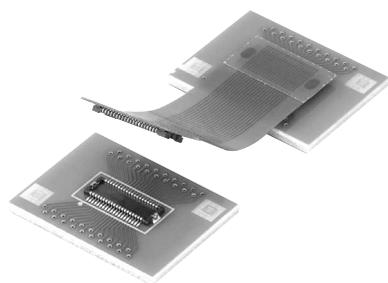
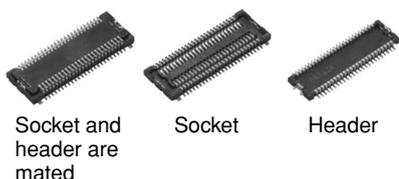


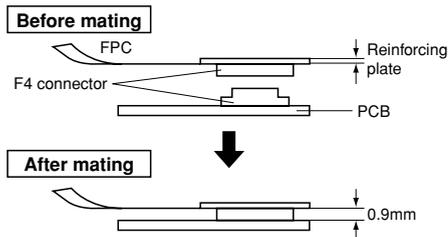


NARROW-PITCH CONNECTORS FOR BOARD-TO-FPC CONNECTION

NARROW PITCH (0.4mm) CONNECTORS F4



Example of connection between a board and an FPC



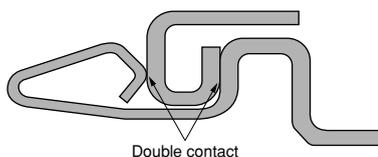
FEATURES

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.

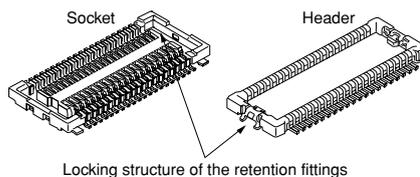
2. Ultra low profile, but high contact reliability

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



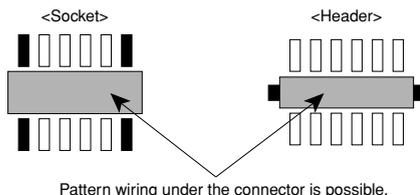
3. Improved mating strength between the socket and header

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



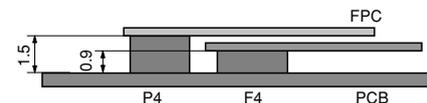
4. Easy to design product circuits

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]



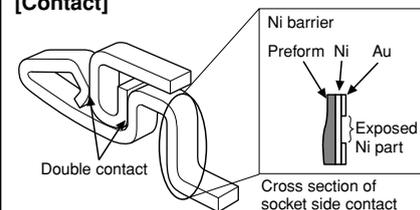
5. Standard use of Ni barrier plating

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

● What is Ni barrier construction?

By providing an exposed nickel part on the gold (Au) plated contact, solder creeping is prevented despite the ultra low profile.

[Contact]



Note: Construction makes solder creeping difficult because header side is formed at the same time.

AXK7L, 8L

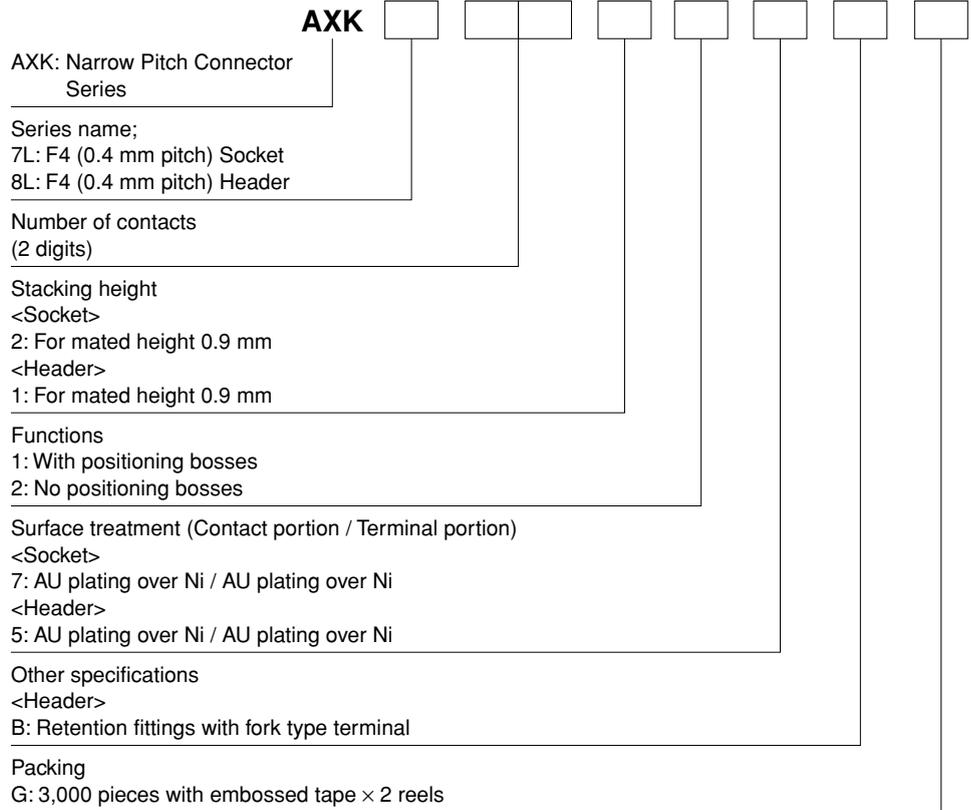
TABLE OF PRODUCT TYPES

☆: Available for sale

Mated height	0.9mm	
	Number of contacts	☆
10	☆	
16	☆	
20	☆	
22	☆	
24	☆	
26	☆	
28	☆	
30	☆	
32	☆	
34	☆	
36	☆	
38	☆	
40	☆	
44	☆	
50	☆	
54	☆	
60	☆	
70	☆	
80	☆	

Note: Please contact us regarding numbers of contacts other than those given above.

ORDERING INFORMATION



PRODUCT TYPES

Mated height	Number of contacts	Part number		Packing	
		Socket	Header	Inner carton (1 reel)	Outer carton
0.9 mm	10	AXK7L10227*	AXK8L10125B*	"Asterisk" mark on end of part number; G: 3,000 pieces	"Asterisk" mark on end of part number; G: 6,000 pieces (2 reels)
	16	AXK7L16227*	AXK8L16125B*		
	20	AXK7L20227*	AXK8L20125B*		
	22	AXK7L22227*	AXK8L22125B*		
	24	AXK7L24227*	AXK8L24125B*		
	26	AXK7L26227*	AXK8L26125B*		
	28	AXK7L28227*	AXK8L28125B*		
	30	AXK7L30227*	AXK8L30125B*		
	32	AXK7L32227*	AXK8L32125B*		
	34	AXK7L34227*	AXK8L34125B*		
	36	AXK7L36227*	AXK8L36125B*		
	38	AXK7L38227*	AXK8L38125B*		
	40	AXK7L40227*	AXK8L40125B*		
	44	AXK7L44227*	AXK8L44125B*		
	50	AXK7L50227*	AXK8L50125B*		
	54	AXK7L54227*	AXK8L54125B*		
60	AXK7L60227*	AXK8L60125B*			
70	AXK7L70227*	AXK8L70125B*			
80	AXK7L80227*	AXK8L80125B*			

- 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 contact us.
Samples: Available. Please contact us.
2. The standard type comes with no positioning bosses.
Connectors with positioning bosses are available on-demand production.
For this type of connector, 9th digit of the part number changes from 2 to 1. e.g. 20 contacts for socket without retention fitting: AXK7L20217*
3. Please contact us regarding different number of contacts.
4. A "B" in the 11th digit of the header part number signifies a fork type retention fittings to lessen the constraint on amount of solder when mounting, and a construction that makes it difficult when mounting for excess solder to interfere with the socket.
Although compatible with the previous parts, these parts are not compatible with the recommended PC board pattern and recommended metal mask pattern.

SPECIFICATIONS

1. Characteristics

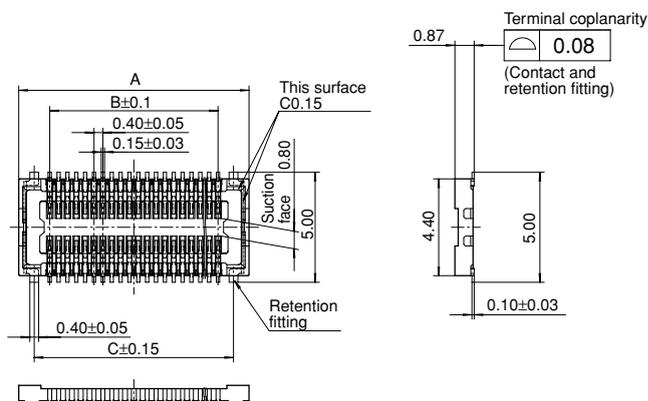
	Item	Specifications	Conditions
Electrical characteristics	Rated current	0.3A/terminal (Max. 5 A at total terminals)	—
	Rated voltage	60V AC/DC	—
	Breakdown voltage	150V AC for 1 min.	Rated voltage is applied for one minute and check for short circuit or damage with a detection current of 1mA
	Insulation 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 (Please consult us regarding a lead-free solder.)	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 ⁻³ / ₀ °C, 30 min. 2. 25 ⁺¹⁰ / ₋₃ °C, Max.5 min. 3. 85 ⁻³ / ₀ °C, 30 min. 4. 25 ⁺¹⁰ / ₋₃ °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 ₂ S 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 (unit: mm)

• Socket (Mated height 0.9 mm)



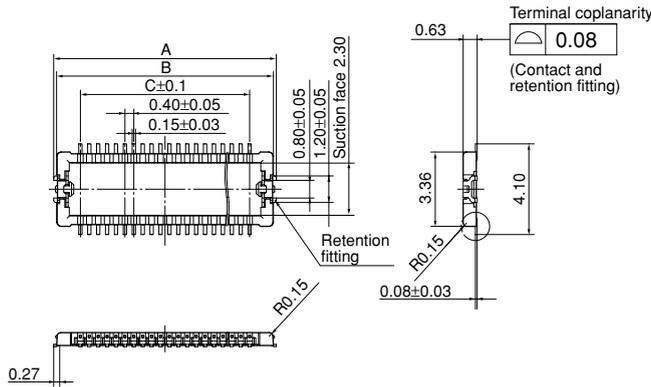
General tolerance: ±0.2

Dimension table (mm)

Number of contacts/ Dimensions	A	B	C
10	4.4	1.6	3.0
16	5.6	2.8	4.2
20	6.4	3.6	5.0
22	6.8	4.0	5.4
24	7.2	4.4	5.8
26	7.6	4.8	6.2
28	8.0	5.2	6.6
30	8.4	5.6	7.0
32	8.8	6.0	7.4
34	9.2	6.4	7.8
36	9.6	6.8	8.2
38	10.0	7.2	8.6
40	10.4	7.6	9.0
44	11.2	8.4	9.8
50	12.4	9.6	11.0
54	13.2	10.4	11.8
60	14.4	11.6	13.0
70	16.4	13.6	15.0
80	18.4	15.6	17.0

AXK7L, 8L

• Header (Mated height: 0.9 mm)

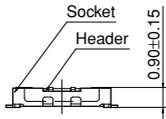


General tolerance: ± 0.2

Dimension table (mm)

Number of contacts/ Dimensions	A	B	C
10	4.0	3.74	1.6
16	5.2	4.94	2.8
20	6.0	5.74	3.6
22	6.4	6.14	4.0
24	6.8	6.54	4.4
26	7.2	6.94	4.8
28	7.6	7.34	5.2
30	8.0	7.74	5.6
32	8.4	8.14	6.0
34	8.8	8.54	6.4
36	9.2	8.94	6.8
38	9.6	9.34	7.2
40	10.0	9.74	7.6
44	10.8	10.54	8.4
50	12.0	11.74	9.6
54	12.8	12.54	10.4
60	14.0	13.74	11.6
70	16.0	15.74	13.6
80	18.0	17.74	15.6

• Socket and header are mated



EMBOSSED TAPE DIMENSIONS (unit: mm) (Common for respective contact type, socket and header)

Tape dimensions (Conforming to JIS C 0806-1990. However, some tapes have mounting hole pitches that do not comply with the standard.)

Reel dimensions (Conforming to EIAJ ETR-7002)

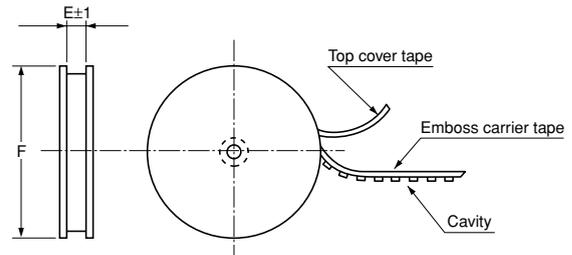
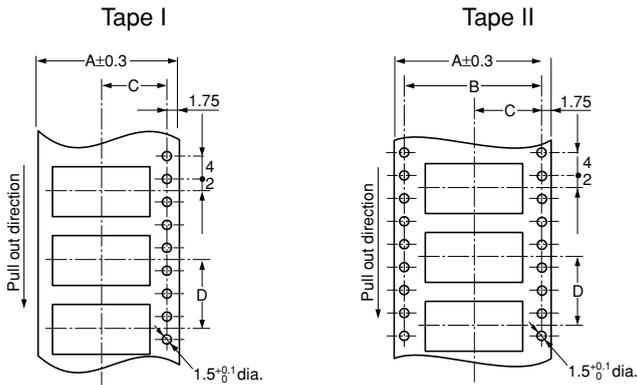
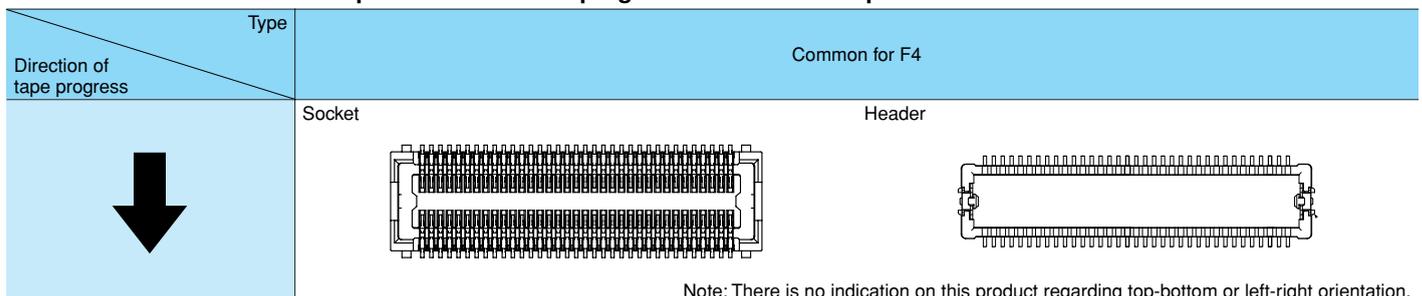


TABLE OF DIMENSIONS

Mated height	Number of contacts	Type of taping	A	B	C	D	E	F	Quantity per reel
Common for socket and header	Max. 24	Tape I	16.0	—	7.5	8.0	17.5	380 dia.	3000
	26 to 70	Tape I	24.0	—	11.5	8.0	25.5	380 dia.	3000
	80	Tape II	32.0	28.4	14.2	8.0	33.5	380 dia.	3000

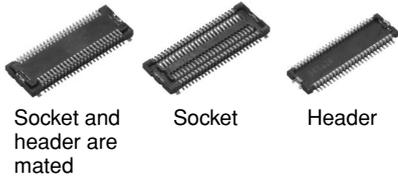
Connector orientation with respect to direction of progress of embossed tape



Note: There is no indication on this product regarding top-bottom or left-right orientation.

Narrow Pitch Connector F4 (0.4 mm pitches) for Inspection Usage

CONNECTOR FOR INSPECTION USAGE APPLICATIONS WITH 3,000 INSERTION AND REMOVAL TIMES



FEATURES

1. 3,000 insertion and removals (when as recommended)

From the 50 insertion and removals of standard type, up to 3,000 insertion and removals (with recommended insertion and removal) are possible for use in inspection.

Ideal for inspection of module units and inspection during the device assembly process

2. Same external dimensions and foot pattern as standard type.

Since shape is the same as standard type, inspection is possible without interfering with devices in the vicinity of standard connectors.

3. Easier to mate

The connector is designed for inspection purpose only that retention force is not strong enough to sustain each side. Cautious approaches are required when it comes to handling the mated connectors to avoid sudden fall. and vibration)

TABLE OF PRODUT TYPES

☆: Available for sale

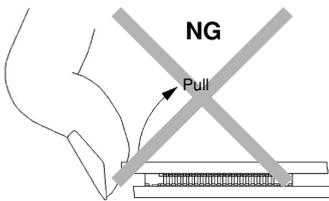
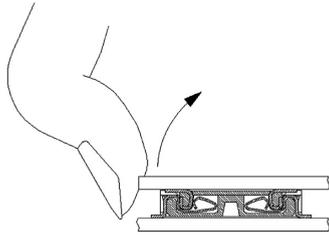
Mated height	0.9mm	
	Number of contacts	
10	☆	
16	☆	
20	☆	
22	☆	
24	☆	
26	☆	
28	☆	
30	☆	
32	☆	
34	☆	
36	☆	
38	☆	
40	☆	
44	☆	
50	☆	
54	☆	
60	☆	
70	☆	
80	☆	

Notes:

1. Please inquire about numbers of contacts other than those given above.
2. Please inquire with us regarding delivery times.
3. Please keep the minimum unit for ordering no less than 50 pieces per lot.
4. Please inquire for further information.

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.

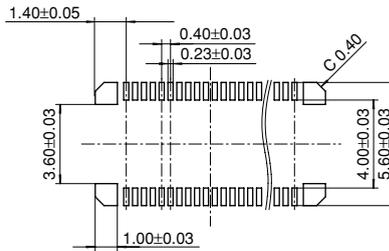
In order to reduce solder bridge and other issues make sure the proper levels of solder are used.

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 give on the right.

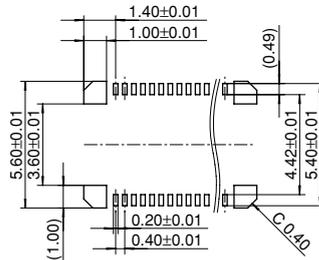
Socket

Recommended PC board pattern
(Mount pad arrangement pattern)



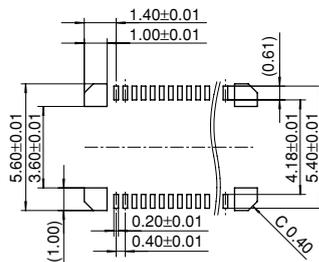
Recommended metal mask pattern

Metal mask thickness: Here, 150 μm
(Terminal portion opening area ratio: 53 %)
(Metal portion opening area ratio: 100 %)



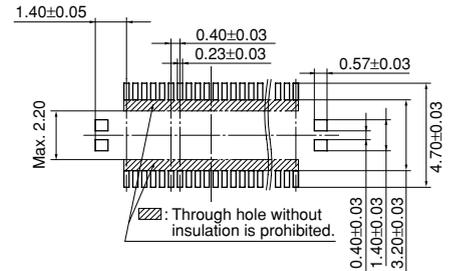
Recommended metal mask pattern

Metal mask thickness: Here, 120 μm
(Terminal portion opening area ratio: 66 %)
(Metal portion opening area ratio: 100 %)

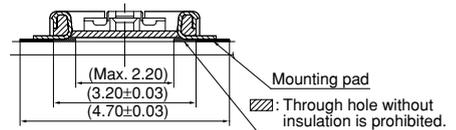


Header

Recommended PC board pattern
(Mount pad arrangement pattern)

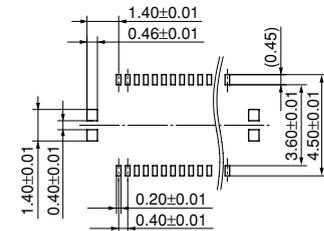


Relation between connector and mounting pad



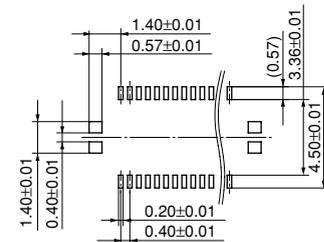
Recommended metal mask pattern

Metal mask thickness: Here, 150 μm
(Terminal portion opening area ratio: 52 %)
(Metal portion opening area ratio: 80 %)



Recommended metal mask pattern

Metal mask thickness: Here, 120 μm
(Terminal portion opening area ratio: 66 %)
(Metal portion opening area ratio: 100 %)



For other details, please verify with the product specification sheets.

Product Types For Narrow Pitch Connectors

F4 (0.4 mm pitch)



☆: Available for sale

Number of contacts	Mated height	
		0.9mm
10	☆	☆
16	☆	☆
20	☆	☆
22	☆	☆
24	☆	☆
26	☆	☆
28	☆	☆
30	☆	☆
32	☆	☆
34	☆	☆
36	☆	☆
38	☆	☆
40	☆	☆
44	☆	☆
50	☆	☆
54	☆	☆
60	☆	☆
70	☆	☆
80	☆	☆

P4 (0.4 mm pitch)...No retention fitting type



☆: Available for sale

Number of contacts	Mated height	1.5mm	2.0mm	2.5mm	3.0mm	3.5mm	4.0mm
		14	☆				
16	☆						
20	☆	☆					
22	☆						
24	☆	☆					
26	☆						
28	☆						
30	☆	☆		☆			
32							
34	☆	☆					
36	☆						
38							
40	☆	☆		☆			
42							
44	☆						
50	☆	☆					
54	☆						
60	☆						
64							
70	☆			☆			
80	☆						
90	☆						
100	☆	☆					

P4 (0.4 mm pitch)...With retention fitting type



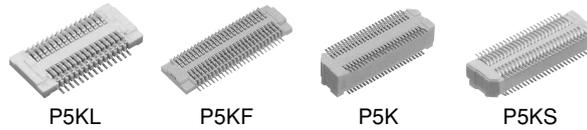
☆: Available for sale

Number of contacts	Mated height	1.5mm	2.0mm	2.5mm	3.0mm	3.5mm	4.0mm
		10	☆				
12	☆*						
20				☆	☆		
22	☆						
30	☆						
34	☆						
40	☆			☆	☆		
44	☆						
46	☆						
50	☆			☆	☆		
60	☆			☆	☆		
80	☆			☆	☆		☆
90	☆			☆	☆		
100	☆						

Notes:

1. Please contact us regarding numbers of contacts other than those given above.
2. * Header comes with no positioning bosses.

P5KL, P5KF, P5K, and P5KS (common for 0.5 mm pitch)



P5KL

P5KF

P5K

P5KS

☆: Available for sale

Number of contacts	Mated height	P5KL		P5KF				P5K				P5KS							
		1.2mm	1.5mm	2.0mm	2.5mm	3.0mm	3.5mm	4.0mm	4.5mm	5.0mm	5.5mm	6.0mm	6.5mm	7.0mm	8.0mm	9.0mm			
10	☆	☆	☆	☆	☆														
12	☆	☆	☆	☆	☆														
14			☆	☆	☆														
16			☆	☆	☆														
18			☆	☆	☆														
20	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆			
22			☆	☆	☆	☆	☆												
24	☆	☆	☆	☆	☆			☆	☆										
26			☆	☆															
30	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆			
32			☆																
34	☆	☆	☆	☆					☆	☆									
36				☆				☆											
40	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆			
50	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆			
60	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆			
70		☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆			
80		☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆			
100			☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆			
120					☆	☆	☆	☆											
130													☆						
160								☆	☆										

Note: Please contact us regarding numbers of contacts other than those given above.

AXK7L, 8L

P6S (0.6 mm pitch)

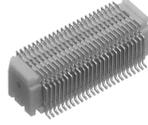


☆: Available for sale

Mated height		Mated height						
		4.0mm	5.0mm	6.0mm	7.0mm	8.0mm	9.0mm	
Number of contacts	20	☆	☆	☆	☆	☆	☆	
	30	☆	☆	☆	☆	☆	☆	
	40	☆	☆	☆	☆	☆	☆	
	50	☆	☆	☆	☆	☆	☆	
	60	☆	☆	☆	☆	☆	☆	
	80	☆	☆	☆	☆	☆	☆	
	100	☆	☆	☆	☆	☆	☆	

Note: Please contact us regarding numbers of contacts other than those given above.

Floating type (0.5 mm pitch)



☆: Available for sale

Mated height		5.0mm
Number of contacts	20	☆
	30	☆
	40	☆
	50	☆
	60	☆
	80	☆
	100	☆

P8 (0.8 mm pitch)



☆: Available for sale

Mated height		Mated height											
		3.0mm	3.5mm	4.0mm	4.5mm	5.0mm	5.5mm	6.0mm	7.0mm	8.0mm	11.5mm	13.0mm	14.0mm
Number of contacts	12					☆	☆						
	14					☆							
	16	☆	☆	☆	☆								
	20	☆		☆		☆		☆	☆	☆		☆	☆
	22								☆	☆			
	24	☆	☆			☆	☆	☆		☆			
	26	☆	☆	☆	☆	☆	☆	☆	☆	☆			
	30	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	
	34									☆			
	40	☆		☆		☆		☆	☆	☆	☆	☆	
	50	☆		☆		☆		☆	☆	☆	☆	☆	
	60	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	
	80	☆		☆		☆		☆	☆	☆	☆	☆	
	90	☆											
100	☆		☆		☆		☆	☆	☆	☆			

Note: Please contact us regarding numbers of contacts other than those given above.

P10 (1.0 mm pitch)



☆: Available for sale

Mated height		Mated height	
		2.0mm	2.5mm
Number of contacts	10	☆	☆
	16	☆	☆
	20	☆	☆
	30	☆	☆