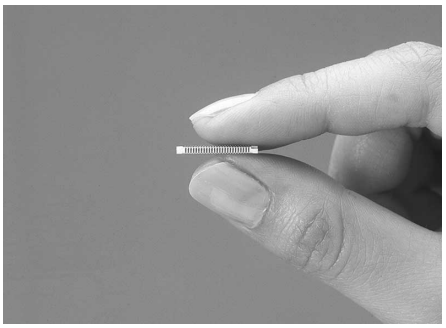
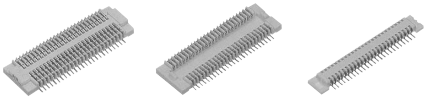
NAiS

NARROW-PITCH CONNECTORS FOR BOARD-TO-BOARD CONNECTION

NARROW PITCH (0.5mm) CONNECTORS P5 SERIES — P5KF —



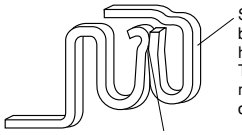


Socket and header are mated | Socket | Header

FEATURES

1. The connector is a two-piece structure and 0.5mm pitch.
The product lineup consists of the mated height of 1.5mm, 2.0mm and 2.5mm.

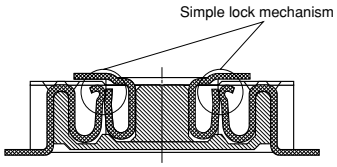
2. The socket and header has the same dropping shock and torsion resistant construction as the bellows-type contact.



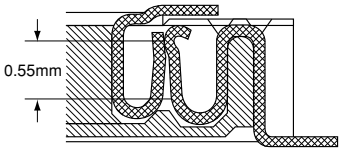
Since the contact is formed by bending thin plate, it has a spring-like quality. This construction helps make it resistant to dropping and twisting.

The roll surfaces are in contact with each other, providing high contact reliability.

3. Simple lock mechanism is employed which is suitable for FPC connection.



4. Mating length 0.55mm
While achieving a low profile of 1.5mm between PCBs, the effective mating length has been extended to ensure that there is some latitude in the mating.

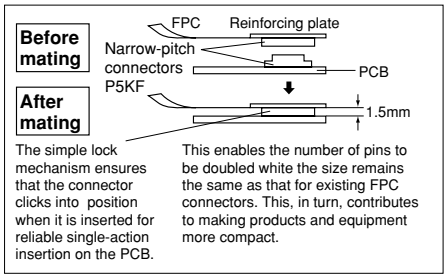


5. Terminal construction prevents solder creeping and bridging.

APPLICATIONS

- Cellular phones
- PHS
- Portable data terminals
- Compact portable devices

Ideal for Board-to-FPC connections



The simple lock mechanism ensures that the connector clicks into position when it is inserted for reliable single-action insertion on the PCB.

This enables the number of pins to be doubled white the size remains the same as that for existing FPC connectors. This, in turn, contributes to making products and equipment more compact.

SPECIFICATIONS

1. Characteristics

Item		Specifications	Conditions
Electrical characteristics	Rated current	0.5A/contact (Max. 10 A at total contacts)	
	Rated voltage	60V AC/DC	
	Breakdown voltage	150V AC for 1 minute	Detection current: 1mA
	Insulation resistance	Min. 1,000MΩ (initial)	Using 500V DC megger
	Contact resistance	Max. 90mΩ	Measured based on the HP4338B measurement method of JIS C 5402
Mechanical characteristics	Composite insertion force	Max. 0.981N {100gf}/contacts × contacts (initial)	
	Composite removal force	Min. 0.0588N {6gf}/contacts × contacts	
	Post holding force	Min. 0.981N {100gf}/contact	Measures the maximum load in the post axial direction until removal
Environmental characteristics	Ambient temperature	–55°C to +85°C	No freezing at low temperatures
	Soldering heat resistance	Max. peak temperature of 245°C	Infrared reflow soldering
		300°C within 5 seconds	Soldering iron
	Thermal shock resistance (header and socket mated)	5 cycles, insulation resistance min. 100MΩ, contact resistance max. 90mΩ	Sequence / Temperature (°C) / Time (minutes): 1 / -55^{+0}_{-3} / 30; 2 / 25^{+10}_{-5} / Max. 5; 3 / 85^{+3}_{0} / 30; 4 / 25^{+10}_{-5} / Max. 5
	Humidity resistance (header and socket mated)	120 hours, insulation resistance min. 100MΩ, contact resistance max. 90mΩ	Bath temperature 40±2°C, humidity 90 to 95% R.H.
	Saltwater spray resistance (header and socket mated)	24 hours, insulation resistance min. 100MΩ, contact resistance max. 90mΩ	Bath temperature 35±2°C, saltwarter concentration 5±1%
	H_2S resistance (header and socket mated)	48 hours, contact resistance max. 90mΩ	Bath temperature 40±2°C, gas concentration 3±1 ppm, humidity 75 to 80% R.H.
Lifetime characteristics	Insertion and removal life	50 times	Repeated insertion and removal speed of max. 200 times/ hours
Unit weight		Mated height 1.5mm, 20 contacts; Socket: 0.06g Header: 0.04g	

2. Material and surface treatment

Part name	Material	Surface treatment
Molded portion	Heat-resistant resin (UL94V-0)	—
Contact/Post	Copper alloy	Contact portion: Au plating over Ni Terminal portion: Au plating over Ni (Except for thick of terminal)

PRODUCT TYPES

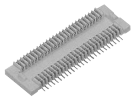
Mated height	No. of contacts	Part No.		Packing	
		Socket	Header	Inner carton (1-reel)	Outer carton
1.5 mm	10	AXK5F10345YJ	AXK6F10345YJ	Note) "Asterisk" mark on end of part No.; J: 2,000 pieces (recommendation)	Note) "Asterisk" mark on end of part No.; J: 4,000 pieces (recommendation)
	12	AXK5F12345YJ	AXK6F12345YJ		
	14	AXK5F14345YJ	AXK6F14345YJ		
	16	AXK5F16345YJ	AXK6F16345YJ		
	20	AXK5F20345YJ	AXK6F20345YJ		
	22	AXK5F22345YJ	AXK6F22345YJ		
	24	AXK5F24345YJ	AXK6F24345YJ		
	26	AXK5F26345YJ	AXK6F26345YJ		
	30	AXK5F30345YJ	AXK6F30345YJ		
	32	AXK5F32345YJ	AXK6F32345YJ		
	34	AXK5F34345YJ	AXK6F34345YJ		
	40	AXK5F40345YJ	AXK6F40345YJ		
	50	AXK5F50345YJ	AXK6F50345YJ		
	60	AXK5F60345YJ	AXK6F60345YJ		
	70	AXK5F70345YJ	AXK6F70345YJ		
	80	AXK5F80345YJ	AXK6F80345YJ		
2.0 mm	10	AXK5F10545YJ	AXK6F10345YJ		
	12	AXK5F12545YJ	AXK6F12345YJ		
	14	AXK5F14545YJ	AXK6F14345YJ		
	16	AXK5F16545YJ	AXK6F16345YJ		
	18	AXK5F18545YJ	AXK6F18345YJ		
	20	AXK5F20545YJ	AXK6F20345YJ		
	22	AXK5F22545YJ	AXK6F22345YJ		
	24	AXK5F24545YJ	AXK6F24345YJ		
	30	AXK5F30545YJ	AXK6F30345YJ		
	34	AXK5F34545YJ	AXK6F34345YJ		
	40	AXK5F40545YJ	AXK6F40345YJ		
	50	AXK5F50545YJ	AXK6F50345YJ		
	60	AXK5F60545YJ	AXK6F60345YJ		
	70	AXK5F70545YJ	AXK6F70345YJ		
	80	AXK5F80545YJ	AXK6F80345YJ		
	100	AXK5F00545YJ	AXK6F00345YJ		
2.5 mm	10	AXK5F10545YJ	AXK6F10545YJ		
	12	AXK5F12545YJ	AXK6F12545YJ		
	14	AXK5F14545YJ	AXK6F14545YJ		
	16	AXK5F16545YJ	AXK6F16545YJ		
	20	AXK5F20545YJ	AXK6F20545YJ		
	22	AXK5F22545YJ	AXK6F22545YJ		
	24	AXK5F24545YJ	AXK6F24545YJ		
	30	AXK5F30545YJ	AXK6F30545YJ		
	34	AXK5F34545YJ	AXK6F34545YJ		
	40	AXK5F40545YJ	AXK6F40545YJ		
	50	AXK5F50545YJ	AXK6F50545YJ		
	60	AXK5F60545YJ	AXK6F60545YJ		
	70	AXK5F70545YJ	AXK6F70545YJ		
	80	AXK5F80545YJ	AXK6F80545YJ		
	100	AXK5F00545YJ	AXK6F00545YJ		

Notes) 1. In order to reduce the amount of packaging materials used to help protect the global environment, it is recommended that each packaging box contain 2,000 units with the "J" product number suffix. Embossed tape packages containing 1,000 units in the inner carton (1-reel) are also available. The latter have the "P" product number suffix. When placing orders, change the "J" suffix to the "suffix P."
2. Regarding ordering units, During production: Please make orders in 1-reel units.
Samples for mounting confirmation: Please consult us. (See "Regarding sample orders to confirm proper mounting" on page 9.)
Samples: Small lot orders are possible. Change the suffix "J" to the suffix "P."
3. The standard type comes with no positioning bosses. Connectors with positioning bosses are available for on-demand production. For this type of connector, 9th digit of the part no. changes from 4 to 3. e.g.
Mated height 1.5mm, 10 contacts for sockets: AXK5F10335YJ
4. The 11th digit "Y" in the socket/header part number indicates the connector has a V-notch. (For details, please consult one of our sales offices.)

DIMENSIONS

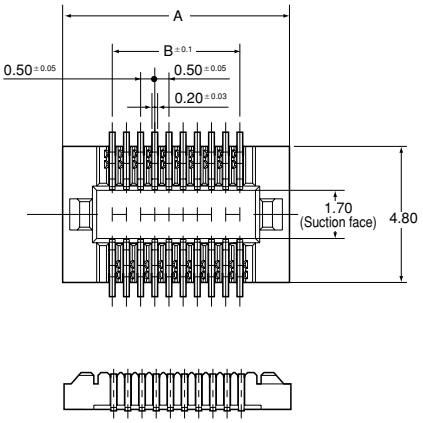
mm General tolerance ±0.2

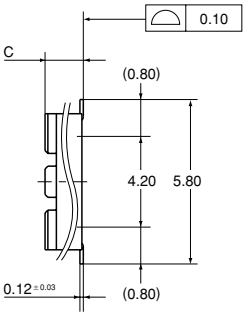
• Socket (Mated height: 1.5mm, 2.0mm, 2.5mm)



Dimension table (mm)

No. of contacts	A	B
10	5.50	2.00
12	6.00	2.50
14	6.50	3.00
16	7.00	3.50
18	7.50	4.00
20	8.00	4.50
22	8.50	5.00
24	9.00	5.50
26	9.50	6.00
30	10.50	7.00
32	11.00	7.50
34	11.50	8.00
40	13.00	9.50
50	15.50	12.00
60	18.00	14.50
70	20.50	17.00
80	23.00	19.50
100	28.00	24.50





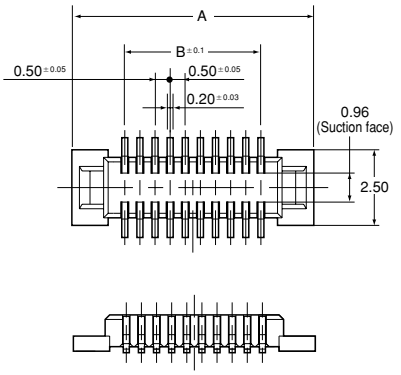
Mated height	C
1.5 mm	1.35
2.0 mm, 2.5 mm	1.85

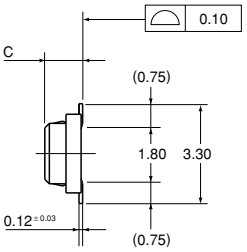
Note) P5K series (mated heights: 3 mm and 3.5 mm) and the P5KS series (mated heights: 4.0 mm, 4.5 mm, 5.0 mm, 5.5 mm, 6.0 mm, 6.5 mm, 7 mm, 8 mm, and 9 mm) cannot be mated to this type.

• Header (Mated height: 1.5mm, 2.0mm, 2.5mm)

Dimension table (mm)

No. of contacts	A	B
10	5.50	2.00
12	6.00	2.50
14	6.50	3.00
16	7.00	3.50
18	7.50	4.00
20	8.00	4.50
22	8.50	5.00
24	9.00	5.50
26	9.50	6.00
30	10.50	7.00
32	11.00	7.50
34	11.50	8.00
40	13.00	9.50
50	15.50	12.00
60	18.00	14.50
70	20.50	17.00
80	23.00	19.50
100	28.00	24.50



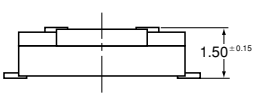


Mated height	C
1.5 mm, 2.0 mm	1.25
2.5 mm	1.75

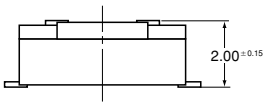
Note) P5K series (mated heights: 3 mm and 3.5 mm) and the P5KS series (mated heights: 4.0 mm, 4.5 mm, 5.0 mm, 5.5 mm, 6.0 mm, 6.5 mm, 7 mm, 8 mm, and 9 mm) cannot be mated to this type.

• Socket and header are mated

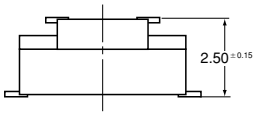
Mated height: 1.5 mm



Mated height: 2.0 mm



Mated height: 2.5 mm

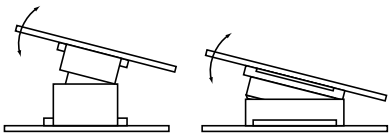


EMBOSSED TAPE DIMENSIONS

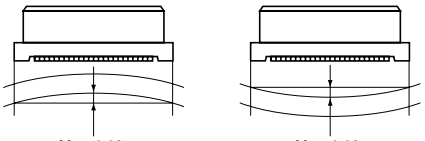
Please refer to page 64.

NOTES

1. As shown below, excess force during insertion may result in damage to the connector or removal of the solder. Please be careful. Also, to prevent connector damage plese confirm the correct position before mating connectors.



2. Keep the PC board warp no more than 0.03 mm in relation to the overall length of the connector.

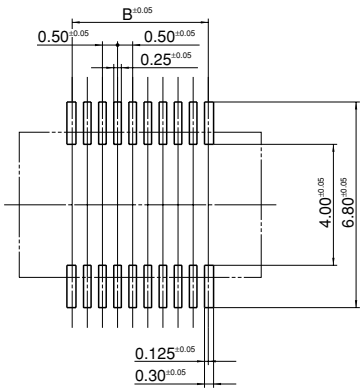


3. PC Boards and Recommended Metal Mask Patterns

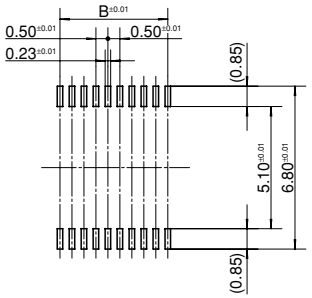
Connectors are mounted with high density, with a pitch interval of 0.4 to 0.5 mm. It is therefore necessary to make sure that the right levels of solder are used, in order to reduce solder bridge and other issues. The figures to the right are recommended metal mask patterns. Please use them as a reference.

• Socket

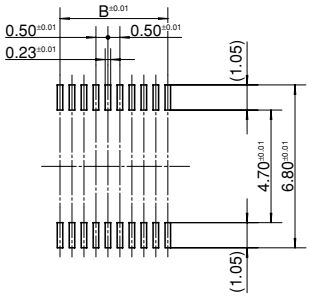
Recommended PC board pattern
(TOP VIEW)



Recommended metal mask pattern
Metal mask thickness: Here, 150 µm
(Opening area ratio: 56%)

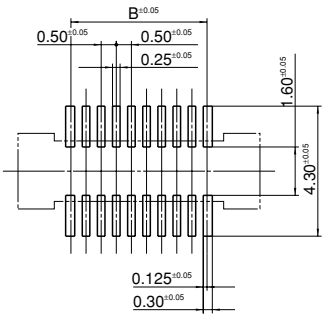


Recommended metal mask pattern
Metal mask thickness: Here, 120 µm
(Opening area ratio: 69%)

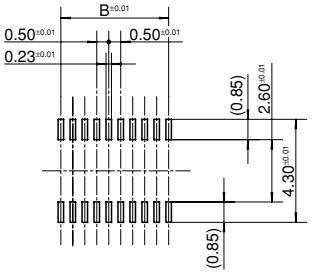


• Header

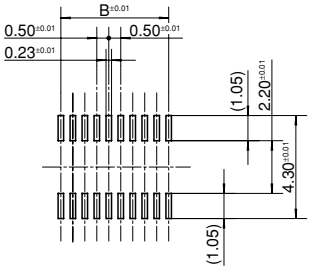
Recommended PC board pattern
(TOP VIEW)



Recommended metal mask pattern
Metal mask thickness: Here, 150 µm
(Opening area ratio: 58%)



Recommended metal mask pattern
Metal mask thickness: Here, 120 µm
(Opening area ratio: 72%)



* See the dimension table on page 18 for more information on the B dimension of the socket and header.

Regarding general notes, please refer to pages 8 and 9.