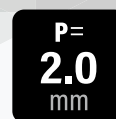


## DF3 Series

# 2mm Pitch Connector for Discrete Wire Connection (Product approved by UL CSA Standard)



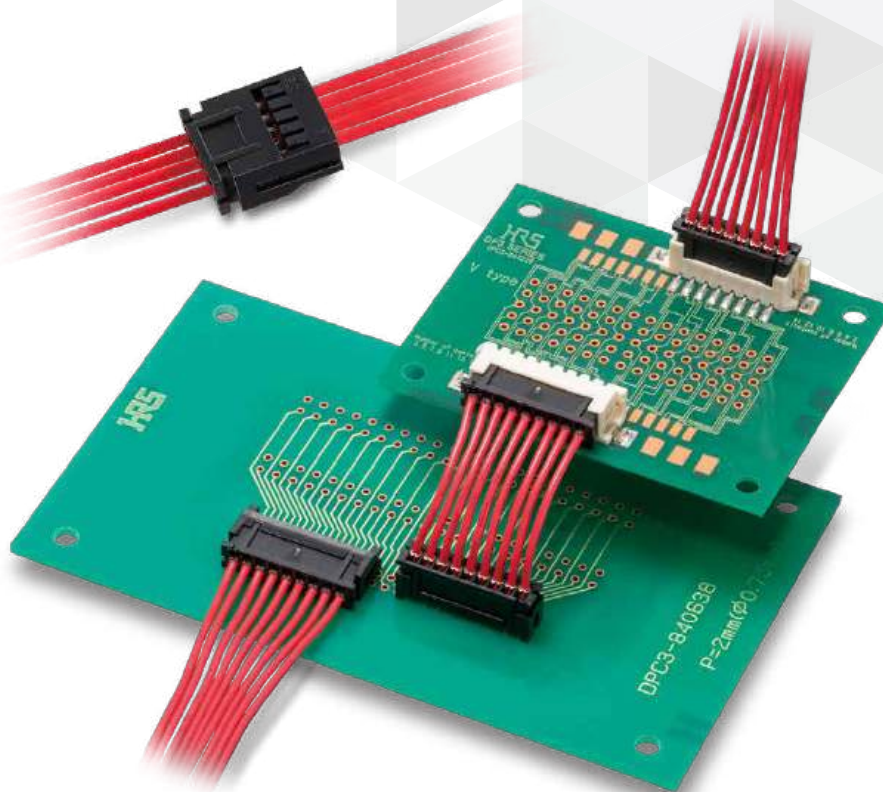
P=2.0 mm



Wide Variation



Compact



## Features

### 1. Correspond to Board Design in Wide Variation

#### ●Crimp Socket

- (1) Low profile design with mounting height 7.5mm. (See the application chart.)
- (2) Provide the contact crimping area with the sufficient space, and secures the stable crimping operation.

#### ●Pin Header

- (1) The board pre-fixed kink is treated with the post pin.
  - (2) The shape is a box type that is resistant to wrenching.
  - (3) The type corresponding to SMT is available, using the heat-resistant resin.
- This SMT header is equipped with the retention tab to prevent peeling in the solder joint area.

#### ●In-Line Plug

There are two types of crimp in-line plugs: a type designed for space merit and a panel lock type that can be fixed to a panel.

### 2. UL, CSA Certified

#### Application

General office automation equipment such as copiers and printers

## Product Specifications

|                       |          |             |          |          |                                    |               |
|-----------------------|----------|-------------|----------|----------|------------------------------------|---------------|
| Rated Current (Note1) | Crimping | 22 to 24AWG | 26 AWG   | 28 AWG   | Operating Temperature (Note 2)     | -55 to +105°C |
|                       |          | 3A / pin    | 2A / pin | 1A / pin | Operating Humidity Range (Note 3)  | 40 to 80%     |
| Rated Voltage         |          | 250V AC/DC  |          |          | Storage Temperature Range (Note 4) | -10 to +60°C  |
|                       |          |             |          |          | Storage Humidity Range (Note 4)    | 40 to 70%     |

|        |               |           |                   |          |
|--------|---------------|-----------|-------------------|----------|
| UL-CSA | Rated Current | 24 AWG    | 26AWG             | 28 AWG   |
|        |               | 3A / pin  | 2A / pin (Note 5) | 1A / pin |
|        | Rated Voltage | 30V AC/DC |                   |          |

UL, CSA File No.

UL : E52653

CSA : LR95109

| Item                   | Standards                                                                             | Condition                                                                                                                                                                                                               |
|------------------------|---------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Insulation Resistance  | 1,000M $\Omega$ Min.                                                                  | Measured at 500V DC                                                                                                                                                                                                     |
| Withstanding Voltage   | No flashover or dielectric breakdown                                                  | 650V AC for 1 min.                                                                                                                                                                                                      |
| Contact Resistance     | 30m $\Omega$ Max.                                                                     | Measured at 20mV Max., 1mA                                                                                                                                                                                              |
| Vibration Resistance   | No electrical discontinuity of 1 $\mu$ s or more                                      | Frequency 10 to 55 Hz, Half amplitude 0.75 mm, 2 hours in each of the 3 directions                                                                                                                                      |
| Humidity Resistance    | Contact Resistance : 30m $\Omega$ Max.<br>Insulation Resistance: 500M $\Omega$ Min.   | 96 hours at temperature of +40 $\pm$ 2°C and humidity of 90 to 95%                                                                                                                                                      |
| Temperature Cycle      | Contact Resistance : 30m $\Omega$ Max.<br>Insulation Resistance: 1,000M $\Omega$ Min. | -55°C : 30 minutes $\rightarrow$ +5 to +35°C : 2 to 3 minutes $\rightarrow$ +85°C : 30 minutes $\rightarrow$ +5 to +35°C : 2 to 3 minutes, 5 cycles                                                                     |
| Mating Durability      | Contact Resistance: 30m $\Omega$ Max.                                                 | Tin Plating : 30 times<br>Gold Plating : 50 times                                                                                                                                                                       |
| Solder Heat Resistance | No dissolution of the resin part affecting performance.                               | Dip Type Flow : +260°C , 10sec. / Hand Soldering : Soldering iron temperature +300°C , for 2 sec.<br>SMT Type Reflow : Recommended in Temperature Profile / Hand Soldering : Soldering iron temperature 300°C for 3sec. |

Note 1: Information contained in this catalog represents general requirements for this Series.

Contact us for the drawings and specifications for a specific part number shown.

Note 2: Includes temperature rise caused by current flow.

Note 3: Use without condensation.

Note 4: Apply to unused product on packaged condition.

Note 5: The mating side is a crimp type.

Note 6: Information contained in this catalog represents general requirements for this Series.

Contact us for the drawings and specifications for a specific part number shown.

## Materials / Finish

| Item                       | Component     | Material           | Finish                      | UL Flame Retardant Grade | RoHS |
|----------------------------|---------------|--------------------|-----------------------------|--------------------------|------|
| Crimp Socket               | Insulator     | PA                 | Black                       | UL94V-0                  | ○    |
| Crimp Contact for Socket   | Contact       | Phosphorous Bronze | Tin Plating or Gold Plating | -                        |      |
| Pin Header                 | Insulator     | PA                 | Black                       | UL94V-0                  |      |
|                            | Contact       | Brass              | Tin Plating or Gold Plating | -                        |      |
| SMT Pin Header             | Insulator     | PA                 | Beige                       | UL94V-0                  |      |
|                            | Contact       | Brass              | Tin Plating or Gold Plating | -                        |      |
|                            | Retention Tab | Brass              | Tin Plating                 | -                        |      |
| In-Line Plug               | Insulator     | PA                 | Black                       | UL94V-0                  |      |
| In-Line Plug Crimp Contact | Contact       | Phosphorous Bronze | Tin Plating or Gold Plating | -                        |      |

## Product Number Structure

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

●Connector

**DF3 - # S - 2 C**

1 2 3 4 5

|                  |                                                |                                   |                                                                                                       |
|------------------|------------------------------------------------|-----------------------------------|-------------------------------------------------------------------------------------------------------|
| 1 Series Name    | DF3, 3A, 3AA, 3EA                              | 4 Contact Pitch                   | 2mm                                                                                                   |
| 2 No. of Pos.    | 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15 |                                   |                                                                                                       |
| 3 Connector Type | S: Socket<br>P: Pin Header<br>EP: In-Line Plug | 5 Termination Type / Contact Type | C: Crimp Housing<br>DSA: Straight Dip<br>DS: Right Angle Dip<br>V: Straight SMT<br>H: Right Angle SMT |

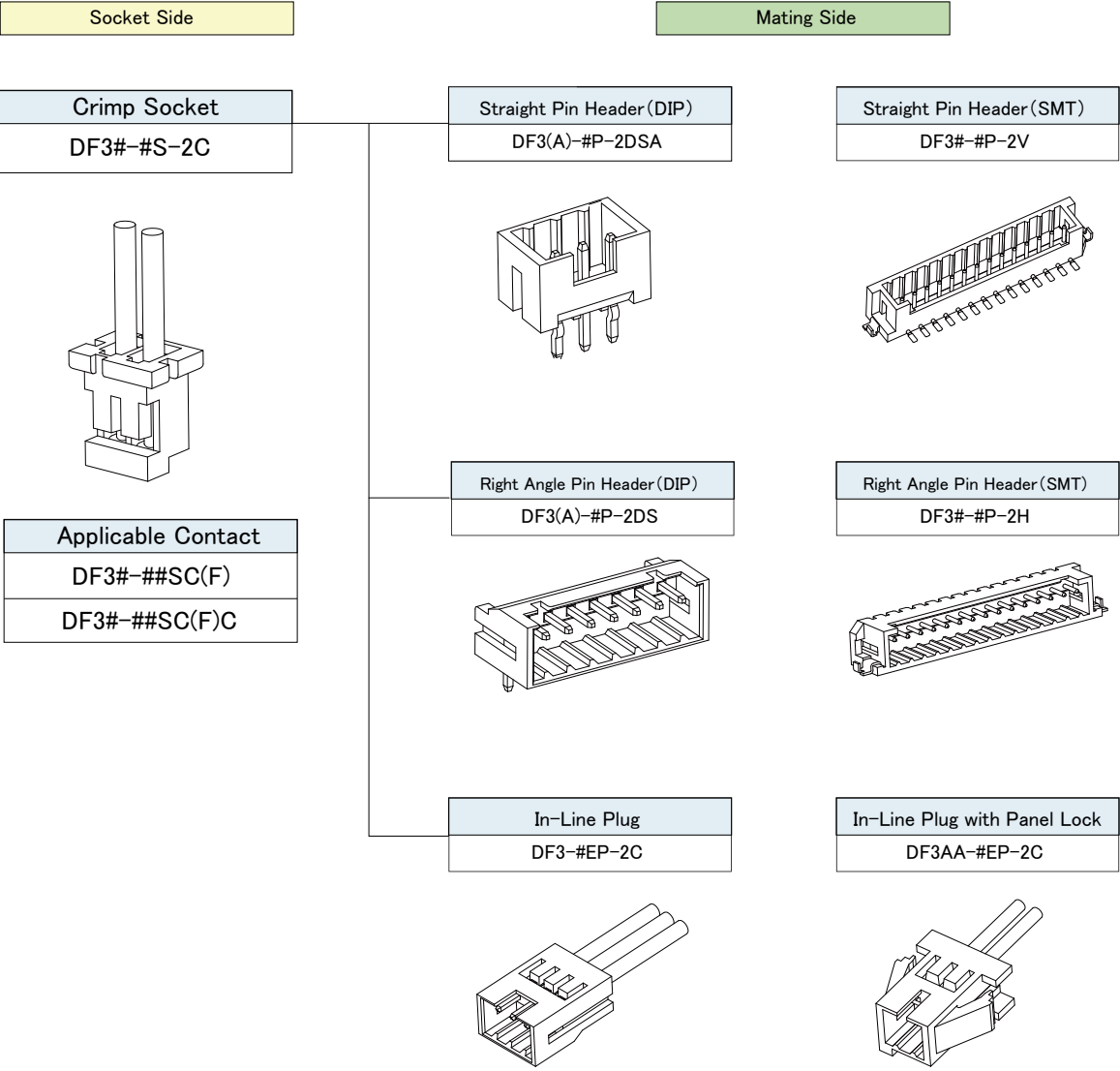
●Contact

**DF3 - EP 2428 PCF A**

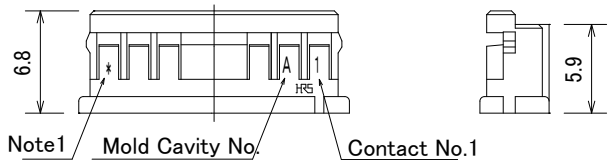
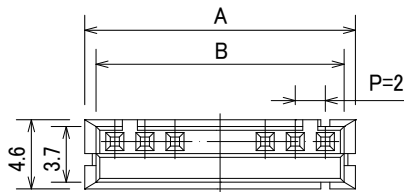
1 2 3 4

|                                   |                                                                                                                             |                |                                                                                         |
|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------------|----------------|-----------------------------------------------------------------------------------------|
| 1 Terminal Type                   | EP: In-Line                                                                                                                 | 4 Plating Type | None: Tin Plating<br>A: Gold Plating (Plug Contact)<br>C: Gold Plating (Socket Contact) |
| 2 Applicable Wire Size            | 22: 22AWG<br>2428: 24 to 28AWG                                                                                              |                |                                                                                         |
| 3 Termination Type / Contact Type | SCF: Socket Contact / Reel<br>SC: Socket Contact /Loose Piece<br>PCF: Plug Contact / Reel<br>PC: Plug Contact / Loose Piece |                |                                                                                         |

# Connector Mating Combinations Diagram



Crimp Socket



Unit : mm

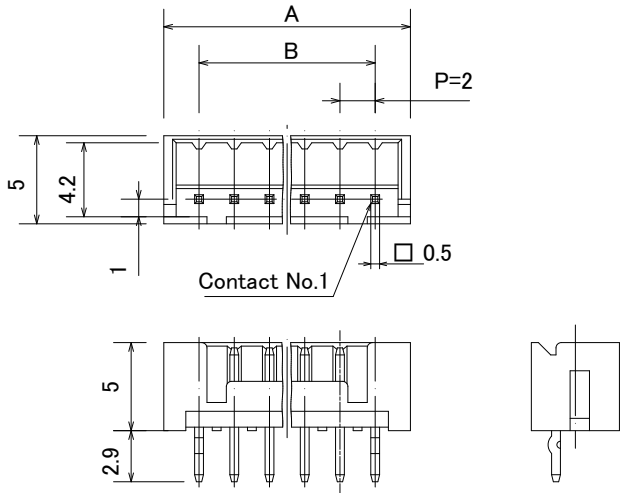
| Part No.   | HRS No.          | No. of Pos. | A  | B  | Purchase Unit  |
|------------|------------------|-------------|----|----|----------------|
| DF3-2S-2C  | CL0543-0003-8-00 | 2           | 6  | 2  | 100pcs per bag |
| DF3-3S-2C  | CL0543-0004-0-00 | 3           | 8  | 4  |                |
| DF3-4S-2C  | CL0543-0005-3-00 | 4           | 10 | 6  |                |
| DF3-5S-2C  | CL0543-0006-6-00 | 5           | 12 | 8  |                |
| DF3-6S-2C  | CL0543-0007-9-00 | 6           | 14 | 10 |                |
| DF3-7S-2C  | CL0543-0008-1-00 | 7           | 16 | 12 |                |
| DF3-8S-2C  | CL0543-0009-4-00 | 8           | 18 | 14 |                |
| DF3-9S-2C  | CL0543-0010-3-00 | 9           | 20 | 16 |                |
| DF3-10S-2C | CL0543-0011-6-00 | 10          | 22 | 18 |                |
| DF3-11S-2C | CL0543-0012-9-00 | 11          | 24 | 20 |                |
| DF3-12S-2C | CL0543-0013-1-00 | 12          | 26 | 22 |                |
| DF3-13S-2C | CL0543-0014-4-00 | 13          | 28 | 24 |                |
| DF3-14S-2C | CL0543-0015-7-00 | 14          | 30 | 26 |                |
| DF3-15S-2C | CL0543-0016-0-00 | 15          | 32 | 28 |                |

Note: Show the number of product pos..

Straight Pin Header



·Board Through-Hole Diameter:  $\phi 0.8^{+0.1}_0$   
·Kink Pre-Fixed Effective Diameter:  $\phi 0.8^{+0.05}_0$



● Tin Plating

Unit : mm

| Part No.      | HRS No.          | No. of Pos. | A  | B  | Purchase Unit  |
|---------------|------------------|-------------|----|----|----------------|
| DF3A-2P-2DSA  | CL0543-0165-0-00 | 2           | 6  | 2  | 100pcs per bag |
| DF3A-3P-2DSA  | CL0543-0166-2-00 | 3           | 8  | 4  |                |
| DF3A-4P-2DSA  | CL0543-0167-5-00 | 4           | 10 | 6  |                |
| DF3A-5P-2DSA  | CL0543-0168-8-00 | 5           | 12 | 8  |                |
| DF3A-6P-2DSA  | CL0543-0169-0-00 | 6           | 14 | 10 |                |
| DF3A-7P-2DSA  | CL0543-0170-0-00 | 7           | 16 | 12 |                |
| DF3A-8P-2DSA  | CL0543-0171-2-00 | 8           | 18 | 14 |                |
| DF3A-9P-2DSA  | CL0543-0172-5-00 | 9           | 20 | 16 |                |
| DF3A-10P-2DSA | CL0543-0173-8-00 | 10          | 22 | 18 |                |
| DF3A-11P-2DSA | CL0543-0174-0-00 | 11          | 24 | 20 |                |
| DF3A-12P-2DSA | CL0543-0175-3-00 | 12          | 26 | 22 |                |
| DF3A-13P-2DSA | CL0543-0176-6-00 | 13          | 28 | 24 |                |
| DF3A-14P-2DSA | CL0543-0177-9-00 | 14          | 30 | 26 |                |
| DF3A-15P-2DSA | CL0543-0178-1-00 | 15          | 32 | 28 |                |

● Gold Plating

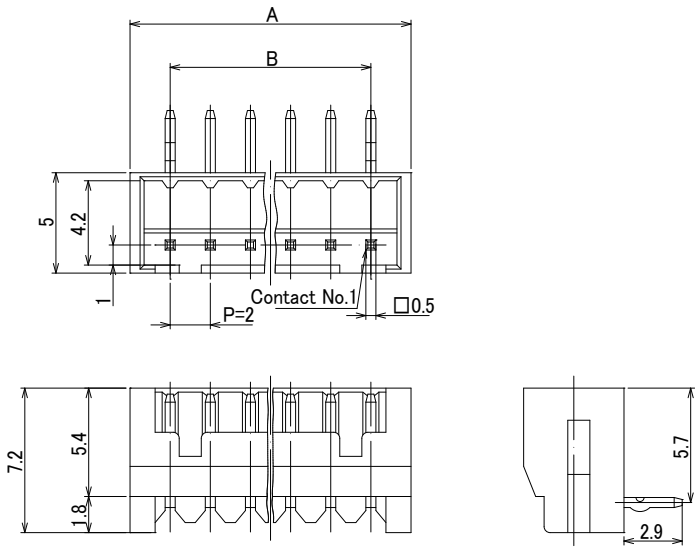
Unit : mm

| Part No.         | HRS No.          | No. of Pos. | A  | B  | Purchase Unit  |
|------------------|------------------|-------------|----|----|----------------|
| DF3-2P-2DSA(01)  | CL0543-0017-2-01 | 2           | 6  | 2  | 100pcs per bag |
| DF3-3P-2DSA(01)  | CL0543-0018-5-01 | 3           | 8  | 4  |                |
| DF3-4P-2DSA(01)  | CL0543-0019-8-01 | 4           | 10 | 6  |                |
| DF3-5P-2DSA(01)  | CL0543-0020-7-01 | 5           | 12 | 8  |                |
| DF3-6P-2DSA(01)  | CL0543-0021-0-01 | 6           | 14 | 10 |                |
| DF3-7P-2DSA(01)  | CL0543-0022-2-01 | 7           | 16 | 12 |                |
| DF3-8P-2DSA(01)  | CL0543-0023-5-01 | 8           | 18 | 14 |                |
| DF3-9P-2DSA(01)  | CL0543-0024-8-01 | 9           | 20 | 16 |                |
| DF3-10P-2DSA(01) | CL0543-0025-0-01 | 10          | 22 | 18 |                |
| DF3-11P-2DSA(01) | CL0543-0026-3-01 | 11          | 24 | 20 |                |
| DF3-12P-2DSA(01) | CL0543-0027-6-01 | 12          | 26 | 22 |                |
| DF3-13P-2DSA(01) | CL0543-0028-9-01 | 13          | 28 | 24 |                |
| DF3-14P-2DSA(01) | CL0543-0029-1-01 | 14          | 30 | 26 |                |
| DF3-15P-2DSA(01) | CL0543-0030-0-01 | 15          | 32 | 28 |                |

Right Angle Pin Header



- Board Through-Hole Diameter:  $\phi 0.8^{+0.1}_0$
- Kink Pre-Fixed Effective Diameter:  $\phi 0.8^{+0.05}_0$



● Tin Plating

Unit : mm

| Part No.     | HRS No.          | No. of Pos. | A  | B  | Purchase Unit  |
|--------------|------------------|-------------|----|----|----------------|
| DF3A-2P-2DS  | CL0543-0179-4-00 | 2           | 6  | 2  | 100pcs per bag |
| DF3A-3P-2DS  | CL0543-0180-3-00 | 3           | 8  | 4  |                |
| DF3A-4P-2DS  | CL0543-0181-6-00 | 4           | 10 | 6  |                |
| DF3A-5P-2DS  | CL0543-0182-9-00 | 5           | 12 | 8  |                |
| DF3A-6P-2DS  | CL0543-0183-1-00 | 6           | 14 | 10 |                |
| DF3A-7P-2DS  | CL0543-0184-4-00 | 7           | 16 | 12 |                |
| DF3A-8P-2DS  | CL0543-0185-7-00 | 8           | 18 | 14 |                |
| DF3A-9P-2DS  | CL0543-0186-0-00 | 9           | 20 | 16 |                |
| DF3A-10P-2DS | CL0543-0187-2-00 | 10          | 22 | 18 |                |
| DF3A-11P-2DS | CL0543-0188-5-00 | 11          | 24 | 20 |                |
| DF3A-12P-2DS | CL0543-0189-8-00 | 12          | 26 | 22 |                |
| DF3A-13P-2DS | CL0543-0190-7-00 | 13          | 28 | 24 |                |
| DF3A-14P-2DS | CL0543-0191-0-00 | 14          | 30 | 26 |                |
| DF3A-15P-2DS | CL0543-0192-2-00 | 15          | 32 | 28 |                |

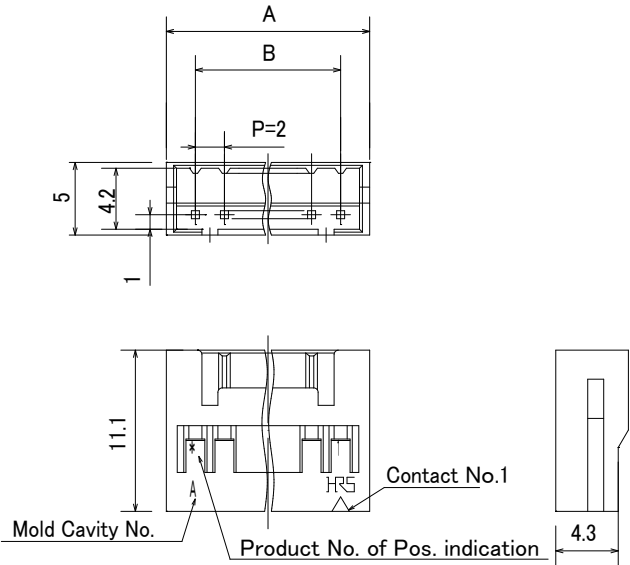


●Gold Plating

Unit : mm

| Part No.        | HRS No.          | No. of Pos. | A  | B  | Purchase Unit  |
|-----------------|------------------|-------------|----|----|----------------|
| DF3-2P-2DS(01)  | CL0543-0031-3-01 | 2           | 6  | 2  | 100pcs per bag |
| DF3-3P-2DS(01)  | CL0543-0032-6-01 | 3           | 8  | 4  |                |
| DF3-4P-2DS(01)  | CL0543-0033-9-01 | 4           | 10 | 6  |                |
| DF3-5P-2DS(01)  | CL0543-0034-1-01 | 5           | 12 | 8  |                |
| DF3-6P-2DS(01)  | CL0543-0035-4-01 | 6           | 14 | 10 |                |
| DF3-7P-2DS(01)  | CL0543-0036-7-01 | 7           | 16 | 12 |                |
| DF3-8P-2DS(01)  | CL0543-0037-0-01 | 8           | 18 | 14 |                |
| DF3-9P-2DS(01)  | CL0543-0038-2-01 | 9           | 20 | 16 |                |
| DF3-10P-2DS(01) | CL0543-0039-5-01 | 10          | 22 | 18 |                |
| DF3-11P-2DS(01) | CL0543-0040-4-01 | 11          | 24 | 20 |                |
| DF3-12P-2DS(01) | CL0543-0041-7-01 | 12          | 26 | 22 |                |
| DF3-13P-2DS(01) | CL0543-0042-0-01 | 13          | 28 | 24 |                |
| DF3-14P-2DS(01) | CL0543-0043-2-01 | 14          | 30 | 26 |                |
| DF3-15P-2DS(01) | CL0543-0044-5-01 | 15          | 32 | 28 |                |

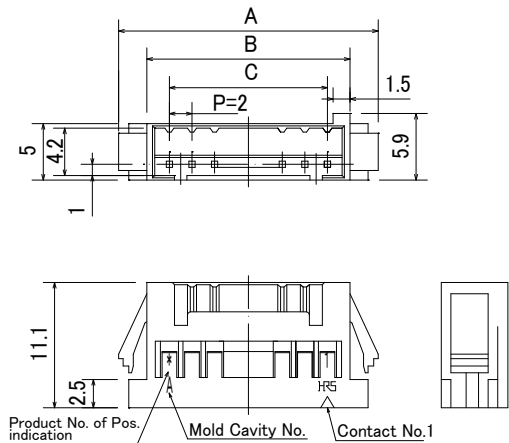
In-Line Plug



Unit : mm

| Part No.    | HRS No.          | No. of Pos. | A  | B  | Purchase Unit  |
|-------------|------------------|-------------|----|----|----------------|
| DF3-2EP-2C  | CL0543-0064-2-00 | 2           | 6  | 2  | 100pcs per bag |
| DF3-3EP-2C  | CL0543-0065-5-00 | 3           | 8  | 4  |                |
| DF3-4EP-2C  | CL0543-0066-8-00 | 4           | 10 | 6  |                |
| DF3-5EP-2C  | CL0543-0067-0-00 | 5           | 12 | 8  |                |
| DF3-6EP-2C  | CL0543-0068-3-00 | 6           | 14 | 10 |                |
| DF3-7EP-2C  | CL0543-0069-6-00 | 7           | 16 | 12 |                |
| DF3-8EP-2C  | CL0543-0070-5-00 | 8           | 18 | 14 |                |
| DF3-9EP-2C  | CL0543-0071-8-00 | 9           | 20 | 16 |                |
| DF3-10EP-2C | CL0543-0072-0-00 | 10          | 22 | 18 |                |
| DF3-11EP-2C | CL0543-0073-3-00 | 11          | 24 | 20 |                |
| DF3-12EP-2C | CL0543-0074-6-00 | 12          | 26 | 22 |                |
| DF3-13EP-2C | CL0543-0075-9-00 | 13          | 28 | 24 |                |
| DF3-14EP-2C | CL0543-0076-1-00 | 14          | 30 | 26 |                |
| DF3-15EP-2C | CL0543-0077-4-00 | 15          | 32 | 28 |                |

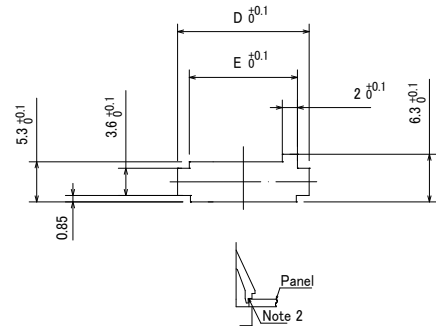
In-Line Plug with Panel Lock



Unit : mm

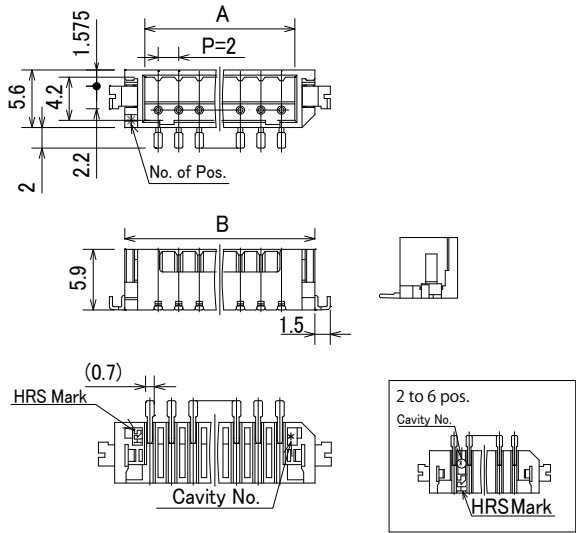
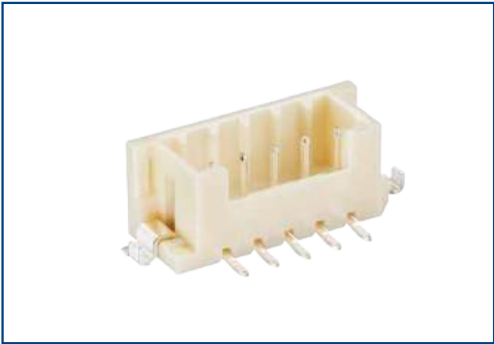
| Part No.      | HRS No.          | No. of Pos. | A  | B  | C  | D    | E    | Purchase Unit  |
|---------------|------------------|-------------|----|----|----|------|------|----------------|
| DF3AA-2EP-2C  | CL0543-0151-5-00 | 2           | 11 | 6  | 2  | 9.4  | 6.3  | 100pcs per bag |
| DF3AA-3EP-2C  | CL0543-0152-8-00 | 3           | 13 | 8  | 4  | 11.4 | 8.3  |                |
| DF3AA-4EP-2C  | CL0543-0153-0-00 | 4           | 15 | 10 | 6  | 13.4 | 10.3 |                |
| DF3AA-5EP-2C  | CL0543-0154-3-00 | 5           | 17 | 12 | 8  | 15.4 | 12.3 |                |
| DF3AA-6EP-2C  | CL0543-0155-6-00 | 6           | 19 | 14 | 10 | 17.4 | 14.3 |                |
| DF3AA-7EP-2C  | CL0543-0156-9-00 | 7           | 21 | 16 | 12 | 19.4 | 16.3 |                |
| DF3AA-8EP-2C  | CL0543-0157-1-00 | 8           | 23 | 18 | 14 | 21.4 | 18.3 |                |
| DF3AA-9EP-2C  | CL0543-0158-4-00 | 9           | 25 | 20 | 16 | 23.4 | 20.3 |                |
| DF3AA-10EP-2C | CL0543-0159-7-00 | 10          | 27 | 22 | 18 | 25.4 | 22.3 |                |
| DF3AA-11EP-2C | CL0543-0160-6-00 | 11          | 29 | 24 | 20 | 27.4 | 24.3 |                |
| DF3AA-12EP-2C | CL0543-0161-9-00 | 12          | 31 | 26 | 22 | 29.4 | 26.3 |                |
| DF3AA-13EP-2C | CL0543-0162-1-00 | 13          | 33 | 28 | 24 | 31.4 | 28.3 |                |
| DF3AA-14EP-2C | CL0543-0163-4-00 | 14          | 35 | 30 | 26 | 33.4 | 30.3 |                |
| DF3AA-15EP-2C | CL0543-0164-7-00 | 15          | 37 | 32 | 28 | 35.4 | 32.3 |                |

■ Panel Cutouts



Note 1: Applicable panel thickness is 1.6 to 1.0mm. (However, there is some rattling at thicknesses other than 1.6 and 1.2 mm.)  
Note 2: Use the non-radius surface at the hooking panel edge.  
Note 3: Contact No. indicates 1, 4, 8, 12, and 15.

Straight Pin Header (SMT)



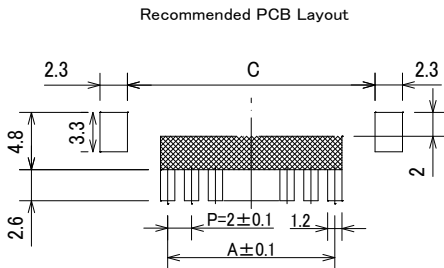
Unit : mm

| Part No.         | HRS No.          | No. of Pos. | A  | B    | C     | Purchase Unit     |
|------------------|------------------|-------------|----|------|-------|-------------------|
| DF3EA-2P-2V(##)  | CL0543-0315-0-## | 2           | 2  | 8.5  | 8.74  | 1,000pcs per reel |
| DF3EA-3P-2V(##)  | CL0543-0316-0-## | 3           | 4  | 10.5 | 10.74 |                   |
| DF3EA-4P-2V(##)  | CL0543-0317-0-## | 4           | 6  | 12.5 | 12.74 |                   |
| DF3EA-5P-2V(##)  | CL0543-0318-0-## | 5           | 8  | 14.5 | 14.74 |                   |
| DF3EA-6P-2V(##)  | CL0543-0319-0-## | 6           | 10 | 16.5 | 16.74 |                   |
| DF3EA-7P-2V(##)  | CL0543-0320-0-## | 7           | 12 | 18.5 | 18.74 |                   |
| DF3EA-8P-2V(##)  | CL0543-0321-0-## | 8           | 14 | 20.5 | 20.74 |                   |
| DF3EA-9P-2V(##)  | CL0543-0322-0-## | 9           | 16 | 22.5 | 22.74 |                   |
| DF3EA-10P-2V(##) | CL0543-0323-0-## | 10          | 18 | 24.5 | 24.74 |                   |
| DF3EA-11P-2V(##) | CL0543-0324-0-## | 11          | 20 | 26.5 | 26.74 |                   |
| DF3EA-12P-2V(##) | CL0543-0325-0-## | 12          | 22 | 28.5 | 28.74 |                   |
| DF3EA-13P-2V(##) | CL0543-0326-0-## | 13          | 24 | 30.5 | 30.74 |                   |
| DF3EA-14P-2V(##) | CL0543-0327-0-## | 14          | 26 | 32.5 | 32.74 |                   |
| DF3EA-15P-2V(##) | CL0543-0328-0-## | 15          | 28 | 34.5 | 34.74 |                   |

[Specific No.] (##), ##  
(21): Tin plated packaging  
(51): Gold plated packaging

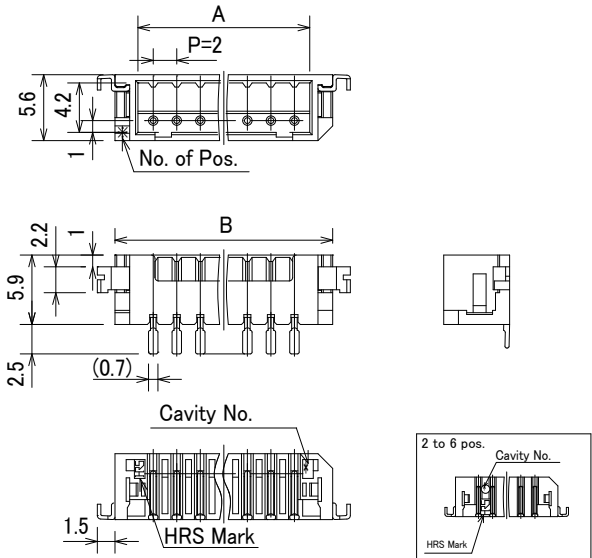
Note: For embossed tape dimensions, please refer to embossed tape carrier dimensions (JIS-C-0806 compliant).

PCB Mounting Pattern



(Note) If there is a pattern on part xxx and no resist is applied, there is a possibility of contact with the connector terminals.

Right Angle Pin Header (SMT)



Unit : mm

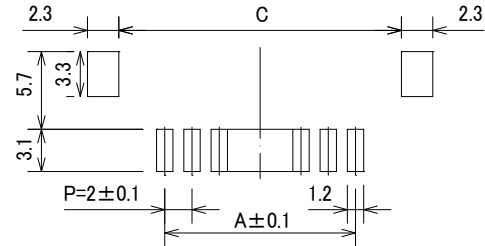
| Part No.         | HRS No.          | No. of Pos. | A  | B    | C     | Purchase Unit     |
|------------------|------------------|-------------|----|------|-------|-------------------|
| DF3EA-2P-2H(##)  | CL0543-0329-0-## | 2           | 2  | 8.5  | 8.74  | 1,000pcs per reel |
| DF3EA-3P-2H(##)  | CL0543-0330-0-## | 3           | 4  | 10.5 | 10.74 |                   |
| DF3EA-4P-2H(##)  | CL0543-0331-0-## | 4           | 6  | 12.5 | 12.74 |                   |
| DF3EA-5P-2H(##)  | CL0543-0332-0-## | 5           | 8  | 14.5 | 14.74 |                   |
| DF3EA-6P-2H(##)  | CL0543-0333-0-## | 6           | 10 | 16.5 | 16.74 |                   |
| DF3EA-7P-2H(##)  | CL0543-0334-0-## | 7           | 12 | 18.5 | 18.74 |                   |
| DF3EA-8P-2H(##)  | CL0543-0335-0-## | 8           | 14 | 20.5 | 20.74 |                   |
| DF3EA-9P-2H(##)  | CL0543-0336-0-## | 9           | 16 | 22.5 | 22.74 |                   |
| DF3EA-10P-2H(##) | CL0543-0337-0-## | 10          | 18 | 24.5 | 24.74 |                   |
| DF3EA-11P-2H(##) | CL0543-0338-0-## | 11          | 20 | 26.5 | 26.74 |                   |
| DF3EA-12P-2H(##) | CL0543-0339-0-## | 12          | 22 | 28.5 | 28.74 |                   |
| DF3EA-13P-2H(##) | CL0543-0340-0-## | 13          | 24 | 30.5 | 30.74 |                   |
| DF3EA-14P-2H(##) | CL0543-0341-0-## | 14          | 26 | 32.5 | 32.74 |                   |
| DF3EA-15P-2H(##) | CL0543-0342-0-## | 15          | 28 | 34.5 | 34.74 |                   |

[Specific No.] (##), ##  
(21): Tin plated packaging  
(51): Gold plated packaging

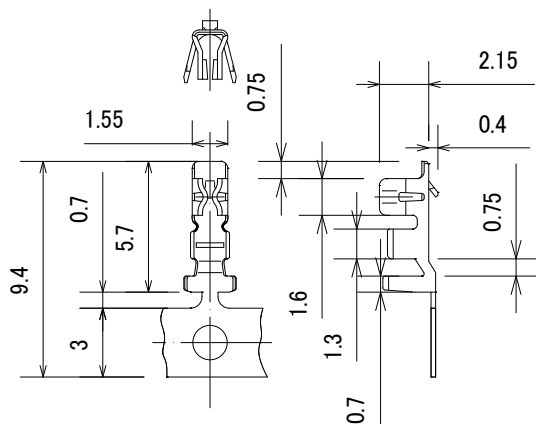
Note: For embossed tape dimensions, please refer to embossed tape carrier dimensions (JIS-C-0806 compliant).

PCB Mounting Pattern

Recommended PCB Layout



## Crimping Contact for Socket



### ●Reel Contact (Applicable Tool: Applicator)

| Part No.     | HRS No.          | Applicable Wire (Tin Plated Annealed Copper) (Note) |                 |     |                         | Purchase Unit | Finish       |
|--------------|------------------|-----------------------------------------------------|-----------------|-----|-------------------------|---------------|--------------|
|              |                  | UL                                                  | Jacket Diameter | AWG | Stranded Wire Structure |               |              |
| DF3-22SCF    | CL0543-0235-3-00 | UL1061                                              | 1.2 to 1.5mm    | 22  | 17/0.16                 | 10,000        | Tin Plating  |
| DF3-22SCFC   | CL0543-0861-0-00 |                                                     |                 | 22  | 17/0.16                 |               | Gold Plating |
| DF3-2428SCF  | CL0543-0001-2-00 | UL1007<br>UL1061                                    | 0.75 to 1.5mm   | 24  | 11/0.16                 |               | Tin Plating  |
|              |                  |                                                     |                 | 26  | 7/0.16                  |               |              |
|              |                  |                                                     |                 | 28  | 7/0.127                 |               |              |
| DF3-2428SCFC | CL0543-0046-0-00 |                                                     |                 | 24  | 11/0.16                 |               | Gold Plating |
|              |                  |                                                     |                 | 26  | 7/0.16                  |               |              |
|              |                  |                                                     |                 | 28  | 7/0.127                 |               |              |

Note: For applicable cable other than those listed above, refer to Crimp Condition Table. Crimp Condition Table is available from Part No. link.  
(If you are using a cable that is not listed in Crimp Condition Table, please contact a Hirose sales representative.)

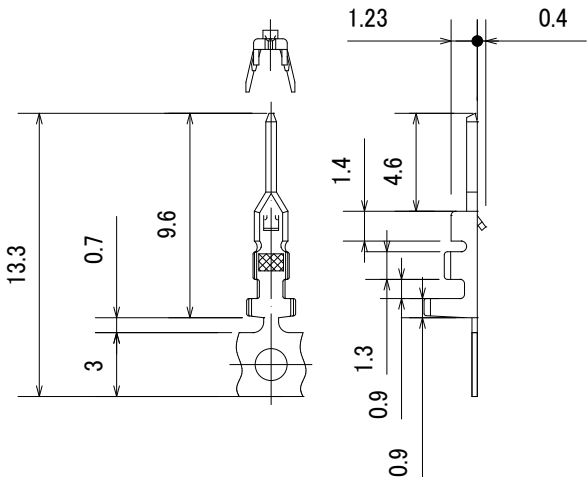
### ●Loose Piece Contact (Applicable Tool: Hand Crimping Tool)

| Part No.    | HRS No.          | Applicable Wire (Tin Plated Annealed Copper) (Note) |                 |     |                         | Purchase Unit | Finish       |
|-------------|------------------|-----------------------------------------------------|-----------------|-----|-------------------------|---------------|--------------|
|             |                  | UL                                                  | Jacket Diameter | AWG | Stranded Wire Structure |               |              |
| DF3-22SC    | CL0543-0236-6-00 | UL1061                                              | 1.3mm           | 22  | 17/0.16                 | 100           | Tin Plating  |
| DF3-22SCC   | CL0543-0862-3-00 |                                                     | 1.3mm           | 22  | 17/0.16                 |               | Gold Plating |
| DF3-2428SC  | CL0543-0002-5-00 | UL1007                                              | 1.5mm           | 24  | 11/0.16                 |               | Tin Plating  |
|             |                  |                                                     | 1.3mm           | 26  | 7/0.16                  |               |              |
|             |                  |                                                     | 1.2mm           | 28  | 7/0.127                 |               |              |
| DF3-2428SCC | CL0543-0047-3-00 |                                                     | 1.5mm           | 24  | 11/0.16                 |               | Gold Plating |
|             |                  |                                                     | 1.3mm           | 26  | 7/0.16                  |               |              |
|             |                  |                                                     | 1.2mm           | 28  | 7/0.127                 |               |              |

Note: When crimping with a manual crimping tool, only the wires listed above are compatible.

### ●Crimp Contact Extraction Tool: DF-C-PO(A)

Crimping Contact for In-Line Plug



●Reel Contact (Applicable Tool: Applicator)

| Part No.       | HRS No.          | Applicable Wire (Tin Plated Annealed Copper) (Note) |                 |     |                         | Purchase Unit | Finish       |
|----------------|------------------|-----------------------------------------------------|-----------------|-----|-------------------------|---------------|--------------|
|                |                  | UL                                                  | Jacket Diameter | AWG | Stranded Wire Structure |               |              |
| DF3-EP2428PCF  | CL0543-0062-7-00 | UL1007<br>UL1061                                    | 0.75 to 1.5mm   | 24  | 11/0.16                 | 10,000        | Tin Plating  |
|                |                  |                                                     |                 | 26  | 7/0.16                  |               |              |
|                |                  |                                                     |                 | 28  | 7/0.127                 |               |              |
| DF3-EP2428PCFA | CL0543-0149-3-00 |                                                     |                 | 24  | 11/0.16                 |               | Gold Plating |
|                |                  |                                                     |                 | 26  | 7/0.16                  |               |              |
|                |                  |                                                     |                 | 28  | 7/0.127                 |               |              |

Note: For applicable cable other than those listed above, refer to Crimp Condition Table. Crimp Condition Table is available from Part No. link.  
(If you are using a cable that is not listed in Crimp Condition Table, please contact a Hirose sales representative.)

●Loose Piece Contact (Applicable Tool: Hand Crimping Tool)

| Part No.      | HRS No.          | Applicable Wire (Tin Plated Annealed Copper) (Note) |                 |     |                         | Purchase Unit | Finish       |
|---------------|------------------|-----------------------------------------------------|-----------------|-----|-------------------------|---------------|--------------|
|               |                  | UL                                                  | Jacket Diameter | AWG | Stranded Wire Structure |               |              |
| DF3-EP2428PC  | CL0543-0063-0-00 | UL1007                                              | 1.5mm           | 24  | 11/0.16                 | 100           | Tin Plating  |
|               |                  |                                                     | 1.3mm           | 26  | 7/0.16                  |               |              |
|               |                  |                                                     | 1.2mm           | 28  | 7/0.127                 |               |              |
| DF3-EP2428PCA | CL0543-0150-2-00 |                                                     | 1.5mm           | 24  | 11/0.16                 |               | Gold Plating |
|               |                  |                                                     | 1.3mm           | 26  | 7/0.16                  |               |              |
|               |                  |                                                     | 1.2mm           | 28  | 7/0.127                 |               |              |

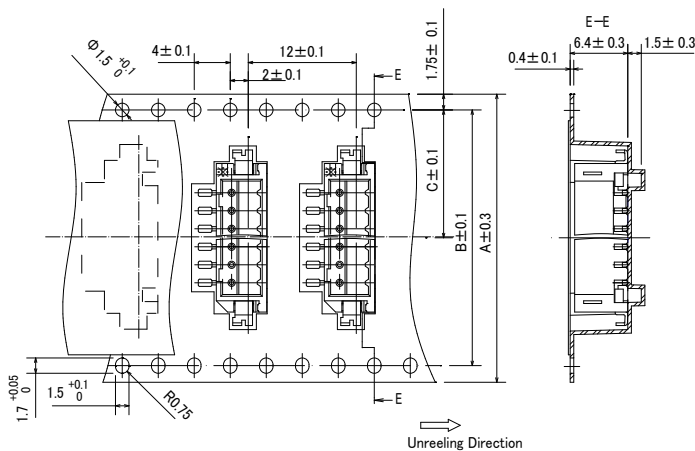
Note: When crimping with a manual crimping tool, only the wires listed above are compatible.

●Crimp Contact Extraction Tool: DF-C-PO(A)

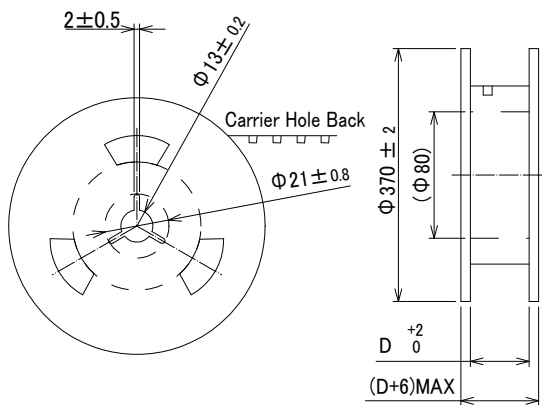
Embossed Carrier Tape Dimensions (JIS-C-0806 Compliant)

Straight Pin Header

Embossed Tape Dimensions



Reel Dimensions



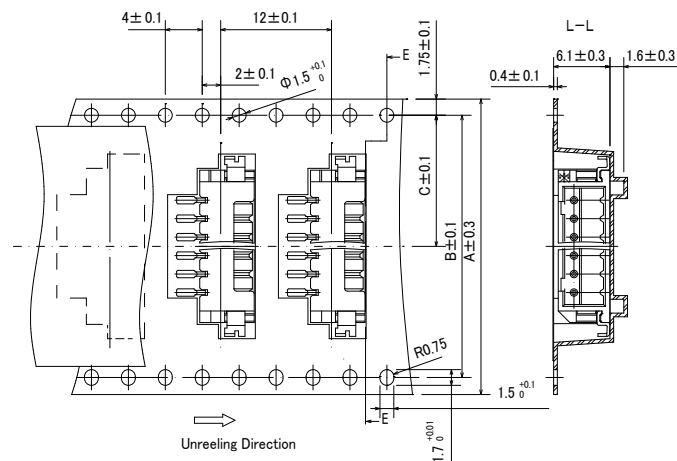
Unit : mm

| Part No.        | No. of Pos. | A    | B    | C    | D    | Purchase Unit     |
|-----------------|-------------|------|------|------|------|-------------------|
| DF3EA-#P-2V(##) | 2 to 4      | 24.0 | -    | 11.5 | 24.4 | 1,000pcs per reel |
|                 | 5 to 7      | 32.0 | 28.4 | 14.2 | 32.4 |                   |
|                 | 8 to 10     | 44.0 | 40.4 | 20.2 | 44.4 |                   |
|                 | 11 to 15    | 56.0 | 52.4 | 26.2 | 56.4 |                   |

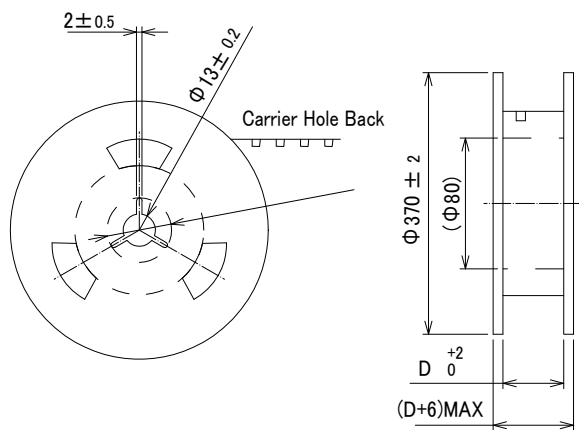


■Right Angle Pin Header

●Embossed Tape Dimensions



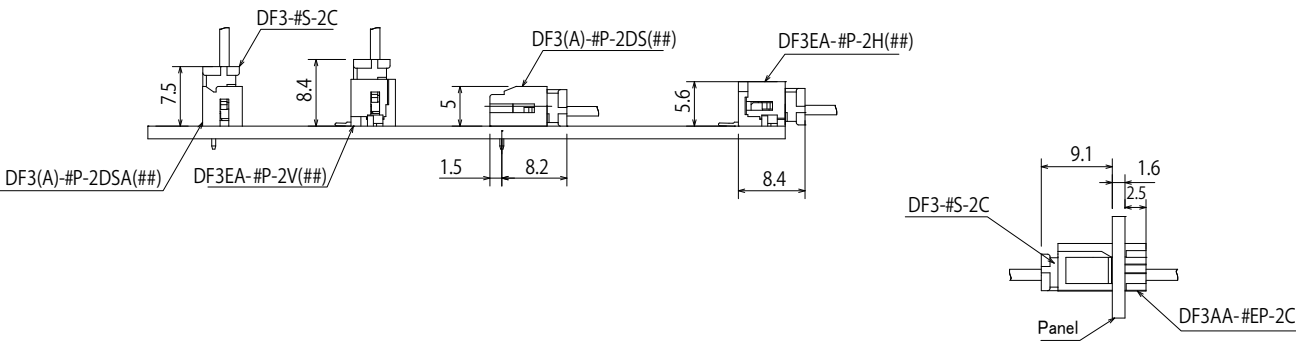
●Reel Dimensions



Unit : mm

| Part No.        | No. of Pos. | A    | B    | C    | D    | Purchase Unit     |
|-----------------|-------------|------|------|------|------|-------------------|
| DF3EA-#P-2H(##) | 2 to 4      | 24.0 | -    | 11.5 | 24.4 | 1,000pcs per reel |
|                 | 5 to 7      | 32.0 | 28.4 | 14.2 | 32.4 |                   |
|                 | 8 to 10     | 44.0 | 40.4 | 20.2 | 44.4 |                   |
|                 | 11to 15     | 56.0 | 52.4 | 26.2 | 56.4 |                   |

Mated Dimensions



Applicable Crimping Tools

| Type            | Part No.          | HRS No.          | Applicable Contact                                                                                             |
|-----------------|-------------------|------------------|----------------------------------------------------------------------------------------------------------------|
| Applicator      | AP105-DF3-2428S   | CL0901-4503-3-00 | DF3-2428SCF/SCFC                                                                                               |
|                 | AP105-DF3-22S     | CL0901-4549-4-00 | DF3-22SCF/SCFC                                                                                                 |
|                 | AP105-DF3-EP2428P | CL0901-4508-7-00 | DF3-EP2428PCF/PCFA                                                                                             |
| Press Body      | CM-105C           | CL0901-0001-0-00 | -                                                                                                              |
| Hand Tool       | DF3-TA2428HC      | CL0550-0164-5-00 | DF3-2428SC/SCC                                                                                                 |
|                 | DF3EP-TA2428HC    | CL0550-0184-2-00 | DF3-EP2428PC/PCA                                                                                               |
|                 | DF3-TA22HC        | CL0550-0257-4-00 | DF3-22SC/SCFC                                                                                                  |
| Extraction Tool | DF-C-PO(A)        | CL0550-0170-8-00 | DF3-22SCF/SCFC<br>DF3-22SC/SCC<br>DF3-2428SCF/SCFC<br>DF3-2428SC/SCC<br>DF3-EP2428PCF/PCFA<br>DF3-EP2428PC/PCA |

Note 1: Issues with non-Hirose specified tools are outside the scope of warranty.  
Note 2: Please conduct crimping work according to the Crimp Quality Standard and Crimp Conditions.  
Note 3: If you do not use our specified tools, please contact our sales representative for consultation on providing drawings.

## Precautions for Crimping

### ■ Items Required Prior to Starting

The work-related documents listed below are required before starting harness assembly.

(The ● mark indicates a required document.)

When the documents shown below are not available, ask a Hirose sales personnel to provide them

| Document Title                                          | Description                                                                     | Automatic Crimping Machine | Hand Crimping Tool | Remarks                                                   |
|---------------------------------------------------------|---------------------------------------------------------------------------------|----------------------------|--------------------|-----------------------------------------------------------|
| ① Instruction Manual for the Crimping Machine Main Unit | Explanation of main press machine unit                                          | ●                          | -                  | Bundled with the purchase of the main press machine unit. |
| ② Applicator Handling Instructions                      | Crimping Operation Method                                                       |                            |                    | Bundled with the purchase of applicator.                  |
| ③ Applicator Spare Parts Identification                 | Explanation for Applicator installation                                         | ●                          | -                  |                                                           |
| ③ Crimp Conditions                                      | Standard values of: Crimp Height, Tensile Strength                              | ●                          | -                  |                                                           |
| ④ Crimp Quality Standards                               | Various standards for crimping conditions                                       | ●                          | -                  |                                                           |
| ⑤ Operating Instructions for Hand Tool                  | Crimping Operation Method<br>Standard values of: Crimp Height, Tensile Strength | -                          | ●                  | Bundled with the purchase of hand tool.                   |

### ■ Tools

Use tools designated by Hirose when crimping.

- Crimping performed using tools other than those specified is outside the scope of warranty.
  - The operating instructions manual is available for the crimping machine and the applicator.
- Be sure to carefully read the operating instructions manual before implementing the work.

### ■ Applicable Cables

Refer to Crimp Condition Table when using cables other than applicable wire. Crimp Condition Table is available from Part No. link.

(If you are using a cable that is not listed in Crimp Condition Table, please contact a Hirose sales representative.)

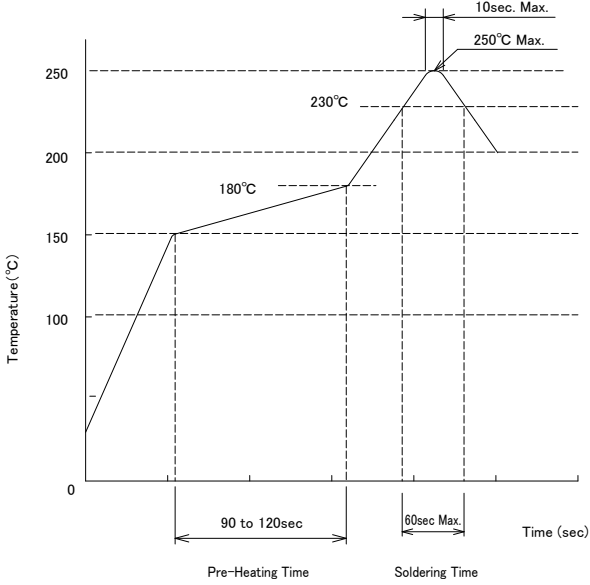
[Precautions]

- Electric wires that are suitable for crimping connectors are tin-plated stranded soft copper wire.
- Avoid crimping solid wires, wires with polyester threads or tin-coated wires.
- Avoid crimping two electric wires together.
- The crimp height setting value (Note) may vary between tin-plated and gold-plated contacts even if the same electric wires are used.
- The crimp height setting value (Note) may vary depending on the difference in the core wire configuration even if the computed cross-sectional area is the same.

Note: The crimp height is an important item that determines crimping quality.

We execute crimping tests for each electric wire to ensure the optimal value for the crimp height with high precision, thereby ensuring optimal setup values.

Precautions

|                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>                     Recommended Temperature Profile (SMT)                 </div>         | <div>  <p>[ Condition ]</p> <ol style="list-style-type: none"> <li>1. Peak Temperature : 250°C Max., within 10 sec.</li> <li>2. Heating Section : 230°C Min., within 60 sec.</li> <li>3. Pre-Heating Section : 150 to 180°C, 90 to 120 sec.</li> <li>4. Frequency : within 2 times</li> </ol> <p>*The measurement section is the terminal lead section.<br/>                     The type of cream solder, manufacturer, board size, and other mounting conditions may vary.<br/>                     Therefore, please check the mounting conditions before use.<br/>                     (Note1) This temperature profile is a recommended value.</p> </div> |
| <div>                     Recommended Manual Soldering Conditions (SMT)                 </div> | <div>                     Soldering Iron Temperature: 290 ± 10°C , Soldering Time: within 3 sec.                 </div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <div>                     Recommended Screen Thickness (SMT)                 </div>            | <div>                     0.15 to 0.2mm                 </div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <div>                     Board Warpage (SMT)                 </div>                           | <div>                     Max. of 0.03mm at the center in reference to both ends of the connector                 </div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <div>                     Recommended Soldering Conditions (DIP)                 </div>        | <div>                     ■ Flow Conditions with Automatic Soldering Equipment: Solder Temperature 250 ± 5°C , Time within 10 sec.<br/>                     ■ Manual Soldering Conditions: Soldering Iron Temperature 290 ± 10°C , Time within 2 sec.                 </div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <div>                     Cleaning                 </div>                                      | <div>                     Refer to the "Product Guidelines (Board-to-Wire Connector Guidelines)".<br/>                     IPA cleaning is allowed. (Cleaning is not recommended due to potential changes in mating action and other variables. Please contact us if you use other cleaning agents.)                 </div>                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <div>                     Assembly                 </div>                                      | <div>                     Refer to the "Product Guidelines (Board-to-Wire Connector Guidelines)".                 </div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <div>                     Precautions                 </div>                                   | <div>                     Please refer to the materials listed below on our company website when handling this product.<br/>                     ■ Product Guidelines (Board-to-Wire Connector Guidelines)<br/>                     ■ Crimp Quality Standard                 </div>                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <div>                     Handling Instructions                 </div>                         | <div>                     This product may have a slight differences in color depending on the production lot.<br/>                     This difference does not have any influence on the performance. In addition, black spots may appear on the mold resin, but this also does not affect the quality of the product.                 </div>                                                                                                                                                                                                                                                                                                                                                                                                 |

## While Taking into Consideration

Specifications mentioned in this catalog are reference values.

When considering to order or use this product, please review the Drawing and Product Specifications sheets.

Use an appropriate cable when using the connector in combination with cables.

If considering usage of a non-specified cable, please contact your sales representative.

If assembly process is done by jigs & tools which are not identified by Hirose, the warranty of the product may be affected.

If considering usage for below mentioned applications, please contact your sales representative.

In cases where the application will demand a high level of reliability, such as automotive, medical instruments, public infrastructure, aerospace/defense etc. Hirose must review before assurance of reliability can be given.

**HIROSE****HIROSE ELECTRIC CO.,LTD.**2-6-3,Nakagawa Chuoh,Tsuzuki-Ku,Yokohama-Shi 224-8540,JAPAN  
<https://www.hirose.com>