PRODUCT CATALOG

HIROSE ELECTRIC CO.,LTD.

# BK13 Series

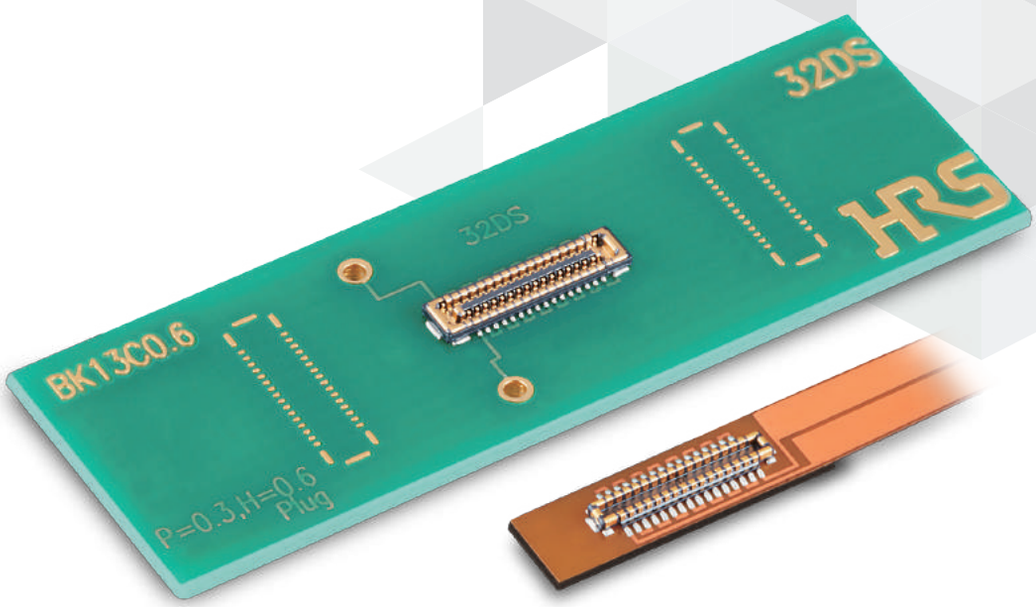
# 0.35mm Pitch, 0.6mm Stacking Height, 1.9mm Width, Low-Profile Hybrid FPC-to-Board Connector Supporting 5A

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P= 0.35 mm
P= 0.35mm

Full
Full Armored

High-Current



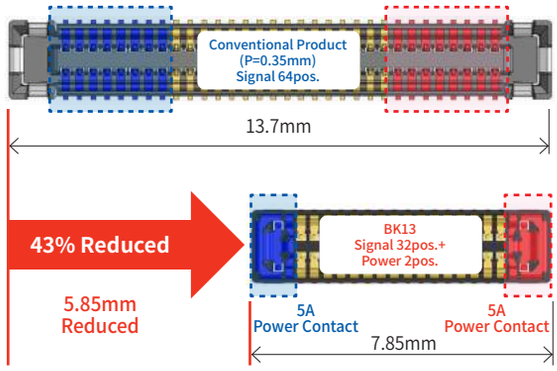

Product Page
https://www.hirose.com/en/product/series/BK13C/

Mar. 2024

# Features

## 1. Hybrid Power Supply Capacity and Space-saving Design

Equipped with two power contacts capable of handling up to 5A, reducing the number of signal contacts to save mounting space.

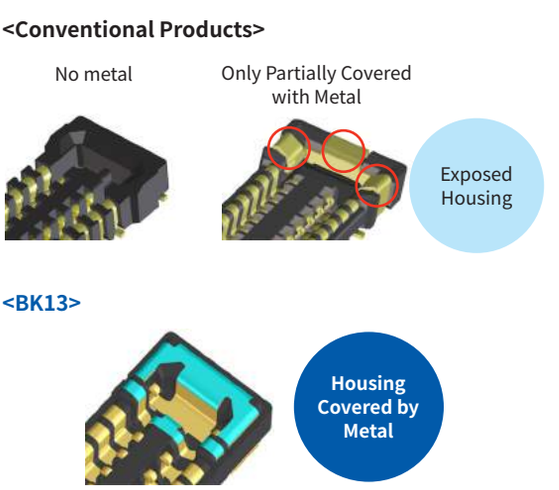



Power lines typically diverted to multiple signal contacts are concentrated into 2 power contacts (Up to 5A/line)

**High Current (5A)**

## 2. Robust Design

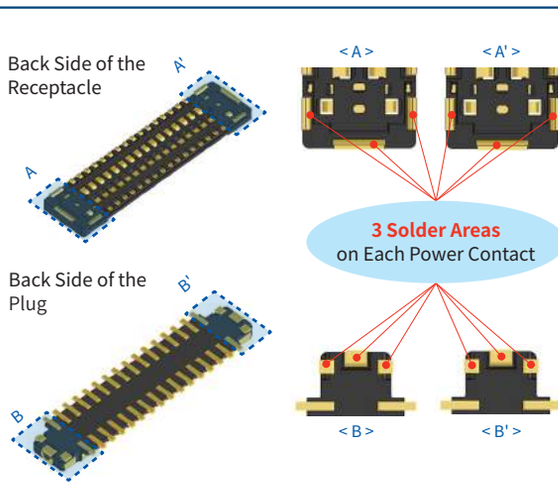
Fully armored guides prevent housing damage due to misalignment when mating.




**Fully Armored Design**

## 3. Enhanced PCB Peeling Strength

Both the plug and receptacle have 3 soldering areas at each power contact for greater PCB peeling strength.




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## 4. High Contact Reliability

Both power and signal contacts have a two-point contact design, ensuring high contact reliability.

## 5. Superior Mating

Wide self-alignment range with metal guides offers enhanced mating operation.
(0.3mm in pitch direction, 0.22mm in width direction)

Additionally, a clear tactile click generated by the unique locking contact design secures complete mating.

## 6. Halogen-Free

All materials and substances used to produce this product Comply with Halogen-free standards.

*As defined by IEC 61249-2-21
Br : 900ppm max., Cl : 900ppm max.,
Br+Cl : 1,500ppm max.

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## Product Specifications

| | | | |
|---|---|---|---|
| Rated Current | Signal Contact : 0.3A (Note 1) | Operating Temperature (Note 2) | -55 to +85°C |
| | Power Contact : 5A | Operating Humidity Range (Note 4) | 20 to 80% |
| | | Storage Temperature (Note 3) | -10 to +60°C |
| Rated Voltage | 50V AC/DC | Storage Humidity Range (Note 3)(Note 4) | 40 to 70% |

| Items | Specifications | Conditions |
|---|---|---|
| Contact Resistance | Signal Contact : 50mΩ Max.<br>Power Contact : 15mΩ Max. | Measured at 20mV AC, 1kHz, 1mA |
| Insulation Resistance | 50MΩ Min. | Measured at 100V DC |
| Withstanding Voltage | No flashover or insulation breakdown | 150V AC for 1 min. |
| Mating Durability | Contact Resistance : Signal Contact : 50mΩ Max.<br>Power Contact : 15mΩ Max.<br>No damage, crack or looseness of parts | 30 mating cycles |
| Vibration Resistance | No electrical discontinuity of 1μs or more<br>No damage, crack or looseness of parts | Frequency: 10 to 55Hz, single amplitude 0.75mm,<br>10 cycles in each of 3 axis directions for 5 minutes/cycle |
| Shock Resistance | No electrical discontinuity of 1μs or more<br>No damage, crack or looseness of parts | Acceleration : 490m/s$^2$, duration of pulse: 11ms<br>at 3 times for 3 directions. |
| Humidity Resistance | Contact Resistance : Signal Contact : 50mΩ Max.<br>Power Contact : 15mΩ Max.<br>Insulation Resistance : 50MΩ Min.<br>No damage, crack or looseness of parts | 96 hours at temperature of 40±2°C and<br>humidity range from 90 to 95% |
| Temperature Cycle | Contact Resistance : Signal Contact : 50mΩ Max.<br>Power Contact : 15mΩ Max.<br>Insulation Resistance : 50MΩ Min.<br>No damage, crack or looseness of parts | -55°C for 30min. → +85°C for 30 min. for 5 Cycles.<br>(Stabilizing Time In Chamber : Within 2 to 3 min.) |
| Sulphur Dioxide | Contact Resistance : Signal Contact : 50mΩ Max.<br>Power Contact: 15mΩ Max.<br>No damage, crack or looseness of parts | Exposed in 25 PPM for 96h at 25°C, 75±5%RH.<br>(Test standard : JIS C 60068) |

(Note 1) The total current capacity for the signal contacts is 12A Max.
(Note 2) Includes temperature rise caused by current flow.
(Note 3) The term "storage" refers to long-term-storage of unused items before they are mounted on the PCB.
Operating temperature / humidity range applies to the product in a temporary storage state
such as non-powered after mounting on the PCB during transportation, etc.
(Note 4) Range identified without condensation.

## Materials / Finish

| Part | Component | Material | Finish | UL Standard |
|---|---|---|---|---|
| Plug<br>Receptacle | Insulator | LCP | Black | UL94V-0 |
| | Signal Contact | Copper Alloy | Gold Plated over Nickel Underplating | - |
| | Power Contact | Copper Alloy | Gold Plated over Nickel Underplating | - |

## 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.

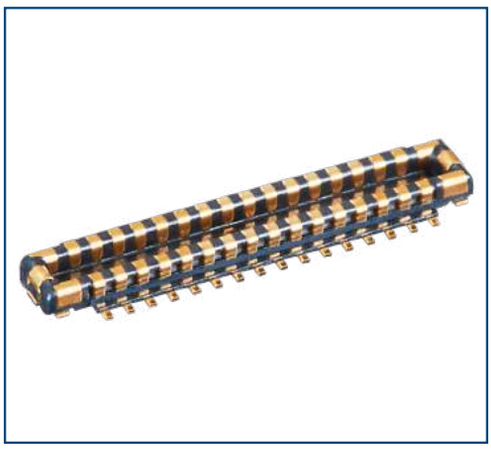
● Plug/Receptacle

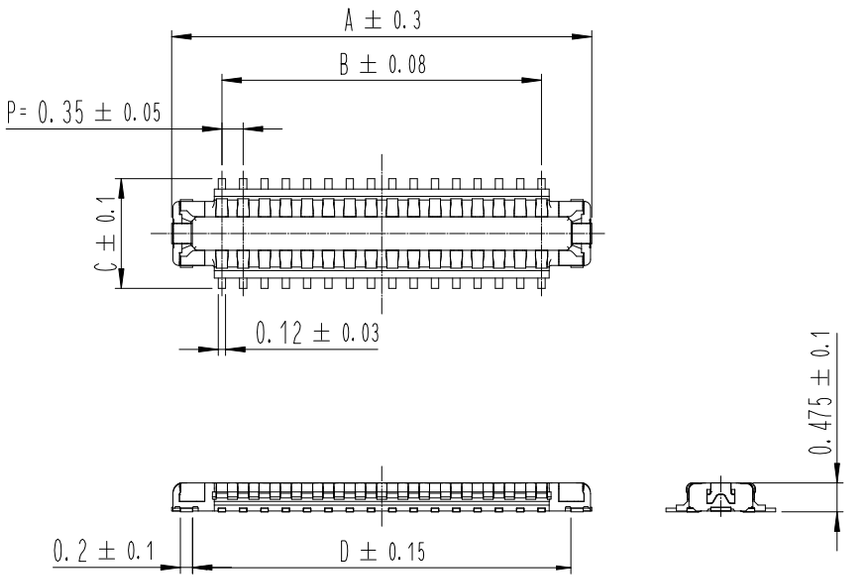
**BK13C 06 - 32 DP / 2 - 0.35 V (800)**
❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽

| | | | |
|---|---|---|---|
| ❶ Series Name | BK13 | ❺ Number of Power Contacts | 2pos. |
| ❷ Stacking Height | 0.6mm | ❻ Contact Pitch | 0.35mm |
| ❸ Number of Signal Contacts | 6, 10, 12, 16, 24, 32, 40, 50, 60pos. | ❼ Terminal Type | V : Straight SMT |
| ❹ Connector Type | DP : Double-row Plug<br>DS : Double-row Receptacle | ❽ Packaging | (800) : Standard, Embossed tape packaging (20,000pcs per reel)<br>(895) : Embossed tape packaging (1,000pcs per reel) (For trial production) |

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## Plug






Unit : mm

| Part No. | HRS No. | No. of Pos. | | A | B | C | D | Purchase Unit |
|---|---|---|---|---|---|---|---|---|
| | | Signal Contact | Power Contact | | | | | |
| BK13C06-6DP/2-0.35V(800) (Note 1) | CL0480-0798-0-00 | 6 | 2 | 2.35 | 0.70 | 1.60 | 1.665 | 20,000pcs per reel |
| BK13C06-10DP/2-0.35V(800) | CL0480-0719-0-00 | 10 | 2 | 3.05 | 1.40 | 1.60 | 2.365 | |
| BK13C06-12DP/2-0.35V(800) | CL0480-0895-0-00 | 12 | 2 | 3.40 | 1.75 | 1.80 | 2.175 | |
| BK13C06-16DP/2-0.35V(800) | CL0480-0721-0-00 | 16 | 2 | 4.10 | 2.45 | 1.80 | 3.415 | |
| BK13C06-24DP/2-0.35V(800) | CL0673-0142-0-00 | 24 | 2 | 5.50 | 3.85 | 1.80 | 4.815 | |
| BK13C06-32DP/2-0.35V(800) | CL0480-0663-0-00 | 32 | 2 | 6.90 | 5.25 | 1.80 | 6.215 | |
| BK13C06-40DP/2-0.35V(800) | CL0480-0665-0-00 | 40 | 2 | 8.30 | 6.65 | 1.80 | 7.615 | |
| BK13C06-50DP/2-0.35V(800) | CL0480-0725-0-00 | 50 | 2 | 10.05 | 8.40 | 1.80 | 9.365 | |
| BK13C06-60DP/2-0.35V(800) | CL0480-0727-0-00 | 60 | 2 | 11.80 | 10.15 | 1.80 | 11.115 | |

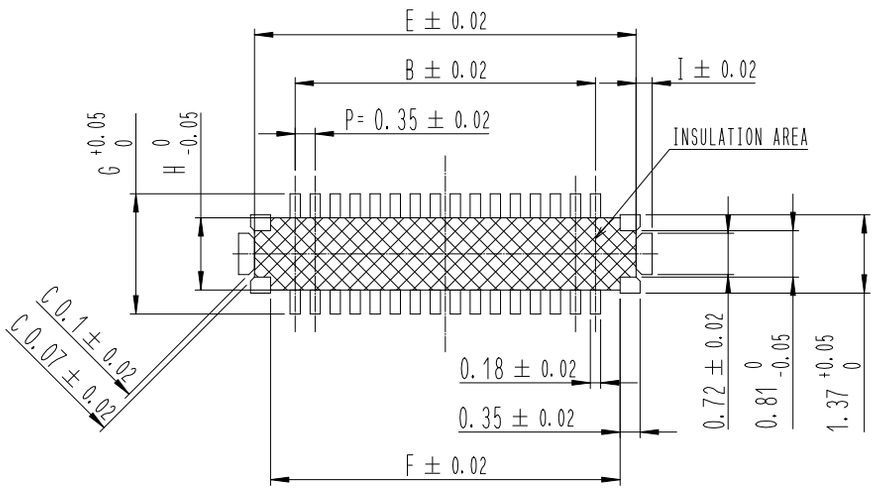
| Part No. | HRS No. | No. of Pos. | | A | B | C | D | Purchase Unit |
|---|---|---|---|---|---|---|---|---|
| | | Signal Contact | Power Contact | | | | | |
| BK13C06-6DP/2-0.35V(895) (Note 1) | CL0480-0798-0-95 | 6 | 2 | 2.35 | 0.70 | 1.60 | 1.665 | 1,000pcs per reel |
| BK13C06-10DP/2-0.35V(895) | CL0480-0719-0-95 | 10 | 2 | 3.05 | 1.40 | 1.60 | 2.365 | |
| BK13C06-12DP/2-0.35V(895) | CL0480-0895-0-95 | 12 | 2 | 3.40 | 1.75 | 1.80 | 2.175 | |
| BK13C06-16DP/2-0.35V(895) | CL0480-0721-0-95 | 16 | 2 | 4.10 | 2.45 | 1.80 | 3.415 | |
| BK13C06-24DP/2-0.35V(895) | CL0673-0144-0-00 | 24 | 2 | 5.50 | 3.85 | 1.80 | 4.815 | |
| BK13C06-32DP/2-0.35V(895) | CL0480-0663-0-95 | 32 | 2 | 6.90 | 5.25 | 1.80 | 6.215 | |
| BK13C06-40DP/2-0.35V(895) | CL0480-0665-0-95 | 40 | 2 | 8.30 | 6.65 | 1.80 | 7.615 | |
| BK13C06-50DP/2-0.35V(895) | CL0480-0725-0-95 | 50 | 2 | 10.05 | 8.40 | 1.80 | 9.365 | |
| BK13C06-60DP/2-0.35V(895) | CL0480-0727-0-95 | 60 | 2 | 11.80 | 10.15 | 1.80 | 11.115 | |

(Note 1) The power contacts of BK13C06-6DP/2-0.35V have an embossed design.
(Note 2) This connector has no polarity.

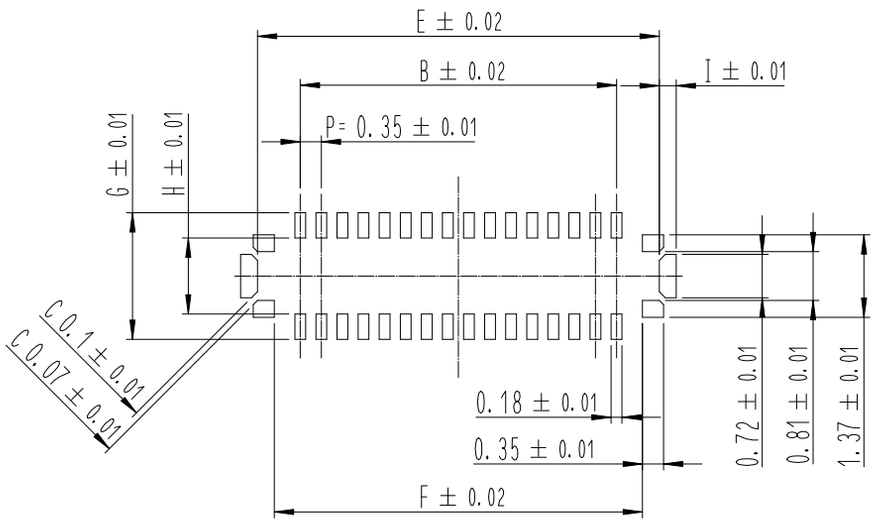
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# Plug

## ●Recommended PCB Layout




## ●Recommended Metal Mask Dimensions
(Mask Thickness : 0.08mm)



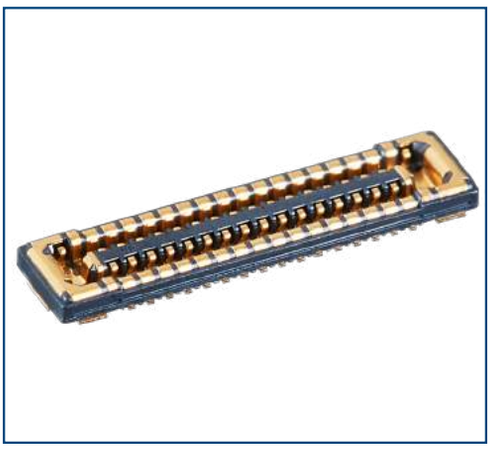

Unit : mm

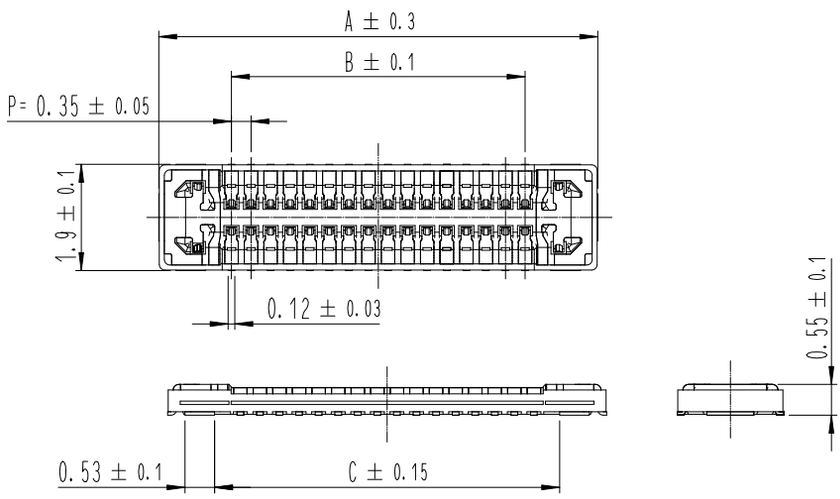
| Part No. | No. of Pos. | | B | E | F | G | H | I |
|---|---|---|---|---|---|---|---|---|
| | Signal Contact | Power Contact | | | | | | |
| BK13C06-6DP/2-0.35V(8##) | 6 | 2 | 0.70 | 2.12 | 1.56 | 1.8 | 1.06 | 0.23 |
| BK13C06-10DP/2-0.35V(8##) | 10 | 2 | 1.40 | 2.82 | 2.26 | 1.8 | 1.06 | 0.23 |
| BK13C06-12DP/2-0.35V(8##) | 12 | 2 | 1.75 | 3.17 | 2.61 | 2.1 | 1.26 | 0.28 |
| BK13C06-16DP/2-0.35V(8##) | 16 | 2 | 2.45 | 3.87 | 3.31 | 2.1 | 1.26 | 0.28 |
| BK13C06-24DP/2-0.35V(8##) | 24 | 2 | 3.85 | 5.27 | 4.71 | 2.1 | 1.26 | 0.28 |
| BK13C06-32DP/2-0.35V(8##) | 32 | 2 | 5.25 | 6.67 | 6.11 | 2.1 | 1.26 | 0.28 |
| BK13C06-40DP/2-0.35V(8##) | 40 | 2 | 6.65 | 8.07 | 7.51 | 2.1 | 1.26 | 0.28 |
| BK13C06-50DP/2-0.35V(8##) | 50 | 2 | 8.40 | 9.82 | 9.26 | 2.1 | 1.26 | 0.28 |
| BK13C06-60DP/2-0.35V(8##) | 60 | 2 | 10.15 | 11.57 | 11.01 | 2.1 | 1.26 | 0.28 |

(Note) This connector has no polarity.

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## Receptacle






Unit : mm

| Part No. | HRS No. | No. of Pos. | | A | B | C | Purchase Unit |
|---|---|---|---|---|---|---|---|
| | | Signal Contact | Power Contact | | | | |
| BK13C06-6DS/2-0.35V(800) (Note 1, 2) | CL0480-0799-0-00 | 6 | 2 | 3.30 | 0.70 | 1.62 | 20,000pcs per reel |
| BK13C06-10DS/2-0.35V(800) (Note 2) | CL0480-0720-0-00 | 10 | 2 | 4.00 | 1.40 | 2.32 | |
| BK13C06-12DS/2-0.35V(800) | CL0480-0896-0-00 | 12 | 2 | 4.35 | 1.75 | 2.67 | |
| BK13C06-16DS/2-0.35V(800) | CL0480-0722-0-00 | 16 | 2 | 5.05 | 2.45 | 3.37 | |
| BK13C06-24DS/2-0.35V(800) | CL0673-0143-0-00 | 24 | 2 | 6.45 | 3.85 | 4.77 | |
| BK13C06-32DS/2-0.35V(800) | CL0480-0664-0-00 | 32 | 2 | 7.85 | 5.25 | 6.17 | |
| BK13C06-40DS/2-0.35V(800) | CL0480-0666-0-00 | 40 | 2 | 9.25 | 6.65 | 7.57 | |
| BK13C06-50DS/2-0.35V(800) | CL0480-0726-0-00 | 50 | 2 | 11.00 | 8.40 | 9.32 | |
| BK13C06-60DS/2-0.35V(800) | CL0480-0728-0-00 | 60 | 2 | 12.75 | 10.15 | 11.07 | |

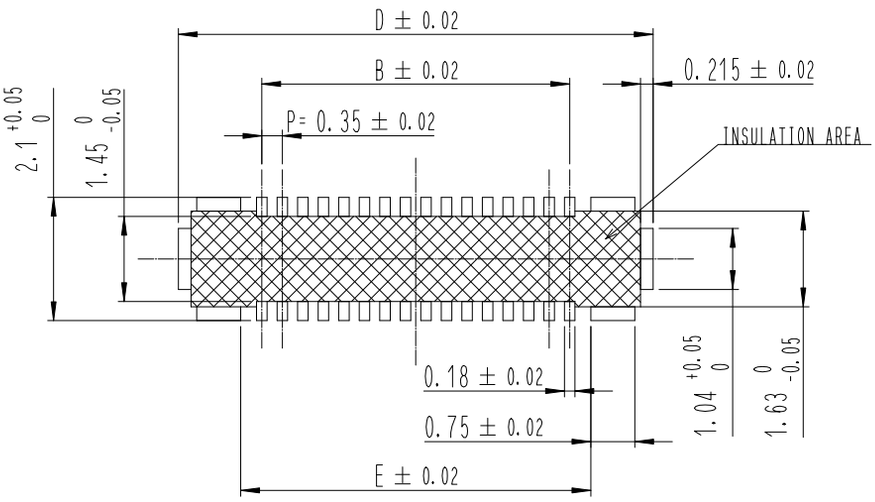
| Part No. | HRS No. | No. of Pos. | | A | B | C | Purchase Unit |
|---|---|---|---|---|---|---|---|
| | | Signal Contact | Power Contact | | | | |
| BK13C06-6DS/2-0.35V(895) (Note 1, 2) | CL0480-0799-0-95 | 6 | 2 | 3.30 | 0.70 | 1.62 | 1,000pcs per reel |
| BK13C06-10DS/2-0.35V(895) (Note 2) | CL0480-0720-0-95 | 10 | 2 | 4.00 | 1.40 | 2.32 | |
| BK13C06-12DS/2-0.35V(895) | CL0480-0896-0-95 | 12 | 2 | 4.35 | 1.75 | 2.67 | |
| BK13C06-16DS/2-0.35V(895) | CL0480-0722-0-95 | 16 | 2 | 5.05 | 2.45 | 3.37 | |
| BK13C06-24DS/2-0.35V(895) | CL0673-0145-0-00 | 24 | 2 | 6.45 | 3.85 | 4.77 | |
| BK13C06-32DS/2-0.35V(895) | CL0480-0664-0-95 | 32 | 2 | 7.85 | 5.25 | 6.17 | |
| BK13C06-40DS/2-0.35V(895) | CL0480-0666-0-95 | 40 | 2 | 9.25 | 6.65 | 7.57 | |
| BK13C06-50DS/2-0.35V(895) | CL0480-0726-0-95 | 50 | 2 | 11.00 | 8.40 | 9.32 | |
| BK13C06-60DS/2-0.35V(895) | CL0480-0728-0-95 | 60 | 2 | 12.75 | 10.15 | 11.07 | |

(Note 1) The power contacts of BK13C06-6DS/2-0.35V have a dimpled design.
(Note 2) BK13C06-6DS/2-0.35V and BK13C06-10DS/2-0.35V have a metal reinforcement in the center of the product.
(Note 3) This connector has no polarity.

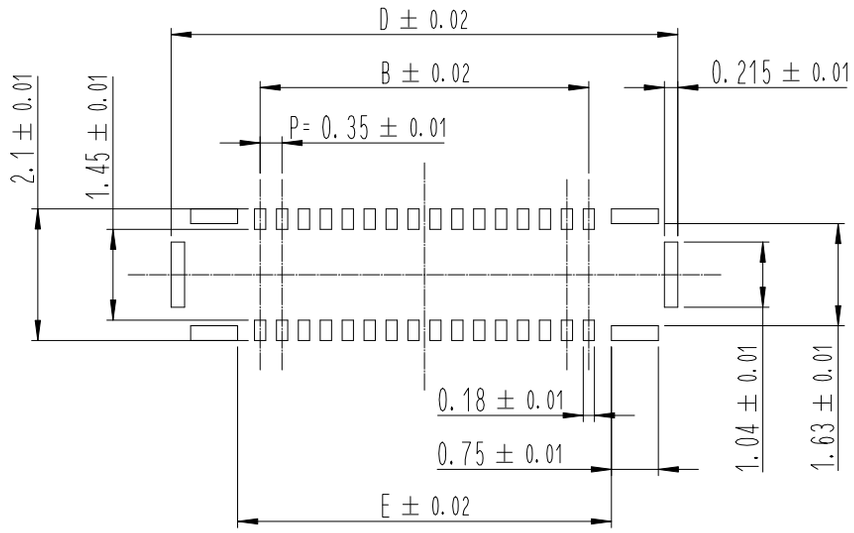
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# Receptacle

## ● Recommended PCB Layout




## ● Recommended Metal Mask Dimensions (Mask Thickness : 0.08mm)




Unit : mm

| Part No. | No. of Pos. | | B | D | E |
|---|---|---|---|---|---|
| | Signal Contact | Power Contact | | | |
| BK13C06-6DS/2-0.35V(8##) | 6 | 2 | 0.70 | 3.545 | 1.42 |
| BK13C06-10DS/2-0.35V(8##) | 10 | 2 | 1.40 | 4.245 | 2.12 |
| BK13C06-12DS/2-0.35V(8##) | 12 | 2 | 1.75 | 4.595 | 2.47 |
| BK13C06-16DS/2-0.35V(8##) | 16 | 2 | 2.45 | 5.295 | 3.17 |
| BK13C06-24DS/2-0.35V(8##) | 24 | 2 | 3.85 | 6.695 | 4.57 |
| BK13C06-32DS/2-0.35V(8##) | 32 | 2 | 5.25 | 8.095 | 5.97 |
| BK13C06-40DS/2-0.35V(8##) | 40 | 2 | 6.65 | 9.495 | 7.37 |
| BK13C06-50DS/2-0.35V(8##) | 50 | 2 | 8.40 | 11.245 | 9.12 |
| BK13C06-60DS/2-0.35V(8##) | 60 | 2 | 10.15 | 12.995 | 10.87 |

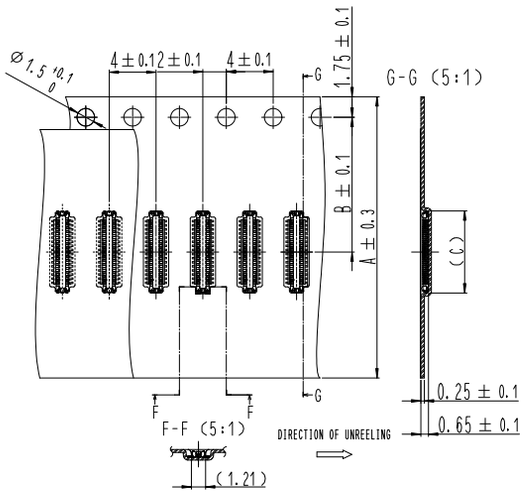
(Note) This connector has no polarity.

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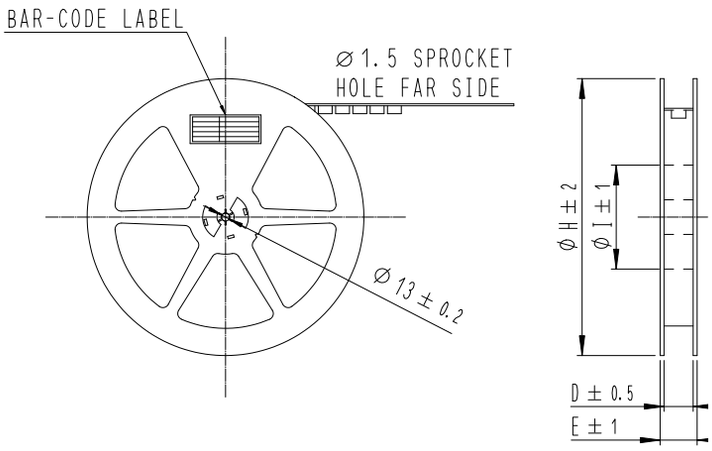
# Packaging Specifications Diagram

## Plug

### ● Embossed Tape Dimensions




### ● Reel Dimensions




Unit : mm

| Part No. | HRS No. | No. of Pos. | | A | B | C | D | E | H | I |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Signal Contact | Power Contact | | | | | | | |
| BK13C06-6DP/2-0.35V(800) | CL0480-0798-0-00 | 6 | 2 | 12.0 | 5.5 | 2.46 | 13.5 | 17.5 | 380 | 80 |
| BK13C06-10DP/2-0.35V(800) | CL0480-0719-0-00 | 10 | 2 | 16.0 | 7.5 | 3.16 | 17.5 | 21.5 | 380 | 80 |
| BK13C06-12DP/2-0.35V(800) | CL0480-0895-0-00 | 12 | 2 | 16.0 | 7.5 | 3.51 | 17.5 | 21.5 | 380 | 80 |
| BK13C06-16DP/2-0.35V(800) | CL0480-0721-0-00 | 16 | 2 | 16.0 | 7.5 | 4.21 | 17.5 | 21.5 | 380 | 80 |
| BK13C06-24DP/2-0.35V(800) | CL0673-0142-0-00 | 24 | 2 | 16.0 | 7.5 | 5.61 | 17.5 | 21.5 | 380 | 80 |
| BK13C06-32DP/2-0.35V(800) | CL0480-0663-0-00 | 32 | 2 | 24.0 | 11.5 | 7.01 | 25.5 | 29.5 | 380 | 80 |
| BK13C06-40DP/2-0.35V(800) | CL0480-0665-0-00 | 40 | 2 | 24.0 | 11.5 | 8.41 | 25.5 | 29.5 | 380 | 80 |
| BK13C06-50DP/2-0.35V(800) | CL0480-0725-0-00 | 50 | 2 | 24.0 | 11.5 | 10.16 | 25.5 | 29.5 | 380 | 80 |
| BK13C06-60DP/2-0.35V(800) | CL0480-0727-0-00 | 60 | 2 | 24.0 | 11.5 | 11.91 | 25.5 | 29.5 | 380 | 80 |

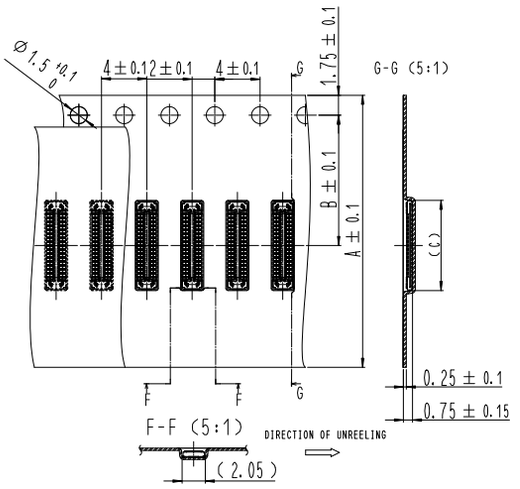
| Part No. | HRS No. | No. of Pos. | | A | B | C | D | E | H | I |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Signal Contact | Power Contact | | | | | | | |
| BK13C06-6DP/2-0.35V(895) | CL0480-0798-0-95 | 6 | 2 | 12.0 | 5.5 | 2.46 | 13.5 | 17.5 | 180 | 60 |
| BK13C06-10DP/2-0.35V(895) | CL0480-0719-0-95 | 10 | 2 | 16.0 | 7.5 | 3.16 | 17.5 | 21.5 | 180 | 60 |
| BK13C06-12DP/2-0.35V(895) | CL0480-0895-0-95 | 12 | 2 | 16.0 | 7.5 | 3.51 | 17.5 | 21.5 | 180 | 60 |
| BK13C06-16DP/2-0.35V(895) | CL0480-0721-0-95 | 16 | 2 | 16.0 | 7.5 | 4.21 | 17.5 | 21.5 | 180 | 60 |
| BK13C06-24DP/2-0.35V(895) | CL0673-0144-0-00 | 24 | 2 | 16.0 | 7.5 | 5.61 | 17.5 | 21.5 | 180 | 60 |
| BK13C06-32DP/2-0.35V(895) | CL0480-0663-0-95 | 32 | 2 | 24.0 | 11.5 | 7.01 | 25.5 | 29.5 | 180 | 60 |
| BK13C06-40DP/2-0.35V(895) | CL0480-0665-0-95 | 40 | 2 | 24.0 | 11.5 | 8.41 | 25.5 | 29.5 | 180 | 60 |
| BK13C06-50DP/2-0.35V(895) | CL0480-0725-0-95 | 50 | 2 | 24.0 | 11.5 | 10.16 | 25.5 | 29.5 | 180 | 60 |
| BK13C06-60DP/2-0.35V(895) | CL0480-0727-0-95 | 60 | 2 | 24.0 | 11.5 | 11.91 | 25.5 | 29.5 | 180 | 60 |

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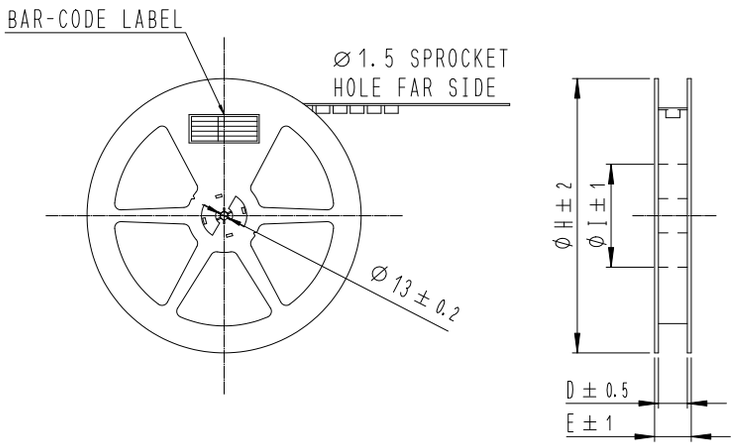
## Packaging Specifications Diagram

# Receptacle

### ● Embossed Tape Dimensions




### ● Reel Dimensions



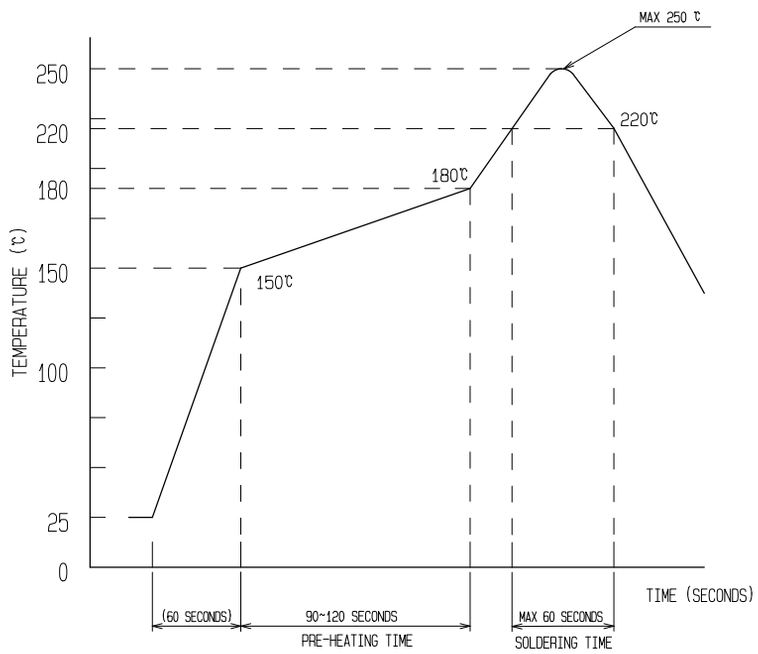

Unit : mm

| Part No. | HRS No. | No. of Pos. | | A | B | C | D | E | H | I |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Signal Contact | Power Contact | | | | | | | |
| BK13C06-6DS/2-0.35V(800) | CL0480-0799-0-00 | 6 | 2 | 12.0 | 5.5 | 3.4 | 13.5 | 17.5 | 380 | 80 |
| BK13C06-10DS/2-0.35V(800) | CL0480-0720-0-00 | 10 | 2 | 16.0 | 7.5 | 4.10 | 17.5 | 21.5 | 380 | 80 |
| BK13C06-12DS/2-0.35V(800) | CL0480-0896-0-00 | 12 | 2 | 16.0 | 7.5 | 4.45 | 17.5 | 21.5 | 380 | 80 |
| BK13C06-16DS/2-0.35V(800) | CL0480-0722-0-00 | 16 | 2 | 16.0 | 7.5 | 5.15 | 17.5 | 21.5 | 380 | 80 |
| BK13C06-24DS/2-0.35V(800) | CL0673-0143-0-00 | 24 | 2 | 16.0 | 7.5 | 6.55 | 17.5 | 21.5 | 380 | 80 |
| BK13C06-32DS/2-0.35V(800) | CL0480-0664-0-00 | 32 | 2 | 24.0 | 11.5 | 7.95 | 25.5 | 29.5 | 380 | 80 |
| BK13C06-40DS/2-0.35V(800) | CL0480-0666-0-00 | 40 | 2 | 24.0 | 11.5 | 9.35 | 25.5 | 29.5 | 380 | 80 |
| BK13C06-50DS/2-0.35V(800) | CL0480-0726-0-00 | 50 | 2 | 24.0 | 11.5 | 11.10 | 25.5 | 29.5 | 380 | 80 |
| BK13C06-60DS/2-0.35V(800) | CL0480-0728-0-00 | 60 | 2 | 24.0 | 11.5 | 12.85 | 25.5 | 29.5 | 380 | 80 |

| Part No. | HRS No. | No. of Pos. | | A | B | C | D | E | H | I |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Signal Contact | Power Contact | | | | | | | |
| BK13C06-6DS/2-0.35V(895) | CL0480-0799-0-95 | 6 | 2 | 12.0 | 5.5 | 3.4 | 13.5 | 17.5 | 180 | 60 |
| BK13C06-10DS/2-0.35V(895) | CL0480-0720-0-95 | 10 | 2 | 16.0 | 7.5 | 4.10 | 17.5 | 21.5 | 180 | 60 |
| BK13C06-12DS/2-0.35V(895) | CL0480-0896-0-95 | 12 | 2 | 16.0 | 7.5 | 4.45 | 17.5 | 21.5 | 180 | 60 |
| BK13C06-16DS/2-0.35V(895) | CL0480-0722-0-95 | 16 | 2 | 16.0 | 7.5 | 5.15 | 17.5 | 21.5 | 180 | 60 |
| BK13C06-24DS/2-0.35V(895) | CL0673-0145-0-00 | 24 | 2 | 16.0 | 7.5 | 6.55 | 17.5 | 21.5 | 180 | 60 |
| BK13C06-32DS/2-0.35V(895) | CL0480-0664-0-95 | 32 | 2 | 24.0 | 11.5 | 7.95 | 25.5 | 29.5 | 180 | 60 |
| BK13C06-40DS/2-0.35V(895) | CL0480-0666-0-95 | 40 | 2 | 24.0 | 11.5 | 9.35 | 25.5 | 29.5 | 180 | 60 |
| BK13C06-50DS/2-0.35V(895) | CL0480-0726-0-95 | 50 | 2 | 24.0 | 11.5 | 11.10 | 25.5 | 29.5 | 180 | 60 |
| BK13C06-60DS/2-0.35V(895) | CL0480-0728-0-95 | 60 | 2 | 24.0 | 11.5 | 12.85 | 25.5 | 29.5 | 180 | 60 |

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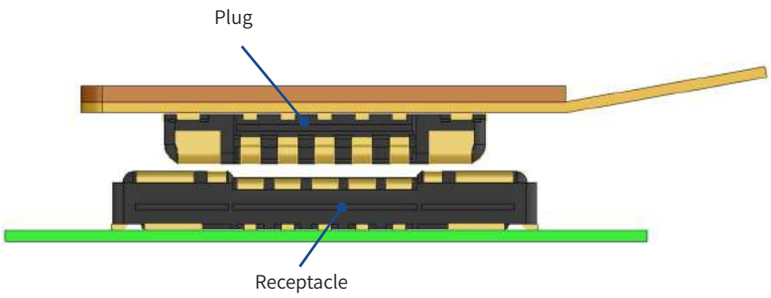
## Usage Precautions

| | |
|---|---|
| 1. Recommended Solder Temperature Profile | <br>[Conditions]<br>1. Peak Temperature : Maximum of 250°C<br>2. Heated Section : 220°C Min., within 60 seconds<br>3. Preheated Section : 150 to 180°C, 90 to 120 seconds<br>4. Number of Reflow Cycles : Maximum of 2 cycles<br><br>(Note 1) The temperature is the surface temperature of the PCB in the vicinity of the connector lead part.<br>(Note 2) When using nitrogen reflow process, please mount the product with an oxygen concentration at a minimum of 1,000ppm. Please contact a Hirose representative if the concentration is below 1,000ppm |
| 2. Recommended Manual Soldering Conditions | Soldering iron temperature : 340±10°C<br>Soldering time : within 3 seconds |
| 3. Recommended Metal Mask Thickness and Open Area Ratio to PCB Pattern Area | Thickness : 0.08mm<br>Aperture ratio : 100% on the plug side, 100% on the receptacle side |
| 4. PCB Warpage | A maximum of 0.02mm at the center of the connector with reference to both ends of the connector. |
| 5. Cleaning | Not recommended. If this product is cleaned, please evaluate the performance before using it. Cleaning may cause a change in the mating/unmating properties as well as environmental resistance. |
| 6. Notes | ・Insertion or removal prior to board mounting may result in contact deformation.<br>・Avoid supporting the PCB only with the connectors. Support it by other means such as bolts, screws, posts, etc.<br>・Avoid excessive prying mating/unmating as it may result in damage.<br>・During manual soldering, do not apply flux which will cause solder wicking.<br>・This product may have slight color differences due to production lot variability, but this does not have any effect on the performance.<br>・Please refer to the next page for mating/unmating precautions.<br>・It is advised to secure the mated connectors to the board with housings and cushioning materials because the product can disengage if dropped, by other impact or by FPC routing.<br>・Caution! Do not use the connector outside of the specifications.(i.e., rated current, rated voltage, PCB design and operating environment, etc.).Such usage could lead to material outgassing, ignition, or short-circuit, etc.<br>・Please use a proper stiffener on the back of the FPC. We recommend using a glass epoxy material with a minimum thickness of 0.3mm or a stainless steel material with a minimum of thickness of 0.2mm. |

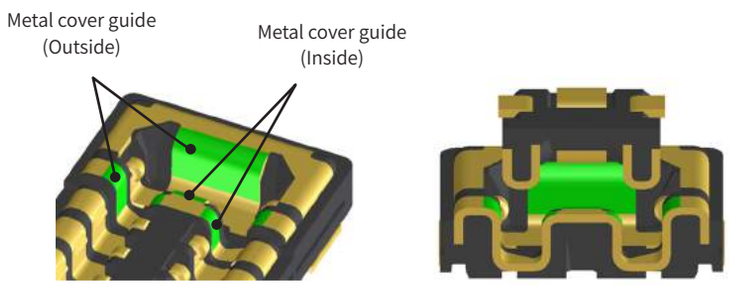
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# Connector Handling Precautions

## 【Connector Mating Precautions】

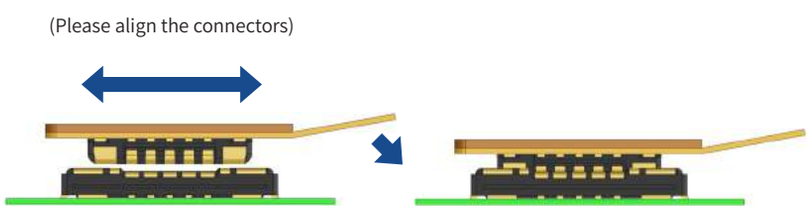


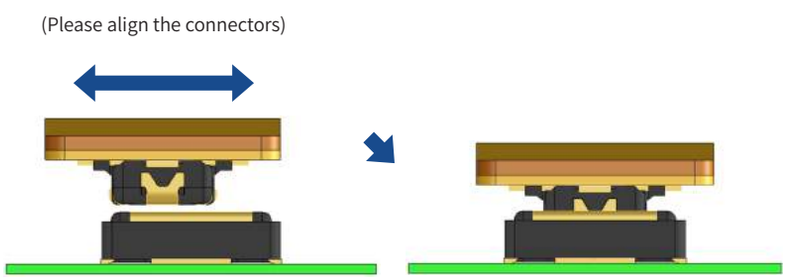

1. Locate the guides and align the connectors to the appropriate mating position.
   The connector has guide ribs on the receptacle for proper mating alignment.
   Align the connectors with the guide ribs.



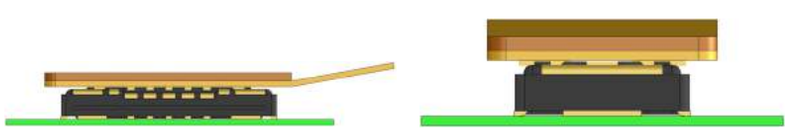

2. When the connector comes to the appropriate position, the connector will lower into place as indicated by the change in mated height.

3. When the connectors has lowered into place, the connector pair will be parallel to each other and cannot be moved back and forth or left and right.
   Please complete mating from this state by applying force.



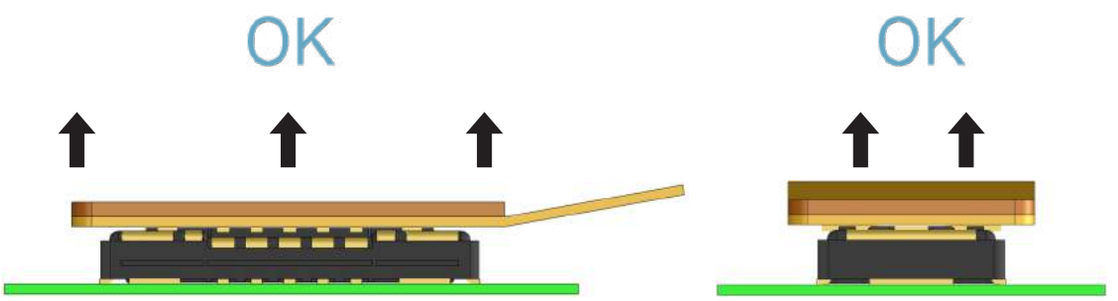

4. Please make sure connectors are mated completely. If one side is floating or the connectors are mated at an angle,
   please unmate and then redo the mating procedure following the steps described.



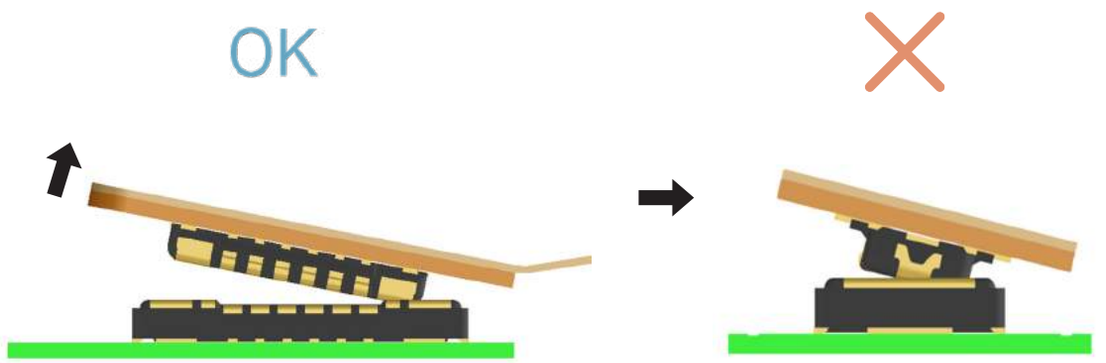
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## 【Connector Un-Mating Precautions】

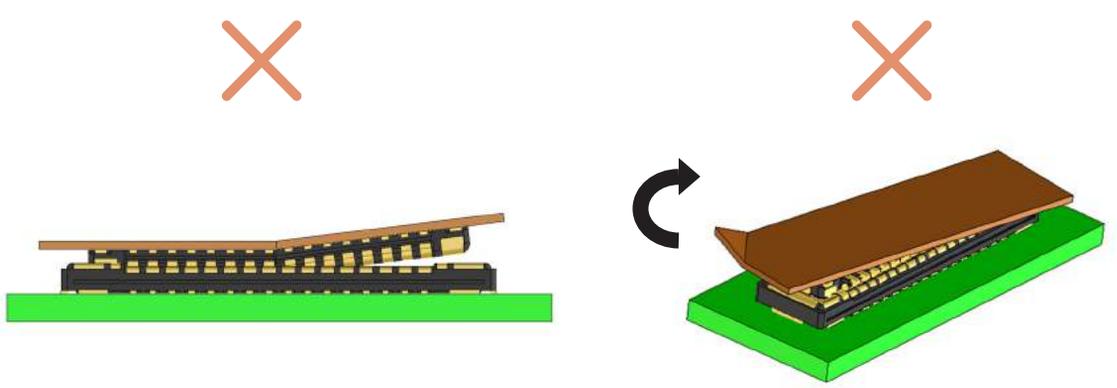
1. It is recommended to remove the connector by pulling perpendicular to the connector mounted surface.
   However, unmating FPC-to-board connectors can become more difficult with higher pin count connectors and thinner FPCs.




2. If is difficult to remove the connector parallel to the mounting surface, remove it diagonally towards the pitch direction. Do not remove the connector towards the width direction as it may put a large amount of stress on the contacts.




3. If the FPC is not rigid enough, there is a possibility of solder peeling or connector damage.
   Please check the repetitive operation of the FPC planned to be used in advance, such as during the early stage build.
   Please do not remove the FPC by holding one corner and pulling at a diagonal as this will put a great amount of stress on the contacts.



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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.

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

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