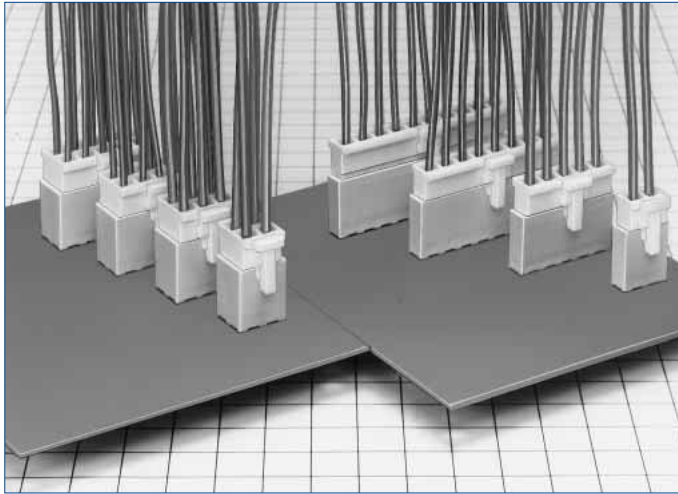


# 5mm Pitch Miniature Potting Connectors for Secondary Power Supply

## DF5 Series



Single row type

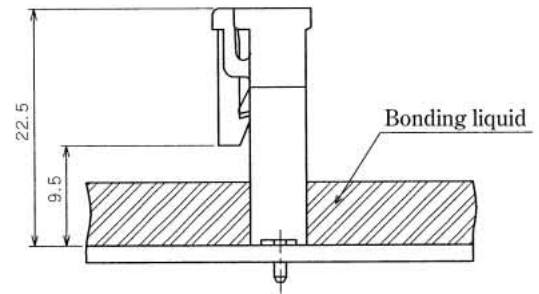


Fig.1-1

## ■ Features

### 1. Potting Product

This connector is capable of potting 9mm maximum, and 22.5mm mounting height is a low profile. (Fig.1)

### 2. Prevent Mis-insertion

When the socket and pin header are mated, this connector is equipped with a mechanism to prevent reverse insertion or dissimilar contact insertion.

### 3. Means to Prevent Solder Cracks

The pin header employs glass enforced resin, and takes countermeasures to prevent solder cracks due to heat shrinkage.

### 4. Prevent Reverse Insertion in Printed Board

Boss is added to the pin header, and prevents reverse insertion in the printed board.

### 5. Full Lock Mechanism

The outer lock system employs full lock mechanism.

### 6. Current Capacity of 8A

Power can be supplied at 8A maximum. Specification will change according to applicable cable, number of contacts, number of rows. For further information, refer to product specifications as listed on next page.

### 7. UL and C-UL Certified

### 8. Glow Wire Compliance (Compliant with IEC 60695-2-11)

Double row type

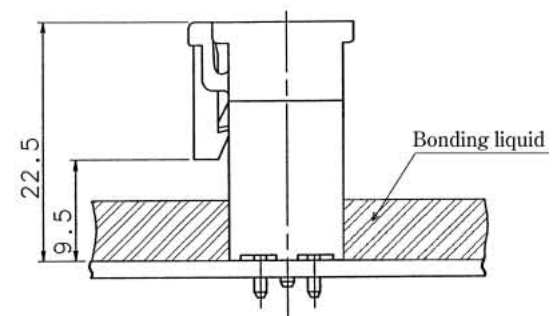


Fig.1-2

## Product Specifications

|                |                |             |                                      |        |        |                                                     |                                                         |                                   |
|----------------|----------------|-------------|--------------------------------------|--------|--------|-----------------------------------------------------|---------------------------------------------------------|-----------------------------------|
| Rating         | Current rating | No. of rows | No. of contacts                      | 18 AWG | 20 AWG | 22 AWG                                              | Operating Temperature Range<br>Operating Moisture Range | -35 to +85°C(Note 1)<br>40 to 80% |
|                |                | Single row  | 2 to 10                              | 8A     | 6A     | 5A                                                  |                                                         |                                   |
|                |                | Double row  | 4                                    |        |        |                                                     |                                                         |                                   |
| 6              |                |             |                                      |        |        |                                                     |                                                         |                                   |
| 8              |                |             |                                      |        |        |                                                     |                                                         |                                   |
| 10             |                |             |                                      |        |        |                                                     |                                                         |                                   |
| 12             |                |             |                                      |        |        |                                                     |                                                         |                                   |
| 14             | 7A             | 5A          | 4A                                   |        |        |                                                     |                                                         |                                   |
| 16             |                |             |                                      |        |        |                                                     |                                                         |                                   |
| Voltage rating | Specification  | AC/DC 500V  | UL/C-UL File No. and Recognition No. |        |        | Storage Temperature Range<br>Storage Humidity Range | -10 to +60°C(Note 2)<br>40 to 70%(Note 2)               |                                   |
|                | UL/C-UL        | AC/DC 500V  | UL : E52653<br>C-UL : E52653         |        |        |                                                     |                                                         |                                   |

| Item                                     | Specification                                                       | Condition                                                                                             |
|------------------------------------------|---------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|
| 1. Insulation Resistance                 | 1000MΩ min.                                                         | 500V DC                                                                                               |
| 2. Withstanding voltage                  | No flashover or insulation breakdown.                               | 1500V AC/1 minute                                                                                     |
| 3. Contact Resistance                    | 30mΩ max.                                                           | 100mA                                                                                                 |
| 4. Single Insertion/<br>Extraction Force | 0.3N (30gt) min., 4.5N (450gt) max.                                 | Measured with 1.14±0.002mm steel pin                                                                  |
| 5. Vibration                             | No electrical discontinuity of 10μs or more                         | Frequency : 10 to 55 Hz, single amplitude of 0.75mm, 2 hours in each of the 3 directions.             |
| 6. Humidity (Steady state)               | Contact resistance : 30mΩ max., Insulation resistance : 500MΩ min.  | 96 hours at temperature of 40°C and humidity of 90% to 95%                                            |
| 7. Temperature Cycle                     | Contact resistance : 30mΩ max., Insulation resistance : 1000MΩ min. | (-55°C : 30 minutes → 15 to 35°C : 10 minutes → 85°C : 30 minutes → 5 to 35°C : 10 minutes ) 5 cycles |
| 8. Durability (Mating/un-mating)         | Contact resistance : 30mΩ max.                                      | 30 cycles                                                                                             |
| 9. Resistance to Soldering heat          | No deformation of components affecting performance.                 | Flow : 260°C for 10 seconds                                                                           |
|                                          |                                                                     | Manual soldering : 350°C for 3 seconds                                                                |

Note 1 : Includes temperature rise caused by current flow.

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

## Materials / Finish

| Product                     | Part      | Material        | Finish     | Remarks |
|-----------------------------|-----------|-----------------|------------|---------|
| Crimping Socket             | Insulator | Polyamide       | White      | UL94V-0 |
| Crimping Contact for Socket | Contact   | Phosphor bronze | Tin plated | —       |
| Pin header                  | Insulator | Polyamide       | Beige      | UL94V-0 |
|                             | Contact   | Brass           | Tin plated | —       |

## Product Number Structure

### Connector

**DF5A**   -   \* **S**   -   **5**   **C**  
①   ② ③   ④   ⑤

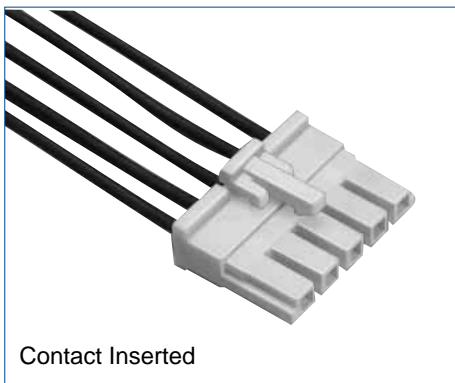
|                                                                                                                        |                                                                    |
|------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|
| ① Series Name : DF5A                                                                                                   | ④ Contact Pitch : 5mm                                              |
| ② Number of contacts : Single row : 2 to 10<br>Double row : 4 to 16                                                    | ⑤ Contact type<br>C : Crimping Socket<br>DSA : Straight pin header |
| ③ Connector type<br>S : Single row socket<br>DS : Double row socket<br>P : Single row header<br>DP : Double row header |                                                                    |

### Contact

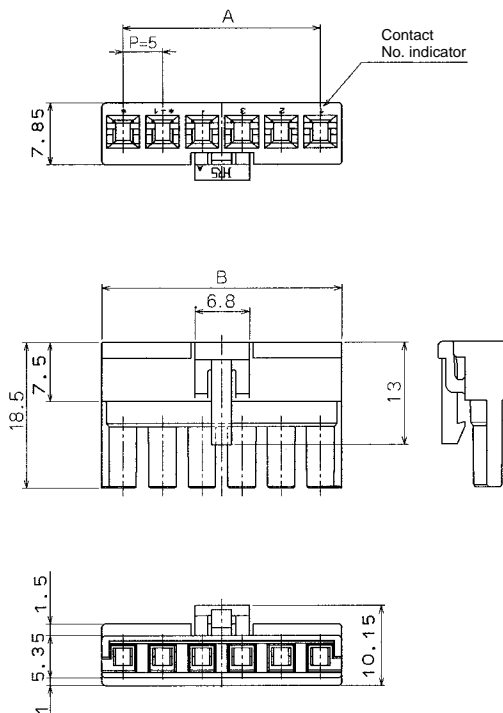
**DF5A**   -   **1822**   **SCF**  
①   ②   ③

|                                                                                                                                              |                                                                               |
|----------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|
| ① Applicable cable type<br>None : UL 1007 equivalent (jacket diameter 1.5 to 2.2mm)<br>A : UL 1015 equivalent (jacket diameter 2.2 to 2.9mm) | ③ packaging type<br>SCF : Socket contact / reel<br>SC : Socket contact / pack |
| ② Applicable cable size<br>1822 : 18 to 22 AWG                                                                                               |                                                                               |

### Single Row Socket



| Part No.    | HRS No.    | No. of Contacts | A    | B    | RoHS |
|-------------|------------|-----------------|------|------|------|
| DF5A- 2S-5C | 676-0007-8 | 2               | 5.0  | 10.5 | YES  |
| DF5A- 3S-5C | 676-0008-0 | 3               | 10.0 | 15.5 |      |
| DF5A- 4S-5C | 676-0009-3 | 4               | 15.0 | 20.5 |      |
| DF5A- 5S-5C | 676-0010-2 | 5               | 20.0 | 25.5 |      |
| DF5A- 6S-5C | 676-0011-5 | 6               | 25.0 | 30.5 |      |
| DF5A- 7S-5C | 676-0012-8 | 7               | 30.0 | 35.5 |      |
| DF5A- 8S-5C | 676-0013-0 | 8               | 35.0 | 40.5 |      |
| DF5A- 9S-5C | 676-0014-3 | 9               | 40.0 | 45.5 |      |
| DF5A-10S-5C | 676-0015-6 | 10              | 45.0 | 50.5 |      |

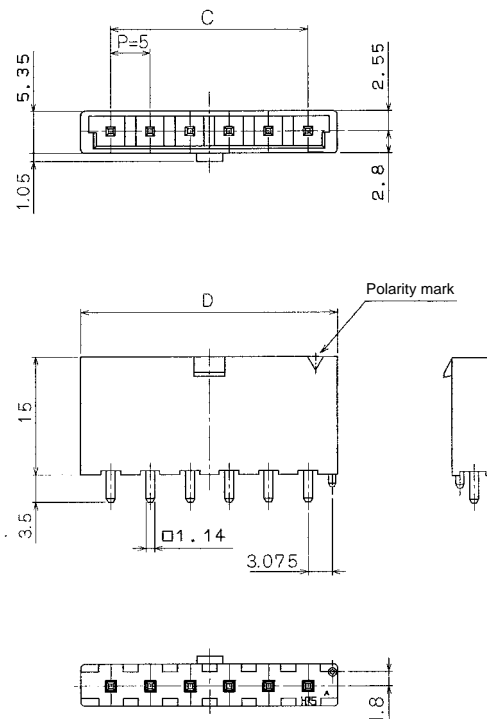


Note : A packaging quantity is delivered by the bag unit (100 pcs.).

### Single Row Pin Header

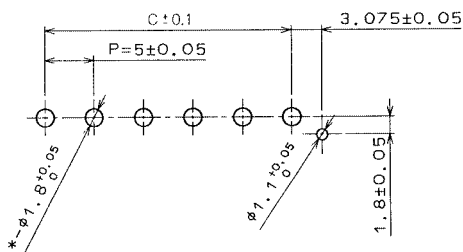


| Part No.          | HRS No.       | No. of Contacts | C    | D    | RoHS |
|-------------------|---------------|-----------------|------|------|------|
| DF5A- 2P-5DSA(35) | 676-0016-9 35 | 2               | 5.0  | 12.5 | YES  |
| DF5A- 3P-5DSA(35) | 676-0017-1 35 | 3               | 10.0 | 17.5 |      |
| DF5A- 4P-5DSA(35) | 676-0018-4 35 | 4               | 15.0 | 22.5 |      |
| DF5A- 5P-5DSA(35) | 676-0019-7 35 | 5               | 20.0 | 27.5 |      |
| DF5A- 6P-5DSA(35) | 676-0020-6 35 | 6               | 25.0 | 32.5 |      |
| DF5A- 7P-5DSA(35) | 676-0021-9 35 | 7               | 30.0 | 37.5 |      |
| DF5A- 8P-5DSA(35) | 676-0022-1 35 | 8               | 35.0 | 42.5 |      |
| DF5A- 9P-5DSA(35) | 676-0023-4 35 | 9               | 40.0 | 47.5 |      |
| DF5A-10P-5DSA(35) | 676-0024-7 35 | 10              | 45.0 | 52.5 |      |

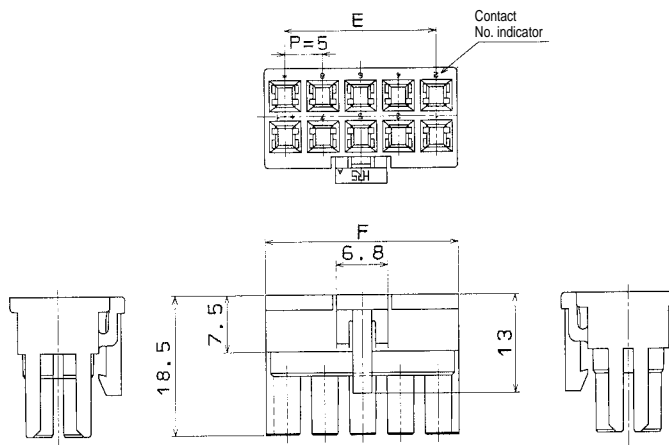
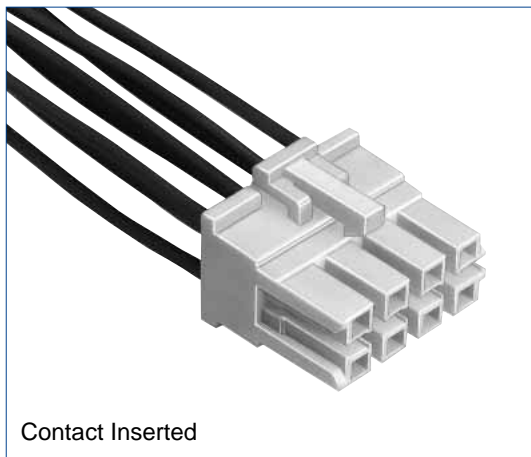


Note : A packaging quantity is delivered by the bag unit (100 pcs.).

### PCB mounting pattern (Board thickness = 1.6±0.1)



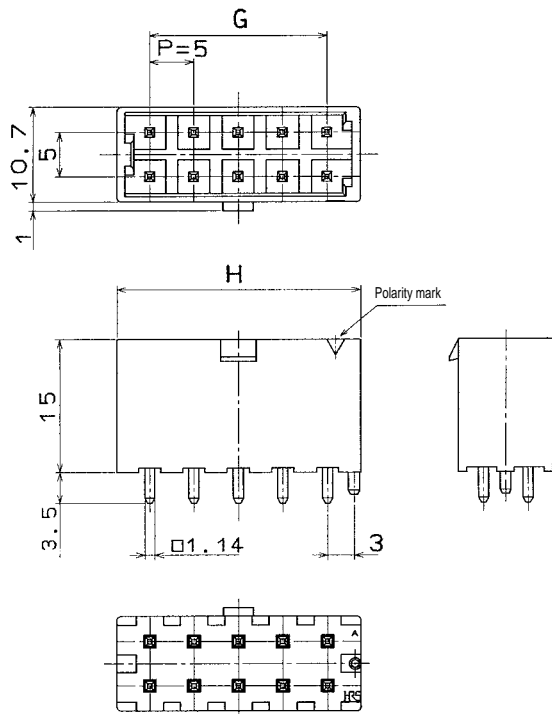
### Double Row Socket



| Part No.     | HRS No.    | No. of Contacts | E    | F    | RoHS |
|--------------|------------|-----------------|------|------|------|
| DF5A- 4DS-5C | 676-0025-0 | 4               | 5.0  | 10.5 | YES  |
| DF5A- 6DS-5C | 676-0026-2 | 6               | 10.0 | 15.5 |      |
| DF5A- 8DS-5C | 676-0027-5 | 8               | 15.0 | 20.5 |      |
| DF5A-10DS-5C | 676-0028-8 | 10              | 20.0 | 25.5 |      |
| DF5A-12DS-5C | 676-0036-6 | 12              | 25.0 | 30.5 |      |
| DF5A-14DS-5C | 676-0037-9 | 14              | 30.0 | 35.5 |      |
| DF5A-16DS-5C | 676-0038-1 | 16              | 35.0 | 40.5 |      |

Note : A packaging quantity is delivered by the bag unit (100 pcs.).

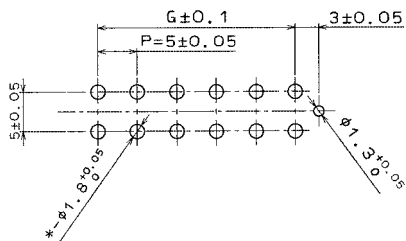
### Double Row Pin Header



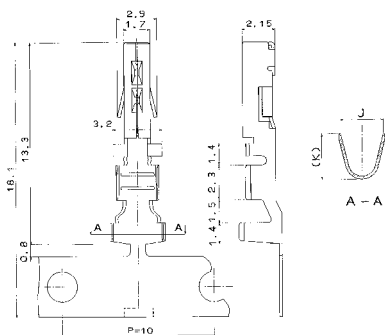
| Part No.           | HRS No.       | No. of Contacts | G    | H    | RoHS |
|--------------------|---------------|-----------------|------|------|------|
| DF5A- 4DP-5DSA(35) | 676-0029-0 35 | 4               | 5.0  | 12.5 | YES  |
| DF5A- 6DP-5DSA(35) | 676-0030-0 35 | 6               | 10.0 | 17.5 |      |
| DF5A- 8DP-5DSA(35) | 676-0031-2 35 | 8               | 15.0 | 22.5 |      |
| DF5A-10DP-5DSA(35) | 676-0032-5 35 | 10              | 20.0 | 27.5 |      |
| DF5A-12DP-5DSA(35) | 676-0033-8 35 | 12              | 25.0 | 32.5 |      |
| DF5A-14DP-5DSA(35) | 676-0034-0 35 | 14              | 30.0 | 37.5 |      |
| DF5A-16DP-5DSA(35) | 676-0035-3 35 | 16              | 35.0 | 42.5 |      |

Note : A packaging quantity is delivered by the bag unit (100 pcs.).

### PCB mounting pattern (Board thickness = 1.6±0.1)



## ◆ Socket Crimping Contact



| Part No.     | HRS No.    | Applicable Cable |                 |           |                         | Packaging    | J   | K | RoHS |
|--------------|------------|------------------|-----------------|-----------|-------------------------|--------------|-----|---|------|
|              |            | ULStyle          | Jacket Diameter | Wire Size | Stranded Wire Conductor |              |     |   |      |
| DF5-1822SCF  | 676-0001-1 | 1007             | φ1.5 to 2.2mm   | 18 AWG    | 43/0.18mm               | 5,000 / reel | 2.8 | 3 | Yes  |
| DF5-1822SC   | 676-0002-4 | 1007             |                 | 20 AWG    | 21/0.18mm               | 100 / pack   |     |   |      |
|              |            |                  |                 | 22 AWG    | 17/0.16mm               |              |     |   |      |
| DF5A-1822SCF | 676-0003-7 | 1015             | φ2.2 to 3.2mm   | 18 AWG    | 43/0.18mm               | 5,000 / reel | 3.8 | 4 |      |
|              |            |                  |                 | 20 AWG    | 21/0.18mm               | 100 / pack   |     |   |      |
| 22 AWG       | 17/0.16mm  |                  |                 |           |                         |              |     |   |      |
| DF5A-1822SC  | 676-0004-0 | 1015             | φ2.9mm          | 18 AWG    | 43/0.18mm               | 100 / pack   |     |   |      |
|              |            |                  | φ2.6mm          | 20 AWG    | 21/0.18mm               |              |     |   |      |
|              |            |                  | φ2.4mm          | 22 AWG    | 17/0.16mm               |              |     |   |      |

Note 1 : Applicable wire with tin plated solid soft conductor.

Note 2 : When using other than the recommended wire, contact your nearest Hirose representative.

Note 3 : Strip length : 3.0 to 4.0mm

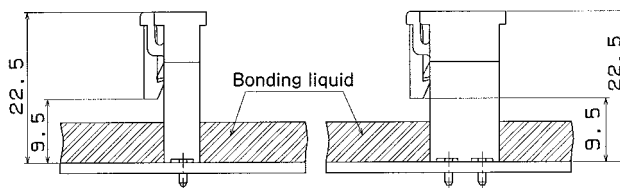
## ◆ Applicable Crimping Tools

| Type           | Item                 | Part No.         | HRS No.    | Applicable Contact |
|----------------|----------------------|------------------|------------|--------------------|
| Auto-<br>matic | Press unit           | CM-105C          | 901-0001-0 | _____              |
|                | Applicator           | AP105-DF5-1822S  | 901-4542-5 | DF5-1822SCF        |
|                |                      | AP105-DF5A-1822S | 901-4546-6 | DF5A-1822SCF       |
| Manual         | Manual crimping tool | DF5-1822/CR-HT   | 550-0264-0 | DF5-1822SC         |
|                |                      | DF5A-1822/CR-HT  | 550-0265-2 | DF5A-1822SC        |
| —              | Extraction tool      | RP13-PC-TP       | 150-0021-5 | DF5/DF5A-1822SCF   |

Note 1 : If any trouble has been caused due to other tools, which are not designated by Hirose, Hirose won't guarantee any product.

Note 2 : For the crimping process, refer to "crimping quality standards" and "crimping condition".

## ◆ Application Pattern



## ◆ Precautions

|                                    |                                                                                                                                                                                                               |
|------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Recommended soldering condition | Flow : 260°C for 10 seconds<br>Manual soldering : 350°C for 3 seconds                                                                                                                                         |
| 2. Cleaning condition              | Refer to the "Wire-to-Board Connector Use Hand book"                                                                                                                                                          |
| 3. Connecting condition            | Refer to the "Wire-to-Board Connector Use Hand book"                                                                                                                                                          |
| 4. Cautions                        | ■The color phase of this product may be slightly differ from that of the formed product according to the manufacturing lot, and consequent storage condition, however, the difference affects no performance. |
| 5. Precautions                     | Refer to the "Wire-to-Board Connector Use Hand book"                                                                                                                                                          |