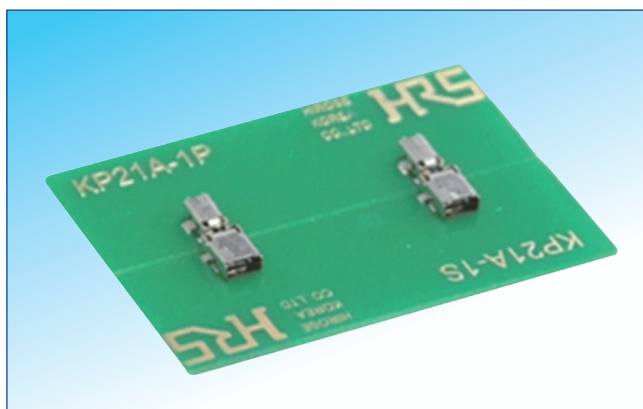


# Horizontal Type, Monopole Floating Board-to-Board Connector

## KP21A Series



### ■ Features

#### 1. Slim & low profile

Slim and low-profile monopole connector ideal for horizontal board-to-board connection inside LED lighting applications.

#### 2. Long Effective Mating Length

Improved contact reliability with 1.3mm effective mating length.

#### 3. Floating design

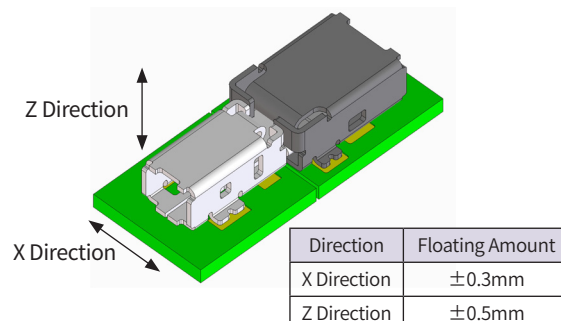
Absorbs displacement in both the X and Z axis.  
Secure connection and high contact reliability.(Fig.1)

#### 4. Clear tactile click

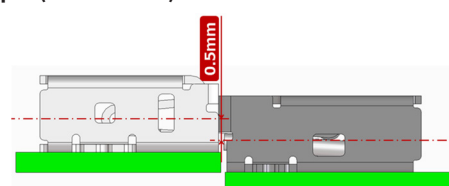
Tactile click prevents incomplete mating and enhances mating operation.(Fig.2)

#### 5. High current capacity : 3A

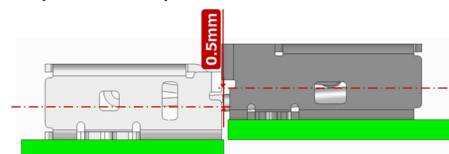
#### Floating Design (X and Z Directions)



##### • Upper (+Z Direction)



##### • Lower (-Z Direction)

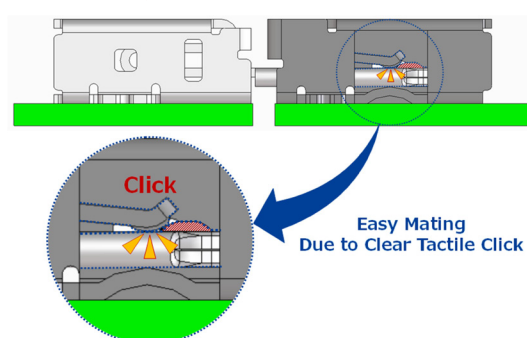


**Misalignment Absorbing Design  
Ensures Contact Reliability**

Fig.1

#### Clear Tactile Click

Insertion →



#### Insertion Force Load Curve

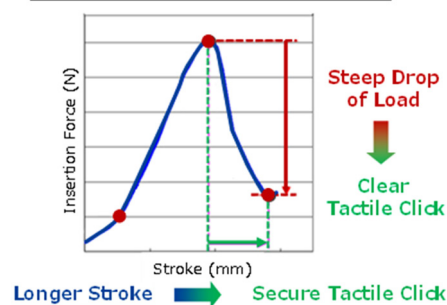


Fig.2

Product Specifications

Ratings	Rated Current	3A	Operating Temperature	-55 to +85°C (Note1)
			Operating Humidity Range	25 to 85% (Note2)
	Rated Voltage	125V AC	Storage Temperature	-10 to +50°C (Note3)
			Storage Humidity Range	85% or less (Note2)

Items	Specifications	Conditions
1. Contact Resistance	20mΩ Max. (Note4)	Open voltage 20 mV AC or less Test current 10mA
2. Vibration	No electrical discontinuity of 1μs or more Contact resistance : 30mΩ or less after initial testing No mechanical damage on the parts	Frequency 10 to 55 to 10 Hz/min, Single amplitude 1.52 mm, 5 minutes in 3 directions
3. Shock	No electrical discontinuity of 1μs or more Contact resistance : 30mΩ or less after initial testing No mechanical damage on the parts	Acceleration 490m/s <sup>2</sup> , duration 11ms, half-sine wave, 3 times in 3 directions, for a total 18 times.
4. Humidity	Contact resistance : 30mΩ or less after initial testing No mechanical damage on the parts	Exposed at 85°C, 85%RH, 240 Hours
5. Temperature Cycle	Contact resistance : 30mΩ or less after initial testing No mechanical damage on the parts	25 Cycles ( 1 Cycle = 1 Hour) Temperature : -55 to +85°C
6. Mating Durability	Contact resistance : 30mΩ or less after initial testing No mechanical damage on the parts	10 times insertion/withdrawal
7. Resistance to Soldering Heat	No deformation in appearance or significant damage to contacts	Reflow: Peak temperature between 250 to 220°C for 60 sec. Max. Hand Solder: Solder iron temperature of 245°C for 3 sec.

Note 1 : Includes the temperature rise due to current flow.  
Note 2 : Use without condensation on parts.  
Note 3 : The storage condition refers to long-term storage of the product before assembly.  
The operating temperature and humidity range apply after board mounting in the non-energized state.  
Note 4 : Contact resistance includes conductor resistance unless otherwise specified.  
Testing should be conducted under a temperature of 15 to 35°C with air pressure of 86 to 106kpa and relative humidity 25 to 85%.

Material / Finish

Item	Material	Finish
Plug	Phosphor Bronze	Tin Plating
Socket	Phosphor Bronze	Tin Plating

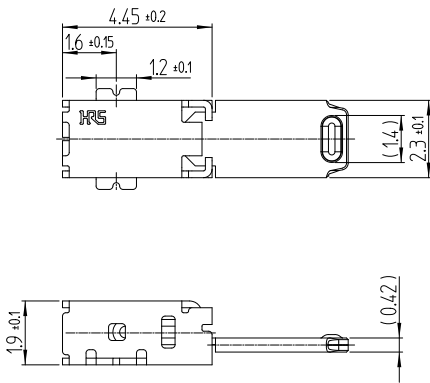
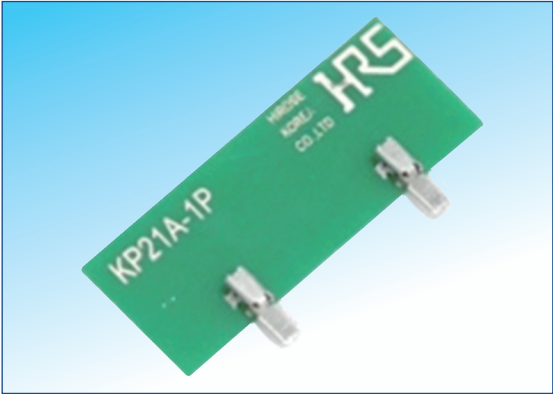
Product Number Structure

Refer to the chart below when determining the product specifications from the product number.  
Please select from the product numbers listed in this catalogue when placing orders.

**KP21    A    -    1    P    (800)**  
①        ②        ③ ④        ⑤

① Series Name	KP21	④ Type of Connector	P : Plug S : Socket
② Connector Type	A : Floating Board-to-Board	⑤ Specification	(800): Tin Plating, Emboss Package
③ Number of contacts	1Pos.		

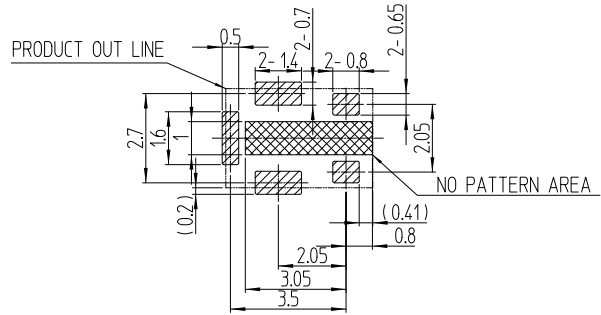
■ Plug(SMT)



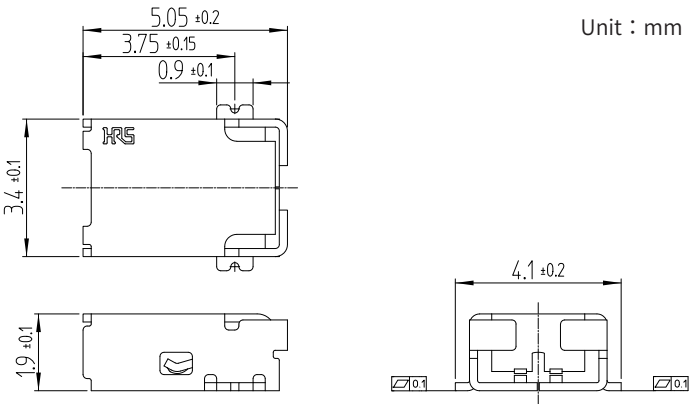
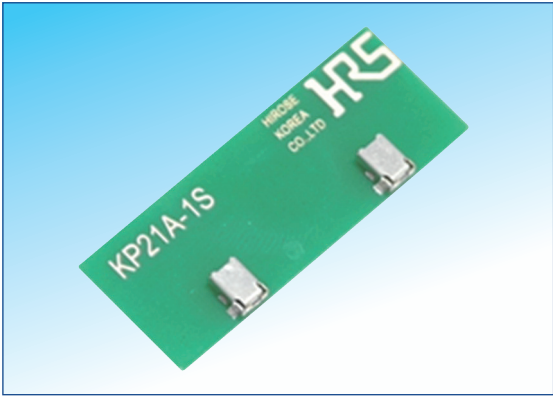
Unit : mm

Part No.	HRS No.	Purchase Unit
KP21A-1P(800)	480-0633-0 00	4,500pcs/Reel

● Recommended PCB Dimensions (t=1.6mm)



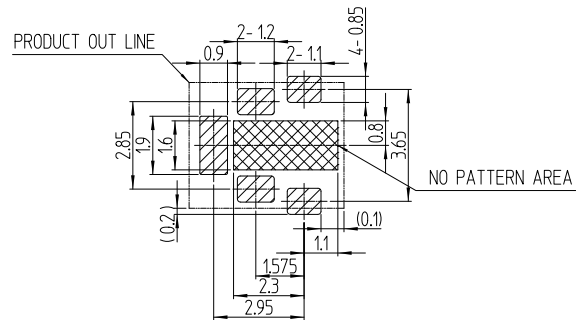
■ Socket (SMT)



Unit : mm

Part No.	HRS No.	Purchase Unit
KP21A-1S(800)	480-0632-0 00	4,500pcs/Reel

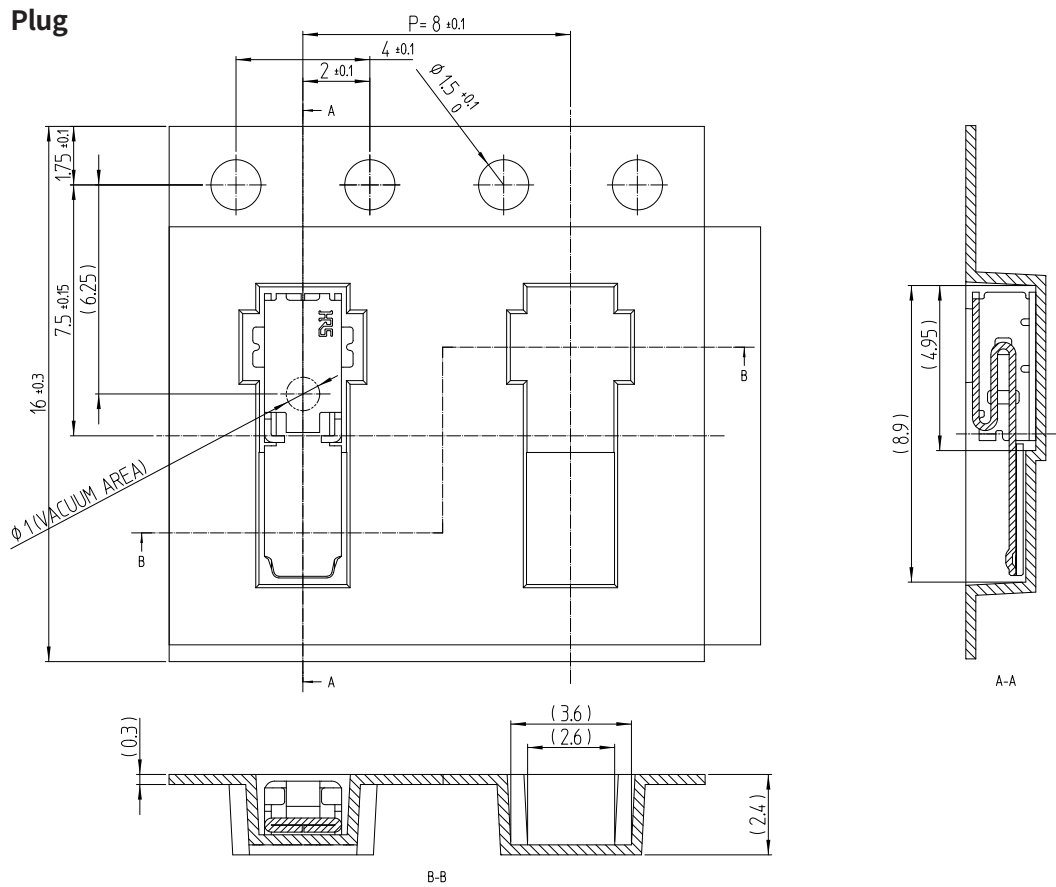
● Recommended PCB Dimensions (t=1.6mm)



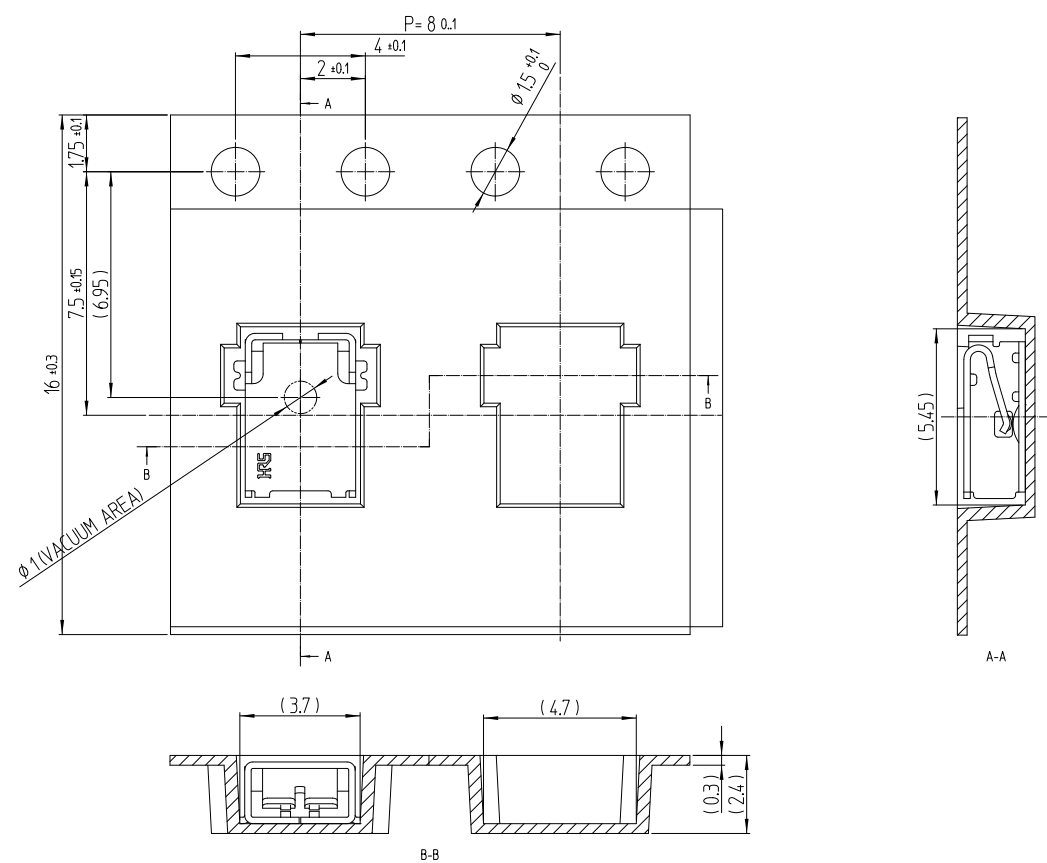
■ Packaging Specification

● Embossed Carrier Tape Dimensions

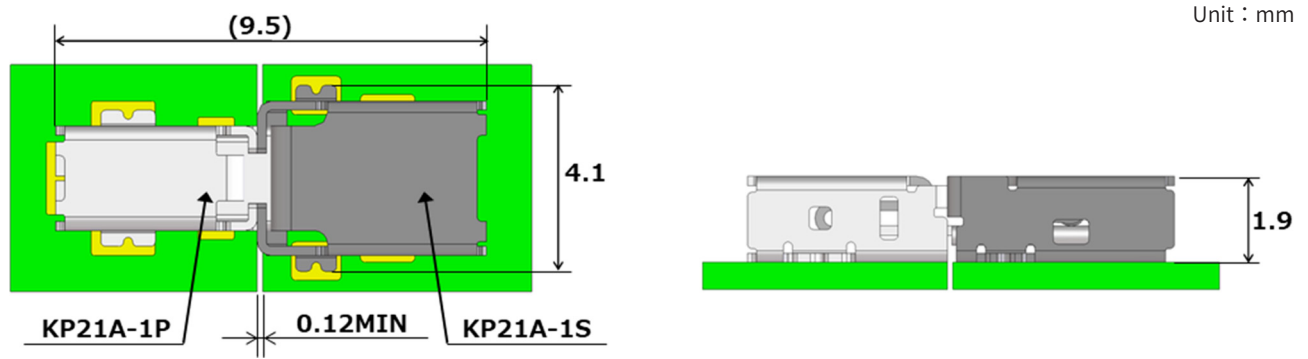
Plug



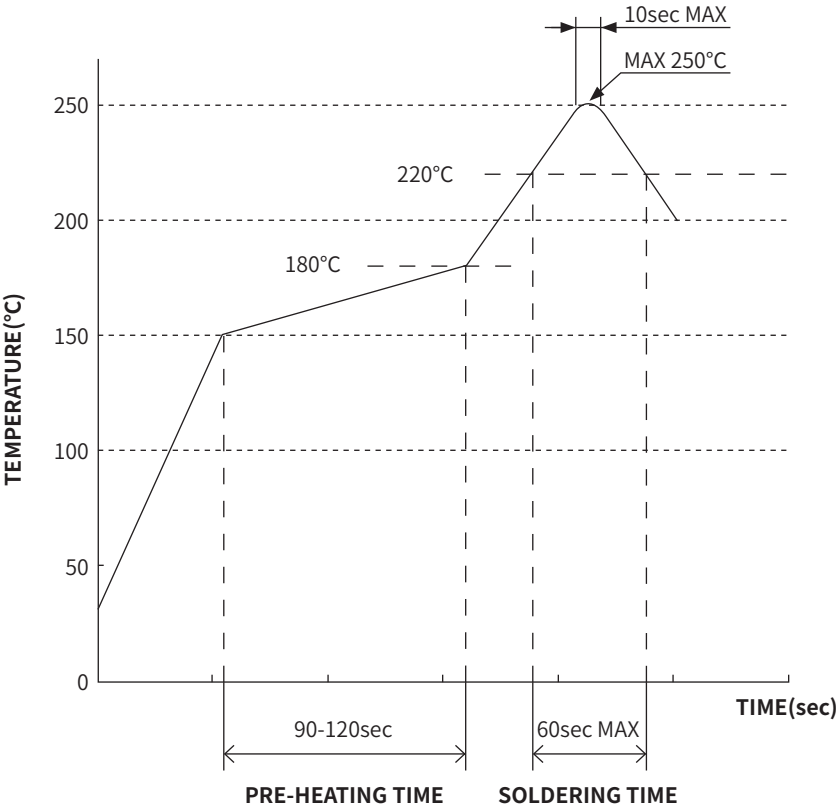
Socket



## ◆ Mated Dimensions



◆ Operating Precautions

1. Recommended Temperature Profile (Lead-free Soldering)	<div><p><b>TEMPERATURE (°C)</b></p><p><b>TIME (sec)</b></p><p><b>PRE-HEATING TIME</b></p><p><b>SOLDERING TIME</b></p><p>90-120sec</p><p>60sec MAX</p><p>10sec MAX</p><p>MAX 250°C</p><p>220°C</p><p>180°C</p></div> <p><b>[Applicable Conditions]</b></p> <ol style="list-style-type: none"><li>1. Peak Temperature : 250°C Max.</li><li>2. Heated Area : 220°C Min., within 60 sec.</li><li>3. Pre-heating Area : 150 to 180°C, 90 to 120 sec.</li><li>4. Number of Times : Max 1 time</li><li>5. Recommended air condition is 1000PPM to 2000PPM of Nitrogen</li></ol>
2. Recommended Screen Thickness, Open Ratio (Pattern Area Ratio)	Thickness 0.12mm, Open ratio : 100%
3. Board Warpage	Maximum of 0.02mm at the connector center with respect to both ends of the connector.
4. Precautions	<ul style="list-style-type: none"><li>• Please check the mounting condition (reflow soldering condition) on your own devices beforehand. The mounting conditions may change due to the soldering temperature, soldering paste, air reflow machine, nitrogen reflow machine, and the type of printed circuit board. The different mounting conditions may have an influence on the product's performance.</li><li>• Check the usage conditions of your device and optimize the PWB pattern size, position, and amount of the solder applied accordingly. Product performance may be influenced by the usage conditions.</li><li>• Depending on the reflow conditions, there may be the possibility of a color change in the plating. However, this color change does not have any effect on the product's performance.</li><li>• If there is accidental contact with the connector while it is going through the reflow machine, there may be deformation or damage caused to the connector. Please check to prevent this.</li><li>• Please use after confirming the appearance and solderability when the packaging has a storage period limit.</li><li>• The product performance was tested using rigid printed circuit board. In case the product needs to be reflowed on flexible circuit board, please conduct a reflow test on the flexible circuit board in advance.</li></ul>

## ◆ While taking in 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.

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