

## DF60 Series

# 65A 10.16mm pitch Wire-to-Board Connectors for Internal Power Supply (UL, C-UL, TÜV Certified)



Power Supply



Positive-Lock



Compact



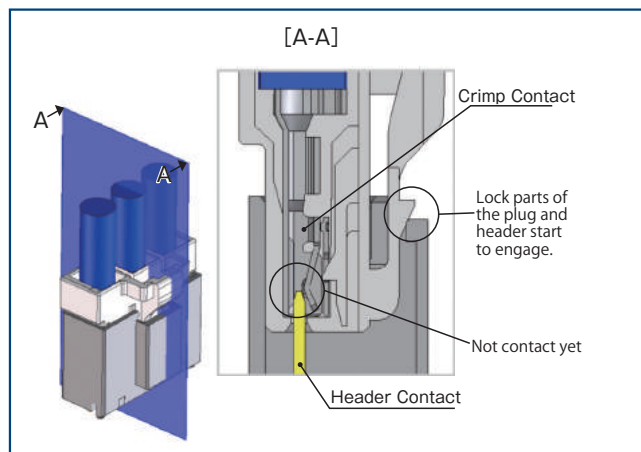
## Features

### 1. Rated for up to 65A

DF60 has the capacity to handle a Max. of 65A when using 8 AWG wire with the single position connector. (Please refer to the chart for the rated current in other pin counts.)

### 2. Secure Lock Design Ensures Complete Mating

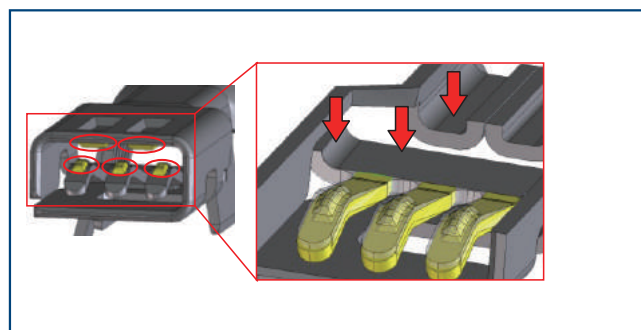
The locking design delivers a clear and tactile click, which prevents incomplete mating and reduces burden on workers for improved work efficiency.



Lock Design

### 3. Highly Reliable 5-Points Contact Design

Three independent contact springs provide a secure and high contact reliability using 5-Points contact.



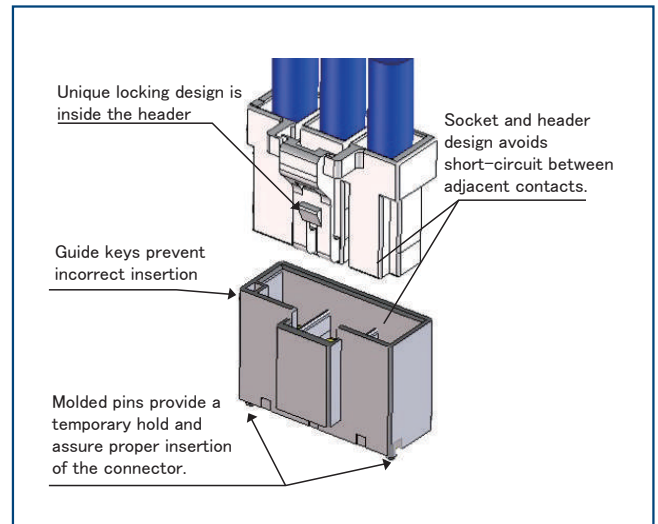
5-Points Contact

### 4. Molded Lance Design

The lance is actually part of the housing instead of being part of the terminal. This prevents tangled wires during assembly.

## 5. Reverse Mounting Prevention to PCB

The addition of a molded pin on the header allows temporary mounting retention and prevents reverse mounting on the PCB. (Right angle pin header has a metal fitting for this purpose.)



## 6. Short-Circuit Prevention

The wall design between the contacts helps to isolate the contacts and prevent short circuits between contacts.

## 7. Solder Crack Prevention

Glass-reinforced resin is used on the pin header to prevent solder cracks due to thermal contraction.

## 8. UL, C-UL and TÜV Specifications Certified

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

## 10. Finger-Safe (Electric Shock Prevention) Type Available

Product Specifications

|                           |              |           |           |           |                          |                        |
|---------------------------|--------------|-----------|-----------|-----------|--------------------------|------------------------|
| Rated Current<br>(Note 1) | No. of Pos.  | 8 AWG     | 10 AWG    | 12 AWG    | Operating Temperature    | -55 to +105°C (Note 2) |
|                           | 1            | 50A / pin | 40A / pin | 31A / pin | Storage Temperature      | -10 to 60°C (Note 3)   |
|                           | 2            | 45A / pin | 35A / pin | 28A / pin | Operating Humidity Range | 20 to 80%              |
|                           | 3            | 42A / pin | 34A / pin |           | Storage Humidity Range   | 40 to 70% (Note 3)     |
|                           | 4            |           | 33A / pin | 27A / pin |                          |                        |
|                           | 5            |           |           |           |                          |                        |
|                           | 6            |           |           |           |                          |                        |
| Rated Voltage             | 1,000V AC/DC |           |           |           |                          |                        |

|      |               |                                             |               |            |
|------|---------------|---------------------------------------------|---------------|------------|
| UL   | Rated Current | See below table                             | Rated Voltage | 600V AC/DC |
| C-UL |               | See above table<br>(Temperature rise: 30°C) |               |            |
| TÜV  |               | See above table                             |               |            |

UL/TÜV File No. and Certification No. :  
UL : E52653  
C-UL : E52653  
TÜV : R50244085  
: R50400864 (DF60F)

|                                                                      |             |           |           |           |
|----------------------------------------------------------------------|-------------|-----------|-----------|-----------|
| UL Rated Current<br>(At an ambient temp. of 25°C )<br>(Note1)(Note5) | No. of Pos. | 8 AWG     | 10 AWG    | 12 AWG    |
|                                                                      | 1           | 65A / pin | 55A / pin | 45A / pin |
|                                                                      | 2           |           |           | 40A / pin |
|                                                                      | 3           | 55A / pin | 50A / pin |           |
|                                                                      | 4           |           | 45A / pin | 35A / pin |
|                                                                      | 5           |           |           |           |
|                                                                      | 6           |           |           |           |



| Items                  | Specifications                                                                      | Conditions                                                                                                                |
|------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| Insulation Resistance  | 1000M $\Omega$ Min.                                                                 | Measured at 1000V DC                                                                                                      |
| Withstanding Voltage   | No flashover or insulation breakdown                                                | 3000V AC rms for 1 min                                                                                                    |
| Contact Resistance     | 2m $\Omega$ Max.                                                                    | Measured at 1A and 6V Max.                                                                                                |
| Vibration Resistance   | No electrical discontinuity of 1 $\mu$ s or more.                                   | Frequency : 10 to 500Hz, Acceleration of 98 m/s <sup>2</sup><br>2 hours in each of the 3 directions                       |
| Shock Resistance       | No electrical discontinuity of 1 $\mu$ s or more.                                   | Acceleration of 490m/s <sup>2</sup> , 11ms, Sine halfwave :<br>3 times each in 3 axial directions                         |
| Humidity Resistance    | Contact Resistance : 2m $\Omega$ Max.<br>Insulation Resistance : 1000M $\Omega$ Min | 96 hours at temperature of 40 $\pm$ 2 $^{\circ}$ C and humidity of 90% to 95%                                             |
| Temperature Cycles     | Contact Resistance : 2m $\Omega$ Max.<br>Insulation Resistance : 1000M $\Omega$ Min | -55 $^{\circ}$ C : 30 minutes $\rightarrow$ 85 $^{\circ}$ C : 30 minutes, 25 cycles                                       |
| Mating Durability      | Contact Resistance : 2m $\Omega$ Max.                                               | 30 times                                                                                                                  |
| Solder Heat Resistance | No dissolution of the resin part affecting performance.                             | Flow : 260 $^{\circ}$ C , 10sec.<br>Hand soldering : temperature of soldering iron at 350 $\pm$ 10 $^{\circ}$ C for 5sec. |

Note 1 : This is the maximum current rating while all pins are energized with the stated current rating.  
When isolating power lines into multiple circuits, current ratings may go above the stated current ratings.  
Please consult Hirose for details before doing this.

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 : Information contained in this catalog represents general requirements for this Series.  
Contact us for the drawings and specifications for a specific part number shown.

Note 5 : It shows the current at an ambient temperature of 25 $^{\circ}$ C to the RTI value, the temperature at which performance is halved, of the resin.

Materials / Finish

| Item          | Component     | Material                       | Color / Finish | Remarks | RoHS2 |
|---------------|---------------|--------------------------------|----------------|---------|-------|
| Header        | Insulator     | PBT (Glass-reinforced)         | Black          | UL94V-0 | ○     |
|               | Contact       | High Conductivity Copper Alloy | Gold Plating   | —       |       |
|               | Retention Tab | Brass                          | Tin Plating    | —       |       |
| Crimp Socket  | Insulator     | PBT (Glass-reinforced)         | Black          | UL94V-0 |       |
| In-Line Plug  | Insulator     | PBT (Glass-reinforced)         | Black          | UL94V-0 |       |
| Crimp Contact | Contact       | High Conductivity Copper Alloy | Gold Plating   | —       |       |

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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.

### Header Connetor

**DF60 F R - # P - 10.16 DSA**

①      ② ③      ④ ⑤      ⑥      ⑦

|                  |                                           |                    |                                                          |
|------------------|-------------------------------------------|--------------------|----------------------------------------------------------|
| ① Series Name    | DF60                                      | ⑤ Connector Type   | P : Pin Header                                           |
| ② Shape Type     | Blank : Standard<br>F : Finger-Safe       | ⑥ Contact Pitch    | 10.16mm                                                  |
| ③ Guide Key Type | Blank : Standard<br>R : Another Key Shape | ⑦ Termination Type | DSA : Straight Pin Header<br>DS : Right Angle Pin Header |
| ④ No. of Pos.    | 1, 2, 3, 4, 5, 6                          |                    |                                                          |

### Socket Connector

**DF60 F R - # S - 10.16 C**

①      ② ③      ④ ⑤      ⑥      ⑦

|                  |                                           |                    |                  |
|------------------|-------------------------------------------|--------------------|------------------|
| ① Series Name    | DF60                                      | ⑤ Connector Type   | S : Socket       |
| ② Shape Type     | A : Standard<br>F : Finger-Safe           | ⑥ Contact Pitch    | 10.16mm          |
| ③ Guide Key Type | Blank : Standard<br>R : Another Key Shape | ⑦ Termination Type | C : Crimp Socket |
| ④ No. of Pos.    | 1, 2, 3, 4, 5, 6                          |                    |                  |

### In-Line Plug Connector

**DF60 F R - # EP - 10.16 C**

①      ② ③      ④ ⑤      ⑥      ⑦

|                  |                                                      |                    |                   |
|------------------|------------------------------------------------------|--------------------|-------------------|
| ① Series Name    | DF60                                                 | ⑤ Connector Type   | EP : In-Line Plug |
| ② Shape Type     | Blank : Standard<br>A : No Flange<br>F : Finger-Safe | ⑥ Contact Pitch    | 10.16mm           |
| ③ Guide Key Type | Blank : Standard<br>R : Another Key Shape            | ⑦ Termination Type | C : Crimp Socket  |
| ④ No. of Pos.    | 1, 2, 3, 4, 5                                        |                    |                   |

### Crimp Contact

**DF60 A - 8 SCFA**

①      ②      ③

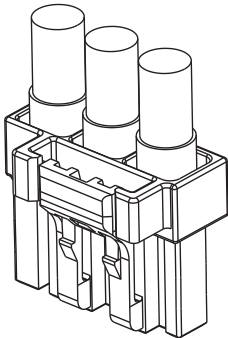
|                           |                                    |                                    |                                                                                                                                              |
|---------------------------|------------------------------------|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| ① Connection Type         | Blank : Standard<br>A : Sequential | ③ Contact Type /<br>Packaging Type | SCFA : Socket Contact/Reel<br>SCA : Socket Contact/Loose Piece<br>PCFA : In-Line Plug Contact/Reel<br>PCA : In-Line Plug Contact/Loose Piece |
| ② Applicable Wire<br>Size | 8 : 8 AWG<br>1012 : 10 to 12 AWG   |                                    |                                                                                                                                              |

Connector Mating Combinations Diagram

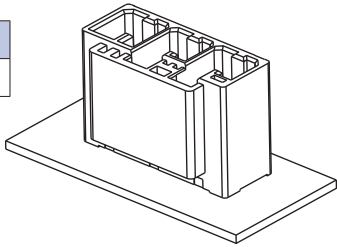
●Finger-Safe Type

| Crimp Socket (Cable Side)  | Socket Crimp Contact |
|----------------------------|----------------------|
| DF60F(R) -#S-10.16C (Note) | DF60-#SC(F) A        |

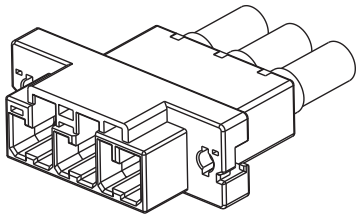
Note : R type (another key shape) socket mates with another key type of R type plug / pin header.



| Straight Pin Header   |
|-----------------------|
| DF60F(R) -#P-10.16DSA |



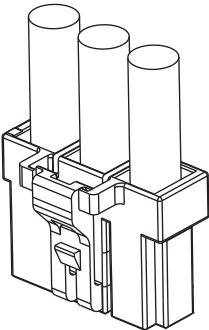
| In-Line Plug (Cable Side) | Crimp Contact for In-Line Plug |
|---------------------------|--------------------------------|
| DF60F(R) -#EP-10.16C      | DF60-#PC(F) A                  |



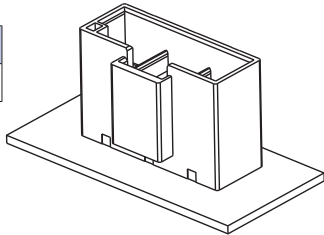
●Standard Type

| Crimp Socket (Cable Side)  | Socket Crimp Contact |
|----------------------------|----------------------|
| DF60A(R) -#S-10.16C (Note) | DF60-#SC(F) A        |

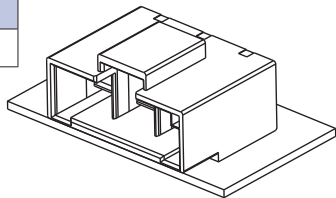
Note : R type (another key shape) socket mates with another key type of R type plug / pin header.



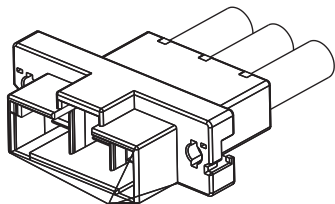
| Straight Pin Header  |
|----------------------|
| DF60(R) -#P-10.16DSA |



| Right Angle Pin Header |
|------------------------|
| DF60(R) -#P-10.16DS    |



| In-Line Plug (Cable Side) | Crimp Contact for In-Line Plug |
|---------------------------|--------------------------------|
| DF60(A) (R) -#EP-10.16C   | DF60(A) -#PC(F) A              |



## Straight Pin Header (Finger-Safe Type)



Standard Key Shape (2pos.)



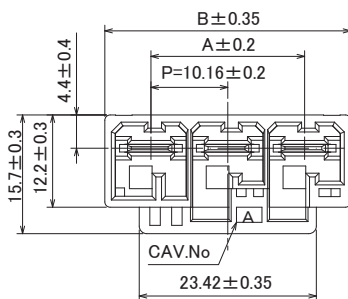
Standard Key Shape (3pos.)



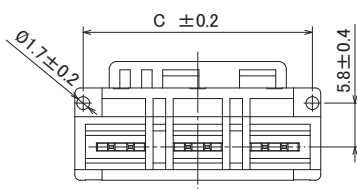
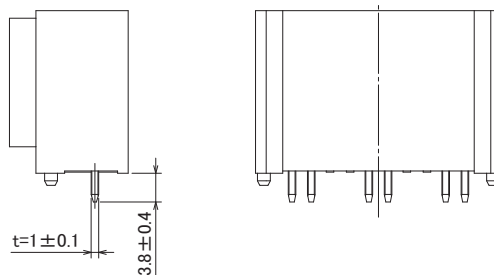
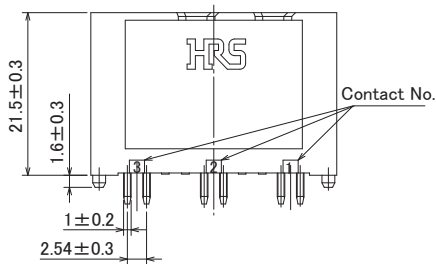
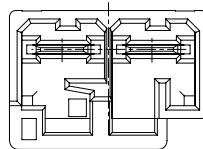
Another Key Shape (2pos.)



Another Key Shape (3pos.)



Mated Portion Shape  
(2pos.)



Standard Type (Guide Key : Standard, Color : Black)

Unit : mm

| Part No.              | HRS No.          | No. of Pos. | A     | B     | C     | D     | E     | Purchase Unit  |
|-----------------------|------------------|-------------|-------|-------|-------|-------|-------|----------------|
| DF60F-2P-10.16DSA(50) | CL0680-4007-0-50 | 2           | 10.16 | 22.36 | 20.15 | 22.36 | 17.94 | 96pcs per tray |
| DF60F-3P-10.16DSA(50) | CL0680-4001-0-50 | 3           | 20.32 | 32.52 | 30.31 | 32.52 | 28.1  | 64pcs per tray |

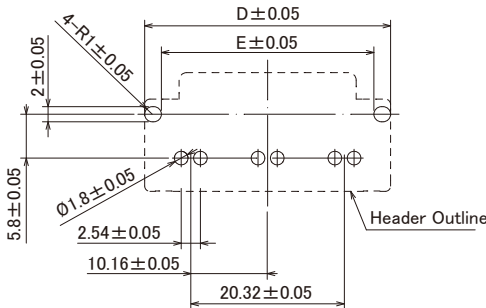
R Type (Guide Key : Another Key Shape, Color : Red)

Unit : mm

| Part No.               | HRS No.          | No. of Pos. | A     | B     | C     | D     | E     | Purchase Unit  |
|------------------------|------------------|-------------|-------|-------|-------|-------|-------|----------------|
| DF60FR-2P-10.16DSA(50) | CL0680-4010-0-50 | 2           | 10.16 | 22.36 | 20.15 | 22.36 | 17.94 | 96pcs per tray |
| DF60FR-3P-10.16DSA(50) | CL0680-4004-0-50 | 3           | 20.32 | 32.52 | 30.31 | 32.52 | 28.1  | 64pcs per tray |

Note : As for UL,C-UL and TÜV standard of the two positions are in the process of being certified.

■PCB Mounting Pattern (Recommended Board Thickness : t=1.6±0.1)



In-Line Plug (Finger-Safe Type)



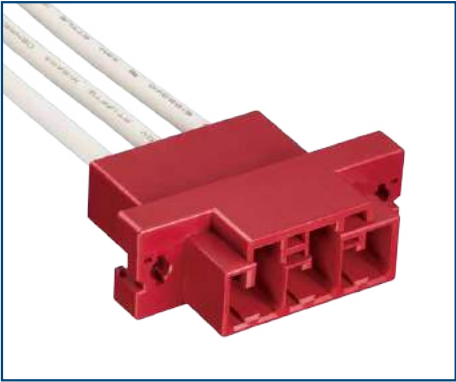
Standard Key Shape (2pos.)



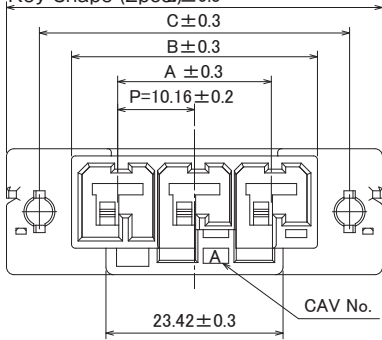
Standard Key Shape (3pos.)



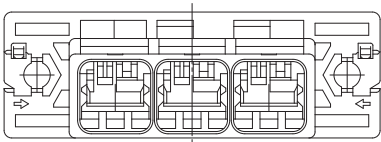
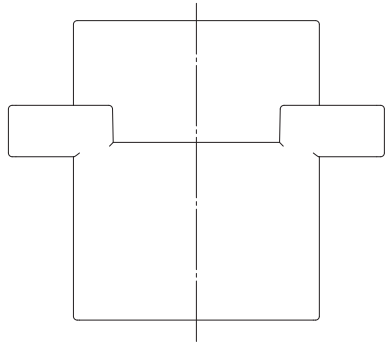
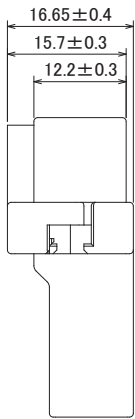
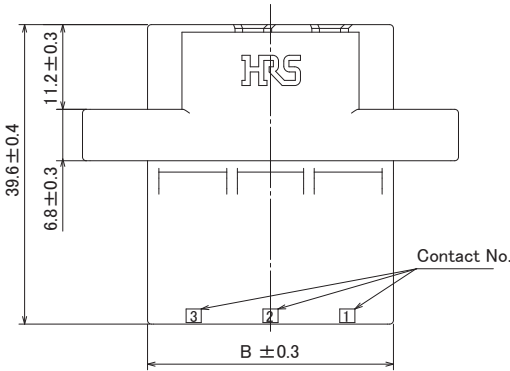
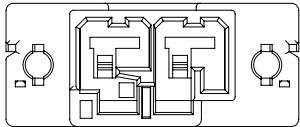
Another Key Shape (2pos.)



Another Key Shape (3pos.)



Mated Portion Shape  
(2pos.)



Standard Type (Guide Key : Standard, Color : Black)

Unit : mm

| Part No.         | HRS No.          | No. of Pos. | A     | B     | C     | D     | E     | Purchase Unit   |
|------------------|------------------|-------------|-------|-------|-------|-------|-------|-----------------|
| DF60F-2EP-10.16C | CL0680-4009-0-00 | 2           | -     | 22.36 | 30.86 | 39.56 | 22.36 | 100pcs per tray |
| DF60F-3EP-10.16C | CL0680-4003-0-00 | 3           | 20.32 | 32.52 | 41.02 | 49.72 | 32.52 |                 |

R Type (Guide Key : Another Key Shape, Color : Red)

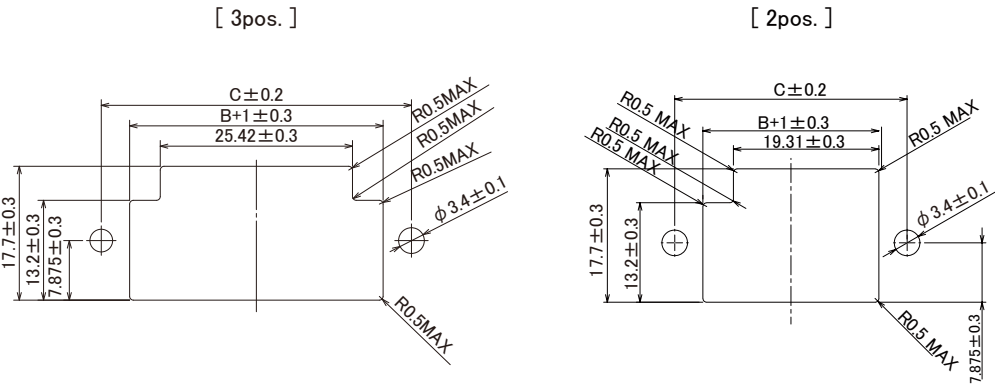
Unit : mm

| Part No.          | HRS No.          | No. of Pos. | A     | B     | C     | D     | E     | Purchase Unit   |
|-------------------|------------------|-------------|-------|-------|-------|-------|-------|-----------------|
| DF60FR-2EP-10.16C | CL0680-4012-0-00 | 2           | -     | 22.36 | 30.86 | 39.56 | 22.36 | 100pcs per tray |
| DF60FR-3EP-10.16C | CL0680-4006-0-00 | 3           | 20.32 | 32.52 | 41.02 | 49.72 | 32.52 |                 |

Note 1 : For better finger-safe function, heat shrink tube shall be installed to crimp contact of in-line plug.  
(Recommended heat shrink tube : Sumitomo Electric Industries, Ltd. F2(Z)8×0.25)  
For the details, please see DF60 cable assembly procedure. (ETAD-H0653-00)

Note 2 : As for UL,C-UL and TÜV standard of the two positions are in the process of being certified.

■Panel Cut-Out Dimensions



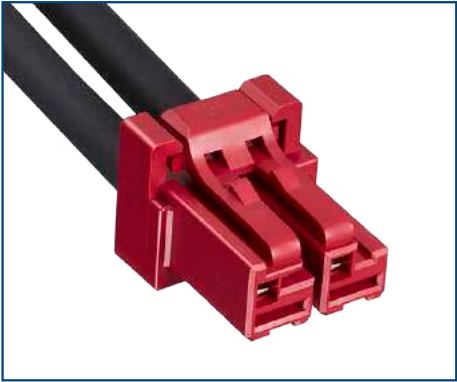
Crimp Socket (Finger-Safe Type)



Standard Key Shape (2pos.)



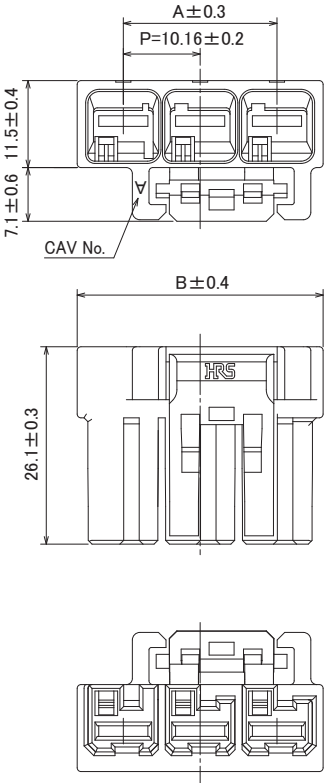
Standard Key Shape (3pos.)



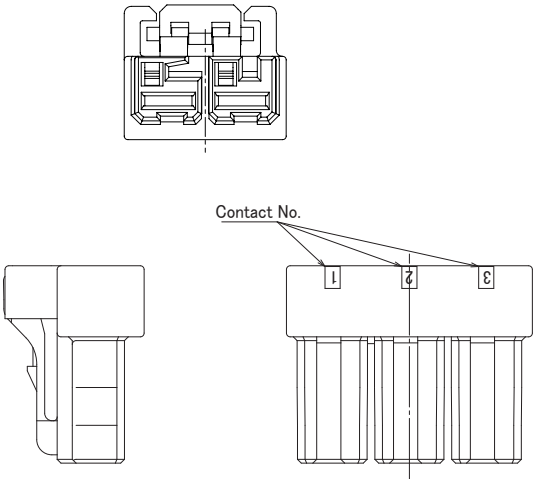
Another Key Shape (2pos.)



Another Key Shape (3pos.)



Mated Portion Shape (2pos.)



Standard Type (Guide Key : Standard, Color : Black)

Unit : mm

| Part No.        | HRS No.          | No. of Pos. | A     | B     | Purchase Unit   |
|-----------------|------------------|-------------|-------|-------|-----------------|
| DF60F-2S-10.16C | CL0680-4008-0-00 | 2           | 10.16 | 22.36 | 100pcs per tray |
| DF60F-3S-10.16C | CL0680-4002-0-00 | 3           | 20.32 | 32.52 |                 |

R Type (Guide Key : Another Key Shape, Color : Red)

Unit : mm

| Part No.         | HRS No.          | No. of Pos. | A     | B     | Purchase Unit   |
|------------------|------------------|-------------|-------|-------|-----------------|
| DF60FR-2S-10.16C | CL0680-4011-0-00 | 2           | 10.16 | 22.36 | 100pcs per tray |
| DF60FR-3S-10.16C | CL0680-4005-0-00 | 3           | 20.32 | 32.52 |                 |

Note1 : For better finger-safe function, heat shrink tube shall be installed to crimp contact of socket.  
(Recommended heat shrink tube : Sumitomo Electric Industries, Ltd. F2(Z)8 × 0.25)  
For the details, please see DF60 cable assembly procedure. (ETAD-H0653-00)

Note 2 : As for UL,C-UL and TÜV standard of the two positions are in the process of being certified.

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Straight Pin Header

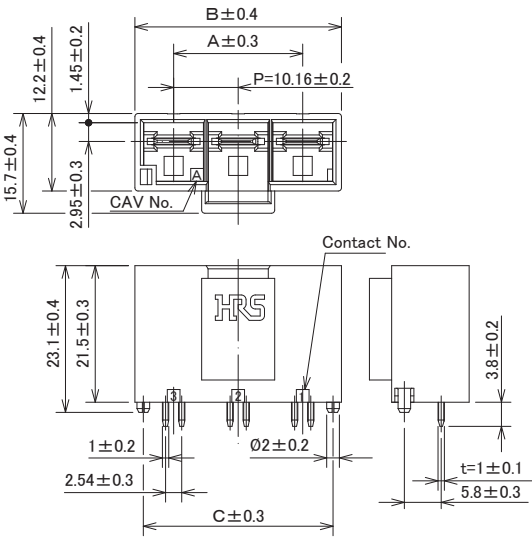


3pos.

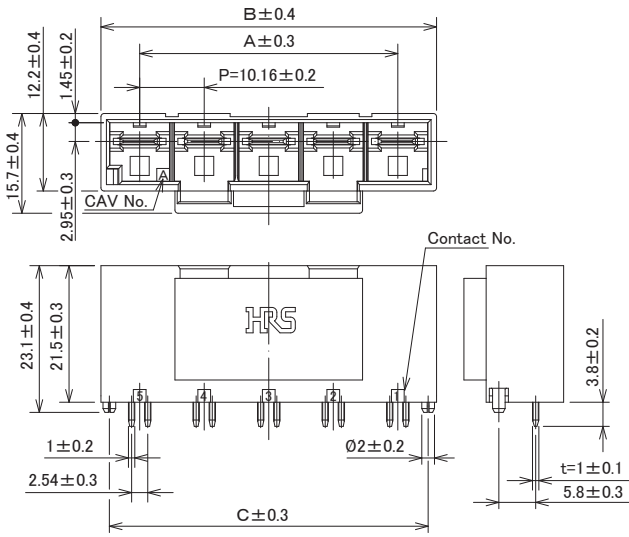


5pos.

1 to 4pos.



5 and 6pos.



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Standard Type (Guide Key : Standard, Color : Black)

Unit : mm

| Part No.             | HRS No.          | No. of Pos. | A     | B     | C     | D     | E     | Purchase Unit   |
|----------------------|------------------|-------------|-------|-------|-------|-------|-------|-----------------|
| DF60-1P-10.16DSA(27) | CL0680-3004-5-27 | 1           | -     | 15.2  | 9.55  | 12.2  | 7.78  | 160pcs per tray |
| DF60-2P-10.16DSA(27) | CL0680-3005-8-27 | 2           | 10.16 | 22.36 | 19.71 | 22.36 | 17.94 | 96pcs per tray  |
| DF60-3P-10.16DSA(27) | CL0680-3001-7-27 | 3           | 20.32 | 32.52 | 29.87 | 32.52 | 28.1  | 64pcs per tray  |
| DF60-4P-10.16DSA(27) | CL0680-3006-0-27 | 4           | 30.48 | 42.68 | 40.03 | 42.68 | 38.26 | 48pcs per tray  |
| DF60-5P-10.16DSA(27) | CL0680-3007-3-27 | 5           | 40.64 | 52.84 | 50.19 | 52.84 | 48.42 | 32pcs per tray  |
| DF60-6P-10.16DSA(27) | CL0680-3008-6-27 | 6           | 50.8  | 63    | 60.35 | 63    | 58.58 |                 |

Standard Type [Colored] (Guide Key : Standard, Color : Red)

Unit : mm

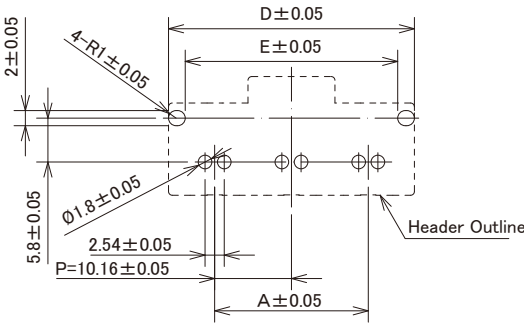
| Part No.             | HRS No.          | No. of Pos. | A     | B     | C     | D     | E     | Purchase Unit  |
|----------------------|------------------|-------------|-------|-------|-------|-------|-------|----------------|
| DF60-2P-10.16DSA(45) | CL0680-3005-8-45 | 2           | 10.16 | 22.36 | 19.71 | 22.36 | 17.94 | 96pcs per tray |
| DF60-3P-10.16DSA(45) | CL0680-3001-7-45 | 3           | 20.32 | 32.52 | 29.87 | 32.52 | 28.1  | 64pcs per tray |

R Type (Guide Key : Another Key Shape, Color : Red)

Unit : mm

| Part No.              | HRS No.          | No. of Pos. | A     | B     | C     | D     | E    | Purchase Unit  |
|-----------------------|------------------|-------------|-------|-------|-------|-------|------|----------------|
| DF60R-3P-10.16DSA(27) | CL0680-3038-7-27 | 3           | 20.32 | 32.52 | 29.87 | 32.52 | 28.1 | 64pcs per tray |

■PCB Mounting Pattern (Recommended Board Thickness : t=1.6±0.1)



Right Angle Pin Header

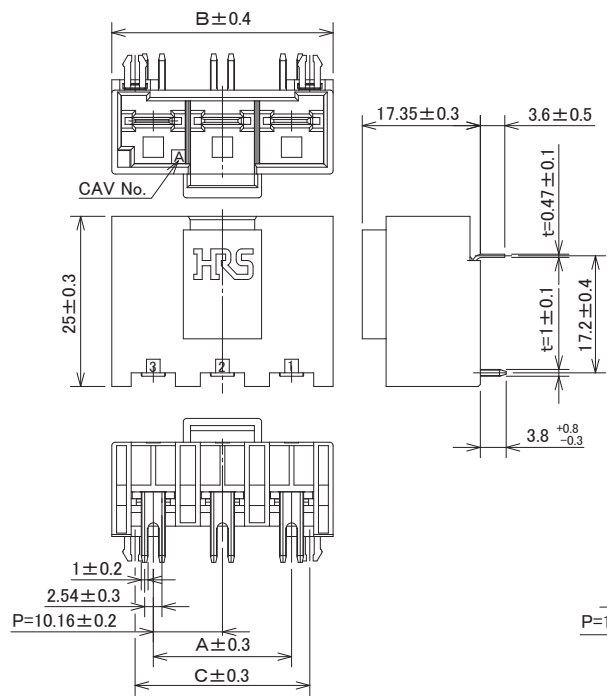


3pos.

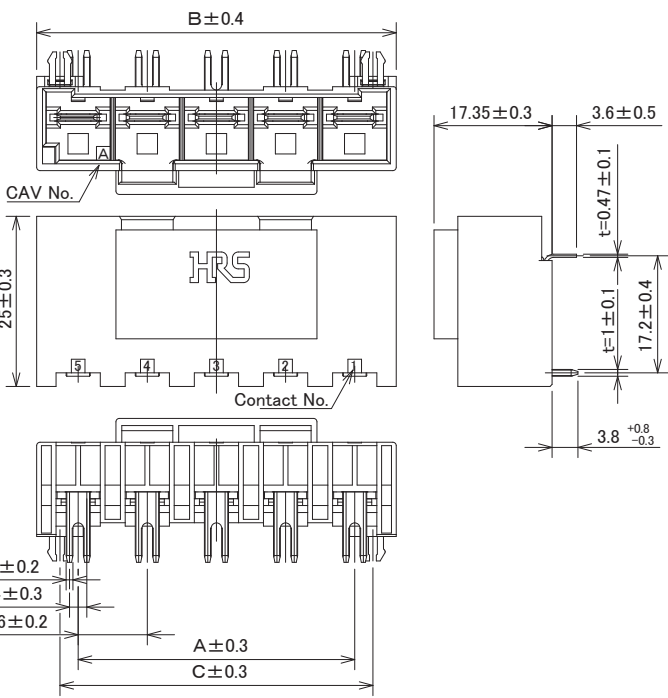


5pos.

1 to 4pos.



5 and 6pos.



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Standard Type (Guide Key : Standard, Color : Black)

Unit : mm

| Part No.            | HRS No.          | No. of Pos. | A     | B     | C     | Purchase Unit   |
|---------------------|------------------|-------------|-------|-------|-------|-----------------|
| DF60-1P-10.16DS(27) | CL0680-3015-1-27 | 1           | -     | 15.2  | 8.35  | 120pcs per tray |
| DF60-2P-10.16DS(27) | CL0680-3016-4-27 | 2           | 10.16 | 22.36 | 15.51 | 72pcs per tray  |
| DF60-3P-10.16DS(27) | CL0680-3017-7-27 | 3           | 20.32 | 32.52 | 25.67 | 48pcs per tray  |
| DF60-4P-10.16DS(27) | CL0680-3018-0-27 | 4           | 30.48 | 42.68 | 35.83 | 36pcs per tray  |
| DF60-5P-10.16DS(27) | CL0680-3019-2-27 | 5           | 40.64 | 52.84 | 45.99 | 24pcs per tray  |
| DF60-6P-10.16DS(27) | CL0680-3020-1-27 | 6           | 50.8  | 63    | 56.15 |                 |

Standard Type [Colored] (Guide Key : Standard, Color : Red)

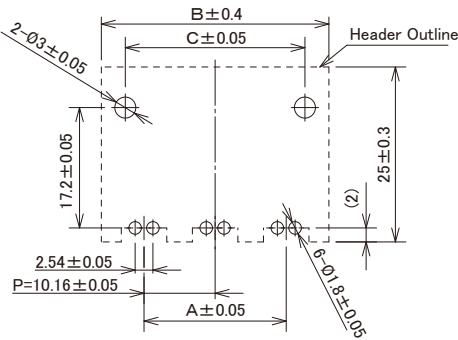
| Part No.            | HRS No.          | No. of Pos. | A     | B     | C     | Purchase Unit  |
|---------------------|------------------|-------------|-------|-------|-------|----------------|
| DF60-2P-10.16DS(45) | CL0680-3016-4-45 | 2           | 10.16 | 22.36 | 15.51 | 72pcs per tray |

R Type (Guide Key : Another Key Shape, Color : Gray)

Unit : mm

| Part No.             | HRS No.          | No. of Pos. | A     | B     | C     | Purchase Unit  |
|----------------------|------------------|-------------|-------|-------|-------|----------------|
| DF60R-2P-10.16DS(27) | CL0680-3043-7-27 | 2           | 10.16 | 22.36 | 15.51 | 72pcs per tray |
| DF60R-3P-10.16DS(27) | CL0680-3044-0-27 | 3           | 20.32 | 32.52 | 25.67 | 48pcs per tray |

■PCB Mounting Pattern (Recommended Board Thickness : t=1.6±0.1)



In-Line Plug

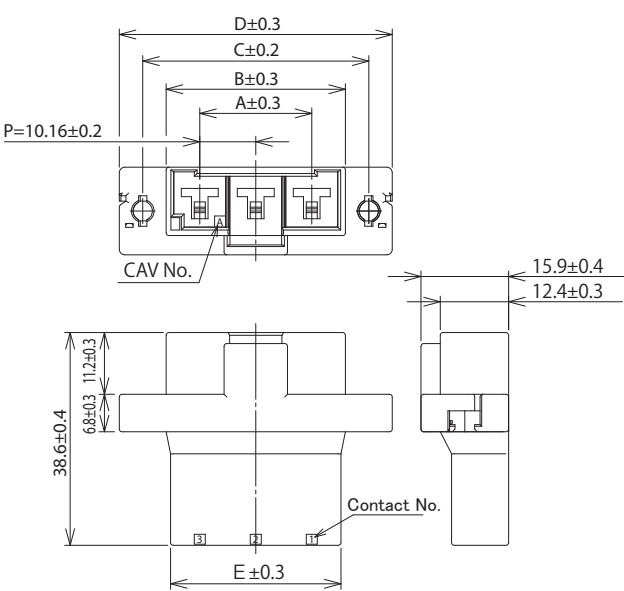


Standard Type (3pos.)

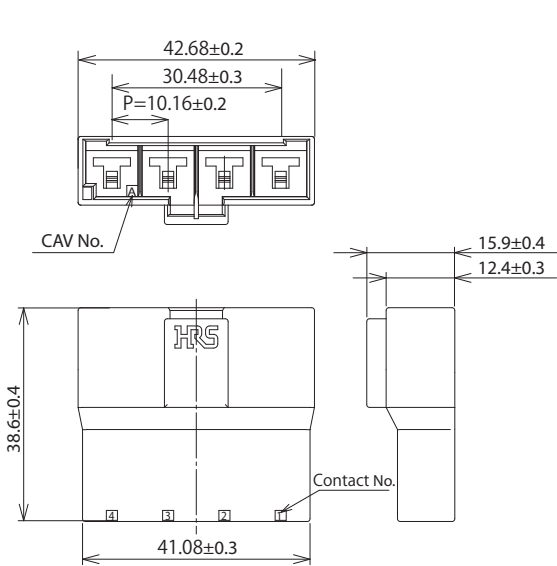


Without Flange Type (4pos.)

Standard Type (1 to 5pos.)



Without Flange Type (4pos.)



Standard Type (Guide Key : Standard, Color : Black)

Unit : mm

| Part No.        | HRS No.          | No. of Pos. | A     | B     | C     | D     | E     | Purchase Unit  |
|-----------------|------------------|-------------|-------|-------|-------|-------|-------|----------------|
| DF60-1EP-10.16C | CL0680-3050-2-00 | 1           | -     | 15.2  | 23.7  | 32.2  | 10.6  | 100pcs per bag |
| DF60-2EP-10.16C | CL0680-3025-5-00 | 2           | -     | 22.36 | 30.86 | 39.36 | 20.76 |                |
| DF60-3EP-10.16C | CL0680-3026-8-00 | 3           | 20.32 | 32.52 | 41.02 | 49.52 | 30.92 |                |
| DF60-4EP-10.16C | CL0680-3027-0-00 | 4           | 30.48 | 42.68 | 51.18 | 59.68 | 41.08 |                |
| DF60-5EP-10.16C | CL0680-3028-3-00 | 5           | 40.64 | 52.84 | 61.34 | 69.84 | 51.24 |                |

Standard Type [Colored] (Guide Key : Standard, Color : Red)

Unit : mm

| Part No.            | HRS No.          | No. of Pos. | A     | B     | C     | D     | E     | Purchase Unit  |
|---------------------|------------------|-------------|-------|-------|-------|-------|-------|----------------|
| DF60-1EP-10.16C(15) | CL0680-3050-2-15 | 1           | -     | 15.2  | 23.7  | 32.2  | 10.6  | 100pcs per bag |
| DF60-2EP-10.16C(15) | CL0680-3025-5-15 | 2           | -     | 22.36 | 30.86 | 39.36 | 20.76 |                |
| DF60-3EP-10.16C(15) | CL0680-3026-8-15 | 3           | 20.32 | 32.52 | 41.02 | 49.52 | 30.92 |                |

R Type (Guide Key : Another Key Shape, Color : Gray)

Unit : mm

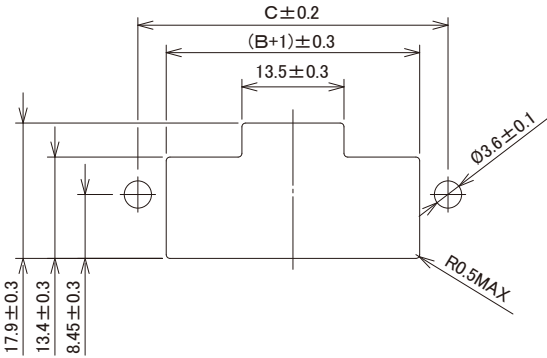
| Part No.         | HRS No.          | No. of Pos. | A     | B     | C     | D     | E     | Purchase Unit  |
|------------------|------------------|-------------|-------|-------|-------|-------|-------|----------------|
| DF60R-2EP-10.16C | CL0680-3053-0-00 | 2           | -     | 22.36 | 30.86 | 39.36 | 20.76 | 100pcs per bag |
| DF60R-3EP-10.16C | CL0680-3054-0-00 | 3           | 20.32 | 32.52 | 41.02 | 49.52 | 30.92 |                |

Without Flange Type (Guide Key : Standard, Color : Black)

Unit : mm

| Part No.         | HRS No.          | No. of Pos. | Purchase Unit  |
|------------------|------------------|-------------|----------------|
| DF60A-4EP-10.16C | CL0680-3069-0-00 | 4           | 100pcs per bag |

■ Panel Cut-Out Dimensions



Crimp Socket



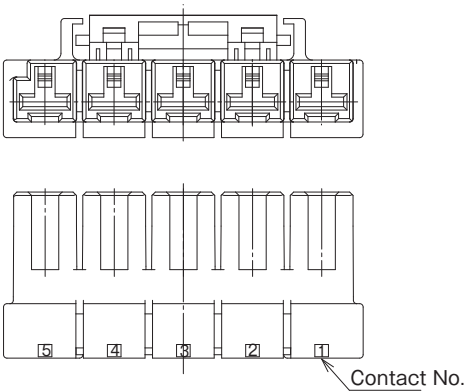
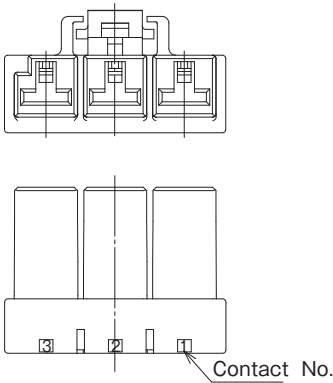
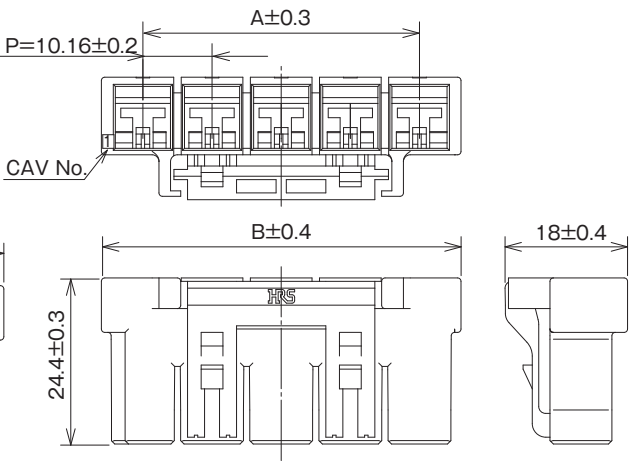
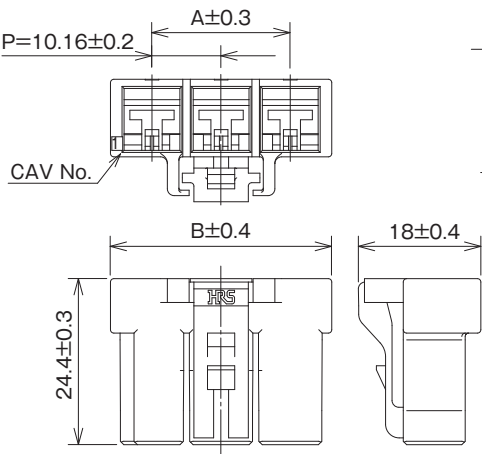
3pos.



5pos.

1 to 4pos.

5 and 6pos.



Standard Type (Guide Key : Standard, Color : Black)

Unit : mm

| Part No.        | HRS No.          | No. of Pos. | A     | B     | Purchase Unit  |
|-----------------|------------------|-------------|-------|-------|----------------|
| DF60A-1S-10.16C | CL0680-3058-0-00 | 1           | -     | 15.8  | 100pcs per bag |
| DF60A-2S-10.16C | CL0680-3059-0-00 | 2           | 10.16 | 22.36 |                |
| DF60A-3S-10.16C | CL0680-3060-0-00 | 3           | 20.32 | 32.52 |                |
| DF60A-4S-10.16C | CL0680-3061-0-00 | 4           | 30.48 | 42.68 |                |
| DF60A-5S-10.16C | CL0680-3076-0-00 | 5           | 40.64 | 52.84 |                |
| DF60A-6S-10.16C | CL0680-3077-0-00 | 6           | 50.8  | 63    |                |

Standard Type [Colored] (Guide Key : Standard, Color : Red)

Unit : mm

| Part No.            | HRS No.          | No. of Pos. | A     | B     | Purchase Unit  |
|---------------------|------------------|-------------|-------|-------|----------------|
| DF60A-1S-10.16C(15) | CL0680-3058-0-15 | 1           | -     | 15.8  | 100pcs per bag |
| DF60A-2S-10.16C(15) | CL0680-3059-0-15 | 2           | 10.16 | 22.36 |                |
| DF60A-3S-10.16C(15) | CL0680-3060-0-15 | 3           | 20.32 | 32.52 |                |

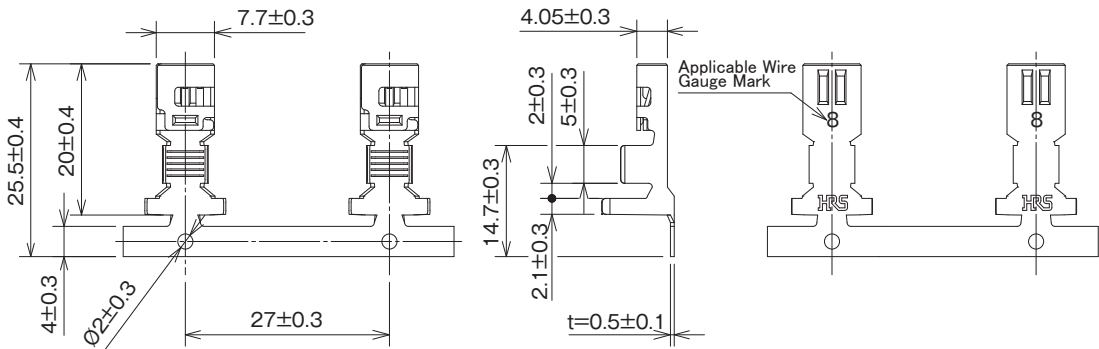
R Type (Guide Key : Another Key Shape, Color : Gray)

Unit : mm

| Part No.         | HRS No.          | No. of Pos. | A     | B     | Purchase Unit  |
|------------------|------------------|-------------|-------|-------|----------------|
| DF60AR-2S-10.16C | CL0680-3063-0-00 | 2           | 10.16 | 22.36 | 100pcs per bag |
| DF60AR-3S-10.16C | CL0680-3064-0-00 | 3           | 20.32 | 32.52 |                |

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Socket Crimp Contact



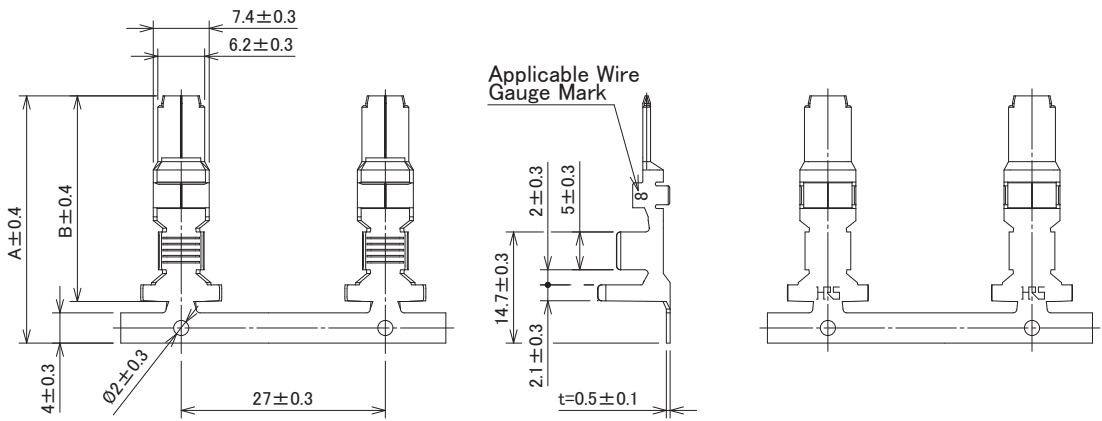
Strip Length : 6.5 to 7.5mm

Unit : mm

| Part No.      | HRS No.          | Applicable Wire (Tin Plated Copper Wire) (Note) |                 |     |                |              |                 |
|---------------|------------------|-------------------------------------------------|-----------------|-----|----------------|--------------|-----------------|
|               |                  | UL                                              | Jacket Diameter | AWG | Core Structure | Packing Type | Purchase Unit   |
| DF60-8SCFA    | CL0680-3003-2-00 | 1283                                            | 4.9 to 7.8      | 8   | 7/24/0.26      | Reel         | 700pcs per reel |
| DF60-8SCA     | CL0680-3021-4-00 |                                                 | 7.54            |     |                | Loose Piece  | 100pcs per bag  |
| DF60-1012SCFA | CL0680-3014-9-00 | 1015                                            | 4 to 5.2        | 10  | 104/0.26       | Reel         | 900pcs per reel |
|               |                  |                                                 |                 | 12  | 65/0.26        |              |                 |
| DF60-1012SCA  | CL0680-3022-7-00 | 1015                                            | 4.69            | 10  | 104/0.26       | Loose Piece  | 100pcs per bag  |
|               |                  |                                                 | 4.04            | 12  | 65/0.26        |              |                 |

Note : Please contact our sales department when using wires other than those listed.

Crimp Contact for In-Line Plug



Strip Length : 6.5 to 7.5mm

Unit : mm

| Part No.            | HRS No.          | A    | B    | Applicable Wire (Tin Plated Copper Wire) (Note 1) |                 |     |                |              |                 |
|---------------------|------------------|------|------|---------------------------------------------------|-----------------|-----|----------------|--------------|-----------------|
|                     |                  |      |      | UL                                                | Jacket Diameter | AWG | Core Structure | Packing Type | Purchase Unit   |
| DF60A-8PCFA(Note 2) | CL0680-3057-0-00 | 34.2 | 28.7 | 1283                                              | 4.9 to 7.8      | 8   | 7/24/0.26      | Reel         | 700pcs per reel |
| DF60-8PCFA(07)      | CL0680-3023-0-07 | 32.7 | 27.2 |                                                   | 7.54            |     |                | Loose Piece  | 100pcs per bag  |
| DF60-8PCA(07)       | CL0680-3048-0-07 |      |      |                                                   |                 |     |                |              |                 |
| DF60-1012PCFA(07)   | CL0680-3024-2-07 | 32.7 | 27.2 | 1015                                              | 4 to 5.2        | 10  | 104/0.26       | Reel         | 900pcs per reel |
|                     |                  |      |      |                                                   |                 | 12  | 65/0.26        |              |                 |
| DF60-1012PCA(07)    | CL0680-3049-3-07 | 32.7 | 27.2 | 1015                                              | 4.69            | 10  | 104/0.26       | Loose Piece  | 100pcs per bag  |
|                     |                  |      |      |                                                   | 4.04            | 12  | 65/0.26        |              |                 |

Note 1 : Please contact our sales department when using wires other than those listed.

Note 2 : Not conforming to finger-safe type.



Applicable Crimping Tool

| Item       | Part No.        | HRS No.          | Applicable Contact                                                       | Remarks                                                   |
|------------|-----------------|------------------|--------------------------------------------------------------------------|-----------------------------------------------------------|
| Applicator | AP105-DF60-8    | CL0901-4623-5-00 | DF60-8SCFA<br>DF60-8PCFA(07)<br>DF60A-8PCFA                              |                                                           |
|            | QHS895700H-UP   | —                |                                                                          | (Note 4)manufactured by Japan Automatic Machine Co., Ltd. |
|            | AP105-DF60-1012 | CL0901-4624-8-00 | DF60-1012SCFA<br>DF60-1012PCFA(07)                                       |                                                           |
|            | QHS888000K-UP   | —                |                                                                          | (Note 4)manufactured by Japan Automatic Machine Co., Ltd. |
| Hand tool  | HT306/DF60-8    | CL0550-0301-4-00 | DF60-8SCA<br>DF60-8PCA(07)<br>*Exclusive for UL1283, 8 AWG               |                                                           |
|            | HT306/DF60-1012 | CL0550-0307-0-00 | DF60-1012SCA<br>DF60-1012PCA(07)<br>*Exclusive for UL1015, 10 and 12 AWG |                                                           |

Note 1 : The Hirose Press Unit CM-105C (HRS No.901-0001-0) has a capacity of 1.5 tons and cannot be used.  
Please use a press unit which can mount official Hirose's applicators and has a capacity of 3 tons or more.

Note 2 : Please contact our Sales Department when you are using crimp tools made by other manufacturers.

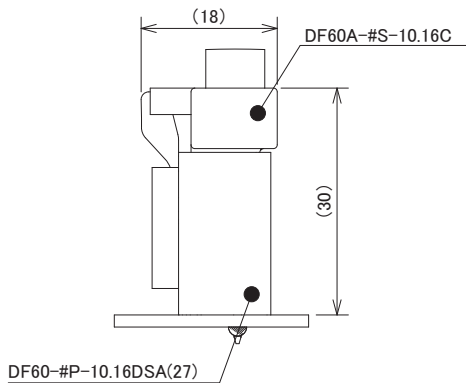
Note 3 : Please do the crimping operations according to the "Crimping work standards" and "Crimping condition table".

Note 4 : Please contact Japan Automatic Machine Co., Ltd. (hereinafter J.A.M.) through their website regarding crimping issues when using applicators manufactured by J.A.M. URL <http://www.jam-net.co.jp>

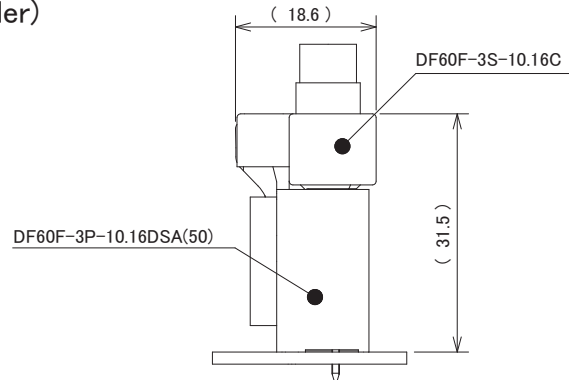
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## Mated Dimensions

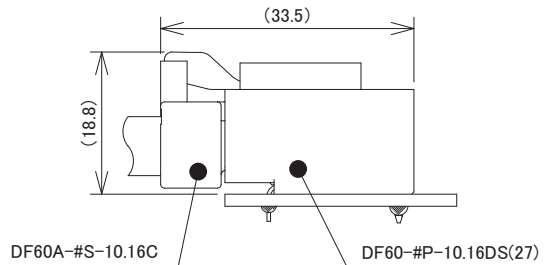
### ● Wire-to-Board Connection (Straight Pin Header)



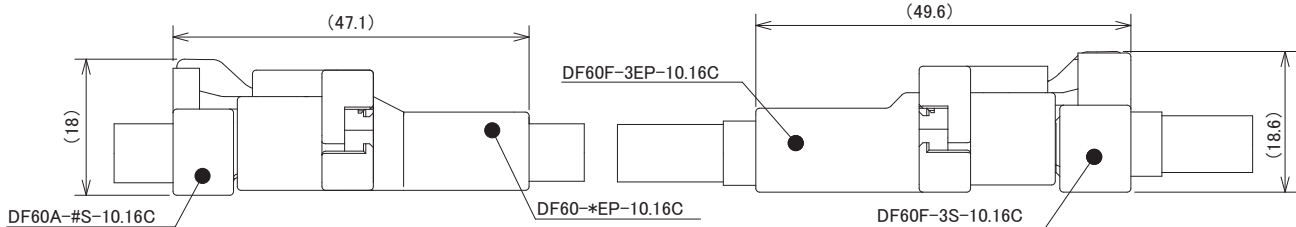
### DF60F (Finger-Safe)



### ● Wire-to-Board Connection (Right Angle Pin Header)

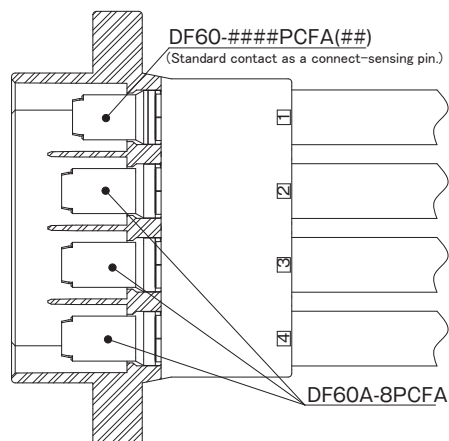
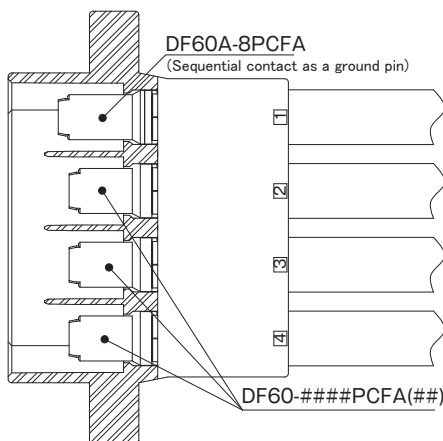


### ● In-Line or Wire-to-Wire Connection



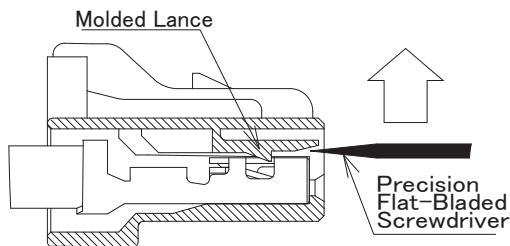
### DF60F (Finger-Safe)

### ▪ Usage Example of Sequential Contact

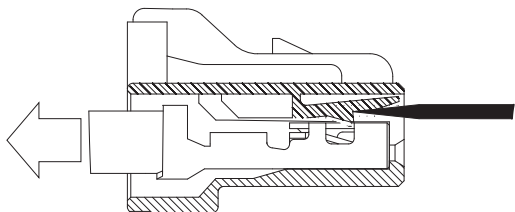


## Contact Extraction

- Contact Extraction Tool : Flat-Bladed Screwdriver, 1.4mm blade width.
- Intended Crimp Contacts : DF60-8SC(F)A, DF60-1012SC(F)A, DF60-8PC(F)A, DF60-1012PC(F)A



1. After unmating the parts, position the flat-bladed screwdriver to raise the lance as shown in the illustration.



2. The lance needs to be raised sufficiently to allow the terminated wire to slip past it. The lance needs to be held up while at the same time pulling on the wire.

\*Due to any previous repairs, the strength of the lance could have been deteriorated.  
Hirose recommends to use new crimp housing to assure proper performance.

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

## Rated Values

Please avoid using the connectors above the ratings. Also, do not hot swap (Note 1).

Note 1 : Hot swap refers to insertion while electricity is running.

## Precautions

### 1. Recommended Soldering Conditions

- Soldering profile when using an automatic soldering device  
Soldering temperature : 260°C, Soldering time : within 10 seconds
- Hand Soldering Conditions  
Temperature of soldering iron : 350±10°C , Soldering time : within 3 seconds

### 2. Cleaning Conditions

Please refer to the "Wire-to-Board Connector Guide".

Cleaning with IPA is allowed. (Other cleaning agents are not recommended due to may have caused changing the push pull feeling. Please contact us when you use other cleaning agents.)

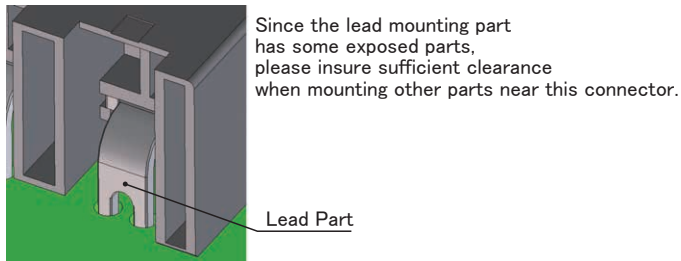
### 3. Important Notes

1. Caution is required for mating and un-mating the connector without it being mounting on a PCB.  
It can damage or deform the contacts.
2. During hand soldering, do not apply flux which can cause creeping-up flux to the connector.
3. This product may have a slight difference in color depending on the production lot.  
This difference does not have any influence on the performance.
4. Black spots may appear on the mold resin but this does not affect the product quality.
5. The connector could be damaged if it is pulled out forcibly. When it is hard to pull out, push it in slightly first and then depress the lock and unmate.  
Please refer to "DF60 Series mating and unmating Procedure Document (ETAD-H0654-00)" for points in handling regarding mating operations.
6. When thick and short wire are used, the connector could be deformed due to the force of the wire's position.  
Route cables in such a way that they do not twist when being installed.
7. Make sure to turn off the power when mating or unmating the connector.
8. Please do not touch any area around the contact part during energizing. It could be very dangerous.
9. Please refer to "Harness procedure manual (ETAD-H0653-00)" for points in harness operations.

### 4. Precautions for use

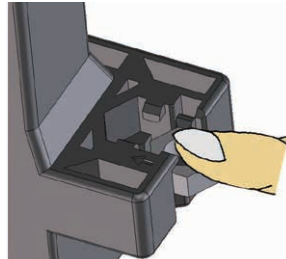
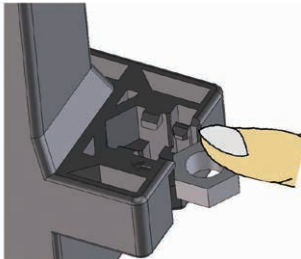
Please refer to the "Board-to-Wire Connector Guidelines (ETAD-H1023-00)".

### 5. Precautions for use of right angle pin header

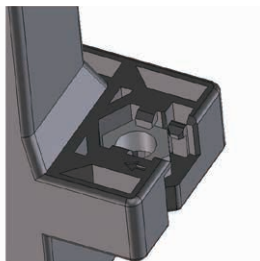


### 6. Panel fixing operation of In-Line connector

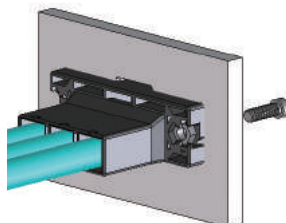
- (1) Insert a M3 nut from the lateral direction.      (2) Push the nut in the direction of the arrow.



- (3) Nut insertion is then complete.



- (4) Panel mounting is completed by installing a connector on the panel cutout hole and tightening with a M3 screw.



### 7. Operating Environment

Please contact us if you are designing this connector into environmental conditions where high and low temperatures are repeated.

## While Taking into Consideration

Specifications mentioned in this catalog are reference values.

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

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

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

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

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

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

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

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