

NAiS

NARROW-PITCH CONNECTORS FOR BOARD-ON BOARD CONNECTIONS

NARROW-PITCH CONNECTORS — DIRECT TYPE —



FEATURES

1. An ultra thin, lightweight PC board to PC board space of max. 0.1 mm is realized. Contributes to miniaturization of equipment.

An effective stacking height of 0.4 mm and weight of 0.05 g is realized (with a pitch between terminals of 1.4 mm and 8 contacts).

2. With bellows type contact construction, a large spring stroke is maintained, and the corresponding stacking capacity is increased.

3. Automatic assembly and reduction in part runs is possible, providing a total cost reduction.

Compared to rubber connectors, the number of parts and mounting costs can be reduced.

4. Twin contact construction for high contact reliability.

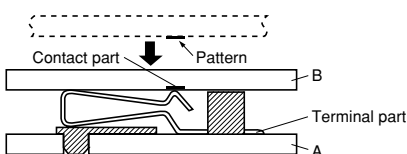
Also, the 1.0 mm terminal pitch type supports single-contact types for light loads with leeway in positioning when assembling the device.

APPLICATIONS

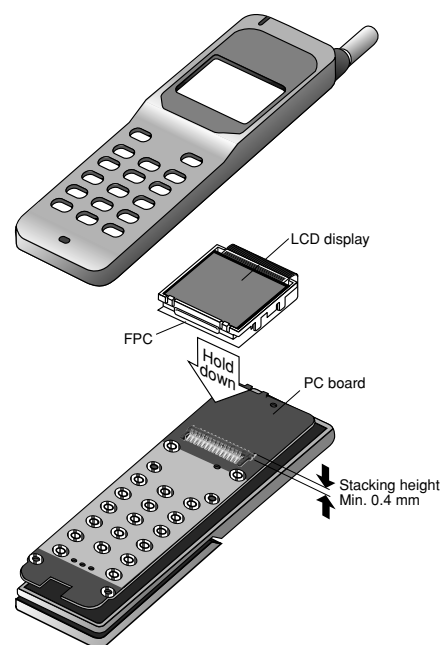
Cellular phones, PHS, PDAs and other small portable devices.

• What is meant by “direct type” connector?

Using this connector, the terminal part is mounted on the PC board (B in the figure below) by soldering, the contact part, is pressed to the pattern on the PC board (A in the figure below) and connection performed.



• Example of connection between PC board and LCD display of cellular phone



PRODUCT TYPES

Terminal pitch	Recommended stacking height	Effective stacking height	No. of contacts	Contact tip	Part No.	Packing quantity	
						Inner carton (1 reel)	Outer carton
1.0mm	0.8mm	0.6mm to 1.0mm	14	Twin	AXK1114355J	3,500 pcs.	7,000 pcs.
			15	Twin	AXK1115355J	3,500 pcs.	7,000 pcs.
	1.25mm	1.05mm to 1.4mm	10	Twin	AXK1110535J	3,000 pcs.	6,000 pcs.
				Single	AXK1110575J	3,000 pcs.	6,000 pcs.
			12	Twin	AXK1112535J	3,000 pcs.	6,000 pcs.
			12	Twin	AXK1112735J	3,000 pcs.	6,000 pcs.
1.1mm	1.45mm	1.25mm to 1.6mm	13	Single	AXK1113775J	3,000 pcs.	6,000 pcs.
			18	Twin	AXK1418635J	3,000 pcs.	6,000 pcs.
	1.35mm	1.15mm to 1.5mm	12	Twin	AXK1412835J	3,000 pcs.	6,000 pcs.
			18	Twin	AXK1418835J	3,000 pcs.	6,000 pcs.
1.4mm	0.6mm	0.4mm to 0.8mm	8	Twin	AXK1208435J	4,000 pcs.	8,000 pcs.
		0.45mm to 0.8mm	14	Twin	AXK1214435J	4,000 pcs.	8,000 pcs.
			15	Twin	AXK1215435J	4,000 pcs.	8,000 pcs.
	0.65mm	0.5mm to 0.8mm	20	Twin	AXK1220435J	4,000 pcs.	8,000 pcs.
3.5mm	0.95mm	0.7mm to 1.1mm	2	Twin	AXK1302235J	3,000 pcs.	6,000 pcs.

SPECIFICATIONS

1. Characteristics

1) Terminal pith 1.0mm, 1.1mm

Item		Specifications		Conditions														
		Terminal pitch 1.0mm	Terminal pitch 1.1mm															
Electrical characteristics	Rated current	0.5A																
	Rated voltage	60V AC/DC																
	Breakdown voltage	250V AC for 1 minute		Detection current: 1mA														
	Insulation resistance	Min. 1,000MΩ (initial)		Using 500V DC megger (applied for 1min.)														
	Contact resistance	Max. 50mΩ		Measured based on the HP4338B measurement method of JIS C 5402.														
Mechanical characteristics	Contact force (Note)	14, 15, 17 contacts twin connection: 0.637 ^{+0.147} _{-0.098} N(65 ⁺¹⁵ ₋₁₀ gf)/2 points 10, 12 contacts twin connection: 0.441 ^{+0.147} _{-0.098} N(45 ⁺¹⁵ ₋₁₀ gf)/2 points 10, 13, 17, 18 contacts single connection: 0.441 ^{+0.147} _{-0.098} N(45 ⁺¹⁵ ₋₁₀ gf)/1 point	0.441 ^{+0.147} _{-0.098} N(45 ⁺¹⁵ ₋₁₀ gf)/2 points															
Environmental characteristics	Ambient temperature	-55°C to +85°C		No freezing at low temperature														
	Soldering heat resistance	Max. peak temperature of 245°C		Infrared reflow soldering. However, the temperature of the of PC board surface adjacent to connector terminals.														
		300°C within 5 seconds/350°C within 3 seconds		Soldering iron														
	Thermal shock resistance (header and socket mated)	5 cycles, insulation resistance Min. 100MΩ, contact resistance Max. 50mΩ		<table><tr><th>Sequence</th><th>Temperature (°C)</th><th>Time (minutes)</th></tr><tr><td>1</td><td>-55⁺⁰₋₃</td><td>30</td></tr><tr><td>2</td><td>25⁺¹⁰₋₅</td><td>Max. 5</td></tr><tr><td>3</td><td>85⁺³₋₀</td><td>30</td></tr><tr><td>4</td><td>25⁺¹⁰₋₅</td><td>Max. 5</td></tr></table>	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
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																
Lifetime characteristics	Insertion and removal life	50 times, contact resistance Max. 50mΩ		Do not press the contact in further than the surface of the molded portion of the connector.														
Unit weight		0.1g (14 contacts)	0.1g (18 contacts)															

Note) After pushing the connector contacting part from the recommended stacking height up to the connector part, return it to the same position and then measure.

2) Terminal pith 1.4mm, 3.5mm

Item		Specifications		Conditions																
		Terminal pitch 1.4mm	Terminal pitch 3.5mm																	
Electrical characteristics	Rated current	0.5A																		
	Rated voltage	60V AC/DC																		
	Breakdown voltage	250V AC for 1 minute		Detection current: 1mA																
	Insulation resistance	Min. 1,000MΩ (initial)		Using 500V DC megger (applied for 1min.)																
	Contact resistance	Max. 80mΩ		Measured based on the HP4338B measurement method of JIS C 5402.																
Mechanical characteristics	Contact force (Note)	0.490 ^{+0.198} _{-0.098} N{50 ⁺²⁰ ₋₁₀ gf}/2 points	0.588 ^{+0.147} _{-0.098} N{60 ⁺¹⁵ ₋₁₀ gf}/2 points																	
Environmental characteristics	Ambient temperature	-55°C to +85°C		No freezing at low temperature																
	Soldering heat resistance	Max. peak temperature of 245°C		Infrared reflow soldering. However, the temperature of the of PC board surface adjacent to connector terminals.																
		300°C within 5 seconds/350°C within 3 seconds		Soldering iron																
	Thermal shock resistance (header and socket mated)	5 cycles, insulation resistance Min. 100MΩ, contact resistance Max. 80mΩ		<table><tr><th>Sequence</th><th>Temperature (°C)</th><th>Time (minutes)</th></tr><tr><td>1</td><td>-55⁺⁰₋₃</td><td>30</td></tr><tr><td>2</td><td>25⁺¹⁰₋₅</td><td>Max. 5</td></tr><tr><td>3</td><td>85⁺³₋₀</td><td>30</td></tr><tr><td>4</td><td>25⁺¹⁰₋₅</td><td>Max. 5</td></tr></table>		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
				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																		
Lifetime characteristics	Insertion and removal life	50 times, contact resistance Max. 80mΩ		Do not press the contact in further than the surface of the molded portion of the connector.																
Unit weight		0.05g (8 contacts)	0.03g (2 contacts)																	

Note) After pushing the connector contacting part from the recommended stacking height up to the connector part, return it to the same position and then measure.

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 (Min. 0.1μm) Soldering terminal portion: Au plating over Ni (Except for thick of terminal)

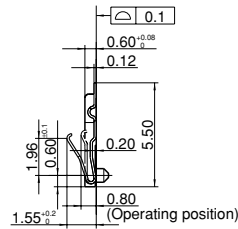
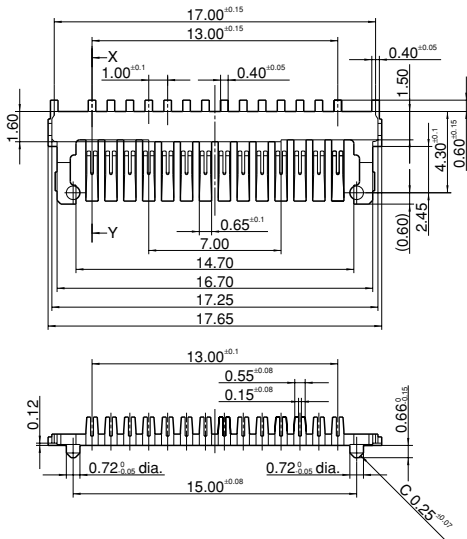
3. Contact Side PC Board Specifications

Contact portion surface treatment	Au plating over Ni (Min. 0.2μm)
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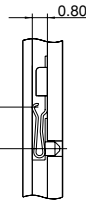
DIMENSIONS

mm General tolerance ± 0.2

1. Terminal pitch 1.0mm, stacking height 0.8mm, 14 contacts twin type

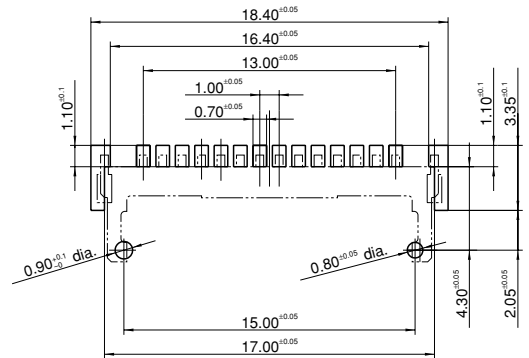


X-Y cross section

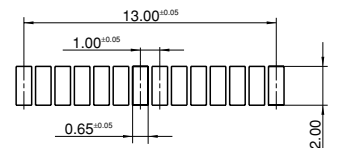


Recommended PC board pattern (TOP VIEW)

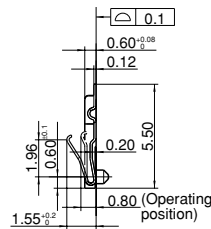
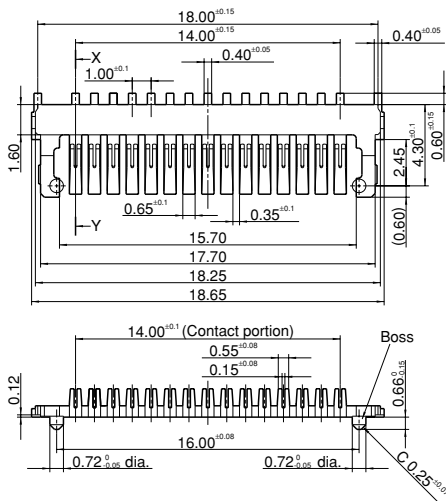
1. Mounting pad layout



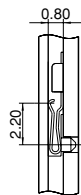
2. Surface contact pattern



2. Terminal pitch 1.0mm, stacking height 0.8mm, 15 contacts twin type

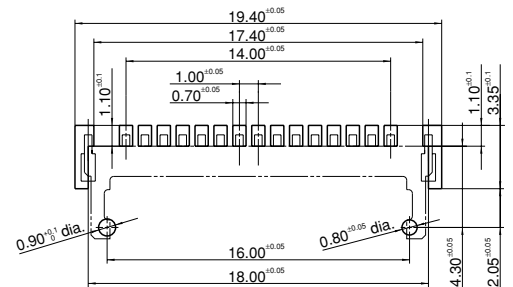


X-Y cross section

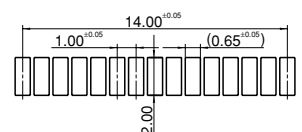


Recommended PC board pattern (TOP VIEW)

1. Mounting pad layout



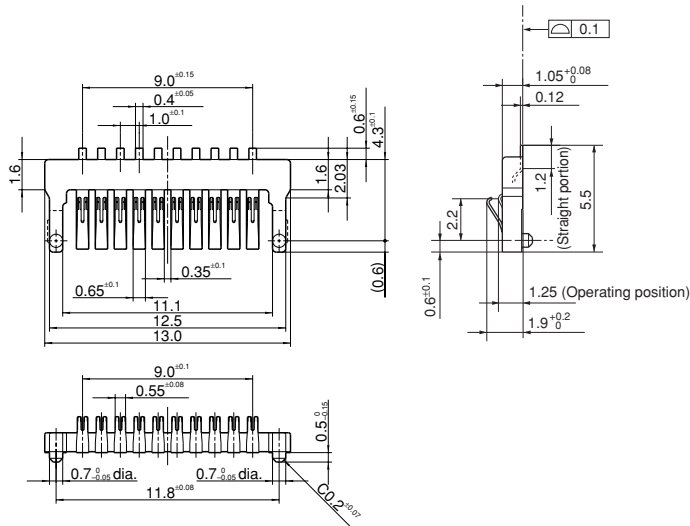
2. Surface contact pattern



AXK(1)

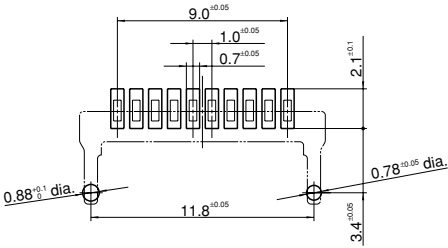
3. Terminal pitch 1.0mm, stacking height 1.25mm, 10 contacts twin type

mm General tolerance ± 0.2

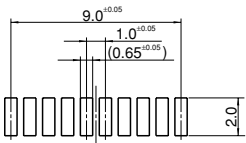


Recommended PC board pattern
(TOP VIEW)

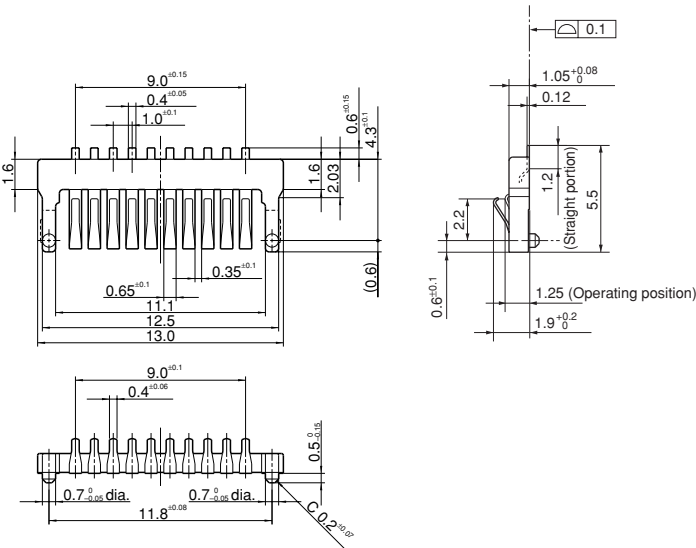
1. Mounting pad layout



2. Surface contact pattern

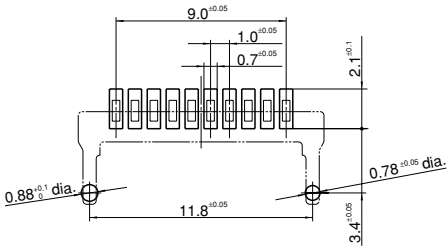


4. Terminal pitch 1.0mm, stacking height 1.25mm, 10 contacts single type

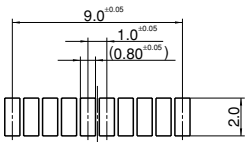


Recommended PC board pattern
(TOP VIEW)

1. mounting pad layout

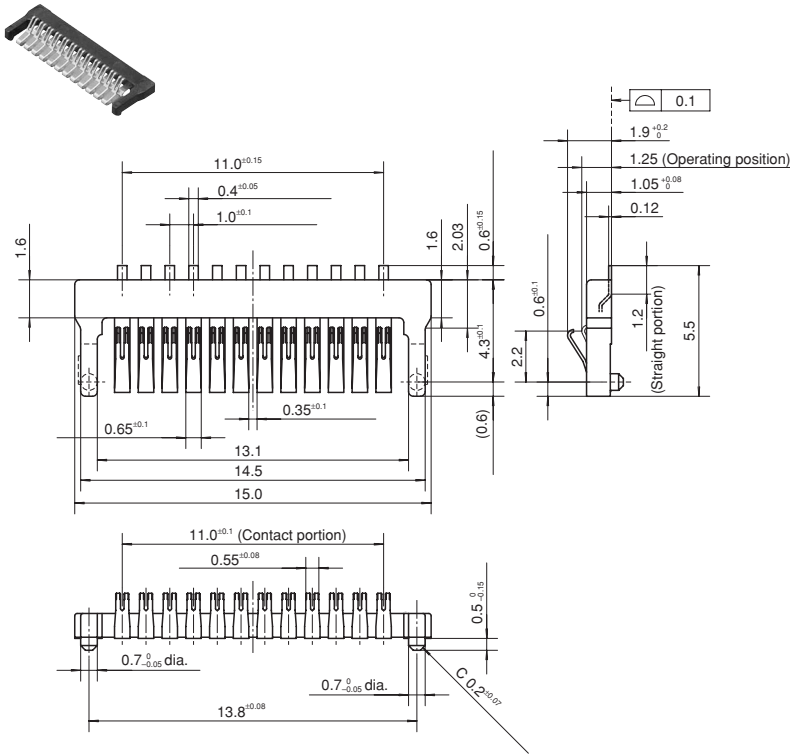


2. Surface contact pattern



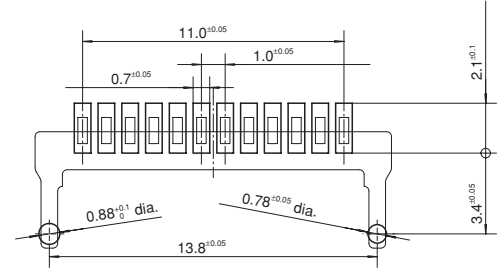
5. Terminal pitch 1.0mm, stacking height 1.25mm, 12 contacts twin type

mm General tolerance ± 0.2

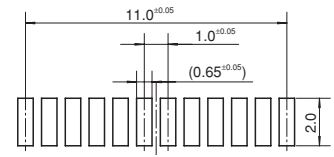


Recommended PC board pattern
(TOP VIEW)

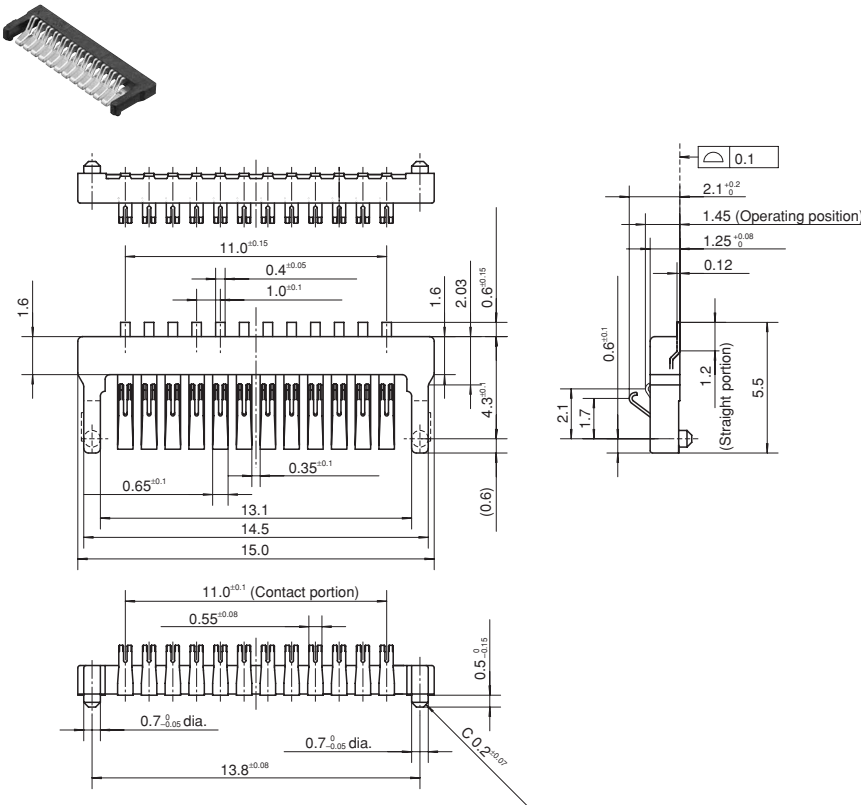
1. Mounting pad layout



2. Surface contact pattern

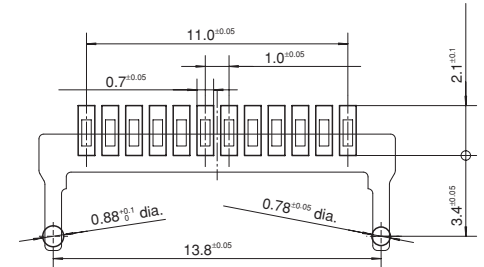


6. Terminal pitch 1.0mm, stacking height 1.45mm, 12 contacts twin type

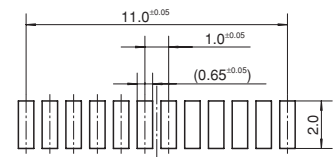


Recommended PC board pattern
(TOP VIEW)

1. Mounting pad layout



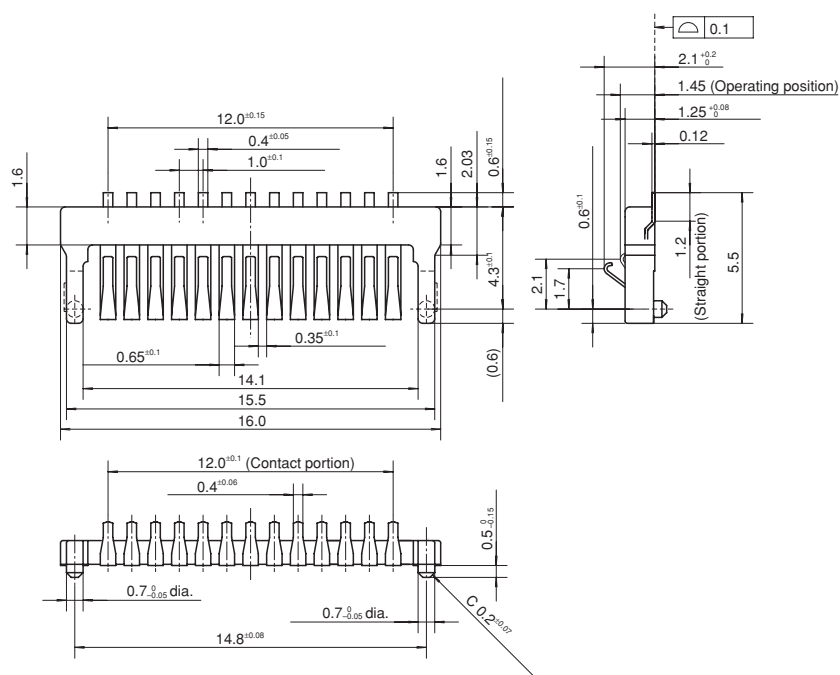
2. Surface contact pattern



AXK(1)

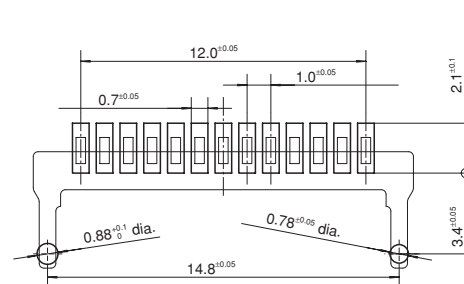
7. Terminal pitch 1.0mm, stacking height 1.45mm, 13 contacts single type

mm General tolerance ± 0.2

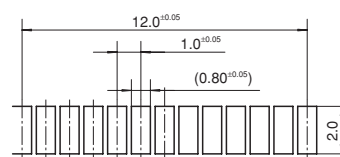


Recommended PC board pattern
(TOP VIEW)

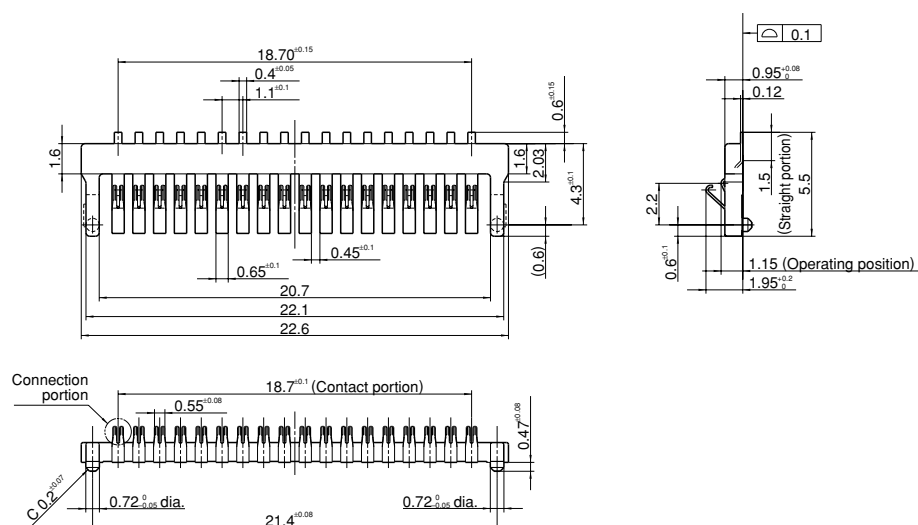
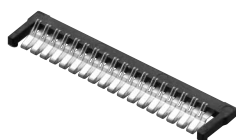
1. Mounting pad layout



2. Surface contact pattern

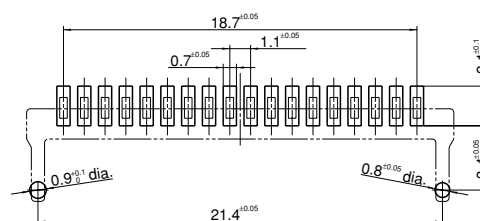


8. Terminal pitch 1.1mm, stacking height 1.15mm, 18 contacts twin type

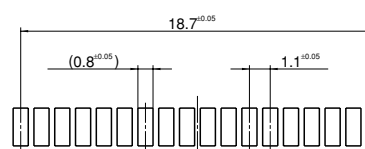


Recommended PC board pattern
(TOP VIEW)

1. mounting pad layout

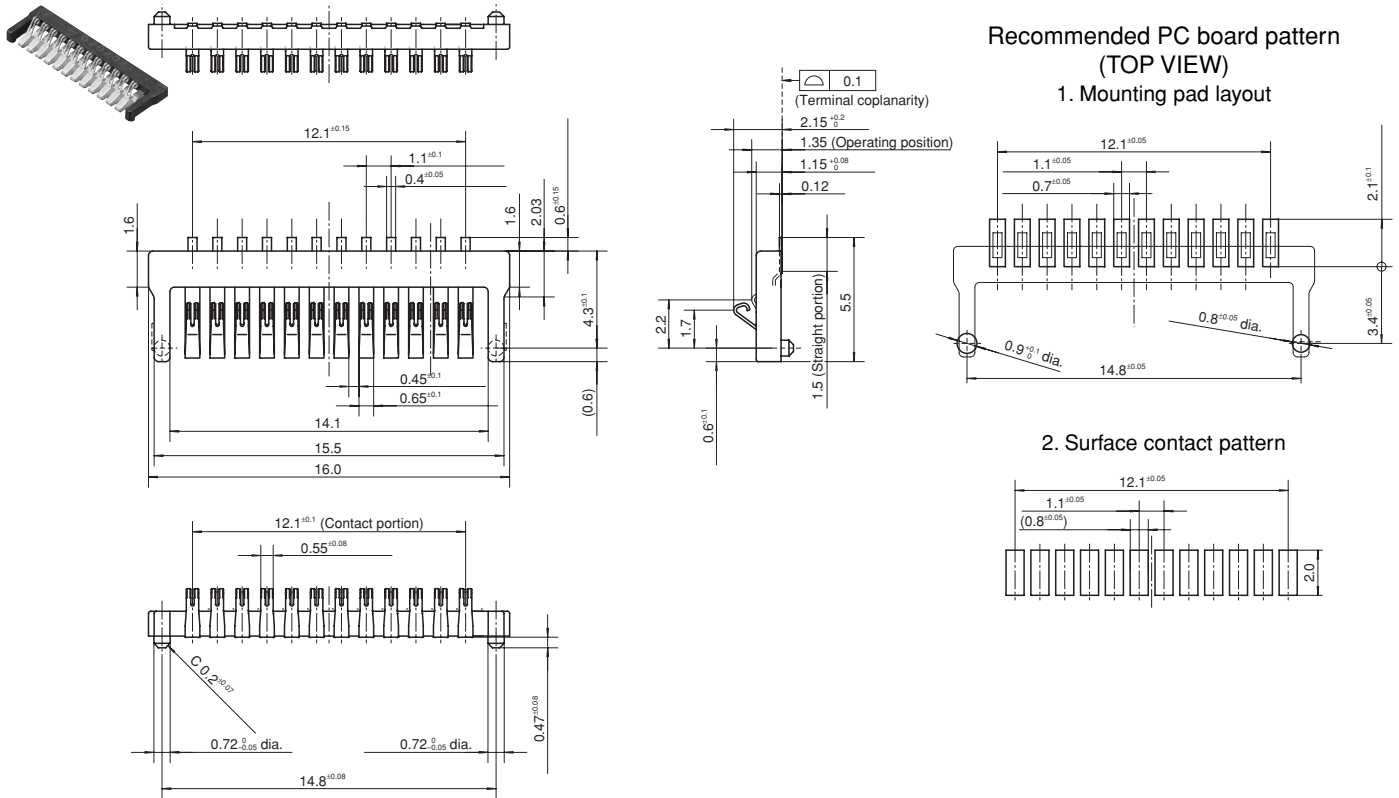


2. Surface contact pattern

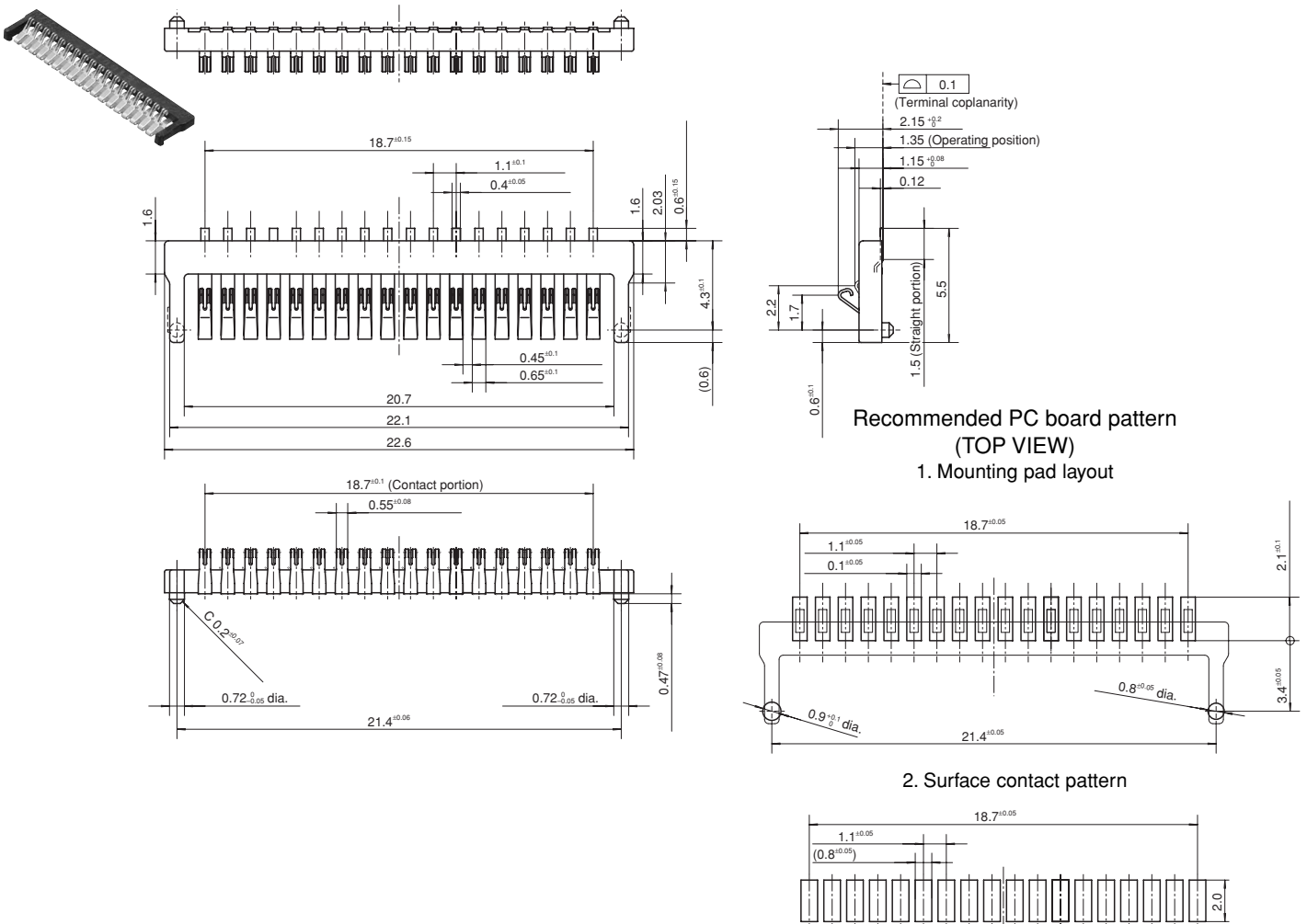


9. Terminal pitch 1.1mm, stacking height 1.35mm, 12 contacts twin type

mm General tolerance ± 0.2



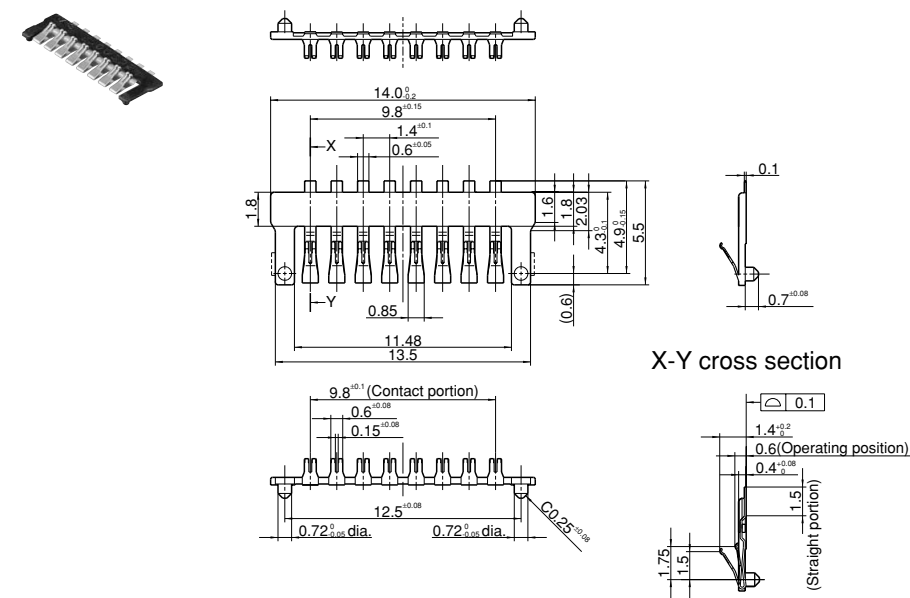
10. Terminal pitch 1.1mm, stacking height 1.35mm, 18 contacts twin type



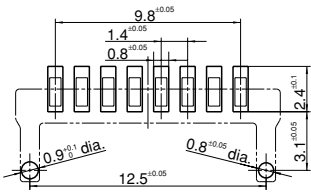
AXK(1)

11. Terminal pitch 1.4mm, stacking height 0.6mm, 8 contacts twin type

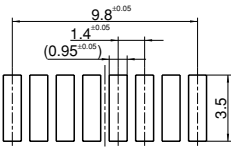
mm General tolerance ± 0.2



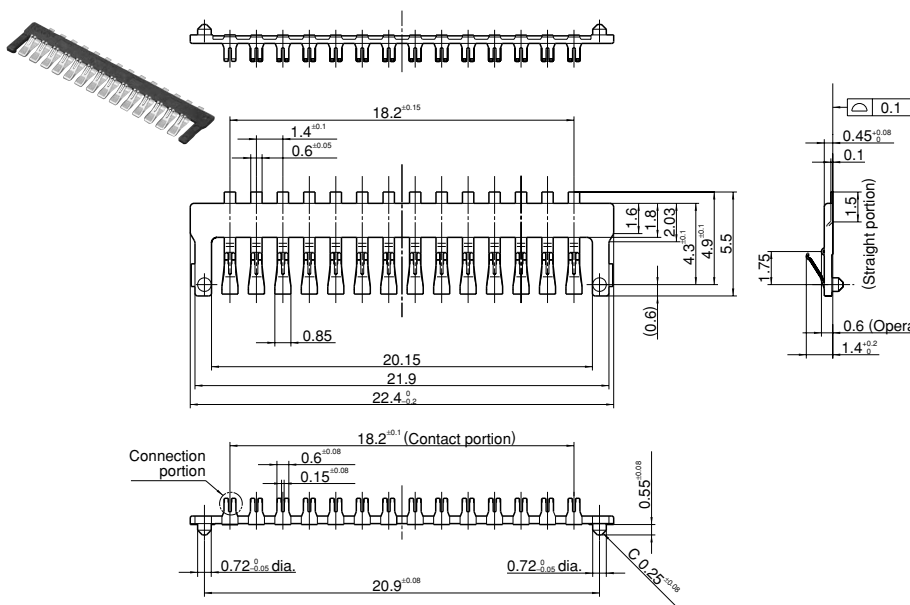
Recommended PC board pattern
(TOP VIEW)
1. Mounting pad layout



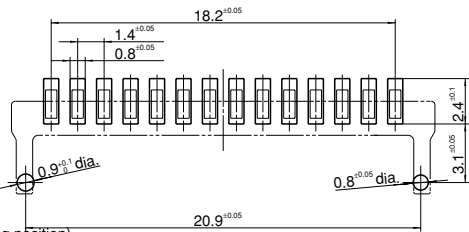
2. Surface contact pattern



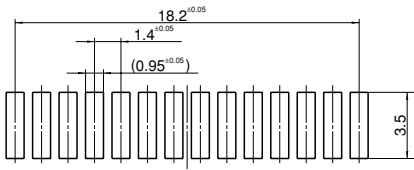
12. Terminal pitch 1.4mm, stacking height 0.6mm, 14 contacts twin type



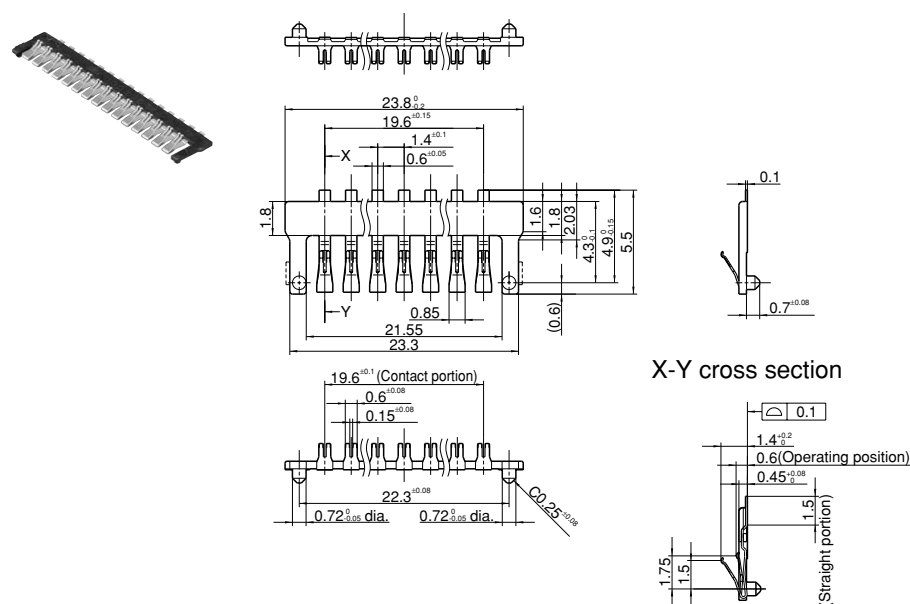
Recommended PC board pattern
(TOP VIEW)
1. Mounting pad layout



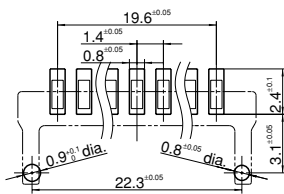
2. Surface contact pattern



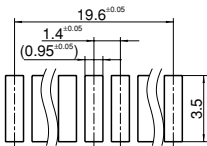
13. Terminal pitch 1.4mm, stacking height 0.6mm, 15 contacts twin type

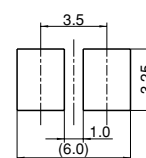


Recommended PC board pattern
(TOP VIEW)
1. Mounting pad layout



2. Surface contact pattern





CUSTOM PRODUCTS

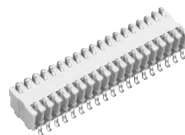
Please consult us if you wish for specifications other than those given above.



DIL terminal 8 contacts



DIL terminal 30 contacts



DIL terminal 38 contacts

EMBOSSED TAPE DIMENSIONS

Please refer to page 67.

NOTES

- 1. As this connector is connected directly to the PC board, the surface of the PC board should be free from dust, dirt, and corrosion.
- 2. The attachment to the PC board should be designed so as not to cause warping due to connector reaction forces. Also, please refer to the tolerances for the alignment between the connector and the PC board that are indicated in the figure showing the dimensions.

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