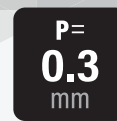


## BM55 Series

# 0.3mm Pitch, 0.5mm Stacking Height, Ultra Compact Hybrid FPC-to-Board Connector Supporting 5A



This product was selected as a **CES Innovation Awards Honoree**



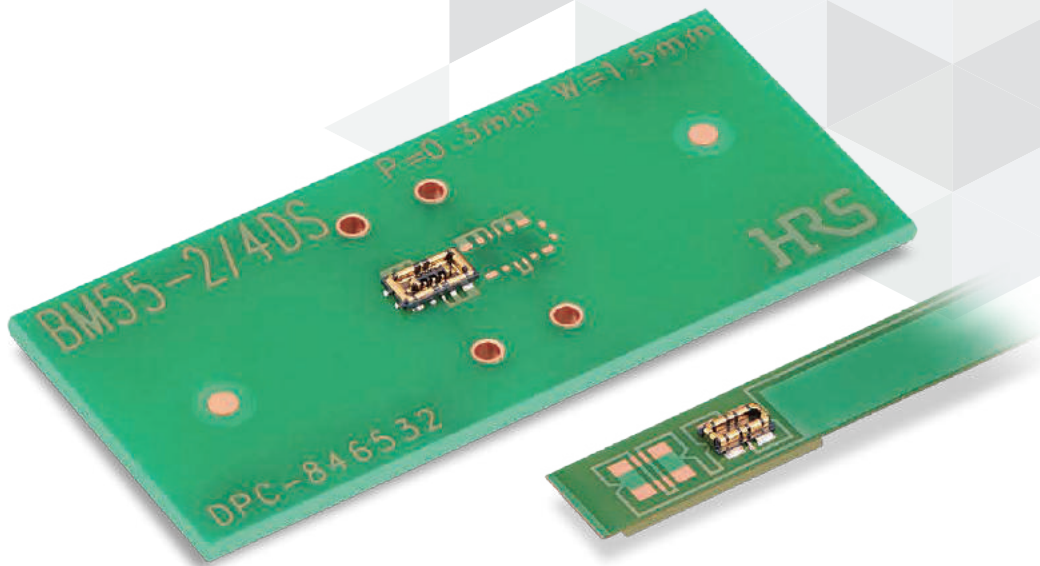
P = 0.3mm



Full Armored



High-Current

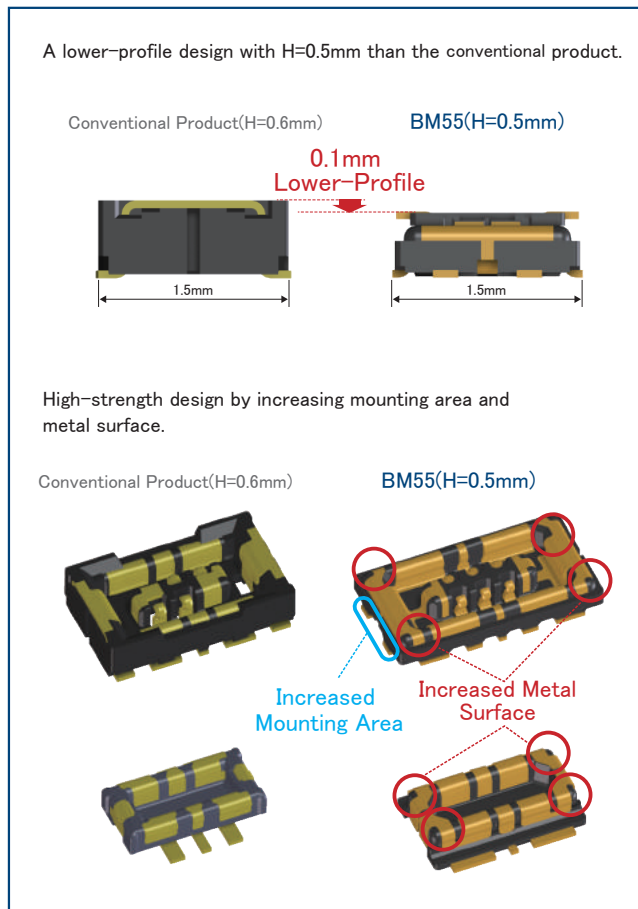


NEW

# Features

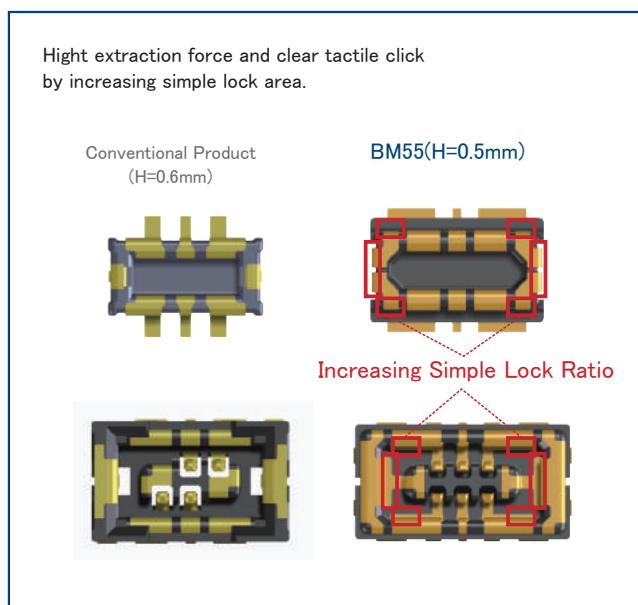
## 1. Low-profile, Space-saving and High-strength Design

While height decreases from 0.6mm to 0.5mm, the strength increases by increasing the metal surface and mounting area on the mating surface side compared to Ultra small conventional product.



## 2. Small, High Extraction Force and Clear Tactile Click

Small and high extraction force by increasing metal surface in spite of decreasing the height.



### 3. Halogen-free

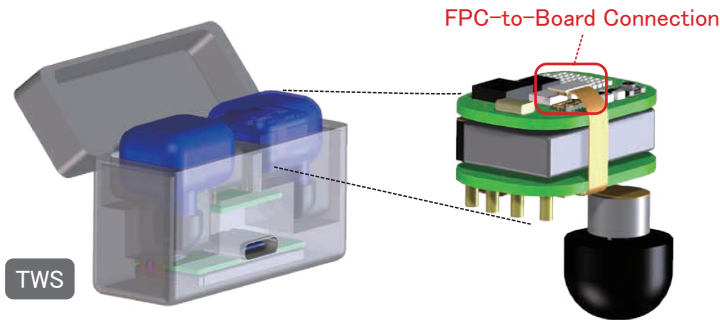
No chlorine or bromine exceeding the standard value is used in the connector.

\*In accordance with IEC 61249-2-21

Br : 900ppm max., Cl : 900ppm max., Br+Cl : 1500ppm max.

### Applications

Devices that require low-profile, compact design such as wearable terminals (Smartphones, Smartwatches, TWS).



Used for the internal connection of small mobile devices such as TWS, Smartwatches and Smartphones.

### Product Specifications

Rated Current	Power Contact : 5A Signal Contact : 0.3A	Operating Temperature (Note 1)	-55 to + 85°C
Rated Voltage	30V AC/DC	Operating Humidity Range (Note 2)	90%RH Max.
		Storage Temperature (Note 3)	-10 to + 60°C
		Storage Humidity Range (Note 2)(Note 3)	90%RH Max.

Item	Specifications	Conditions
Contact Resistance	Signal Contact : 50m $\Omega$ Max. Power Contact : 30m $\Omega$ Max.	Measured at 20mV AC, 1kHz, 1mA
Insulation Resistance	50M $\Omega$ Min.	Measured at 100V DC
Withstand Voltage	No Flashover or Breakdown	150V AC for 1 min.
Mating Durability	Contact Resistance : Signal Contact 50m $\Omega$ Max. Power Contact 30m $\Omega$ Max.	10 times
Vibration Resistance	No electrical discontinuity for more than 1 $\mu$ s.	Frequency 10 to 55Hz single amplitude of 0.75mm 10 cycles in each of 3 axis directions for 5 minutes/ cycle
Moisture Resistance	Contact Resistance : Signal Contact 50m $\Omega$ Max. Power Contact 30m $\Omega$ Max. Insulation Resistance : 25M $\Omega$ Min.	96 hours at temperature of 40 $\pm$ 2°C and humidity range from 90 to 95%RH
Temperature Cycles	Contact Resistance : Signal Contact 50m $\Omega$ Max. Power Contact 30m $\Omega$ Max. Insulation Resistance : 50M $\Omega$ Min.	-55°C for 30min. $\rightarrow$ +85°C for 30 min. for 5 Cycles (Tank transfer time: within 2 to 3 min.)
Solder Heat Resistance	No dissolution or resin melting that will affect performance.	Reflow : At recommended temperature profile Hand Soldering : 350°C within 3 sec.

Note 1 : Includes the temperature rise due to current flow.

Note 2 : Use without condensation.

Note 3 : 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.

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.

## Material / Finish

Product	Component	Material	Finish
Header Receptacle	Housing	LCP	Black
	Signal Contact	Copper Alloy	Gold Plated
	Power Contact	Copper Alloy	Gold Plated

## 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.

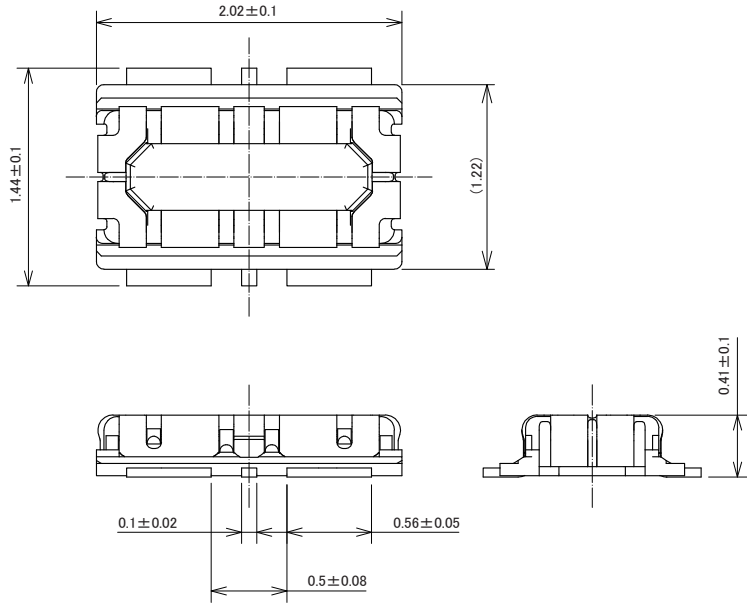
### ● Header/Receptacle

## **BM55 R 0.5 - 2 DS / 2 - 0.3 V (51)**

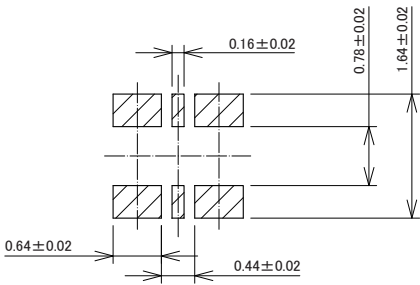
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

① Series Name	BM55	⑥ No. of Power Contacts	2pos.
② Series No.	R	⑦ Contact Pitch	0.3mm
③ Stacking Height	0.5 : 0.5mm	⑧ Terminal Design	V : Straight SMT
④ Number of Signal Contacts	2	⑨ Plating Specifications and Packaging	(51) : Gold Plate Thickness 0.05 $\mu$ m Embossed Tape Packaging (30,000pcs per reel)
⑤ Connector Type	DP : Header DS : Receptacle		

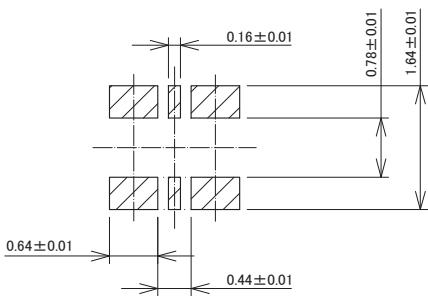
# Header



## Recommended PCB Layout



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

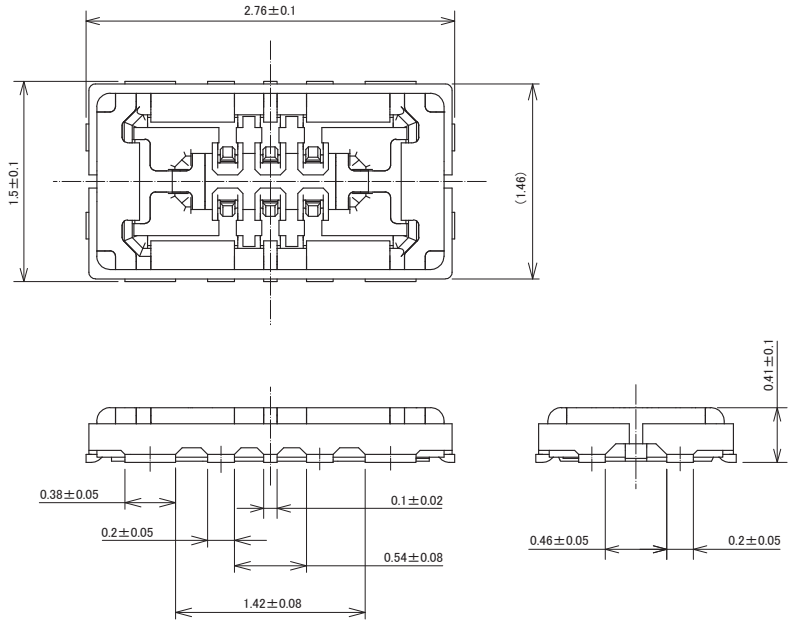
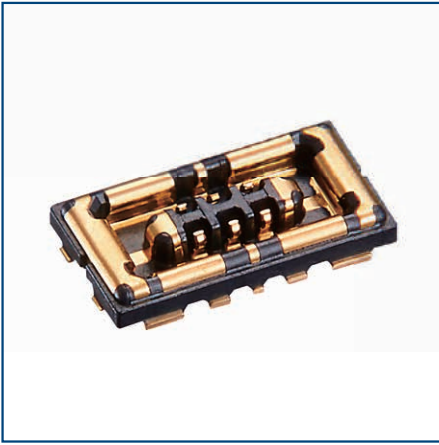


Unit : mm

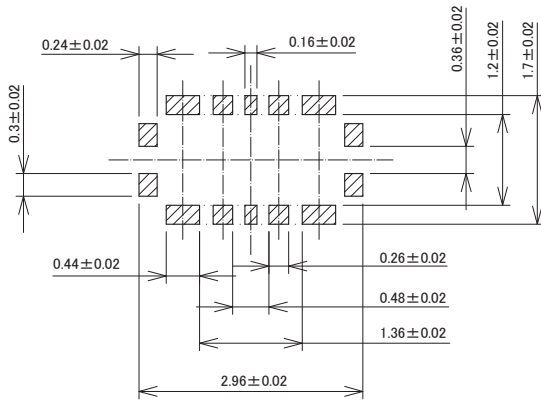
Part No.	HRS No.	No. of Pos.	Purchase Unit
BM55R0.5-2DP/2-0.3V(##)	CL0673-7801-0-##	Signal Contact 2 Power Contact 2	30,000pcs per reel

Note 1 : Please order embossed tape packaged items by the reel.  
 Note 2 : This connector has no polarity.

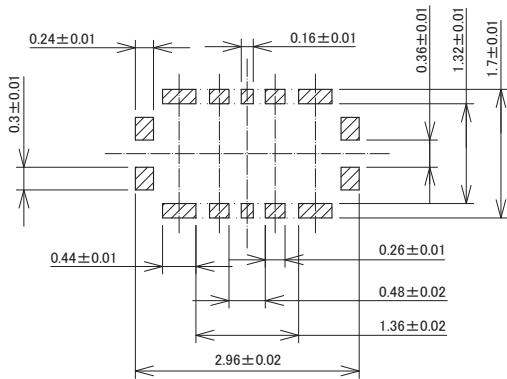
## Receptacle



### ● Recommended PCB Layout



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



Unit : mm

Part No.	HRS No.	No. of Pos.	Purchase Unit
BM55R0.5-2DS/2-0.3V(##)	CL0673-7800-0-##	Signal Contact 2 Power Contact 2	30,000pcs per reel

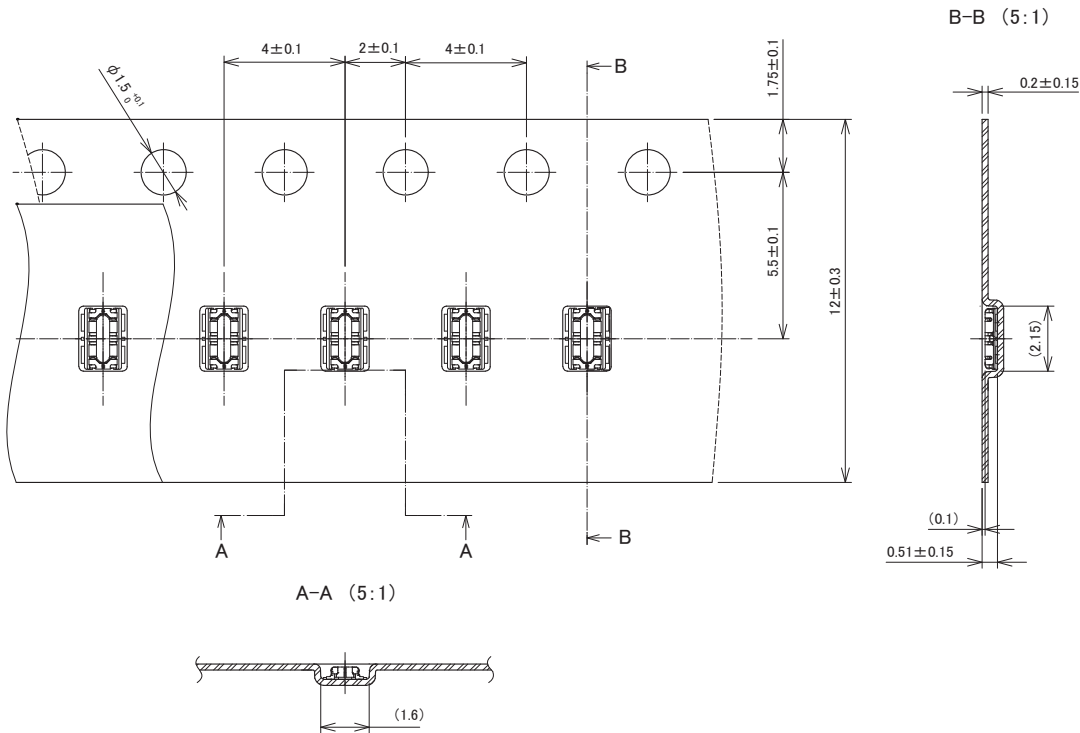
Note 1 : Please order embossed tape packaged items by the reel.  
 Note 2 : This connector has no polarity.

## Packaging Specification

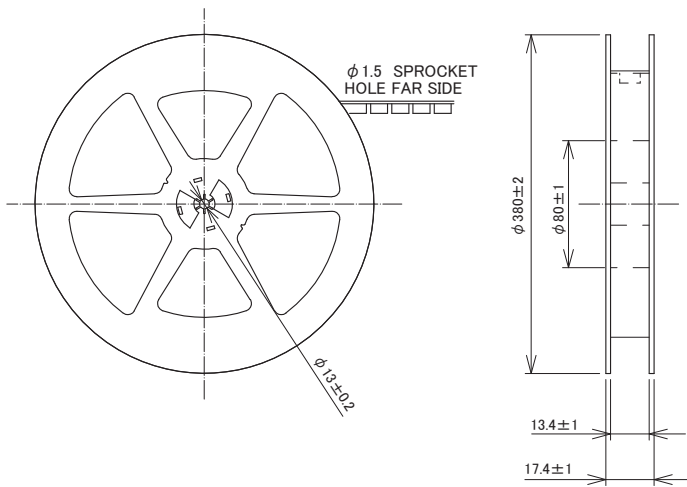
IEC 60286-3, JIS C 0806 Compliant

### Header

#### ● Embossed Tape Dimensions

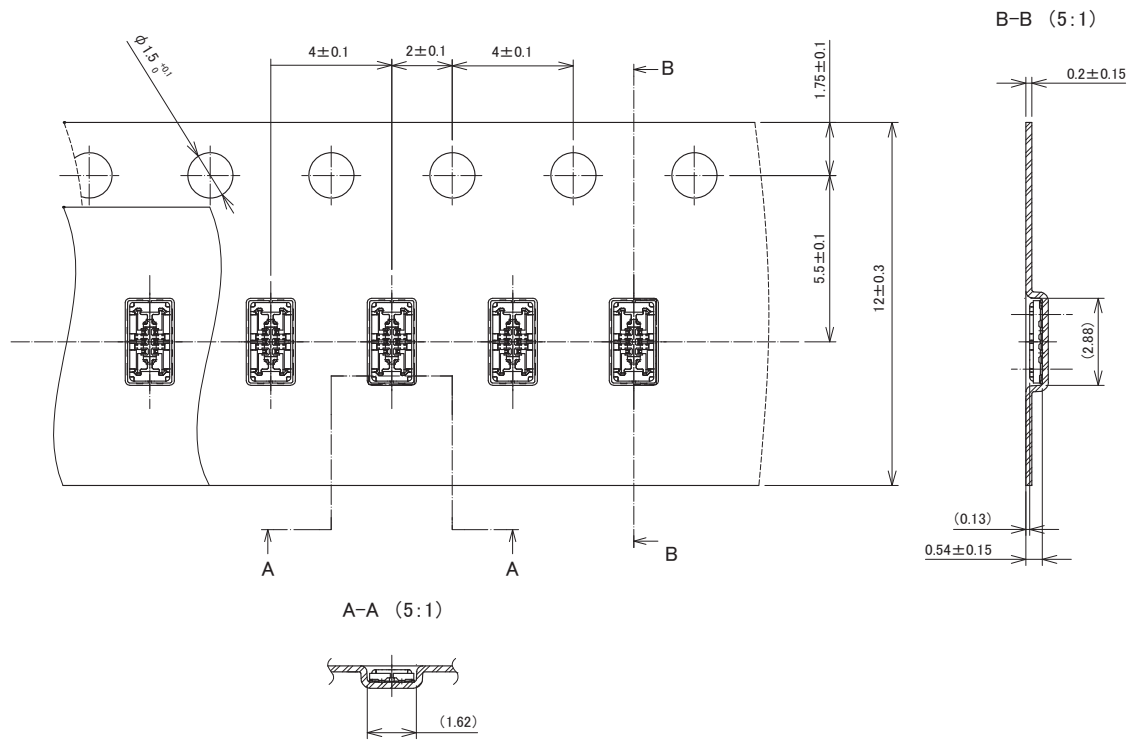


#### ● Reel Dimensions

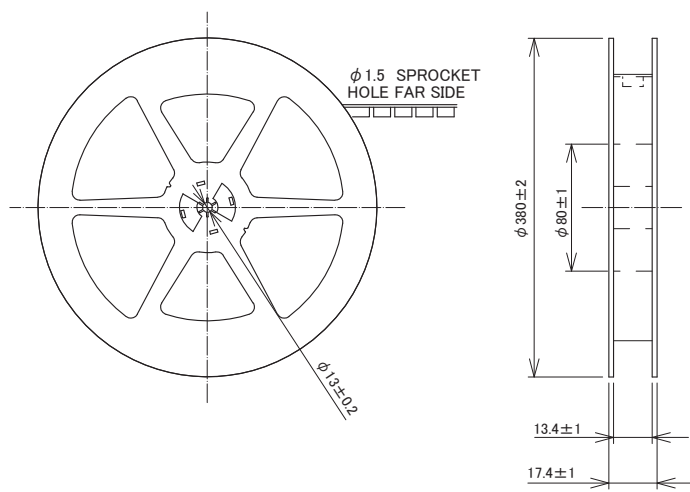


## Receptacle

### ● Embossed Tape Dimensions

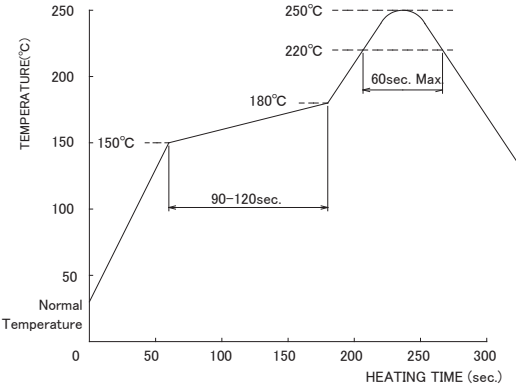


### ● Reel Dimensions





## Precautions

<p>Recommended Temperature Profile</p>	 <p><b>【Conditions】</b></p> <ol style="list-style-type: none"> <li>1. Peak Temperature : 250°C</li> <li>2. Heating : 220°C Min. for 60sec. Max.</li> <li>3. Preheating : 150 to 180°C, 90 to 120sec.</li> <li>4. Number of Reflow Cycles : 2 cycles Max.</li> </ol> <p>(Note 1) Temperature refers to the surface temperature of the board near the connector lead.</p>
<p>Recommended Manual Soldering Conditions</p>	<p>Soldering iron temperature : 340 ± 10°C , Soldering Time : Within 3sec.</p>
<p>Recommended Metal Mask Thickness and Open Area to PCB Pattern (Area Ratio)</p>	<p>Thickness : 0.08mm Aperture Ratio : Header Side 100%, Receptacle Side Signal/Power Part 80%, Longitudinal PCB Side 100%</p>
<p>Cleaning</p>	<p>Cleaning is not recommended. If you clean this product, please evaluate its performance before using it. (Cleaning may impair the mating/unmating properties and lower resistance to environmental factors.)</p>
<p>Precautions</p>	<ul style="list-style-type: none"> <li>· Be careful when mating/unmating the connector when it is not mounted on the PCB as it may cause damage/deformation to contacts.</li> <li>· Avoid supporting the PCB only with the connectors. Support it by other means such as bolts, screws, posts, etc.</li> <li>· Excessive prying during unmating/mating may result in damage.</li> <li>· In the case of hand soldering, please do not apply any flux which could cause flux wicking.</li> <li>· This product may have slight color differences due to production lot variability, but this does not affect the performance.</li> <li>· Please refer to the following page for handling precautions when inserting and removing.</li> <li>· Because the product can disengage if dropped (or other impact), or by FPC routing, it is advised to secure the mated connectors to the board with housings and cushioning materials.</li> <li>· Do not use the connector in non-recommended conditions (i.e., rated current, rated voltage, PCB design and operating environment, etc.). Such usage could lead to material outgassing, ignition, or short-circuit, etc. Refer to the specifications and guidelines for board pattern dimensions, board cautions, and connector treatment. Please contact Hirose if connector usage in conditions other than those described in the specifications and the guidelines is being considered.</li> </ul>

## Connector Handling Precautions

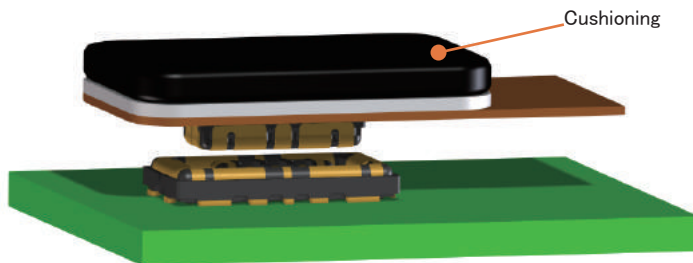
### [Handling Warning When Mating the Connector]

#### Mating Disengagement Prevention

Please use cushioning.

The connector may come off due to impact such as dropping.

Cushioning should be large enough to cover the entire connector.

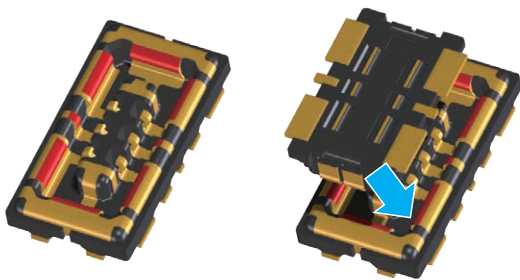


### [Mating Method]

1. Locate the guide port and align.

This product has a guide rib on the header side to ensure proper engagement.

Align the connector so that it is in this position.



2. Once aligned, the connector engages.

You can feel the mated height of the connector lower.

Move the connector forward and backward,  
left and right to find the guide port.

Move Slightly

The mated height lowers to the  
perfect mated condition.



3. In the engaged state, the connectors are parallel to each other,  
and the connectors cannot move forward, backward, left, or right. Complete mating from this state.

Move Slightly

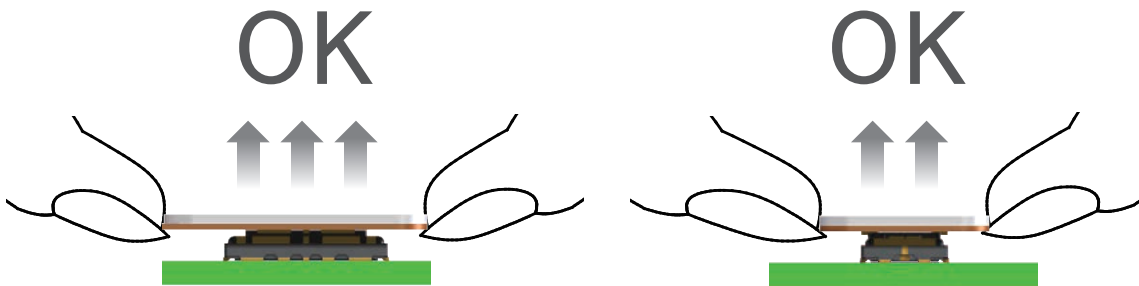


4. Check that mating is completed.  
If one side is floating, or if it is mated diagonally, remove and re-mate.

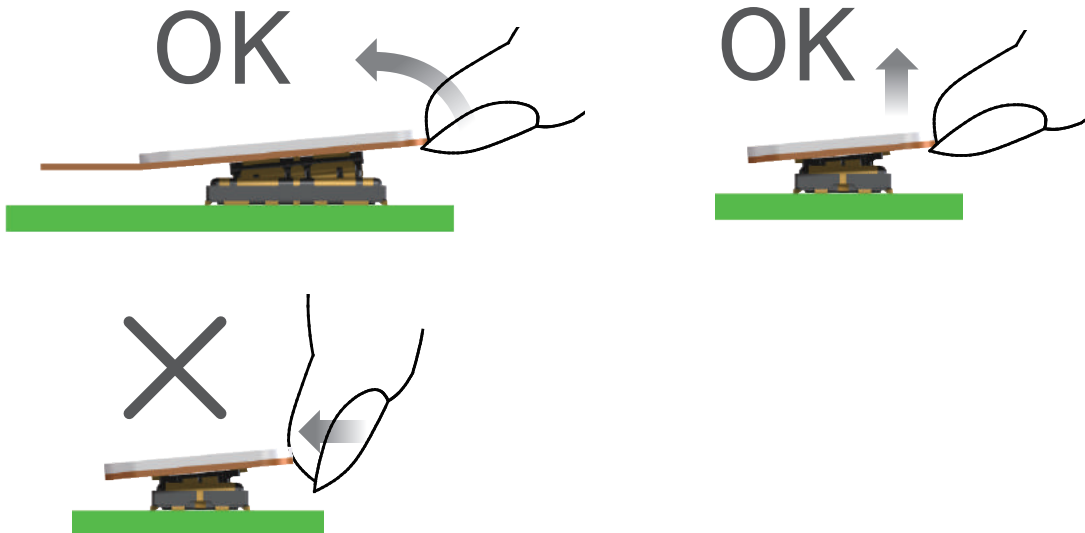


**[Handling When Removing Connector]**

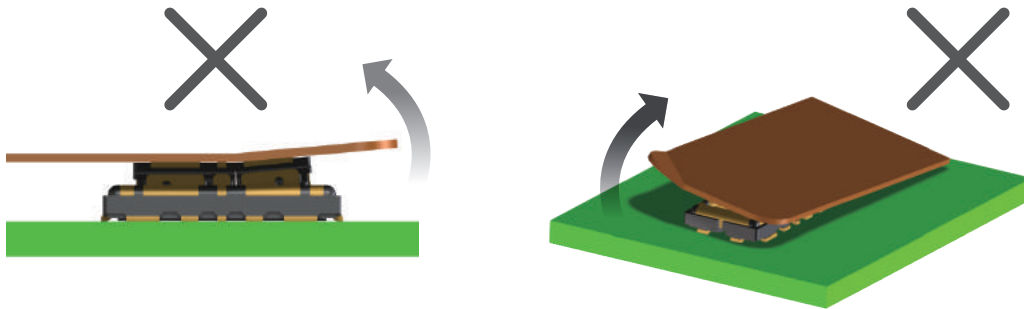
1. When removing the connector, it is preferable to pull it out in the upward direction from the connector mounting surface. However, when removing the FPC from the circuit board it becomes more difficult to remove it vertically with higher pin counts and thin FPCs.



2. If difficult to remove, extract the connector diagonally in the direction of the pitch.  
Note that removal from the widthwise side will apply a large load to the contacts.  
When removing from the width direction, pull the end of the FPC in the upward direction.  
(When a force is applied in the horizontal direction, a large load is applied to the contact.)



3. If the FPC does not have sufficient rigidity, solder stripping or connector breakage may occur. Please use it after checking the repetitive operation with a flexible board in advance, such as during a trial manufacture run (Left diagram). Refrain from holding the corner of the flexible board and removing it diagonally as it will result in a large load to the contacts (Right diagram).



## While Taking into Consideration

Specifications mentioned in this catalog are reference values.

When considering to order or use this product, please confirm 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, assurance will not be given.

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.