

## TB4 Series

# For Automotive, 1.0mm Pitch, Center Lock, FPC/FFC-to-Board Connector



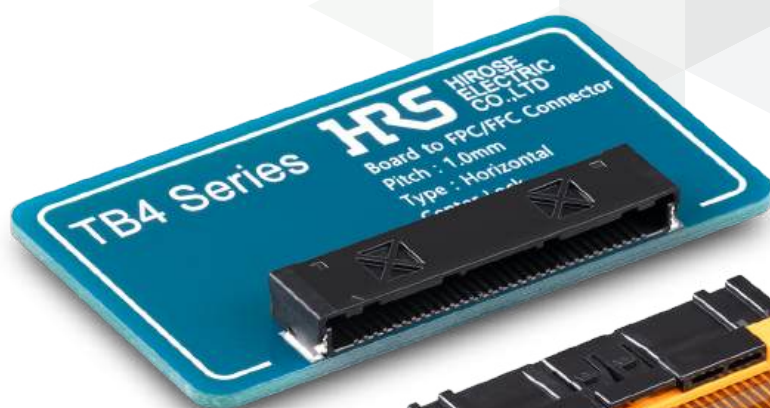
High Temp



Low Profile



Finger Protect

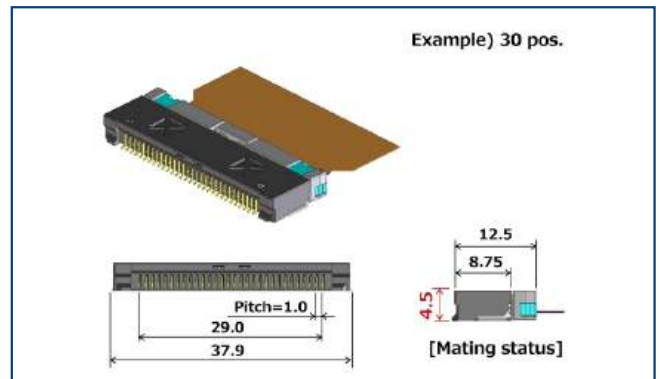


Product Page  
<https://www.hirose.com/en/product/series/TB4>

## Features

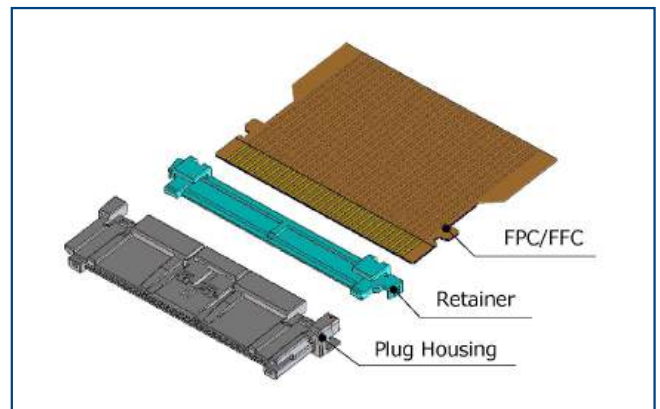
### 1. Low Height, Space Saving

- FPC/FFC Pattern & PCB Layout Pattern : 1.0mm Pitch
- Mating height : 4.5mm
- Low height and space saving for Two-piece FPC/FFC-to-Board Connection



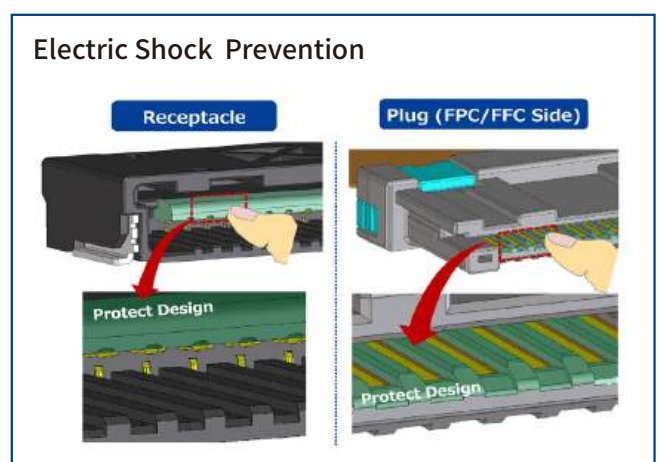
### 2. Simplified Assembly for Size and Weight Reduction

Assembly involves simply inserting the FPC/FFC into the plug housing and securing it with the retainer, enhancing efficiency and reducing complexity. This design eliminates traditional terminals, thereby decreasing weight and conserving space by using FPC/FFC instead of discrete wires.



### 3. Safe Design Prevents Electric Shock, Mis-insertion

- **Receptacle**  
The receptacle features a “finger protector” structure with enough depth to prevent operators from touching
- **Plug**  
The protective guide design prevents electric shock when operators touch patterns.
- The guide key structure of the **plug** and **receptacle** allows for easy mating and improves the fit, preventing damage due to incorrect fitting. These adjustments should maintain the original.



## Product Specifications

|               |            |                                 |                             |
|---------------|------------|---------------------------------|-----------------------------|
| Rated Current | 1.0A       | Operating Temperature (Note 1)  | -40 to +125° C              |
| Rated Voltage | 100V AC/DC | Operating Humidity Range        | 20 to 85% (No Condensation) |
|               |            | Storage Temperature (Note 2)    | -10 to +60° C               |
|               |            | Storage Humidity Range (Note 2) | 40 to 70% (No Condensation) |

|   |   |
|---|---|
| Adaptive FPC/FFC Contact Specifications | Thickness : 0.3 ± 0.03mm Gold Plated Contact Traces |
|---|---|

| Items                         | Specifications   | Conditions   |
|-------------------------------|--|--|
| Contact Resistance            | 25m Ω Max.   | 1mA (20mV DC)  |
| Insulation Resistance         | 100M Ω Min.  | 500V DC  |
| Withstanding Voltage          | No insulation breakdown.   | 500V AC for 1 min.   |
| Mating Durability             | Contact Resistance : 25m Ω Max.  | 10 cycles  |
| Vibration Resistance (Note 3) | No electrical discontinuity.<br>Contact Resistance : 25m Ω Max.        | Acceleration : 118m/s <sup>2</sup> , Random duration 8h,<br>Frequency 60 to 1,200Hz                                |
| Shock Resistance (Note 3)     | No electrical discontinuity.<br>Contact Resistance : 25m Ω Max.        | Acceleration : 343m/s <sup>2</sup> , duration of pulse : 5 to 10ms<br>10 cycles in each of the 3 axial directions. |
| Temperature, Humidity Cycling | Contact Resistance : 25m Ω Max.<br>Insulation Resistance : 100M Ω Min. | Temperature : -40 → +125°C<br>Time : 8h/1cycle, 40 cycles<br>Relative humidity : 80 to 100%                        |
| Temperature Cycle             | Contact Resistance : 25m Ω Max.  | Temperature -40 → +125°C<br>Time 30 → 30 min.<br>100 cycles  |
| Heat Resistance               | Contact Resistance : 25m Ω Max.  | Exposed at 125 ± 2°C for 1,008h  |
| Cold Resistance               | Contact Resistance : 25m Ω Max.  | Exposed at -40 ± 3°C for 120h  |
| Sulfurous Acid Gas Resistance | Contact Resistance : 25m Ω Max.  | Exposed at room temperature with a concentration of 25ppm and relative humidity 75 ± 5% Min., for 96h.             |

Note1 : Includes temperature rise caused by current flow.

Note2 : Storage refers to long-term storage of unused items before they are mounted on the PCB.

Operating temperature and humidity range apply when the product is not powered after PCB mounting and when temporarily stored during transportation.

Note3 : Testing conducted in accordance with the USCAR-2 specification.

Materials / Finish

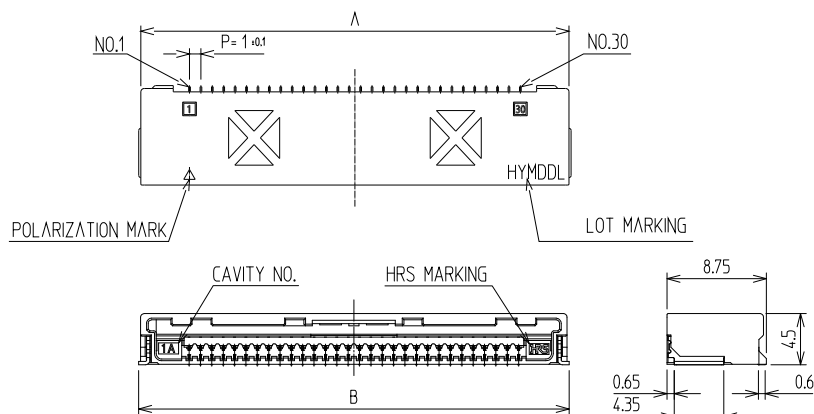
| Component  |               | Materials    | Finish and Color                            |
|------------|---------------|--------------|---|
| Receptacle | Insulator     | PA           | Black, Gray / UL94V-0                       |
|            | Contact       | Copper Alloy | Contact: Gold Plating<br>Lead: Gold Plating |
|            | Retention Tab | Brass        | Tin Plating                                 |
| Plug       | Housing       | PA           | Black, Gray / UL94V-0                       |
|            | Retainer      | PA           | Orange / UL94V-0                            |

Product Number Structure

Refer to the chart below when determining the product specifications from the product number.

TB4   B   -   ##   S   -   1   H   (800)  
①   ②   ③   ④   ⑤   ⑥   ⑦

|               |   |                  |   |
|---------------|---|------------------|---|
| ① Series Name | TB4   | ④ Connector Type | S : Receptacle<br>P : Plug<br>RP : Retainer         |
| ② Key Code    | Blank : Standard, Black<br>B : B Key, Gray                      |                  |   |
| ③ No. of Pos. | Mass Production : 10, 16, 30 pos.<br>Under Developing : 22 pos. | ⑤ Pitch          | 1mm   |
|               |   | ⑥ Product Type   | H: SMT Horizontal Mounting Type<br>F : FPC/FFC Plug |
|               |   | ⑦ Specifications | (800): Standard                                     |

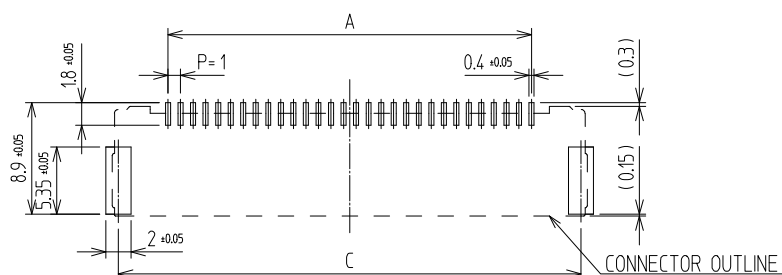


| Part No.         | HRS No.               | Color | Mating Key | No. of Pos. | A    | B    | C    | Purchase Unit     |
|------------------|-----------------------|-------|------------|-------------|------|------|------|-------------------|
| TB4-10S-1H(800)  | CL 0480-1132-0-00     | Black | Standard   | 10          | 9.0  | 17.9 | 16.9 | 1,000pcs per reel |
| TB4B-10S-1H(800) | Under Planning (Note) | Gray  | B Key      |             |      |      |      |                   |
| TB4-16S-1H(800)  | CL 0480-1135-0-00     | Black | Standard   | 16          | 15.0 | 23.9 | 22.9 | 1,000pcs per reel |
| TB4B-16S-1H(800) | Under Planning (Note) | Gray  | B Key      |             |      |      |      |                   |
| TB4-22S-1H(800)  | Under Planning (Note) | Black | Standard   | 22          | 21.0 | 29.9 | 28.9 | -                 |
| TB4B-22S-1H(800) | Under Planning (Note) | Gray  | B Key      |             |      |      |      |                   |
| TB4-30S-1H(800)  | CL 0480-1138-0-00     | Black | Standard   | 30          | 29.0 | 37.9 | 36.9 | 1,000pcs per reel |
| TB4B-30S-1H(800) | Under Planning (Note) | Gray  | B Key      |             |      |      |      |                   |

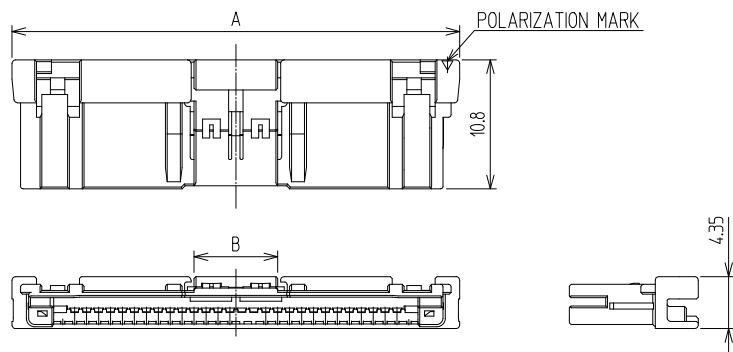
Note : Products without HRS No. are currently being planned for development.  
Contact a Hirose representative regarding questions on pin count variation development.

● Recommended Land / Metal Mask Dimensions  
(Recommended Metal Mask Thickness : 0.12mm)

RECOMMENDED PCB LAYOUT(TOP-VIEW)



## Plug Housing



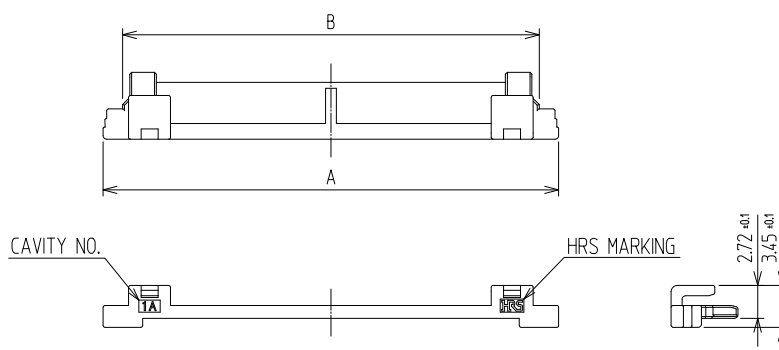
| Part No.         | HRS No.                 | Color | Mating Key | No. of Pos. | A    | B   | Purchase Unit  |
|------------------|-------------------------|-------|------------|-------------|------|-----|----------------|
| TB4-10P-1F(800)  | CL 0480-1133-0-00       | Black | Standard   | 10          | 17.5 | 3.0 | 100pcs per bag |
| TB4B-10P-1F(800) | Under Planning (Note 1) | Gray  | B Key      |             |      |     |                |
| TB4-16P-1F(800)  | CL 0480-1136-0-00       | Black | Standard   | 16          | 23.5 | 7.0 | 100pcs per bag |
| TB4B-16P-1F(800) | Under Planning (Note)   | Gray  | B Key      |             |      |     |                |
| TB4-22P-1F(800)  | Under Planning (Note 1) | Black | Standard   | 22          | 29.5 | 7.0 | -              |
| TB4B-22P-1F(800) | Under Planning (Note 1) | Gray  | B Key      |             |      |     |                |
| TB4-30P-1F(800)  | CL 0480-1139-0-00       | Black | Standard   | 30          | 37.5 | 7.0 | 100pcs per bag |
| TB4B-30P-1F(800) | Under Planning (Note)   | Gray  | B Key      |             |      |     |                |

Note 1 : Products without HRS No. are currently being planned for development.

Contact a Hirose representative regarding questions on pin count variation development.

Note 2 : Use with the retainer (TB4-##RP-1(800)), sold separately.

## Retainer



| Part No.        | HRS No.                 | No. of Pos. | A    | B    | Purchase Unit  |
|-----------------|-------------------------|-------------|------|------|----------------|
| TB4-10RP-1(800) | CL 0480-1134-0-00       | 10          | 17.5 | 14.3 | 300pcs per bag |
| TB4-16RP-1(800) | CL 0480-1137-0-00       | 16          | 23.5 | 20.3 | 300pcs per bag |
| TB4-22RP-1(800) | Under Planning (Note 1) | 22          | 29.5 | 26.3 | -              |
| TB4-30RP-1(800) | CL 0480-1140-0-00       | 30          | 37.5 | 34.3 | 300pcs per bag |

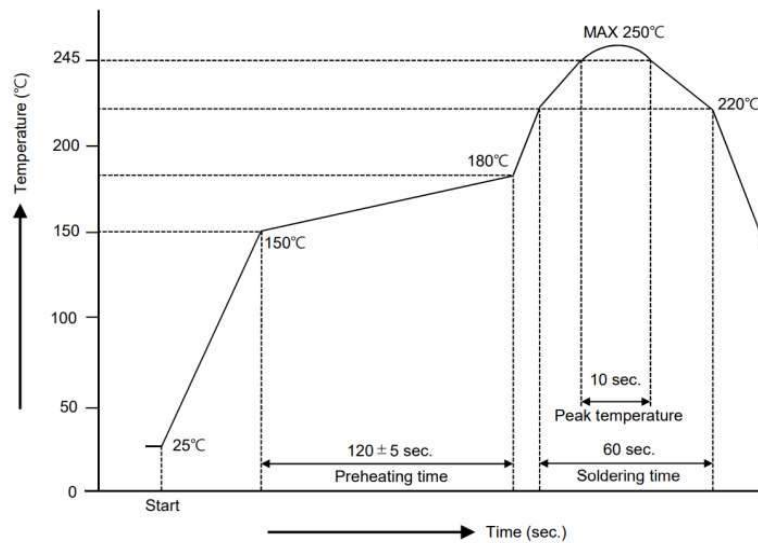
Note 1 : Products without HRS No. are currently being planned for development.

Contact a Hirose representative regarding questions on pin count variation development.

Note 2 : Attach to the plug housing (TB4(B)-##P-1F(800)), sold separately.

## Usage Precautions

Recommended Temperature Profile



\*Measurement is conducted at the contact lead part. Soldering results may change depending on conditions such as solder paste type, manufacturer, PCB size, and other soldering materials. Please determine all mounting conditions before use.

\*This temperature profile is a recommended value.

Precautions

1. Forcing the connector out might cause damage.  
If challenging to remove, gently press down once and then release the lock.
2. Always disconnect the power before reseating the connector.
3. Avoid touching the terminal area when the power is active, as it's hazardous.
4. For harnessing guidelines, please consult a Hirose representative.

## 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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[TB4-30S-1H\(800\)](#) [TB4-10P-1F\(800\)](#) [TB4-30P-1F\(800\)](#)