

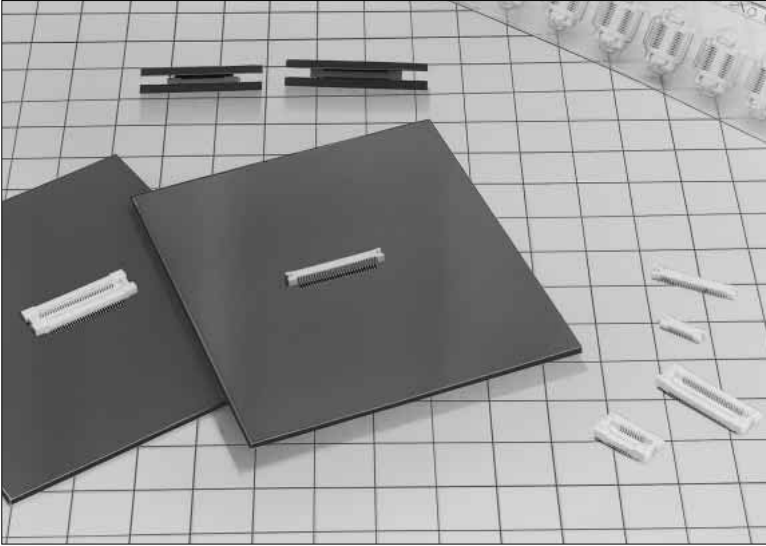


**THE DATASHEET OF
DF16B-20DS-0.5V(86)**



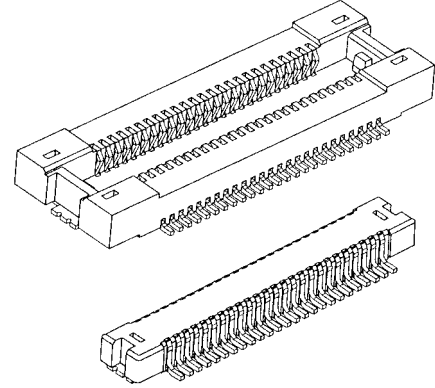
0.5mm Pitch SMT Board to Board Connector

DF16 Series



Correspond to Automatic Mounting

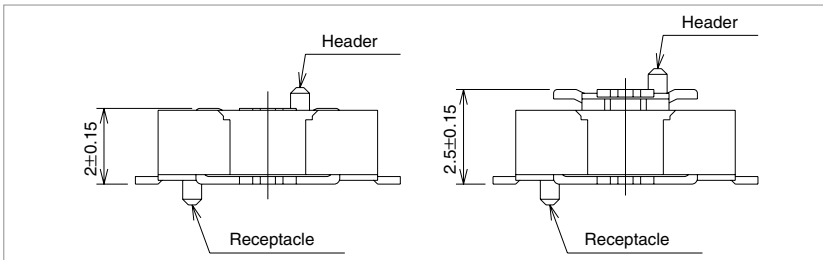
The vacuum pick-up area is prepared for automatic mounting machine.



■Features

1. Miniaturizing and Slimming

In addition to 0.5mm pitch miniaturization, board to stacking height of 2mm and 2.5mm are provided.



Receptacle commonly uses DF16#-*DS-0.5V.

| Header Product Name | Stacking Height |
|---------------------|-----------------|
| DF16#(2.0)-*DP-0.5V | 2.0mm |
| DF16#(2.5)-*DP-0.5V | 2.5mm |

Note1: The stacking height doesn't include the solder paste thickness.

2. High Contact Reliability

The bellows female contact has a sufficient spring characteristic despite the low profile, and achieves high contact reliability.

3. Click Sensitivity in Mating

The click feeling is considered to facilitate insertion check when the connector is mated.

4. Metal Fitting Available

The metal fitting to prevent the solder peel is provided, considering the mounting on FPC.

5. Corresponding to Automatic Mounting

The connector has the vacuum pick-up area, and enables the automatic mounting with the embossed tape packaging. Connector specification with no boss and no fitting is also.

■Applications

Mobile phone, LCD(Liquid Crystal Display), and so on

Product Specifications

| | | | |
|--------|-------------------------|---|---|
| Rating | Current rating : 0.3A | Operating Temperature Range : -35 to +85°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% (Note 2) |

| 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: 250M ohms min. | 96 hours at temperature of 40°C and humidity of 90% to 95% |
| 6. Temperature Cycle | Contact resistance: 50m ohms max. Insulation resistance: 500M ohms min. | (-55°C: 30 minutes 5 to 35°C: 10 minutes 85°C: 30 minutes 5 to 35°C: 10 minutes) 5 cycles |
| 7. Durability (Mating/un-mating) | Contact resistance: 50m ohms max | 50cycle |
| 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 | Treatment | UL Standard |
|------------|---------------|-----------------|-----------------------|-------------|
| Receptacle | Insulator | Polyamide | White Beige (Natural) | UL94V-0 |
| | Contact | Phosphor copper | Gold plated | ———— |
| | Metal fitting | Brass | Tin plated | ———— |
| Header | Insulator | Polyamide | White Beige (Natural) | UL94V-0 |
| | Contact | Phosphor copper | Gold plated | ———— |
| | Metal fitting | Brass | Tin plated | ———— |

Ordering Information

●Receptacle/Header

DF16 # (**) - * DS - 0.5 V (**)

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

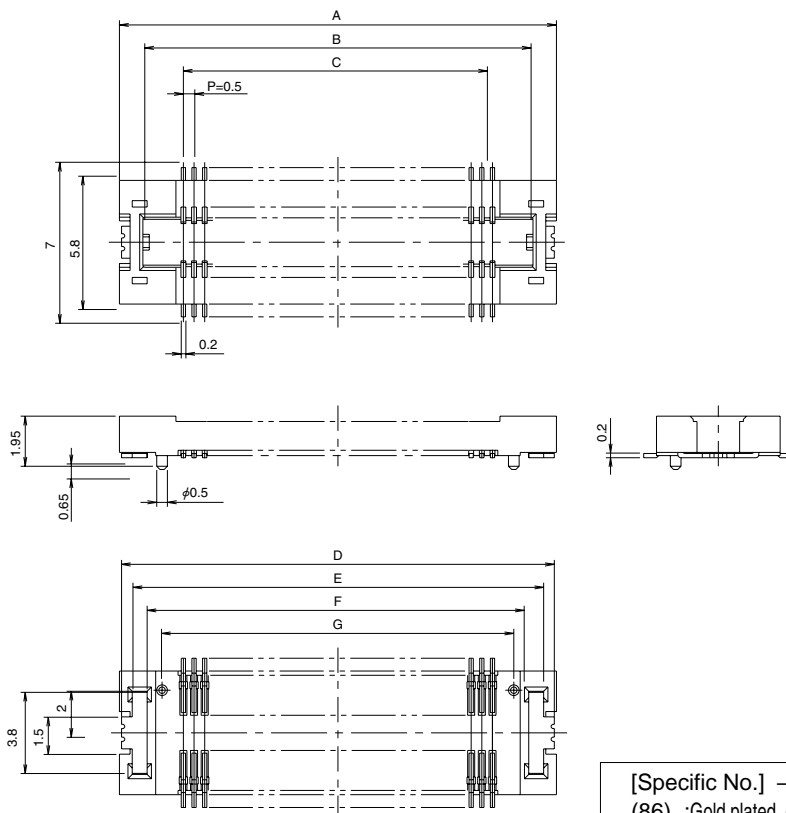
| ① Series Name : DF16 | ③ Product height Receptacle : None Header : 2.0, 2.5 | ⑥ Contact Pitch : 0.5mm | | | | | | | | | |
|--|--|-------------------------|------|-------|---|---|---|---|---|---|------------------------------------|
| ② Type <table border="1" style="margin-left: 20px;"> <thead> <tr> <th></th> <th>Fitting</th> <th>Boss</th> </tr> </thead> <tbody> <tr> <td>Blank</td> <td style="text-align: center;">○</td> <td style="text-align: center;">○</td> </tr> <tr> <td>B</td> <td style="text-align: center;">○</td> <td style="text-align: center;">×</td> </tr> </tbody> </table> | | Fitting | Boss | Blank | ○ | ○ | B | ○ | × | ④ Number of Contacts 14, 16, 20, 30, 34, 40, 50, 60, 80 (Note1) | ⑦ Contact Type V : Straight SMT |
| | | Fitting | Boss | | | | | | | | |
| | Blank | ○ | ○ | | | | | | | | |
| B | ○ | × | | | | | | | | | |
| ⑤ Connector Type DS : Double-row receptacle DP : Double-row header | ⑧ Packaging Type (86) : Gold plating, embossed tape packaging | | | | | | | | | | |

Note1: For the 14, 16 and 80 contacts connector, the stacking height 2.0mm product only is available.

For the 34 contacts connectors, the stacking height of 2.5mm product only is available.

DF16 Series 0.5mm Pitch SMT Board to Board Connector

■ Receptacle With metal fitting



[Specific No.] -* *, (* *)
 (86) : Gold plated, embossed tape packaging

● Receptacle with metal fitting, with boss

Unit: mm

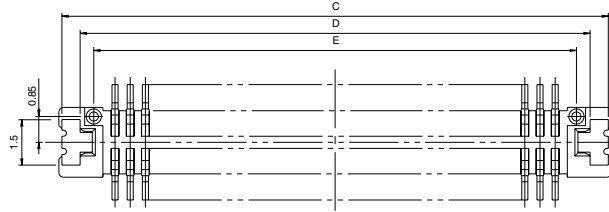
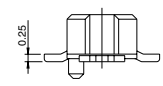
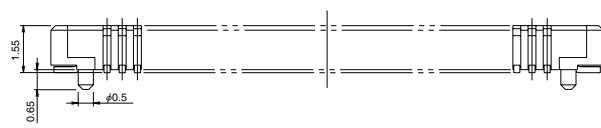
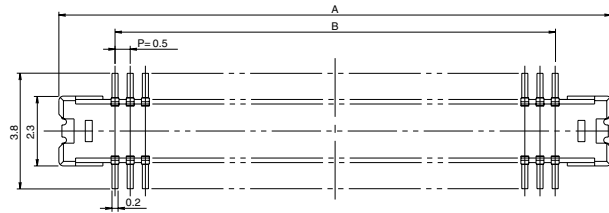
| Part Number | CL No. | Number of Contacts | A | B | C | D | E | F | G | RoHS |
|--------------------|---------------|--------------------|------|------|------|------|------|------|------|------|
| DF16-14DS-0.5V(86) | 679-0010-1-86 | 14 | 9.0 | 6.8 | 3.0 | 8.8 | 7.8 | 6.4 | 5.0 | YES |
| DF16-16DS-0.5V(86) | 679-0001-0-86 | 16 | 9.5 | 7.3 | 3.5 | 9.3 | 8.3 | 6.9 | 5.5 | |
| DF16-20DS-0.5V(86) | 679-0002-3-86 | 20 | 10.5 | 8.3 | 4.5 | 10.3 | 9.3 | 7.9 | 6.5 | |
| DF16-30DS-0.5V(86) | 679-0003-6-86 | 30 | 13.0 | 10.8 | 7.0 | 12.8 | 11.8 | 10.4 | 9.0 | |
| DF16-34DS-0.5V(86) | 679-0009-2-86 | 34 | 14.0 | 11.8 | 8.0 | 13.8 | 12.8 | 11.4 | 10.0 | |
| DF16-40DS-0.5V(86) | 679-0004-9-86 | 40 | 15.5 | 13.3 | 9.5 | 15.3 | 14.3 | 12.9 | 11.5 | |
| DF16-50DS-0.5V(86) | 679-0005-1-86 | 50 | 18.0 | 15.8 | 12.0 | 17.8 | 16.8 | 15.4 | 14.0 | |
| DF16-60DS-0.5V(86) | 679-0006-4-86 | 60 | 20.5 | 18.3 | 14.5 | 20.3 | 19.3 | 17.9 | 16.5 | |
| DF16-80DS-0.5V(86) | 679-0008-0-86 | 80 | 25.5 | 23.3 | 19.5 | 25.3 | 24.3 | 22.9 | 21.5 | |

● Receptacle with metal fitting, without boss

Unit: mm

| Part Number | CL No. | Number of Contacts | A | B | C | D | E | F | G | RoHS |
|---------------------|---------------|--------------------|------|------|------|------|------|------|---|------|
| DF16B-14DS-0.5V(86) | 679-0030-9-86 | 14 | 9.0 | 6.8 | 3.0 | 8.8 | 7.8 | 6.4 | — | YES |
| DF16B-16DS-0.5V(86) | 679-0021-8-86 | 16 | 9.5 | 7.3 | 3.5 | 9.3 | 8.3 | 6.9 | — | |
| DF16B-20DS-0.5V(86) | 679-0022-0-86 | 20 | 10.5 | 8.3 | 4.5 | 10.3 | 9.3 | 7.9 | — | |
| DF16B-30DS-0.5V(86) | 679-0023-3-86 | 30 | 13.0 | 10.8 | 7.0 | 12.8 | 11.8 | 10.4 | — | |
| DF16B-34DS-0.5V(86) | 679-0029-0-86 | 34 | 14.0 | 11.8 | 8.0 | 13.8 | 12.8 | 11.4 | — | |
| DF16B-40DS-0.5V(86) | 679-0024-6-86 | 40 | 15.5 | 13.3 | 9.5 | 15.3 | 14.3 | 12.9 | — | |
| DF16B-50DS-0.5V(86) | 679-0025-9-86 | 50 | 18.0 | 15.8 | 12.0 | 17.8 | 16.8 | 15.4 | — | |
| DF16B-60DS-0.5V(86) | 679-0026-1-86 | 60 | 20.5 | 18.3 | 14.5 | 20.3 | 19.3 | 17.9 | — | |
| DF16B-80DS-0.5V(86) | 679-0028-7-86 | 80 | 25.5 | 23.3 | 19.5 | 25.3 | 24.3 | 22.9 | — | |

Board to Board 2mm Header With metal fitting



[Specific No.] -* *, (* *)
 (86) : Gold plated, embossed tape packaging

Board to Board 2mm Header with metal fitting, with boss

Unit: mm

| Part Number | CL No. | Number of Contacts | A | B | C | D | E | RoHS |
|-------------------------|---------------|--------------------|------|------|------|------|------|------|
| DF16(2.0)-14DP-0.5V(86) | 679-0049-7-86 | 14 | 6.7 | 3.0 | 6.5 | 5.3 | 4.4 | YES |
| DF16(2.0)-16DP-0.5V(86) | 679-0041-5-86 | 16 | 7.2 | 3.5 | 7.0 | 5.8 | 4.9 | |
| DF16(2.0)-20DP-0.5V(86) | 679-0042-8-86 | 20 | 8.2 | 4.5 | 8.0 | 6.8 | 5.9 | |
| DF16(2.0)-30DP-0.5V(86) | 679-0043-0-86 | 30 | 10.7 | 7.0 | 10.5 | 9.3 | 8.4 | |
| DF16(2.0)-40DP-0.5V(86) | 679-0044-3-86 | 40 | 13.2 | 9.5 | 13.0 | 11.8 | 10.9 | |
| DF16(2.0)-50DP-0.5V(86) | 679-0045-6-86 | 50 | 15.7 | 12.0 | 15.5 | 14.3 | 13.4 | |
| DF16(2.0)-60DP-0.5V(86) | 679-0046-9-86 | 60 | 18.2 | 14.5 | 18.0 | 16.8 | 15.9 | |
| DF16(2.0)-80DP-0.5V(86) | 679-0048-4-86 | 80 | 23.2 | 19.5 | 23.0 | 21.8 | 20.9 | |

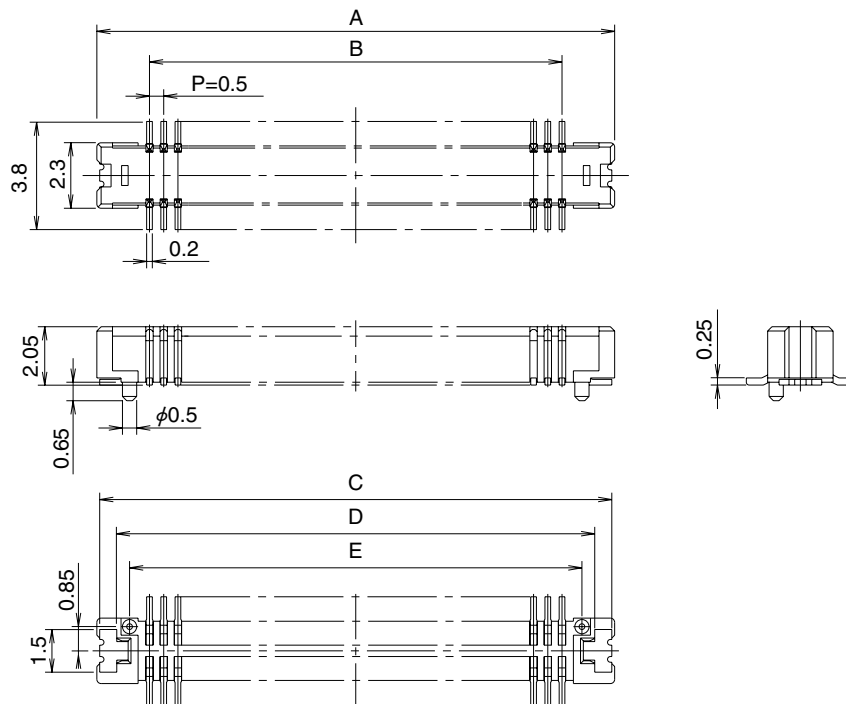
Board to Board 2mm Header with metal fitting, without boss

Unit: mm

| Part Number | CL No. | Number of Contacts | A | B | C | D | E | RoHS |
|--------------------------|---------------|--------------------|------|------|------|------|---|------|
| DF16B(2.0)-14DP-0.5V(86) | 679-0069-4-86 | 14 | 6.7 | 3.0 | 6.5 | 5.3 | — | YES |
| DF16B(2.0)-16DP-0.5V(86) | 679-0061-2-86 | 16 | 7.2 | 3.5 | 7.0 | 5.8 | — | |
| DF16B(2.0)-20DP-0.5V(86) | 679-0062-5-86 | 20 | 8.2 | 4.5 | 8.0 | 6.8 | — | |
| DF16B(2.0)-30DP-0.5V(86) | 679-0063-8-86 | 30 | 10.7 | 7.0 | 10.5 | 9.3 | — | |
| DF16B(2.0)-40DP-0.5V(86) | 679-0064-0-86 | 40 | 13.2 | 9.5 | 13.0 | 11.8 | — | |
| DF16B(2.0)-50DP-0.5V(86) | 679-0065-3-86 | 50 | 15.7 | 12.0 | 15.5 | 14.3 | — | |
| DF16B(2.0)-60DP-0.5V(86) | 679-0066-6-86 | 60 | 18.2 | 14.5 | 18.0 | 16.8 | — | |
| DF16B(2.0)-80DP-0.5V(86) | 679-0068-1-86 | 80 | 23.2 | 19.5 | 23.0 | 21.8 | — | |

DF16 Series 0.5mm Pitch SMT Board to Board Connector

■Board to Board 2.5mm Header With metal fitting



[Specific No.] -* *, (* *)
 (86) :Gold plated, embossed tape packaging

●Board to Board 2.5mm Header with metal fitting, with boss

Unit: mm

| Part Number | CL No. | Number of Contacts | A | B | C | D | E | RoHS |
|-------------------------|---------------|--------------------|------|------|------|------|------|------|
| DF16(2.5)-20DP-0.5V(86) | 679-0082-2-86 | 20 | 8.2 | 4.5 | 8.0 | 6.8 | 5.9 | YES |
| DF16(2.5)-30DP-0.5V(86) | 679-0083-5-86 | 30 | 10.7 | 7.0 | 10.5 | 9.3 | 8.4 | |
| DF16(2.5)-34DP-0.5V(86) | 679-0089-1-86 | 34 | 11.7 | 8.0 | 11.5 | 10.3 | 9.4 | |
| DF16(2.5)-40DP-0.5V(86) | 679-0084-8-86 | 40 | 13.2 | 9.5 | 13.0 | 11.8 | 10.9 | |
| DF16(2.5)-50DP-0.5V(86) | 679-0085-0-86 | 50 | 15.7 | 12.0 | 15.5 | 14.3 | 13.4 | |
| DF16(2.5)-60DP-0.5V(86) | 679-0086-3-86 | 60 | 18.2 | 14.5 | 18.0 | 16.8 | 15.9 | |

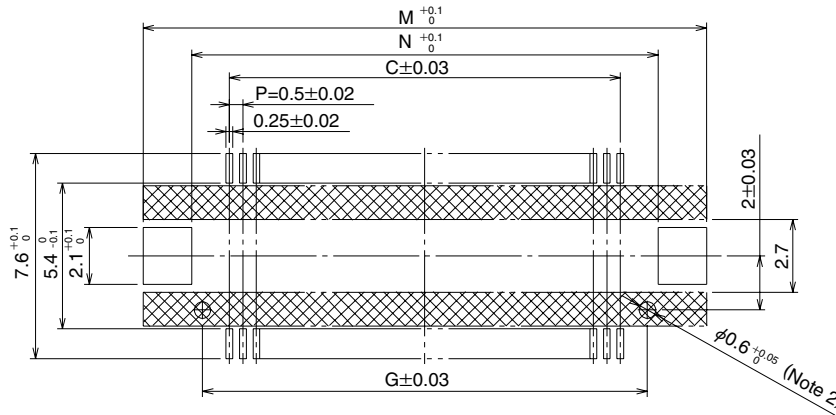
●Board to Board 2.5mm Header with metal fitting, without boss

Unit: mm

| Part Number | CL No. | Number of Contacts | A | B | C | D | E | RoHS |
|--------------------------|---------------|--------------------|------|------|------|------|---|------|
| DF16B(2.5)-20DP-0.5V(86) | 679-0102-8-86 | 20 | 8.2 | 4.5 | 8.0 | 6.8 | — | YES |
| DF16B(2.5)-30DP-0.5V(86) | 679-0103-0-86 | 30 | 10.7 | 7.0 | 10.5 | 9.3 | — | |
| DF16B(2.5)-34DP-0.5V(86) | 679-0109-7-86 | 34 | 11.7 | 8.0 | 11.5 | 10.3 | — | |
| DF16B(2.5)-40DP-0.5V(86) | 679-0104-3-86 | 40 | 13.2 | 9.5 | 13.0 | 11.8 | — | |
| DF16B(2.5)-50DP-0.5V(86) | 679-0105-6-86 | 50 | 15.7 | 12.0 | 15.5 | 14.3 | — | |
| DF16B(2.5)-60DP-0.5V(86) | 679-0106-9-86 | 60 | 18.2 | 14.5 | 18.0 | 16.8 | — | |

Recommended PCB mounting pattern

●Receptacle

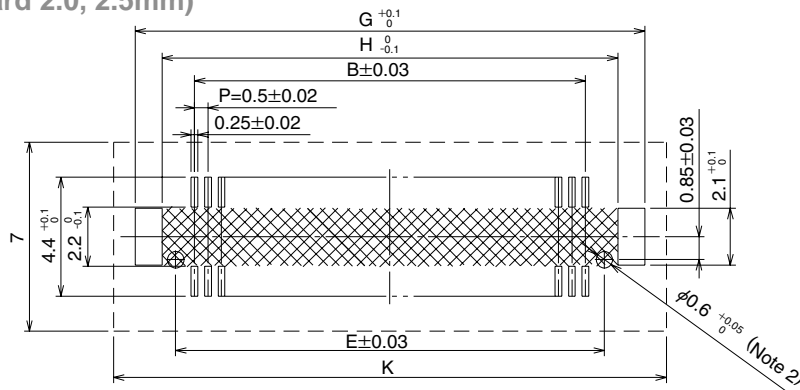


Note1: If the pattern is included in the shaded area, and is not treated with resist, it could touch the connector contact.

Note2: If the boss isn't included, the boss hole shown in the above isn't required.

| Number of Contacts | C | G | M | N |
|--------------------|------|------|------|------|
| 14 | 3.0 | 5.0 | 9.4 | 5.8 |
| 16 | 3.5 | 5.5 | 9.9 | 6.3 |
| 20 | 4.5 | 6.5 | 10.9 | 7.3 |
| 30 | 7.0 | 9.0 | 13.4 | 9.8 |
| 34 | 8.0 | 10.0 | 14.4 | 10.8 |
| 40 | 9.5 | 11.5 | 15.9 | 12.3 |
| 50 | 12.0 | 14.0 | 18.4 | 14.8 |
| 60 | 14.5 | 16.5 | 20.9 | 17.3 |
| 80 | 19.5 | 21.5 | 25.9 | 22.3 |

●Header (Board to Board 2.0, 2.5mm)



Note1: If the pattern is included in the shaded area, and is not treated with resist, it could touch the connector contact.

Note2: If the boss isn't included, the boss hole shown in the above isn't required.

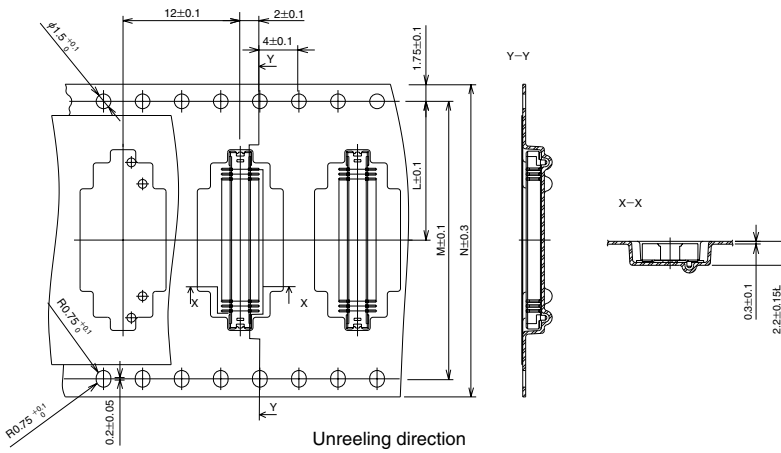
Note3: Don't install any part in the shaded area. If installed, the connectors can't be mated with each other.

| Number of Contacts | B | E | G | H | K |
|--------------------|------|------|------|------|------|
| 14 | 3.0 | 4.4 | 7.4 | 5.4 | 9.0 |
| 16 | 3.5 | 4.9 | 7.9 | 5.9 | 9.5 |
| 20 | 4.5 | 5.9 | 8.9 | 6.9 | 10.5 |
| 30 | 7.0 | 8.4 | 11.4 | 9.4 | 13.0 |
| 34 | 8.0 | 9.4 | 12.4 | 10.4 | 14.0 |
| 40 | 9.5 | 10.9 | 13.9 | 11.9 | 15.5 |
| 50 | 12.0 | 13.4 | 16.4 | 14.4 | 18.0 |
| 60 | 14.5 | 15.9 | 18.9 | 16.9 | 20.5 |
| 80 | 19.5 | 20.9 | 23.9 | 21.9 | 25.5 |

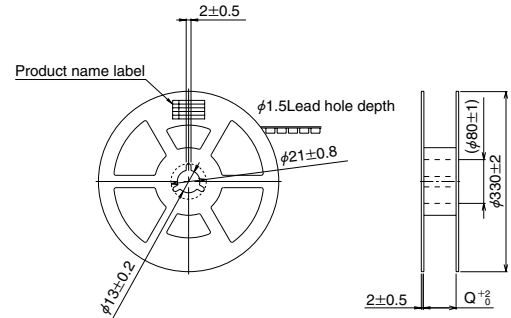
DF16 Series 0.5mm Pitch SMT Board to Board Connector

■ Embossed Carrier Tape Dimensions

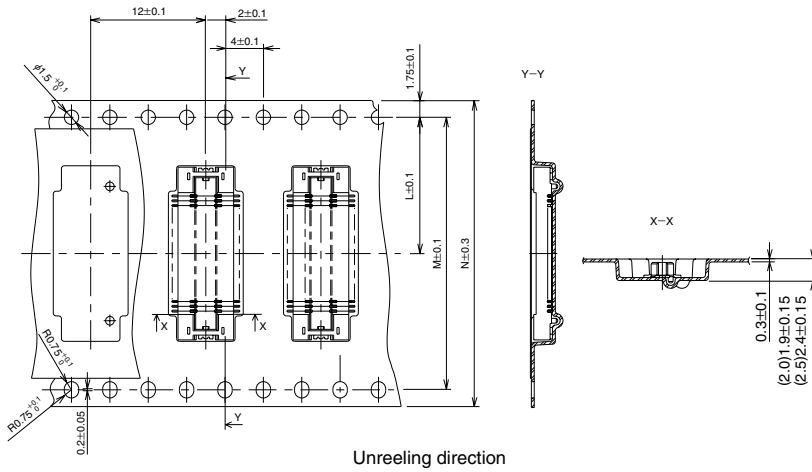
● Receptacle



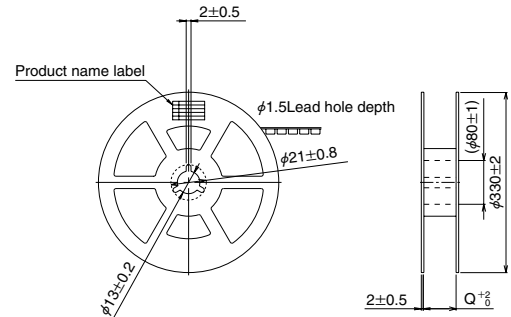
● Reel Dimensions



● Header

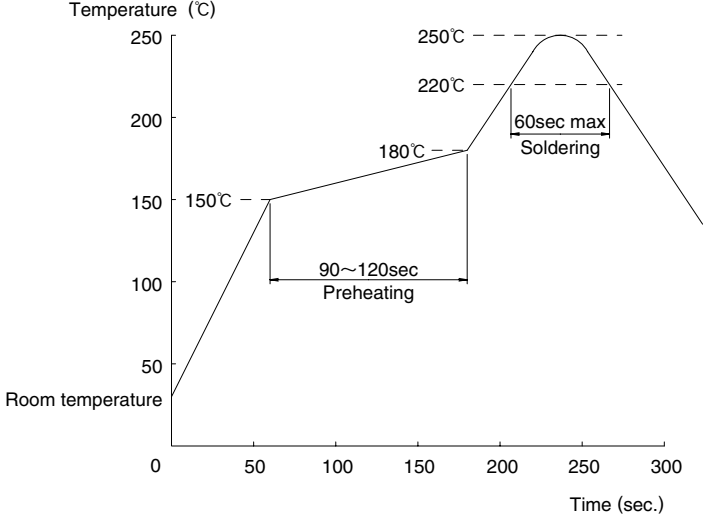


● Reel Dimensions





| Product Name | N | M | L | Q |
|--------------------------|------|------|------|------|
| DF16#-14DS-0.5V | 24.0 | — | 11.5 | 24.4 |
| DF16#-16DS-0.5V | 24.0 | — | 11.5 | 24.4 |
| DF16#-20DS-0.5V | 24.0 | — | 11.5 | 24.4 |
| DF16#-30DS-0.5V | 24.0 | — | 11.5 | 24.4 |
| DF16#-34DS-0.5V | 24.0 | — | 11.5 | 24.4 |
| DF16#-40DS-0.5V | 32.0 | 28.4 | 14.2 | 32.4 |
| DF16#-50DS-0.5V | 32.0 | 28.4 | 14.2 | 32.4 |
| DF16#-60DS-0.5V | 32.0 | 28.4 | 14.2 | 32.4 |
| DF16#-80DS-0.5V | 44.0 | 40.4 | 20.2 | 44.4 |
| DF16#(2.0)-14DP-0.5V | 16.0 | — | 7.5 | 16.4 |
| DF16#(2.0)-16DP-0.5V | 16.0 | — | 7.5 | 16.4 |
| DF16#(2.0)-34DP-0.5V | 24.0 | — | 11.5 | 24.4 |
| DF16#(2.0/2.5)-20DP-0.5V | 16.0 | — | 7.5 | 16.4 |
| DF16#(2.0/2.5)-30DP-0.5V | 24.0 | — | 11.5 | 24.4 |
| DF16#(2.0/2.5)-40DP-0.5V | 24.0 | — | 11.5 | 24.4 |
| DF16#(2.0/2.5)-50DP-0.5V | 24.0 | — | 11.5 | 24.4 |
| DF16#(2.0/2.5)-60DP-0.5V | 32.0 | 28.4 | 14.2 | 32.4 |
| DF16#(2.0/2.5)-80DP-0.5V | 44.0 | 40.4 | 20.2 | 44.4 |

◆Precautions







| | |
|--|--|
| <p>1. Recommended Temperature Profile (SMT)</p> | <div style="text-align: center;">  <p>The graph plots Temperature (°C) on the y-axis (0 to 250) against Time (sec.) on the x-axis (0 to 300). The profile begins at 'Room temperature' (approx. 25°C) at 0 seconds. It rises linearly to 150°C at 50 seconds, with a horizontal bracket indicating a '90~120sec Preheating' period. From 150°C, it continues to rise to 180°C at approximately 175 seconds. From 180°C, it rises to 220°C at approximately 200 seconds, with a horizontal bracket indicating a '60sec max Soldering' period. It then reaches a peak of 250°C at approximately 240 seconds before cooling down.</p> </div> <p>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.</p> <p>Note2: The temperature profile indicates the board surface temperature at the point of contacts with the connector terminals.</p> <p>Note3: Environment for header is room air only.</p> |
| <p>2. Recommended Manual Soldering Condition (SMT)</p> | <p>Soldering iron temperature: 350, Soldering time: Within 3 seconds</p> |
| <p>3. Recommended Screen Thickness (SMT)</p> | <p>0.15mm</p> |
| <p>4. Board Warp (SMT)</p> | <p>Maximum 0.02mm in the connector center area, based on the both connector edges</p> |
| <p>5. Cleaning Condition</p> | <p>Refer to the "Nylon Connector Use Hand book".</p> |
| <p>6. Cautions</p> | <ul style="list-style-type: none"> ■The header is designed in a structure where contacts are exposed. Touching it with bare hands would cause contact failure or electrostatic element damage. ■Where no board is mounted, the insertion or extraction will cause damage or contact deformation. ■Avoid retaining the board with the connector only, and fix the board by any other means than the connector. ■Excessive scoop insertion or extraction may result in damage. ■In the manual soldering process, don't carry out flux coating which will cause a flux blister on the connector. ■The color phase of this product may be slightly different from that of the formed product according to the manufacturing lot. However, the difference doesn't affect the performance. |

Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

-  [View DF16B-20DS-0.5V\(86\) on WIN SOURCE](#)
-  [Hirose Electric Co Ltd Information](#)

Optimize Your Supply Chain with WIN SOURCE Solutions

-  Global Sourcing Solution
-  Obsolete Management
-  Cost Control Management
-  Shortage Management
-  Alternative Solution
-  Excess Inventory Management