     |      |      |      |
| DF12#-40DS-0.5V        | 24 | 11.5 | 12 | 3.1 | 0.38 | 25.5 | 29.5 |                        |    |      |    |     |      |      |      |
| DF12#-50DS-0.5V        | 24 | 11.5 | 8  | 3.1 | 0.30 | 25.5 | 29.5 |                        |    |      |    |     |      |      |      |
| DF12#-60DS-0.5V        | 32 | 14.2 | 12 | 3.1 | 0.38 | 33.5 | 37.5 |                        |    |      |    |     |      |      |      |

## DF12 Series 0.5mm Pitch SMT Board to Board Connector

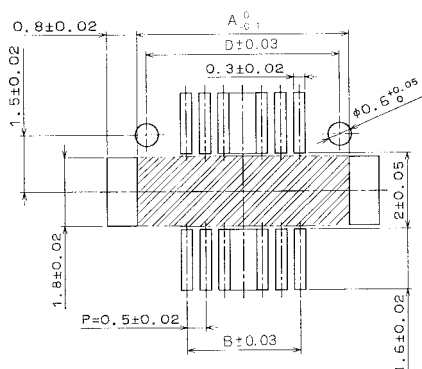
### ●Reel Dimensions



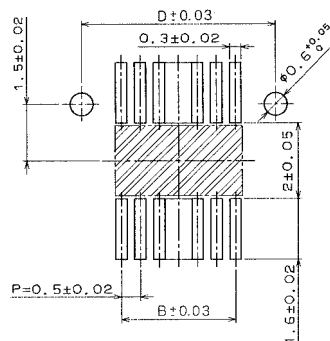
Refer to former page for F, G dimensions.

### ◆Recommended PCB mounting pattern

#### ■DF12 with metal fitting



#### ■DF12 without metal fitting



Note 1 : Refer to A195 to A200 for sides A, B, and D.

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

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

◆Precautions for Use

|                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.Recommended Temperature Profile (SMT)                                | <div><div><div><div>Temperature (°C)</div><div>250</div><div>200</div><div>150</div><div>100</div><div>50</div><div>Room temperature</div></div><div><div>0</div><div>50</div><div>100</div><div>150</div><div>200</div><div>250</div><div>300</div></div><div><div>Time (sec)</div></div></div><div><div><div>250°C</div><div>220°C</div><div>180°C</div><div>150°C</div></div><div><div>90 to 120sec</div><div>Preheating</div></div><div><div>60sec max</div><div>Soldering</div></div></div></div> <div><div>Note1: UP to 2 cycles of Reflow soldering are possible under the same conditions, provided that there is a return to normal temperature between the first and second cycle.</div><div>Note2: The temperature profile indicates the board surface temperature at the point of contacts with the connector terminals.</div></div> |
| 2.Recommended Manual Soldering Condition (SMT)                         | Soldering iron temperature: 350°C, Soldering time: Within 3 seconds                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 3.Recommended Screen Thickness and open area ratio(Pattern area ratio) | 0.12mm<br>Open area ratio: 70%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 4.Board Warp(SMT)                                                      | Maximum 0.02mm in the connector center area, based on both connector edges                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 5.Cleaning Condition                                                   | Refer to "Nylon Connector Use Hand book".                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 6.Cautions                                                             | <div><div>■ The receptacle is designed in a structure where contacts are exposed. Touching it with bare hands would cause contact failure or electrostatic element damage.</div><div>■ Where no board is mounted, the insertion or extraction will cause damage or contact deformation.</div><div>■ Avoid retaining the board with the connector only, and fix the board by any other means than the connector.</div><div>■ Excessive scoop insertion or extraction may result in damage.</div><div>■ In the manual soldering process, don't carry out the flux coating which will cause a flux blister on the connector.</div><div>■ The color phase of this product may be slightly different from that of the formed product according to the manufacturing lot. However, the difference doesn't affect the performance.</div></div>          |