

TB4 Series

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



High Temp



Low Profile



Finger Protect

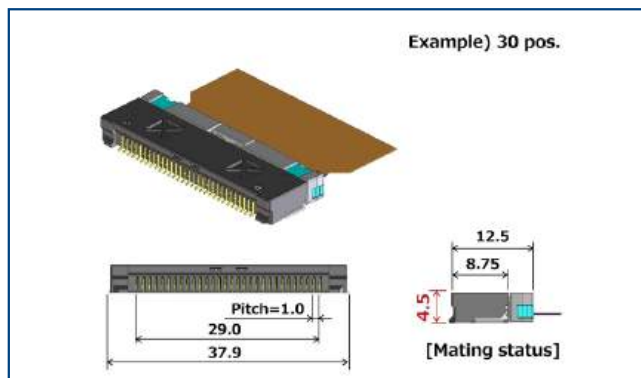


Product Page
<https://www.hirose.com/en/product/series/TB4>

Features

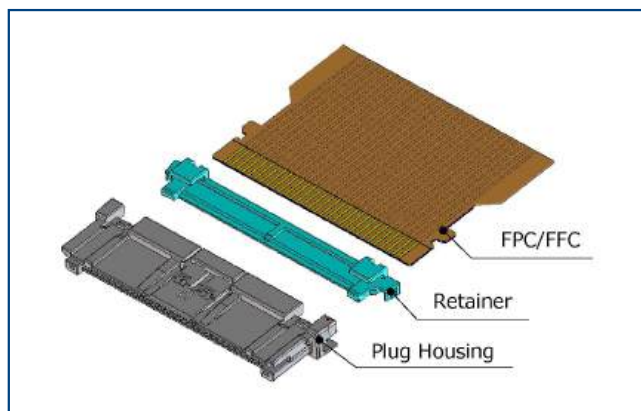
1. Low Height, Space Saving

- 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



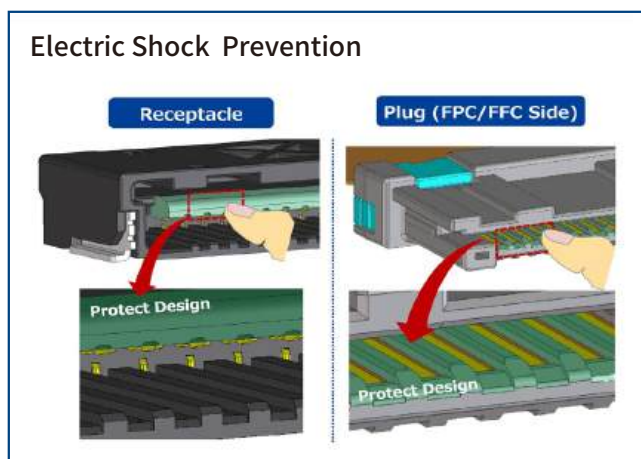
2. Simplified Assembly for Size and Weight Reduction

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
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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. Contact Resistance : 25m Ω Max.	Acceleration : 118m/s ² , Random duration 8h, Frequency 60 to 1,200Hz
Shock Resistance (Note 3)	No electrical discontinuity. Contact Resistance : 25m Ω Max.	Acceleration : 343m/s ² , duration of pulse : 5 to 10ms 10 cycles in each of the 3 axial directions.
Temperature, Humidity Cycling	Contact Resistance : 25m Ω Max. Insulation Resistance : 100M Ω Min.	Temperature : -40 → +125°C Time : 8h/1cycle, 40 cycles Relative humidity : 80 to 100%
Temperature Cycle	Contact Resistance : 25m Ω Max.	Temperature -40 → +125°C Time 30 → 30 min. 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

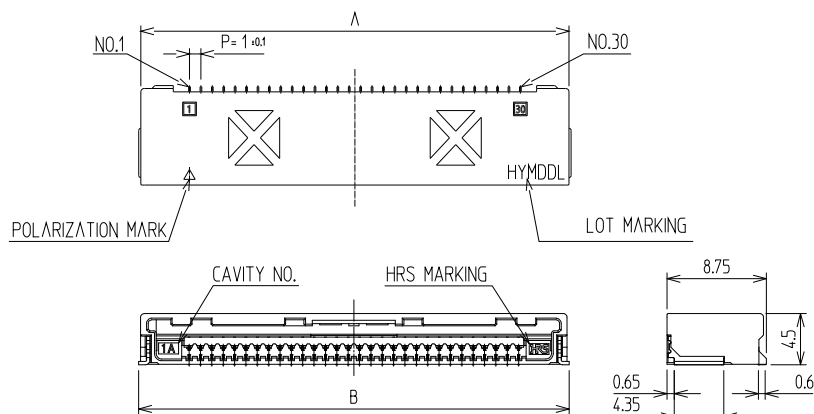
Component		Materials	Finish and Color
Receptacle	Insulator	PA	Black, Gray / UL94V-0
	Contact	Copper Alloy	Contact: Gold Plating Lead: Gold Plating
	Retention Tab	Brass	Tin Plating
Plug	Housing	PA	Black, Gray / UL94V-0
	Retainer	PA	Orange / UL94V-0

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 P : Plug RP : Retainer
② Key Code	Blank : Standard, Black B : B Key, Gray		
③ No. of Pos.	10,16,22,30 pos.	⑤ Pitch	1mm
		⑥ Product Type	H: SMT Horizontal Mounting Type F : FPC/FFC Plug
		⑦ Specifications	(800): Standard

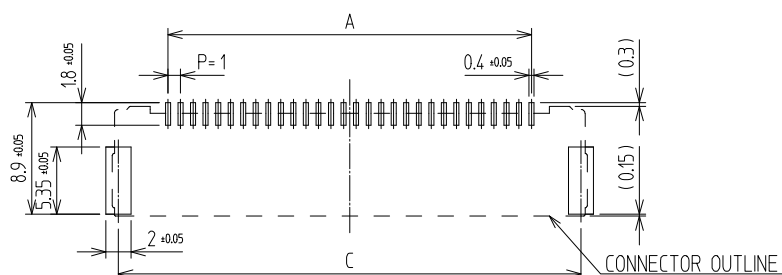


Part No.	HRS No.	Color	Mating Key	No. of Pos.	A	B	C	Purchase Unit
TB4-10S-1H(800)	CL 0480-1132-0-00	Black	Standard	10	9.0	17.9	16.9	1,000pcs per reel
TB4B-10S-1H(800)	CL 0480-1308-0-00	Gray	B Key					
TB4-16S-1H(800)	CL 0480-1135-0-00	Black	Standard	16	15.0	23.9	22.9	
TB4B-16S-1H(800)	CL 0480-1310-0-00	Gray	B Key					
TB4-22S-1H(800)	CL 0480-1297-0-00	Black	Standard	22	21.0	29.9	28.9	1,000pcs per reel
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)	CL 0480-1312-0-00	Gray	B Key					

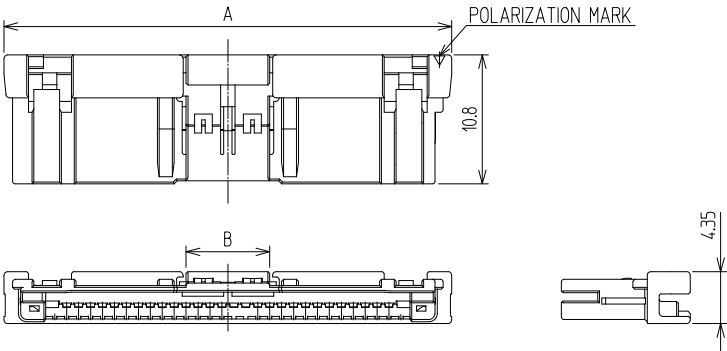
Note : Products without HRS No. are currently being planned for development.
Contact a Hirose representative regarding questions on pin count variation development.

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

RECOMMENDED PCB LAYOUT(TOP-VIEW)



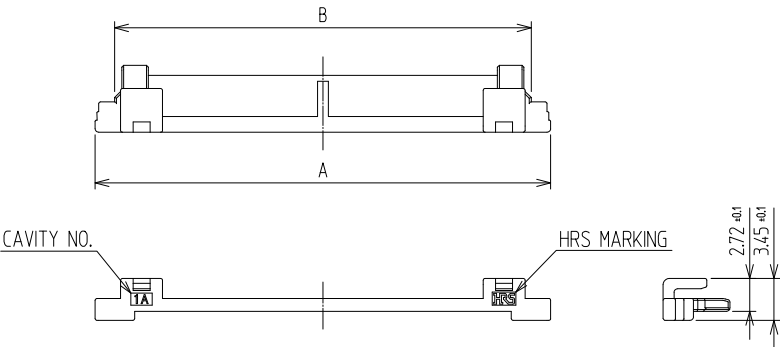
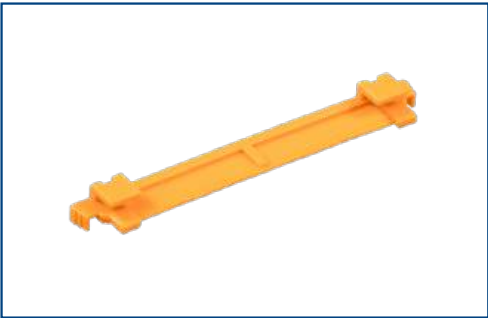
Plug Housing



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)	CL 0480-1309-0-00	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)	CL 0480-1311-0-00	Gray	B Key				
TB4-22P-1F(800)	CL 0480-1298-0-00	Black	Standard	22	29.5	7.0	100pcs per bag
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)	CL 0480-1313-0-00	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

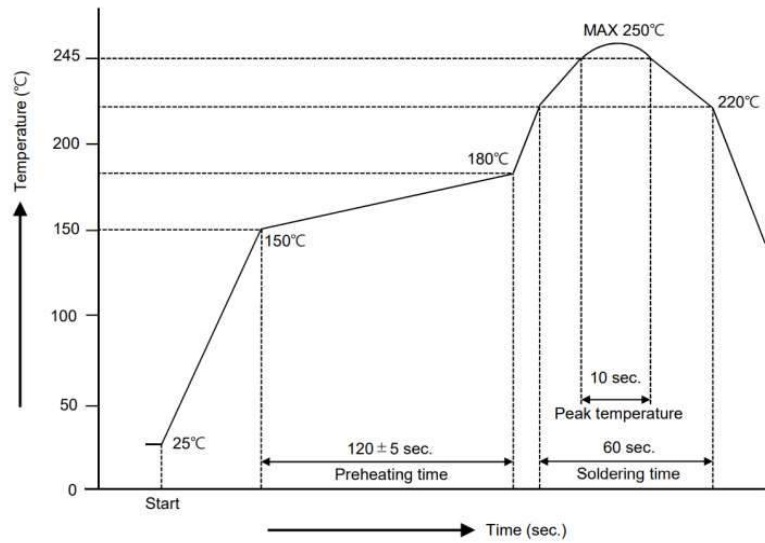


Part No.	HRS No.	No. of Pos.	A	B	Purchase Unit
TB4-10RP-1(800)	CL 0480-1134-0-00	10	17.5	14.3	300pcs per bag
TB4-16RP-1(800)	CL 0480-1137-0-00	16	23.5	20.3	
TB4-22RP-1(800)	CL 0480-1299-0-00	22	29.5	26.3	
TB4-30RP-1(800)	CL 0480-1140-0-00	30	37.5	34.3	

Note : 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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