



7.92mm Contact Pitch High-Current Connectors for Internal Power Supplies (UL, C-UL and TÜV Listed)

DF22 Series

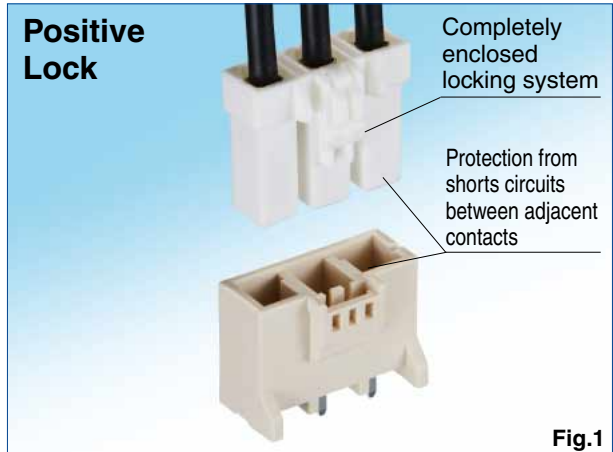
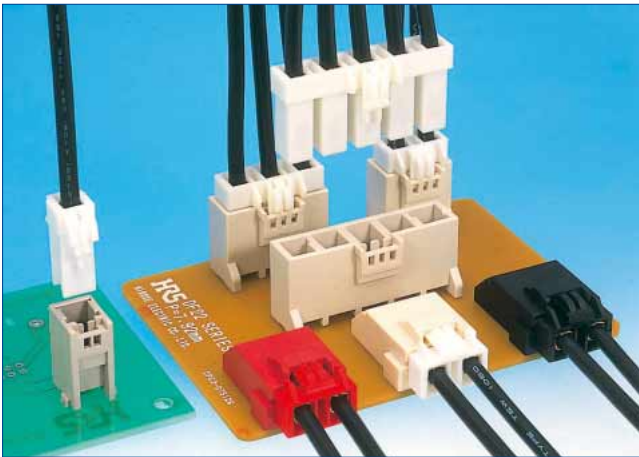


Fig.1

■ Features

1. Rated up to 30A

Single position connector can carry current of 30A with 10 AWG conductor. Please refer to Table #1 for current ratings for multi-position connectors using other conductor sizes.

2. Positive Locking Function

Reliable interior lock protects mated connectors from accidental disconnection. (Fig.1)

3. Prevention of Incorrect Connections

To prevent incorrect connection when using multiple connectors having the same Number of contacts, 3 product types having different mating configurations are available. (Fig.2)

4. Molded-in contact retention tabs

Handling of terminated contacts during the crimping is easier and avoids entangling of wires, since there are no protruding metal tabs.

5. Prevention of incorrect board placement

Built-in posts assure correct connector placement and orientation on the board.

6. Supports resin sealing

Allows potting up to 10mm.

7. Prevention of Short Circuits Between Adjacent Contacts

Each Contact is completely surrounded by the housing wall electrically isolating it from adjacent contacts.

8. Increased Retention Force of Crimped Contacts

Improved pull-out force design.

9. Full Line of Crimp Socket Contacts

Hirose has released DF22C-*S-7.92C which has easy to push/release latch design. and DF22B-*S-7.92C/DF22C-*S-7.92C which has improved electrical insulation properties.

10. In-line Connections

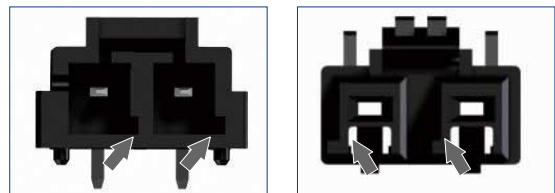
Wire-to-wire connection is also available. Space is saved with 2-row (2x2) layout for 4 pos.

11. UL, C-UL, and TÜV Certified.

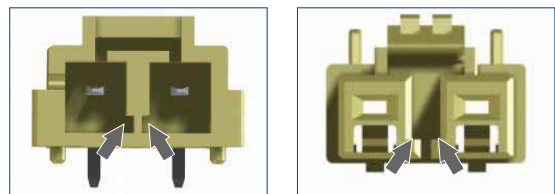
12. Glow Wire compliance (Compliant with IEC 60695-2-11)

Keying for multiple use

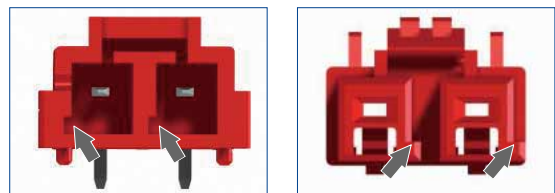
●R Type (Guide key : right side, Color : black)



●Standard Type (Guide key : inside, Color : natural)



●L Type (Guide key : left side, Color : red)



*The image on the left show header (the board dip side), the image on the right show the socket (cable side).

*The guide key position is indicated in position facing the mating surface of the header.

Fig.2

Product Specifications

| | | | | | | | | | | |
|----------------|-------------------------|-----------------|--------|--------|--|-------------|-----------------------------|------------------------|--------------------------|---------------------|
| Ratings | Current rating (Note 1) | No. of contacts | 10 AWG | 12 AWG | 14 AWG | 16 AWG | Operating temperature range | -55°C to 85°C (Note 2) | | |
| | | 1 | 30A | 25A | 20A | 15A | | | Operating humidity range | 20% to 80% |
| | | 2 | 25A | 20A | 18A | 15A | Storage temperature range | -10°C to 60°C (Note 3) | | |
| | | 3 | 25A | 20A | 18A | 15A | | | Storage humidity range | 40% to 70% (Note 3) |
| | | 4 | 22A | 18A | 15A | 13A | | | | |
| 5 | 22A | 18A | 15A | 13A | UL/C-UL/TÜV File No. and Recognition No. | UL : E52653 | C-UL : E52653 | TÜV : R9950703 | | |
| Voltage rating | AC/DC 1000V | | | | | | | | | |

| | Current Rating | Voltage Rating |
|------|---|----------------|
| UL | See table below | AC/DC 600V |
| C-UL | See table above ($\Delta t=30^{\circ}\text{C}$) | AC/DC 600V |
| TÜV | See table above | AC/DC 600V |

| Current rating of UL Standards (Ambient temperature : 25°C) (Note 4) | No. of Contacts | 10 AWG | 12 AWG | 14 AWG | 16 AWG |
|--|-----------------|--------|--------|--------|--------|
| | 1 | 43A | 38A | 26A | 21A |
| | 2 | 38A | 32A | 23A | 21A |
| | 3 | 38A | 32A | 23A | 21A |
| | 4 | 33A | 26A | 22A | 19A |
| | 5 | 33A | 26A | 22A | 19A |

| Item | Specifications | Conditions |
|--|--|---|
| 1. Contact Resistance | No more than 5mΩ | Measured at 1mA and no higher than 20mV |
| 2. Insulation Resistance | No less than 1,000MΩ | Measured at DC=1000V |
| 3. Withstand Voltage | No flashover or breakdown | AC 2500 V is applied for 1 minute. |
| 4. Contact Insertion and Extraction Forces | 0.3N min., 5N max | Measured with a steel pin of 1.6×0.8±0.002 thickness |
| 5. Durability | Contact resistance : no more than 10mΩ | 30 mating cycles |
| 6. Vibration Resistance | No electrical discontinuity of 1μs or greater | Frequency 10-55 Hz, half amplitude 0.75mm, 10 times in each of the three directions |
| 7. Shock Resistance | No electrical discontinuity of 1μs or greater | Accelerated velocity : 490 m/s ² for 11 ms, half-sine wave in 3 directions, 3 times for each direction |
| 8. Moisture-Resistance | Contact resistance : no more than 10mΩ | Temperature : 40 ± 2°C ; humidity : 90 to 95%, left as it is for 96 hours |
| 9. Temperature cycles | Contact resistance : no more than 10mΩ | (-55°C : 30 minutes → 5 to 35°C : 5 minutes → 85°C : 30 minutes → 5 to 35°C : 5 minutes) for 5 cycles |
| 10. Solder heat Resistance | The resin parts should withstand the temperature and resist melting. | Flow : 260°C, 10 sec Hand soldering : temperature of soldering iron at 300°C for 3 seconds |

- Note 1 : This is the maximum current rating while all pins are powered or used as all power lines. If you split the current over multiple lines, please factor in your own safety margin.
 Note 2 : Includes temperature rise caused by current flow.
 Note 3 : The storage condition refers to long-term storage of the product on the shelf before assembly. Please use the operating temperature for temporary storage such as pre-assembly and during shipping.
 Note 4 : Indicates the current that corresponds to the RTI value (temperature at which performance is halved) of the resin when the ambient temperature is 25°C. When referring to the rated current value of UL standard, please evaluate the product in the final set to confirm that there are no problems in use.

Materials / Finish

| Product | Part | Material | Finish | Remarks |
|----------------|-----------|--------------------------------|----------------------------------|---------|
| Sockets | Insulator | Polyamide | Color : Natural white (Note) | UL94V-0 |
| Crimp contacts | Contacts | High conductivity copper alloy | Tin-lead plated or Gold plated | — |
| Headers | Insulator | Polyamide (Glass reinforced) | Color : Natural beige (Note) | UL94V-0 |
| | Contacts | High conductivity copper alloy | Tin-copper plated or Gold plated | — |

Note : Standard Color, colors of the differing coupling forms are black for DF22R and red for DF22L.

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.

●Socket, Header

DF22 B L - 2 S - 7.92 C ()**

① ② ③ ④ ⑤ ⑥ ⑦

●Contacts

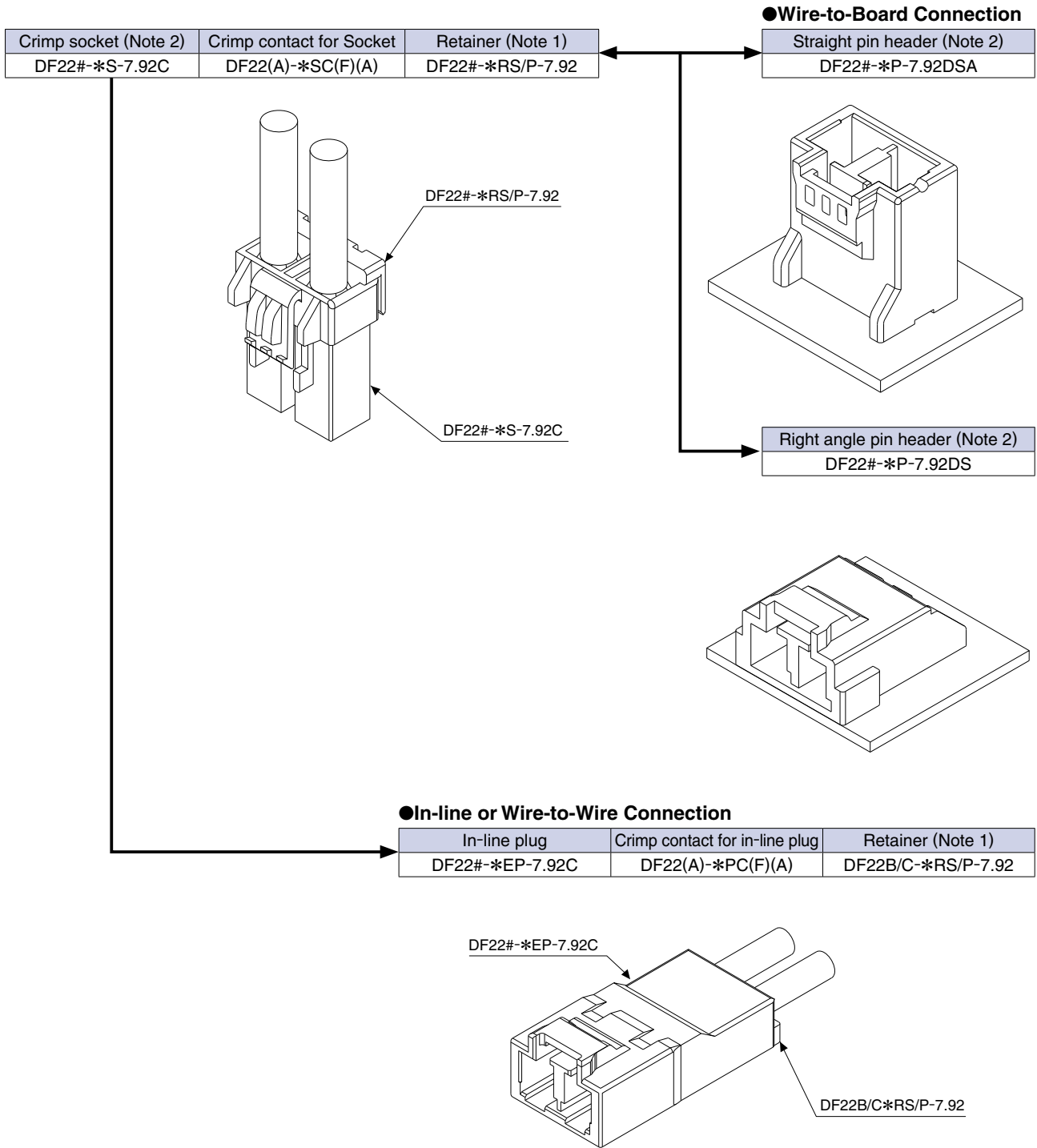
DF22 A - 1416 SCF A

① ⑧ ⑨ ⑩ ⑪

| | | |
|---|---|---|
| ① Series name : DF22 | ④ Number of contacts : 1 to 5 | ⑧ Applicable Cable Blank : UL1430 A : UL1015 |
| ② Form Type Sockets Blank : Standard height, standard lock (Type I) B : Long type, standard lock (Type III) C : Long type, ergonomic lock (Type IV) In-line Plugs Blank : With panel stop A : Without panel stop | ⑤ Connector type S : Socket DS : Double-row socket P : Header EP : In-line plug DEP : Double-row in-line plug RS/P : Retainer | |
| ③ Guide key type Blank : Inside (Color: natural) R : Right side (Color: black) L : Left side (Color: red) | ⑥ Contact pitch : 7.92 mm | ⑩ Packaging SCF : Socket contacts / reel SC : Socket contacts / pack PCF : In-line plug contacts / reel PC : In-line plug contacts / pack |
| | ⑦ Type of housing C : Crimp housing DSA : Straight header DS : Right-angle header No letter : Retainer | ⑪ Plating specifications A : Gold plated Blank : Tin plated |

■ Diagram of Connector Mating Combinations

Gold-plated products are standard for this product in order to support high current. Be sure to select a gold-plated product for use in an environment with temperature changes and vibration.

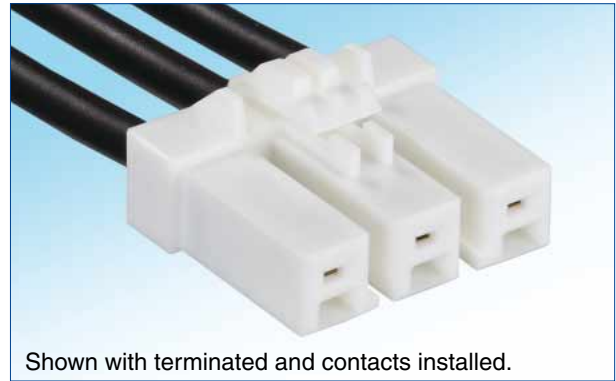


Note 1 : Since this product uses thick wires, a larger load is applied to the connector when inserting/extracting or routing the wires. Please use a retainer to reduce the load on the connector.

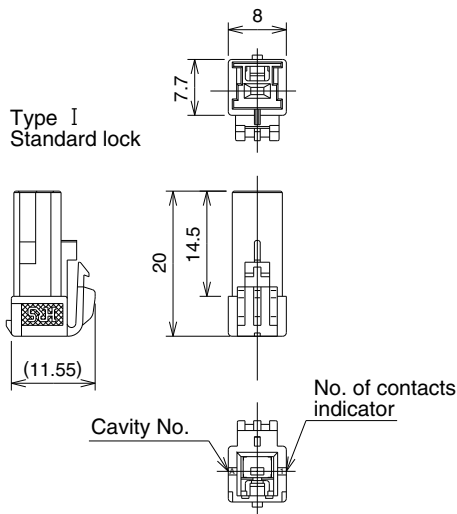
| | | | |
|----------------|---------------------|-----------------|---------------------|
| Crimp socket | Applicable Retainer | In-line plug | Applicable Retainer |
| DF22-*S-7.92C | DF22-*RS/P-7.92 | DF22-*EP-7.92C | DF22B/C-*RS/P-7.92 |
| DF22B-*S-7.92C | DF22B/C-*RS/P-7.92 | DF22A-*EP-7.92C | |
| DF22C-*S-7.92C | | | |

Note 2 : The key difference (L, R) product matches the mating connector of the same key (L, R).

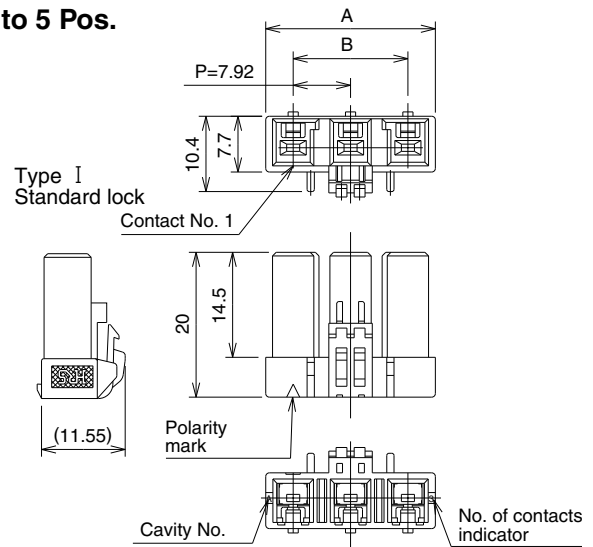
■ Crimp Sockets (Standard Height Type)



1 Pos.



2 to 5 Pos.



■ Type I

Height : Standard type, Standard lock

Note : The part number and HRS No. have changed to reflect the product form change of the 2 to 5 pos. types.

Standard Type (Guide Key : Inside, Color : White) Unit : mm

| Part No. | HRS No. | No. of Contacts | A | B |
|-------------------|---------------|-----------------|-------|-------|
| DF22-1S-7.92C(28) | 680-1012-2 28 | 1 | 8.00 | — |
| DF22-2S-7.92C(28) | 680-1004-4 28 | 2 | 15.50 | 7.92 |
| DF22-3S-7.92C(28) | 680-1005-7 28 | 3 | 23.42 | 15.84 |
| DF22-4S-7.92C(28) | 680-1006-0 28 | 4 | 31.34 | 23.76 |
| DF22-5S-7.92C(28) | 680-1007-2 28 | 5 | 39.26 | 31.68 |

R Type (Guide Key : Right Side, Color : Black) Unit : mm

| Part No. | HRS No. | No. of Contacts | A | B |
|--------------------|---------------|-----------------|-------|-------|
| DF22R-1S-7.92C(28) | 680-1026-7 28 | 1 | 8.00 | — |
| DF22R-2S-7.92C(28) | 680-1027-0 28 | 2 | 15.50 | 7.92 |
| DF22R-3S-7.92C(28) | 680-1028-2 28 | 3 | 23.42 | 15.84 |
| DF22R-4S-7.92C(28) | 680-1029-5 28 | 4 | 31.34 | 23.76 |
| DF22R-5S-7.92C(28) | 680-1030-4 28 | 5 | 39.26 | 31.68 |

L Type (Guide Key : Left Side, Color : Red) Unit : mm

| Part No. | HRS No. | No. of Contacts | A | B |
|--------------------|---------------|-----------------|-------|-------|
| DF22L-1S-7.92C(28) | 680-1031-7 28 | 1 | 8.00 | — |
| DF22L-2S-7.92C(28) | 680-1032-0 28 | 2 | 15.50 | 7.92 |
| DF22L-3S-7.92C(28) | 680-1033-2 28 | 3 | 23.42 | 15.84 |
| DF22L-4S-7.92C(28) | 680-1034-5 28 | 4 | 31.34 | 23.76 |
| DF22L-5S-7.92C(28) | 680-1035-8 28 | 5 | 39.26 | 31.68 |

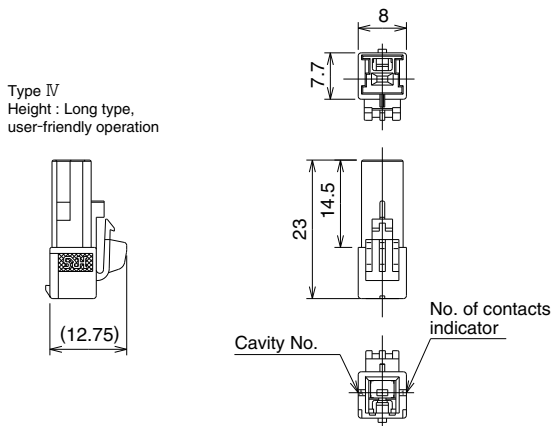
Note 1 : Bag packaging (100 pcs/pack). Order by number of packs.

Note 2 : Every even number position has a different locking design.

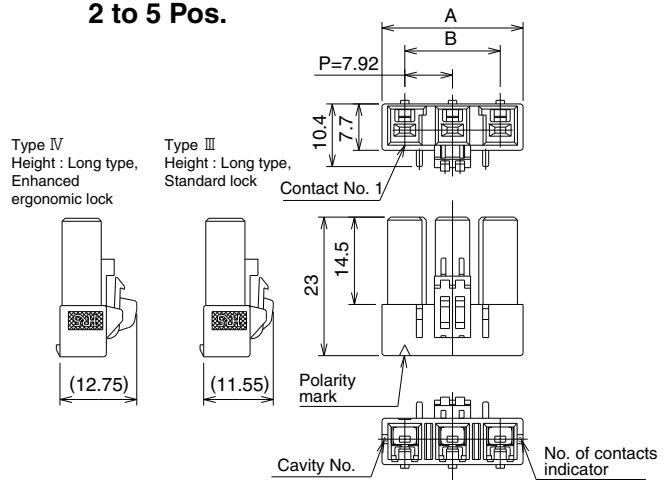
■ Crimp Sockets (Height, Long Type)



1 Pos.



2 to 5 Pos.



■ Type III

Height : Long type, Standard lock

Standard Type (Guide Key : Inside, Color : White) Unit : mm

| Part No. | HRS No. | No. of Contacts | A | B |
|----------------|------------|-----------------|-------|-------|
| DF22B-2S-7.92C | 680-1097-5 | 2 | 15.50 | 7.92 |
| DF22B-3S-7.92C | 680-1098-8 | 3 | 23.42 | 15.84 |
| DF22B-4S-7.92C | 680-1099-0 | 4 | 31.34 | 23.76 |
| DF22B-5S-7.92C | 680-1100-8 | 5 | 39.26 | 31.68 |

Note 1 : Bag packaging (100 pcs/pack). Order by number of packs.
Note 2 : Every even number position has a different locking design.

■ Type IV

Height : Long type, Enhanced ergonomic lock

Standard Type (Guide Key : Inside, Color : White) Unit : mm

| Part No. | HRS No. | No. of Contacts | A | B |
|----------------|------------|-----------------|-------|-------|
| DF22C-1S-7.92C | 680-1101-0 | 1 | 8.00 | — |
| DF22C-2S-7.92C | 680-1102-3 | 2 | 15.50 | 7.92 |
| DF22C-3S-7.92C | 680-1103-6 | 3 | 23.42 | 15.84 |
| DF22C-4S-7.92C | 680-1104-9 | 4 | 31.34 | 23.76 |

R Type (Guide Key : Right Side, Color : Black) Unit : mm

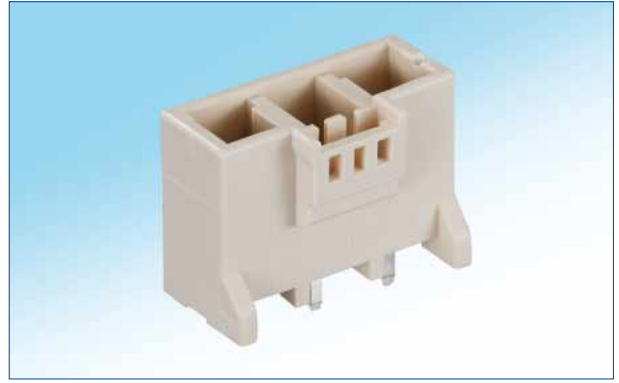
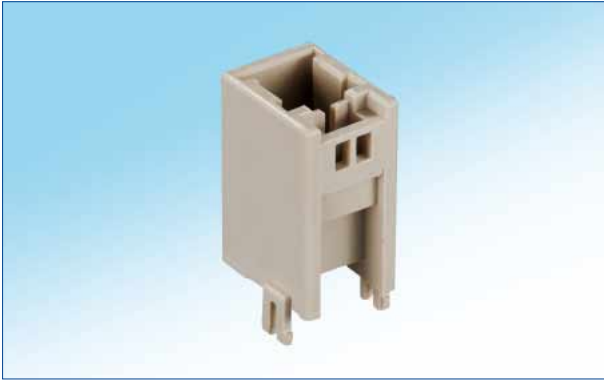
| Part No. | HRS No. | No. of Contacts | A | B |
|-----------------|------------|-----------------|-------|-------|
| DF22CR-3S-7.92C | 680-1130-9 | 3 | 23.42 | 15.84 |

L Type (Guide Key : Left Side, Color : Red) Unit : mm

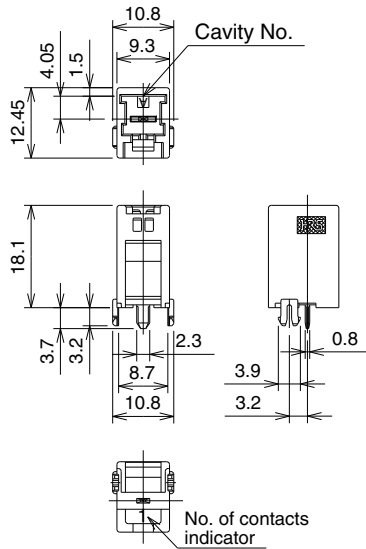
| Part No. | HRS No. | No. of Contacts | A | B |
|-----------------|------------|-----------------|-------|-------|
| DF22CL-1S-7.92C | 680-1133-7 | 1 | 8.00 | — |
| DF22CL-3S-7.92C | 680-1135-2 | 3 | 23.42 | 15.84 |

Note 1 : Bag packaging (100 pcs/pack). Order by number of packs.
Note 2 : Every even number position has a different locking design.

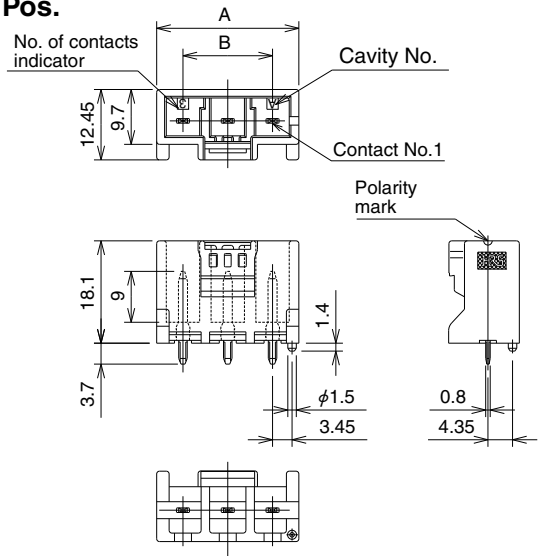
■ Straight Header



1 Pos.



2 to 5 Pos.



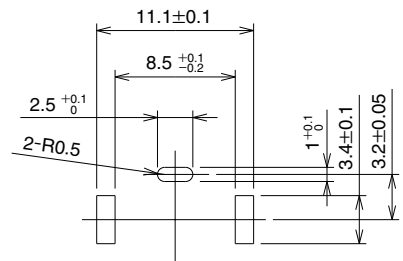
[Specification number]
 (06) : Gold plated, bag packaging
 (26) : Gold plated tray packaging (only 1 pos)
 (05) : Tin-copper plated bag packaging
 (25) : Tin-copper plated tray packaging (only 1 pos)

Standard Type (Guide Key : Inside, Color : Natural Beige) Unit : mm

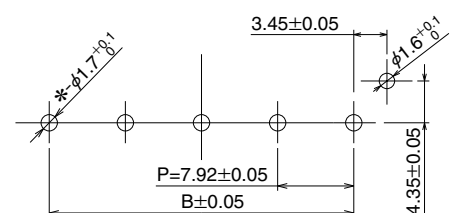
| Part No. | HRS No. | No. of Contacts | A | B | Bag Packaging | Tray Packaging | Gold plated | Tin-copper plated |
|---------------------|---------------|-----------------|-------|-------|---------------|----------------|-------------|-------------------|
| DF22-1P-7.92DSA(**) | 680-1013-5 ** | 1 | — | — | ✓ | ✓ | ✓ | ✓ |
| DF22-2P-7.92DSA(**) | 680-1014-8 ** | 2 | 17.22 | 7.92 | ✓ | — | ✓ | ✓ |
| DF22-3P-7.92DSA(**) | 680-1015-0 ** | 3 | 25.14 | 15.84 | ✓ | — | ✓ | ✓ |
| DF22-4P-7.92DSA(**) | 680-1016-3 ** | 4 | 33.06 | 23.76 | ✓ | — | ✓ | ✓ |
| DF22-5P-7.92DSA(**) | 680-1017-6 ** | 5 | 40.98 | 31.68 | ✓ | — | ✓ | ✓ |

◆ Recommended PCB Layout (Board thickness : 1.6±0.1)

1 Pos.



2 to 5 Pos.



R Type (Guide Key : Right Side, Color : Black) Unit : mm

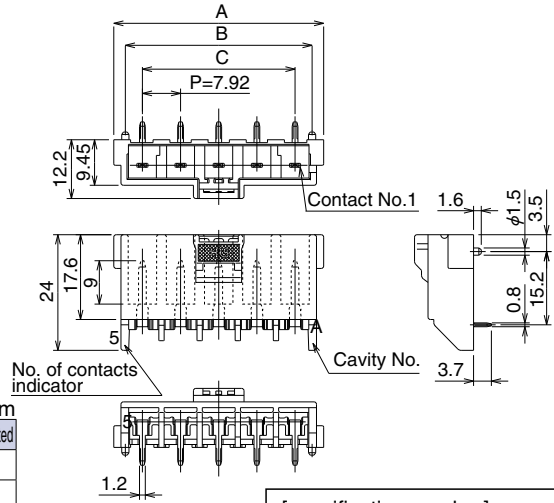
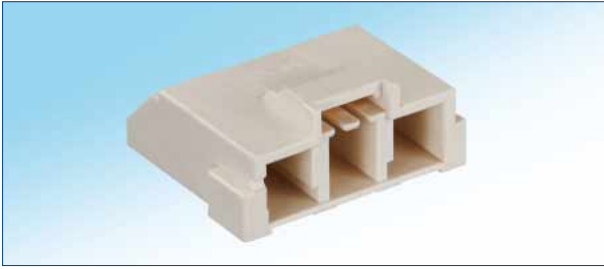
| Part No. | HRS No. | No. of Contacts | A | B | Bag Packaging | Tray Packaging | Gold plated | Tin-copper plated |
|----------------------|---------------|-----------------|-------|-------|---------------|----------------|-------------|-------------------|
| DF22R-1P-7.92DSA(**) | 680-1036-0 ** | 1 | — | — | ✓ | — | ✓ | ✓ |
| DF22R-2P-7.92DSA(**) | 680-1037-3 ** | 2 | 17.22 | 7.92 | ✓ | — | ✓ | ✓ |
| DF22R-3P-7.92DSA(**) | 680-1038-6 ** | 3 | 25.14 | 15.84 | ✓ | — | ✓ | ✓ |
| DF22R-4P-7.92DSA(**) | 680-1039-9 ** | 4 | 33.06 | 23.76 | ✓ | — | ✓ | ✓ |
| DF22R-5P-7.92DSA(**) | 680-1040-8 ** | 5 | 40.98 | 31.68 | ✓ | — | ✓ | ✓ |

L Type (Guide Key : Left Side, Color : Red) Unit : mm

| Part No. | HRS No. | No. of Contacts | A | B | Bag Packaging | Tray Packaging | Gold plated | Tin-copper plated |
|----------------------|---------------|-----------------|-------|-------|---------------|----------------|-------------|-------------------|
| DF22L-1P-7.92DSA(**) | 680-1041-0 ** | 1 | — | — | ✓ | — | ✓ | ✓ |
| DF22L-2P-7.92DSA(**) | 680-1042-3 ** | 2 | 17.22 | 7.92 | ✓ | — | ✓ | ✓ |
| DF22L-3P-7.92DSA(**) | 680-1043-6 ** | 3 | 25.14 | 15.84 | ✓ | — | ✓ | ✓ |
| DF22L-4P-7.92DSA(**) | 680-1044-9 ** | 4 | 33.06 | 23.76 | ✓ | — | ✓ | ✓ |
| DF22L-5P-7.92DSA(**) | 680-1045-1 ** | 5 | 40.98 | 31.68 | ✓ | — | ✓ | ✓ |

Note 1 : Bag packaging (100 pcs/pack). Order by number of packs.
 Note 2 : Tray packaging (150 pcs/tray). Order by number of 150.
 Note 3 : Every even number position has a different locking design.

Right Angle Header



Standard Type (Guide Key : Inside, Color : Natural Beige) Unit : mm

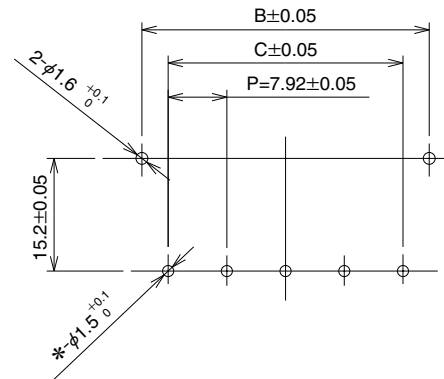
| Part No. | HRS No. | No. of Contacts | A | B | C | Gold plated | Tin-copper plated |
|--------------------|---------------|-----------------|-------|-------|-------|-------------|-------------------|
| DF22-2P-7.92DS(**) | 680-1008-5 ** | 2 | 19.80 | 15.00 | 7.92 | (36) | (35) |
| DF22-3P-7.92DS(**) | 680-1009-8 ** | 3 | 27.72 | 22.92 | 15.84 | (06) | (05) |
| DF22-4P-7.92DS(**) | 680-1010-7 ** | 4 | 35.64 | 30.84 | 23.76 | (06) | (05) |
| DF22-5P-7.92DS(**) | 680-1011-0 ** | 5 | 43.56 | 38.76 | 31.68 | (06) | (05) |

[specification number]
 (06), (36) : Gold plated
 (05), (35) : Tin-copper plated

R Type (Guide Key : Right Side, Color : Black) Unit : mm

| Part No. | HRS No. | No. of Contacts | A | B | C | Gold plated | Tin-copper plated |
|---------------------|---------------|-----------------|-------|-------|-------|-------------|-------------------|
| DF22R-2P-7.92DS(**) | 680-1018-9 ** | 2 | 19.80 | 15.00 | 7.92 | (06) | (05) |
| DF22R-3P-7.92DS(**) | 680-1019-1 ** | 3 | 27.72 | 22.92 | 15.84 | (06) | (05) |
| DF22R-4P-7.92DS(**) | 680-1020-0 ** | 4 | 35.64 | 30.84 | 23.76 | (06) | (05) |
| DF22R-5P-7.92DS(**) | 680-1021-3 ** | 5 | 43.56 | 38.76 | 31.68 | (06) | (05) |

Recommended PCB Layout (Board thickness : 1.6±0.1)



L Type (Guide Key : Left Side, Color : Red) Unit : mm

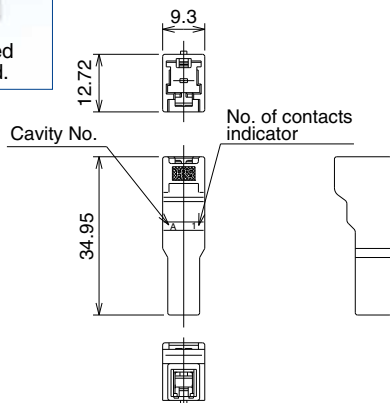
| Part No. | HRS No. | No. of Contacts | A | B | C | Gold plated | Tin-copper plated |
|---------------------|---------------|-----------------|-------|-------|-------|-------------|-------------------|
| DF22L-2P-7.92DS(**) | 680-1022-6 ** | 2 | 19.80 | 15.00 | 7.92 | (06) | (05) |
| DF22L-3P-7.92DS(**) | 680-1023-9 ** | 3 | 27.72 | 22.92 | 15.84 | (06) | (05) |
| DF22L-4P-7.92DS(**) | 680-1024-1 ** | 4 | 35.64 | 30.84 | 23.76 | (06) | (05) |
| DF22L-5P-7.92DS(**) | 680-1025-4 ** | 5 | 43.56 | 38.76 | 31.68 | (06) | (05) |

Note 1 : Bag packaging (100 pcs/pack). Order by number of packs.
 Note 2 : Every even number position has a different locking design.

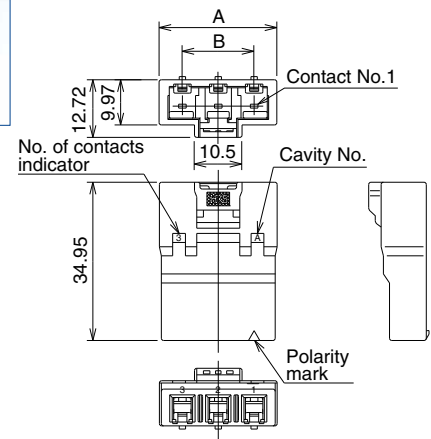
In-line Plug



1 Pos.



2, 3 Pos.



Standard Type (Guide Key : Inside, Color : Natural Beige) Unit : mm

| Part No. | HRS No. | No. of Contacts | A | B |
|-----------------|------------|-----------------|-------|-------|
| DF22A-1EP-7.92C | 680-1053-0 | 1 | 9.30 | — |
| DF22A-2EP-7.92C | 680-1054-2 | 2 | 18.00 | 7.92 |
| DF22A-3EP-7.92C | 680-1055-5 | 3 | 26.00 | 15.84 |

R Type (Guide Key : Right Side, Color : Black) Unit : mm

| Part No. | HRS No. | No. of Contacts | A | B |
|------------------|------------|-----------------|-------|-------|
| DF22AR-2EP-7.92C | 680-1069-0 | 2 | 18.00 | 7.92 |
| DF22AR-3EP-7.92C | 680-1070-9 | 3 | 26.00 | 15.84 |

L Type (Guide Key : Left Side, Color : Red) Unit : mm

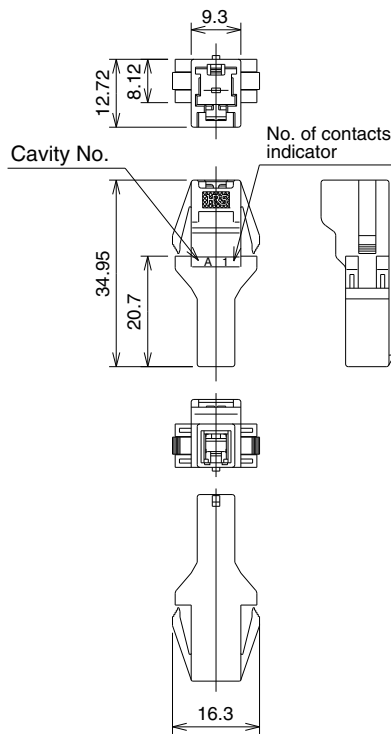
| Part No. | HRS No. | No. of Contacts | A | B |
|------------------|------------|-----------------|-------|------|
| DF22AL-2EP-7.92C | 680-1074-0 | 2 | 18.00 | 7.92 |

Note 1 : Bag packaging (100 pcs/pack). Order by number of packs.
 Note 2 : Every even number position has a different locking design.

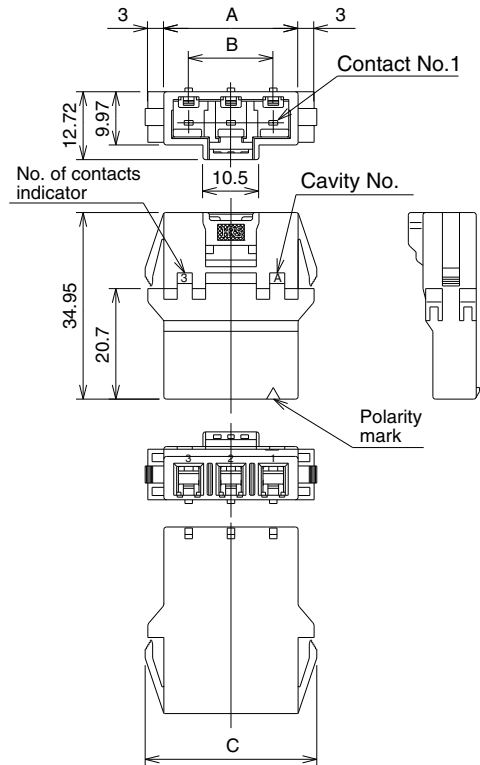
In-line Plug (Panel Lock Type)



1 Pos.



2, 3 Pos.



Standard Type (Guide Key : Inside, Color : White) Unit : mm

| Part No. | HRS No. | No. of Contacts | A | B | C |
|----------------|------------|-----------------|-------|-------|-------|
| DF22-1EP-7.92C | 680-1048-0 | 1 | 9.30 | — | 16.30 |
| DF22-2EP-7.92C | 680-1049-2 | 2 | 17.22 | 7.92 | 24.22 |
| DF22-3EP-7.92C | 680-1050-1 | 3 | 25.14 | 15.84 | 32.14 |

R Type (Guide Key : Right Side, Color : Black) Unit : mm

| Part No. | HRS No. | No. of Contacts | A | B | C |
|-----------------|------------|-----------------|-------|-------|-------|
| DF22R-2EP-7.92C | 680-1059-6 | 2 | 17.22 | 7.92 | 24.22 |
| DF22R-3EP-7.92C | 680-1060-5 | 3 | 25.14 | 15.84 | 32.14 |

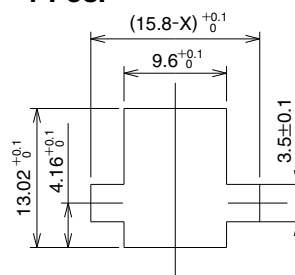
L Type (Guide Key : Left Side, Color : Red) Unit : mm

| Part No. | HRS No. | No. of Contacts | A | B | C |
|-----------------|------------|-----------------|-------|------|-------|
| DF22L-1EP-7.92C | 680-1063-3 | 1 | 9.30 | — | 16.30 |
| DF22L-2EP-7.92C | 680-1064-6 | 2 | 17.22 | 7.92 | 24.22 |

Note 1 : Bag packaging (100 pcs/pack). Order by number of packs.
 Note 2 : Every even number position has a different locking design.

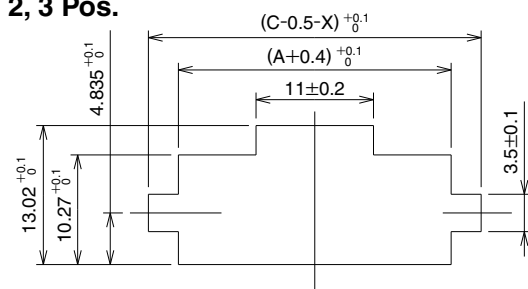
Panel Cutout

1 Pos.



| Panel thickness | X |
|-----------------|------|
| 2.0 | 0.48 |
| 1.6 | 0.96 |
| 1.2 | 1.44 |
| 0.8 | 1.92 |

2, 3 Pos.



Note 1 : Please ensure when mating this connector that the tapered portions of the panel are facing outward towards the receptacle connector's mating interface.

In-line Double-row Socket



Standard Type (Guide Key : Inside, Color : White) Unit : mm

| Part No. | HRS No. | No. of Contacts | Lock type |
|-----------------|------------|-----------------|---------------|
| DF22B-4DS-7.92C | 680-1142-8 | 4 | Standard lock |

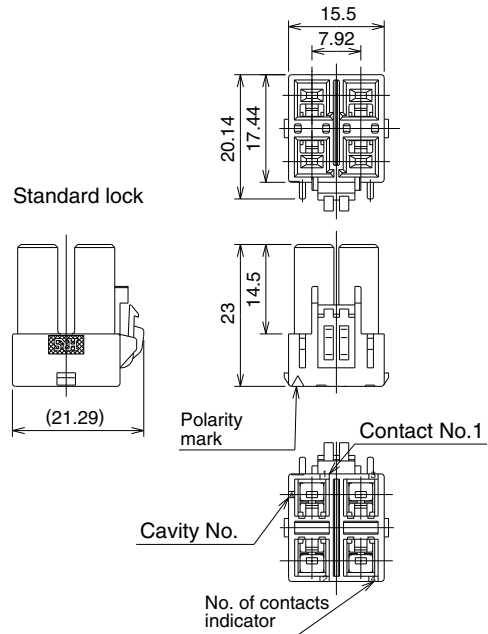
R Type (Guide Key : Right Side, Color : Black) Unit : mm

| Part No. | HRS No. | No. of Contacts | Lock type |
|------------------|------------|-----------------|---------------|
| DF22BR-4DS-7.92C | 680-1156-2 | 4 | Standard lock |

L Type (Guide Key : Left Side, Color : Red) Unit : mm

| Part No. | HRS No. | No. of Contacts | Lock type |
|------------------|------------|-----------------|---------------|
| DF22BL-4DS-7.92C | 680-1161-2 | 4 | Standard lock |

Note : Bag packaging (100 pcs/pack). Order by number of packs.



In-line Double-row Plug



Standard Type (Guide Key : Inside, Color : White) Unit : mm

| Part No. | HRS No. | No. of Contacts | Connector type |
|------------------|------------|-----------------|-----------------------------|
| DF22-4DEP-7.92C | 680-1051-4 | 4 | Panel lock type |
| DF22A-4DEP-7.92C | 680-1056-8 | 4 | Without panel lock function |

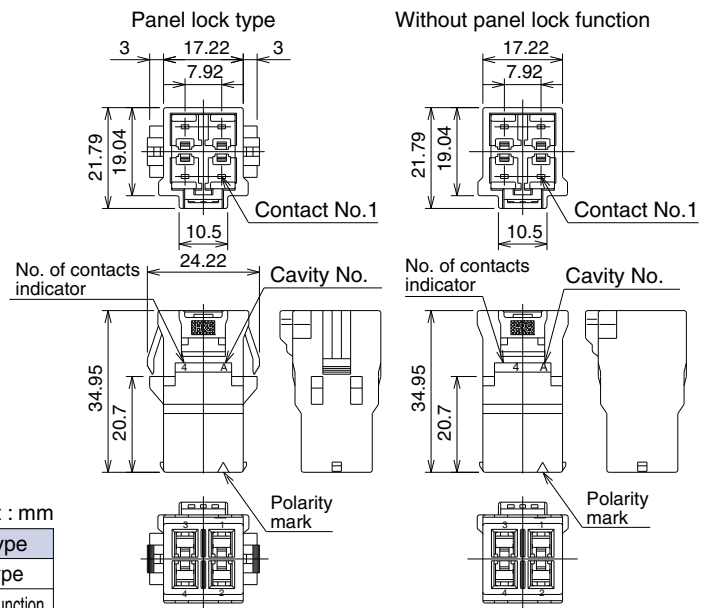
R Type (Guide Key : Right Side, Color : Black) Unit : mm

| Part No. | HRS No. | No. of Contacts | Connector type |
|------------------|------------|-----------------|-----------------|
| DF22R-4DEP-7.92C | 680-1170-3 | 4 | Panel lock type |

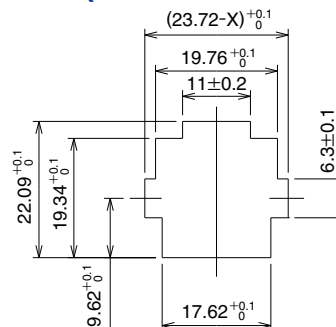
L Type (Guide Key : Left Side, Color : Red) Unit : mm

| Part No. | HRS No. | No. of Contacts | Connector type |
|-------------------|------------|-----------------|-----------------------------|
| DF22L-4DEP-7.92C | 680-1175-7 | 4 | Panel lock type |
| DF22AL-4DEP-7.92C | 680-1189-1 | 4 | Without panel lock function |

Note : Bag packaging (100 pcs/pack). Order by number of packs.



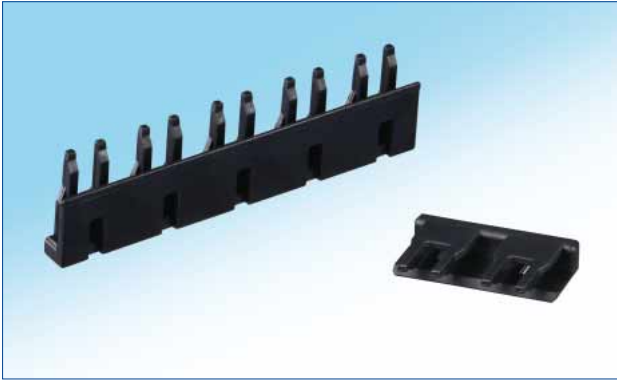
Recommended Panel Cutout (Panel mount type)



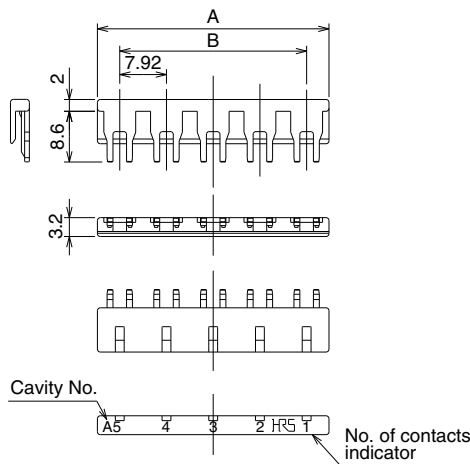
| Panel thickness | X |
|-----------------|------|
| 2.0 | 0.48 |
| 1.6 | 0.96 |
| 1.2 | 1.44 |
| 0.8 | 1.92 |

Note 1 : Please ensure when mating this connector that the tapered portions of the panel are facing outward towards the receptacle connector's mating interface.

Retainer

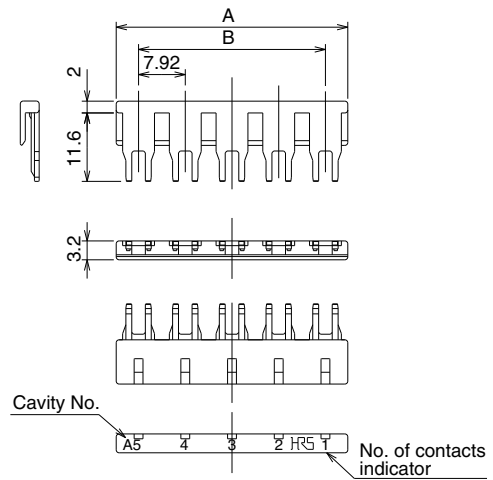


For Standard height, standard lock (Type I)



For Long type, standard lock (Type III)

Long type, enhanced ergonomic lock (Type IV)



Unit : mm

| Part No. | HRS No. | No. of Contacts | A | B |
|-------------------|--|-----------------|-------|-------|
| DF22-1RS/P-7.92 | 680-1213-4 | 1 | 7.04 | — |
| DF22-2RS/P-7.92 | 680-1209-7 | 2 | 15.50 | 7.92 |
| DF22-3RS/P-7.92 | 680-1210-6 | 3 | 23.42 | 15.84 |
| DF22-4RS/P-7.92 | 680-1211-9 | 4 | 31.34 | 23.76 |
| DF22-5RS/P-7.92 | 680-1212-1 | 5 | 39.26 | 31.68 |
| Applicable Socket | DF22-*S-7.92C For Standard height, standard lock (Type I) * indicates number of contacts. | | | |

Note : Bag packaging (100 pcs/pack). Order by number of packs.

Unit : mm

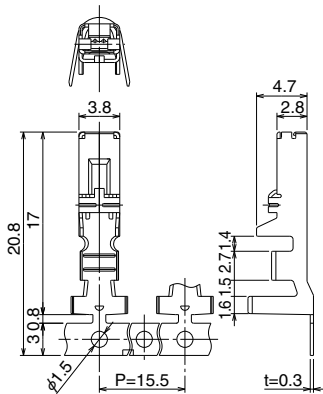
| Part No. | HRS No. | No. of Contacts | A | B |
|--------------------|---|-----------------|-------|-------|
| DF22B/C-1RS/P-7.92 | 680-1214-0 | 1 | 7.04 | — |
| DF22B/C-2RS/P-7.92 | 680-1200-2 | 2 | 15.50 | 7.92 |
| DF22B/C-3RS/P-7.92 | 680-1201-5 | 3 | 23.42 | 15.84 |
| DF22B/C-4RS/P-7.92 | 680-1202-8 | 4 | 31.34 | 23.76 |
| DF22B/C-5RS/P-7.92 | 680-1203-0 | 5 | 39.26 | 31.68 |
| Applicable Socket | DF22B-*S-7.92C For Long type, standard lock (Type III) DF22C-*S-7.92C Long type, enhanced ergonomic lock (Type IV) DF22-*EP-7.92C DF22A-*EP-7.92C * indicates number of contacts. | | | |

Note 1 : Bag packaging (100 pcs/pack). Order by number of packs.

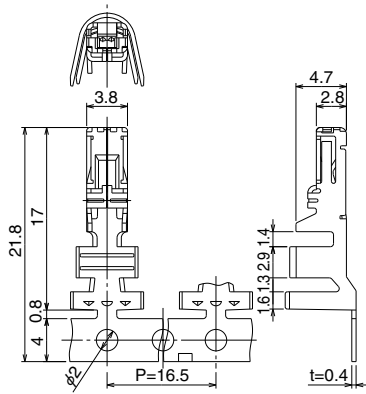
Note 2 : When connecting retainer into the plug housing, please note the cavity numbers will line up numerically, but the retainer cavity numbers will be upside down compared to the plug cavity numbers.

■Crimp Contact for Socket

For 14 to 16 AWG



For 10 to 12 AWG



●Strip length
3.5 to 4.5mm

◆Reel Contact ※Applicable Tool : Applicator

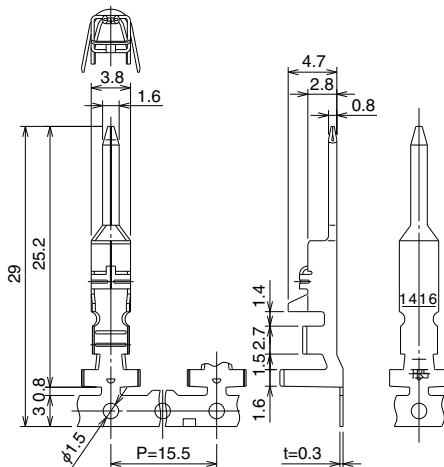
| Part No. | HRS No. | Finish | Applicable cable | | | | | Quantity |
|----------------|------------|-------------|------------------|-----------|-------------------|---------------------|-----------------|----------|
| | | | UL style | Wire size | Wire Construction | Sectional area | Jacket diameter | |
| DF22-1416SCFA | 680-1085-6 | Gold plated | 1430 | 14 AWG | 41cores./0.26mm | 2.18mm ² | 2.4 to 3.0mm | 2500 |
| | | | | 16 AWG | 26cores./0.254mm | 1.32mm ² | | |
| DF22-1416SCF | 680-1000-3 | Tin plated | 1430 | 14 AWG | 41cores./0.26mm | 2.18mm ² | 2.4 to 3.0mm | 2500 |
| | | | | 16 AWG | 26cores./0.254mm | 1.32mm ² | | |
| DF22A-1416SCFA | 680-1087-1 | Gold plated | 1015 | 14 AWG | 41cores./0.26mm | 2.18mm ² | 3.0 to 3.8mm | 2000 |
| | | | | 16 AWG | 26cores./0.254mm | 1.32mm ² | | |
| DF22A-1416SCF | 680-1002-9 | Tin plated | 1015 | 14 AWG | 41cores./0.26mm | 2.18mm ² | 3.0 to 3.8mm | 2000 |
| | | | | 16 AWG | 26cores./0.254mm | 1.32mm ² | | |
| DF22A-1012SCFA | 680-1106-4 | Gold plated | 1015 | 10 AWG | 104cores./0.26mm | 5.52mm ² | 3.6 to 4.9mm | 2000 |
| | | | | 12 AWG | 65cores./0.26mm | 3.45mm ² | | |
| DF22A-1012SCF | 680-1089-7 | Tin plated | 1015 | 10 AWG | 104cores./0.26mm | 5.52mm ² | 3.6 to 4.9mm | 2000 |
| | | | | 12 AWG | 65cores./0.26mm | 3.45mm ² | | |

◆Bulk Contact (100/pack) ※Applicable Tool : Manual ID tool

| Part No. | HRS No. | Finish | Applicable cable | | | | |
|---------------|------------|-------------|------------------|-----------|-------------------|---------------------|-----------------|
| | | | UL style | Wire size | Wire Construction | Sectional area | Jacket diameter |
| DF22-1416SCA | 680-1190-0 | Gold plated | 1430 | 16 AWG | 26cores./0.254mm | 1.32mm ² | 2.6mm |
| DF22-1416SC | 680-1001-6 | Tin plated | 1430 | 16 AWG | 26cores./0.254mm | 1.32mm ² | 2.6mm |
| DF22A-1416SCA | 680-1191-0 | Gold plated | 1015 | 14 AWG | 41cores./0.26mm | 2.18mm ² | 3.7mm |
| | | | | 16 AWG | 26cores./0.254mm | 1.32mm ² | 3.2mm |
| DF22A-1416SC | 680-1003-1 | Tin plated | 1015 | 14 AWG | 41cores./0.26mm | 2.18mm ² | 3.7mm |
| | | | | 16 AWG | 26cores./0.254mm | 1.32mm ² | 3.2mm |
| DF22A-1012SCA | 680-1107-7 | Gold plated | 1015 | 10 AWG | 104cores./0.26mm | 5.52mm ² | 4.69mm |
| | | | | 12 AWG | 65cores./0.26mm | 3.45mm ² | 4.04mm |
| DF22A-1012SC | 680-1090-6 | Tin plated | 1015 | 10 AWG | 104cores./0.26mm | 5.52mm ² | 4.69mm |
| | | | | 12 AWG | 65cores./0.26mm | 3.45mm ² | 4.04mm |

Note 1 : The conductor of applicable wire is tin plated annealed copper.
Note 2 : When using other than the applicable wire, contact your nearest Hirose representative.

■Crimp Contact for In-line Plug



●Strip length
3.5 to 4.5mm

◆Reel Contact ※Applicable Tool : Applicator

| Part No. | HRS No. | Finish | Applicable cable | | | | | Quantity |
|----------------|------------|-------------|------------------|-----------|-------------------|---------------------|-----------------|----------|
| | | | UL style | Wire size | Wire Construction | Sectional area | Jacket diameter | |
| DF22-1416PCFA | 680-2002-4 | Gold plated | 1430 | 14 AWG | 41cores./0.26mm | 2.18mm ² | 2.4 to 3.0mm | 2500 |
| | | | | 16 AWG | 26cores./0.254mm | 1.32mm ² | | |
| DF22-1416PCF | 680-1078-0 | Tin plated | 1430 | 14 AWG | 41cores./0.26mm | 2.18mm ² | 2.4 to 3.0mm | 2500 |
| | | | | 16 AWG | 26cores./0.254mm | 1.32mm ² | | |
| DF22A-1416PCFA | 680-1194-0 | Gold plated | 1015 | 14 AWG | 41cores./0.26mm | 2.18mm ² | 3.0 to 3.8mm | 2000 |
| | | | | 16 AWG | 26cores./0.254mm | 1.32mm ² | | |
| DF22A-1416PCF | 680-1079-3 | Tin plated | 1015 | 14 AWG | 41cores./0.26mm | 2.18mm ² | 3.0 to 3.8mm | 2000 |
| | | | | 16 AWG | 26cores./0.254mm | 1.32mm ² | | |

◆Bulk Contact (100/pack) ※Applicable Tool : Manual ID tool

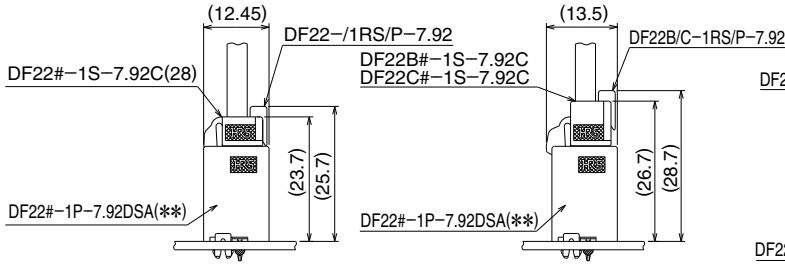
| Part No. | HRS No. | Finish | Applicable cable | | | | |
|--------------|------------|-------------|------------------|-----------|-------------------|---------------------|-----------------|
| | | | UL style | Wire size | Wire Construction | Sectional area | Jacket diameter |
| DF22-1416PCA | 680-1192-0 | Gold plated | 1430 | 16 AWG | 26cores./0.254mm | 1.32mm ² | 2.6mm |
| DF22-1416PC | 680-1080-2 | Tin plated | 1430 | 14 AWG | 41cores./0.26mm | 2.18mm ² | 3.7mm |
| | | | | 16 AWG | 26cores./0.254mm | 1.32mm ² | 3.2mm |
| DF22A-1416PC | 680-1081-5 | Tin plated | 1015 | 14 AWG | 41cores./0.26mm | 2.18mm ² | 3.7mm |
| | | | | 16 AWG | 26cores./0.254mm | 1.32mm ² | 3.2mm |

Note 1 : The conductor of applicable wire is tin plated annealed copper.
Note 2 : When using other than the applicable wire, contact your nearest Hirose representative.

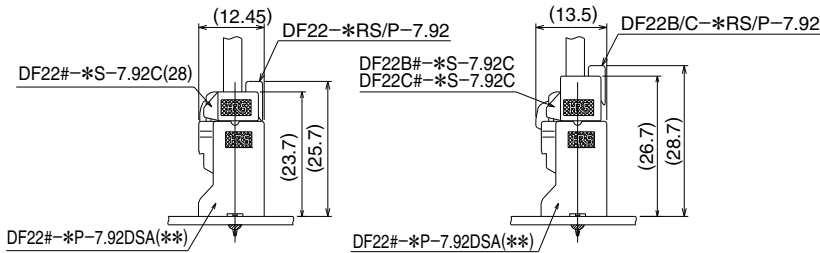
◆ Mated Dimensions

● Socket to Straight Header Connection

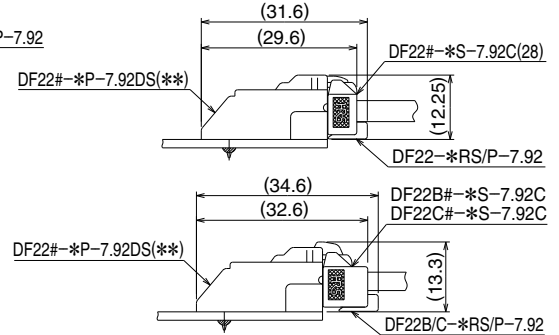
1 Pos.



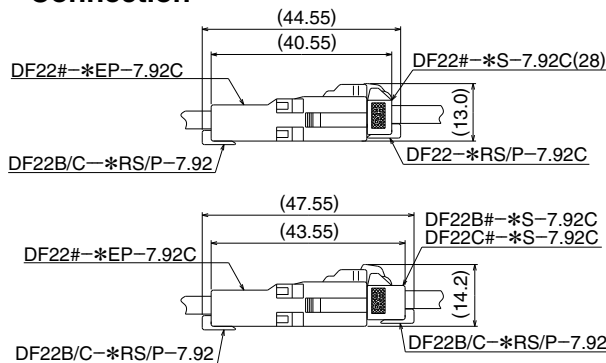
2 to 5 Pos.



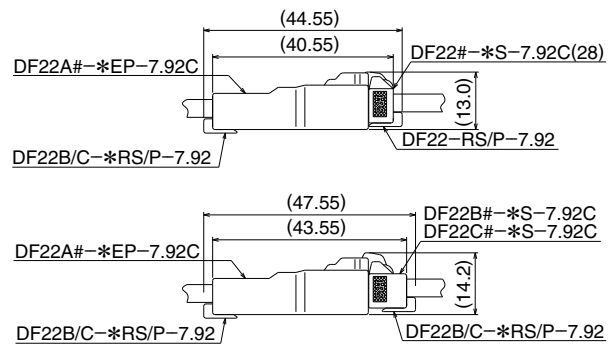
● Socket to Right Angle Header Connection



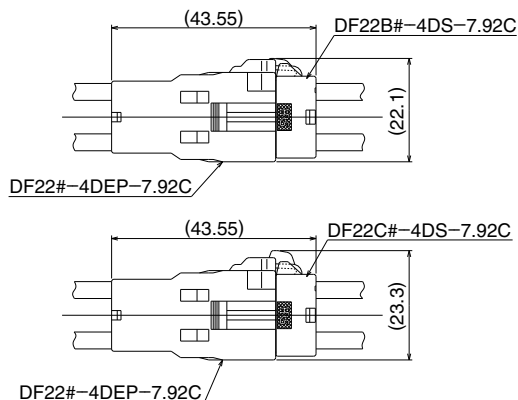
● Socket to In-line Plug (Panel lock type) Connection



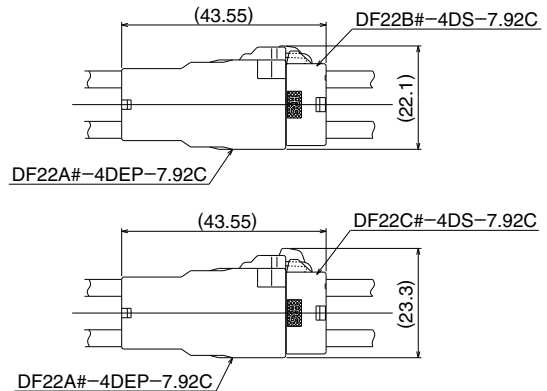
● Socket to In-line Plug Connection



● In-line Double-row socket to In-line Double-row Plug (Panel lock type) Connection



● In-line Double-row socket to In-line Double-row Plug Connection



Tools

| Type | Part No. | HRS No. | Applicable Wire (Note 7) | Applicable Contact (Note 6) |
|--|-------------------|------------|--------------------------|----------------------------------|
| Hirose Press Unit | CM-105C | 901-0001-0 | — | DF22/DF22A-1416SCF/PCF/SCFA/PCFA |
| Applicators Used in Hirose Press Unit | AP105-DF22-1416 | 901-4576-7 | UL1430 | DF22-1416SCF/PCF/SCFA/PCFA |
| | AP105-DF22A-1416 | 901-4578-2 | UL1015 | DF22A-1416SCF/PCF/SCFA/PCFA |
| Applicators Used in Press Units of Other Japanese Companies (Note 2) | AP109A-DF22-1416 | 901-4579-5 | UL1430 | DF22-1416SCF/PCF/SCFA/PCFA |
| | AP109A-DF22A-1416 | 901-4580-4 | UL1015 | DF22A-1416SCF/PCF/SCFA/PCFA |
| | AP109A-DF22A-1012 | 901-4582-0 | UL1015 | DF22A-1012SCF/SCFA (Note 1) |
| Applicator Manufactured by Japan Automatic Machine (Note 3) | CHS893800H-UP | — | UL1430 | DF22-1416SCF/PCF/SCFA/PCFA |
| | CHS893900H-UP | — | UL1015 | DF22A-1416SCF/PCF/SCFA/PCFA |
| | QHS895800H-UP | — | UL1015 | DF22A-1012SCF/SCFA (Note 1) |
| Crimping Tools | HT104/DF22-1416 | 550-0285-0 | 16 AWG : UL1430 | DF22-1416SC/PC/SCA/PCA |
| | HT104/DF22A-1416 | 550-0286-2 | 16, 14 AWG : UL1015 | DF22A-1416SC/PC/SCA/PCA |
| | HT103/DF22A-1012 | 550-0288-8 | 10, 12 AWG : UL1015 | DF22A-1012SC/SCA |

Note 1 : When crimping DF22A-1012SCF/SCFA use a press of at least 3.5 tons.

Note 2 : Applicators compatible with other Japanese companies (AP109A Applicator) cannot be used with the Hirose Press Unit CM-105C. An attachment is required when using the applicator. Please contact the press unit manufacturer for inquiries on attachments.

Note 3 : Please contact Japan Automatic Machine (J.A.M.) via their homepage regarding inquiries on the applicator or crimping defects. (URL: <http://www.jam-net.co.jp>)

Note 4 : Problems caused by tools other than those specified are not covered by the warranty.

Note 5 : Crimping should be carried out based on the "Crimping Quality Standards" and "Crimping Conditions Table."

Note 6 : Applicable contacts are limited to those listed in the table.

Note 7 : Applicable cables are limited to those listed in the table.

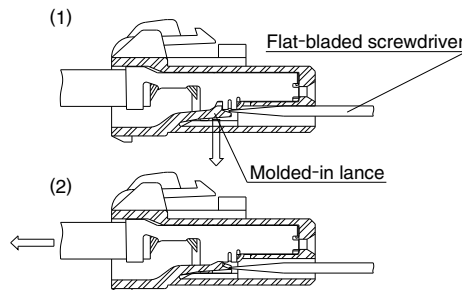
Contact Extraction

■ Contact extraction tool : Flat-bladed screwdriver, 1.4mm blade width

■ Intended crimp Contacts : DF22-1416SC(F), DF22-1416SC(F)A, DF22A-1416SC(F), DF22A-1416SC(F)A, DF22A-1012SC(F), DF22A-1012SC(F)A, DF22-1416PC(F), DF22-1416PC(F)A, DF22A-1416PC(F), and DF22A-1416PC(F)A

■ Work Method

(Housing Cross-Sectional Diagram)



1. Refer to the drawing No. 1. Insert correct size screwdriver in the housing against the molded-in lance. Push down the lance as shown.

2. Assure that the lance is deflected to release the contact and pull-out wire with the crimped contact.

Note : Please do not reuse the repaired housing. Replace it to new one.

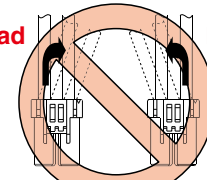
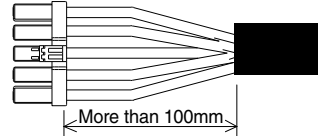


Caution

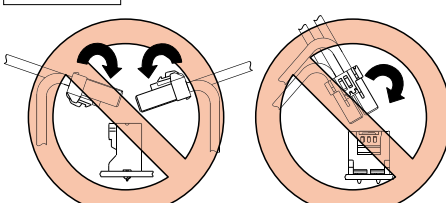
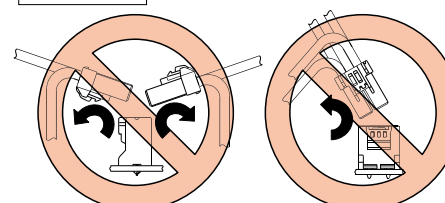
There are parts on the crimp contact that can cause injuries, please use caution when unmating the contacts.

◆ Precautions

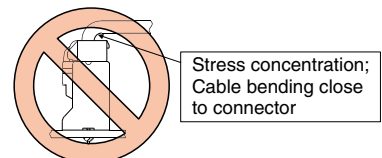
1. Gold-plated products are standard for this product in order to support high current. Be sure to select a gold-plated product for use in an environment with temperature changes and vibration.
2. If this product is used outside the specifications, evaluate it in the final set to confirm that there are no problems in use.
3. No outdoor use.
4. Notification for harness assembly

| | |
|---|---|
| <p>1) When inserting the crimping terminal to the crimping socket, please do not tilt the crimping terminal or twist the cable. Insertion at tilted angles or twisting the cable may cause deformation of the crimping terminal or crimping socket.</p> | |
| <p>2) After inserting the crimping terminal to the crimping socket, please make sure that the lance has been hooked with pulling the cable lightly. When checking the hook, please avoid bending the cable for preventing terminal drop-off.</p> |  |
| <p>3) Bundle cables/Cable Cables Recommend bundle and strip position of cables are 100mm or more. Bundling close to the connectors may cause terminal drop-off, breaking cables and unstable connection.</p> |  |

5. Notification for Insertion Extraction

| |
|--|
| <p>1) Please insert(extract) the crimping socket straight to the mating connector. Insertion(extraction) at tilted angles applies load concentration to the connector end and may cause deformation (at connection area, socket and header case, etc). There is firing risk using this kind of deformed connector.</p> |
| <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Insertion</p>  </div> <div style="text-align: center;"> <p>Extraction</p>  </div> </div> |
| <p>2) When it is hard to extract, please lightly insert the connector beforehand and then pull it with releasing the lock. Forced extraction has a risk of connector breakage.</p> |

6. Notification of wiring

| | |
|--|--|
| <p>1) When using a thick cable, short cable length and bending close to the connector end, these load concentration may cause deformation. Please note that there is firing risk using deformed connector. When installing, please refrain from stress concentration such as cable bending close to the connector end or cable twisting.</p> |  |
|--|--|

◆ Current Ratings

The current rating listed in the catalog indicates the allowable current per contact. However, in applications requiring current transmission through all the contacts, about one-third of the listed rating should be applied. When the current rating for the connector is 3A, and the allowable current of the conductor being used is 1A, then rating of 1A will be used for the entire assembly. The connectors should not be mating / unmating when the electrical current is being applied. Hot swap should not be performed.

MEMO :

A series of horizontal dashed lines for writing a memo.

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