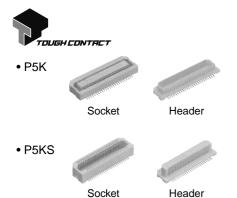
Panasonic

NARROW-PITCH CONNECTORS FOR **BOARD-TO-BOARD** CONNECTION

NARROW PITCH (0.5mm) CONNECTORS P5 SERIES — P5K, P5KS—

ideas for life



Note: The external appearance and PC board pattern differs for the P5K and P5KS series.

Compliance with RoHS Directive

FEATURES

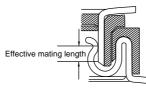
1. The product lineup consists of 3.0 mm, 3.5 mm, 4.0 mm, 4.5 mm, 5.0 mm, 5.5 mm, 6.0 mm, 6.5 mm, 7.0 mm, 8.0 mm, and 9.0 mm.

Туре	Mated height	Notes
P5K	3 mm, 3.5 mm	The external
P5KS	4 mm, 4.5 mm, 5 mm, 5.5 mm, 6 mm, 6.5 mm, 7 mm, 8 mm, 9 mm	appearance and PC board pattern differs for the P5K and P5KS series.

2. Strong resistance to adverse environments! Utilizes **TDUGH CONTRLT** construction

for high contact reliability. (See Page 6 for details of the structure)

3. Even with the low profile, the effective mating length has been extended to ensure that there is some latitude in the mating.

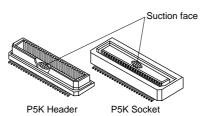


With Iona effective mating lengths, even if the connection is not perfect, the electrical connection is more than enough for normal operations

Туре	Effective mating length
P5K	0.65 mm
P5KS	1.0 mm

4. Automatic mounting

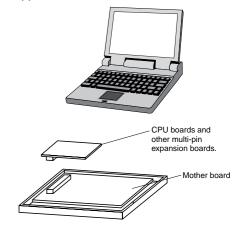
1) Suction area for suction-type automatic mounting machines is employed.



APPLICATIONS

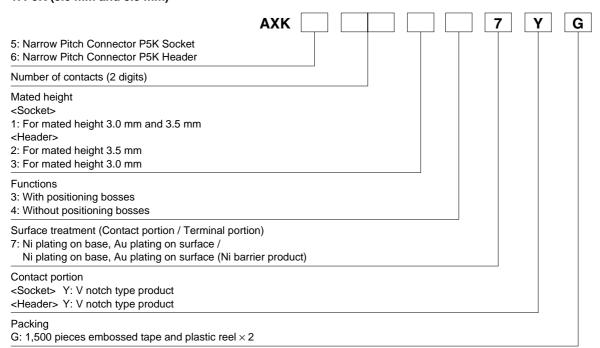
- 1. Compact portable devices "Cellular phones, DVC, Digital cameras, etc"
- 2. The 160-contacts connector:

This connector is particularly suited to the motherboard, CPU board, and other multi-pin expansion boards on notebook PCs and other info-communications applications.

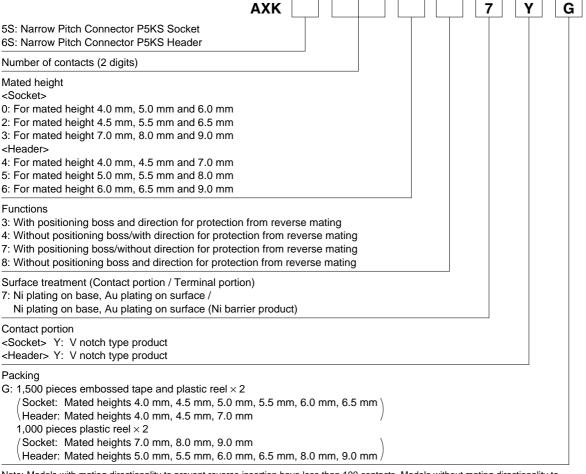


ORDERING INFORMATION

1. P5K (3.0 mm and 3.5 mm)



2. P5KS (4.0 mm, 4.5 mm, 5.0 mm, 5.5 mm, 6.0 mm, 6.5 mm, 7.0 mm, 8.0 mm and 9.0 mm)



Note: Models with mating directionality to prevent reverse insertion have less than 100 contacts. Models without mating directionality to prevent reverse insertion have over 100 contacts.

PRODUCT TYPES

1. P5K

		N	Par	t No.	Pack	ing
Product name	Mated height	No. of contacts	Socket	Header	Inner carton (1 reel)	Outer carton
Harrie	neight	Contacts	TOUGH CONTRCT	TOUGH CONTACT	Inner carton (1 reel) Outer of	Outer carton
		20	AXK520147YG	AXK620347YG		
		22	AXK522147YG	AXK622347YG		
		30	AXK530147YG	AXK630347YG		
		40	AXK540147YG	AXK640347YG		
	3.0 mm	50	AXK550147YG	AXK650347YG		
	3.0 111111	60	AXK560147YG	AXK660347YG		
		70	AXK570147YG	AXK670347YG		
		80	AXK580147YG	AXK680347YG	1,500 pieces 3,00	
		100	AXK500147YG	AXK600347YG		3,000 pieces
		120	AXK5A2147YG	AXK6A2347YG		
P5K		20	AXK520147YG	AXK620247YG		
		22	AXK522147YG	AXK622247YG		
		30	AXK530147YG	AXK630247YG		
		34	AXK534147YG	AXK634247YG		
		40	AXK540147YG	AXK640247YG		
	3.5 mm	50	AXK550147YG	AXK650247YG		
		60	AXK560147YG	AXK660247YG		
		70	AXK570147YG	AXK670247YG		
		80	AXK580147YG	AXK680247YG		
		100	AXK500147YG	AXK600247YG		
		120	AXK5A2147YG	AXK6A2247YG		

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. (See "Regarding sample orders to confirm proper mounting" on page 150.) Samples: Small lot orders are possible.

2. The standard type comes without positioning bosses.

Connectors with positioning bosses are available on-demand production. For P5K type of 8th digit of the part no. changes from 4 to 3. e.g. Mated height 3.0 mm, 20 contacts for sockets: AXK520137YG

3. Previous non-TDUSH CONTRICT types and current TDUSH CONTRICT types are compatible for mating.

2. P5KS

2. P5K5						
Product	Mated	No. of		No.	Pac	cking
name	height	contacts	Socket	Header	Inner carton (1 reel)	Outer carton
			TOUGH CONTRCT	TOUGH CONTRCT		
		20	AXK5S20047YG	AXK6S20447YG		
		24	AXK5S24047YG	AXK6S24447YG		
		30	AXK5S30047YG	AXK6S30447YG		
		34	AXK5S34047YG	AXK6S34447YG		
		40	AXK5S40047YG	AXK6S40447YG		
	4.0 mm	50	AXK5S50047YG	AXK6S50447YG		
		60	AXK5S60047YG	AXK6S60447YG		
		70	AXK5S70047YG	AXK6S70447YG		
		80	AXK5S80047YG	AXK6S80447YG		
		100	AXK5S00047YG	AXK6S00447YG		
		120	AXK5SA2077YG	AXK6SA2477YG		
DEKO		160	AXK5SA6077YG	AXK6SA6477YG	4.500	0.000 =:
P5KS		20	AXK5S20247YG	AXK6S20447YG	1,500 pieces	3,000 pieces
		24	AXK5S24247YG	AXK6S24447YG		
		30	AXK5S30247YG	AXK6S30447YG		
		34	AXK5S34247YG	AXK6S34447YG		
		36	AXK5S36247YG	AXK6S36447YG		
	4.5	40	AXK5S40247YG	AXK6S40447YG		
	4.5 mm	50	AXK5S50247YG	AXK6S50447YG		
		60	AXK5S60247YG	AXK6S60447YG		
		70	AXK5S70247YG	AXK6S70447YG		
		80	AXK5S80247YG	AXK6S80447YG		
		100	AXK5S00247YG	AXK6S00447YG		
		120	AXK5SA2277YG	AXK6SA2477YG		
		160	AXK5SA6277YG	AXK6SA6477YG		
		20	AXK5S20047YG	AXK6S20547YG		
		24	AXK5S24047YG	AXK6S24547YG		
		30	AXK5S30047YG	AXK6S30547YG		
		34	AXK5S34047YG	AXK6S34547YG		
	5.0 mm	40	AXK5S40047YG	AXK6S40547YG		
		50	AXK5S50047YG	AXK6S50547YG		
	-	60	AXK5S60047YG	AXK6S60547YG		
		70	AXK5S70047YG	AXK6S70547YG		
		80	AXK5S80047YG	AXK6S80547YG		
		100	AXK5S00047YG	AXK6S00547YG		
		20	AXK5S20247YG	AXK6S20547YG		
		24	AXK5S24247YG	AXK6S24547YG		
		30	AXK5S30247YG	AXK6S30547YG		
		34	AXK5S34247YG	AXK6S34547YG		
	5.5 mm	40	AXK5S40247YG	AXK6S40547YG		
		50	AXK5S50247YG	AXK6S50547YG		
		60 70	AXK5S60247YG AXK5S70247YG	AXK6S60547YG		
P5KS		70 80		AXK6S70547YG	Socket: 1,500 pieces	Socket: 3,000 pieces
FUNO		100	AXK5S80247YG AXK5S00247YG	AXK6S80547YG AXK6S00547YG	Header: 1,000 pieces	Header: 2,000 pieces
		100				
		20	AXK5S20047YG AXK5S30047YG	AXK6S20647YG		
		30		AXK6S30647YG		
		40	AXK5S40047YG	AXK6S40647YG		
	6.0 mm	50 60	AXK5S50047YG	AXK6S50647YG		
		60	AXK5S60047YG	AXK6S60647YG		
		70	AXK5S70047YG	AXK6S70647YG		
		80	AXK5S80047YG	AXK6S80647YG		
		100	AXK5S00047YG	AXK6S00647YG		
		20	AXK5S20247YG	AXK6S20647YG		
		30	AXK5S30247YG	AXK6S30647YG		
		40	AXK5S40247YG	AXK6S40647YG		
	0.5	50	AXK5S50247YG	AXK6S50647YG		
	6.5 mm	60	AXK5S60247YG	AXK6S60647YG		
		70	AXK5S70247YG	AXK6S70647YG		
		80	AXK5S80247YG	AXK6S80647YG		
		100	AXK5S00247YG	AXK6S00647YG		
		130	AXK5SA3277YG	AXK6SA3677YG	1	

AXK(5(S)/6(S))

			Par	t No.	Pac	king
Product name	Mated height	No. of contacts	Socket	Header	Inner corton (4 reel)	Outor parton
Tiame Height	Comacis	TOUGH CONTRCT	TOUGH CONTRCT	Inner carton (1 reel)	Outer carton	
		20	AXK5S20347YG	AXK6S20447YG		
		30	AXK5S30347YG	AXK6S30447YG		
		40	AXK5S40347YG	AXK6S40447YG		
	7.0 mm	50	AXK5S50347YG	AXK6S50447YG	Socket: 1,000 pieces	Socket: 2,000 pieces
	7.0 111111	60	AXK5S60347YG	AXK6S60447YG	Header: 1,500 pieces	Header: 3,000 pieces
		70	AXK5S70347YG	AXK6S70447YG		
		80	AXK5S80347YG	AXK6S80447YG		
		100	AXK5S00347YG	AXK6S00447YG	1	
		20	AXK5S20347YG	AXK6S20547YG		
		30	AXK5S30347YG	AXK6S30547YG		0.000 six sa
		40	AXK5S40347YG	AXK6S40547YG		
P5KS	8.0 mm	50	AXK5S50347YG	AXK6S50547YG		
FONO	0.0 111111	60	AXK5S60347YG	AXK6S60547YG		
		70	AXK5S70347YG	AXK6S70547YG		
		80	AXK5S80347YG	AXK6S80547YG		
		100	AXK5S00347YG	AXK6S00547YG	4 000 -:	
		20	AXK5S20347YG	AXK6S20647YG	1,000 pieces	2,000 pieces
		30	AXK5S30347YG	AXK6S30647YG		
		40	AXK5S40347YG	AXK6S40647YG		
	9.0 mm	50	AXK5S50347YG	AXK6S50647YG		
	9.0 111111	60	AXK5S60347YG	AXK6S60647YG		
		70	AXK5S70347YG	AXK6S70647YG		
		80	AXK5S80347YG	AXK6S80647YG		
		100	AXK5S00347YG	AXK6S00647YG]	

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. (See "Regarding sample orders to confirm proper mounting" on page 150.)

Samples: Small lot orders are possible.

2. The standard type comes without positioning bosses (However, mated heights of 4 mm or higher and 120 pins or more comes standard with bosses). Connectors with positioning bosses are available for on-demand production. For P5KS type of 9th digit of the part no. changes from 4 to 3.

e.g. Mated height 4.0 mm, 20 contacts for sockets: AXK5S20037YG

^{3.} Previous non-TDUSH CONTRET types and current TDUSH CONTRET types are compatible for mating.

SPECIFICATIONS

1. Characteristics

		Specifications					
	Item	3mm, 3.5mm type	4mm, 4.5mm, 5mm, 5.5mm, 6mm, 6.5mm type	7mm,	8mm, 9mm type	Conditions	
	Rated current	0.5A/terminal (Max. 1	0.5A/ter	minal (Max. 1	6A)		
	Rated voltage	60V AC/DC					
Electrical	Breakdown voltage		150V AC for 1 min.			Detection current: 1mA	
characteristics	Insulation resistance		Min. 1000M Ω			Using 500V DC megger	
	Contact resistance	N	/lax. 60mΩ	1	Max. 80mΩ	Based on the contact resistance measurement method specified by JIS C 5402.	
	Composite insertion force		Max. 0.785N {80gf} × no. of con	tacts (initial)			
Mechanical characteristics	Composite removal force		Min. 0.0588N {6gf} \times no. of (contacts			
	Contact holding force	Min. 0.98N {100gf}/contacts			Measuring the maximum force. As the contact is axially pull out.		
	Ambient temperature		−55°C to +85°C				
	Soldering heat resistance	Max. peak temperature of 260°C (on the surface of the PC board around the connector terminals)		erminals)	Infrared reflow soldering		
	resistance	300°C within 5 sec., 350°C within 3 sec.			Soldering iron		
	Thermal shock resistance (header and socket mated)		resistance min. 100M Ω , sistance max. 60m Ω	5 cycles,	insulation resistance min. 100M Ω , contact resistance max. $80 \text{m}\Omega$	Sequence 155-\(\frac{9}{2}\)°C, 30 minutes 2. \(\times\), Max. 5 minutes 3. 85'\(\frac{3}{0}\)°C, 30 minutes 4. \(\times\), Max. 5 minutes	
Environmental characteristics	Humidity resistance (header and socket mated)		resistance min. $100 M\Omega$, sistance max. $60 m\Omega$	120 hours,	insulation resistance min. 100M Ω , contact resistance max. $80m\Omega$	Bath temperature 40±2°C, humidity 90 to 95% R.H.	
	Saltwater spray resistance (header and socket mated)		resistance min. $100M\Omega$, sistance max. $60m\Omega$	24 hours,	insulation resistance min. 100M Ω , contact resistance max. 80m Ω	Bath temperature 35±2°C, saltwarter concentration 5±1%	
	H ₂ S resistance (header and socket mated)	48 hours, contact re	sistance max. $60 \text{m}\Omega$	48 hours,	contact resistance max. $80 \text{m}\Omega$	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		P5K 3mm 30 contacts P5KS 4mm 30 contact	Socket: 0.17g Header: 0. s Socket: 0.18g Header: 0.				

2. Material and surface treatment

Part name	Mated height 3mm, 3.5mm, 4mm, 4.5mm, 5mm, 5.5mm, 6mm, 6.5mm, 7mm, 8mm, 9mm		
Fait Haine	Material	Surface treatment	
Molded portion	Heat-resistant resin (UL94V-0)	_	
Contact/post	Copper alloy	Contact portion: Ni plating on base, Au plating on surface Terminal portion: Ni plating on base, Au plating on surface (Except for thick of terminal) The section close to the soldering portion has a nickel barrier. (The nickel base is exposed.)	

DIMENSIONS (Unit: mm)

The CAD data of the products with a **CAD Data** mark can be downloaded from: http://panasonic-electric-works.net/ac

P5K: Mated height 3mm, 3.5mm type

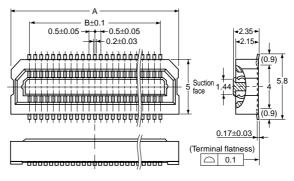
Socket

CAD Data



Dimension table (mm)

No. of contacts	А	В
20	8.20	4.50
22	8.70	5.00
30	10.70	7.00
34	11.70	8.00
40	13.20	9.50
50	15.70	12.00
60	18.20	14.50
70	20.70	17.00
80	23.20	19.50
100	28.20	24.50
120	33.20	29.50



General tolerance: ±0.2

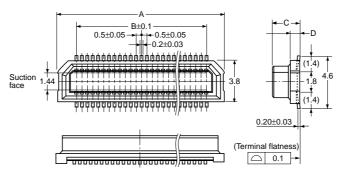
Header

CAD Data



Dimension table (mm)

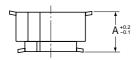
No. of contacts	А	В
20	8.20	4.50
22	8.70	5.00
30	10.70	7.00
34	11.70	8.00
40	13.20	9.50
50	15.70	12.00
60	18.20	14.50
70	20.70	17.00
80	23.20	19.50
100	28.20	24.50
120	33.20	29.50



General tolerance: ±0.2

Mated height	С	D
3.0 mm	2.4	0.85
3.5 mm	2.9	1.35

· Socket and header are mated



Mated height	
3.0 mm	3.0
3.5 mm	3.5

Note) P5KS series (mated heights 4.0mm, 4.5mm, 5.0mm, 5.5mm, 6.0mm, 7.0mm, 8.0mm, and 9.0mm) cannot be mated to this type.

P5KS: Mated height 4.0mm, 4.5mm, 5.0mm, 5.5mm, 6.0mm, 6.5mm, 7.0mm, 8.0mm, 9.0mm type

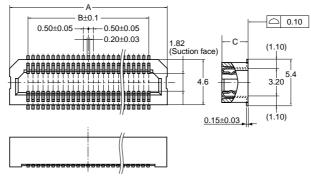
Socket

CAD Data



Dimension table (mm)

No. of contacts	А	В
20	8.20	4.50
24	9.20	5.50
30	10.70	7.00
34	11.70	8.00
36	12.20	8.50
40	13.20	9.50
50	15.70	12.00
60	18.20	14.50
70	20.70	17.00
80	23.20	19.50
100	28.20	24.50



General tolerance: ±0.2

Mated height	С
4.0 mm, 5.0 mm, 6.0 mm	3.05
4.5 mm, 5.5 mm, 6.5 mm	3.55
7.0 mm, 8.0 mm, 9.0 mm	6.05

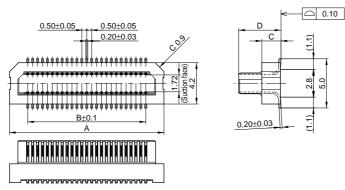
• Header

CAD Data



Dimension table (mm)

No. of contacts	А	В
20	8.20	4.50
24	9.20	5.50
30	10.70	7.00
34	11.70	8.00
36	12.20	8.50
40	13.20	9.50
50	15.70	12.00
60	18.20	14.50
70	20.70	17.00
80	23.20	19.50
100	28.20	24.50



General tolerance: ±0.2

Mated height	С	D
4.0 mm, 4.5 mm, 7.0 mm	0.95	3.3
5.0 mm, 5.5 mm, 8.0 mm	1.95	4.3
6.0 mm, 6.5 mm, 9.0 mm	2.95	5.3

· Socket and header are mated



Note) P5K series (mated heights 3.0mm, 3.5mm) cannot be mated to this type.

Mated height	Α
4.0 mm	4.0
4.5 mm	4.5
5.0 mm	5.0
5.5 mm	5.5
6.0 mm	6.0
6.5 mm	6.5
7.0 mm	7.0
8.0 mm	8.0
9.0 mm	9.0

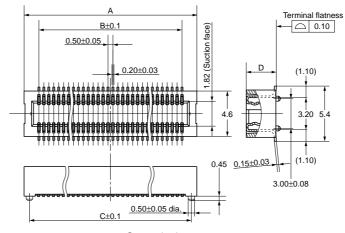
P5KS: Mated height 4.0mm, 4.5mm for 120 contacts and 160 contacts types, 6.5mm for 130 contacts type

Socket





No. of contacts	А	В	С
120	32.50	29.50	32.00
130	35.00	32.00	34.50
160	42.50	39.50	42.00



General tolerance: ±0.2

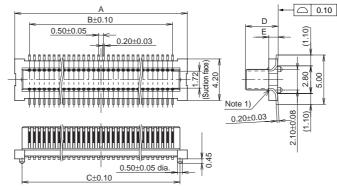
Mated height	D
4.0 mm	3.05
4.5 mm, 6.5 mm	3.55

Header

CAD Data



No. of contacts	А	В	С
120	32.50	29.50	31.00
130	35.00	32.00	33.50
160	42.50	39.50	41.00



General tolerance: ±0.2

Mated height	D	Е
4.0 mm, 4.5 mm	3.30	0.95
6.5 mm	5.30	2.95

· Socket and header are mated



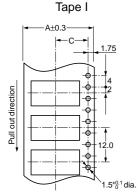
Mated height	Н
4.0 mm	4.0
4.5 mm	4.5
6.5 mm	6.5

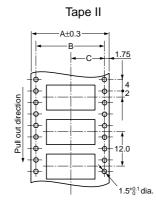
Notes) 1. Inquiry separately for diagrams of the embossed tape and cautions for use.
2. Be sure to ask for proper specifications and

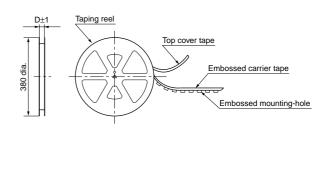
drawings before actual use.

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.)
- Plastic reel dimensions (Conforming to EIAJ ET-7200B)





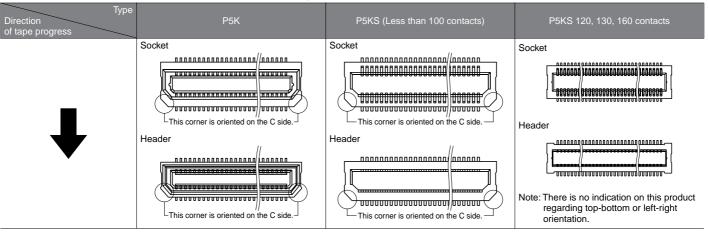


Dimension table (mm)

Suffix: G (1 reel, 1,500 pieces or 1,000 pieces embossed tape and plastic reel package)

Туре	Mated height	No. of contacts	Type of taping	А	В	С	D	Quantity per reel
P5K	Socket and header are common 3.0mm, 3.5mm	20 to 50	Tape I	24.0	_	11.5	25.4	1,500 pcs.
		60 to 70	Tape II	32.0	28.4	14.2	33.4	
FSK		80 to 100	Tape II	44.0	40.4	20.2	45.4	
		120	Tape II	56.0	52.4	26.2	57.4	
	Socket: 4.0mm, 4.5mm, 5.0mm, 5.5mm, 6.0mm, 6.5mm Header: 4.0mm, 4.5mm, 7.0mm	20 to 50	Tape I	24.0		11.5	25.4	
		60 to 70	Tape II	32.0	28.4	14.2	33.4	1,500 pcs.
		80 to 100	Tape II	44.0	40.4	20.2	45.4	1,000 pcs.
P5KS		120 to 160	Tape II	56.0	52.4	26.2	57.4	
FONO	Socket: 7.0mm, 8.0mm, 9.0mm Header: 5.0mm, 5.5mm, 6.0mm, 6.5mm, 8.0mm, 9.0mm	20 to 50	Tape I	24.0		11.5	25.4	
		60 to 70	Tape II	32.0	28.4	14.2	33.4	
		80 to 100	Tape II	44.0	40.4	20.2	45.4	
		130	Tape II	56.0	52.4	26.2	57.4	

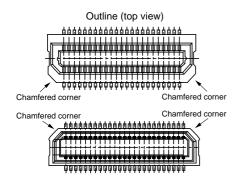
Connector orientation with respect to direction of progress of embossed tape

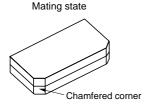


NOTES

1. Prevention of reverse mating

Other than P5KS series 120, 130, 160 contacts type, the socket and header are protected from reverse mating by a molded resin key. Excessive mating force may damage the key, so be sure to match chamfered corners when mating.



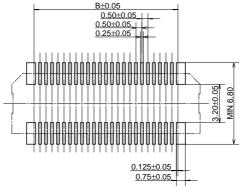


2. PC Boards and Recommended Metal Mask Patterns

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.

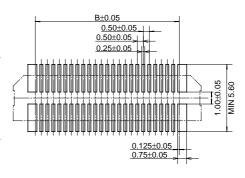
P5K Socket

Recommended PC board pattern (TOP VIEW)

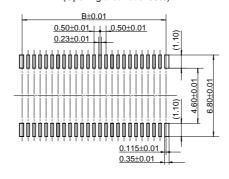


P5K Header

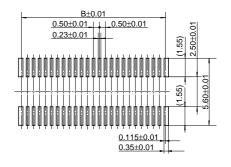
Recommended PC board pattern (TOP VIEW)



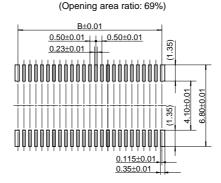
Recommended metal mask pattern Metal mask thickness: Here, 150 μm (Opening area ratio: 56%)



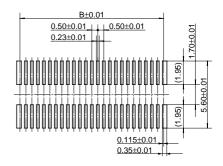
Recommended metal mask pattern Metal mask thickness: Here, 150 μm (Opening area ratio: 62%)



Recommended metal mask pattern Metal mask thickness: Here, 120 μm



Recommended metal mask pattern Metal mask thickness: Here, 120 µm (Opening area ratio: 78%)

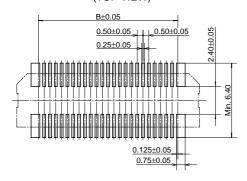


^{*} See the dimension table on page 99 for more information on the B dimension of the socket and header.

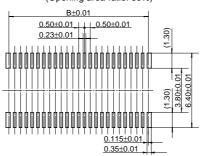
P5KS: Mated height 4.0mm, 4.5mm, 5.0mm, 5.5mm, 6.0mm, 6.5mm, 7.0mm, 8.0mm, 9.0mm type

Socket

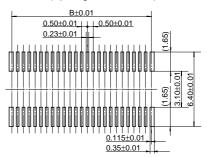
Recommended PC board pattern (TOP VIEW)



Recommended metal mask pattern Metal mask thickness: Here, 150 μm (Opening area ratio: 60%)



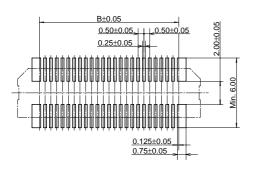
Recommended metal mask pattern Metal mask thickness: Here, 120 μm (Opening area ratio: 76%)



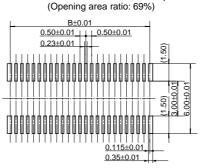
* See the dimension table on page 100 for more information on the B dimension.

Header

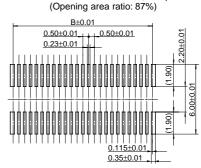
Recommended PC board pattern (TOP VIEW)



Recommended metal mask pattern Metal mask thickness: Here, 150 μm



Recommended metal mask pattern Metal mask thickness: Here, 120 μm

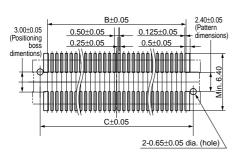


* See the dimension table on page 100 for more information on the B dimension.

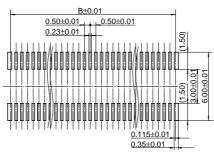
P5KS: Mated height 4.0mm, 4.5mm for 120 contacts and 160 contacts types, 6.5mm for 130 contacts type

Socket

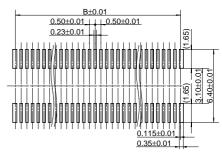
Recommended PC board pattern (TOP VIEW)



Recommended metal mask pattern Metal mask thickness: Here, 150 μm (Opening area ratio: 60%)



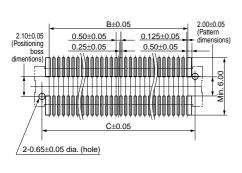
Recommended metal mask pattern Metal mask thickness: Here, 120 μm (Opening area ratio: 76%)



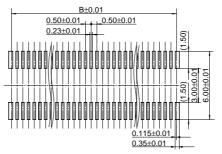
* See the dimension table on page 101 for more information on the B and C dimensions.

• Header

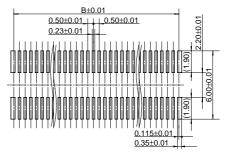
Recommended PC board pattern (TOP VIEW)



Recommended metal mask pattern Metal mask thickness: Here, 150 μm (Opening area ratio: 69%)



Recommended metal mask pattern Metal mask thickness: Here, 120 μm (Opening area ratio: 87%)



* See the dimension table on page 101 for more information on the B and C dimensions

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