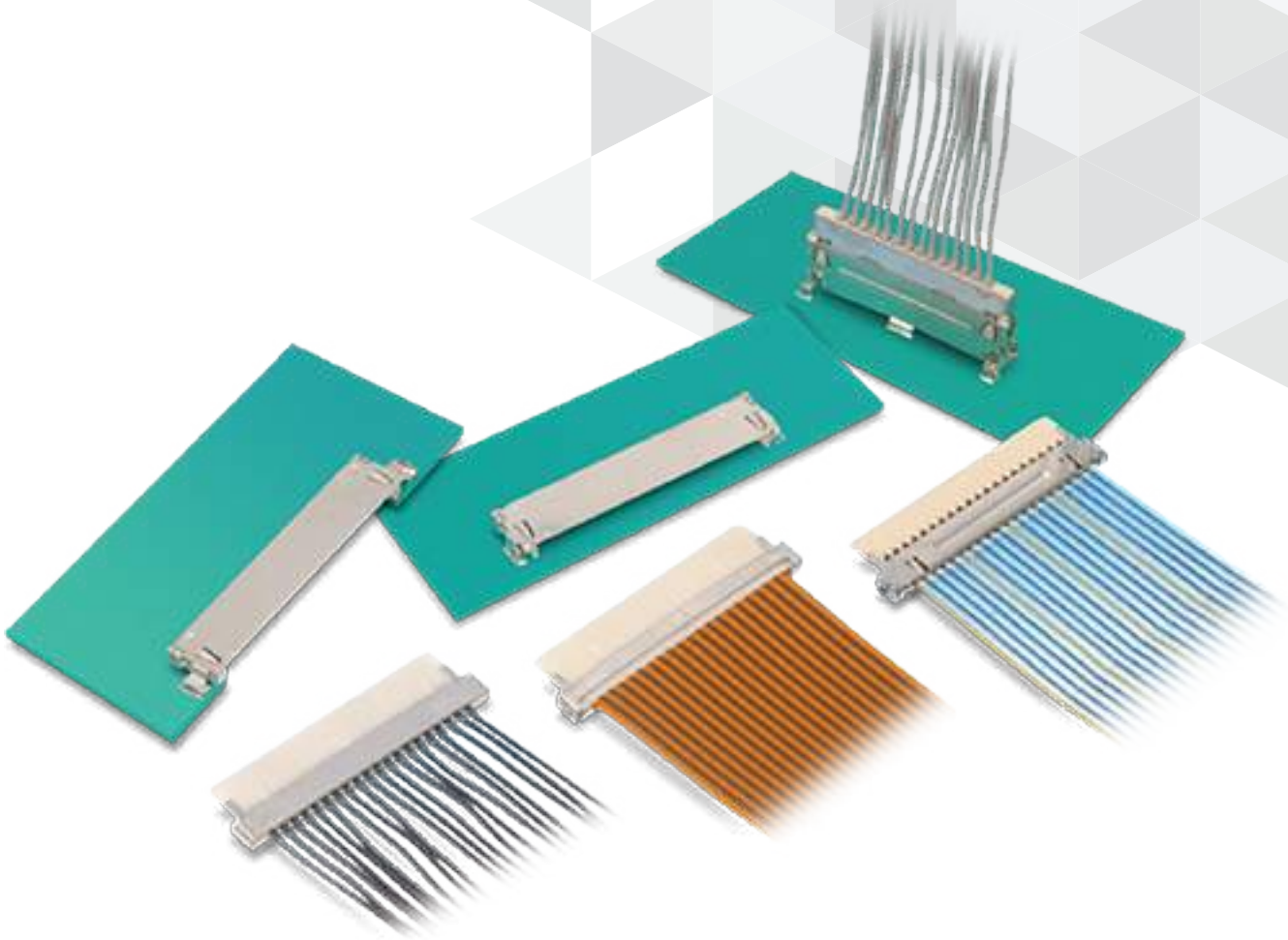
PRODUCT CATALOG

HIROSE ELECTRIC CO.,LTD.

# DF19 Series

# 1.0mm Pitch, Low Profile Wire-to-Board, FPC-to-Board, Micro-coaxial Cable-to-Board Connectors

Low Profile | Thin coaxial | FPC



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Product page
https://www.hirose.com/en/product/series/DF19

Jul. 2023

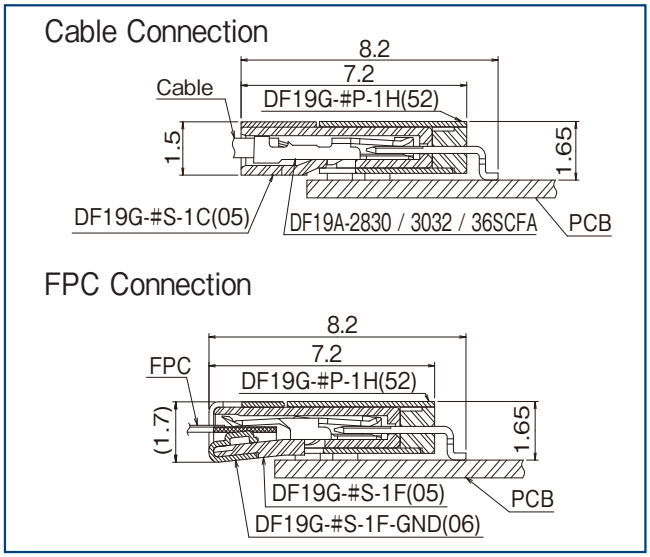
# Features

## 1. De Facto Standard for LCD Panel Connection

DF19 has been accepted as the market standard for LCD panels (12in. or less) due to its high performance for LVD high speed differential signals.

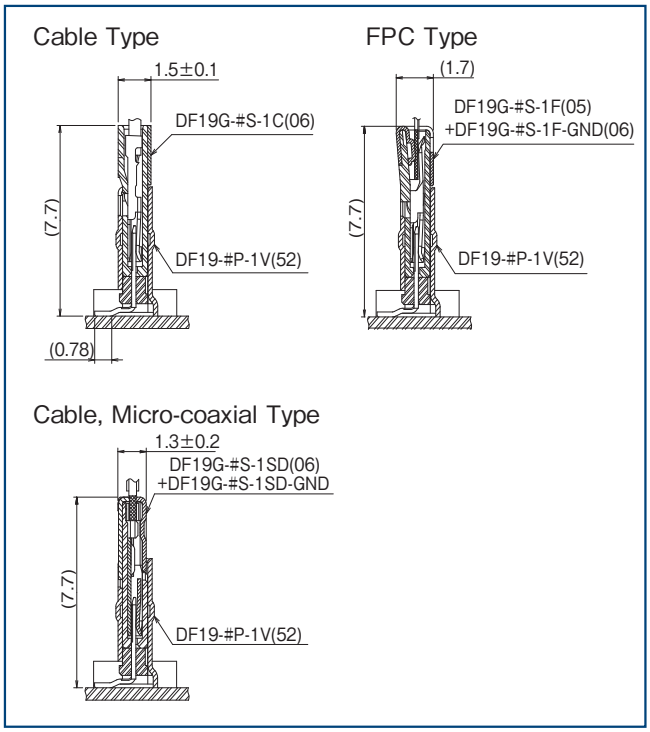
## 2. Low Profile Design

Cable, micro-coaxial type : 1.5mm thickness (1.6mm Max.)
FPC Type : 1.7mm Max.




## 3. Common Header

Header is compatible with the 3 socket types (discrete wire, FPC and micro-coaxial types), for a wide selection of mating combinations.



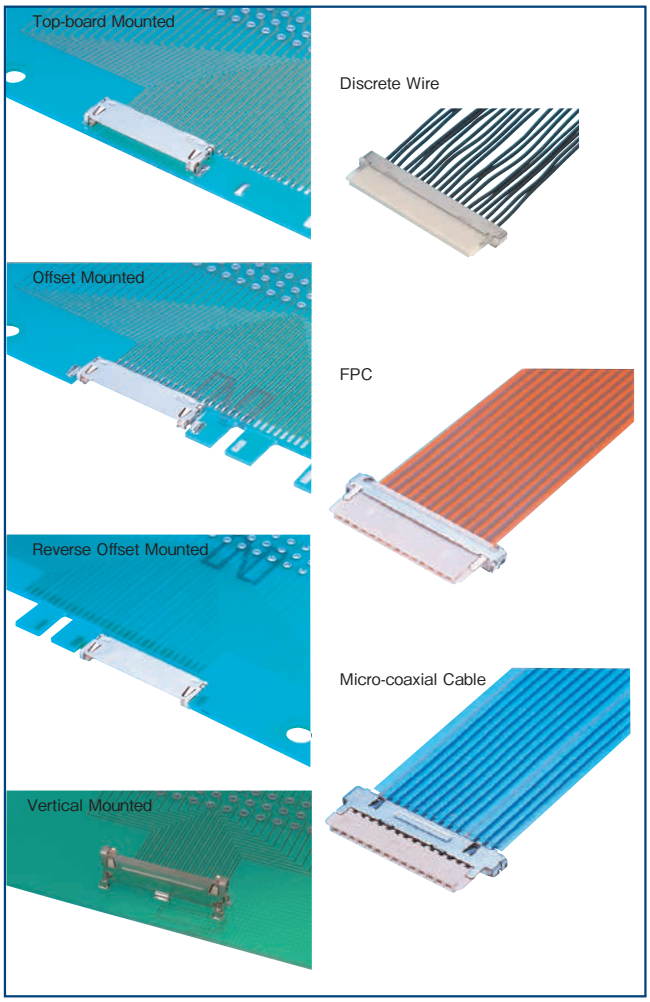

## 4. Uniform External Dimensions

External dimensions of each socket type are the same and can be used in a wide array of applications.

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## 5. Wide Varieties

Header is available in top-board, offset, reverse mount offset and vertical mounted styles to meet a wide array of application needs.



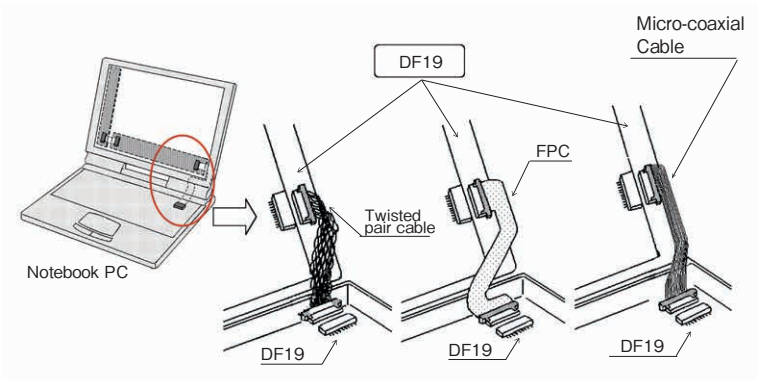

## 6. Ground Connection with Outer Shell

Metal shell enables ground connection.

## 7. Glow Wire Compatible (IEC60695-2-11 Standard)

## Applications

Mobile phones, LCD connections, DVC, DSC, PDA, camera modules, and other small equipment




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# Product Specifications

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Rated Current | 28 AWG | 30 AWG | 32 AWG | 36 AWG | FPC | Micro-coaxial Cable 40 AWG | Operating Temperature (Note 1) | -35 to +85℃ |
| | 1A/pin | 0.9A/pin | 0.8A/pin | 0.5A/pin | 0.5A/pin | 0.3A/pin | Operating Humidity Range (Note 2) | 40 to 80% |
| Rated Voltage | 100V AC/DC | | | | | | Storage Temperature Range (Note 3) | -10 to +60℃ |
| | | | | | | | Storage Humidity Range (Note 3) | 40 to 70% |

Note 1 : Includes temperature rise due to current flow.
Note 2 : Please use without condensation.
Note 3 : Applicable to unused items in packaged state.
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.

| Item | Specification | Conditions |
|---|---|---|
| Insulation Resistance | 500MΩ Min. | 100V DC |
| Withstanding Voltage | No flashover or insulation breakdown. | 300V AC for 1 min. |
| Contact Resistance | 30mΩ Max. (50mΩ Max. for FPC) | 1mA |
| Vibration | No electrical discontinuity of 1μs or more. | Frequency : 10 to 55 Hz, single amplitude of 0.75mm, in 3 direction for 10 cycles |
| Humidity (Steady State) | Contact Resistance : 30mΩ Max. (50mΩ Max. for FPC)<br>Insulation Resistance : 500MΩ Min. | 96 hours at temperature of 40±2℃ and humidity of 90 to 95% |
| Temperature Cycle | Contact Resistance : 30mΩ Max. (50mΩ Max. for FPC)<br>Insulation Resistance : 500MΩ Min. | Temperature : -55℃ → +5 to +35℃ → +85℃ → +5 to +35℃<br>Time (Minutes) : 30 → 10 → 30 → 10 for 5 cycles |
| Mating Durability | Contact Resistance : 30mΩ Max. (50mΩ Max. for FPC) | 30 cycles |
| Soldering Heat Resistance | No deformation of the insulator parts affecting performance. | Re-flow soldering : At the recommended temperature profile<br>Manual soldering : Soldering iron temperature 350℃ , 5 seconds |

# Materials / Finish

| Product | Component | Material | Finish / Color | Remarks | RoHS2 |
|---|---|---|---|---|---|
| Pin Header | Insulator | Polyamide | Black or Beige | UL94V-0 | ○ |
| | Contacts | Phosphor Bronze | Partially Gold Plated | - | |
| | Exterior Shell | Phosphor Bronze | Partially Tin Plated | - | |
| Crimp Case | Insulator | Polyamide | Beige | UL94V-0 | |
| | Exterior Shell | Stainless Steel | Tin Plated | - | |
| Socket Crimp Contact | Contact | Phosphor Bronze | Gold Plated | - | |
| FPC Socket | Insulator | Polyamide | Beige | UL94V-0 | |
| | Contact | Phosphor Bronze | Gold Plated | - | |
| FPC Grounding Plate | Exterior Shell | Stainless Steel | Tin Plated | - | |
| Micro-coaxial Socket | Insulator | LCP | Beige | UL94V-0 | |
| | Contact | Phosphor Bronze | Partially Gold Plated | - | |
| | Exterior Shell | Phosphor Bronze | Tin Plated | - | |
| Grounding Plate for Micro-Coaxial | Exterior Shell | Phosphor Bronze | Tin Plated | - | |

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# Product Number Structure

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

## ■ Connector

**DF19 # - # P - 1 H (52)**
❶ ❷ ❸ ❹ ❺ ❻ ❽

**DF19 # - # S - 1 F - GND**
❶ ❷ ❸ ❹ ❺ ❻ ❼

| | | | |
|---|---|---|---|
| ❶ Series Name | DF19 | ❸ No. of Pos. | 8, 14, 20, 30 (Note 1) |
| ❷ Configuration | **Pin Header**<br>G : Top-board Mouted (1.65mm Height)<br>K : Offset Mounted (1.0mm Height)<br>L : Offset Mounted (1.1mm Height)<br>KR : Reverse Offset Mounted Version of DF19K (1.0mm Height)<br>**Crimp Socket**<br>Blank : No Exterior Shell<br>G : With Exterior Shell (EMI Prevention Specification)<br>**FPC Socket**<br>G : With Grounding Plate<br>**Grounding Plate for FPC**<br>G : With Grounding Plate<br>**Micro-coaxial Socket**<br>G : With Grounding Plate<br>**Grounding Plate for Micro-coaxial Cable**<br>G : With Grounding Plate | ❹ Connector Type | S : Single Row Socket<br>P : Single Row Pin Header |
| | | ❺ Contact Pitch | 1.0mm |
| | | ❻ Mounting Type/ Termination Type | H : Right Angle SMT<br>V : Straight SMT<br>C : Crimp Case<br>F : FPC, Socket<br>SD : Micro-coaxial Socket |
| | | ❼ Attachable Parts | GND : Ground plate (Note 2) |
| | | ❽ Specification | (52) : Gold plated, tape & reel packaging |

Note 1 : The pin count availabilities vary based on connection style.
Note 2 : Grounding plates are required when terminating with the FPC and Micro-coaxial cable.

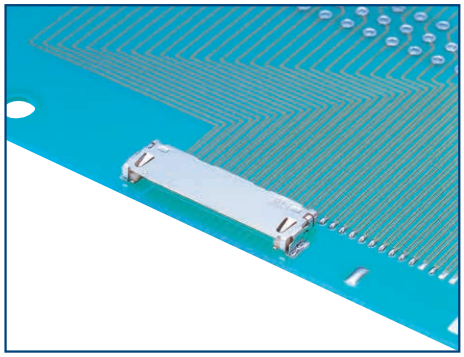
## ■ Crimp Contact

**DF19A - 2830 SCF A (##)**
❶ ❷ ❸ ❹

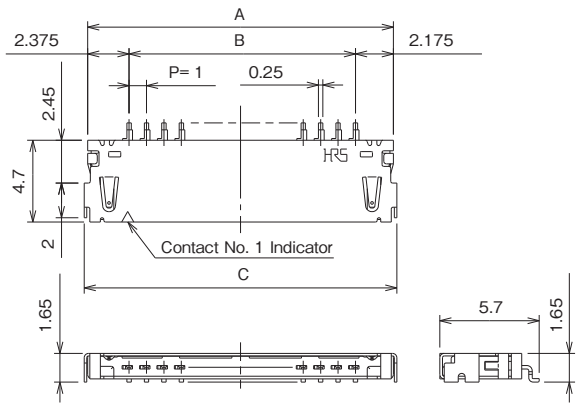
| | | | |
|---|---|---|---|
| ❶ Conductor Size | 2830 : 28-30 AWG<br>3032 : 30-32 AWG<br>36 : 36 AWG | ❸ Plating | A : Gold Plated |
| ❷ Contact Type/ Packaging | SCF : Socket Contact, Reel | ❹ Packaging | Blank : 10,000pcs per reel<br>(41) : 20,000pcs per reel |

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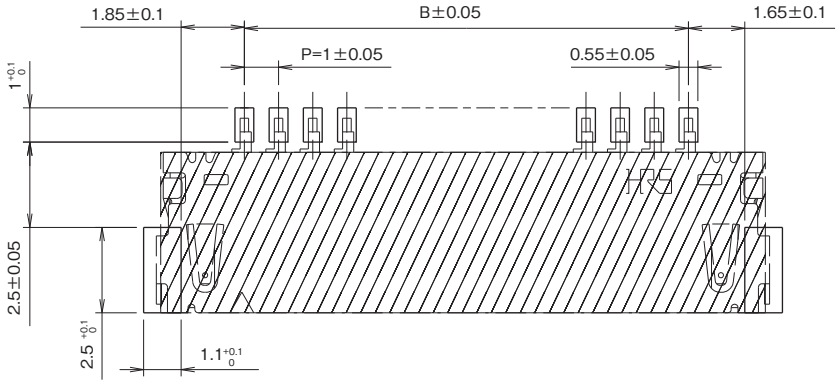
# Right Angle Pin Header (SMT) (Top-Board Mounted Type)



Pictured mounted on board.




## Recommended PCB Mounting Pattern




Note : If there is a pattern on the ▨ portion and resist is not applied, it may come into contact with the ground plate.

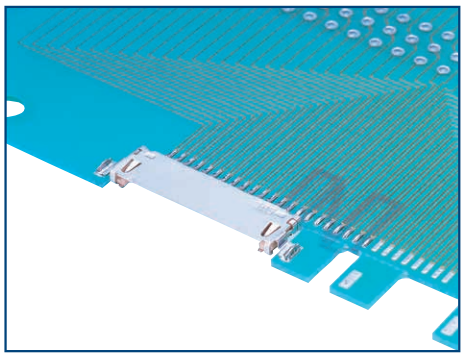
Unit : mm

| Part No. | HRS No. | No. of Pos. | A | B | C | Remarks | Purchase Unit |
|---|---|---|---|---|---|---|---|
| DF19G-8P-1H(52) | CL0685-0021-0-52 | 8 | 11.55 | 7.0 | 11.95 | 1.65mm Height Above Board | 1,000pcs per reel |
| DF19G-14P-1H(52) | CL0685-0004-0-52 | 14 | 17.55 | 13.0 | 17.95 | | |
| DF19G-20P-1H(52) | CL0685-0006-6-52 | 20 | 23.55 | 19.0 | 23.95 | | |
| DF19G-30P-1H(52) | CL0685-0015-7-52 | 30 | 33.55 | 29.0 | 33.95 | | |

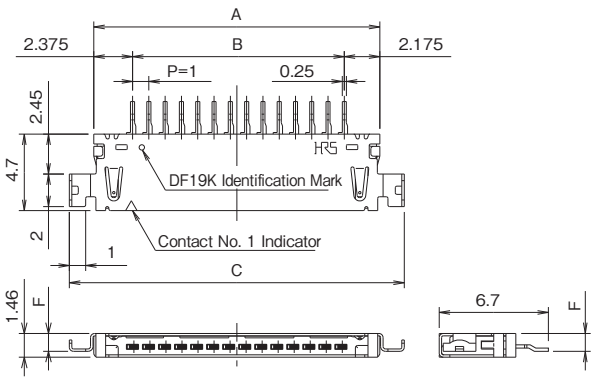
Note : When using in combination with the single row socket (FPC Type), mount on the edge of the PCB.

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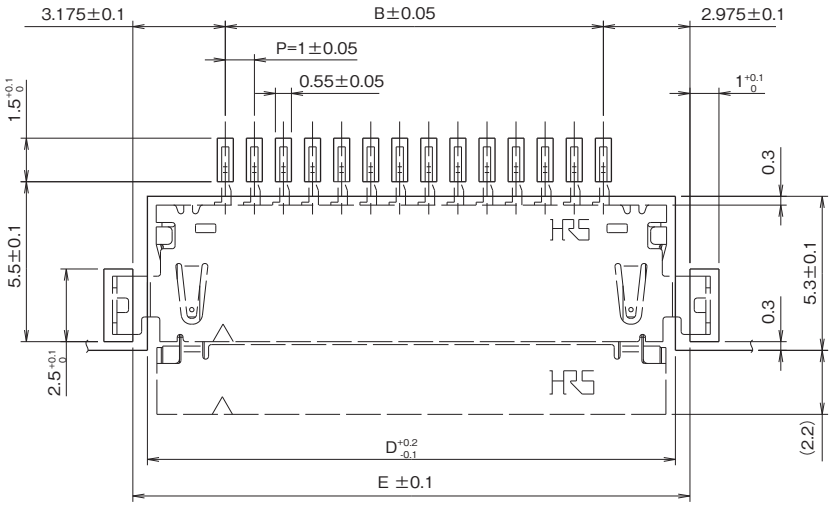
# Right Angle Pin Header (SMT) (Offset Mounted Type)



Pictured mounted on board.




## Recommended PCB Mounting Pattern

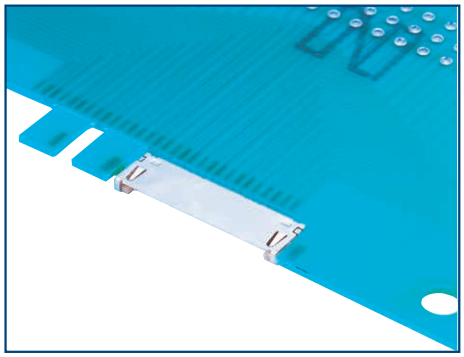



Unit : mm

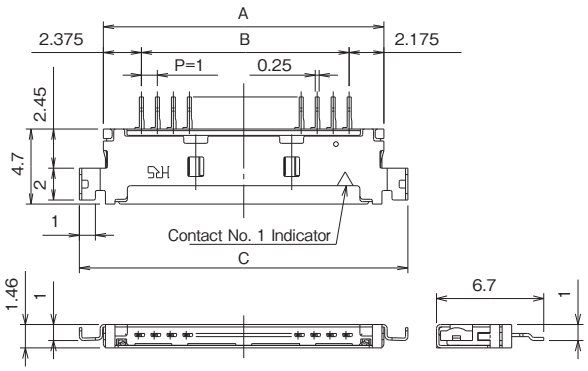
| Part No. | HRS No. | No. of Pos. | A | B | C | D | E | F | Remarks | Purchase Unit |
|---|---|---|---|---|---|---|---|---|---|---|
| DF19K-20P-1H(52) | CL0685-0008-1-52 | 20 | 23.55 | 19.0 | 26.55 | 24.15 | 25.15 | 1.0 | 1.0mm Height Above Board | 1,000pcs per reel |
| DF19K-30P-1H(52) | CL0685-0032-6-52 | 30 | 33.55 | 29.0 | 36.55 | 34.15 | 35.15 | 1.0 | | |
| DF19L-14P-1H(52) | CL0685-0003-8-52 | 14 | 17.55 | 13.0 | 20.55 | 18.15 | 19.15 | 1.1 | 1.1mm Height Above Board | |
| DF19L-20P-1H(52) | CL0685-0019-8-52 | 20 | 23.55 | 19.0 | 26.55 | 24.15 | 25.15 | 1.1 | | |
| DF19L-30P-1H(52) | CL0685-0016-0-52 | 30 | 33.55 | 29.0 | 36.55 | 34.15 | 35.15 | 1.1 | | |

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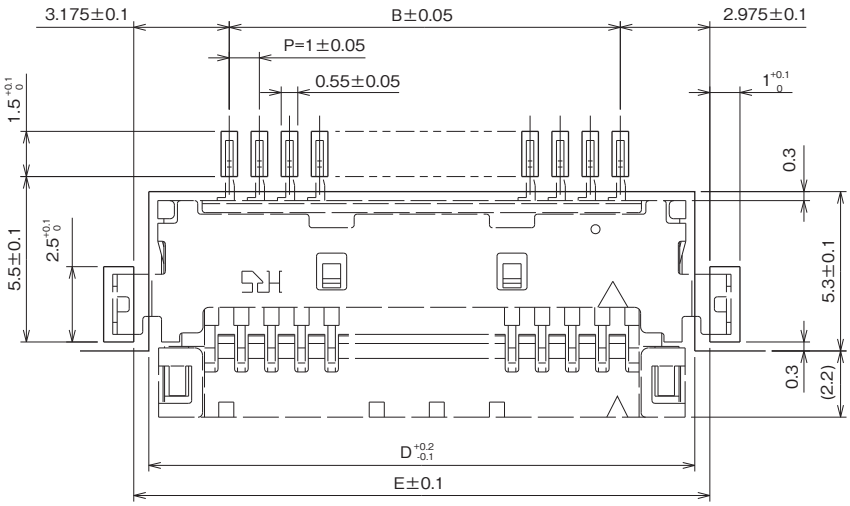
# Right Angle Pin Header (SMT) (Reverse Offset Mounted Type)



Pictured mounted on board.




## Recommended PCB Mounting Pattern

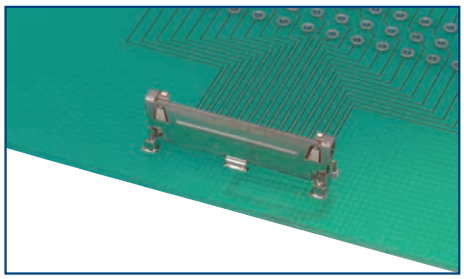



Unit : mm

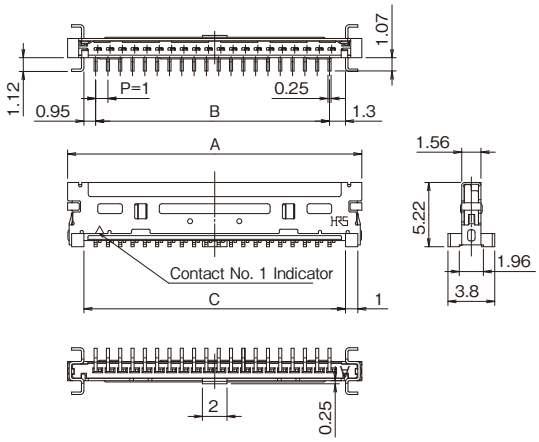
| Part No. | HRS No. | No. of Pos. | A | B | C | D | E | Remarks | Purchase Unit |
|---|---|---|---|---|---|---|---|---|---|
| DF19KR-20P-1H(52) | CL0685-0023-5-52 | 20 | 23.55 | 19.0 | 26.55 | 24.15 | 25.15 | 1.0mm Height Above Board | 1,000pcs per reel |

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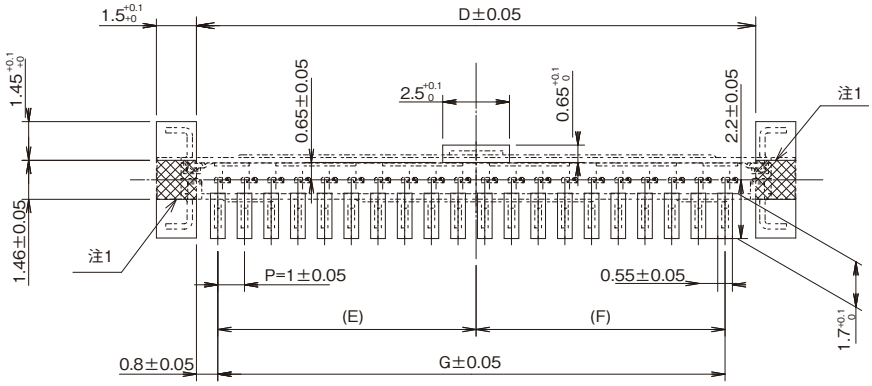
# Straight Pin Header (SMT)



Pictured mounted on board.




## Recommended PCB Mounting Pattern




Note : If there is a pattern on the ⊠ portion and resist is not applied, it may come into contact with the ground plate.

Unit : mm

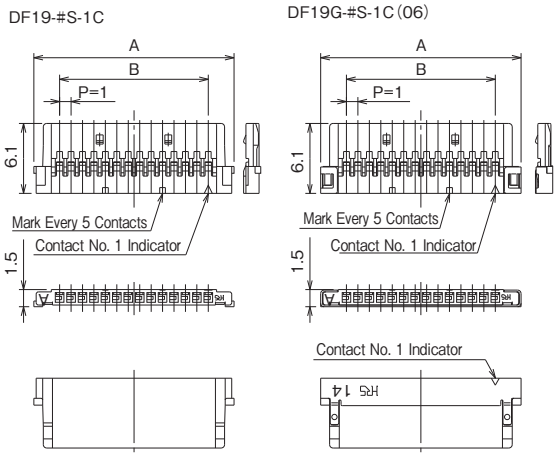
| Part No. | HRS No. | No. of Pos. | A | B | C | D | E | F | G | Purchase Unit |
|---|---|---|---|---|---|---|---|---|---|---|
| DF19-14P-1V(52) | CL0685-0036-7-52 | 14 | 17.9 | 13.0 | 15.25 | 14.95 | 6.675 | 6.325 | 13.0 | 1,000pcs per reel |
| DF19-20P-1V(52) | CL0685-0037-0-52 | 20 | 23.9 | 19.0 | 21.25 | 20.95 | 9.675 | 9.325 | 19.0 | |

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# Single Row Socket (Cable Type)



Shown with terminated and installed contacts




Unit : mm

| Part No. | HRS No. | No. of Pos. | A | B | Purchase Unit |
|---|---|---|---|---|---|
| DF19-8S-1C | CL0685-0029-1-00 | 8 | 11.5 | 7.0 | 100pcs per bag |
| DF19-14S-1C | CL0685-0012-9-00 | 14 | 17.5 | 13.0 | |
| DF19-20S-1C | CL0685-0011-6-00 | 20 | 23.5 | 19.0 | |
| DF19-30S-1C | CL0685-0013-1-00 | 30 | 33.5 | 29.0 | |

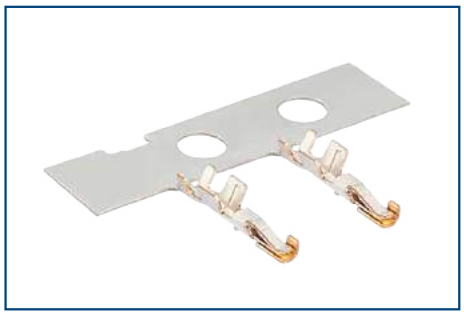
## With Exterior Shell (EMI Prevention Specification)

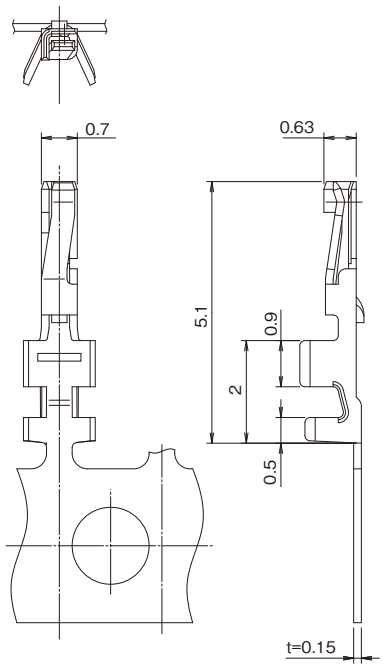
Unit : mm

| Part No. | HRS No. | No. of Pos. | A | B | Purchase Unit |
|---|---|---|---|---|---|
| DF19G-8S-1C(06) | CL0685-0022-2-06 | 8 | 11.5 | 7.0 | 100pcs per bag |
| DF19G-14S-1C(06) | CL0685-0005-3-06 | 14 | 17.5 | 13.0 | |
| DF19G-20S-1C(06) | CL0685-0007-9-06 | 20 | 23.5 | 19.0 | |
| DF19G-30S-1C(06) | CL0685-0014-4-06 | 30 | 33.5 | 29.0 | |

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# Socket Crimp Contacts






| Part No. | HRS No. | Purchase Unit (##) : Blank | Purchase Unit (##) : (41) |
|---|---|---|---|
| DF19A-2830SCFA(##) | CL0685-0048-6-## | 10,000pcs per reel | 20,000pcs per reel |
| DF19A-3032SCFA(##) | CL0685-0046-0-## | | |
| DF19A-36SCFA(##) | CL0685-0047-3-## | | |

## Applicable Wire (Tin Plated Annealing Copper Wire)

| Part No. | UL | Wire Size | Stranded Wire Structure | Sectional Area | Jacket Diameter | Strip Length |
|---|---|---|---|---|---|---|
| DF19A-2830SCFA(##) | 1571 (Thin Type) | 28 AWG<br>30 AWG | 7/0.127mm<br>7/0.1mm | 0.089mm$^2$<br>0.055mm$^2$ | $\phi$ 0.5-0.6mm | 1.2-1.9mm |
| DF19A-3032SCFA(##) | | 30 AWG<br>32 AWG | 7/0.1mm<br>7/0.08mm | 0.055mm$^2$<br>0.035mm$^2$ | | |
| DF19A-36SCFA(##) | | 36 AWG | 7/0.05mm | 0.014mm$^2$ | $\phi$ 0.27mm | |

Note 1 : Please contact a Hirose sales representative when using cables other than those specified.
Note 2 : Contact your Hirose sales representative when using 36 AWG.

## Applicable Tools

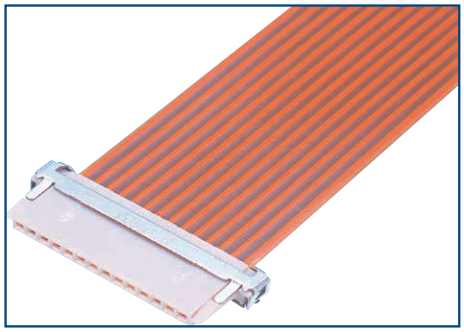
| Type | Part No. | HRS No. | Applicable Contact |
|---|---|---|---|
| Applicator | AP105-DF19S | CL0901-4571-3-00 | DF19A-2830SCFA(##)<br>DF19A-3032SCFA(##) |
| Press Unit | CM-105C | CL0901-0001-0-00 | - |

Note 1 : Please conduct crimping work according to the "Crimping Quality Standard" (ETAD-H0945-00)" and "Crimping Condition Table".
Note 2 : Issues with non-Hirose specified tools are outside the scope of warranty.
Note 3 : Contact your Hirose sales representative when using 36 AWG.
Note 4 : When non-authorized tools are used, please consult with Hirose sales representative about provision of the drawing of the crimping tool.

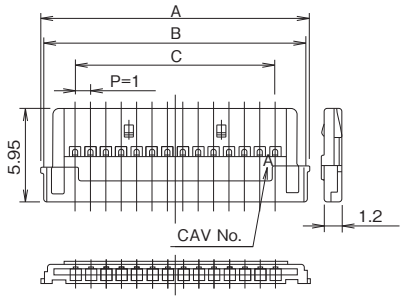
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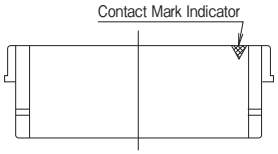
# Single Row Socket (FPC Type)

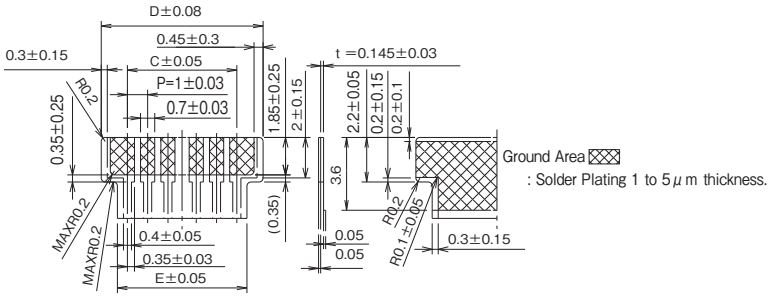
Note : Socket and grounding plate is required.



Shown terminated with FPC.




Signal Area : Solder Plating 1 to 5μm thickness.

Unit : mm

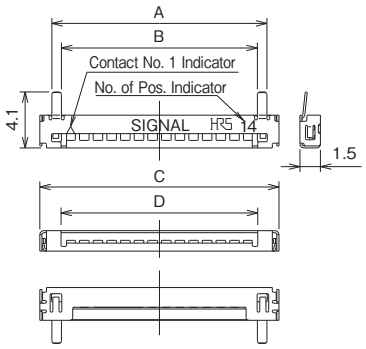
| Part No. | HRS No. | No. of Pos. | A | B | C | D | E | Purchase Unit |
|---|---|---|---|---|---|---|---|---|
| DF19G-14S-1F(05) | CL0685-0017-2-05 | 14 | 17.5 | 17.1 | 13.0 | 15.6 | 14.0 | 100pcs per bag |
| DF19G-20S-1F(05) | CL0685-0009-4-05 | 20 | 23.5 | 23.1 | 19.0 | 21.6 | 20.0 | |
| DF19G-30S-1F(05) | CL0685-0033-9-05 | 30 | 33.5 | 33.1 | 29.0 | 31.6 | 30.0 | |

Note : When using in combination with the right angle pin header (Top Board Type), mount on the edge of the PCB.

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# Ground Plate for FPC




Unit : mm

| Part No. | HRS No. | No. of Pos. | A | B | C | D | Purchase Unit |
|---|---|---|---|---|---|---|---|
| DF19G-14S-1F-GND(06) | CL0685-0018-5-06 | 14 | 15.75 | 14.35 | 17.5 | 14.4 | 100pcs per bag |
| DF19G-20S-1F-GND(06) | CL0685-0010-3-06 | 20 | 21.75 | 20.35 | 23.5 | 20.4 | |
| DF19G-30S-1F-GND(06) | CL0685-0034-1-06 | 30 | 31.75 | 30.35 | 33.5 | 30.4 | |

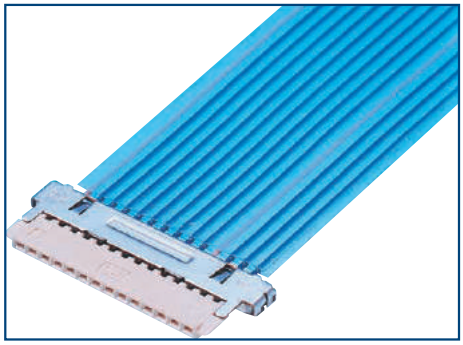
## Applicable Assembly Tools

| Type | Part No. | HRS No. |
|---|---|---|
| Desktop tool (for 14pos.) | DF19G-14S/PR-MD2 | CL0902-4514-6-00 |
| Desktop tool (for 20pos.) | DF19G-20S/PR-MD2 | CL0902-4513-3-00 |
| Desktop tool (for 30pos.) | DF19G-30S/PR-MD2 | CL0902-4518-7-00 |

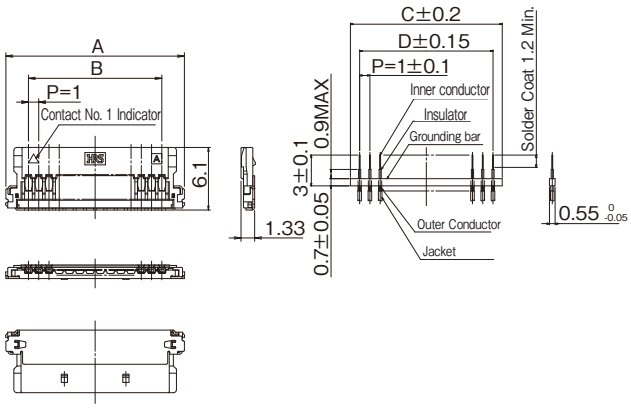
Note : Issues caused by tools other than those specified for Hirose are outside the scope of warranty.

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# Single Row Socket (Micro-coaxial)



Shown terminated with micro-coaxial cable.




Note 1 : The pitch misalignment prevention tape can be connected without cutting, but please use a durable material.
Note 2 : The inner conductor must be soldered in advance.
Note 3 : When using a two position coaxial line, there are some pin arrangements that cannot be used due connector protrusion. Please check the official specifications.

Unit : mm

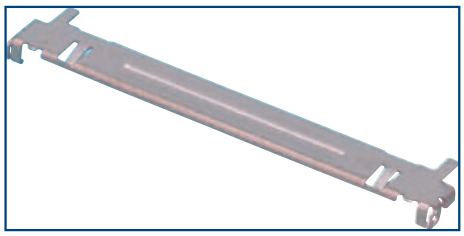
| Part No. | HRS No. | No. of Pos. | A | B | C | D | Purchase Unit |
|---|---|---|---|---|---|---|---|
| DF19G-14S-1SD(06) | CL0685-0026-3-06 | 14 | 17.4 | 13.0 | 14.8 | 13.0 | 100pcs per bag |
| DF19G-20S-1SD(06) | CL0685-0025-0-06 | 20 | 23.4 | 19.0 | 20.8 | 19.0 | |

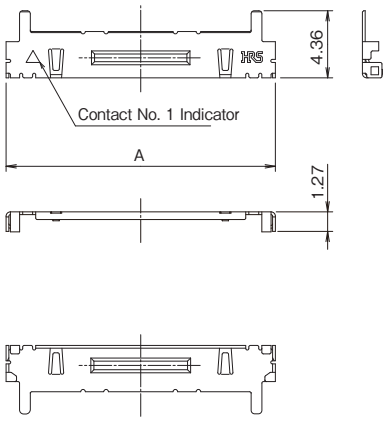
## Applicable Cable (Micro-coaxial Cable)

| Wire Size (Core Wire Configuration) | Jacket Diameter |
|---|---|
| 40 AWG (7 / 0.03mm) | ϕ 0.3-0.4mm |

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# Grounding Plate for Micro-coaxial Cable





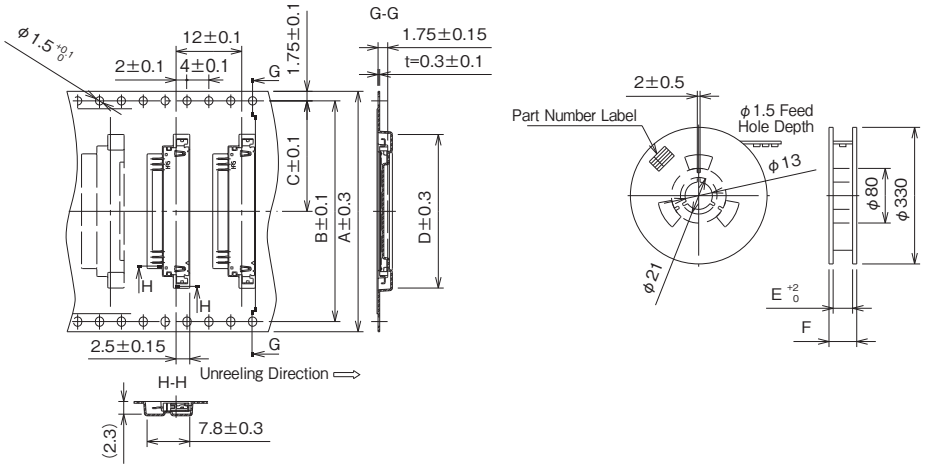

Unit : mm

| Part No. | HRS No. | No. of Pos. | A | Purchase Unit |
|---|---|---|---|---|
| DF19G-14S-1SD-GND | CL0685-0028-9-00 | 14 | 17.5 | 100pcs per bag |
| DF19G-20S-1SD-GND | CL0685-0027-6-00 | 20 | 23.5 | |

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# Embossed Carrier Tape Dimensions (JIS-C-0806 Standard)

- DF19G-#P-1H(52)
- DF19K-#P-1H(52)
- DF19L-#P-1H(52)

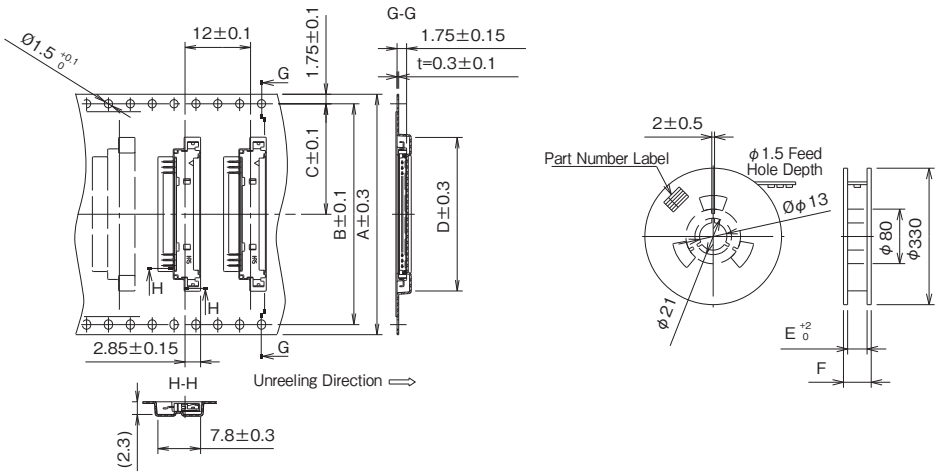



Unit : mm

| Part No. | No. of Pos. | A | B | C | D | E | F | Remarks |
|---|---|---|---|---|---|---|---|---|
| DF19G-8P-1H(52) | 8 | 24.0 | - | 11.5 | 16.1 | 24.4 | 30.4 | Top-board Mounted (1.65mm Height) |
| DF19G-14P-1H(52) | 14 | 44.0 | 40.4 | 20.2 | 22.1 | 44.4 | 50.4 | |
| DF19G-20P-1H(52) | 20 | 44.0 | 40.4 | 20.2 | 28.1 | 44.4 | 50.4 | |
| DF19G-30P-1H(52) | 30 | 56.0 | 50.2 | 26.2 | 38.1 | 56.4 | 62.4 | |
| DF19K-20P-1H(52) | 20 | 44.0 | 40.4 | 20.2 | 28.1 | 44.4 | 50.4 | Offset Mounted (1.0mm Height) |
| DF19K-30P-1H(52) | 30 | 56.0 | 52.4 | 26.2 | 38.1 | 56.4 | 62.4 | |
| DF19L-14P-1H(52) | 14 | 44.0 | 40.4 | 20.2 | 22.1 | 44.4 | 50.4 | Offset Mounted (1.1mm Height) |
| DF19L-20P-1H(52) | 20 | 44.0 | 40.4 | 20.2 | 28.1 | 44.4 | 50.4 | |
| DF19L-30P-1H(52) | 30 | 56.0 | 52.4 | 26.2 | 38.1 | 56.4 | 62.4 | |

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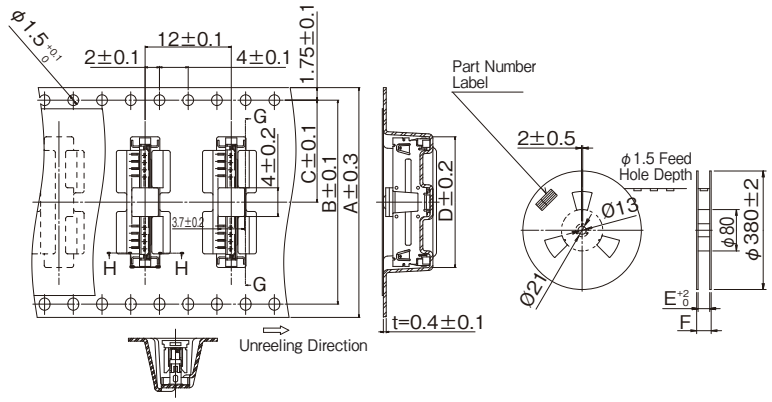
## ●DF19KR-20P-1H(52)




Unit : mm

| Part No. | No. of Pos. | A | B | C | D | E | F | Remarks |
|---|---|---|---|---|---|---|---|---|
| DF19KR-20P-1H(52) | 20 | 44.0 | 40.4 | 20.2 | 28.1 | 44.4 | 50.4 | Reverse type of DF19K<br>Offset Mounted（1.0mm Height） |

## ●DF19-#P-1V(52)




Unit : mm

| Part No. | No. of Pos. | A | B | C | D | E | F | Remarks |
|---|---|---|---|---|---|---|---|---|
| DF19-14P-1V(52) | 14 | 32.0 | 28.4 | 14.2 | 18.2 | 32.4 | 38.4 | Straight Type |
| DF19-20P-1V(52) | 20 | 44.0 | 40.4 | 20.2 | 24.2 | 44.4 | 50.4 | |

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# Crimping Precautions

## ■ Items Required Prior to Crimping

The work-related documents shown below are required before starting harness assembly.
(The ● mark represents required documents.)
Please contact your Hirose sales representative if you do not have these documents.

| Document Title | Description | Automatic Crimping Machine | Hand Crimping Tool | Remarks |
|---|---|---|---|---|
| ① Crimping Machine Main Unit Instruction Manual | Explanation of main press unit | ● | - | Bundled with purchase of main press machine unit. |
| ② Applicator Instruction Manual | Crimp Method | ● | - | Bundled with purchase of applicator. |
| ③ Applicator Spare Parts List | Applicator Installation Instruction | ● | - | |
| ④ Crimp Conditions | Crimp height, tensile strength standard value | ● | - | |
| ⑤ Crimp Quality Standards | Various standards for crimping conditions | ● | - | |
| ⑥ Hand Tool Operating Instructions | Crimp method, crimp height and tensile height standard value | - | ● | Bundled with purchase of hand tool. |
| ⑦ Cable Assembly | Cable assembly | ● | ● | Contact a Hirose sales representative. |

## ■ Tools

・Use tools designated by Hirose when crimping.
・Crimping performed using tools other than those specified is outside the scope of warranty.
・The operating instructions are available for the crimping machine and the applicator. Be sure to carefully read the operating instructions manual before beginning work.

## ■ Applicable Cables

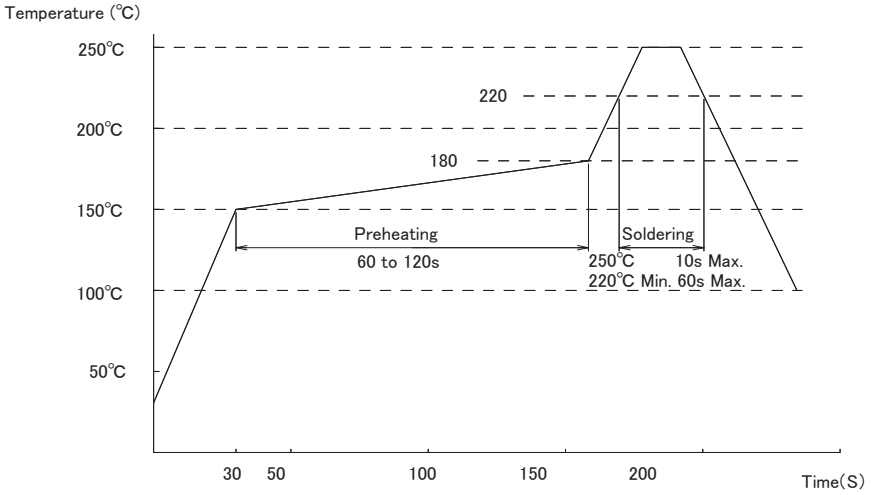
Check that the cables to be used are within the applicable range.
If you intend to use a cable other than those recommended, contact a sales representative.

**[Precautions]**
・Cables applicable to crimping connectors are tin-plated stranded soft-copper wire.
・Avoid crimping solid wire, wires with polyester threads or tin coated wires.
・Avoid crimping two cables together.
・The crimp height setting values (Note) may vary between tin-plated and gold-plated terminals even if the same electric wires are used.
・The crimp height setting values (Note) may vary depending on the difference in the core wire configuration even if the computed cross-sectional area is the same.

Note : The crimp height is an important item that determines crimping quality. We execute crimping tests for each electric wire to ensure the optimal value for the crimp height with high precision, thereby ensuring optimal setup values.

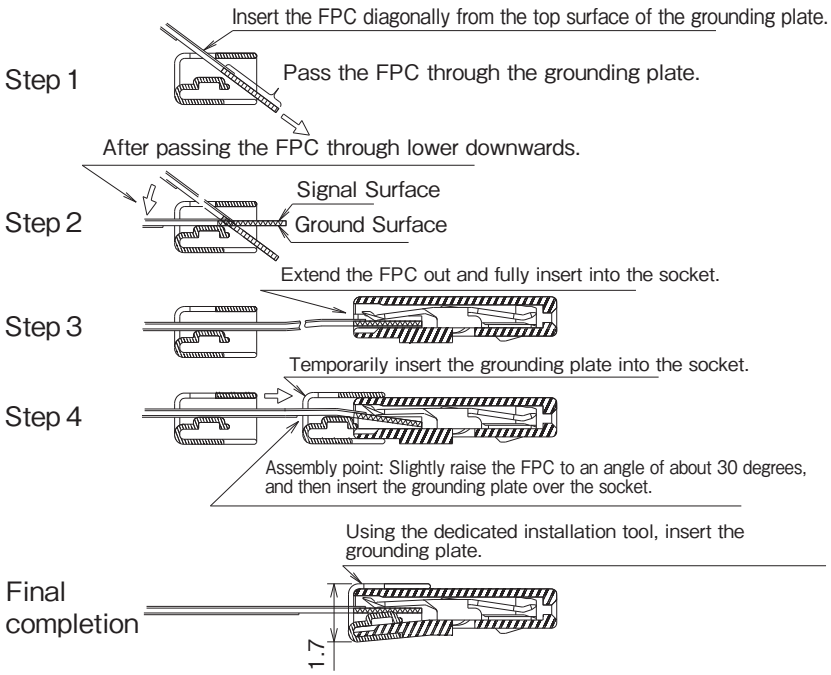
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# Precautions

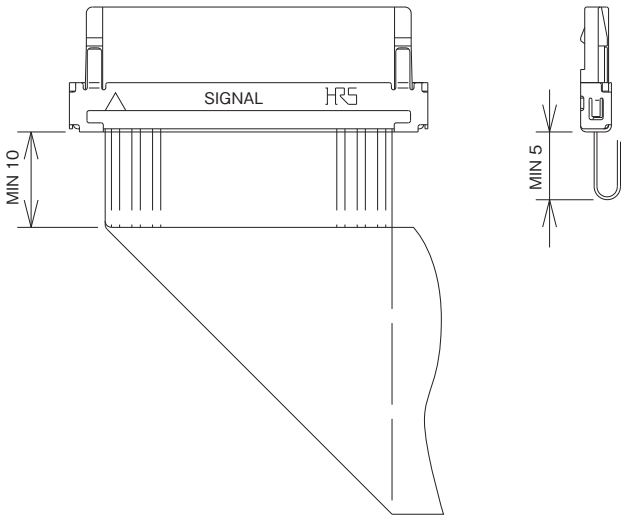
| | |
|---|---|
| 1. Recommended Temperature Profile | <br>Note 1 : Up to 2 cycles of reflow soldering are possible under the same conditions, provided that there is a return to normal temperature between the first and second cycle.<br>Note 2 : The temperature profile indicates the temperature of the surface of the connector lead.<br>Note 3 : The color of the grounding plate may change color, although this does not affect the product performance. |
| 2. Recommended Manual Soldering Conditions | Manual soldering : 350±10℃ for 5 seconds |
| 3. Recommended Metal Mask Thickness | 0.15mm |
| 4. Board Warpage | Maximum of 0.03mm at the connector center, with both ends of the connector as reference points. |
| 5. Cleaning Conditions | Refer to "Wire-to-Board Connector Use Handbook." |
| 6. Termination Conditions | Refer to "Wire-to-Board Connector Use Handbook." |
| 7. Cautions | ■ Excessive prying during mating and unmating may result in damage.<br>■ Black spots may appear on the mold resin but this does not affect the product quality. |
| 8. Handling | Please refer to the following documents when handling the product.<br>■ Crimp Quality Standard (ETAD-H9045-00)<br>■ Wire-to-Board Connector Use Handbook<br>■ Cable Assembly Procedure (ETAD-H0963-00) |

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# Single Row Socket (FPC Type) Assembly Method




Note 1 : The grounding plate and the socket are supplied as separate components.
Note 2 : Dedicated assembly tools are required for assembly.
Note 3 : When temporarily inserting the ground plate, the FPC can be easily inserted by lightly lifting the FPC up to 30° and designing a self-alignment guide.
However, if excessive force (bending, twisting, etc.) is applied to the FPC, the FPC (edge of the cover film) copper foil may crack.
Note 4 : If the ground plate cannot be inserted, make sure it is aligned parallel to the socket and do not force it in.
Note 5 : To protect the FPC, insert and remove the connector parallel to the mating surface.
Note 6 : To protect the FPC, do not apply excessive tension.
Note 7 : Refer to the FPC manufacture recommended bending radius and other specifications. Distance should be allowed for bending as shown below.




Note 8 : When terminating the FPC there is a risk of misuse of the tools, or injury from the ridge on the metal part of the connector, etc. Follow the terminal tools instruction manual to ensure proper termination.

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## While Taking into Consideration

Specifications mentioned in this catalog are reference values.
When considering to order or use this product, please review the Drawing and Product Specifications sheets.
Use an appropriate cable when using the connector in combination with cables.
If considering usage of a non-specified cable, please contact your sales representative.
If assembly process is done by jigs & tools which are not identified by Hirose, the warranty of the product may be affected.
If considering usage for below mentioned applications, please contact your sales representative.
In cases where the application will demand a high level of reliability, such as automotive, medical instruments, public infrastructure, aerospace/ defense etc. Hirose must review before assurance of reliability can be given.

HIROSE

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https://www.hirose.com

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## Hirose Electric:

RM12BRD-2PH(81) ZH05-20DP-HU(B) DF36A-25P-SHL DF59M-2224PCF FX18-60S-0.8SH ZE05-24DP-2H FH41-50S-0.5SH(28) DF17(3.0)-40DS-0.5V(57) DF33C-4S-3.3C DF65-4P-1.7V(21) RM15TRH-10PH(81) ZE05H-4P-2V(A) ZE064W-8DP-HU/R(A) DF19A-3032SCFA(41) DF52-4P-0.8C DF62C-4S-2.2C FH41-30S-0.5SH(05) FX8-120S-SV(22) GT8E-6S-HU RM15TP-2PA(81) ZE05H-12DP-2H BM29B0.6-4DS/2-0.35V(51) DF40C-50DP-0.4V(51) FX18-80S-0.8SH HDE-CTH(10) DF57AH-5S-1.2C FH35C-19S-0.3SHW(50) DF11-16DP-2DSA(24) DF22A-1416SCFA FH72-21S-0.3SHW