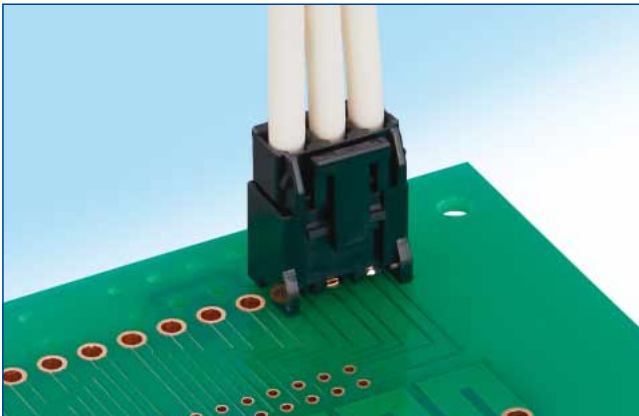


# 10 Amp, 3.96 mm pitch, Board to Wire Connector for Internal Power Supply

## DF63 Series



### ■ Features

#### 1. Rated for up to 10 Amps max.

DF63 has the capacity to handle a maximum of 10 A when using 16 AWG wire

|             |          |
|-------------|----------|
| MAX 10A/pin | AWG # 16 |
| 7A          | AWG # 18 |

#### 2. A locking mechanism that ensures a secure and completed connection

The locking mechanism delivers a clear and tactile click the prevents incomplete mating (Please refer to Figure 2)

#### 3. Prevents incomplete insertion of the crimp contact

A mechanism has been added to the structure to prevent incomplete insertion of the crimp contacts. (Please refer to Figure 3)

#### 4. Prevents incorrect insertion

A mechanism has been added to prevent reverse insertion and incorrect insertion between different poles. (Please refer to Figure 4)

#### 5. Reverse mounting prevention to PCB

The pin header is equipped with a guide post to prevent reverse insertion on the PCB. (Please refer to Figure 1)

#### 6. Molded lance design

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

#### 7. Short-circuit prevention

The wall structure between the contacts helps to isolate the contacts and prevents short circuits between contacts. (Please refer to Figure 1)

#### 8. Suitable for potting

Capable of being potted, up to 5 mm.

#### 9. Solder Crack prevention

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

#### \* Keying options were provided to prevent incorrect connections.

Keying options prevent incorrect connections due to the use of multiple connectors on the same board. When using identical pin counts, two versions are available with different keying options. (Please refer to Figure 4)

#### \* Corresponds with 7.92 mm pitch

Also corresponds with 7.92 mm pitch with 2 or 3 pos. without pins  
(Note 1) \* means the product will be available upon request.  
Please contact our Sales Department.

(UL, C-UL, TÜV, application pending)

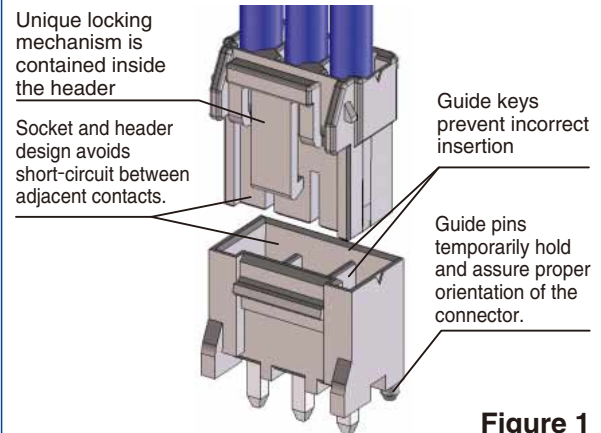


Figure 1

#### Lock structure

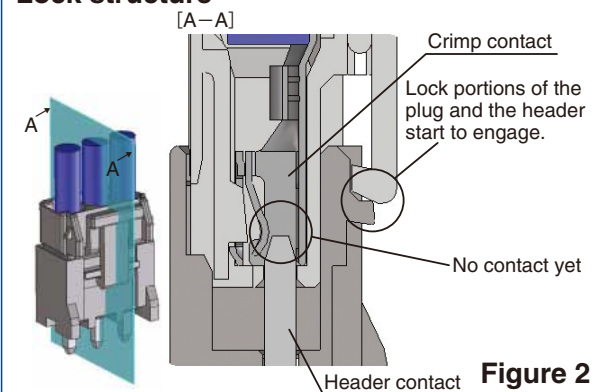


Figure 2

#### Prevention of insufficient insertion of the crimp contact

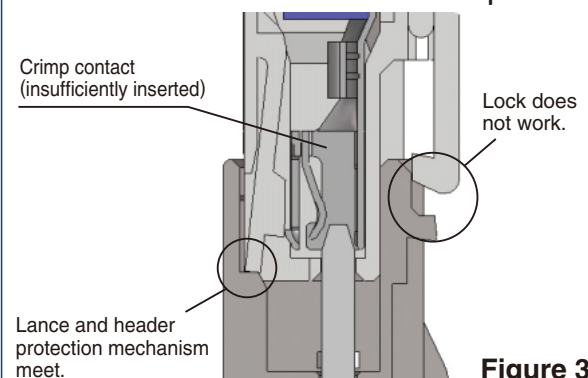


Figure 3

#### Keying options are available to prevent incorrect connections due to the use of multiple connectors on the same board.

■ Standard type (color: black)



■ R-type (color: white)



Figure 4

## Product Specifications

|         |                |                                                         |                                                                                                                                                                                       |
|---------|----------------|---------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ratings | Current Rating | AWG#16 : 10 A/pin (Note 1)<br>AWG#18 : 7 A/pin (Note 1) | Operating Temperature Range — 35~105°C (Note 2)<br>Operating Humidity Range 20~80% (Note 3)<br>Storage Temperature Range — 10~60°C (Note 4)<br>Storage Humidity Range 40~70% (Note 4) |
|         | Voltage Rating | AC/DC 630V                                              |                                                                                                                                                                                       |

| Item                      | Specifications                                                                       | Conditions                                                                                                       |
|---------------------------|--------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|
| 1. Insulation Resistance  | No less than 1,000 MΩ                                                                | Measured at DC= 500V                                                                                             |
| 2. Withstand Voltage      | No flashover or breakdown                                                            | AC 1,500 V is applied for one minute.                                                                            |
| 3. Contact Resistance     | No more than 10 mΩ                                                                   | Measured at 1mA and no higher than 20 mV                                                                         |
| 4. Vibration Resistance   | No electrical discontinuity of 1 μs or greater                                       | Frequency 10-55 Hz, half amplitude 0.75 mm, 10 times in each of the three directions                             |
| 5. Shock Resistance       | No electrical discontinuity of 1 μs or greater                                       | Accelerated velocity: 490 m/s <sup>2</sup> for 11 ms, half-sine wave in 3 directions, 3 times for each direction |
| 6. Moisture-resistance    | Contact resistance: no more than 20 mΩ; insulation resistance: no less than 500 MΩ   | Temperature: 40 ±2°C; humidity: 90 to 95%, left as it is for 96 hours                                            |
| 7. Temperature cycles     | Contact resistance: no more than 20 mΩ; insulation resistance: no less than 1,000 MΩ | -55°C: 30 minutes → 85°C: 30 minutes) 5 cycles                                                                   |
| 8. Durability             | Contact resistance: no more than 20 mΩ                                               | 30 mating cycles                                                                                                 |
| 9. Solder heat resistance | The resin parts should withstand the temperature and resist melting.                 | Flow: 260°C, 10 sec<br>Hand soldering: temperature of soldering iron at 350°C ±10°C for 5 seconds                |

(Note 1) This is the maximum current rating while all pins are powered or used as all power lines.

(Note 2) Includes the temperature rise of power lines.

(Note 3) Use without condensation on parts.

(Note 4) 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.

## Materials

| Component     | Part      | Material               | Finish      | UL Specification |
|---------------|-----------|------------------------|-------------|------------------|
| Header        | Insulator | PBT (glass-reinforced) | Black       | UL94V-0          |
|               | Contact   | Brass                  | Tin-plating | —                |
| Crimp socket  | Insulator | PBT (glass-reinforced) | Black       | UL94V-0          |
| Crimp contact | Contact   | Copper alloy           | Tin-plating | —                |

## Product Number Structure

Refer to the nomenclature charts below for determining specific part number characteristics. Please select connectors listed in this catalog when placing orders.

### ●Connector

**DF 63 - \* P - 3.96 DSA**

① ② ③ ④ ⑤ ⑥

### ●Crimp contact

**DF 63 - 1618 SCF**

⑦ ⑧

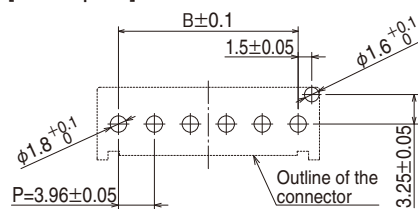
|                                                  |                                                                                                                       |
|--------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| ① Series Name : DF                               | ⑥ Type of housing<br>DSA : straight pin header<br>DS : right angle pin header (under development)<br>C : Crimp socket |
| ② Series No. : 63                                |                                                                                                                       |
| ③ Number of contacts : 1,2,3,4,5,6               |                                                                                                                       |
| ④ Connector type<br>P : Pin header<br>S : socket | ⑦ Applicable wire size<br>1618 : AWG#16~18                                                                            |
| ⑤ Pitch : 3.96mm                                 | ⑧ Packaging styles<br>SCF: Socket contact on reel                                                                     |

## ■Straight pin header

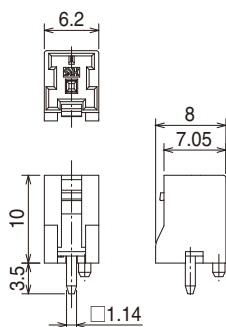


### ●PCB layout (Recommended circuit board thickness $t=1.6\pm0.1$ )

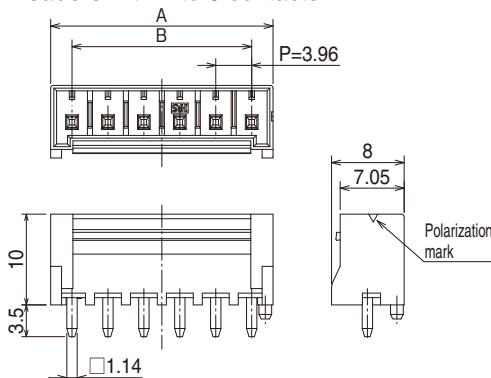
[1 to 6 pos.]



[Single contact]



Headers with 2 to 6 contacts



Unit: mm

| Part Number     | HRS No.           | No. of Contacts | A     | B     |
|-----------------|-------------------|-----------------|-------|-------|
| DF63-1P-3.96DSA | Under development | 1               | —     | —     |
| DF63-2P-3.96DSA | 680-0504-4-00     | 2               | 8.66  | 3.96  |
| DF63-3P-3.96DSA | 680-0501-3-00     | 3               | 12.62 | 7.92  |
| DF63-4P-3.96DSA | 680-0505-4-00     | 4               | 16.58 | 11.88 |
| DF63-5P-3.96DSA | Under development | 5               | 20.54 | 15.84 |
| DF63-6P-3.96DSA | Under development | 6               | 24.50 | 19.80 |

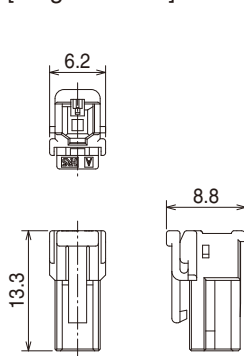
(Note 1) This product is sold in packages containing 100 pieces. Please place orders in full lot quantities.

## ■Crimp socket

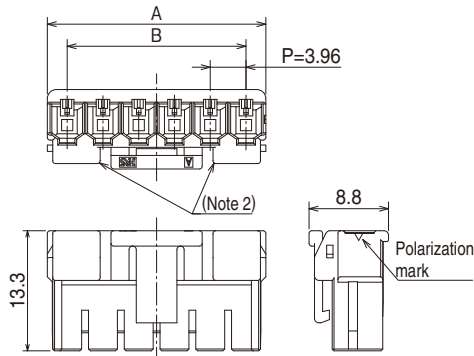


Shown with terminated wires inserted

[Single contact]



Headers with 2 to 6 contacts



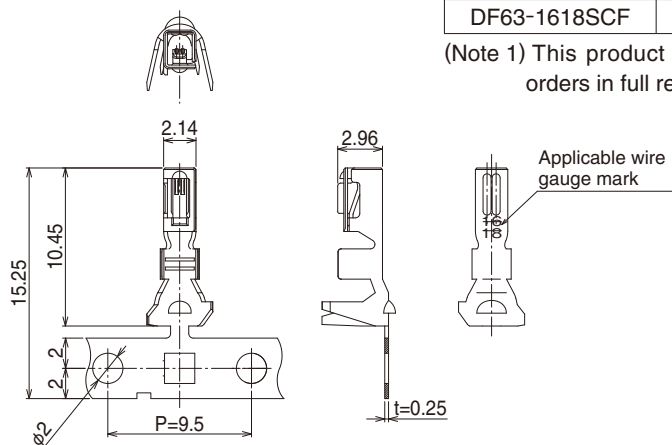
Unit: mm

| Part Number   | HRS No.           | No. of Contacts | A     | B     |
|---------------|-------------------|-----------------|-------|-------|
| DF63-1S-3.96C | Under development | 1               | —     | —     |
| DF63-2S-3.96C | 680-0509-5        | 2               | 8.36  | 3.96  |
| DF63-3S-3.96C | 680-0502-6        | 3               | 12.32 | 7.92  |
| DF63-4S-3.96C | 680-0510-4        | 4               | 16.28 | 11.88 |
| DF63-5S-3.96C | Under development | 5               | 20.24 | 15.84 |
| DF63-6S-3.96C | Under development | 6               | 24.20 | 19.80 |

(Note 1) This product is sold in packages containing 100 pieces. Please place orders in full lot quantities.

(Note 2) 1-and 2 contact position types have a differently shaped latch.

## ■Socket crimp contact



| Part Number  | HRS No.    | Packing form | Quantity | Plating finish |
|--------------|------------|--------------|----------|----------------|
| DF63-1618SCF | 680-0500-0 | Reel contact | 4000     | Tin-plating    |

(Note 1) This product is sold by the reel containing 4,000 pieces. Please place orders in full reel quantities.

### ●Recommended wire

UL1007, 1015

### ●Applicable wire (Tinned, Annealed Copper Wire)

| Conductor size (Core structure) | Jacket diameter                                  |
|---------------------------------|--------------------------------------------------|
| AWG16 (26 / $\phi$ 0.254mm)     | UL1007 ( $\phi$ 2.5mm)<br>UL1015 ( $\phi$ 3.2mm) |
| AWG18 (34 / $\phi$ 0.18mm)      | UL1007 ( $\phi$ 2.1mm)<br>UL1015 ( $\phi$ 2.9mm) |

(Note 1) The applicable wires are tin-plated and annealed.

(Note 2) Please contact our Sales Department when using wires other than those listed.

## ◆Applicable crimping tool

| Type       | Part Number        | HRS No.         | Wire type        | Applicable contact |
|------------|--------------------|-----------------|------------------|--------------------|
| Applicator | AP105-DF63-1618S-1 | CL901-4634-1-00 | UL1007(Note3)    | DF63-1618SCF       |
|            | AP105-DF63-1618S-2 | CL901-4635-4-00 | UL1015(Note3)    |                    |
| Hand tool  | HT802/DF63-1618S-1 | CL550-0411-2-00 | UL1007(Note4, 5) |                    |
|            | HT802/DF63-1618S-2 | CL550-0413-8-00 | UL1015(Note4, 6) |                    |

(Note 1) Please conduct crimping work according to the "Crimping work standards" and "Crimping condition table".

(Note 2) We cannot advise on crimping problems caused by tools other than the ones specified.

(Note 3) Applicator dies can be switched to crimp the other wire size and type. The additional dies are sold separately.

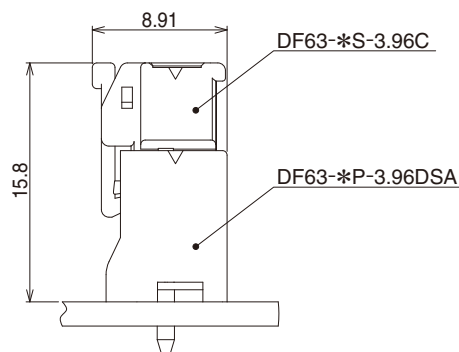
(Note 4) Hand tool dies cannot be switched.

(Note 5) The compatible wire is limited to UL1007, 16-18 AWG

(Note 6) The compatible wire is limited to UL1015, 16-18 AWG

## ◆Mated dimensions

### ●Board-to-Wire Connection using the straight pin header )



## ◆Precautions for use

1. 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 un-mate.
2. When thick, short sections of wire are used, the connector could be deformed due to the force of the wires' position. Route cables in such a way that they do not twist when being installed.
3. Make sure to turn off the power when mating or un-mating the connector.
4. Please do not touch any area around the contact part with your hand when the power is on; it could be very dangerous.
5. Please contact our Sales Department about the assembly procedure and the instruction manual.

## ◆Rated values

Please avoid using the connectors above the rated values. Also, do not insert or pull out energized or "live" wires.

## ◆Operating environment

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



## HIROSE ELECTRIC CO.,LTD.

6-3,Nakagawa Chuoh-2-Chome,Tsuzuki-Ku,Yokohama-Shi 224-8540,JAPAN

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105318, г.Москва, ул.Щербаковская д.3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: [info@moschip.ru](mailto:info@moschip.ru)

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