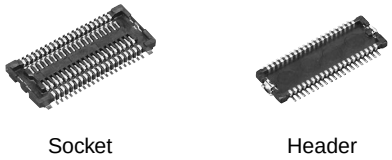
NARROW-PITCH CONNECTORS FOR PC BOARD-TO-FPC CONNECTION

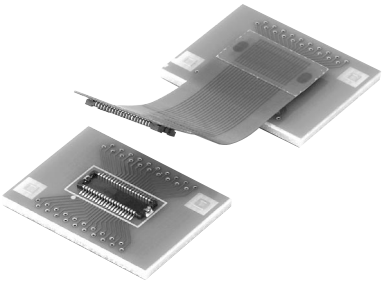
NARROW PITCH (0.4mm) CONNECTORS F4

NEW

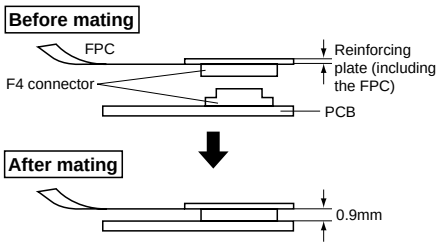
Board to FPC F4 CONNECTORS



Socket Header



Example of connection between a board and an FPC



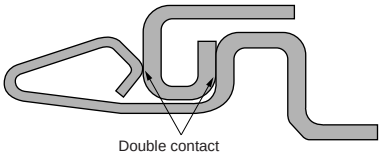
FEATURES

1. The lowest profile class among two-piece connectors in the world (Mated height: 0.9mm)

Achieved both a 0.4-mm pitch and an ultra low profile of 0.9 mm high when mated, contributing to further thickness reduction of products.

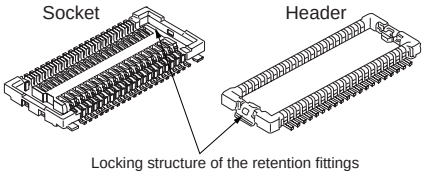
2. Ultra low profile, but high contact reliability

Our own bellows-type double contact structure provides a high resistance to twisting and shock, ensuring a high contact reliability.



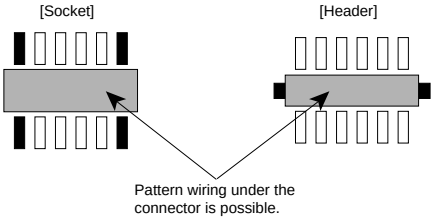
3. Improved mating strength between the socket and header

The simple locking structures provided for the retention fittings and the contact points improve the mating strength and provide tactile feedback when locked.



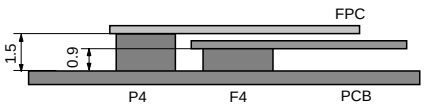
4. Easy to design product circuits

1) An insulating wall provided for the bottom surface of the connector prevents contact between the pattern on the PC board and the metal pins, enabling pattern wiring under the connector, and thus contributing to the reduction in size of PC boards.



2) The usage shown below further enhances the flexibility of connector positioning.

[Example of application of connection between a board and an FPC]



5. Standard use of Ni barrier plating

The use of Ni barrier plating, which is highly resistant against solder creeping, on the socket terminals is standard.

PRODUCT TYPES

Mated height	No. of contacts	Part No.		Packing	
		Socket	Header	Inner carton (1-reel)	Outer carton
0.9 mm	20	AXK7L20227*	AXK8L20125*	Asterisk at the last digit of the part No.: J: 3,000 pieces V: 3,000 pieces	Asterisk at the last digit of the part No.: J: 6,000 pieces (2 reels) V: 15,000 pieces (5 reels)
	22	AXK7L22227*	AXK8L22125*		
	30	AXK7L30227*	AXK8L30125*		
	40	AXK7L40227*	AXK8L40125*		
	50	AXK7L50227*	AXK8L50125*		
	60	AXK7L60227*	AXK8L60125*		
	70	AXK7L70227*	AXK8L70125*		
	80	AXK7L80227*	AXK8L80125*		

Notes) 1. Regarding ordering units: During production: Please make orders in 1-reel units.
Samples for mounting confirmation: Available in units of 50 pieces. Please consult us.
Samples: Available. Please consult us.
2. 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 2 to 1. e.g. 20 contacts for sockets: AXK7L20217*
3. Please consult us regarding a different number of contacts.

SPECIFICATIONS

1. Characteristics

Item		Specifications	Conditions
Electrical characteristics	Rated current	0.3A/terminal (Max. 5 A at total terminals)	—
	Rated voltage	60V AC/DC	—
	Breakdown voltage	150V AC for 1 min.	Rated voltage is applied for one minutes and check for short circuit or damage with a detection current of 1mA
	Insulation resistance	Min. 1,000MΩ (Initial)	Using 250V DC megger (applied for 1 min.)
	Contact resistance	Max. 90mΩ	Measured based on the HP4338B measurement method of JIS C 5402
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 sec, 350°C within 3 sec.	Soldering iron
	Storage temperature	–55°C to +85°C (Product only) –40°C to +50°C (Emboss packing)	No freezing at low temperatures
	Thermal shock resistance (header and socket mated)	5 cycles, insulation resistance min. 100MΩ, contact resistance max. 90mΩ	Sequence 1. -55^{+0}_{-3} °C, 30 min. 2. 25^{+10}_{-5} °C, Max.5 min. 3. 85^{+3}_{-0} °C, 30 min. 4. 25^{+10}_{-5} °C, Max.5 min.
	Humidity resistance (header and socket mated)	120 hours, insulation resistance min. 100MΩ, contact resistance max. 90mΩ	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	Temperature 35±2°C, saltwater concentration 5±1%
	H_2S resistance (header and socket mated)	48 hours, contact resistance max. 90mΩ	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		40 contacts; Socket: 0.05g Header: 0.03g	

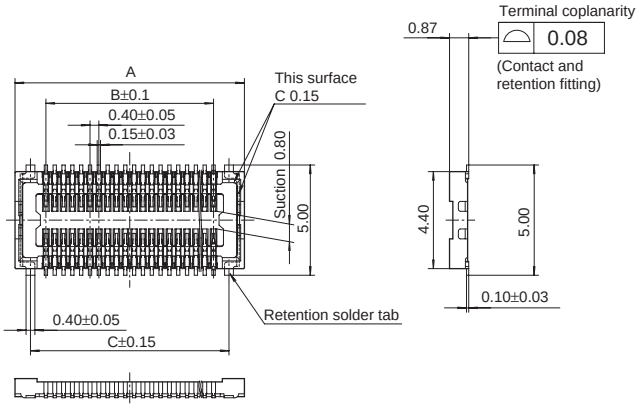
2. Material and surface treatment

Part name	Material	Surface treatment
Molded portion	LCP resin (UL94V-0)	—
Contact/Post	Copper alloy	Contact portion: Au plating over Ni Terminal portion: Au plating over Ni (Except for front edge of terminal) Retention fitting portion: Sn plating over Ni (Socket: except for front edge of the terminal)

DIMENSIONS

mm General tolerance: ±0.2

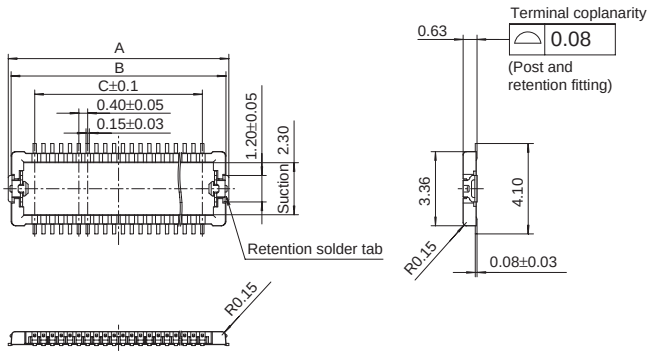
• Socket (Mated height 0.9 mm)



Dimension table (mm)

Dimensions / No. of contacts	A	B	C	D
20	6.4	3.6	5.0	6.4
22	6.8	4.0	5.4	6.8
30	8.4	5.6	7.0	8.4
40	10.4	7.6	9.0	10.4
50	12.4	9.6	11.0	12.4
60	14.4	11.6	13.0	14.4
70	16.4	13.6	15.0	16.4
80	18.4	15.6	17.0	18.4

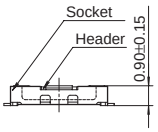
• Header (Mated height: 0.9 mm)



Dimension table (mm)

Dimensions / No. of contacts	A	B	C	D
20	6.0	5.74	3.6	6.4
22	6.4	6.14	4.0	6.8
30	8.0	7.74	5.6	8.4
40	10.0	9.74	7.6	10.4
50	12.0	11.74	9.6	12.4
60	14.0	13.74	11.6	14.4
70	16.0	15.74	13.6	16.4
80	18.0	17.74	15.6	18.4

• Socket and header are mated

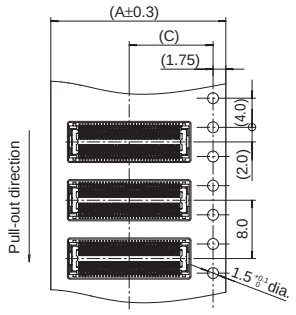


EMBOSSED TAPE AND REEL DIMENSIONS CHART

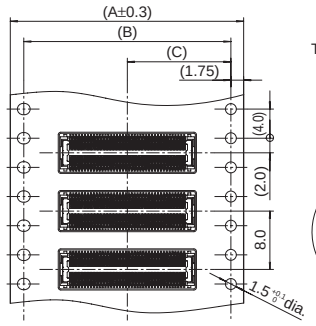
1. Socket

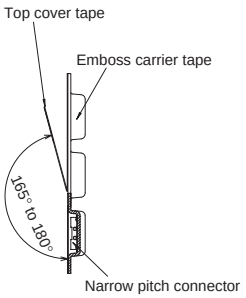
• Tape dimensions

1) A dimensions: 24mm

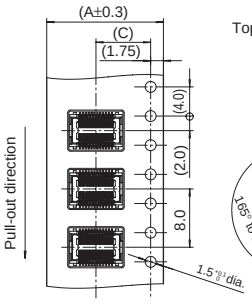


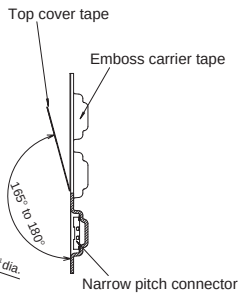
2) A dimensions: 32mm





2) A dimensions: 16mm





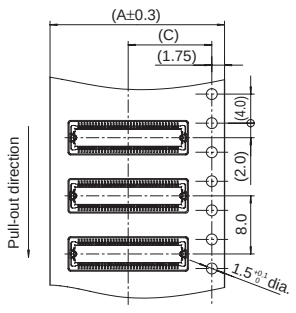
Dimension table (mm)

Dimensions / No. of contacts	A	B	C	D
Max.24	16.0	—	7.5	16.4
26 to 70	24.0	—	11.5	24.4
80	32.0	28.4	14.2	32.4

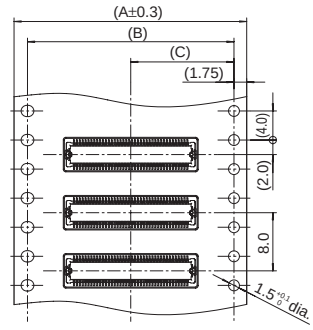
2. Header

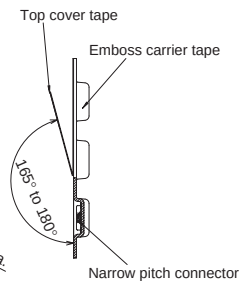
• Tape dimensions

1) A dimensions: 24mm

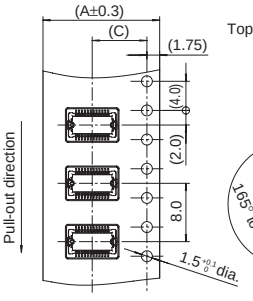


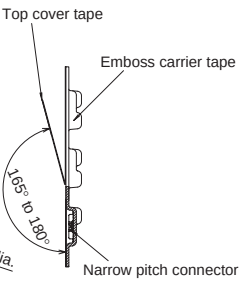
2) A dimensions: 32mm





2) A dimensions: 16mm

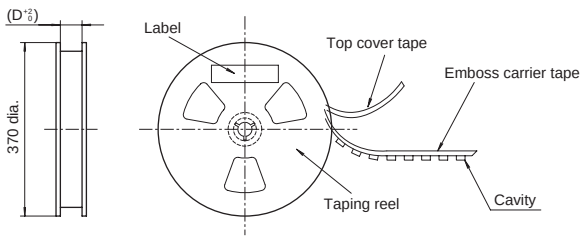




Dimension table (mm)

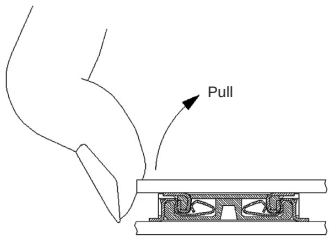
Dimensions / No. of contacts	A	B	C	D
Max.24	16.0	—	7.5	16.4
26 to 70	24.0	—	11.5	24.4
80	32.0	28.4	14.2	32.4

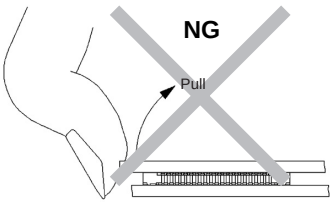
• Reel dimensions



NOTES

1. Removal by pulling up from an end causes the entire connector removal force to concentrate on the retention fittings and end terminals. Therefore, please lift and remove from the side. Doing so will also prevent cracking of the soldered parts.





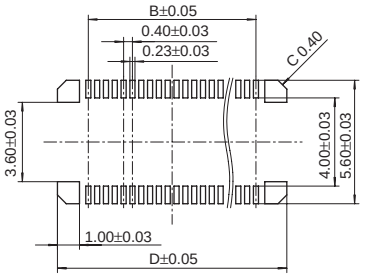
2. PC Boards and Recommended Metal Mask Patterns

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.

In particular, if a lot of solder is used in the header retaining retention fittings, it might interfere with and cause incomplete socket mating. Therefore, please follow the recommended conditions given on the left.

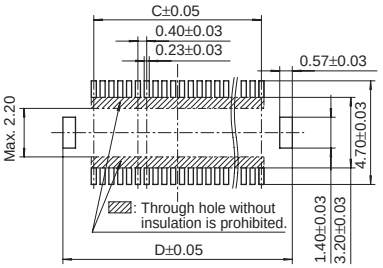
• Socket

Recommended PC board pattern
(Mount pad arrangement pattern)

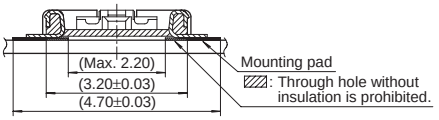


• Header

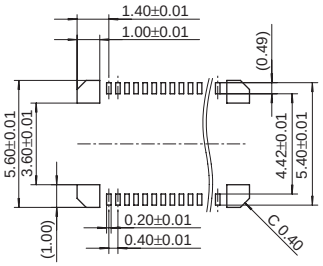
Recommended PC board pattern
(Mount pad arrangement pattern)



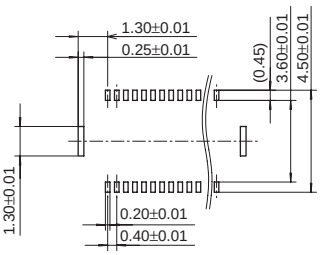
Relation between connector and mounting pad



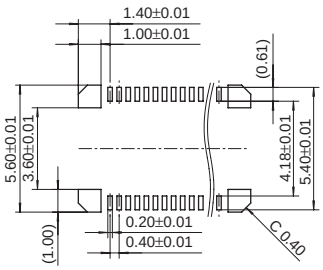
Recommended metal mask pattern
Metal mask thickness: 150 µm
(Terminal portion opening area ratio: 53%)
(Metal portion opening area ratio: 100%)



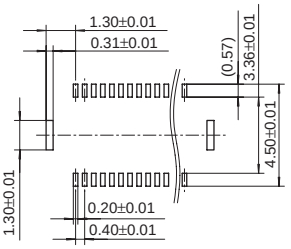
Recommended metal mask pattern
Metal mask thickness: 150 µm
(Terminal portion opening area ratio: 52%)
(Metal portion opening area ratio: 40%)



Recommended metal mask pattern
Metal mask thickness: 120 µm
(Terminal portion opening area ratio: 66%)
(Metal portion opening area ratio: 100%)



Recommended metal mask pattern
Metal mask thickness: 120 µm
(Terminal portion opening area ratio: 66%)
(Metal portion opening area ratio: 51%)



These materials are printed on ECF pulp.
These materials are printed with earth-friendly vegetable-based (soybean oil) ink.

Please contact .....

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