

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

### DF3 Series



### ■Features

#### Correspond to Board Design in Wide Variation

- ID Socket
  - (1) Low profile design with the mounting height of 6.8mm
  - (2) Achieves the multi-harness by the full automatic ID machine in combination with the DF11 series ID type.  
(DF11 series represents the 2mm pitch single-row product. Please refer to page B220 to B233.)
- Crimp Socket
  - (1) Low profile design with mounting height 7.5mm.
  - (2) Provide the contact crimping area with the sufficient space, and secures the stable crimping operation.
- Receptacle
  - (1) The board can be connected horizontally or vertically in combination with the straight header with the right angle header.
  - (2) For horizontal connection, the board to board size is the low profile of 6.6mm.
  - (3) Compatibility with the in-line plug allows the receptacle to set the board side to the receptacle and the cable side to the plug in the board to cable connection.
- Pin Header
  - (1) The board pre-fixed kink is treated with the post pin.
  - (2) The style employs a scoop-proof and sturborn box type.
  - (3) The type corresponding to SMT is available, using the heat-proof resin.  
This SMT header is equipped with the metal tab to prevent peeling in the solder joint area.
- In-line Plug
  - (1) The crimping in-line plug consists of two types, one type, which has pursued after space merits, and the other employs the panel lock type, which can be fixed to the panel.
  - (2) The in-line adapter is available to insert and in-line the ID socket from both sides.

### ■Applications

Business equipment such as copy machine and printer

## Product Specifications

|        |                          |          |                    |     |                        |                  |                             |                      |
|--------|--------------------------|----------|--------------------|-----|------------------------|------------------|-----------------------------|----------------------|
| Rating | Current rating<br>Note 1 | Crimping | Wire size          |     |                        | AWG#22 to 24 :3A | Operating Temperature Range | -30℃ to +85℃ Note 2. |
|        |                          |          |                    |     |                        | AWG#26 :2A       | Operating Humidity Range    | 40% to 80%           |
|        |                          |          |                    |     |                        | AWG#28 :1A       |                             |                      |
|        | Voltage rating AC100V    | IDC      | Wire size          |     |                        | AWG 26, 28:1A    | Storage Temperature Range   | -10℃ to +60℃ Note 3. |
|        |                          | Crimping | Press-fit: 250V AC | IDC | Press-connect: 100V AC |                  | Storagg Humidity Range      | 40% to 70% Note 3.   |

| UL-CSA Safety Standard and Approved specification |               |           |  |
|---------------------------------------------------|---------------|-----------|--|
| Rating                                            | Rated Current | Wire size |  |
|                                                   | Rated Voltage | 30V AC    |  |

- UL CSA Safety Standard File No.  
 UL :E52653  
 CSA :LR95109  
 ■UL CSA Acquisition Objective Item  
 ①DF3-\*S-2C  
 ②DF3/3A-\*P-2DSA/DS  
 ③DF3/DF3AA-\*EP-2C  
 ④DF3-\*S-2R26/28  
 ⑤DF3-\*P-2H

| Item                                | Specification                                                            | Condition                                                                                 |
|-------------------------------------|--------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|
| 1. Insulation Resistance            | 1000M ohms min.                                                          | 500V DC                                                                                   |
| 2. Withstanding voltage             | No flashover or insulation breakdown.                                    | 650V AC/1 minute                                                                          |
| 3. Contact Resistance               | 30m ohms max                                                             | 100mA                                                                                     |
| 4. Single Insertor/Extraction Force | MIN0.3N (30gf), MAX4.4N(450gf)                                           | Measure by the square steel pin with 0.5±0.002mm                                          |
| 5. 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. |
| 6. Humidity (Steady state)          | Contact resistance: 30m ohms max.Insulation resistance: 500M ohms min.   | 96 hours at temperature of 40℃ and humidity of 90% to 95%                                 |
| 7. Temperature Cycle                | Contact resistance: 30m ohms max.:Insulation resistance: 1000M ohms min. | (-55℃: 30 minutes 5 to 35℃: 10 minutes 85℃: 30 minutes 5 to 35℃: 10minutes) 5 cycles      |
| 8. Durability (Mating/un-mating)    | Contact resistance: 30m ohms max.                                        | Tin plating: 30 cycles Gold plating: 50 cycles                                            |
| 9. Resistance to Soldering Heat     | No deformation of components affecting performance.                      | Flow: 260℃ for 10 seconds Manual soldering: 300℃ for 2 seconds                            |
|                                     |                                                                          | Reflow: At the recommended temperature profile Manual soldering: 300℃ for 3 seconds       |

- Note 1: Current rating of header is 3A.  
 Note 2: Includes temperature rise caused by current flow.  
 Note 3: 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 4: 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      | Materia         | Finish                    | Remarks |
|------------------------|-----------|-----------------|---------------------------|---------|
| Crimping Socket        | Insulator | Polyamide       | Black                     | UL94V-0 |
| IDC Contact for Socket | Contact   | Phosphor bronze | Tin plated or gold plated | ————    |
| ID Socket              | Insulator | Polyamide       | Black                     | UL94V-0 |
|                        | Contact   | Phosphor bronze | Tin plated or gold plated | ————    |
| Receptacle             | Insulator | Polyamide       | Black                     | UL94V-0 |
|                        | Contact   | Phosphor bronze | Tin plated or gold plated | ————    |
| Pin Header             | Insulator | Polyamide       | Black                     | UL94V-0 |
|                        | Contact   | Brass           | Tin plated or gold plated | ————    |
| SMT Pin Header         | Insulator | Polyamide       | Beige                     | UL94V-0 |
|                        | Contact   | Brass           | Tin plated or gold plated | ————    |
|                        | Metal tab | Brass           | Tin plated                | ————    |
| In-line Plug           | Insulator | Polyamide       | Black                     | UL94V-0 |
| In-line IDC Contact    | Contact   | Phosphor bronze | Tin plated or gold plated | ————    |
| In-line Adapter        | Insulator | Polyamide       | Black                     | UL94V-0 |
|                        | Contact   | Brass           | Tin plated                | ————    |

## Ordering Information

### Connector

**DF3** - **\*** **S** - **2C**  
① ② ③ ④ ⑤

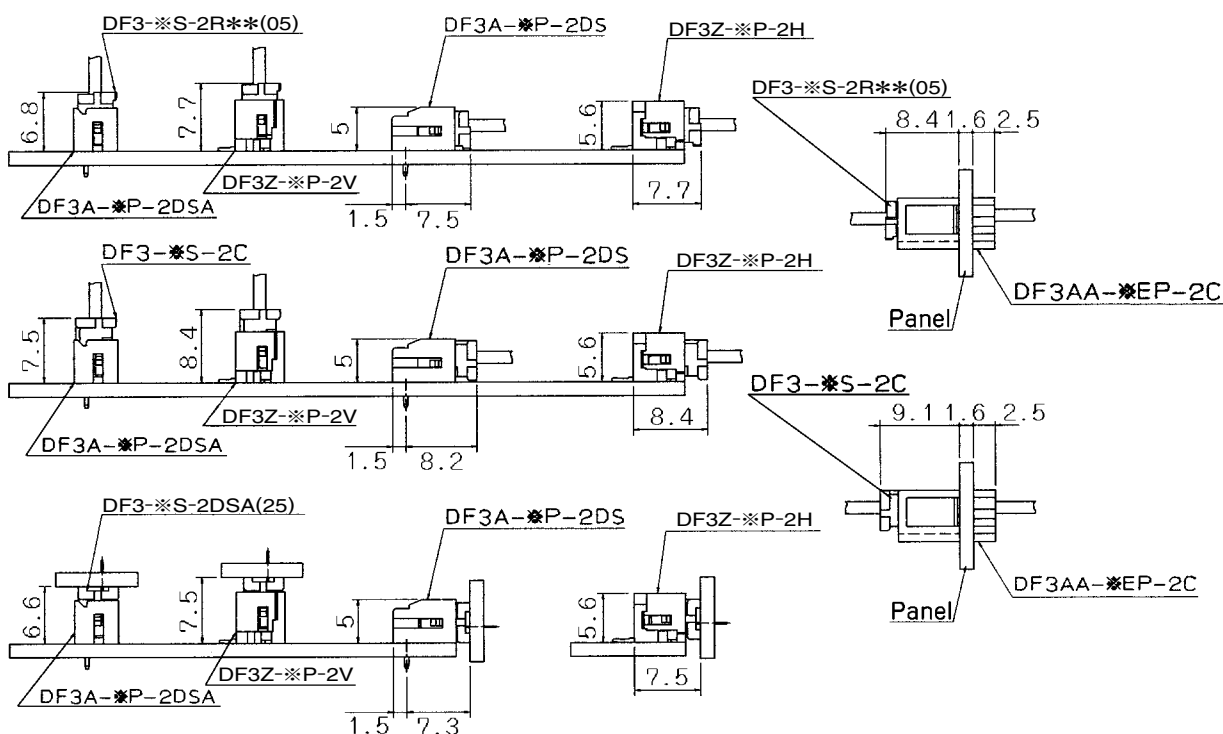
|                              |                                 |
|------------------------------|---------------------------------|
| ① Series Name : DF3, 3A, 3AA | ⑤ Connection Form/Contact Style |
| ② Number of Contacts : 2~15  | C : Crimp socket                |
| ③ Connector Type             | R26 : ID socket for AWG26       |
| S : Socket                   | R28 : ID socket for AWG28       |
| P : Pin Header               | DSA : Straight through hole     |
| EP : In-line Plug            | DS : Right angle through hole   |
| ④ Contact Pitch : 2mm        | V : Straight SMT                |
|                              | H : Right angle SMT             |
|                              | A : Adapter                     |

### Contact

**DF3** - **EP2428PCFA**  
① ② ③ ④

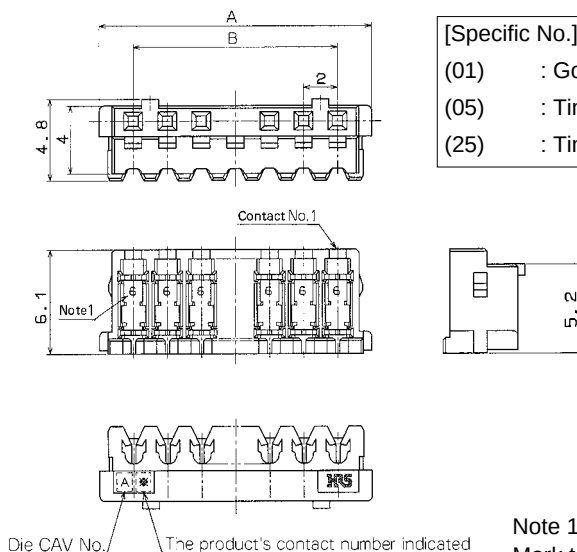
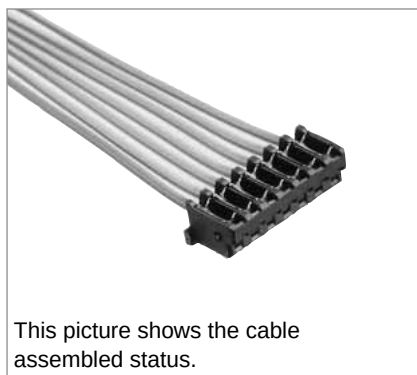
|                        |                                  |
|------------------------|----------------------------------|
| ① Contact Type         | ③ Contact Type/Packaging Type    |
| Blank : For socket     | SCF : Socket contact, Reel       |
| EP : For in-line plug  | SC : Socket contact, Bag         |
| ② Applicable Wire Size | PCF : Plug contact, Reel         |
| 22 : AWG#22            | PC : Plug contact, Bag           |
| 2428 : AWG#24 to #28   | ④ Plating Type                   |
|                        | Blank : Tin plated               |
|                        | A : Gold plated (Plug contact)   |
|                        | C : Gold plated (Socket contact) |

## Application pattern



## DF3 Series 2mm Pitch Connector for Discrete Wire Connection (Product approved by UL/CSA Standard)

### ■ID Socket



| [Specific No.]-** (* *) |                                   |
|-------------------------|-----------------------------------|
| (01)                    | : Gold plated, 100 pieces per bag |
| (05)                    | : Tin plated, 100 pieces per bag  |
| (25)                    | : Tin plated, Tube packaging      |

Note 1.  
 Mark to determine the socket name  
 Mark6: R26, Mark8: R28

#### ●AWG#26

Unit: mm

| Part Number      | CL No.        | Number of Contacts | A  | B  | Tube packaging Quantity | RoHS |
|------------------|---------------|--------------------|----|----|-------------------------|------|
| DF3- 2S-2R26(**) | 543-0078-7-** | 2                  | 6  | 2  | 190 pieces              | YES  |
| DF3- 3S-2R26(**) | 543-0079-0-** | 3                  | 8  | 4  | 142                     |      |
| DF3- 4S-2R26(**) | 543-0080-9-** | 4                  | 10 | 6  | 114                     |      |
| DF3- 5S-2R26(**) | 543-0081-1-** | 5                  | 12 | 8  | 94                      |      |
| DF3- 6S-2R26(**) | 543-0082-4-** | 6                  | 14 | 10 | 80                      |      |
| DF3- 7S-2R26(**) | 543-0083-7-** | 7                  | 16 | 12 | 70                      |      |
| DF3- 8S-2R26(**) | 543-0084-0-** | 8                  | 18 | 14 | 62                      |      |
| DF3- 9S-2R26(**) | 543-0085-2-** | 9                  | 20 | 16 | 56                      |      |
| DF3-10S-2R26(**) | 543-0086-5-** | 10                 | 22 | 18 | 52                      |      |
| DF3-11S-2R26(**) | 543-0087-8-** | 11                 | 24 | 20 | 46                      |      |
| DF3-12S-2R26(**) | 543-0088-0-** | 12                 | 26 | 22 | 44                      |      |
| DF3-13S-2R26(**) | 543-0089-3-** | 13                 | 28 | 24 | 40                      |      |
| DF3-14S-2R26(**) | 543-0090-2-** | 14                 | 30 | 26 | 38                      |      |
| DF3-15S-2R26(**) | 543-0091-5-** | 15                 | 32 | 28 | 34                      |      |

#### ●AWG#28

Unit: mm

| Part Number      | CL No.        | Number of Contacts | A  | B  | Tube packaging Quantity | RoHS |
|------------------|---------------|--------------------|----|----|-------------------------|------|
| DF3- 2S-2R28(**) | 543-0092-8-** | 2                  | 6  | 2  | 190 pieces              | YES  |
| DF3- 3S-2R28(**) | 543-0093-0-** | 3                  | 8  | 4  | 142                     |      |
| DF3- 4S-2R28(**) | 543-0094-3-** | 4                  | 10 | 6  | 114                     |      |
| DF3- 5S-2R28(**) | 543-0095-6-** | 5                  | 12 | 8  | 94                      |      |
| DF3- 6S-2R28(**) | 543-0096-9-** | 6                  | 14 | 10 | 80                      |      |
| DF3- 7S-2R28(**) | 543-0097-1-** | 7                  | 16 | 12 | 70                      |      |
| DF3- 8S-2R28(**) | 543-0098-4-** | 8                  | 18 | 14 | 62                      |      |
| DF3- 9S-2R28(**) | 543-0099-7-** | 9                  | 20 | 16 | 56                      |      |
| DF3-10S-2R28(**) | 543-0100-4-** | 10                 | 22 | 18 | 52                      |      |
| DF3-11S-2R28(**) | 543-0101-7-** | 11                 | 24 | 20 | 46                      |      |
| DF3-12S-2R28(**) | 543-0102-0-** | 12                 | 26 | 22 | 44                      |      |
| DF3-13S-2R28(**) | 543-0103-2-** | 13                 | 28 | 24 | 40                      |      |
| DF3-14S-2R28(**) | 543-0104-5-** | 14                 | 30 | 26 | 38                      |      |
| DF3-15S-2R28(**) | 543-0105-8-** | 15                 | 32 | 28 | 34                      |      |

Note 2.The quantity for delivery of the specific No. (01) and (05) is determined per bag (100pcs.). If needed, please order the products per bag.

Note 3.If the Full automatic IDC machine to hit the DF11 single core,the (25) tube packaging specification will be applied.

Note 4.Order the tube packaging product, multiplying the tube packaging quantity (pieces).

### ■Applicable Cable

| Part Number     | Applicable Cable        | Jacket Diameter |
|-----------------|-------------------------|-----------------|
| DF3-*S-2R26(**) | UL1061 AWG#26 (7/0.16)  | φ0.9 to 1mm     |
| DF3-*S-2R28(**) | UL1061 AWG#28 (7/0.127) | φ0.9 to 1mm     |

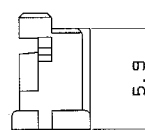
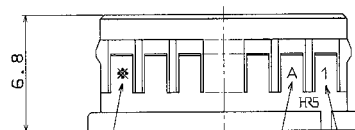
### ■Applicable ID Connection Tool

| Type                                                      | Part Number | Connection Type                                                                                                                                                                                              | Remarks                                                        |
|-----------------------------------------------------------|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|
| DF11 Single Contact Punching<br>Full Automatic ID Machine | AM700/DF11  | ■ Effective Harness Form<br>①DF11-Both ended, single ended<br>②DF11-DF11, Separation<br>③DF11-DF3, Separation<br>■ Effective Harness Length<br>100 to 2,000mm<br>■ Conduction Inspection Mechanism Installed | Connector is the specification (25).<br>Tube packaging applied |
| DF3 DF4 Desktop ID Machine                                | SA701/DF3   | DF3 No restriction<br>DF4 No restriction                                                                                                                                                                     | Desktop machine for small lot                                  |

## ■Crimping Socket



This picture shows the Contact crimped status.



Note 1: Die CAV No. Contact No.

[Specific No.] - \* \*, (\* \*)  
 Blank: 100 pieces per pack

Unit: mm

| Part Number   | CL No.        | Number of Contacts | A  | B  | RoHS | Part Number    | CL No.        | Number of Contacts | A  | B  | RoHS |
|---------------|---------------|--------------------|----|----|------|----------------|---------------|--------------------|----|----|------|
| DF3-2S-2C(**) | 543-0003-8-** | 2                  | 6  | 2  | YES  | DF3- 9S-2C(**) | 543-0010-3-** | 9                  | 20 | 16 | YES  |
| DF3-3S-2C(**) | 543-0004-0-** | 3                  | 8  | 4  |      | DF3-10S-2C(**) | 543-0011-6-** | 10                 | 22 | 18 |      |
| DF3-4S-2C(**) | 543-0005-3-** | 4                  | 10 | 6  |      | DF3-11S-2C(**) | 543-0012-9-** | 11                 | 24 | 20 |      |
| DF3-5S-2C(**) | 543-0006-6-** | 5                  | 12 | 8  |      | DF3-12S-2C(**) | 543-0013-1-** | 12                 | 26 | 22 |      |
| DF3-6S-2C(**) | 543-0007-9-** | 6                  | 14 | 10 |      | DF3-13S-2C(**) | 543-0014-4-** | 13                 | 28 | 24 |      |
| DF3-7S-2C(**) | 543-0008-1-** | 7                  | 16 | 12 |      | DF3-14S-2C(**) | 543-0015-7-** | 14                 | 30 | 26 |      |
| DF3-8S-2C(**) | 543-0009-4-** | 8                  | 18 | 14 |      | DF3-15S-2C(**) | 543-0016-0-** | 15                 | 32 | 28 |      |

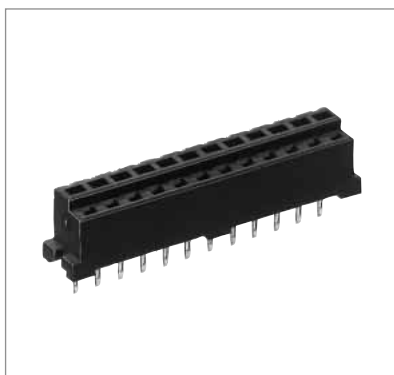
Note1: The product's contact number indicated.

Note2: The quantity for delivery of the specification No. "None" is determined per bag (100 pcs.).

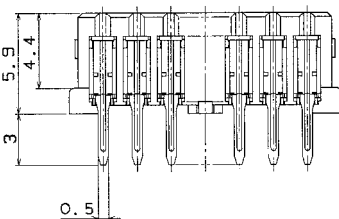
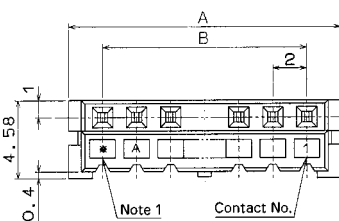
If needed, please order the products per bag.

Note3: A quantity of "500 pieces package" and "1000 pieces package" for delivery is dealt with pieces. Order example: 500, 1000, and 1500 pieces...

## ■Receptacle

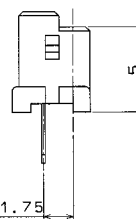


●Board Through-hole Diameter:  $\phi 0.8^{+0.1}_{-0}$



[Specific No.] - \* \*, (\* \*)  
 (25) :Tin plated, Tube packaging  
 (55) :Gold plated, Tube packaging

Note1: The product's contact number indicated



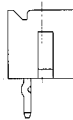
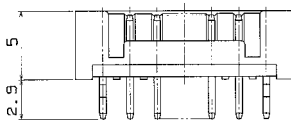
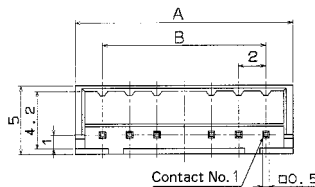
Unit: mm

| Part Number     | CL No.        | Number of Contacts | A  | B  | Tube Package Quantity | RoHS | Part Number      | CL No.        | Number of Contacts | A  | B  | Tube Package Quantity | RoHS |
|-----------------|---------------|--------------------|----|----|-----------------------|------|------------------|---------------|--------------------|----|----|-----------------------|------|
| DF3-2S-2DSA(**) | 543-0048-6-** | 2                  | 6  | 2  | 80 pieces             | YES  | DF3- 9S-2DSA(**) | 543-0055-1-** | 9                  | 20 | 16 | 24 pieces             | YES  |
| DF3-3S-2DSA(**) | 543-0049-9-** | 3                  | 8  | 4  | 60                    |      | DF3-10S-2DSA(**) | 543-0056-4-** | 10                 | 22 | 18 | 21                    |      |
| DF3-4S-2DSA(**) | 543-0050-8-** | 4                  | 10 | 6  | 48                    |      | DF3-11S-2DSA(**) | 543-0057-7-** | 11                 | 24 | 20 | 20                    |      |
| DF3-5S-2DSA(**) | 543-0051-0-** | 5                  | 12 | 8  | 40                    |      | DF3-12S-2DSA(**) | 543-0058-0-** | 12                 | 26 | 22 | 18                    |      |
| DF3-6S-2DSA(**) | 543-0052-3-** | 6                  | 14 | 10 | 34                    |      | DF3-13S-2DSA(**) | 543-0059-2-** | 13                 | 28 | 24 | 17                    |      |
| DF3-7S-2DSA(**) | 543-0053-6-** | 7                  | 16 | 12 | 30                    |      | DF3-14S-2DSA(**) | 543-0060-1-** | 14                 | 30 | 26 | 16                    |      |
| DF3-8S-2DSA(**) | 543-0054-9-** | 8                  | 18 | 14 | 27                    |      | DF3-15S-2DSA(**) | 543-0061-4-** | 15                 | 32 | 28 | 15                    |      |

Note2: Please order the tube packaging at the multiplied tube packaging quantity (pieces).

## DF3 Series 2mm Pitch Connector for Discrete Wire Connection (Product approved by UL/CSA Standard)

### ■Straight Pin Header



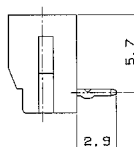
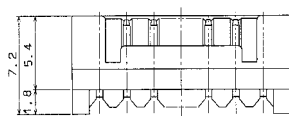
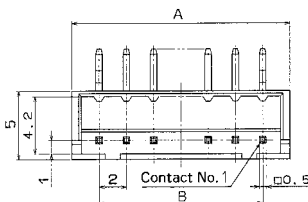
- Board Through-hole Diameter:  $\phi 0.8^{+0.1}_{-0.05}$
- Kink Pre-fixed Effective Diameter:  $\phi 0.8^{+0.05}_{-0.0}$

Unit: mm

| Tin Plating   |            | Gold Plating     |               | Number of Contacts | A  | B  | RoHS |
|---------------|------------|------------------|---------------|--------------------|----|----|------|
| Part Number   | CL No.     | Part Number      | CL No.        |                    |    |    |      |
| DF3A- 2P-2DSA | 543-0165-0 | DF3- 2P-2DSA(01) | 543-0017-2-01 | 2                  | 6  | 2  | YES  |
| DF3A- 3P-2DSA | 543-0166-2 | DF3- 3P-2DSA(01) | 543-0018-5-01 | 3                  | 8  | 4  |      |
| DF3A- 4P-2DSA | 543-0167-5 | DF3- 4P-2DSA(01) | 543-0019-8-01 | 4                  | 10 | 6  |      |
| DF3A- 5P-2DSA | 543-0168-8 | DF3- 5P-2DSA(01) | 543-0020-7-01 | 5                  | 12 | 8  |      |
| DF3A- 6P-2DSA | 543-0169-0 | DF3- 6P-2DSA(01) | 543-0021-0-01 | 6                  | 14 | 10 |      |
| DF3A- 7P-2DSA | 543-0170-0 | DF3- 7P-2DSA(01) | 543-0022-2-01 | 7                  | 16 | 12 |      |
| DF3A- 8P-2DSA | 543-0171-2 | DF3- 8P-2DSA(01) | 543-0023-5-01 | 8                  | 18 | 14 |      |
| DF3A- 9P-2DSA | 543-0172-5 | DF3- 9P-2DSA(01) | 543-0024-8-01 | 9                  | 20 | 16 |      |
| DF3A-10P-2DSA | 543-0173-8 | DF3-10P-2DSA(01) | 543-0025-0-01 | 10                 | 22 | 18 |      |
| DF3A-11P-2DSA | 543-0174-0 | DF3-11P-2DSA(01) | 543-0026-3-01 | 11                 | 24 | 20 |      |
| DF3A-12P-2DSA | 543-0175-3 | DF3-12P-2DSA(01) | 543-0027-6-01 | 12                 | 26 | 22 |      |
| DF3A-13P-2DSA | 543-0176-6 | DF3-13P-2DSA(01) | 543-0028-9-01 | 13                 | 28 | 24 |      |
| DF3A-14P-2DSA | 543-0177-9 | DF3-14P-2DSA(01) | 543-0029-1-01 | 14                 | 30 | 26 |      |
| DF3A-15P-2DSA | 543-0178-1 | DF3-15P-2DSA(01) | 543-0030-0-01 | 15                 | 32 | 28 |      |

Note : The quantity for delivery is determined per bag (100 pcs.). If needed, please order the products per bag.

### ■Right Angle Pin Header

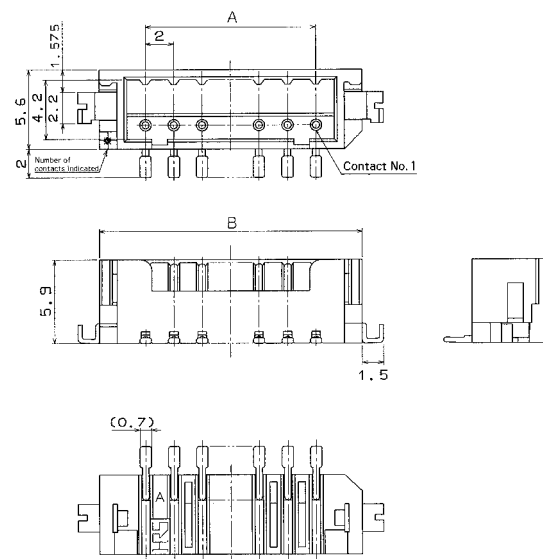


- Board Through-hole Diameter:  $\phi 0.8^{+0.1}_{-0.05}$
- Kink Pre-fixed Effective Diameter:  $\phi 0.8^{+0.05}_{-0.0}$

Unit: mm

| Tin Plating  |            | Gold Plating    |               | Number of Contacts | A  | B  | RoHS |
|--------------|------------|-----------------|---------------|--------------------|----|----|------|
| Part Number  | CL No.     | Part Number     | CL No.        |                    |    |    |      |
| DF3A- 2P-2DS | 543-0179-4 | DF3- 2P-2DS(01) | 543-0031-3-01 | 2                  | 6  | 2  | YES  |
| DF3A- 3P-2DS | 543-0180-3 | DF3- 3P-2DS(01) | 543-0032-6-01 | 3                  | 8  | 4  |      |
| DF3A- 4P-2DS | 543-0181-6 | DF3- 4P-2DS(01) | 543-0033-9-01 | 4                  | 10 | 6  |      |
| DF3A- 5P-2DS | 543-0182-9 | DF3- 5P-2DS(01) | 543-0034-1-01 | 5                  | 12 | 8  |      |
| DF3A- 6P-2DS | 543-0183-1 | DF3- 6P-2DS(01) | 543-0035-4-01 | 6                  | 14 | 10 |      |
| DF3A- 7P-2DS | 543-0184-4 | DF3- 7P-2DS(01) | 543-0036-7-01 | 7                  | 16 | 12 |      |
| DF3A- 8P-2DS | 543-0185-7 | DF3- 8P-2DS(01) | 543-0037-0-01 | 8                  | 18 | 14 |      |
| DF3A- 9P-2DS | 543-0186-0 | DF3- 9P-2DS(01) | 543-0038-2-01 | 9                  | 20 | 16 |      |
| DF3A-10P-2DS | 543-0187-2 | DF3-10P-2DS(01) | 543-0039-5-01 | 10                 | 22 | 18 |      |
| DF3A-11P-2DS | 543-0188-5 | DF3-11P-2DS(01) | 543-0040-4-01 | 11                 | 24 | 20 |      |
| DF3A-12P-2DS | 543-0189-8 | DF3-12P-2DS(01) | 543-0041-7-01 | 12                 | 26 | 22 |      |
| DF3A-13P-2DS | 543-0190-7 | DF3-13P-2DS(01) | 543-0042-0-01 | 13                 | 28 | 24 |      |
| DF3A-14P-2DS | 543-0191-0 | DF3-14P-2DS(01) | 543-0043-2-01 | 14                 | 30 | 26 |      |
| DF3A-15P-2DS | 543-0192-2 | DF3-15P-2DS(01) | 543-0044-5-01 | 15                 | 32 | 28 |      |

Note : The quantity for delivery is determined per bag(100 pcs.). If needed, please order the products per bag.



Technical drawing of a mechanical part with dimensions and tolerances. The drawing shows a cross-section of a part with a central horizontal section and two vertical sections on the left and right. The central section has a width of  $2.6$  and a height of  $4.8$ . The vertical sections have a width of  $2.3$  and a height of  $3.3$ . The total width of the part is  $C$ . The total height of the part is  $2.3$ . The central section is divided into two parts, each with a width of  $1.2$ . The distance between the centers of the two vertical sections is  $A \pm 0.1$ . The distance from the center of the central section to the center of the right vertical section is  $P \pm 0.1$ . The drawing includes a hatched area representing a cross-section of a cylindrical part.

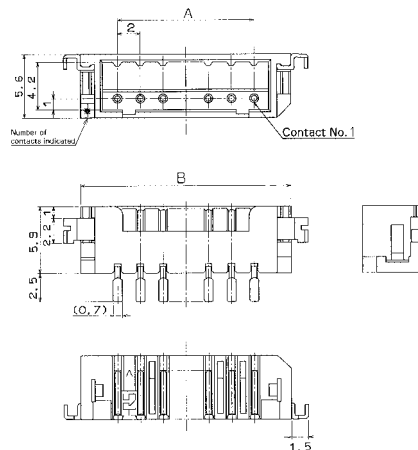
[Specific No.] —\* \*, (\* \*)  
(21) :Tin plated packaging  
(51) :Gold plated packaging

| Without Boss     |                 | Number of<br>Contacts | A  | B    | C     | RoHS |
|------------------|-----------------|-----------------------|----|------|-------|------|
| Part Number      | CL No.          |                       |    |      |       |      |
| DF3DZ- 2P-2V(**) | 0543-1056-0-*** | 2                     | 2  | 8.5  | 8.74  | YES  |
| DF3DZ- 3P-2V(**) | 0543-1057-2-*** | 3                     | 4  | 10.5 | 10.74 |      |
| DF3DZ- 4P-2V(**) | 0543-1058-5-*** | 4                     | 6  | 12.5 | 12.74 |      |
| DF3DZ- 5P-2V(**) | 0543-1059-8-*** | 5                     | 8  | 14.5 | 14.74 |      |
| DF3DZ- 6P-2V(**) | 0543-1060-7-*** | 6                     | 10 | 16.5 | 16.74 |      |
| DF3DZ- 7P-2V(**) | 0543-1061-0-*** | 7                     | 12 | 18.5 | 18.74 |      |
| DF3DZ- 8P-2V(**) | 0543-1062-2-*** | 8                     | 14 | 20.5 | 20.74 |      |
| DF3DZ- 9P-2V(**) | 0543-1063-5-*** | 9                     | 16 | 22.5 | 22.74 |      |
| DF3DZ-10P-2V(**) | 0543-1064-8-*** | 10                    | 18 | 24.5 | 24.74 |      |
| DF3DZ-11P-2V(**) | 0543-1065-0-*** | 11                    | 20 | 26.5 | 26.74 |      |
| DF3DZ-12P-2V(**) | 0543-1066-3-*** | 12                    | 22 | 28.5 | 28.74 |      |
| DF3DZ-13P-2V(**) | 0543-1067-6-*** | 13                    | 24 | 30.5 | 30.74 |      |
| DF3DZ-14P-2V(**) | 0543-1068-9-*** | 14                    | 26 | 32.5 | 32.74 |      |
| DF3DZ-15P-2V(**) | 0543-1069-1-*** | 15                    | 28 | 34.5 | 34.74 |      |

Note3: Small blisters of the molding compounds in small areas will not affect from,fit or function.

DF3 Series 2mm Pitch Connector for Discrete Wire Connection (Product approved by UL/CSA Standard)

## ■Right Angle Pin Header (SMT)



## ◆PCB mounting pattern



[Specific No.] -\* \*, (\* \*)  
 (21) : Tin plated embossed packaging  
 (Note the number of contacts  
 for marchandization.)  
 (51) : Gold plated embossed packaging

Unit: mm

| Without Boss     |                 | Number of<br>Contacts | A  | B    | C     | RoHS |
|------------------|-----------------|-----------------------|----|------|-------|------|
| Part Number      | CL No.          |                       |    |      |       |      |
| DF3DZ- 2P-2H(**) | 0543-1070-0-**- | 2                     | 2  | 8.5  | 8.74  | YES  |
| DF3DZ- 3P-2H(**) | 0543-1071-3-**- | 3                     | 4  | 10.5 | 10.74 |      |
| DF3DZ- 4P-2H(**) | 0543-1072-6-**- | 4                     | 6  | 12.5 | 12.74 |      |
| DF3DZ- 5P-2H(**) | 0543-1073-9-**- | 5                     | 8  | 14.5 | 14.74 |      |
| DF3DZ- 6P-2H(**) | 0543-1074-1-**- | 6                     | 10 | 16.5 | 16.74 |      |
| DF3DZ- 7P-2H(**) | 0543-1075-4-**- | 7                     | 12 | 18.5 | 18.74 |      |
| DF3DZ- 8P-2H(**) | 0543-1076-7-**- | 8                     | 14 | 20.5 | 20.74 |      |
| DF3DZ- 9P-2H(**) | 0543-1077-0-**- | 9                     | 16 | 22.5 | 22.74 |      |
| DF3DZ-10P-2H(**) | 0543-1078-2-**- | 10                    | 18 | 24.5 | 24.74 |      |
| DF3DZ-11P-2H(**) | 0543-1079-5-**- | 11                    | 20 | 26.5 | 26.74 |      |
| DF3DZ-12P-2H(**) | 0543-1080-4-**- | 12                    | 22 | 28.5 | 28.74 |      |
| DF3DZ-13P-2H(**) | 0543-1081-7-**- | 13                    | 24 | 30.5 | 30.74 |      |
| DF3DZ-14P-2H(**) | 0543-1082-0-**- | 14                    | 26 | 32.5 | 32.74 |      |
| DF3DZ-15P-2H(**) | 0543-1083-2-**- | 15                    | 28 | 34.5 | 34.74 |      |

Note1: Please order the emboss packaging product by the reel number. (1 reel : 1000 pcs.)

Note2: Embossed packaging products have the reel wrapped in polyethylene and include a desiccant.

Note3: Small blisters of the molding compounds in small areas will not affect from, fit or function.

## In-line Plug

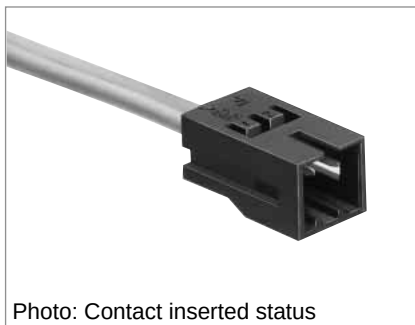
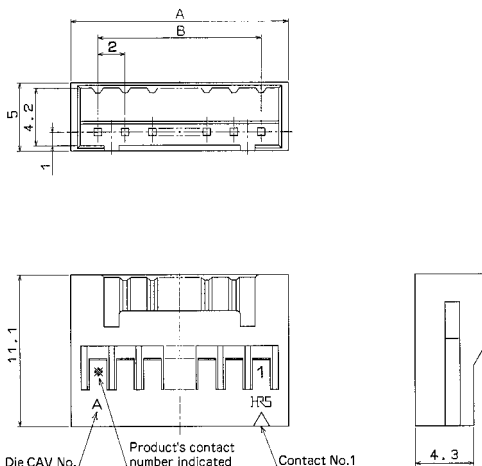


Photo: Contact inserted status



Unit: mm

| Part Number | CL No.     | Number of Contacts | A  | B  | RoHS | Part Number | CL No.     | Number of Contacts | A  | B  | RoHS |
|-------------|------------|--------------------|----|----|------|-------------|------------|--------------------|----|----|------|
| DF3- 2EP-2C | 543-0064-2 | 2                  | 6  | 2  | YES  | DF3- 9EP-2C | 543-0071-8 | 9                  | 20 | 16 | YES  |
| DF3- 3EP-2C | 543-0065-5 | 3                  | 8  | 4  |      | DF3-10EP-2C | 543-0072-0 | 10                 | 22 | 18 |      |
| DF3- 4EP-2C | 543-0066-8 | 4                  | 10 | 6  |      | DF3-11EP-2C | 543-0073-3 | 11                 | 24 | 20 |      |
| DF3- 5EP-2C | 543-0067-0 | 5                  | 12 | 8  |      | DF3-12EP-2C | 543-0074-6 | 12                 | 26 | 22 |      |
| DF3- 6EP-2C | 543-0068-3 | 6                  | 14 | 10 |      | DF3-13EP-2C | 543-0075-9 | 13                 | 28 | 24 |      |
| DF3- 7EP-2C | 543-0069-6 | 7                  | 16 | 12 |      | DF3-14EP-2C | 543-0076-1 | 14                 | 30 | 26 |      |
| DF3- 8EP-2C | 543-0070-5 | 8                  | 18 | 14 |      | DF3-15EP-2C | 543-0077-4 | 15                 | 32 | 28 |      |

Note : The specific No."None" item is delivered per bag (100 pcs.). Please order products per bag unit.

## In-line Plug with Panel Lock

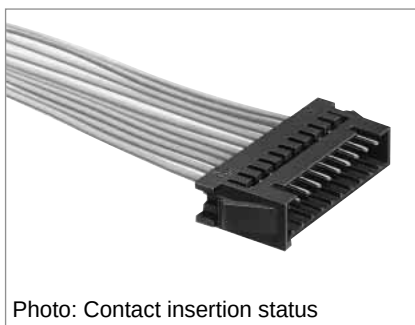
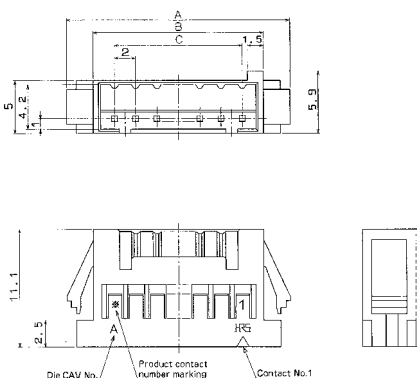


Photo: Contact insertion status

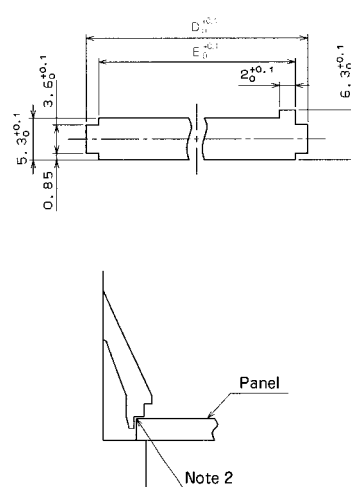


Unit: mm

| Part Number   | CL No.     | Number of Contacts | A  | B  | C  | D    | E    | RoHS |
|---------------|------------|--------------------|----|----|----|------|------|------|
| DF3AA- 2EP-2C | 543-0151-5 | 2                  | 11 | 6  | 2  | 9.4  | 6.3  | YES  |
| DF3AA- 3EP-2C | 543-0152-8 | 3                  | 13 | 8  | 4  | 11.4 | 8.3  |      |
| DF3AA- 4EP-2C | 543-0153-0 | 4                  | 15 | 10 | 6  | 13.4 | 10.3 |      |
| DF3AA- 5EP-2C | 543-0154-3 | 5                  | 17 | 12 | 8  | 15.4 | 12.3 |      |
| DF3AA- 6EP-2C | 543-0155-6 | 6                  | 19 | 14 | 10 | 17.4 | 14.3 |      |
| DF3AA- 7EP-2C | 543-0156-9 | 7                  | 21 | 16 | 12 | 19.4 | 16.3 |      |
| DF3AA- 8EP-2C | 543-0157-1 | 8                  | 23 | 18 | 14 | 21.4 | 18.3 |      |
| DF3AA- 9EP-2C | 543-0158-4 | 9                  | 25 | 20 | 16 | 23.4 | 20.3 |      |
| DF3AA-10EP-2C | 543-0159-7 | 10                 | 27 | 22 | 18 | 25.4 | 22.3 |      |
| DF3AA-11EP-2C | 543-0160-6 | 11                 | 29 | 24 | 20 | 27.4 | 24.3 |      |
| DF3AA-12EP-2C | 543-0161-9 | 12                 | 31 | 26 | 22 | 29.4 | 26.3 |      |
| DF3AA-13EP-2C | 543-0162-1 | 13                 | 33 | 28 | 24 | 31.4 | 28.3 |      |
| DF3AA-14EP-2C | 543-0163-4 | 14                 | 35 | 30 | 26 | 33.4 | 30.3 |      |
| DF3AA-15EP-2C | 543-0164-7 | 15                 | 37 | 32 | 28 | 35.4 | 32.3 |      |

Note : Delivered per bag (100 pcs.). Please order products per bag unit.

## Panel Cutouts



- Note1: Applicable panel thickness is 1.6 to 1.0mm. (However, a slight backlash is considered for the thickness other than 1.6 and 1.2mm.)
- Note2: Use the non-radius surface at the hooking panel edge.
- Note3: Contact No. indicates 1, 4, 8, 12, and 15.

[Specific No.] - \* \*, (\* \*)  
 Blank : 100 pcs. per bag

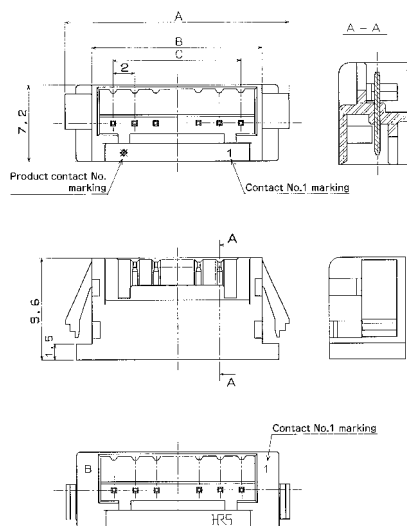
## DF3 Series 2mm Pitch Connector for Discrete Wire Connection (Product approved by UL/CSA Standard)

### ■ In-line Adapter with Panel Lock

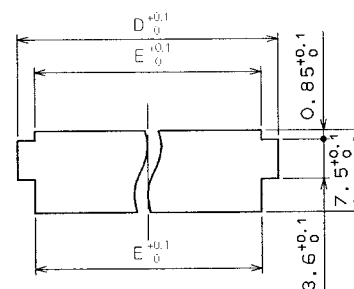


Adapter to in-line by pushing 2 pcs. of socket from both sides

No.1-No.1 connection circuit type



### ◆ Panel Cutouts



Note1: Applicable panel thickness is 1.6 to 1.0mm. (However, backlash will occur except for 1.6, 1.2mm thickness.)

Note2: Please use the non-radius surface at the hooking panel edge.

Unit: mm

| Part Number | CL No.     | Number of Contacts | A  | B  | C  | D    | E    | RoHS |
|-------------|------------|--------------------|----|----|----|------|------|------|
| DF3- 2EP-2A | 543-0267-0 | 2                  | 11 | 6  | 2  | 9.4  | 6.3  | YES  |
| DF3- 3EP-2A | 543-0268-2 | 3                  | 13 | 8  | 4  | 11.4 | 8.3  |      |
| DF3- 4EP-2A | 543-0269-5 | 4                  | 15 | 10 | 6  | 13.4 | 10.3 |      |
| DF3- 5EP-2A | 543-0270-4 | 5                  | 17 | 12 | 8  | 15.4 | 12.3 |      |
| DF3- 6EP-2A | 543-0271-7 | 6                  | 19 | 14 | 10 | 17.4 | 14.3 |      |
| DF3- 7EP-2A | 543-0272-0 | 7                  | 21 | 16 | 12 | 19.4 | 16.3 |      |
| DF3- 8EP-2A | 543-0273-2 | 8                  | 23 | 18 | 14 | 21.4 | 18.3 |      |
| DF3- 9EP-2A | 543-0274-5 | 9                  | 25 | 20 | 16 | 23.4 | 20.3 |      |
| DF3-10EP-2A | 543-0275-8 | 10                 | 27 | 22 | 18 | 25.4 | 22.3 |      |
| DF3-11EP-2A | 543-0276-0 | 11                 | 29 | 24 | 20 | 27.4 | 24.3 |      |
| DF3-12EP-2A | 543-0277-3 | 12                 | 31 | 26 | 22 | 29.4 | 26.3 |      |
| DF3-13EP-2A | 543-0278-6 | 13                 | 33 | 28 | 24 | 31.4 | 28.3 |      |
| DF3-14EP-2A | 543-0279-9 | 14                 | 35 | 30 | 26 | 33.4 | 30.3 |      |
| DF3-15EP-2A | 543-0280-8 | 15                 | 37 | 32 | 28 | 35.4 | 32.3 |      |

Note : Delivered per bag (100 pcs.). Please order products per bag unit.

## ■Crimping Contact for Socket



| Part Number  | CL No.     | Type         | Quantity            | Finish      | RoHS |
|--------------|------------|--------------|---------------------|-------------|------|
| DF3-22SCF    | 543-0235-3 | Reel contact | 10000 pcs. per reel | Tin plated  | YES  |
| DF3-22SC     | 543-0236-6 | Bulk contact | 100 pcs. per pack   |             |      |
| DF3-22SCFC   | 543-0861-0 | Reel contact | 10000 pcs. per reel | Gold plated |      |
| DF3-22SCC    | 543-0862-3 | Bulk contact | 100 pcs. per pack   |             |      |
| DF3-2428SCF  | 543-0001-2 | Reel contact | 10000 pcs. per reel | Tin plated  |      |
| DF3-2428SC   | 543-0002-5 | Bulk contact | 100 pcs. per pack   |             |      |
| DF3-2428SCFC | 543-0046-0 | Reel contact | 10000 pcs. per reel | Gold plated |      |
| DF3-2428SCC  | 543-0047-3 | Bulk contact | 100 pcs. per pack   |             |      |

### ●Applicable Wire (Tin Plating Annealed Copper Wire)

| Conductor Size (Wire Configuration) | Jacket Diameter  |
|-------------------------------------|------------------|
| AWG#22 (17pcs./0.16mm)              | φ1.2 to φ1.45mm  |
| AWG#24 (11pcs./0.16mm)              | φ0.75 to φ1.45mm |
| AWG#26 (7pcs./0.16mm)               |                  |
| AWG#28 (7pcs./0.127mm)              |                  |

### ●Recommended Wire

UL1061, UL1007 (Note 2.)

### ●Strip Length

1.8 to 2.3mm

Note1: If other wires are used instead of the applicable cable, please contact HRS company.

Note2: DF3-22SCF is applicable to UL1061.

## ■Crimping Contact for In-line Plug



| Part Number    | CL No.     | Type         | Quantity            | Finish      | RoHS |
|----------------|------------|--------------|---------------------|-------------|------|
| DF3-EP2428PCF  | 543-0062-7 | Reel contact | 10000 pcs. per reel | Tin plated  | YES  |
| DF3-EP2428PC   | 543-0063-0 | Bulk contact | 100 pcs. per pack   |             |      |
| DF3-EP2428PCFA | 543-0149-3 | Reel contact | 10000 pcs. per reel | Gold plated |      |
| DF3-EP2428PCA  | 543-0150-2 | Bulk contact | 100 pcs. per pack   |             |      |

### ●Applicable Wire (Tin Plating Annealed Copper Wire)

| Conductor Size (Wire Configuration) | Jacket Diameter  |
|-------------------------------------|------------------|
| AWG#24 (11pcs./0.16mm)              | φ0.75 to φ1.45mm |
| AWG#26 (7pcs./0.16mm)               |                  |
| AWG#28 (7pcs./0.127mm)              |                  |

### ●Recommended Wire

UL1061, UL1007

### ●Strip Length

1.9 to 2.5mm

Note1: If other wires are used instead of the applicable cable, please contact HRS company.

## ◆Applicable Crimping Tool

| Type               | Part Number       | CL No.     | Applicable Contact |
|--------------------|-------------------|------------|--------------------|
| Applicator         | AP105-DF3-2428S   | 901-4503-3 | DF3-2428SCF/SCFC   |
|                    | AP105-DF3-22S     | 901-4549-4 | DF3-22SCF          |
|                    | AP105-DF3-EP2428P | 901-4508-7 | DF3-EP2428PCF/PCFA |
| Press Unit         | CM-105            | 901-0005-4 | _____              |
| Hand Crimping Tool | DF3-TA2428HC      | 550-0164-5 | DF3-2428SC/SCC     |
|                    | DF3EP-TA2428HC    | 550-0184-2 | DF3-EP2428PC/PCA   |
|                    | DF3-TA22HC        | 550-0257-4 | DF3-22SC           |
| Extraction Tool    | DF-C-PO (A)       | 550-0170-8 | DF3-****SCF        |
|                    |                   |            | DF3-EP****PCF      |

Note : If any trouble has occurred due to tools other than designated tool, Hirose bears no responsibility for any trouble.

# DF3 Series 2mm Pitch Connector for Discrete Wire Connection (Product approved by UL/CSA Standard)

## ◆ Embossed Carrier Tape Dimensions

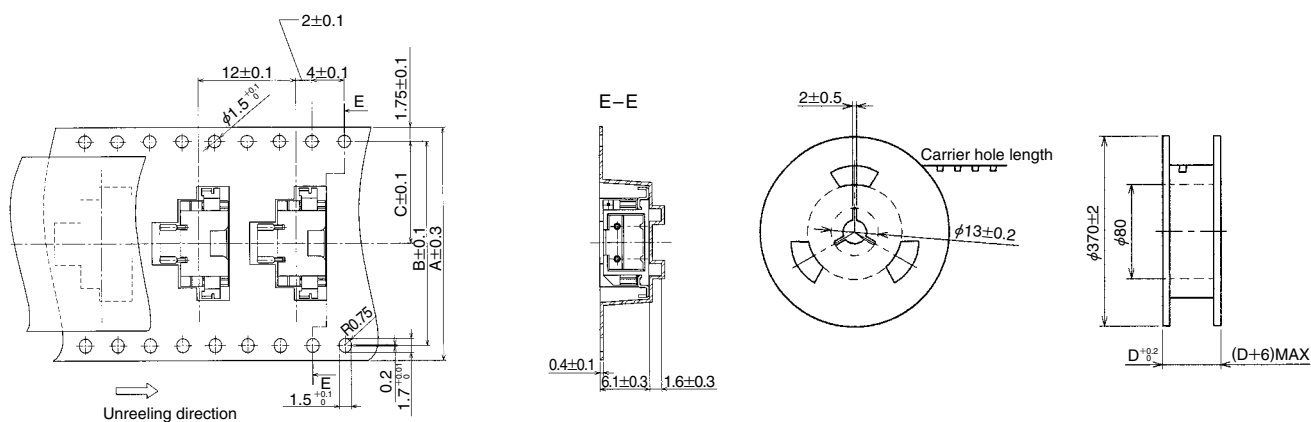
### ● Straight Pin Header



Unit: mm

| Product Type | Size | Number of Contacts | A    | B    | C    | D    |
|--------------|------|--------------------|------|------|------|------|
| DF3DZ-*P-2V  |      | 2 to 4             | 24.0 | —    | 11.5 | 24.4 |
|              |      | 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 |

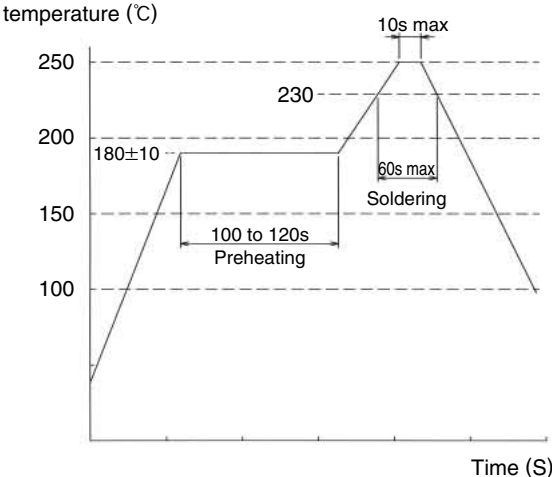
### ● Right Angle Pin Header



Unit: mm

| Product Type | Size | Number of Contacts | A    | B    | C    | D    |
|--------------|------|--------------------|------|------|------|------|
| DF3DZ-*P-2H  |      | 2 to 4             | 24.0 | —    | 11.5 | 24.4 |
|              |      | 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 |

## ◆Precautions

|                                                 |                                                                                                                                                                                                                                                                                                                                                                                                            |
|-------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Recommended Temperature Profile (SMT)        |  <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> |
| 2. Recommended Manual Soldering Condition (SMT) | Soldering iron temperature: $290\pm 10^{\circ}\text{C}$ , Soldering time: Within 3 seconds                                                                                                                                                                                                                                                                                                                 |
| 3. Recommended Screen Thickness (SMT)           | 0.15 to 0.2mm                                                                                                                                                                                                                                                                                                                                                                                              |
| 4. Board Warpage (SMT)                          | Based on both connector edges, 0.03mm max. in the connector center portion                                                                                                                                                                                                                                                                                                                                 |
| 5. Recommended Soldering Condition (DIP)        | <p>■Flow Condition with Automatic Soldering Tool. Soldering temperature: <math>250\pm 5^{\circ}\text{C}</math>, Soldering time: Within 10 seconds</p> <p>■Manual Soldering Condition. Soldering iron temperature: <math>290\pm 10^{\circ}\text{C}</math>, Soldering time: Within 2 seconds</p>                                                                                                             |
| 6. Cleaning Condition                           | Refer to the "Nylon Connector Use Hand book".                                                                                                                                                                                                                                                                                                                                                              |
| 7. Connection Condition                         | Refer to the "Nylon Connector Use Hand book".                                                                                                                                                                                                                                                                                                                                                              |
| 8. Precautions                                  | Refer to the "Nylon Connector Use Hand book".                                                                                                                                                                                                                                                                                                                                                              |