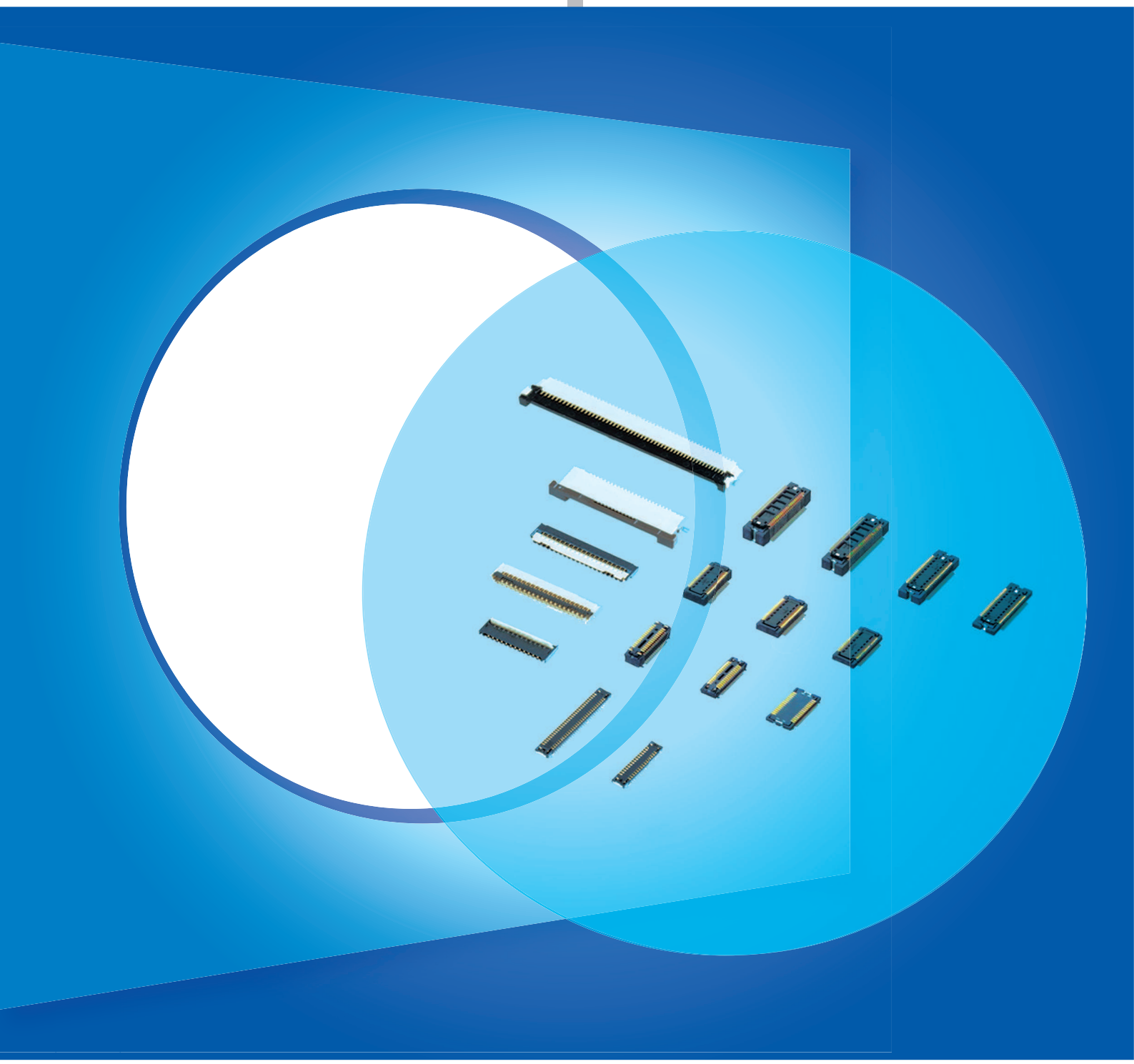
Panasonic
ideas for life

GENERAL CATALOG

CONNECTORS



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Environment and Global support

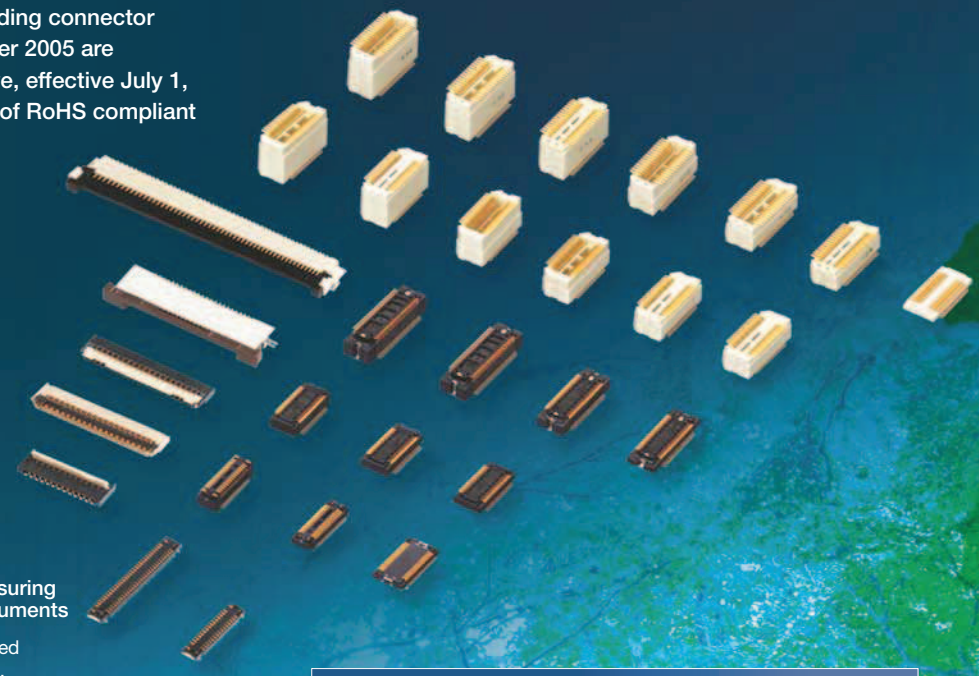
Putting our customers first…

We endeavor to develop our business in a way that ensures sustainability on the environmental, economic and societal levels. Through a global network that connects leading-edge technology, products and information, we bring finished goods quickly to market and propose new technologies through an integrated effort involving our manufacturing, sales and technology facilities throughout the world.

Non-use of environmentally harmful substances

All our connectors are RoHS Directive* compliant.

All our connector products, including connector tools, produced in or after October 2005 are compliant with the RoHS Directive, effective July 1, 2006. Inner and outer packaging of RoHS compliant products will carry the (Ro) mark.



Measuring instruments

* In the EU market, use of the six specified substances of lead, mercury, cadmium, hexavalent chromium, PBB and PBDE found in restricted products have been banned.

The latest detailed information is available on our website:
http://panasonic-denko.co.jp/ac/e/service/environment/

ISO14001 certified

We strive toward acquiring the International Standards Organization ISO14001 certification at all locations, the international standard for environmental management systems and environmental auditing.

ISO9001 certified

We actively promote the acquisition of ISO 9000 Series standardization, which embraces the 8-principle quality management system.

Working toward zero emission factories

With our in-house certification system for zero emissions, we promote the reduction of industrial wastes. In October, 2001, our plant and manufacturing subsidiaries in Japan achieved the status of zero emissions.

Global Network

Our production base consists of optimized production facilities located throughout Asia. Through a sales network that spans the entire world, we agilely deliver cutting-edge technology, products and information that are broad-ranging and to the point.

China

Panasonic Electric Works Automation Controls (Beijing) Co., Ltd.
- Connector
- Relay
- Timer

Japan

Ise Plant (Mie Prefecture)
- Connector
- Relay
- Switch
- Sensor

Tsu Plant (Mie Prefecture)
- Connector

- Manufacture base
- Selling base
- Resident Representative Office

Other manufacturing base

Japan

Panasonic Electric Works (Obihiro) Co., Ltd.
- Power relay
- Automotive relay
- AT switch

Panasonic Electric Works (Tatsuno) Co., Ltd.
- PLC
- Machine Vision
- FA components

China

Panasonic Electric Works Automation Controls (Shanghai) Co., Ltd.
- PLC
- Inverter

Mexico

Panasonic Electric Works, Mexicana S.A. de C.V.
- Power relay
- AT switch

Thailand

Panasonic Electric Works, (Thailand) Ltd.
- Power relay
- PhotoMOS relay
- Switch

Panasonic Electric Works, (Ayuthaya) Ltd.

Europe

Panasonic Electric Works Europe AG, German Factory
- Signal relay
- Power relay

Panasonic Electric Works Czech s.r.o.
- Power relay

Current as of September, 2009

Our unique TOUGH CONTACT

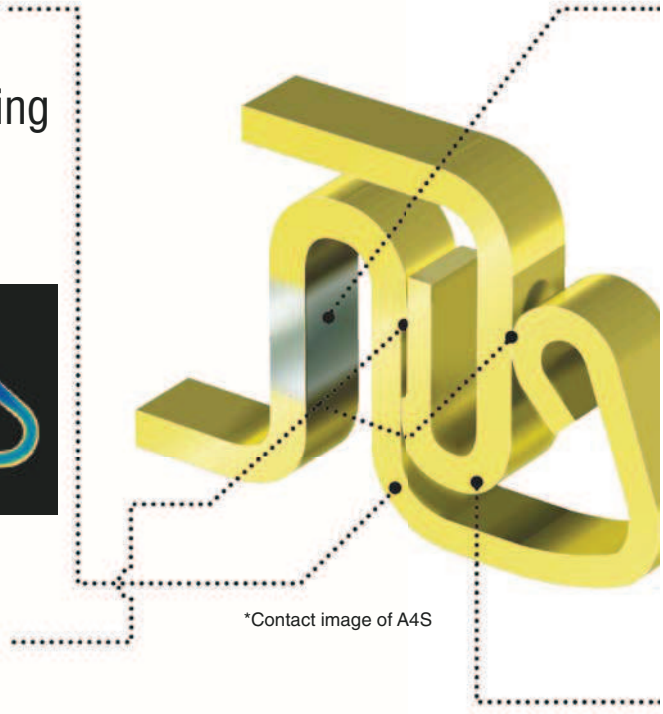
Tough against dropping!

Bellows contact construction improved the ability to withstand twisting and increased resistance to shock of dropping

High precision curved molding that provides the right amount of spring characteristics for contacts, is made possible through precision metal processing, one of our core technologies. A high-level ability to resist shocks has been made possible. The need to withstand the shock of dropping and twisting during insertion has increased in mobile devices.

■ Simulation analysis

We analyzed what the ideal spring shape would be to bring the right spring characteristic to the contact, and then precision molded it using precision metal processing, one of our core technologies.



*Contact image of A4S

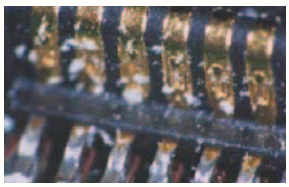
Tough against foreign particles and flux!

V notch improves contact reliability (resistance to entry of foreign particles)

By using the edge for the contacting part, contact pressure per unit area has been increased. Compared to contacts up to now, the ability to remove flux and foreign particles has increased. Also, the ability to prevent entry of foreign particles before it happens has increased.

• 2-point contacting • Surface contact to edge contact
• Improved contact movement effect before and after V notch passage • The combination of these effects greatly improves contact reliability (resistance to entry of foreign matter)

■ Evaluation example of plastic powder adhered on post contact surface



■ Product without notch

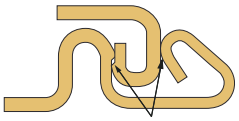
Cross section of the socket side contact

Cross section of the header side contact

■ V notched product

More effective in eliminating flux and foreign particles, and also more effective in keeping foreign particles from getting inside

■ A4F Contact Construction View



Double contact

Same effect as V notch attained by double contact. (A4F, F4)

Patent and Design now under application	Japan: Registration of patent (Patent No. 3726836)	Korea: Registration of patent (Patent No. 531938)	Taiwan: Registration of patent (Patent No. I225323)	China and North America: Patent now under application.

ADVANCED Four Key Points

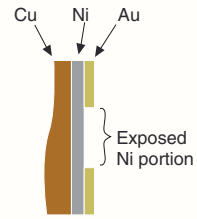
Tough against solder rise!

Anti-solder-rise efficiency increased due to Ni barrier

Exposed nickel is placed on mid part of socket contacts. This contact, while being ultra low in profile, prevents solder rise.

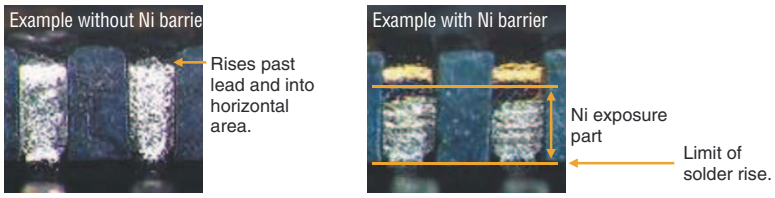
- **Influence of solder controlled in contact and contact spring parts.**
- **Solder remains in the terminals and stable fillet mold is possible.**

■ Exposed Ni barrier portion



Cross section of the socket side contact

■ Solder rise after reflow



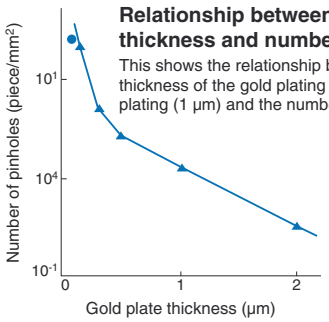
Solder paste coating conditions:
Metal screen thickness; 120 µm; Open ratio 90% (solder amount 136% of recommended value)
Reflow conditions:
(lead-free solder conditions) temperature profile; 260 C peak temperature, atmosphere;
N2 reflow (oxygen concentration 1,000 ppm)

Tough against corrosive gases!

Improved resistance to corrosion by gas, etc., due to porosity treatment

This treatment consists of coating surface with a very thin film to seal pinholes in the gold plating. We have developed this porosity treatment technology, which ensures the same contact reliability for thin gold plating as that of thick gold plating.

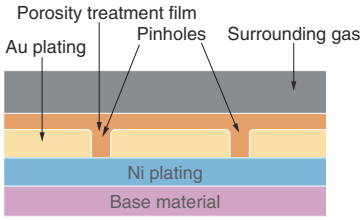
- **Improvement in resistance to corrosion**
- **Improvement in insertion/ removal durability**
- **Improvement in contact reliability for digital signals**



Relationship between gold plate thickness and number of pinholes

This shows the relationship between the thickness of the gold plating on the nickel plating (1 µm) and the number of pinholes.

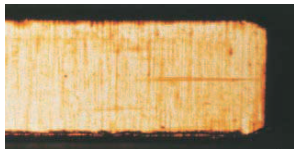
■ Plating technology
(Porosity treatment technology)



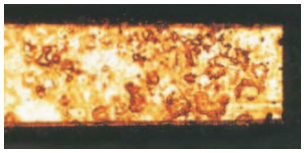
■ Improvement of the corrosion resistance

Status of the post's contact after the sulfur dioxide test

<Porosity-treated product>



<Conventional product> Corroded mainly at the pinholes.



Test conditions SO_2 concentration: 10±3 ppm, Humidity: 90 to 95% RH
Temperature: 40±2 C Time: 145 hours

Connector Series	Y3FT	Y3F	Y3B	Y5F	Y5S	Y5B	Y5BW
Part Number	AYF31	AYF32	AYF33	AYF52	AYF51	AYF53**35	AYF53**65
Contact Pitch	0..3mm	0.3mm	0.3mm	0.5mm	0.5mm	0.5mm	0.5mm
Mating Height (mm)	0.9	0.9	0.9	2.0	1.9	1.0	1.0
2 contacts							●
3 contacts							●
4 contacts						●	●
5 contacts						●	
6 contacts						●	●
7 contacts			●				
8 contacts			●			●	●
9 contacts			●				
10 contacts						●	●
11 contacts			●				
12 contacts						●	●
13 contacts			●				
14 contacts						●	●
15 contacts	●	●	●		●		
16 contacts						●	
17 contacts	●	●	●				
18 contacts							
20 contacts							
21 contacts			●				
22 contacts							●
23 contacts	●	●	●				
24 contacts					●	●	
25 contacts	●	●	●				
26 contacts				●			●
27 contacts	●	●	●				
28 contacts				●		●	
29 contacts	●	●					
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31 contacts	●	●	●				
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33 contacts	●	●	●				
34 contacts				●			
35 contacts	●	●	●				
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41 contacts	●	●					
42 contacts							
44 contacts							
45 contacts	●	●	●	●			
46 contacts							
48 contacts							●
50 contacts				●		●	
51 contacts	●	●	●				
52 contacts							
54 contacts				●			
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60 contacts							
64 contacts							
66 contacts							
70 contacts							
80 contacts							
90 contacts							
100 contacts							
120 contacts							
130 contacts							
160 contacts							

Connector Series	A35S-Series	F35S-Series	P35S- Series	A4F-Series	A4S-Series		A4US-Series	F4-Series	F4S-Series	
Part Number	AXE7/8	AXT7/8	AXT1/2	AXE3/4	AXE5/6		AXE1/2	AXK7L/8L	AXT5/6	
Contact Pitch	0.35mm	0.35mm	0.35mm	0.4mm	0.4mm		0.4mm	0.4mm	0.4mm	
Mating Height (mm)	0.8	1.0	1.5	0.6	0.8	1.0	0.8	0.9	1.0	1.2
2 contacts										
3 contacts										
4 contacts										
5 contacts										
6 contacts										
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8 contacts										
9 contacts										
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12 contacts				●	●	●		●	●	
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18 contacts					●			●	●	
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26 contacts			●	●	●	●		●	●	
27 contacts										
28 contacts			●	●	●			●	●	
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32 contacts			●	●	●			●	●	
33 contacts										
34 contacts	●		●	●	●			●	●	
35 contacts										
36 contacts			●	●	●		●	●	●	
37 contacts										
38 contacts			●	●	●			●	●	
39 contacts										
40 contacts		●	●	●	●	●	●	●	●	●
41 contacts										
42 contacts				●					●	
44 contacts				●	●			●	●	
45 contacts										
46 contacts									●	
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52 contacts			●							
54 contacts				●	●	●		●	●	
56 contacts										
60 contacts	●	●	●	●	●	●	●	●	●	
64 contacts				●	●				●	
66 contacts								●		
70 contacts		●	●	●	●	●		●	●	●
80 contacts		●	●	●	●	●	●	●	●	●
90 contacts			●							
100 contacts	●		●							
120 contacts	●									
130 contacts										
160 contacts										

Connector Series	P4S-Series				P4-Series without soldering terminal						P4-Series with soldering terminal						P5KL-Series
Part Number	AXT3/4				AXK7/8						AXK7/8						AXK5L/6L
Contact Pitch	0.4mm				0.4mm						0.4mm						0.5mm
Mating Height (mm)	1.5	2.0	2.5	3.0	1.5	2.0	2.5	3.0	3.5	4.0	1.5	2.0	2.5	3.0	3.5	4.0	1.2
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130 contacts																	
160 contacts																	

Connector Series	P5KF-Series			P5K-Series		P5KS-Series									P8-Series											
Part Number	AXK5F/6F			AXK5/6		AXK5S/6S									AXN1/3/4											
Contact Pitch	0.5mm			0.5mm		0.5mm									0.8mm											
Mating Height (mm)	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	8.0	9.0	3.0	3.5	4.0	4.5	5.0	5.5	6.0	7.0	8.0	11.5	13.0	14.0
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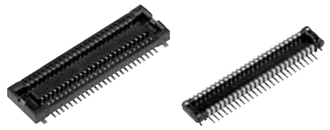
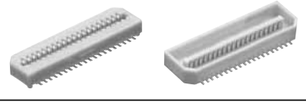
70 contacts	●	●	●	●	●	●	●	●	●	●	●	●	●	●												
80 contacts	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●		●		●	●	●	●	●	
90 contacts																										
100 contacts		●	●	●	●	●	●	●	●	●	●	●	●	●	●		●		●		●	●	●	●		
120 contacts				●	●	●	●																			
130 contacts											●															
160 contacts						●	●																			

Type (Picture scale: DIN A4)	Part number	Features	Mounting method	Contact pitch (mm)	Mating height (mm)	Contacts			Rated voltage (VAC/VDC)	Insertion and removal life times	Ambient temperature	Page CAD data
						Number of contacts	Rated current/ contact (A)	Rated current at total contacts (A)				
Board to FPC/ ZIF Connector												
Y3FT 	AYF31	• Low profile, space saving design • FPC with tabs, contributing to hold FPC temporarily • Resistant to twisting due to retention fittings • Improved PC board design flexibility • Front lock structure	SMD	0.3	0.9	15-51	0.2	-	50	30	-55°C to +85°C	113
Y3F 	AYF32	• Low profile, space saving design • FPC without tabs, allowing smooth FPC insertion • Wiring patterns can be located underneath the connector • Front lock structure	SMD	0.3	0.9	15-51	0.2	-	50	30	-55°C to +85°C	117
Y3B 	AYF33	• Slimmest low profile design • Smooth FPC insertion • Wiring patterns can be located underneath the connector • Back lock structure	SMD	0.3	0.9	7 / 15 / 25 / 33 / 39 / 45 / 51	0.2	-	50	20	-55°C to +85°C	121
Y3BW 	AYF33	• Features a structure to temporarily hold the FPC and a higher holding force • Slimmest low profile design • Smooth FPC insertion • Wiring patterns can be located underneath the connector • Back lock structure	SMD	0.3	0.9	7 / 15 / 25 / 33 / 39 / 45 / 51	0.2	-	50	20	-55°C to +85°C	121
Y5F 	AYF52	• Resistant to twisting due to retention fittings • Front lock structure	SMD	0.5	2.0	26 / 28 / 34 / 40 / 45 / 50 / 54	0.5	-	50	30	-55°C to +85°C	133
Y5S 	AYF51	• Resistant to twisting due to retention fittings • Slide lock structure	SMD	0.5	1.9	15 / 24	0.5	-	50	30	-55°C to +85°C	130
Y5B 	AYF53❒❒35	• Low profile, space saving back lock type with improved lever operabilty • The lineup includes a type with a small number of contacts • Top and bottom double contacts structure	SMD	0.5	1.0	4-50	0.5	-	50	20	-55°C to +85°C	125
Y5BW 	AYF53❒❒65	• Features a structure to temporarily hold the FPC and a higher holding force • Low profile, space saving back lock type with improved lever operabilty • The lineup includes a type with a small number of contacts • Top and bottom double contacts structure	SMD	0.5	1.0	2-48	0.5	-	50	20	-55°C to +85°C	125

Type (Picture scale: DIN A4)	Part number	Features	Mounting method	Contact pitch (mm)	Mating height (mm)	Contacts: Number of contacts	Contacts: Rated current/ contact (A)	Contacts: Rated current at total contacts (A)	Rated voltage (VAC/VDC)	Insertion and removal life times	Ambient temperature	Page CAD data
Board to FPC												
A35S 	AXE7 / AXE8	• Low profile two-piece connector: 0.8 mm mating height • Strong resistance to various environments, TOUGH CONTACT ADVANCED construction • Space saving design • Bellows-type V notch • Ni barrier • Porosity treatment	SMD	0.35	0.6	10-80	0.3	5	60	50	-55°C to +85°C	CAD Data 16
F35S 	AXT7 / AXT8	• Space saving design: 0.35mm pitch • Strong resistance to various environments, TOUGH CONTACT constuction • Simple lock structure ensures a superior mating / unmating operation feel	SMD	0.35	1.0	40 / 50 / 60 / 70 / 80	0.25	4	60	50	-55°C to +85°C	CAD Data 20
A4F 	AXE3 / AXE4	• Very low profile two-piece connector: 0.6mm mating height • Strong resistance to various environments, TOUGH CONTACT ADVANCED construction • Space saving design • Bellows-type V notch • Ni barrier • Porosity treatment	SMD	0.4	0.6	10-80	0.3	5	60	50	-55°C to +85°C	CAD Data 41
A4S 	AXE5 / AXE6	• Slim two-piece connector: 2.5mm width • Strong resistance to various environments, TOUGH CONTACT ADVANCED construction • Gull wing terminal structure • Bellows-type V notch • Ni barrier • Porosity treatment	SMD	0.4	0.8	10-80	0.3	5	60	30	-55°C to +85°C	CAD Data 35
A4US 	AXE1 / AXE2	• Very slim two-piece connector: 2.2mm width • Footprint is down 12% in comparison to A4S type • Strong resistance to various environments, TOUGH CONTACT ADVANCED construction • Space saving design • Ultra-slim body has a sufficient suction face: sockets: 0.6mm, headers: 0.7mm	SMD	0.4	0.8	10 / 14 / 20 / 24 30 / 36 / 40 / 50 / 60 / 80	0.3	5	60	30	-55°C to +85°C	CAD Data 31
F4 	AXK7L / AXK8L	• Strong resistance to various environments, TOUGH CONTACT constuction • Pattern wiring possible on PC board below connectors • Bellows-type V notch • Ni barrier • Porosity treatment	SMD	0.4	0.9	10-80	0.3	5	60	50	-55°C to +85°C	CAD Data 53
F4S 	AXT5 / AXT6	• Strong resistance to various environments, TOUGH CONTACT constuction • Bellows-type V notch (double contact) • Ni barrier • Porosity treatment	SMD	0.4	1.0	10-50	0.3	5	60	50	-55°C to +85°C	CAD Data 46

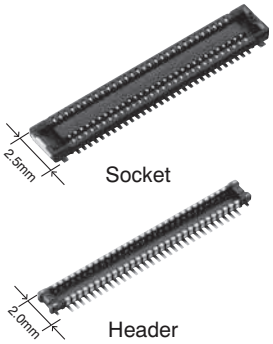
Type (Picture scale: DIN A4)	Part number	Features	Mounting method	Contact pitch (mm)	Mating height (mm)	Contacts: Number of contacts	Contacts: Rated current/ contact (A)	Contacts: Rated current at total contacts (A)	Rated voltage (VAC/VDC)	Insertion and removal life times	Ambient temperature	Page CAD data
Board to Board / Board to FPC												
P35S 	AXT1 / AXT2	• Strong resistance to various environments, TOUGH CONTACT constuction • Pattern wiring possible on PC board below connectors • Bellows-type V notch • Ni barrier • Porosity treatment	SMD	0.35	1.5	20-100	0.25	4	60	50	-55°C to +85°C	CAD Data 24
P4 	AXK7 / AXK8	• Strong resistance to various environments, TOUGH CONTACT constuction • Pattern wiring possible on PC board below connectors • Bellows-type V notch • Ni barrier • Porosity treatment	SMD	0.4	1.2	10-60	0.5	10	60	50	-55°C to +85°C	CAD Data 70
P4S 	AXT3 / AXT4	• Strong resistance to various environments, TOUGH CONTACT constuction • Pattern wiring possible on PC board below connectors • Bellows-type V notch • Ni barrier • Porosity treatment	SMD	0.4	1.5 / 3.0	10-100	0.3	5	60	50	-55°C to +85°C	CAD Data 59
P5KL 	AXK5L / AXK6L	• Strong resistance to various environments, TOUGH CONTACT constuction • Pattern wiring possible on PC board below connectors • Bellows-type V notch • Ni barrier • Porosity treatment	SMD	0.5	1.2	10-60	0.5	10	60	50	-55°C to +85°C	CAD Data 81
P5KF 	AXK5F / AXK6F	• Strong resistance to various environments, TOUGH CONTACT constuction • Pattern wiring possible on PC board below connectors • Bellows-type V notch • Ni barrier • Porosity treatment	SMD	0.5	1.5 / 2.0 / 2.5	10-100	0.5	10	60	50	-55°C to +85°C	CAD Data 86
Board to Board												
P5K 	AXK5 / AXK6	• Strong resistance to various environments, TOUGH CONTACT constuction • Pattern wiring possible on PC board below connectors • Bellows-type V notch (double contact) • Ni barrier • Porosity treatment	SMD	0.5	3.0 / 3.5	20-100	0.5	10	60	50	-55°C to +85°C	CAD Data 93
P5KS 	AXK5S / AXK6S	• Strong resistance to various environments, TOUGH CONTACT constuction • Pattern wiring possible on PC board below connectors • Bellows-type V notch (double contact) • Ni barrier • Porosity treatment	SMD	0.5	4.0 / 4.5 / 5.0 / 5.5 / 6.0 / 6.5 / 7.0 / 8.0 / 9.0	20-160	0.2	16	60	50	-55°C to +85°C	CAD Data 93
P8 	AXN1 / AXN3 / AXN4	• Bellows-type • Porosity treatment	SMD	0.8	3.0 / 3.5 / 4.0 / 4.5 / 5.0 / 5.5 / 6.0 / 7.0 / 8.0 / 11.5 / 13.0 / 14.0	12-100	0.5	-	60	50 (100 times for 11.5mm type)	-55°C to +85°C	CAD Data 104

For board-to-FPC

Narrow pitch connectors (0.35mm pitch)

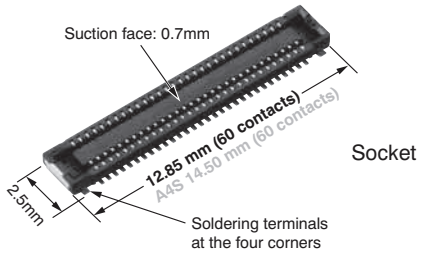
A35S Series

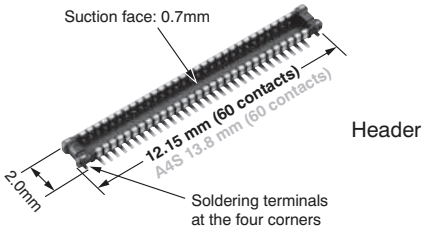
TOUGH CONTACT ADVANCED



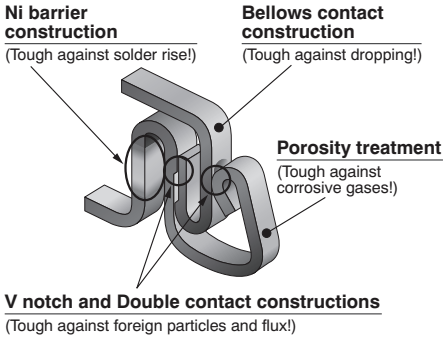
FEATURES

1. Ultra small size (Terminal pitch: 0.35 mm, width: 2.5 mm and Mated height: 0.8 mm)
The footprint when mated is down approx. 10% from our existing A4S model (60 contacts), contributing to the functionality enhancement and size reduction of target equipment.





2. "TOUGH CONTACT ADVANCED" structure adopted to ensure high resistance to various environments in spite of the ultra-slim space-saving body.



3. The world's first low-profile connector with up to 120 contacts
4. The soldering terminals at the four corners enhance the mounting strength.
5. The simple lock structure for good mating/unmating operation feel.
6. The gull-wing-shaped terminals facilitate imaging inspections.

APPLICATIONS

• Particularly suitable for board-to-FPC connections in ultra-compact mobile equipment that requires size and thickness reduction and functionality enhancement

ORDERING INFORMATION

AXE □ □□ 1 2 4

7: Narrow Pitch Connector A35S (0.35 mm pitch) Socket
8: Narrow Pitch Connector A35S (0.35 mm pitch) Header

Number of contacts (2 digits)

Mated height
<Socket> / <Header>
1: For mated height 0.8 mm

Functions
2: Without positioning bosses

Surface treatment (Contact portion / Terminal portion)
<Socket>
4: Base: Ni plating, Surface: Au plating (for Ni barrier available)
<Header>
4: Base: Ni plating, Surface: Au plating

PRODUCT TYPES

Mated height	Number of contacts	Part number		Packing	
		Socket	Header	Inner carton (1-reel)	Outer carton
0.8mm	34	AXE734124	AXE834124	5,000 pieces	10,000 pieces
	50	AXE750124	AXE850124		
	60	AXE760124	AXE860124		
	100	AXE700124	AXE800124		
	120	AXE7A2124	AXE8A2124		

Notes: 1. Order unit:
For mass production: in 1-inner carton (1-reel) units
Samples for mounting check: in 50-connector units. Please contact our sales office.
2. The above part numbers are for connectors without positioning bosses, which are standard. When ordering connectors with positioning bosses, please contact our sales office.
3. Please contact us for connectors having a number of contacts other than those listed above.

SPECIFICATIONS

1. Characteristics

Item		Specifications	Conditions
Electrical characteristics	Rated current	0.25A/contact (Max. 4 A at total contacts)	
	Rated voltage	60V AC/DC	
	Breakdown voltage	150V AC for 1 min.	No short-circuiting or damage at a detection current of 1 mA when the specified voltage is applied for one minute.
	Insulation resistance	Min. 1,000MΩ (initial)	Using 250V DC megger (applied for 1 min.)
	Contact resistance	Max. 100mΩ	Based on the contact resistance measurement method specified by JIS C 5402.
Mechanical characteristics	Composite insertion force	Max. 0.981N/contacts × contacts (initial)	
	Composite removal force	Min. 0.165N/contacts × contacts	
	Contact holding force (Socket contact)	Min. 0.20N/contacts	Measuring the maximum force. As the contact is axially pull out.
Environmental characteristics	Ambient temperature	–55°C to +85°C	No freezing at low temperatures. No dew condensation.
	Soldering heat resistance	Peak temperature: 260°C or less (on the surface of the PC board around the connector terminals)	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. No dew condensation.
	Thermal shock resistance (header and socket mated)	5 cycles, insulation resistance min. 100MΩ, contact resistance max. 100mΩ	Sequence 1. -55^{0}_{-3}°C, 30 minutes 2. ~ , Max. 5 minutes 3. 85^{+3}_{0}°C, 30 minutes 4. ~ , Max. 5 minutes
	Humidity resistance (header and socket mated)	120 hours, insulation resistance min. 100MΩ, contact resistance max. 100mΩ	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. 100mΩ	Bath temperature 35±2°C, saltwater concentration 5±1%
	H_2S resistance (header and socket mated)	48 hours, contact resistance max. 100mΩ	Bath temperature 40±2°C, gas concentration 3±1 ppm, humidity 75 to 80% R.H.
Lifetime characteristics	Insertion and removal life	30 times	Repeated insertion and removal speed of max. 200 times/hours
Unit weight		60 contact type: Socket: 0.03 g Header: 0.02 g	

2. Material and surface treatment

Part name	Material	Surface treatment
Molded portion	LCP resin (UL94V-0)	—
Contact and Post	Copper alloy	Contact portion: Base: Ni plating, Surface: Au plating Terminal portion: Base: Ni plating, Surface: Au plating (except the terminal tips) The socket terminals close to the portion to be soldered have nickel barriers (exposed nickel portions). Soldering terminals: Sockets: Base: Ni plating, Surface: Pd+Au flash plating (except the terminal tips) Headers: Base: Ni plating, Surface: Au plating (except the terminal tips)

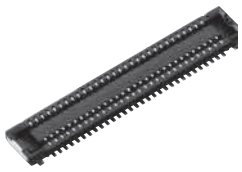
DIMENSIONS

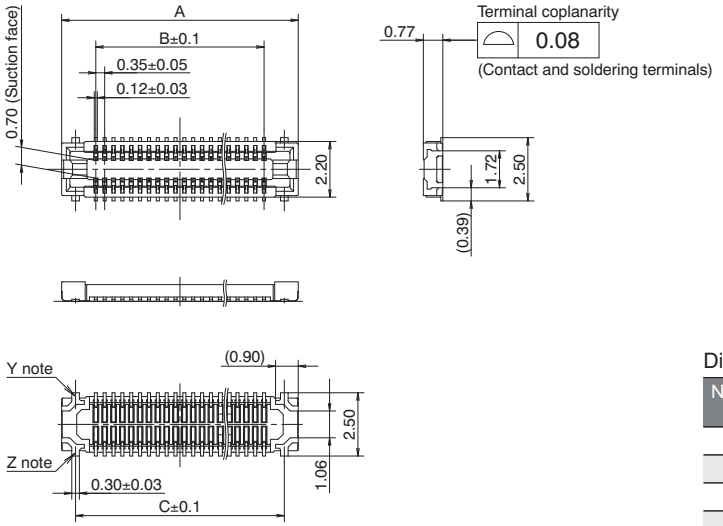
Interested in CAD data? You can obtain CAD data for all products with a **CAD Data** mark from your local Panasonic Electric Works representative.

(Unit: mm)

Socket (Mated height: 0.8 mm)

CAD Data





General tolerance: ±0.2

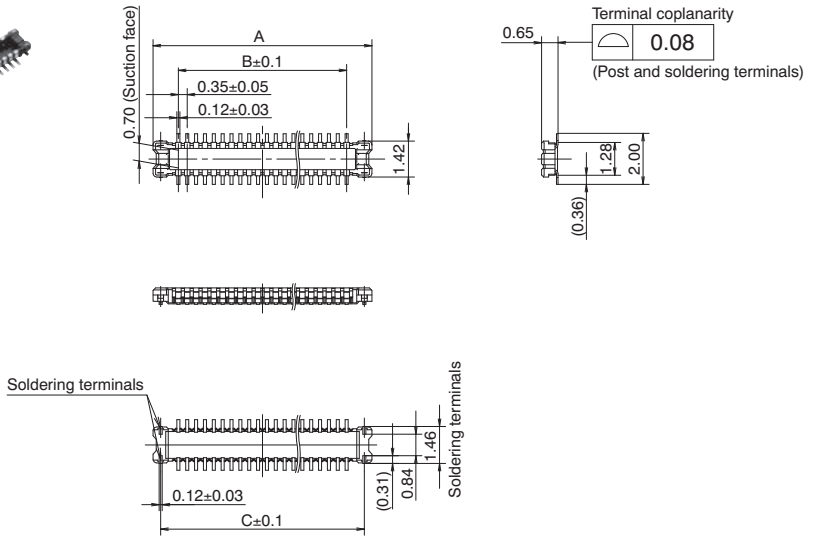
Dimension table (mm)

Number of contacts/ dimension	A	B	C
34	8.3	5.6	7.2
50	11.10	8.40	10.00
60	12.85	10.15	11.75
100	19.85	17.15	18.75
120	23.35	20.65	22.25

Note: Since the soldering terminals has a single-piece construction, sections Y and Z are electrically connected.

Header (Mated height: 0.8 mm)

CAD Data

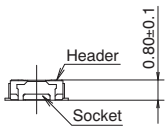


General tolerance: ±0.2

Dimension table (mm)

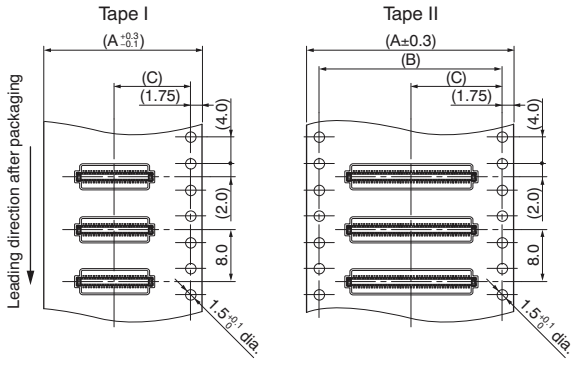
Number of contacts/ dimension	A	B	C
34	7.6	5.6	7.0
50	10.40	8.40	9.80
60	12.15	10.15	11.55
100	19.15	17.15	18.55
120	22.65	20.65	22.05

• Socket and Header are mated

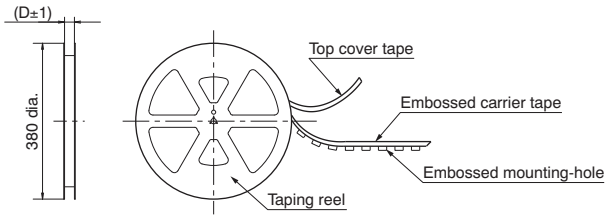


EMBOSSED TAPE DIMENSIONS (Unit: mm)

• Specifications for taping
(In accordance with JIS C 0806-1999. However, not applied to the mounting-hole pitch of some connectors.)



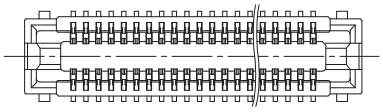
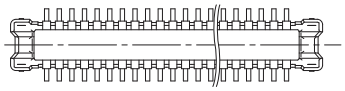
• Specifications for the plastic reel
(In accordance with EIAJ ET-7200B.)



• Dimension table (Unit: mm)

Type/Mated height	Number of contacts	Type of taping	A	B	C	D	Quantity per reel
Common for sockets and headers 0.8mm	34, 50, 60	Tape I	24.0	—	11.5	25.4	5,000
	100	Tape II	32.0	28.4	14.2	33.4	5,000
	120	Tape II	44.0	40.4	20.2	45.4	5,000

• Connector orientation with respect to embossed tape feeding direction

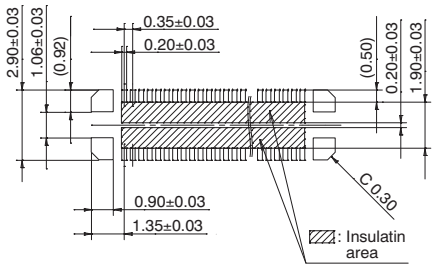
Direction of tape progress \ Type	Common for A35S
↓	Socket  Header  Note: There is no indication on this product regarding top-bottom or left-right orientation.

NOTES

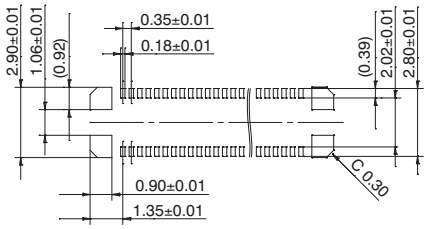
■ Regarding the design of PC board patterns
Conduct the recommended foot pattern design, in order to preserve the mechanical strength of terminal solder areas.

■ Recommended PC board and metal mask patterns
Appropriate control of solder amount is required to minimize solder bridges and other defects for connectors with 0.35-mm, 0.4-mm or 0.5-mm pitch terminals, which require high-density mounting. Refer to the right-hand drawing for recommended patterns.

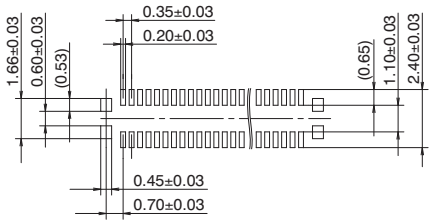
• Socket (Mated height: 0.8 mm)
Recommended PC board pattern (TOP VIEW)



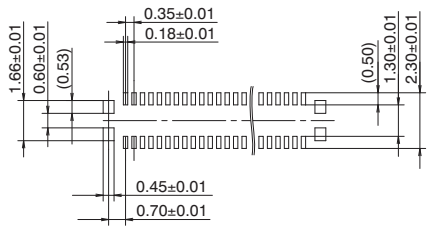
Recommended metal mask opening pattern
Metal mask thickness: When 120μm
(Terminal opening ratio: 70%)
(Metal-part opening ratio: 100%)



• Header (Mated height: 0.8 mm)
Recommended PC board pattern (TOP VIEW)



Recommended metal mask opening pattern
Metal mask thickness: When 120μm
(Terminal opening ratio: 70%)
(Metal-part opening ratio: 100%)



For Cautions for Use, see Connector Technical Information (page 139). For other details, please verify with the product specification sheets.

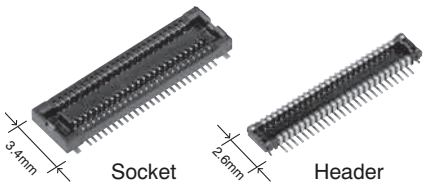
Panasonic
ideas for life

For board-to-FPC

Narrow pitch connectors (0.35mm pitch)

F35S Series

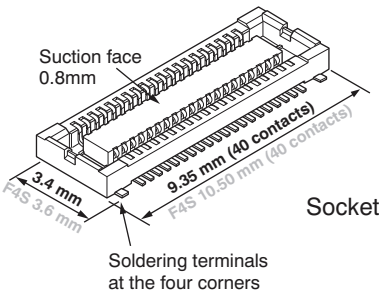
TOUGH CONTACT

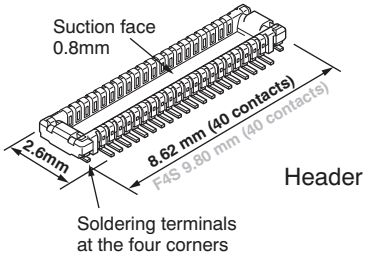


FEATURES

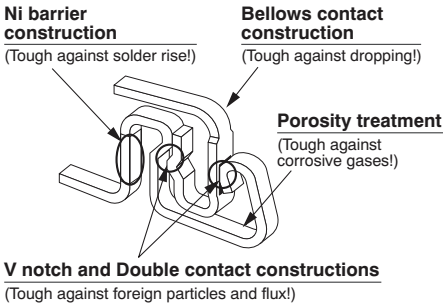
1. Space-saving design (0.35 mm pitch)

The footprint when mated is down approx. 15% from our existing F4S model (40 contacts), contributing to the functionality enhancement and size reduction of target equipment.





2. Strong resistance to adverse environments TOUGH CONTACT construction



3. The soldering terminals at the four corners enhance the mounting strength.

4. The simple lock structure ensures a superior mating/unmating operation feel.

5. The gull-wing-shaped terminals facilitate imaging inspections.

APPLICATIONS

Particularly suitable for board-to-FPC connections in ultra-compact mobile equipment that requires size and thickness reduction and functionality enhancement

ORDERING INFORMATION

AXT [ ] [ ][ ] 1 2 4

7: Narrow Pitch Connector F35S (0.35 mm pitch) Socket
8: Narrow Pitch Connector F35S (0.35 mm pitch) Header

Number of contacts (2 digits)

Mated height
<Socket> / <Header>
1: For mated height 1.0 mm

Functions
2: Without positioning bosses

Surface treatment (Contact portion / Terminal portion)
<Socket>
4: Base: Ni plating, Surface: Au plating (for Ni barrier available)
<Header>
4: Base: Ni plating, Surface: Au plating

PRODUCT TYPES TOUGH CONTACT

Mated height	Number of contacts	Part number		Packing	
		Socket	Header	Inner carton	Outer carton
1.0mm	40	AXT740124	AXT840124	3,000 pieces	6,000 pieces
	50	AXT750124	AXT850124		
	60	AXT760124	AXT860124		
	70	AXT770124	AXT870124		
	80	AXT780124	AXT880124		

Notes: 1. Order unit: For mass production: in 1-inner-box (1-reel) units
Samples for mounting check: in 50-connector units. Please contact our sales office.
2. The above part numbers are for connectors without positioning bosses, which are standard. When ordering connectors with positioning bosses, please contact our sales office.
3. Please contact us for connectors having a number of contacts other than those listed above.

SPECIFICATIONS

1. Characteristics

Item		Specifications	Conditions
Electrical characteristics	Rated current	0.25A/contact (Max. 4 A at total contacts)	
	Rated voltage	60V AC/DC	
	Breakdown voltage	150V AC for 1 min.	No short-circuiting or damage at a detection current of 1 mA when the specified voltage is applied for one minute.
	Insulation resistance	Min. 1,000MΩ (initial)	Using 250V DC megger (applied for 1 min.)
	Contact resistance	Max. 100mΩ	Based on the contact resistance measurement method specified by JIS C 5402.
Mechanical characteristics	Composite insertion force	Max. 0.981N/contacts × contacts (initial)	
	Composite removal force	Min. 0.165N/contacts × contacts	
	Contact holding force (Socket contact)	Min. 0.49N/contacts	Measuring the maximum force. As the contact is axially pull out.
Environmental characteristics	Ambient temperature	–55°C to +85°C	No freezing at low temperatures. No dew condensation.
	Soldering heat resistance	Peak temperature: 260°C or less (on the surface of the PC board around the connector terminals)	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. No dew condensation.
	Thermal shock resistance (header and socket mated)	5 cycles, insulation resistance min. 100MΩ, contact resistance max. 100mΩ	Sequence 1. -55^{0}_{-3}°C, 30 minutes 2. ~ , Max. 5 minutes 3. 85^{+3}_{0}°C, 30 minutes 4. ~ , Max. 5 minutes
	Humidity resistance (header and socket mated)	120 hours, insulation resistance min. 100MΩ, contact resistance max. 100mΩ	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. 100mΩ	Bath temperature 35±2°C, saltwater concentration 5±1%
	H_2S resistance (header and socket mated)	48 hours, contact resistance max. 100mΩ	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		40-contact type: Socket: 0.04 g Header: 0.02 g	

2. Material and surface treatment

Part name	Material	Surface treatment
Molded portion	LCP resin (UL94V-0)	—
Contact and Post	Copper alloy	Contact portion: Base: Ni plating, Surface: Au plating Terminal portion: Base: Ni plating, Surface: Au plating (except the terminal tips) The socket terminals close to the portion to be soldered have nickel barriers (exposed nickel portions). Soldering terminals: Sockets: Base: Ni plating, Surface: Pd+Au flash plating (except the terminal tips) Headers: Base: Ni plating, Surface: Au plating (except the terminal tips)

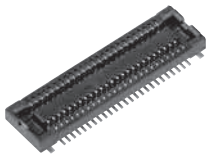
DIMENSIONS

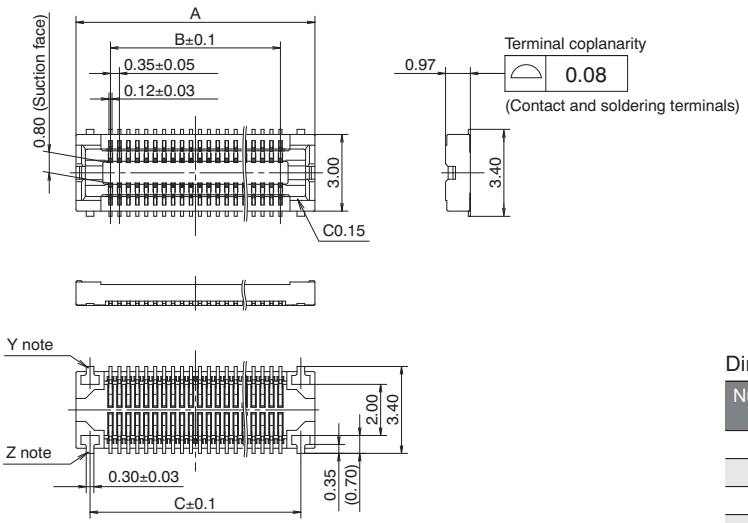
Interested in CAD data? You can obtain CAD data for all products with a **CAD Data** mark from your local Panasonic Electric Works representative.

(Unit: mm)

Socket (Mated height: 1.0 mm)

CAD Data





General tolerance: ±0.2

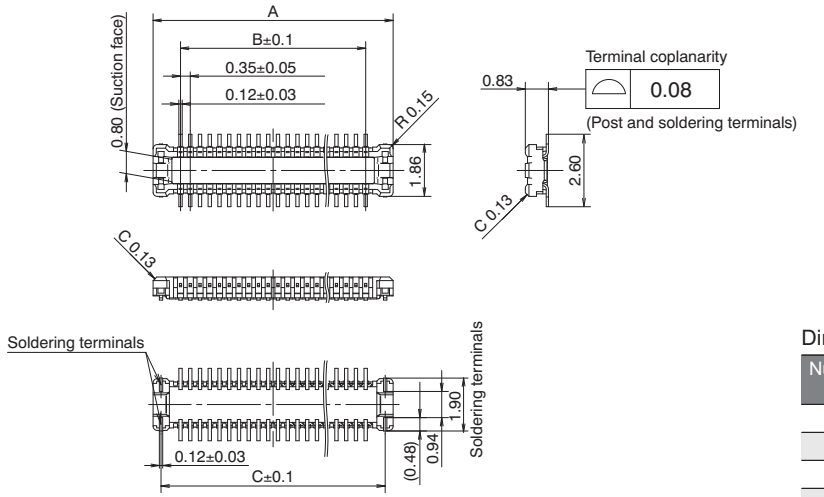
Dimension table (mm)

Number of contacts/ dimension	A	B	C
40	9.35	6.65	8.25
50	11.10	8.40	10.00
60	12.85	10.15	11.75
70	14.60	11.90	13.50
80	16.35	13.65	15.25

Note: Since the soldering terminals are built into the body, the sections Y and Z are electrically connected.

Header (Mated height: 1.0 mm)

CAD Data

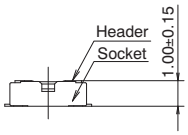


General tolerance: ±0.2

Dimension table (mm)

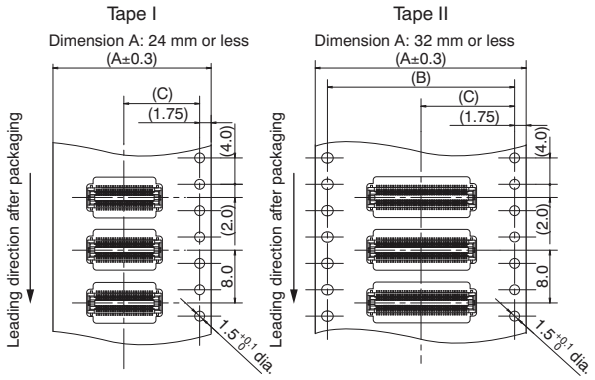
Number of contacts/ dimension	A	B	C
40	8.62	6.65	8.05
50	10.37	8.40	9.80
60	12.12	10.15	11.55
70	13.87	11.90	13.30
80	15.62	13.65	15.05

• Socket and Header are mated

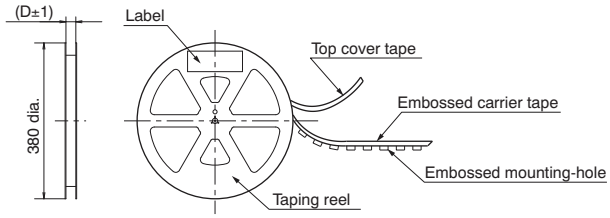


EMBOSSED TAPE DIMENSIONS (Unit: mm) (Common to all sockets and headers)

• Specifications for taping
(In accordance with JIS C 0806-1990. However, not applied to the mounting-hole pitch of some connectors.)



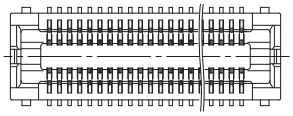
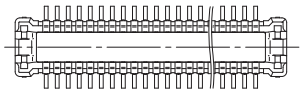
• Specifications for the plastic reel
(In accordance with EIAJET-7200B.)



• Dimension table (Unit: mm)

Type/Mated height	Number of contacts	Type of taping	A	B	C	D	Quantity per reel
Common for sockets and headers: 1.0mm	40 to 70	Tape I	24.0	—	11.5	25.4	3,000
	80	Tape II	32.0	28.4	14.2	33.4	3,000

• Connector orientation with respect to embossed tape feeding direction

Direction of tape progress \ Type	Common for F35S
↓	Socket  Header 

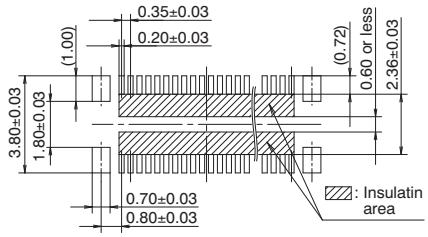
Note: There is no indication on this product regarding top-bottom or left-right orientation.

NOTES

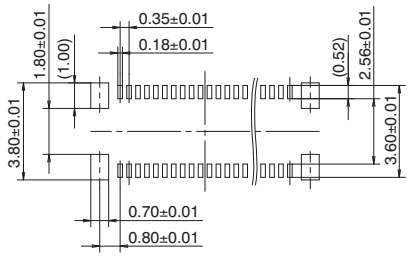
1. Regarding the design of PC board patterns
Conduct the recommended foot pattern design, in order to preserve the mechanical strength of terminal solder areas.

2. Recommended PC board and metal mask patterns
Appropriate control of solder amount is required to minimize solder bridges and other defects for connectors with 0.35-mm, 0.4-mm or 0.5-mm pitch terminals, which require high-density mounting. Refer to the right-hand drawing for recommended patterns.

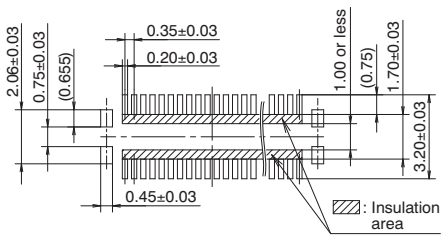
• Socket (Mated height: 1.0 mm)
Recommended PC board pattern (TOP VIEW)



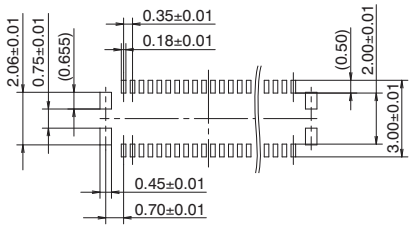
Recommended metal mask opening pattern
Metal mask thickness: When 120μm
(Terminal opening ratio: 65%)
(Metal-part opening ratio: 100%)



• Header (Mated height: 1.0 mm)
Recommended PC board pattern (TOP VIEW)

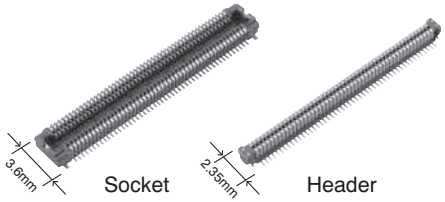


Recommended metal mask opening pattern
Metal mask thickness: When 120μm
(Terminal opening ratio: 60%)
(Metal-part opening ratio: 100%)



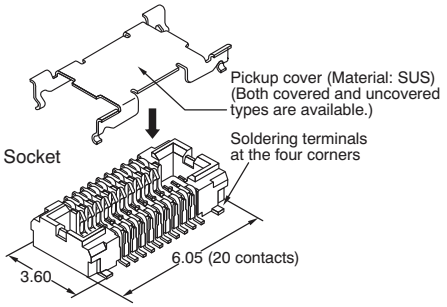
For Cautions for Use, see Connector Technical Information (page 136). For other details, please verify with the product specification sheets.

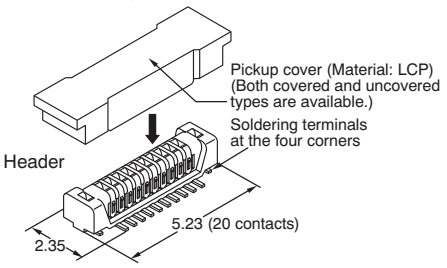
TOUGH CONTACT



FEATURES

1. Ultra-small 0.35-mm pitch contributes to downsizing of equipment.
Socket compared to P4S already on the market: 11%
Header: Space-saving of 12%
(Comparison using a 20-pin connector)

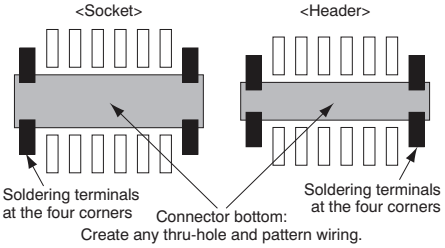




2. Strong resistance to adverse environments! Utilizes "TOUGH CONTACT" construction for high contact reliability.

Note: If extra resistance to drop impact is required, we recommend using our P4 series.

3. Greater flexibility in connector placement.
Pattern wiring to the connector bottom is possible because the undersurface of the connector is constructed with a molded covering.

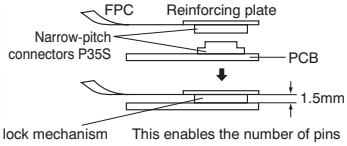


4. Automatic mounting inspection is facilitated by the gull-wing terminal shape which makes mounting verification easy.
5. Connectors for inspection available
Connectors are available that are ideal for inspection in module unit inspection and device assembly processes.

APPLICATIONS

Compact portable devices "Cellular phones, DVC, Digital cameras, etc"

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 while the size remains the same as that for existing FPC connectors. This, in turn, contributes to making products and equipment more compact.

ORDERING INFORMATION

AXT □ □□ 1 □ 4

1: Narrow Pitch Connector P35S (0.35 mm pitch) Socket
2: Narrow Pitch Connector P35S (0.35 mm pitch) Header

Number of contacts (2 digits)

Mated height
<Socket>/<Header>
1: For mated height 1.5 mm

Functions
<Socket>/<Header>
2: No pickup cover, without positioning bosses
6: With pickup cover, without positioning bosses

Surface treatment (Contact portion / Terminal portion)
<Socket>
4: Ni plating on base, Au plating on surface (for Ni barrier available)
<Header>
4: Ni plating on base, Au plating on surface

PRODUCT TYPES TOUGH CONTACT

Mated height	Number of contacts	Part number		Packing	
		Socket	Header	Inner carton	Outer carton
1.5mm	20	AXT120124	AXT220124	3,000 pieces	6,000 pieces
	22	AXT122124	AXT222124		
	24	AXT124124	AXT224124		
	26	AXT126124	AXT226124		
	28	AXT128124	AXT228124		
	30	AXT130124	AXT230124		
	32	AXT132124	AXT232124		
	34	AXT134124	AXT234124		
	36	AXT136124	AXT236124		
	38	AXT138124	AXT238124		
	40	AXT140124	AXT240124		
	50	AXT150124	AXT250124		
	52	AXT152124	AXT252124		
	60	AXT160124	AXT260124		
	70	AXT170124	AXT270124		
	80	AXT180124	AXT280124		
	90	AXT190124	AXT290124		
	100	AXT100124	AXT200124		

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: Small lot orders are possible. Please consult us.
2. If you require the pickup cover, change the eighth digit of the part number from “2” to “6” in your order. Note that the pickup cover is not available for some types depending on the number of contacts. Check the latest product specifications.
3. The above part numbers are for connectors without positioning bosses, which are standard. When ordering connectors with positioning bosses, please contact our sales office.
4. Connectors of different number of contacts are available on-demand production only. Please contact us for more details.

SPECIFICATIONS

1. Characteristics

Item		Specifications	Conditions
Electrical characteristics	Rated current	0.25A/contact (Max. 4 A at total contacts)	—
	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. 100mΩ	Based on the contact resistance measurement method specified by JIS C 5402.
Environmental characteristics	Ambient temperature	–55°C to +85°C	No freezing at low temperatures
	Soldering heat resistance	Max. peak temperature of 260°C (on the surface of the PC board around the connector terminals)	Infrared reflow soldering
		300°C within 5 sec. or 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. 100mΩ	Sequence 1. -55^{0}_{-3}°C, 30 minutes 2. ~, Max. 5 minutes 3. 85^{+3}_{0}°C, 30 minutes 4. ~, Max. 5 minutes
	Humidity resistance (header and socket mated)	120 hours, insulation resistance min. 100MΩ, contact resistance max. 100mΩ	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. 100mΩ	Temperature 35±2°C, saltwater concentration 5±1%
	H_2S resistance (header and socket mated)	48 hours, contact resistance max. 100mΩ	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		20-contact type: Socket: 0.03 g Header: 0.02 g	

2. Material and surface treatment

Part name	Material	Surface treatment
Molded portion	LCP resin (UL94V-0)	—
Contact and 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 front edge of terminal) However, the area adjacent to the socket terminal is exposed to Ni on base. Soldering terminals portion; Socket: Ni plating on base, Pd + Au flash plating on surface (Expect for front edge of terminal) Header: Ni plating on base, Au plating on surface (Expect for front edge of terminal)

DIMENSIONS

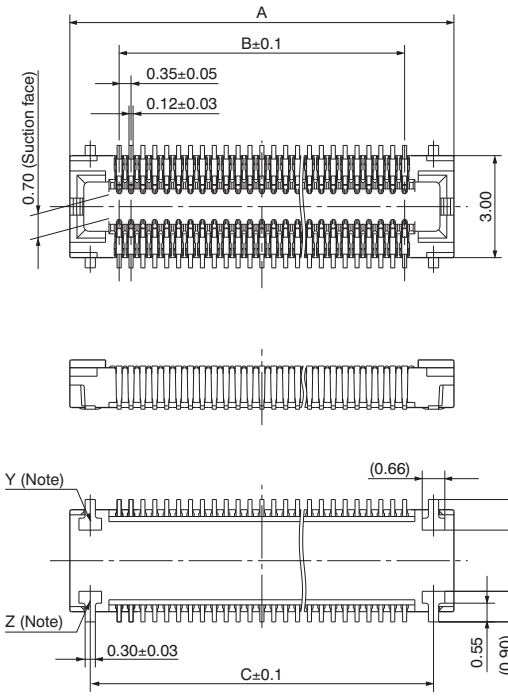
Interested in CAD data? You can obtain CAD data for all products with a **CAD Data** mark from your local Panasonic Electric Works representative.

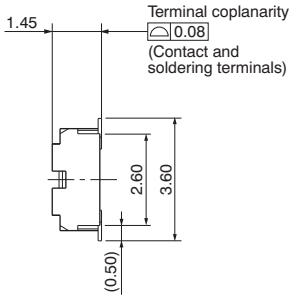
(Unit: mm)

1. Socket (Mated height: 1.5mm)

• Without pickup cover

CAD Data



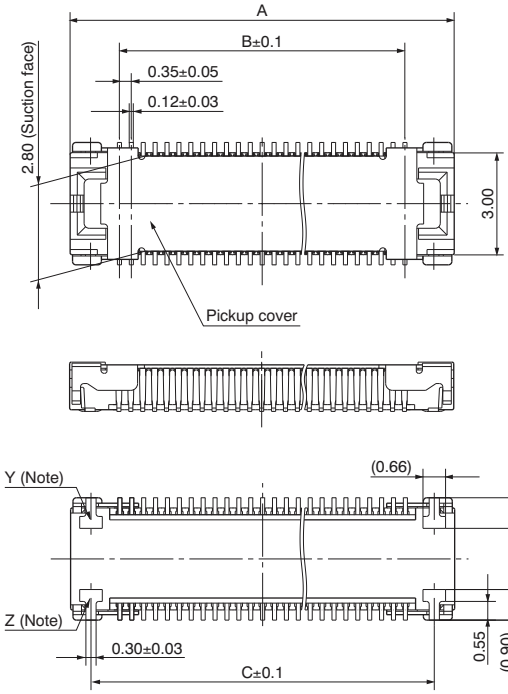


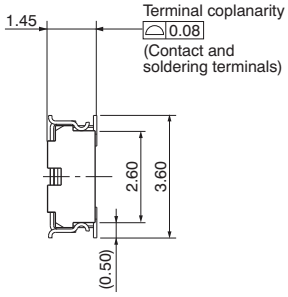
General tolerance: ±0.2

Dimension table (mm)

Number of contacts/ dimension	A	B	C
20	6.05	3.15	4.85
22	6.40	3.50	5.20
24	6.75	3.85	5.55
26	7.10	4.20	5.90
28	7.45	4.55	6.25
30	7.80	4.90	6.60
32	8.15	5.25	6.95
34	8.50	5.60	7.30
36	8.85	5.95	7.65
38	9.20	6.30	8.00
40	9.55	6.65	8.35
50	11.30	8.40	10.10
52	11.65	8.75	10.45
60	13.05	10.15	11.85
70	14.80	11.90	13.60
80	16.55	13.65	15.35
90	18.30	15.40	17.10
100	20.05	17.15	18.85

• With pickup cover





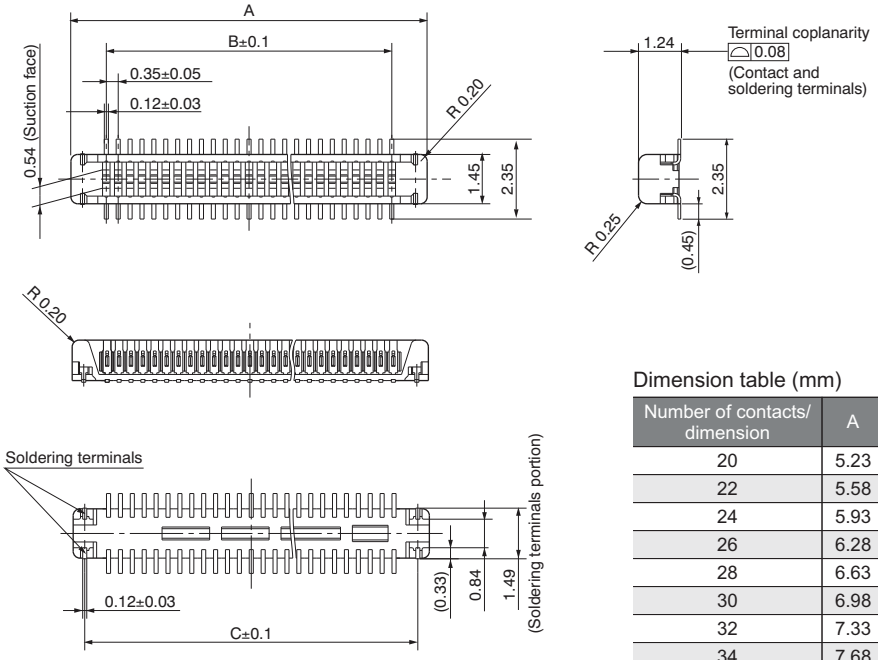
General tolerance: ±0.2

Note: Since soldering terminals are built into the body, the Y and Z parts are connected electrically.

2. Header (Mated height: 1.5mm)

• Without pickup cover

CAD Data

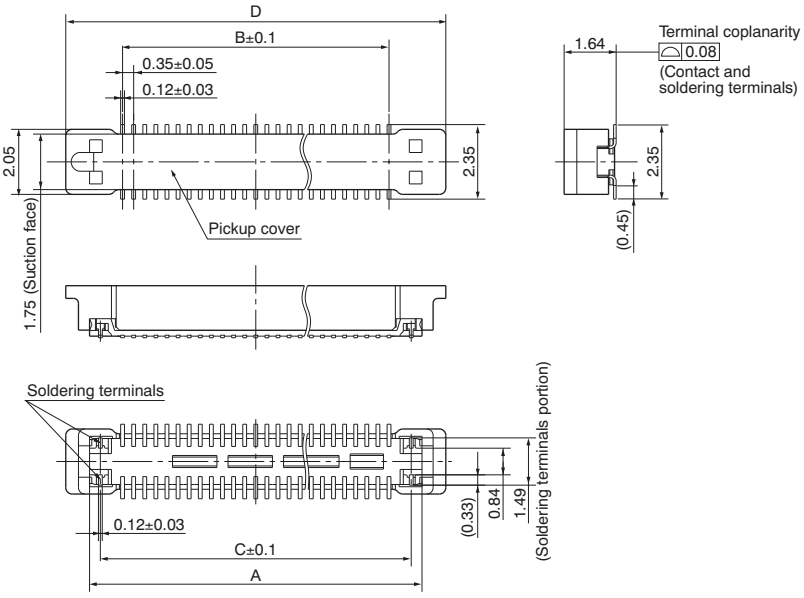


General tolerance: ±0.2

Dimension table (mm)

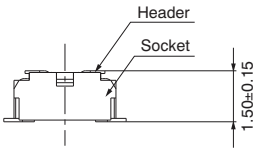
Number of contacts/ dimension	A	B	C	C
20	5.23	3.15	4.55	6.73
22	5.58	3.50	4.90	7.08
24	5.93	3.85	5.25	7.43
26	6.28	4.20	5.60	7.78
28	6.63	4.55	5.95	8.13
30	6.98	4.90	6.30	8.48
32	7.33	5.25	6.65	8.83
34	7.68	5.60	7.00	9.18
36	8.03	5.95	7.35	9.53
38	8.38	6.30	7.70	9.88
40	8.73	6.65	8.05	10.23
50	10.48	8.40	9.80	11.98
52	10.83	8.75	10.15	—
60	12.23	10.15	11.55	13.73
70	13.98	11.90	13.30	15.48
80	15.73	13.65	15.05	17.23
90	17.48	15.40	16.80	19.98
100	19.23	17.15	18.55	20.73

• With pickup cover



General tolerance: ±0.2

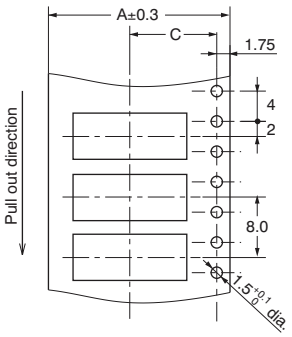
Socket and Header are mated



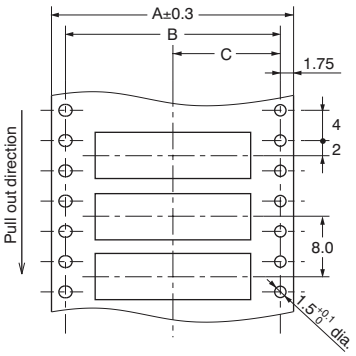
EMBOSSED TAPE DIMENSIONS (unit: mm, Common for respective contact type, socket and header)

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

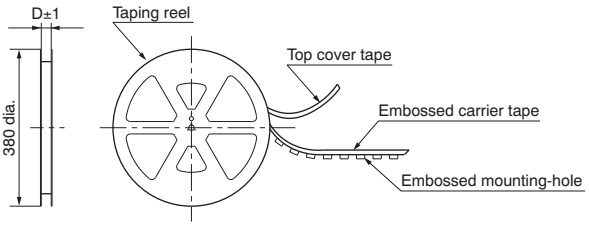
Tape I



Tape II



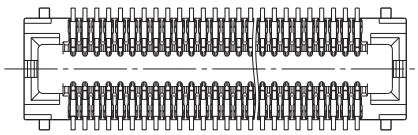
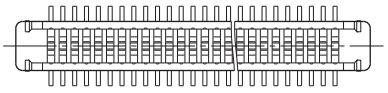
• Plastic reel dimensions (Conforming to EIAJ ET-7200B)



Dimension table (mm)

Mated height	Number of contacts	Type of taping	A	B	C	D	Quantity per reel
Common for socket and header: 1.5mm	Max. 24	Tape I	16.0	—	7.5	17.4	3,000
	26 to 70	Tape I	24.0	—	11.5	25.4	3,000
	72 to 100	Tape II	32.0	28.4	14.2	33.4	3,000

Connector orientation with respect to direction of progress of embossed tape

Type / Direction of tape progress	Common for P35S
↓	Socket  Header 

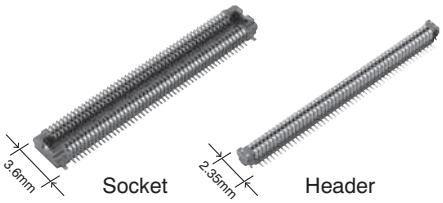
Note: There is no indication on this product regarding top-bottom or left-right orientation.

Panasonic
ideas for life

For board-to-board | For board-to-FPC

Connectors for inspection usage (0.35mm pitch)

P35S Series



FEATURES

1. 3,000 insertion and removals (when as recommended)
2. Same external dimensions and foot pattern as standard type.
3. Improved mating
Insertion and removal have become easier due to a reduction in the mating retention force required by the simple locking structure and also in the amount of force needed for insertion and removal. (We cannot warrant anything regarding mating retention.)

APPLICATIONS

Ideal for module unit inspection and equipment assembly inspection

TABLE OF PRODUCT TYPES

☆: Available for sale

Product name	Number of contacts																	
P35S for inspection	20	22	24	26	28	30	32	34	36	38	40	50	52	60	70	80	90	100
	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆

Notes: 1. The pickup surface shape of the inspection sockets is different from that of the standard sockets. (For details, refer to the product specification diagram.)
2. Please inquire numbers of contacts other than those listed above.
3. Please inquire us regarding delivery times.
4. Please keep ordering unit no less than 50 pieces per lot.
5. Please inquire for further information.

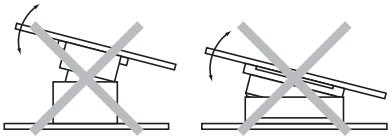
PRODUCT TYPES

Specifications			Part No.	Specifications			Part No.
Socket	With pickup cover	Without positioning bosses	AXT1E∗∗66	Header	With pickup cover	Without positioning bosses	AXT2E∗∗66
	No pickup cover	Without positioning bosses	AXT1E∗∗26		No pickup cover	Without positioning bosses	AXT2E∗∗26

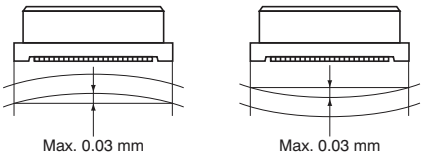
Notes: 1. When placing an order, substitute the "∗" (asterisk) in the above part number with the number of contacts for the required connector.
2. The above part numbers are for connectors without positioning bosses, which are standard. When ordering connectors with positioning bosses, please contact our sales office.

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 please 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. If extra resistance to shock caused by dropping is required, we recommend using our previous P4 Series.

4. PC Boards and Recommended Metal Mask Patterns

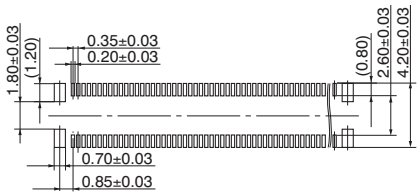
Connectors are mounted with high density, with a pitch interval of 0.35 mm, 0.4 mm or 0.5 mm.

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

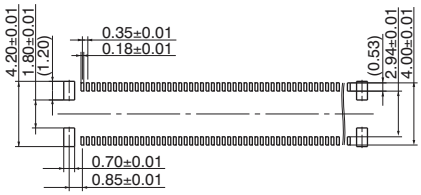
The figures to the right are recommended metal mask patterns. Please use them as a reference.

Socket (Mated height: 1.5mm)

Recommended PC board pattern
(TOP VIEW)

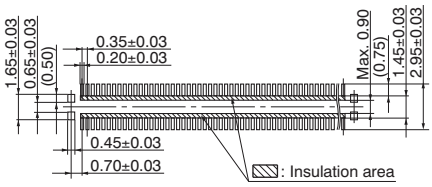


Recommended metal mask pattern
Metal mask thickness: Here, 120 μm
(Terminal portion opening area ratio: 60%)
(Metal portion opening area ratio: 100%)

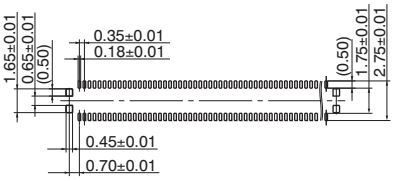


Header (Mated height: 1.5mm)

Recommended PC board pattern
(TOP VIEW)



Recommended metal mask pattern
Metal mask thickness: Here, 120 μm
(Terminal portion opening area ratio: 60%)
(Metal portion opening area ratio: 100%)



For Cautions for Use, see Connector Technical Information (page 136). For other details, please verify with the product specification sheets.

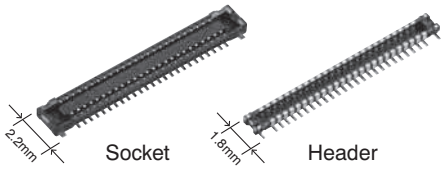
Panasonic
ideas for life

For board-to-FPC

Narrow pitch connectors (0.4mm pitch)

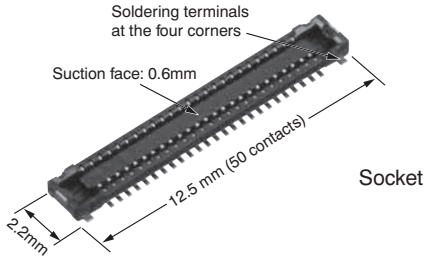
A4US Series

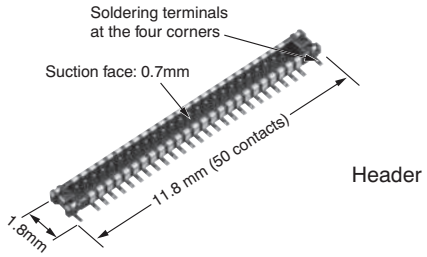
TOUGH CONTACT ADVANCED



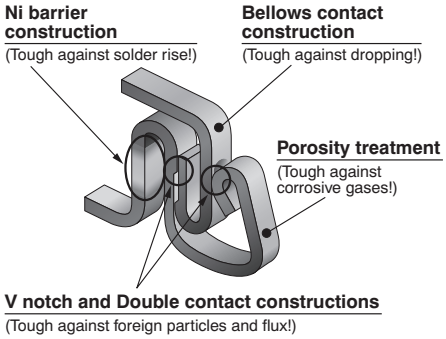
FEATURES

1. Ultra-slim (Mated width: 2.2 mm and Mated height: 0.8 mm)
The footprint when mated is down approx. 12% from our existing A4S model (50 contacts), contributing to the functionality enhancement and size reduction of target equipment.





2. "TOUGH CONTACT ADVANCED" structure adopted to ensure high resistance to various environments in spite of the ultra-slim space-saving body.



3. The contact at the four corners enhance the mounting strength.
4. The simple lock structure for high mating/unmating operation feel.
5. The gull-wing-shaped terminals facilitate imaging inspections.

APPLICATIONS

• Particularly suitable for board-to-FPC connections in ultra-compact mobile equipment that requires size and thickness reduction and functionality enhancement

ORDERING INFORMATION

AXE [ ] [ ][ ] 1 2 4

1: Socket
2: Header

Number of contacts (2 digits)

Mated height
<Socket> / <Header>
1: For mated height 0.8 mm

Functions
2: Without positioning bosses

Surface treatment (Contact portion / Terminal portion)
<Socket>
4: Base: Ni plating, Surface: Au plating (for Ni barrier available)
<Header>
4: Base: Ni plating, Surface: Au plating

PRODUCT TYPES

0.8mm	10	AXE110124	AXE210124	5,000 pieces	10,000 pieces
	14	AXE114124	AXE214124		
	20	AXE120124	AXE220124		
	24	AXE124124	AXE224124		
	30	AXE130124	AXE230124		
	36	AXE136124	AXE236124		
	40	AXE140124	AXE240124		
	50	AXE150124	AXE250124		
	60	AXE160124	AXE260124		
	70	AXE170124	AXE270124		
	80	AXE180124	AXE280124		

Notes: 1. Order unit:
For mass production: in 1-inner carton (1-reel) units
Samples for mounting check: in 50-connector units. Please contact our sales office.
2. The above part numbers are for connectors without positioning bosses, which are standard. When ordering connectors with positioning bosses, please contact our sales office.
3. Please contact us for connectors having a number of contacts other than those listed above.

SPECIFICATIONS

1. Characteristics

Electrical characteristics	Rated current	0.30A/contact (Max. 5 A at total contacts)	
	Rated voltage	60V AC/DC	
	Breakdown voltage	150V AC for 1 min.	No short-circuiting or damage at a detection current of 1 mA when the specified voltage is applied for one minute.
	Insulation resistance	Min. 1,000MΩ (initial)	Using 250V DC megger (applied for 1 min.)
	Contact resistance	Max. 90mΩ	Based on the contact resistance measurement method specified by JIS C 5402.
Mechanical characteristics	Composite insertion force	Max. 0.981N/contacts × contacts (initial)	
	Composite removal force	Min. 0.165N/contacts × contacts	
	Contact holding force (Socket contact)	Min. 0.20N/contacts	Measuring the maximum force. As the contact is axially pull out.
Environmental characteristics	Ambient temperature	–55°C to +85°C	No freezing at low temperatures. No dew condensation.
	Soldering heat resistance	Peak temperature: 260°C or less (on the surface of the PC board around the connector terminals)	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. No dew condensation.
	Thermal shock resistance (header and socket mated)	5 cycles, insulation resistance min. 100MΩ, contact resistance max. 90mΩ	Sequence 1. -55^{0}_{-3}°C, 30 minutes 2. ~ , Max. 5 minutes 3. 85^{+3}_{0}°C, 30 minutes 4. ~ , Max. 5 minutes
	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, saltwater 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	30 times	Repeated insertion and removal speed of max. 200 times/hours
Unit weight		60 contact type: Socket: 0.03 g Header: 0.01 g	

2. Material and surface treatment

Molded portion	LCP resin (UL94V-0)	—
Contact and Post	Copper alloy	Contact portion: Base: Ni plating, Surface: Au plating Terminal portion: Base: Ni plating, Surface: Au plating (except the terminal tips) The socket terminals close to the portion to be soldered have nickel barriers (exposed nickel portions). Soldering terminals: Sockets: Base: Ni plating, Surface: Pd+Au flash plating (except the terminal tips) Headers: Base: Ni plating, Surface: Au plating (except the terminal tips)

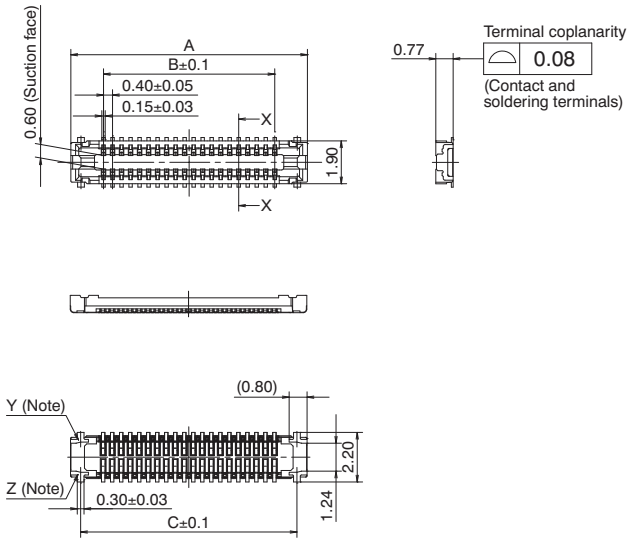
DIMENSIONS

Interested in CAD data? You can obtain CAD data for all products with a **CAD Data** mark from your local Panasonic Electric Works representative.

(Unit: mm)

Socket (Mated height: 0.8 mm)

CAD Data



Dimension table (mm)

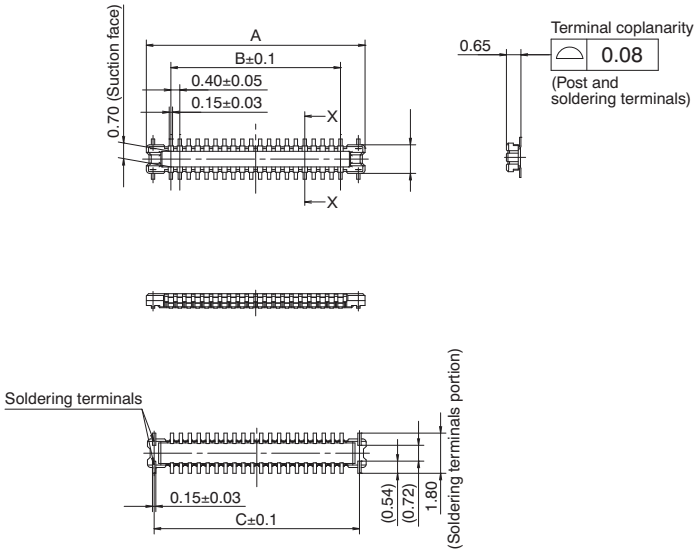
10	4.5	1.6	3.4
14	5.3	2.4	4.2
20	6.5	3.6	5.4
24	7.3	4.4	6.2
30	8.5	5.6	7.4
36	9.7	6.8	8.8
40	10.5	7.6	9.6
50	12.5	9.6	11.6
60	14.5	11.6	13.6
70	16.5	13.6	15.6
80	18.5	15.6	17.6

General tolerance: ±0.2

Note: Since soldering terminals are built into the body, the Y and Z parts are connected electrically.

Header (Mated height: 0.8 mm)

CAD Data

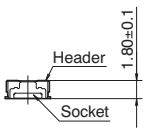


Dimension table (mm)

10	3.8	1.6	3.2
14	4.6	2.4	4.0
20	5.8	3.6	5.2
24	6.6	4.4	6.0
30	7.8	5.6	7.2
36	9.0	6.8	8.4
40	9.8	7.6	9.2
50	11.8	9.6	11.2
60	13.8	11.6	13.2
70	15.8	13.6	15.2
80	17.8	15.6	17.2

General tolerance: ±0.2

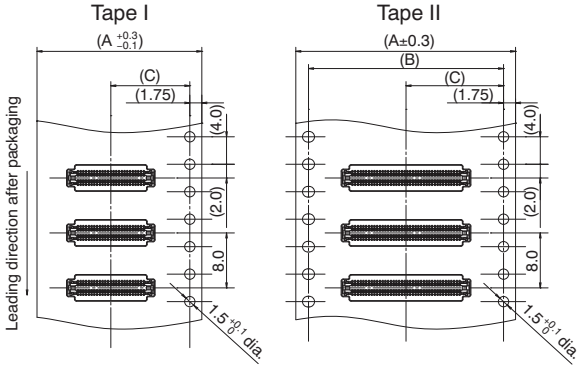
• Socket and Header are mated



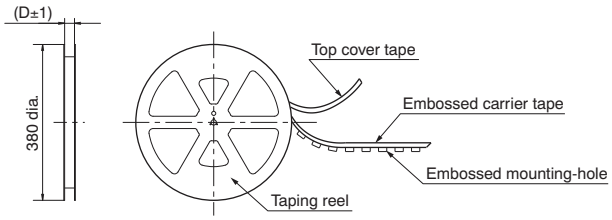
EMBOSSED TAPE DIMENSIONS (Unit: mm)

(Common to all sockets and headers)

• Specifications for taping
(In accordance with JIS C 0806-3:1999. However, not applied to the mounting-hole pitch of some connectors.)



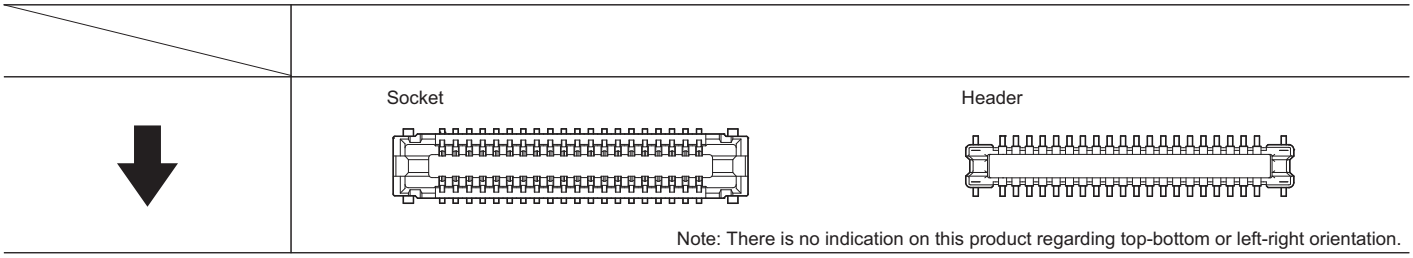
• Specifications for the plastic reel
(In accordance with EIAJ ET-7200B.)



• Dimension table (Unit: mm)

Common for sockets and headers: 0.8mm	Max. 24	Tape I	16.0	—	7.5	17.4	5,000
	30 to 70	Tape I	24.0	—	11.5	25.4	5,000
	80	Tape II	32.0	28.4	14.2	33.4	5,000

• Connector orientation with respect to embossed tape feeding direction



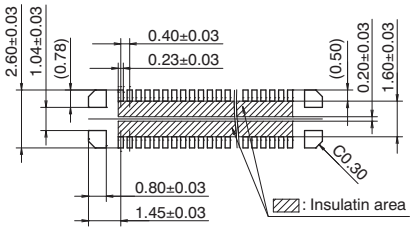
Note: There is no indication on this product regarding top-bottom or left-right orientation.

NOTES

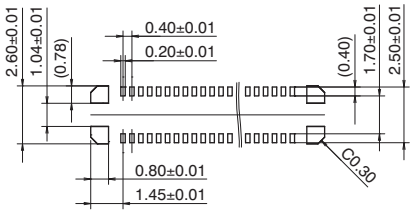
1. Regarding the design of PC board patterns
Conduct the recommended foot pattern design, in order to preserve the mechanical strength of terminal solder areas.

2. Recommended PC board and metal mask patterns
Appropriate control of solder amount is required to minimize solder bridges and other defects for connectors with 0.35-mm, 0.4-mm or 0.5-mm pitch terminals, which require high-density mounting. Refer to the right-hand drawing for recommended patterns.

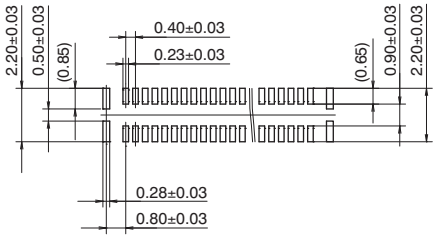
• Socket (Mated height: 0.8 mm)
Recommended PC board pattern (TOP VIEW)



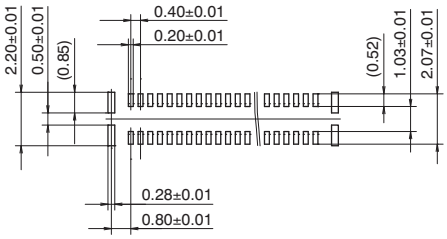
Recommended metal mask opening pattern
Metal mask thickness: When 120μm
(Terminal opening ratio: 70%)
(Metal-part opening ratio: 100%)



• Header (Mated height: 0.8 mm)
Recommended PC board pattern (TOP VIEW)



Recommended metal mask opening pattern
Metal mask thickness: When 120μm
(Terminal opening ratio: 70%)
(Metal-part opening ratio: 100%)



For Cautions for Use, see Connector Technical Information (page 139). For other details, please verify with the product specification sheets.

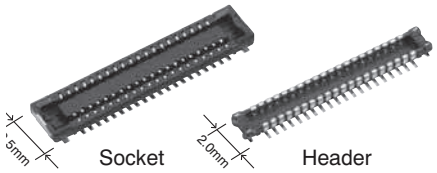
Panasonic
ideas for life

For board-to-FPC

Narrow pitch connectors (0.4mm pitch)

A4S Series

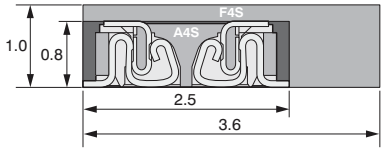
TOUGH CONTACT ADVANCED



FEATURES

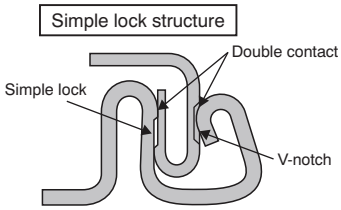
1. 2.5 mm wide ultra-slim two-piece connectors

The ultra-compact and slim body contributes to further miniaturization and functionality enhancement of target equipment.
<Compared with our existing model (F4S, 40 contacts, when mated)>
• Width: 30% down
• Footprint: 30% down



2. "TOUGH CONTACT ADVANCED" structure adopted to ensure high resistance to various environments in spite of the ultra-slim and low profile body

3. The simple lock structure for good mating/unmating operation feel.



The connector gives the tactile feedback when inserted, allowing reliable mating.

4. Mated heights of 0.8 and 1.0 mm are available for the same foot pattern.
5. Connectors for inspection available
(See page 40 for details of the structure)

APPLICATIONS

Recommended for board-to-FPC connections of mobile equipment, such as cellular phones, smart phones, notebook PCs, and portable music players

ORDERING INFORMATION

AXE □ □□ 1 2 4

5: Narrow Pitch Connector A4S (0.4 mm pitch) Socket
6: Narrow Pitch Connector A4S (0.4 mm pitch) Header

Number of contacts (2 digits)

Mated height
<Socket>
1: For mated height 0.8/1.0 mm
<Header>
1: For mated height 0.8 mm
2: For mated height 1.0 mm

Functions
2: Without positioning bosses

Surface treatment (Contact portion / Terminal portion)
<Socket>
4: Ni plating on base, Au plating on surface (for Ni barrier available)
<Header>
4: Ni plating on base, Au plating on surface

PRODUCT TYPES

Mated height	Number of contacts	Part number		Packing	
		Socket	Header	Inner carton (1-reel)	Outer carton
0.8mm	10	AXE510124	AXE610124	5,000 pieces	10,000 pieces
	12	AXE512124	AXE612124		
	14	AXE514124	AXE614124		
	16	AXE516124	AXE616124		
	18	AXE518124	AXE618124		
	20	AXE520124	AXE620124		
	22	AXE522124	AXE622124		
	24	AXE524124	AXE624124		
	26	AXE526124	AXE626124		
	28	AXE528124	AXE628124		
	30	AXE530124	AXE630124		
	32	AXE532124	AXE632124		
	34	AXE534124	AXE634124		
	36	AXE536124	AXE636124		
	38	AXE538124	AXE638124		
	40	AXE540124	AXE640124		
	44	AXE544124	AXE644124		
	50	AXE550124	AXE650124		
	54	AXE554124	AXE654124		
	56	AXE556124	AXE656124		
	60	AXE560124	AXE660124		
	64	AXE564124	AXE664124		
	70	AXE570124	AXE670124		
	80	AXE580124	AXE680124		
1.0mm	10	AXE510124	AXE610224		
	12	AXE512124	AXE612224		
	14	AXE514124	AXE614224		
	20	AXE520124	AXE620224		
	24	AXE524124	AXE624224		
	26	AXE526124	AXE626224		
	30	AXE530124	AXE630224		
	32	AXE532124	AXE632224		
	40	AXE540124	AXE640224		
	50	AXE550124	AXE650224		
	54	AXE554124	AXE654224		
	60	AXE560124	AXE660224		
	70	AXE570124	AXE670224		
	80	AXE580124	AXE680224		

Notes: 1. Order unit:
For mass production: in 1-inner carton (1-reel) units
Samples for mounting check: in 50-connector units. Please contact our sales office.
Samples: Small lot orders are possible. Please contact our sales office.
2. The above part numbers are for connectors without positioning bosses, which are standard. When ordering connectors with positioning bosses, please contact our sales office.
3. Please contact us for connectors having a number of contacts other than those listed above.

SPECIFICATIONS

■ Characteristics

Item		Specifications	Conditions
Electrical characteristics	Rated current	0.3A/contact (Max. 5 A at total contacts)	
	Rated voltage	60V AC/DC	
	Breakdown voltage	150V AC for 1 min.	No short-circuiting or damage at a detection current of 1 mA when the specified voltage is applied for one minute.
	Insulation resistance	Min. 1,000MΩ (initial)	Using 250V DC megger (applied for 1 min.)
	Contact resistance	Max. 90mΩ	Based on the contact resistance measurement method specified by JIS C 5402.
Mechanical characteristics	Composite insertion force	Max. 1.200N/contacts × contacts (initial)	
	Composite removal force	Min. 0.165N/contacts × contacts	
	Contact holding force (Socket contact)	Min. 0.20N/contacts	Measuring the maximum force. As the contact is axially pull out.
Environmental characteristics	Ambient temperature	–55°C to +85°C	No freezing at low temperatures. No dew condensation.
	Soldering heat resistance	Peak temperature: 260°C or less (on the surface of the PC board around the connector terminals)	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. No dew condensation.
	Thermal shock resistance (header and socket mated)	5 cycles, insulation resistance min. 100MΩ, contact resistance max. 90mΩ	Sequence 1. –55 $^{0}_{-3}$°C, 30 minutes 2. ~ , Max. 5 minutes 3. 85 $^{+3}_{0}$°C, 30 minutes 4. ~ , Max. 5 minutes
	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, saltwater 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	30 times	Repeated insertion and removal speed of max. 200 times/hours
Unit weight		20-contact type: Socket: 0.02 g Header: 0.01 g	

■ Material and surface treatment

Part name	Material	Surface treatment
Molded portion	LCP resin (UL94V-0)	—
Contact and Post	Copper alloy	Contact portion: Base: Ni plating Surface: Au plating Terminal portion: Base: Ni plating Surface: Au plating (except the terminal tips) The socket terminals close to the portion to be soldered have nickel barriers (exposed nickel portions). Soldering terminals: Sockets: Base: Ni plating Surface: Pd+Au flash plating (except the terminal tips) Headers: Base: Ni plating Surface: Au plating (except the terminal tips)

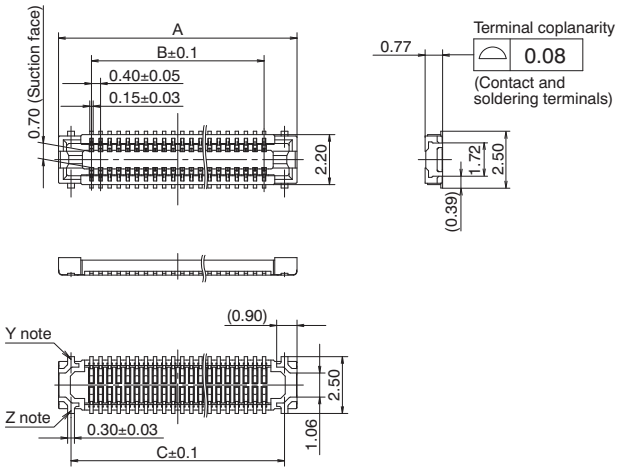
DIMENSIONS

Interested in CAD data? You can obtain CAD data for all products with a **CAD Data** mark from your local Panasonic Electric Works representative.

(Unit: mm)

■ Socket (Mated height: 0.8 mm/1.0 mm)

CAD Data



General tolerance: ±0.2

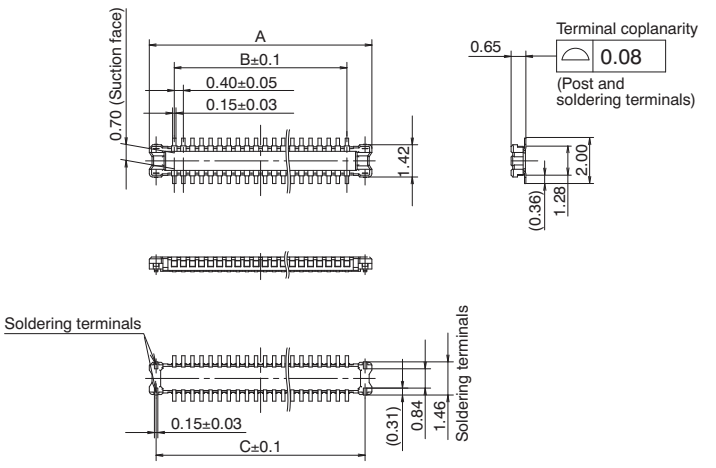
Note: Since the soldering terminals has a single-piece construction, sections Y and Z are electrically connected.

Dimension table (mm)

Number of contacts/ dimension	A	B	C
10	4.5	1.6	3.4
12	4.9	2.0	3.8
14	5.3	2.4	4.2
16	5.7	2.8	4.6
18	6.1	3.2	5.0
20	6.5	3.6	5.4
22	6.9	4.0	5.8
24	7.3	4.4	6.2
26	7.7	4.8	6.6
28	8.1	5.2	7.0
30	8.5	5.6	7.4
32	8.9	6.0	7.8
34	9.3	6.4	8.2
36	9.7	6.8	8.6
38	10.1	7.2	9.0
40	10.5	7.6	9.4
44	11.3	8.4	10.2
50	12.5	9.6	11.4
54	13.3	10.4	12.2
56	13.7	10.8	12.6
60	14.5	11.6	13.4
64	15.3	12.4	14.2
70	16.5	13.6	15.4
80	18.5	15.6	17.4

■ Header (Mated height: 0.8 mm)

CAD Data

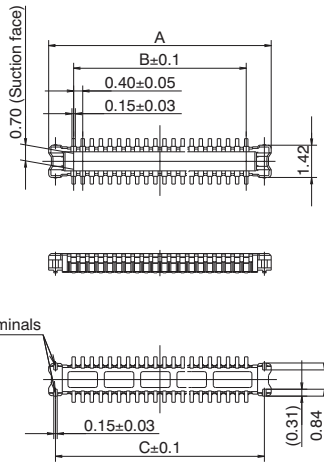


General tolerance: ±0.2

Dimension table (mm)

Number of contacts/ dimension	A	B	C
10	3.8	1.6	3.2
12	4.2	2.0	3.6
14	4.6	2.4	4.0
16	5.0	2.8	4.4
18	5.4	3.2	4.8
20	5.8	3.6	5.2
22	6.2	4.0	5.6
24	6.6	4.4	6.0
26	7.0	4.8	6.4
28	7.4	5.2	6.8
30	7.8	5.6	7.2
32	8.2	6.0	7.6
34	8.6	6.4	8.0
36	9.0	6.8	8.4
38	9.4	7.2	8.8
40	9.8	7.6	9.2
44	10.6	8.4	10.0
50	11.8	9.6	11.2
54	12.6	10.4	12.0
56	13.0	10.8	12.4
60	13.8	11.6	13.2
64	14.6	12.4	14.0
70	15.8	13.6	15.2
80	17.8	15.6	17.2

■ **Header (Mated height: 1.0 mm)**

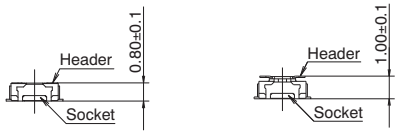


General tolerance: ±0.2

Dimension table (mm)

Number of contacts/ dimension	A	B	C
10	3.8	1.6	3.2
12	4.2	2.0	3.6
14	4.6	2.4	4.0
20	5.8	3.6	5.2
24	6.6	4.4	6.0
26	7.0	4.8	6.4
30	7.8	5.6	7.2
32	8.2	6.0	7.6
40	9.8	7.6	9.2
50	11.8	9.6	11.2
54	12.6	10.4	12.0
60	13.8	11.6	13.2
70	15.8	13.6	15.2
80	17.8	15.6	17.2

■ **Socket and Header are mated**



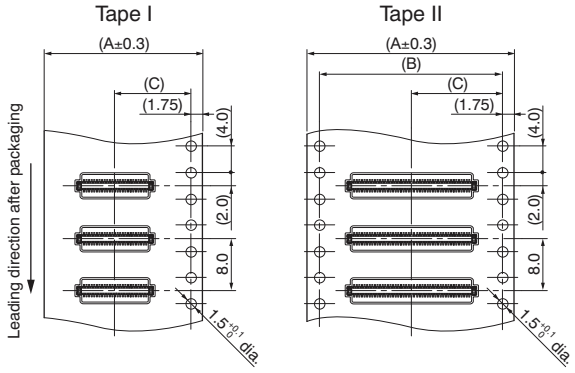
EMBOSSED TAPE DIMENSIONS (Unit: mm) (Common for respective contact types, sockets and headers)

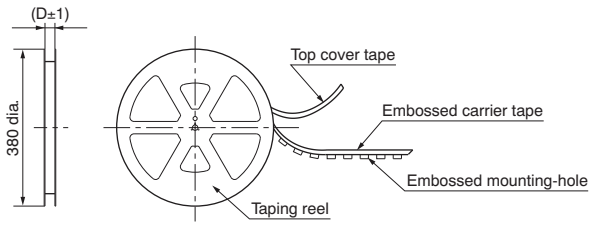
■ **Specifications for taping**

(In accordance with JIS C 0806-1990. However, not applied to the mounting-hole pitch of some connectors.)

■ **Specifications for the plastic reel**

(In accordance with EIAJ ET-7200B.)

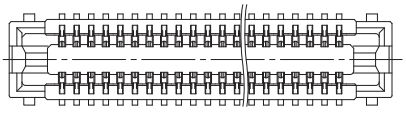
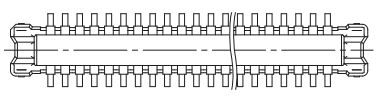




■ **Dimension table** (Unit: mm)

Type/Mated height	Number of contacts	Type of taping	A	B	C	D	Quantity per reel
Common for sockets and headers 0.8 mm/1.0 mm	24 or less	Tape I	16.0	—	7.5	17.4	5,000
	26 to 70	Tape I	24.0	—	11.5	25.4	5,000
	80	Tape II	32.0	28.4	14.2	33.4	5,000

■ **Connector orientation with respect to embossed tape feeding direction**

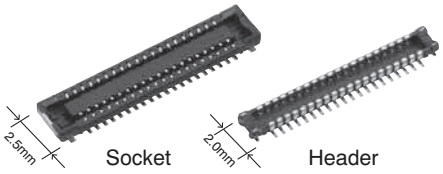
Direction of tape progress / Type	Common for A4S
↓	Socket  Header 

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

For board-to-FPC

Connectors for inspection usage (0.4mm pitch)

A4S Series



FEATURES

1. 3,000 insertion and removals (when as recommended)
2. Same external dimensions and foot pattern as standard type.
3. Improved mating
Insertion and removal have become easier due to a reduction in the mating retention force required by the simple locking structure and also in the amount of force needed for insertion and removal. (We cannot warrant anything regarding mating retention.)

APPLICATIONS

Ideal for module unit inspection and equipment assembly inspection

TABLE OF PRODUCT TYPES

☆: Available for sale

Product name	Number of contacts																							
A4S for inspection	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	44	50	54	56	60	64	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.

PRODUCT TYPES

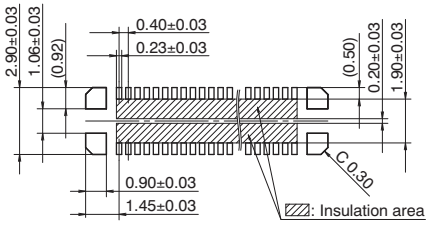
Specifications		Part No.	Specifications		Part No.
Socket	Without positioning bosses	AXE5E**26	Header	Without positioning bosses	AXE6E**26

Note: When placing an order, substitute the "*" (asterisk) in the above part number with the number of contacts for the required connector.

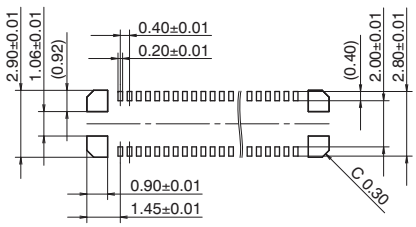
NOTES

■ Recommended PC board and metal mask patterns
Appropriate control of solder amount is required to minimize solder bridges and other defects for connectors with 0.4-mm or 0.5-mm pitch terminals, which require high-density mounting. Refer to the right-hand drawing for recommended patterns.

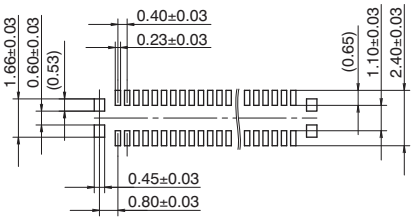
• Socket (Mated height: 0.8mm/1.0mm)
Recommended PC board pattern (TOP VIEW)



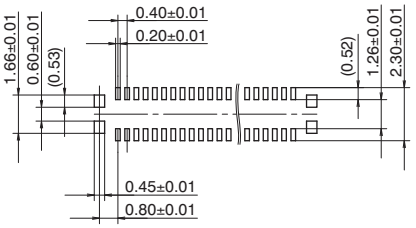
Recommended metal mask opening pattern
Metal mask thickness: When 120μm
(Terminal opening ratio: 70%)
(Metal-part opening ratio: 100%)



• Header (Mated height: 0.8mm/1.0mm)
Recommended PC board pattern (TOP VIEW)



Recommended metal mask opening pattern
Metal mask thickness: When 120μm
(Terminal opening ratio: 70%)
(Metal-part opening ratio: 100%)



For Cautions for Use, see Connector Technical Information (page 139). For other details, please verify with the product specification sheets.

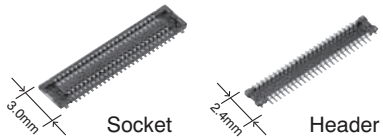
Panasonic
ideas for life

For board-to-FPC

Narrow pitch connectors (0.4mm pitch)

A4F Series

TOUGH CONTACT ADVANCED

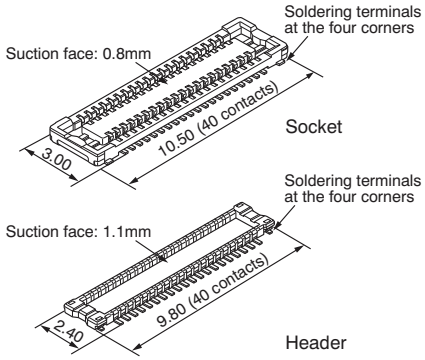


FEATURES

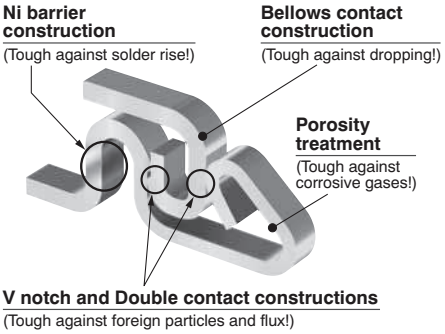
1. 0.6 mm mating height ultra-low profile two-piece connectors

2. Space-saving (3.0 mm widthwise)

The required space is smaller than our F4 series (40-contact type):
Socket — 40% smaller,
Header — 43% smaller
The small size contributes to the miniaturization of target equipment.



3. Ultra-low profile and high resistance to various environments achieved by the "TOUGH CONTACT ADVANCED" with high contact reliability



4. The simple lock structure for good mating/unmating operation feel.

5. The gull-wing-shaped terminals facilitate imaging inspections.

6. Connectors for inspection available

(See page 45 for details.)

APPLICATIONS

Compact and thin portable devices "Cellular phones, Digital cameras and DVC, etc"

ORDERING INFORMATION

AXE □ □□ 1 2 4

3: Narrow Pitch Connector A4F (0.4 mm pitch) Socket
4: Narrow Pitch Connector A4F (0.4 mm pitch) Header

Number of contacts (2 digits)

Mated height
<Socket> / <Header>
1: For mated height 0.6 mm

Functions
2: Without positioning bosses

Surface treatment (Contact portion / Terminal portion)
<Socket>
4: Ni plating on base, Au plating on surface (for Ni barrier available)
<Header>
4: Ni plating on base, Au plating on surface

PRODUCT TYPES

Mated height	Number of contacts	Part number		Packing	
		Socket	Header	Inner carton (1-reel)	Outer carton
0.6mm	10	AXE310124	AXE410124	5,000 pieces	10,000 pieces
	12	AXE312124	AXE412124		
	14	AXE314124	AXE414124		
	16	AXE316124	AXE416124		
	20	AXE320124	AXE420124		
	22	AXE322124	AXE422124		
	24	AXE324124	AXE424124		
	26	AXE326124	AXE426124		
	28	AXE328124	AXE428124		
	30	AXE330124	AXE430124		
	32	AXE332124	AXE432124		
	34	AXE334124	AXE434124		
	36	AXE336124	AXE436124		
	38	AXE338124	AXE438124		
	40	AXE340124	AXE440124		
	42	AXE342124	AXE442124		
	44	AXE344124	AXE444124		
	50	AXE350124	AXE450124		
	54	AXE354124	AXE454124		
	60	AXE360124	AXE460124		
	64	AXE364124	AXE464124		
	70	AXE370124	AXE470124		
	80	AXE380124	AXE480124		

Notes: 1. Order unit:
For mass production: in 1-inner carton (1-reel) units
Samples for mounting check: in 50-connector units. Please contact our sales office.
Samples: Small lot orders are possible. Please contact our sales office.
2. The above part numbers are for connectors without positioning bosses, which are standard. When ordering connectors with positioning bosses, please contact our sales office.
3. Please contact us for connectors having a number of contacts other than those listed above.

SPECIFICATIONS

■ Characteristics

Item		Specifications	Conditions
Electrical characteristics	Rated current	0.3A/contact (Max. 5 A at total contacts)	
	Rated voltage	60V AC/DC	
	Breakdown voltage	150V AC for 1 min.	No short-circuiting or damage at a detection current of 1 mA when the specified voltage is applied for one minute.
	Insulation resistance	Min. 1,000MΩ (initial)	Using 250V DC megger (applied for 1 min.)
	Contact resistance	Max. 90mΩ	Based on the contact resistance measurement method specified by JIS C 5402.
Mechanical characteristics	Composite insertion force	Max. 1.200N/contacts × contacts (initial)	
	Composite removal force	Min. 0.165N/contacts × contacts	
	Contact holding force (Socket contact)	Min. 0.20N/contacts	Measuring the maximum force. As the contact is axially pull out.
Environmental characteristics	Ambient temperature	–55°C to +85°C	No freezing at low temperatures. No dew condensation.
	Soldering heat resistance	Peak temperature: 260°C or less (on the surface of the PC board around the connector terminals)	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. No dew condensation.
	Thermal shock resistance (header and socket mated)	5 cycles, insulation resistance min. 100MΩ, contact resistance max. 90mΩ	Sequence 1. -55^{0}_{-3}°C, 30 minutes 2. ~ , Max. 5 minutes 3. 85^{+3}_{0}°C, 30 minutes 4. ~ , Max. 5 minutes
	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, saltwater 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	30 times	Repeated insertion and removal speed of max. 200 times/hours
Unit weight		20-contact type: Socket: 0.01 g Header: 0.01 g	

■ Material and surface treatment

Part name	Material	Surface treatment
Molded portion	LCP resin (UL94V-0)	—
Contact and Post	Copper alloy	Contact portion: Base: Ni plating Surface: Au plating Terminal portion: Base: Ni plating Surface: Au plating (except the terminal tips) The socket terminals close to the portion to be soldered have nickel barriers (exposed nickel portions). Soldering terminals: Sockets: Base: Ni plating Surface: Pd+Au flash plating (except the terminal tips) Headers: Base: Ni plating Surface: Au plating (except the terminal tips)

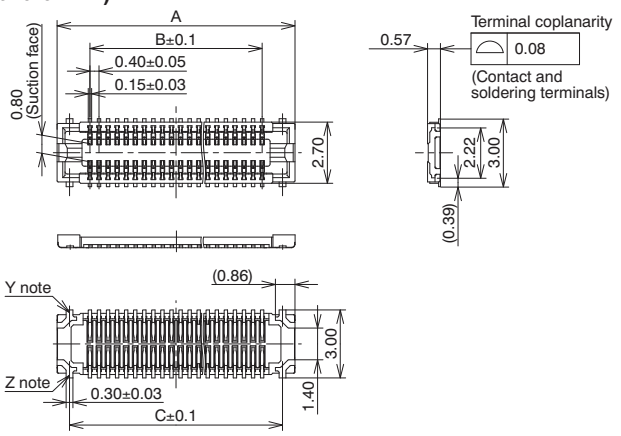
DIMENSIONS

Interested in CAD data? You can obtain CAD data for all products with a **CAD Data** mark from your local Panasonic Electric Works representative.

(Unit: mm)

■ Socket (Mated height: 0.6 mm)

CAD Data



General tolerance: ±0.2

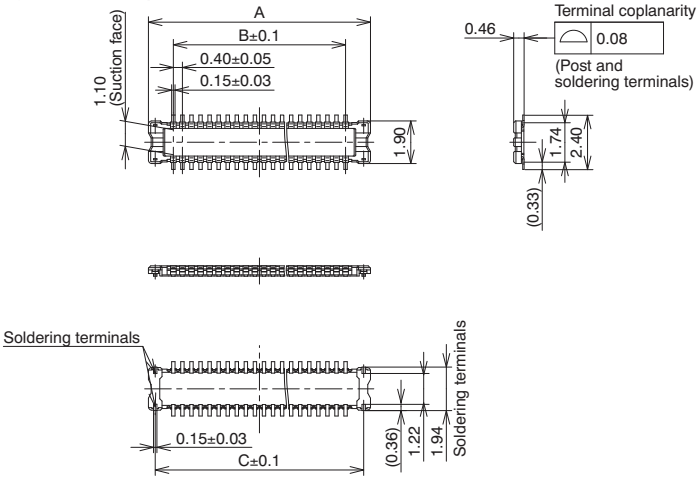
Note: Since the soldering terminals has a single-piece construction, sections Y and Z are electrically connected.

Dimension table (mm)

Number of contacts/ dimension	A	B	C
10	4.5	1.6	3.4
12	4.9	2.0	3.8
14	5.3	2.4	4.2
16	5.7	2.8	4.6
20	6.5	3.6	5.4
22	6.9	4.0	5.8
24	7.3	4.4	6.2
26	7.7	4.8	6.6
28	8.1	5.2	7.0
30	8.5	5.6	7.4
32	8.9	6.0	7.8
34	9.3	6.4	8.2
36	9.7	6.8	8.6
38	10.1	7.2	9.0
40	10.5	7.6	9.4
42	10.9	8.0	9.8
44	11.3	8.4	10.2
50	12.5	9.6	11.4
54	13.3	10.4	12.2
60	14.5	11.6	13.4
64	15.3	12.4	14.2
70	16.5	13.6	15.4
80	18.5	15.6	17.4

■ Header (Mated height: 0.6 mm)

CAD Data



General tolerance: ±0.2

Dimension table (mm)

Number of contacts/ dimension	A	B	C
10	3.8	1.6	3.2
12	4.2	2.0	3.6
14	4.6	2.4	4.0
16	5.0	2.8	4.4
20	5.8	3.6	5.2
22	6.2	4.0	5.6
24	6.6	4.4	6.0
26	7.0	4.8	6.4
28	7.4	5.2	6.8
30	7.8	5.6	7.2
32	8.2	6.0	7.6
34	8.6	6.4	8.0
36	9.0	6.8	8.4
38	9.4	7.2	8.8
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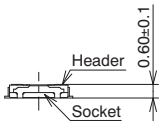
42	10.2	8.0	9.6
44	10.6	8.4	10.0
50	11.8	9.6	11.2
54	12.6	10.4	12.0
60	13.8	11.6	13.2
64	14.6	12.4	14.0
70	15.8	13.6	15.2
80	17.8	15.6	17.2

■ **Socket and Header are mated**



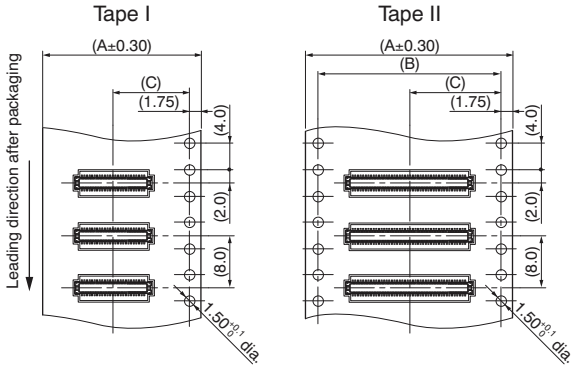
EMBOSSED TAPE DIMENSIONS (Unit: mm) (Common for respective contact types, sockets and headers)

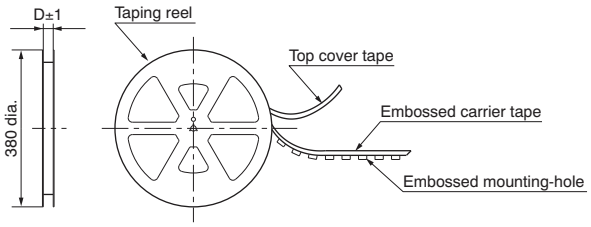
■ **Specifications for taping**

(In accordance with JIS C 0806-1990. However, not applied to the mounting-hole pitch of some connectors.)

■ **Specifications for the plastic reel**

(In accordance with EIAJ ET-7200B.)

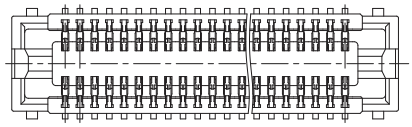
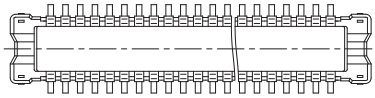




■ **Dimension table** (Unit: mm)

Type/Mated height	Number of contacts	Type of taping	A	B	C	D	Quantity per reel
Common for sockets and headers 0.6 mm	24 or less	Tape I	16.0	—	7.5	17.4	5,000
	26 to 70	Tape II	24.0	—	11.5	25.4	5,000
	80	Tape II	32.0	28.4	14.2	33.4	5,000

■ **Connector orientation with respect to embossed tape feeding direction**

Direction of tape progress \ Type	Common for A4F
↓	Socket  Header 

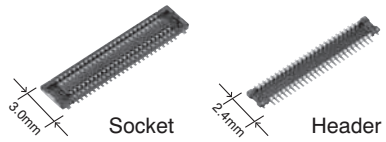
Note: There is no indication on this product regarding top-bottom or left-right orientation.

Panasonic
ideas for life

For board-to-FPC

Connectors for inspection usage (0.4mm pitch)

A4F Series



FEATURES

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2. Same external dimensions and foot pattern as standard type.
3. Improved mating
Insertion and removal have become easier due to a reduction in the mating retention force required by the simple locking structure and also in the amount of force needed for insertion and removal. (We cannot warrant anything regarding mating retention.)

APPLICATIONS

Ideal for module unit inspection and equipment assembly inspection

TABLE OF PRODUCT TYPES

☆: Available for sale

Product name	Number of contacts																						
A4F for inspection	10	12	14	16	20	22	24	26	28	30	32	34	36	38	40	42	44	50	54	60	64	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.

PRODUCT TYPES

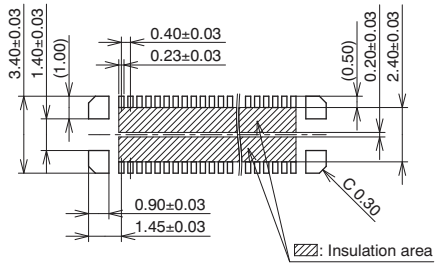
Specifications		Part No.	Specifications		Part No.
Socket	Without positioning bosses	AXE3E**26	Header	Without positioning bosses	AXE4E**26

Note: When placing an order, substitute the "*" (asterisk) in the above part number with the number of contacts for the required connector.

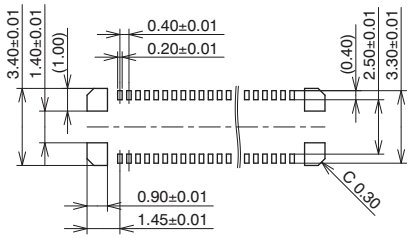
NOTES

■ Recommended PC board and metal mask patterns
Appropriate control of solder amount is required to minimize solder bridges and other defects for connectors with 0.4-mm or 0.5-mm pitch terminals, which require high-density mounting. Refer to the right-hand drawing for recommended patterns.

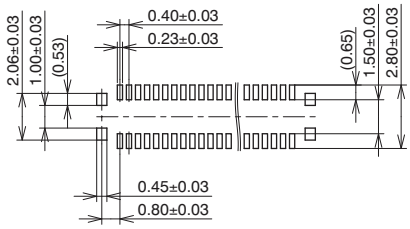
• Socket (Mated height: 0.6 mm)
Recommended PC board pattern (TOP VIEW)



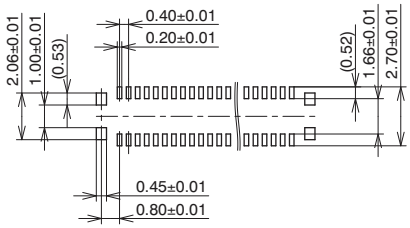
Recommended metal mask opening pattern
Metal mask thickness: When 120μm
(Terminal opening ratio: 70%)
(Metal-part opening ratio: 100%)



• Header (Mated height: 0.6 mm)
Recommended PC board pattern (TOP VIEW)



Recommended metal mask opening pattern
Metal mask thickness: When 120μm
(Terminal opening ratio: 70%)
(Metal-part opening ratio: 100%)



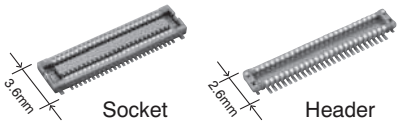
For Cautions for Use, see Connector Technical Information (page 139). For other details, please verify with the product specification sheets.

For board-to-FPC

Narrow pitch connectors (0.4mm pitch)

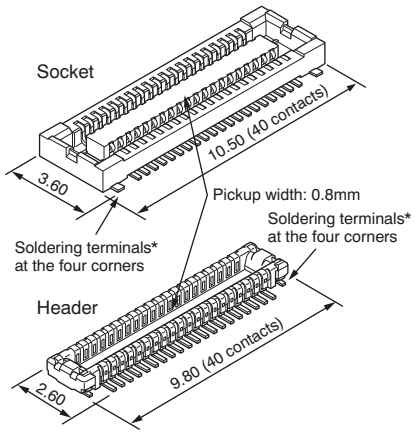
F4S Series

TOUGH CONTACT



FEATURES

1. Space-saving (3.6 mm widthwise)
The required space is smaller than our F4 series (40-contact type):
Socket — 27% smaller,
Header — 38% smaller
The small size contributes to the miniaturization of target equipment.



*Soldering terminals for preventing the solder joints from being removed

2. Highly reliable TOUGH CONTACT has strong resistance to adverse environments.
Note: If extra resistance to shock caused by dropping is required, we recommend using our previous F4 Series.

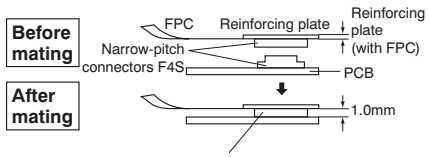
3. The simple lock structure gives tactile feedback that ensures a superior mating/unmating operation feel.

4. Gull-wing type terminals
The gull-wing type terminals facilitate automatic mounting inspections.
5. Connectors for inspection available
Connectors for inspection are available that are ideal for modular unit inspection and inspection in device assembly processes.

APPLICATIONS

Compact portable devices "Cellular phones, DVC, Digital cameras, etc"

Example of 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.

ORDERING INFORMATION

AXT □ □□ □ □ 4

5: Narrow Pitch Connector F4S (0.4 mm pitch) Socket
6: Narrow Pitch Connector F4S (0.4 mm pitch) Header

Number of contacts (2 digits)

Mated height
<Socket>
1: For mated height 1.0 mm
2: For mated height 1.2 mm
<Header>
1: For mated height 1.0 mm
2: For mated height 1.2 mm

Functions
<Socket, Header>
2: Without positioning bosses

Surface treatment (Contact portion / Terminal portion)
<Socket>
4: Base: Ni plating Surface: Au plating (for Ni barrier available)
<Header>
4: Base: Ni plating Surface: Au plating

Note: Please note that models with a mated height of 1.0 mm (7th digit of part number is "1") and 1.2 mm (7th digit of part number is "2") are not compatible.

PRODUCT TYPES TOUGH CONTACT

Mated height	Number of contacts	Part number		Packing	
		Socket	Header	Inner carton	Outer carton
1.0mm	10	AXT510124	AXT610124	3,000 pieces	6,000 pieces
	12	AXT512124	AXT612124		
	14	AXT514124	AXT614124		
	16	AXT516124	AXT616124		
	18	AXT518124	AXT618124		
	20	AXT520124	AXT620124		
	22	AXT522124	AXT622124		
	24	AXT524124	AXT624124		
	26	AXT526124	AXT626124		
	28	AXT528124	AXT628124		
	30	AXT530124	AXT630124		
	32	AXT532124	AXT632124		
	34	AXT534124	AXT634124		
	36	AXT536124	AXT636124		
	38	AXT538124	AXT638124		
	40	AXT540124	AXT640124		
	42	AXT542124	AXT642124		
	44	AXT544124	AXT644124		
	46	AXT546124	AXT646124		
	48	AXT548124	AXT648124		
	50	AXT550124	AXT650124		
	54	AXT554124	AXT654124		
	60	AXT560124	AXT660124		
	64	AXT564124	AXT664124		
	70	AXT570124	AXT670124		
	80	AXT580124	AXT680124		
1.2mm	10	AXT510224	AXT610224		
	30	AXT530224	AXT630224		
	40	AXT540224	AXT640224		
	50	AXT550224	AXT650224		
	70	AXT570224	AXT670224		
	80	AXT580224	AXT680224		

Notes: 1. Order unit: For mass production: in 1-inner-box (1-reel) units
Samples for mounting check: in 50-connector units. Please contact our sales office.
Samples: Small lot orders are possible. Please contact our sales office.
2. The above part numbers are for connectors without positioning bosses, which are standard. When ordering connectors with positioning bosses, please contact our sales office.
3. Please contact us for connectors having a number of contacts other than those listed above.

SPECIFICATIONS

1. Characteristics

Item		Specifications	Conditions
Electrical characteristics	Rated current	0.3A/contact (Max. 5 A at total contacts)	
	Rated voltage	60V AC/DC	
	Breakdown voltage	150V AC for 1 min.	No short-circuiting or damage at a detection current of 1 mA when the specified voltage is applied for one minute.
	Insulation resistance	Min. 1,000MΩ (initial)	Using 250V DC megger (applied for 1 min.)
	Contact resistance	Max. 90mΩ	Based on the contact resistance measurement method specified by JIS C 5402.
Mechanical characteristics	Composite insertion force	Max. 0.981N/contacts × contacts (initial)	
	Composite removal force	Min. 0.165N/contacts × contacts	
	Contact holding force (Socket contact)	Min. 0.49N/contacts	Measuring the maximum force. As the contact is axially pull out.
Environmental characteristics	Ambient temperature	–55°C to +85°C	No freezing at low temperatures. No dew condensation.
	Soldering heat resistance	Peak temperature: 260°C or less (on the surface of the PC board around the connector terminals)	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. No dew condensation.
	Thermal shock resistance (header and socket mated)	5 cycles, insulation resistance min. 100MΩ, contact resistance max. 90mΩ	Sequence 1. –55 $^{0}_{-3}$°C, 30 minutes 2. ~ , Max. 5 minutes 3. 85 $^{+3}_{0}$°C, 30 minutes 4. ~ , Max. 5 minutes
	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, saltwater 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		20-contact type: Socket: 0.03 g Header: 0.01 g	

2. Material and surface treatment

Part name	Material	Surface treatment
Molded portion	LCP resin (UL94V-0)	—
Contact and Post	Copper alloy	Contact portion: Base: Ni plating Surface: Au plating Terminal portion: Base: Ni plating Surface: Au plating (except the terminal tips) The socket terminals close to the portion to be soldered have nickel barriers (exposed nickel portions). Soldering terminals: Sockets: Base: Ni plating Surface: Pd+Au flash plating (except the terminal tips) Headers: Base: Ni plating Surface: Au plating (except the terminal tips)

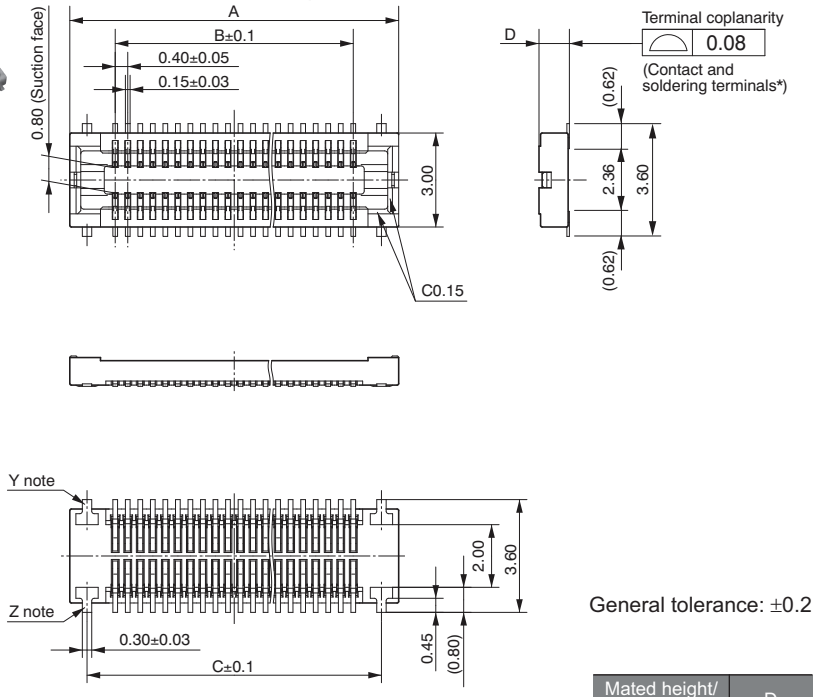
DIMENSIONS

Interested in CAD data? You can obtain CAD data for all products with a **CAD Data** mark from your local Panasonic Electric Works representative.

(Unit: mm)

Socket (Mated height: 1.0 mm and 1.2 mm)

CAD Data



General tolerance: ±0.2

Mated height/ dimension	D
1.0mm	0.97
1.2mm	1.17

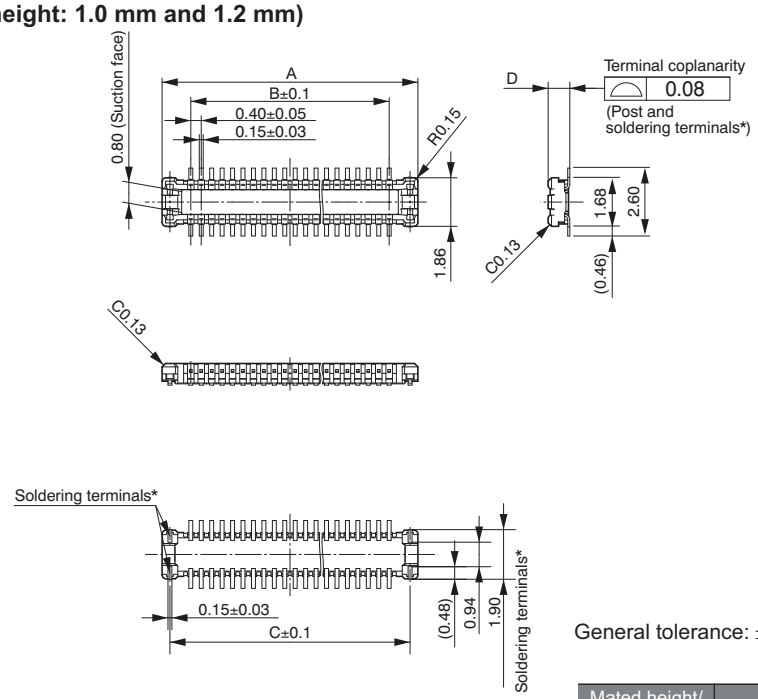
Note: Since the soldering terminals* has a single-piece construction, sections Y and Z are electrically connected.

Dimension table (mm)

Number of contacts/ dimension	A	B	C
10	4.5	1.6	3.4
12	4.9	2.0	3.8
14	5.3	2.4	4.2
16	5.7	2.8	4.6
18	6.1	3.2	5.0
20	6.5	3.6	5.4
22	6.9	4.0	5.8
24	7.3	4.4	6.2
26	7.7	4.8	6.6
28	8.1	5.2	7.0
30	8.5	5.6	7.4
32	8.9	6.0	7.8
34	9.3	6.4	8.2
36	9.7	6.8	8.6
38	10.1	7.2	9.0
40	10.5	7.6	9.4
42	10.9	8.0	9.8
44	11.3	8.4	10.2
46	11.7	8.8	10.6
48	12.1	9.2	11.0
50	12.5	9.6	11.4
54	13.3	10.4	12.2
60	14.5	11.6	13.4
64	15.3	12.4	14.2
70	16.5	13.6	15.4
80	18.5	15.6	17.4

Header (Mated height: 1.0 mm and 1.2 mm)

CAD Data



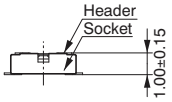
General tolerance: ±0.2

Mated height/ dimension	D
1.0mm	0.83
1.2mm	1.01

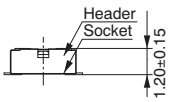
Dimension table (mm)

Number of contacts/ dimension	A	B	C
10	3.8	1.6	3.2
12	4.2	2.0	3.6
14	4.6	2.4	4.0
16	5.0	2.8	4.4
18	5.4	3.2	4.8
20	5.8	3.6	5.2
22	6.2	4.0	5.6
24	6.6	4.4	6.0
26	7.0	4.8	6.4
28	7.4	5.2	6.8
30	7.8	5.6	7.2
32	8.2	6.0	7.6
34	8.6	6.4	8.0
36	9.0	6.8	8.4
38	9.4	7.2	8.8
40	9.8	7.6	9.2
42	10.2	8.0	9.6
44	10.6	8.4	10.0
46	11.0	8.8	10.4
48	11.4	9.2	10.8
50	11.8	9.6	11.2
54	12.6	10.4	12.0
60	13.8	11.6	13.2
64	14.6	12.4	14.0
70	15.8	13.6	15.2
80	17.8	15.6	17.2

• Socket and Header are mated



Mated height: 1.0 mm

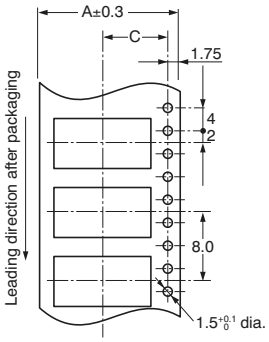


Mated height: 1.2 mm

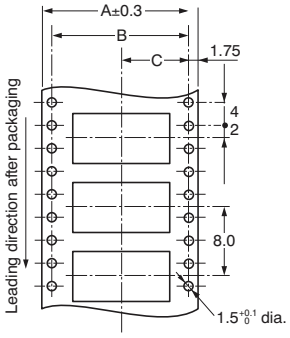
EMBOSSED TAPE DIMENSIONS (Unit: mm) (Common to all sockets and headers)

• Specifications for taping
(In accordance with JIS C 0806-1990. However, not applied to the mounting-hole pitch of some connectors.)

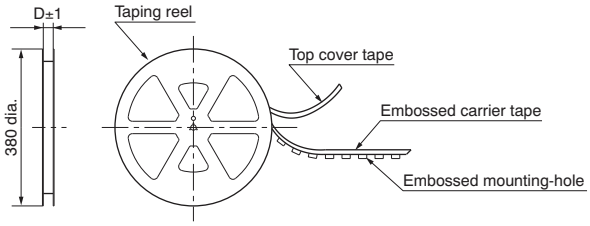
Tape I



Tape II



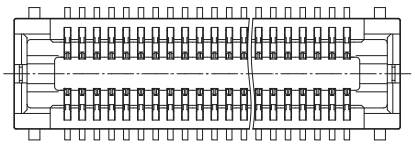
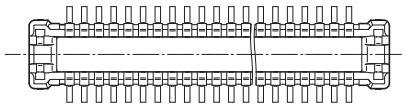
• Specifications for the plastic reel
(In accordance with EIAJET-7200B.)



• Dimension table (Unit: mm)

Type/Mated height	Number of contacts	Type of taping	A	B	C	D	Quantity per reel
Common for sockets and headers: 1.0mm, 1.2mm	24 or less	Tape I	16.0	—	7.5	17.4	3,000
	26 to 70	Tape I	24.0	—	11.5	25.4	3,000
	80	Tape II	32.0	28.4	14.2	33.4	3,000

• Connector orientation with respect to embossed tape feeding direction

Direction of tape progress \ Type	Common for F4S
⬇	Socket  Header 

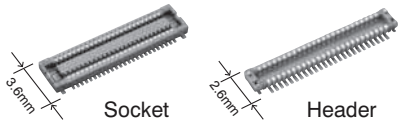
Note: There is no indication on this product regarding top-bottom or left-right orientation.

Panasonic
ideas for life

For board-to-FPC

Connectors for inspection usage (0.4mm pitch)

F4S Series



FEATURES

1. 3,000 insertion and removals (when as recommended)
2. Same external dimensions and foot pattern as standard type.
3. Improved mating
Insertion and removal have become easier due to a reduction in the mating retention force required by the simple locking structure and also in the amount of force needed for insertion and removal. (We cannot warrant anything regarding mating retention.)

APPLICATIONS

Ideal for module unit inspection and equipment assembly inspection

TABLE OF PRODUCT TYPES

☆: Available for sale

Product name	Number of contacts																								
F4S for inspection	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	54	60	64	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.

PRODUCT TYPES

Specifications		Part No.	Specifications		Part No.
Socket	Without positioning bosses	AXT5E∗∗26	Header	Without positioning bosses	AXT6E∗∗26

Notes: 1. When placing an order, substitute the "∗" (asterisk) in the above part number with the number of contacts for the required connector.
2. The above part numbers are for connectors without positioning bosses, which are standard. When ordering connectors with positioning bosses, please contact our sales office.

NOTES

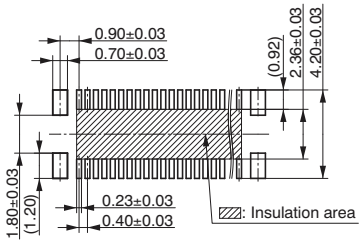
1. If extra resistance to drop impact is required, we recommend using our F4 series.

2. Recommended PC board and metal mask patterns

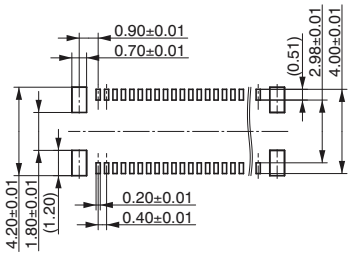
Appropriate control of solder amount is required to minimize solder bridges and other defects for connectors with 0.4-mm or 0.5-mm pitch terminals, which require high-density mounting. Refer to the right-hand drawing for recommended patterns.

• Socket

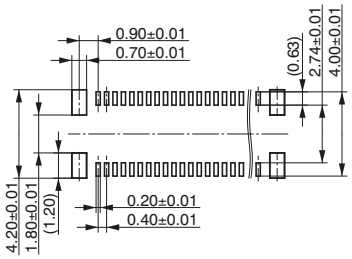
Recommended PC board pattern (TOP VIEW)



Recommended metal mask opening pattern
Metal mask thickness: When 150μm
(Terminal opening ratio: 48%)
(Metal-part opening ratio: 100%)

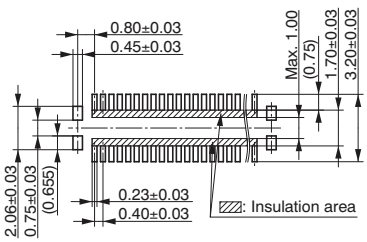


Recommended metal mask opening pattern
Metal mask thickness: When 120μm
(Terminal opening ratio: 60%)
(Metal-part opening ratio: 100%)

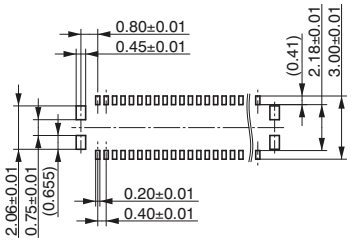


• Header

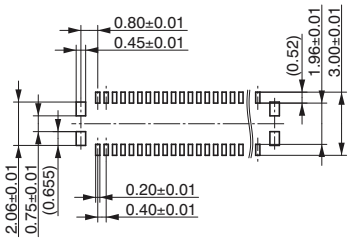
Recommended PC board pattern (TOP VIEW)



Recommended metal mask opening pattern
Metal mask thickness: When 150μm
(Terminal opening ratio: 48%)
(Metal-part opening ratio: 100%)

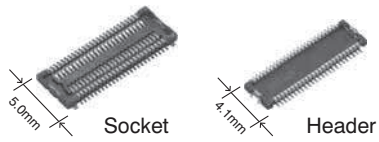


Recommended metal mask opening pattern
Metal mask thickness: When 120μm
(Terminal opening ratio: 60%)
(Metal-part opening ratio: 100%)



For Cautions for Use, see Connector Technical Information (page 136). For other details, please verify with the product specification sheets.

TOUGH CONTACT

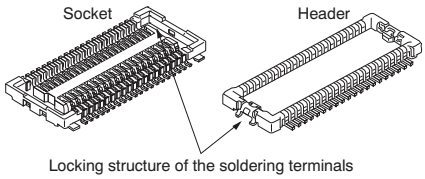


FEATURES

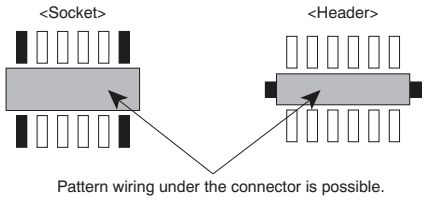
1. The lowest profile class among two-piece connectors in the world (Mated height: 0.9mm)
Achieved both a 0.4 mm pitch and an ultra low profile of 0.9 mm high when mated, contributing to further thickness reduction of products.

2. Strong resistance to adverse environments! Utilizes TOUGH CONTACT construction for high contact reliability.

3. Improved mating strength between the socket and header
The simple locking structures provided for the soldering terminals and the contact points improve the mating strength and provide tactile feedback when locked.



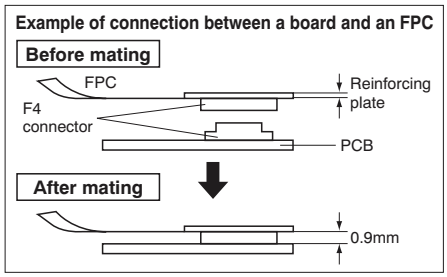
4. Easy to design product circuits
1) An insulating wall provided for the bottom surface of the connector prevents contact between the pattern on the PC board and the metal pins, enabling pattern wiring under the connector, and thus contributing to the reduction in size of PC boards.



5. Connectors for inspection available
Connectors for inspection are available that are ideal for modular unit inspection and inspection in device assembly processes.

APPLICATIONS

Compact portable devices "Cellular phones, DVD, DSC, etc"



ORDERING INFORMATION

AXK □ □□ □ □ □ □ G

AXK: Narrow Pitch Connector Series

Series name;
7L: F4 (0.4 mm pitch) Socket
8L: F4 (0.4 mm pitch) Header

Number of contacts (2 digits)

Mated height
<Socket>
2: For mated height 0.9 mm
<Header>
1: For mated height 0.9 mm

Functions
2: Without positioning bosses

Surface treatment (Contact portion / Terminal portion)
<Socket>
3: Ni plating on base, Au plating on surface (for Ni barrier available)
<Header>
4: Ni plating on base, Au plating on surface

Other specifications
<Header>
B: Soldering terminals with fork type terminal Note 1

Packing
G: 3,000 pieces embossed tape and plastic reel ¥ 2

Notes: 1. "B" in the 11th digit of the header part number signifies a fork type soldering terminals 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.

PRODUCT TYPES TOUGH CONTACT

Mated height	Number of contacts	Part number		Packing	
		Socket	Header	Inner carton (1 reel)	Outer carton
0.9 mm	10	AXK7L10223G	AXK8L10124BG	3,000 pieces	6,000 pieces (2 reels)
	12	AXK7L12223G	AXK8L12124BG		
	14	AXK7L14223G	AXK8L14124BG		
	16	AXK7L16223G	AXK8L16124BG		
	20	AXK7L20223G	AXK8L20124BG		
	22	AXK7L22223G	AXK8L22124BG		
	24	AXK7L24223G	AXK8L24124BG		
	26	AXK7L26223G	AXK8L26124BG		
	28	AXK7L28223G	AXK8L28124BG		
	30	AXK7L30223G	AXK8L30124BG		
	32	AXK7L32223G	AXK8L32124BG		
	34	AXK7L34223G	AXK8L34124BG		
	36	AXK7L36223G	AXK8L36124BG		
	38	AXK7L38223G	AXK8L38124BG		
	40	AXK7L40223G	AXK8L40124BG		
	44	AXK7L44223G	AXK8L44124BG		
	48	AXK7L48223G	AXK8L48124BG		
	50	AXK7L50223G	AXK8L50124BG		
	54	AXK7L54223G	AXK8L54124BG		
	60	AXK7L60223G	AXK8L60124BG		
	66	AXK7L66223G	AXK8L66124BG		
	70	AXK7L70223G	AXK8L70124BG		
	80	AXK7L80223G	AXK8L80124BG		

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 above part numbers are for connectors without positioning bosses, which are standard. When ordering connectors with positioning bosses, please contact our sales office.
3. Please contact us regarding different number of contacts.
4. “B” in the 11th digit of the header part number signifies a fork type soldering terminals 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	Based on the contact resistance measurement method specified by JIS C 5402.
Environmental characteristics	Ambient temperature	–55°C to +85°C	No freezing at low temperatures
	Soldering heat resistance	Max. peak temperature of 260°C (on the surface of the PC board around the connector terminals)	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. ~ , Max. 5 min. 3. 85^{+3}_{0}°C, 30 min. 4. ~ , 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		20 contacts; Socket: 0.03g Header: 0.01g	—

2. Material and surface treatment

Part name	Material	Surface treatment
Molded portion	LCP 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 front edge of terminal) However, the area adjacent to the socket terminal is exposed to Ni on base. Soldering terminals: Socket: Ni plating on base, Pd + Au flash plating on surface (Expect for front edge of terminal) Header: Ni plating on base, Au plating on surface (Expect for front edge of terminal)

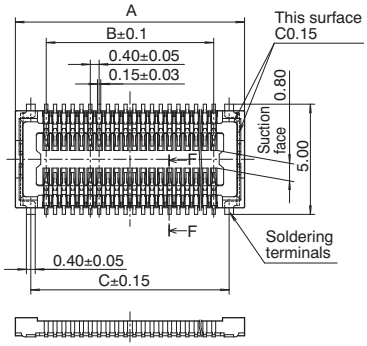
DIMENSIONS

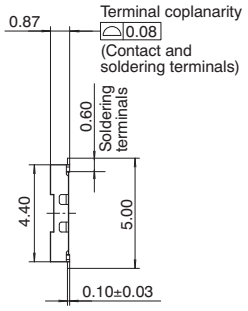
Interested in CAD data? You can obtain CAD data for all products with a **CAD Data** mark from your local Panasonic Electric Works representative.

(Unit: mm)

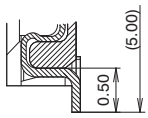
• Socket (Mated height 0.9 mm)

CAD Data





F-F cross section



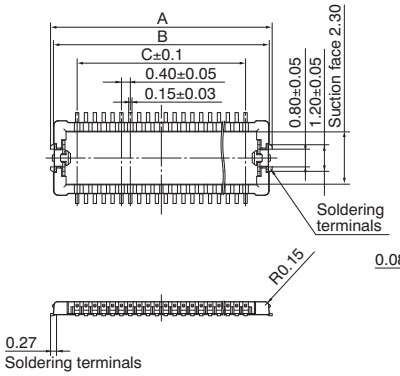
General tolerance: ±0.2

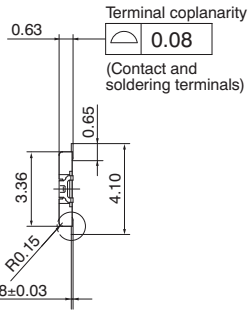
Dimension table (mm)

Number of contacts/ Dimensions	A	B	C
10	4.4	1.6	3.0
12	4.8	2.0	3.4
14	5.2	2.4	3.8
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
48	12.0	9.2	10.6
50	12.4	9.6	11.0
54	13.2	10.4	11.8
60	14.4	11.6	13.0
66	15.6	12.8	14.2
70	16.4	13.6	15.0
80	18.4	15.6	17.0

• Header (Mated height: 0.9 mm)

CAD Data



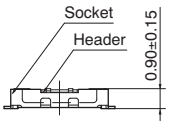


General tolerance: ±0.2

Dimension table (mm)

Number of contacts/ Dimensions	A	B	C
10	4.0	3.74	1.6
12	4.4	4.14	2.0
14	4.8	4.54	2.4
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
48	11.6	11.34	9.2
50	12.0	11.74	9.6
54	12.8	12.54	10.4
60	14.0	13.74	11.6
66	15.2	14.94	12.8
70	16.0	15.74	13.6
80	18.0	17.74	15.6

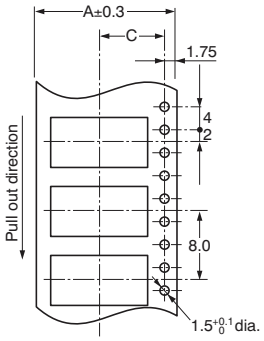
• Socket and header are mated



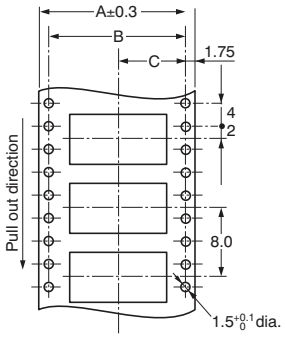
EMBOSSED TAPE DIMENSIONS (unit: mm) (Common for respective contact type, socket and header)

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

Tape I



Tape II



Plastic reel dimensions (Conforming to EIAJ ET–7200B)

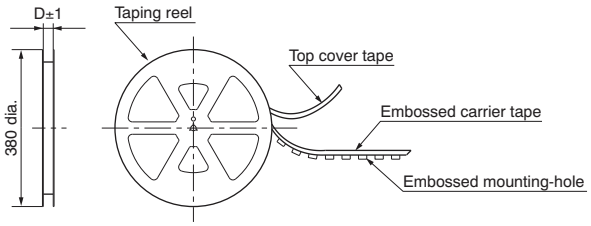
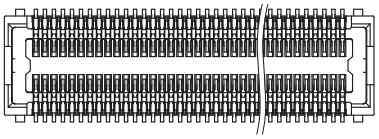
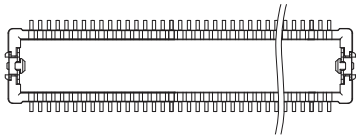


TABLE OF DIMENSIONS

Mated height	Number of contacts	Type of taping	A	B	C	D	Quantity per reel
Common for socket and header: 0.9mm	Max. 24	Tape I	16.0	—	7.5	17.4	3000
	26 to 70	Tape I	24.0	—	11.5	25.4	3000
	80	Tape II	32.0	28.4	14.2	33.4	3000

Connector orientation with respect to direction of progress of embossed tape

Direction of tape progress \ Type	Common for F4
↓	Socket  Header 

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

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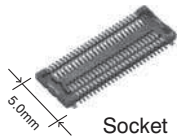
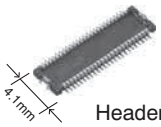
For board-to-FPC

Connectors for inspection usage (0.4mm pitch)

F4 Series



Socket



Header

FEATURES

1. 3,000 insertion and removals (when as recommended)
2. Same external dimensions and foot pattern as standard type.
3. Improved mating
Insertion and removal have become easier due to a reduction in the mating retention force required by the simple locking structure and also in the amount of force needed for insertion and removal. (We cannot warrant anything regarding mating retention.)

APPLICATIONS

Ideal for module unit inspection and equipment assembly inspection

TABLE OF PRODUCT TYPES

☆: Available for sale

Product name	Number of contacts																						
F4 for inspection	10	12	14	16	20	22	24	26	28	30	32	34	36	38	40	44	48	50	54	60	66	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.

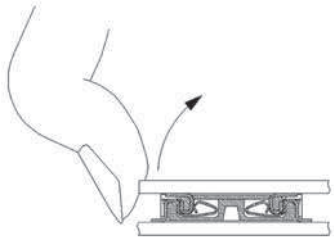
PRODUCT TYPES

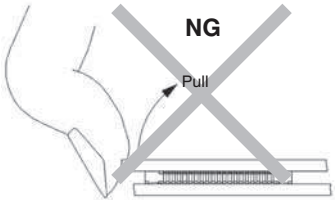
Specifications		Part No.	Specifications		Part No.
Socket	Without positioning bosses	AXK7LE∗∗26G	Header	Without positioning bosses	AXK8LE∗∗26BG

Notes: 1. When placing an order, substitute the "∗" (asterisk) in the above part number with the number of contacts for the required connector.
2. The above part numbers are for connectors without positioning bosses, which are standard. When ordering connectors with positioning bosses, please contact our sales office.

NOTES

1. Removal by pulling up from an end causes the entire connector removal force to concentrate on the soldering terminals 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.

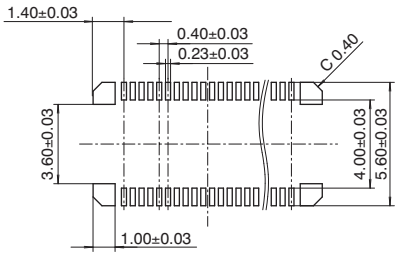
In order to reduce solder bridge and other issues make sure the proper levels of solder are used.

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 soldering terminals, it might interfere with and cause incomplete socket mating. Therefore, please follow the recommended conditions give on the right.

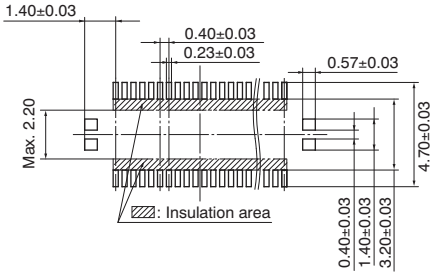
Socket

Recommended PC board pattern
(Mount pad arrangement pattern)

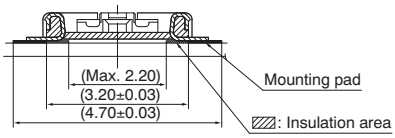


Header

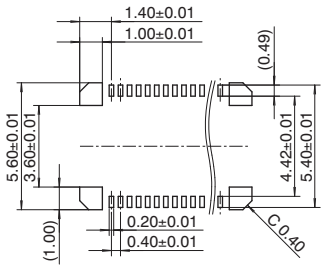
Recommended PC board pattern
(Mount pad arrangement pattern)



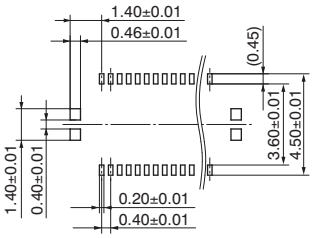
Relation between connector and mounting pad



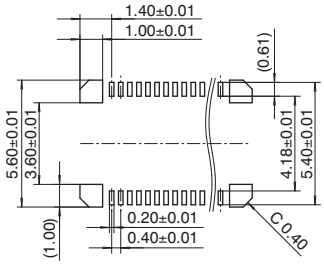
Recommended metal mask pattern
Metal mask thickness: Here, 150 μm
(Terminal portion opening area ratio: 53 %)
(Metal portion opening area ratio: 100 %)



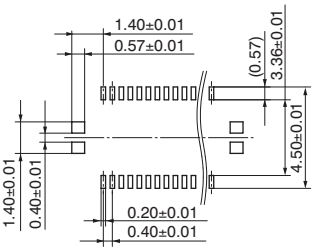
Recommended metal mask pattern
Metal mask thickness: Here, 150 μm
(Terminal portion opening area ratio: 52 %)
(Metal portion opening area ratio: 80 %)



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



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



For Cautions for Use, see Connector Technical Information (page 136). For other details, please verify with the product specification sheets.

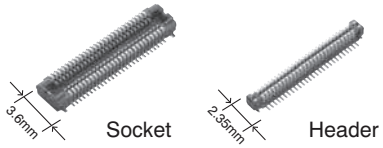
Panasonic
ideas for life

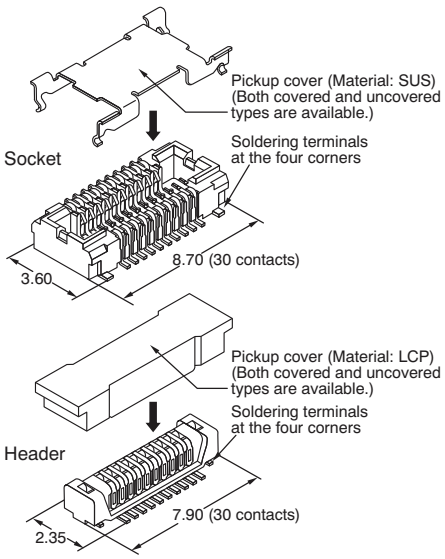
For board-to-board	For board-to-FPC

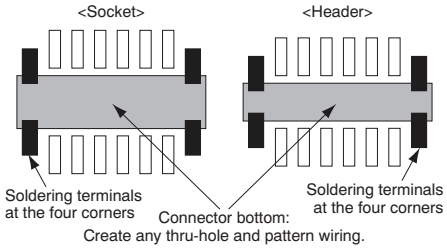
Narrow pitch connectors (0.4mm pitch)

P4S Series

TOUGH CONTACT







FEATURES

1. Space saving
Compared to the currently sold P4 series with soldering terminals, 38% space is saved in the socket and 34% space saved in the header.
This will contribute to weight and size savings in devices. (Comparison made with 30 contacts.)

2. Strong resistance to adverse environments! Utilizes "TOUGH CONTACT" construction for high contact reliability.

Note: If extra resistance to shock caused by dropping is required, we recommend using our previous P4 Series.

3. Greater flexibility in connector placement.
Pattern wiring to the connector bottom is possible because the undersurface of the connector is constructed with a molded covering.

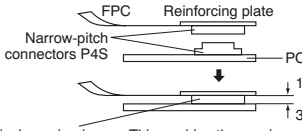
4. Automatic mounting inspection is facilitated by the gull-wing terminal shape which makes mounting verification easy.

5. Connectors for inspection available
Connectors are available that are ideal for inspection in module unit inspection and device assembly processes.

APPLICATIONS

Compact portable devices "Cellular phones, DVC, Digital cameras, etc"

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 while the size remains the same as that for existing FPC connectors. This, in turn, contributes to making products and equipment more compact.

ORDERING INFORMATION

AXT □ □□ □ □ 4

3: Narrow Pitch Connector P4S (0.4 mm pitch) Socket
4: Narrow Pitch Connector P4S (0.4 mm pitch) Header

Number of contacts (2 digits)

Mated height
<Socket>
1: For mated height 1.5 mm and 2.0 mm
2: For mated height 2.5 mm and 3.0 mm
<Header>
1: For mated height 1.5 mm and 2.5 mm
2: For mated height 2.0 mm
3: For mated height 3.0 mm

Functions
<Socket/Header>
2: Without pickup cover, without positioning bosses
6: With pickup cover, without positioning bosses

Surface treatment (Contact portion / Terminal portion)
<Socket> 4: Ni plating on base, Au plating on surface (for Ni barrier available)
<Header> 4: Ni plating on base, Au plating on surface

PRODUCT TYPES TOUGH CONTACT

Mated height	Number of contacts	Part number		Packing	
		Socket	Header	Inner carton	Outer carton
1.5mm	10	AXT310124	AXT410124	3,000 pieces	6,000 pieces
	16	AXT316124	AXT416124		
	20	AXT320124	AXT420124		
	22	AXT322124	AXT422124		
	24	AXT324124	AXT424124		
	26	AXT326124	AXT426124		
	28	AXT328124	AXT428124		
	30	AXT330124	AXT430124		
	32	AXT332124	AXT432124		
	34	AXT334124	AXT434124		
	36	AXT336124	AXT436124		
	38	AXT338124	AXT438124		
	40	AXT340124	AXT440124		
	44	AXT344124	AXT444124		
	46	AXT346124	AXT446124		
	50	AXT350124	AXT450124		
	54	AXT354124	AXT454124		
	56	AXT356124	AXT456124		
	60	AXT360124	AXT460124		
	64	AXT364124	AXT464124		
	70	AXT370124	AXT470124		
	80	AXT380124	AXT480124		
	90	AXT390124	AXT490124		
	100	AXT300124	AXT400124		
2.0mm	40	AXT340124	AXT440224	3,000 pieces	6,000 pieces
	90	AXT390124	AXT490224		
	100	AXT300124	AXT400224		
2.5mm	20	AXT320224	AXT420124	3,000 pieces	6,000 pieces
	30	AXT330224	AXT430124		
	40	AXT340224	AXT440124		
	56	AXT356224	AXT456124		
	60	AXT360224	AXT460124		
	80	AXT380224	AXT480124		
	100	AXT300224	AXT400124		
3.0mm	20	AXT320224	AXT420324	3,000 pieces	6,000 pieces
	30	AXT330224	AXT430324		
	42	AXT342224	AXT442324		
	56	AXT356224	AXT456324		
	60	AXT360224	AXT460324		
	80	AXT380224	AXT480324		
	100	AXT300224	AXT400324		
	120	AXT3A2224	AXT4A2324		

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 138.)
Samples: Small lot orders are possible. Please consult us.
2. If you require the pickup cover, change the eighth digit of the part number from “2” to “6” in your order. Note that the pickup cover is not available for some types depending on the number of contacts. Check the latest product specifications.
3. The above part numbers are for connectors without positioning bosses, which are standard. When ordering connectors with positioning bosses, please contact our sales office.
4. Connectors of different mated height and different number of contacts are available on-demand production only. Please contact us for more details.

SPECIFICATIONS

1. Characteristics

Item		Specifications	Conditions
Electrical characteristics	Rated current	0.3A/contact (Max. 5 A at total contacts)	—
	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	Based on the contact resistance measurement method specified by JIS C 5402.
Environmental characteristics	Ambient temperature	–55°C to +85°C	No freezing at low temperatures
	Soldering heat resistance	Max. peak temperature of 260°C (on the surface of the PC board around the connector terminals)	Infrared reflow soldering
		300°C within 5 sec. or 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 minutes 2. ~, Max. 5 minutes 3. 85^{+3}_{0}°C, 30 minutes 4. ~, Max. 5 minutes
	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		Mated height 1.5mm, 20-contact type: Socket: 0.04 g Header: 0.02 g	

2. Material and surface treatment

Part name	Material	Surface treatment
Molded portion	LCP resin (UL94V-0)	—
Contact and 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 front edge of terminal) However, the area adjacent to the socket terminal is exposed to Ni on base. Soldering terminals portion; Socket: Ni plating on base, Pd + Au flash plating on surface (Expect for front edge of terminal) Header: Ni plating on base, Au plating on surface (Expect for front edge of terminal)

DIMENSIONS

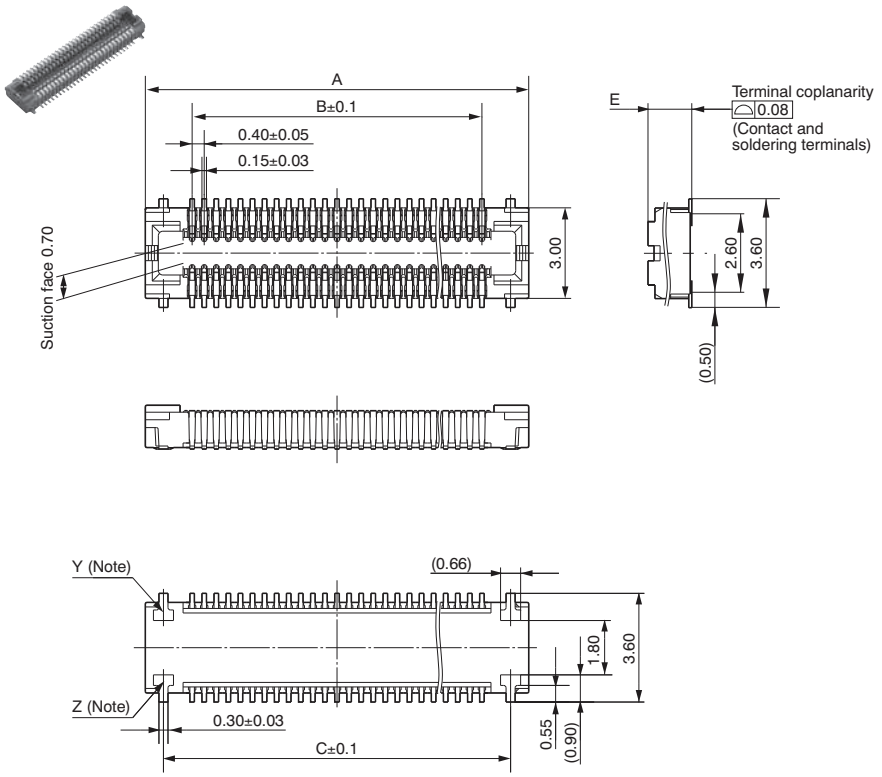
Interested in CAD data? You can obtain CAD data for all products with a **CAD Data** mark from your local Panasonic Electric Works representative.

(Unit: mm)

1. Socket (Mated height: 1.5mm, 2.0mm, 2.5mm, 3.0mm)

• Without pickup cover

CAD Data

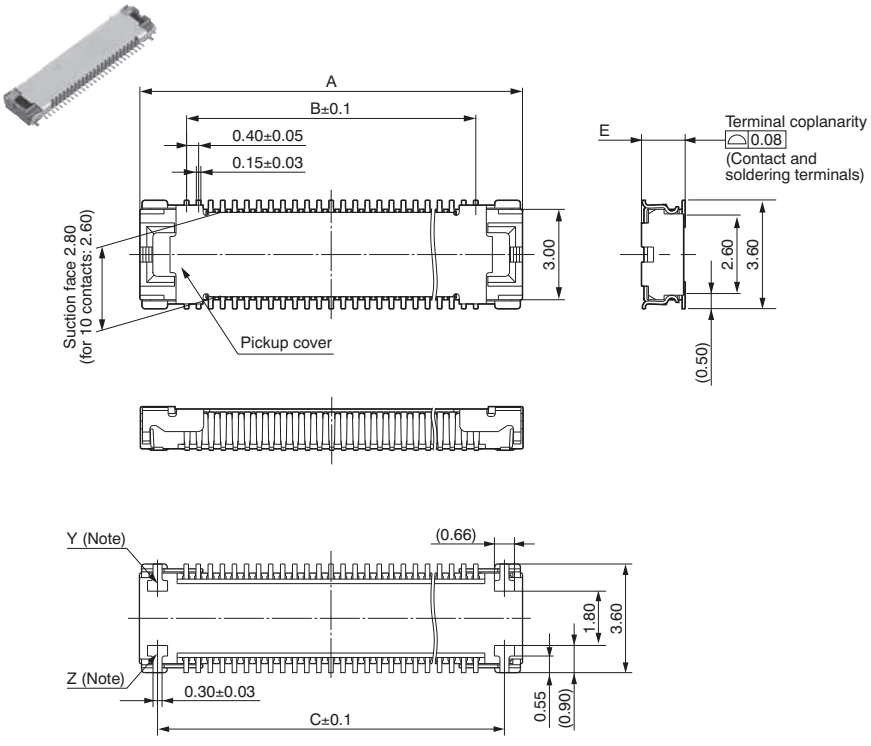


General tolerance: ±0.2

Dimension table (mm)

Number of contacts/ dimension	A	B	C
10	4.7	1.6	3.5
16	5.9	2.8	4.7
20	6.7	3.6	5.5
22	7.1	4.0	5.9
24	7.5	4.4	6.3
26	7.9	4.8	6.7
28	8.3	5.2	7.1
30	8.7	5.6	7.5
32	9.1	6.0	7.9
34	9.5	6.4	8.3
36	9.9	6.8	8.7
38	10.3	7.2	9.1
40	10.7	7.6	9.5
42	11.1	8.0	9.9
44	11.5	8.4	10.3
46	11.9	8.8	10.7
50	12.7	9.6	11.5
54	13.5	10.4	12.3
56	13.9	10.8	12.7
60	14.7	11.6	13.5
64	15.5	12.4	14.3
70	16.7	13.6	15.5
80	18.7	15.6	17.5
90	20.7	17.6	19.5
100	22.7	19.6	21.5
120	26.7	23.6	25.5

Mated height/ dimension	E
1.5mm	1.45
2.0mm	1.45
2.5mm	2.45
3.0mm	2.45



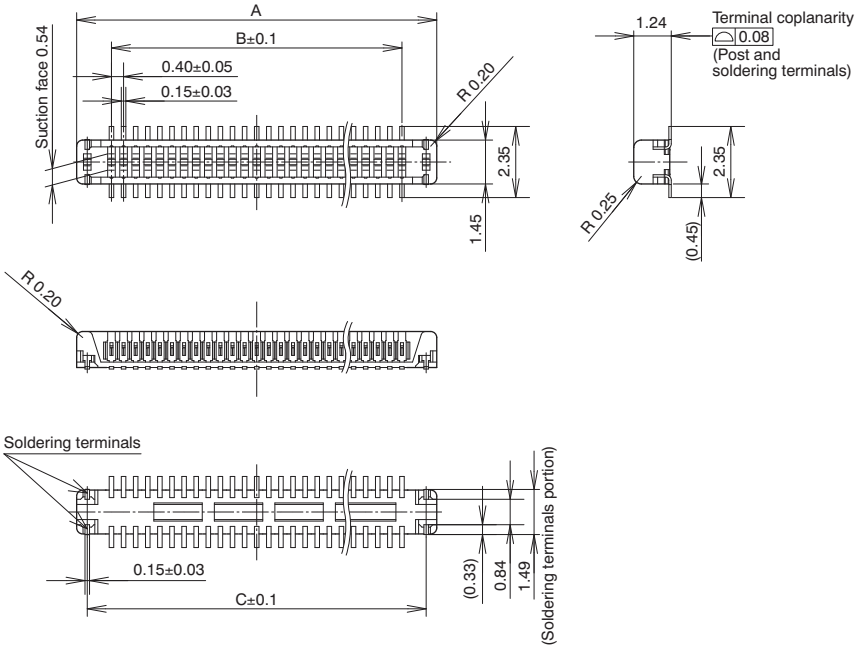
General tolerance: ±0.2

Note: Since soldering terminals are built into the body, the Y and Z parts are connected electrically.

2. Header (Mated height: 1.5mm, 2.5mm)

• Without pickup cover

CAD Data

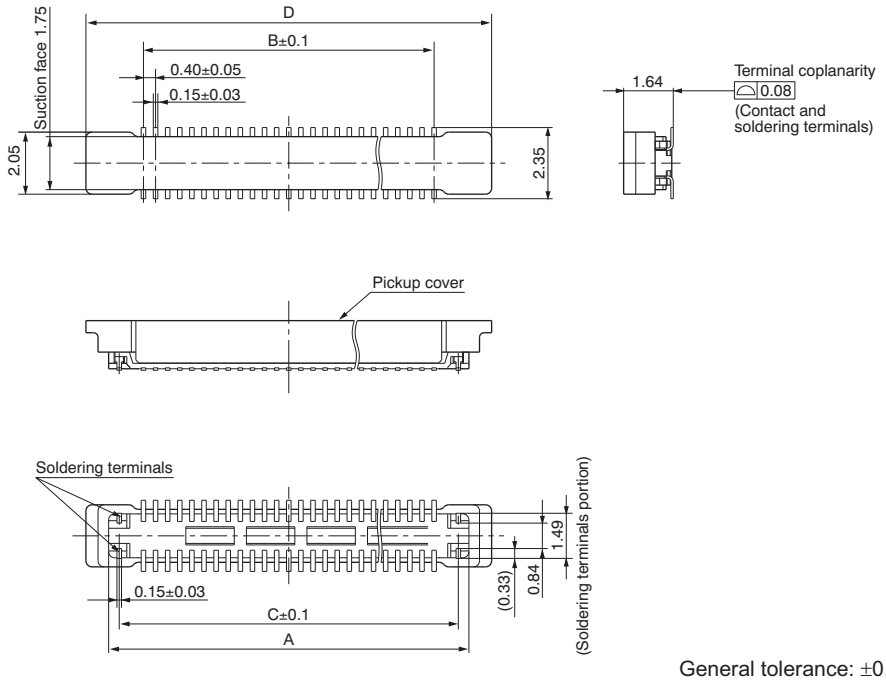


Dimension table (mm)

Number of contacts/ dimension	A	B	C	D
10	3.9	1.6	3.2	5.4
16	5.1	2.8	4.4	6.6
20	5.9	3.6	5.2	7.4
22	6.3	4.0	5.6	7.8
24	6.7	4.4	6.0	8.2
26	7.1	4.8	6.4	8.6
28	7.5	5.2	6.8	9.0
30	7.9	5.6	7.2	9.4
32	8.3	6.0	7.6	9.8
34	8.7	6.4	8.0	10.2
36	9.1	6.8	8.4	10.6
38	9.5	7.2	8.8	11.0
40	9.9	7.6	9.2	11.4
44	10.7	8.4	10.0	12.2
46	11.1	8.8	10.4	12.6
50	11.9	9.6	11.2	13.4
54	12.7	10.4	12.0	14.2
56	13.1	10.8	12.4	14.6
60	13.9	11.6	13.2	15.4
64	14.7	12.4	14.0	–
70	15.9	13.6	15.2	17.4
80	17.9	15.6	17.2	19.4
90	19.9	17.6	19.2	21.4
100	21.9	19.6	21.2	23.4

General tolerance: ±0.2

• With pickup cover



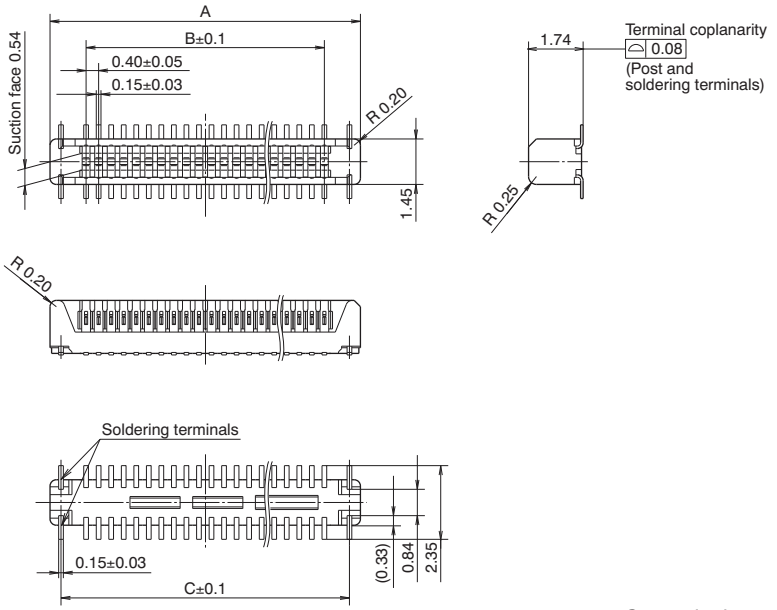
General tolerance: ±0.2

Note: The soldering terminal dimensions of headers with mating heights of 1.5mm/2.5mm and 2.0mm/3.0mm are different.

3. Header (Mated height: 2.0mm)

• Without pickup cover

CAD Data



General tolerance: ±0.2

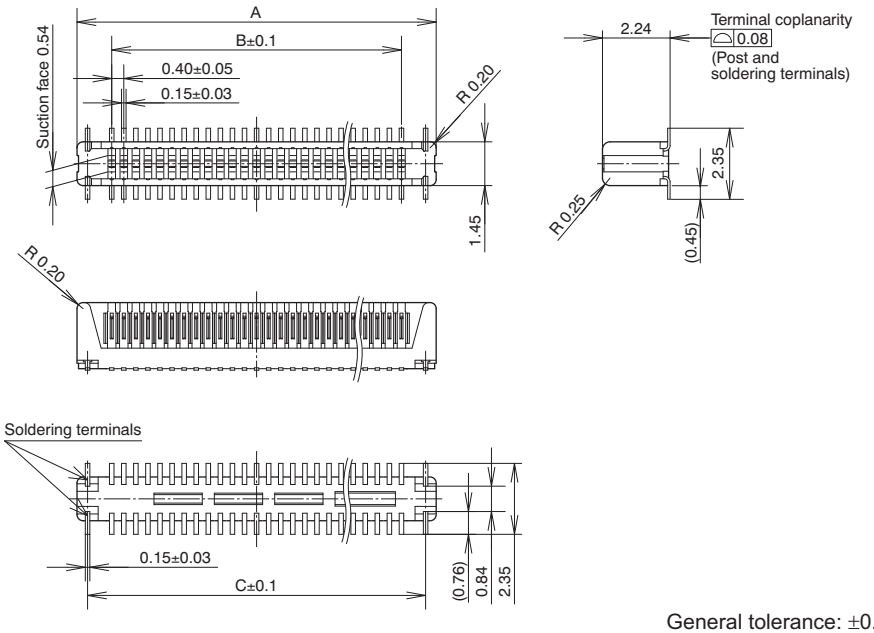
Dimension table (mm)

Number of contacts/ dimension	A	B	C
40	9.9	7.6	9.2
90	19.9	17.6	19.2
100	21.9	19.6	21.2

4. Header (Mated height: 3.0mm)

• Without pickup cover

CAD Data

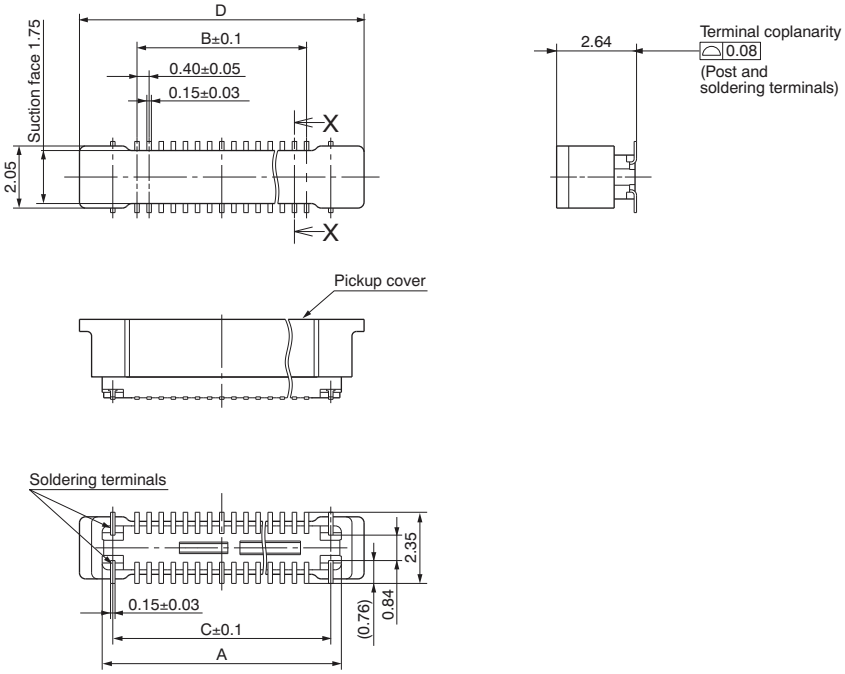


General tolerance: ±0.2

Dimension table (mm)

Number of contacts/ dimension	A	B	C	D
20	5.9	3.6	5.2	–
30	7.9	5.6	7.2	9.4
42	10.3	8.0	9.6	–
56	13.1	10.8	12.4	–
60	13.9	11.6	13.2	–
80	17.9	15.6	17.2	19.4
100	21.9	19.6	21.2	–
120	25.9	23.6	25.2	–

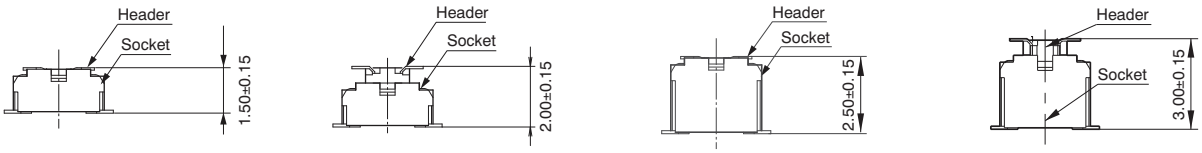
• With pickup cover



General tolerance: ±0.2

Note: The soldering terminals dimensions of headers with mating heights of 1.5mm/2.5mm and 2.0mm/3.0mm are different.

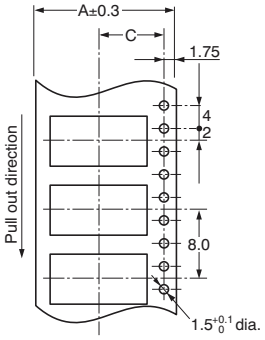
Socket and Header are mated



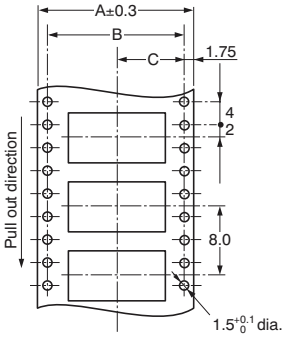
EMBOSSED TAPE DIMENSIONS (unit: mm, Common for respective contact type, socket and header)

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

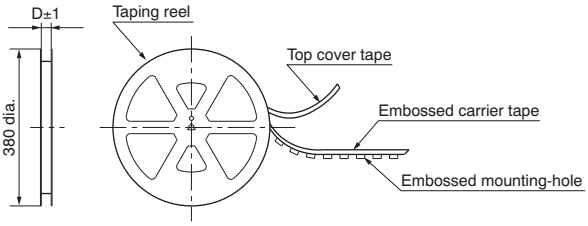
Tape I



Tape II



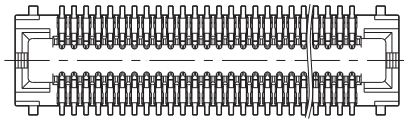
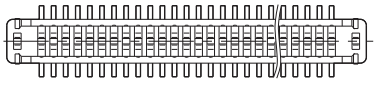
• Plastic reel dimensions (Conforming to EIAJ ET-7200B)



Dimension table (mm)

Mated height	Number of contacts: Socket (with/without pickup cover) Header (without pickup cover)	Number of contacts: Header (with pickup cover)	Type of taping	A	B	C	D	Quantity per reel
Common for socket and header: 1.5mm, 2.0mm, 2.5mm and 3.0mm	Max. 24	Max. 24	Tape I	16.0	—	7.5	17.5	3,000
	26 to 70	26 to 64	Tape I	24.0	—	11.5	25.5	3,000
	72 to 100	66 to 90	Tape II	32.0	28.4	14.2	33.5	3,000
	120	100	Tape II	44.0	40.4	20.2	45.5	3,000

Connector orientation with respect to direction of progress of embossed tape

Direction of tape progress \ Type	Common for P4S
↓	Socket  Header 

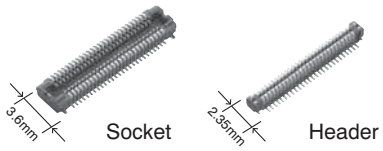
Note: There is no indication on this product regarding top-bottom or left-right orientation.

Panasonic
ideas for life

For board-to-board	For board-to-FPC

Connectors for inspection usage (0.4mm pitch)

P4S Series



FEATURES

1. 3,000 insertion and removals (when as recommended)
2. Same external dimensions and foot pattern as standard type.
3. Improved mating
Insertion and removal have become easier due to a reduction in the mating retention force required by the simple locking structure and also in the amount of force needed for insertion and removal. (We cannot warrant anything regarding mating retention.)

APPLICATIONS

Ideal for module unit inspection and equipment assembly inspection

TABLE OF PRODUCT TYPES

☆: Available for sale

Product name	Number of contacts																					
P4S for inspection	10	16	20	22	24	26	28	30	32	34	36	38	40	44	50	54	56	60	70	80	90	100
	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆

Notes: 1. You can use with each mated height in common.
2. The pickup surface shape of the inspection sockets is different from that of the standard sockets. (For details, refer to the product specification diagram.)
3. Please inquire about numbers of contacts other than those given above.
4. Please inquire with us regarding delivery times.
5. Please keep the minimum unit for ordering no less than 50 pieces per lot.
6. Please inquire for further information.

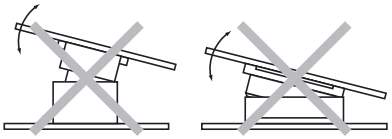
PRODUCT TYPES

Specifications			Part No.	Specifications			Part No.
Socket	With pickup cover	Without positioning bosses	AXT3E∗∗66	Header	With pickup cover	Without positioning bosses	AXT4E∗∗66
	No pickup cover	Without positioning bosses	AXT3E∗∗26		No pickup cover	Without positioning bosses	AXT4E∗∗26

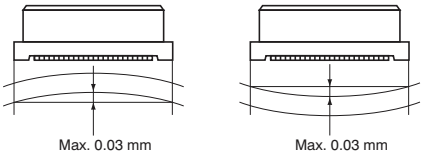
Notes: 1. When placing an order, substitute the "∗" (asterisk) in the above part number with the number of contacts for the required connector.
2. The above part numbers are for connectors without positioning bosses, which are standard. When ordering connectors with positioning bosses, please contact our sales office.

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 please confirm the correct position before mating connectors.



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



3. If extra resistance to shock caused by dropping is required, we recommend using our previous P4 Series.

4. PC Boards and Recommended Metal Mask Patterns

Connectors are mounted with high density, with a pitch interval of 0.4 to 0.5mm.

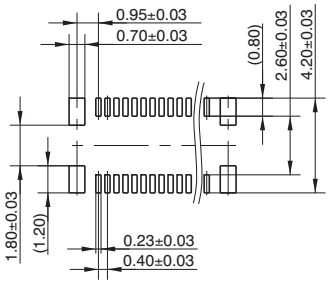
In order to reduce solder bridge and other issues make sure the proper levels of solder are used.

The figures to the right are recommended metal mask patterns.

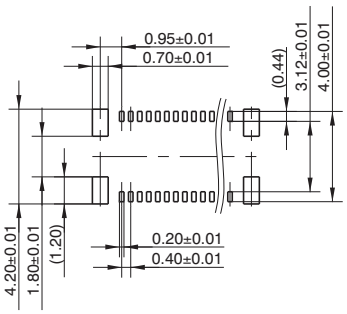
Please use them as a reference.

Socket
(Mated height: 1.5mm, 2.0mm, 2.5mm and 3.0mm)

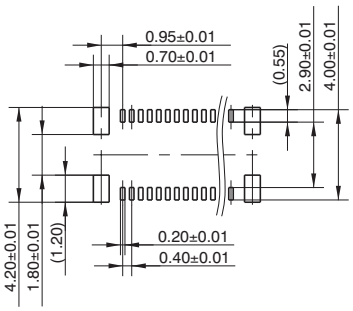
Recommended PC board pattern (TOP VIEW)



Recommended metal mask pattern
Metal mask thickness: Here, 150 μm
(Terminal portion opening area ratio: 48%)
(Metal portion opening area ratio: 100%)

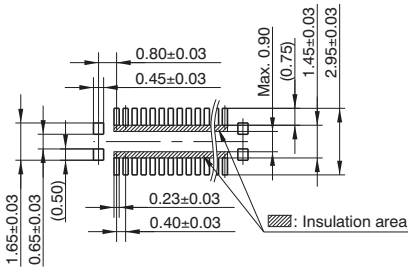


Recommended metal mask pattern
Metal mask thickness: Here, 120 μm
(Terminal portion opening area ratio: 60%)
(Metal portion opening area ratio: 100%)

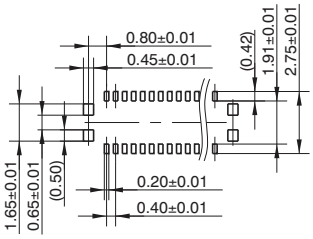


Header
(Mated height: 1.5mm and 2.5mm)

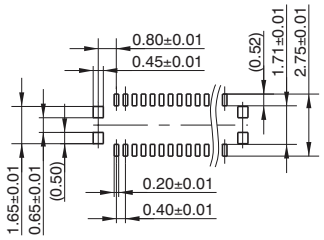
Recommended PC board pattern (TOP VIEW)



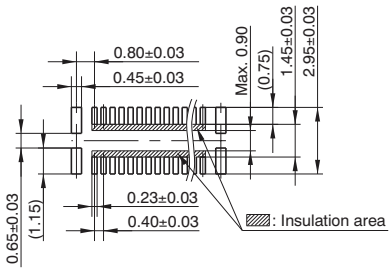
Recommended metal mask pattern
Metal mask thickness: Here, 150 μm
(Terminal portion opening area ratio: 49%)
(Metal portion opening area ratio: 100%)



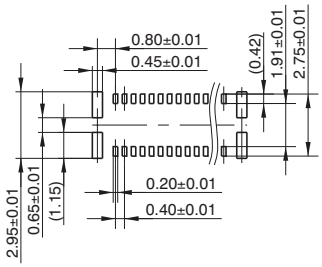
Recommended metal mask pattern
Metal mask thickness: Here, 120 μm
(Terminal portion opening area ratio: 60%)
(Metal portion opening area ratio: 100%)



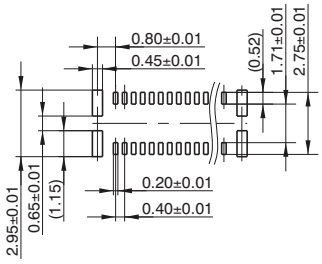
Header
(Mated height: 2.0mm, 3.0mm)
Recommended PC board pattern (TOP VIEW)



Recommended metal mask pattern
Metal mask thickness: Here, 150 μm
(Terminal portion opening area ratio: 49%)
(Metal portion opening area ratio: 100%)



Recommended metal mask pattern
Metal mask thickness: Here, 120 μm
(Terminal portion opening area ratio: 60%)
(Metal portion opening area ratio: 100%)



Note: The recommended PC board pattern diagrams and metal mask pattern diagrams for headers with mating heights of 1.5 mm/ 2.5 mm and 2.0 mm/3.0 mm are different.

For Cautions for Use, see Connector Technical Information (page 136). For other details, please verify with the product specification sheets.

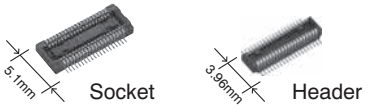
For board-to-board | For board-to-FPC

Narrow pitch connectors (0.4mm pitch)

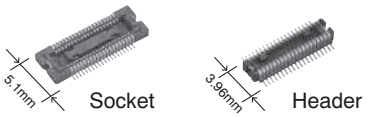
P4 Series

TOUGH CONTACT

• **Without soldering terminals**

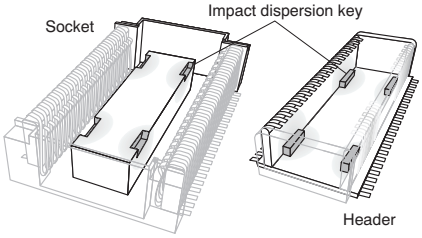


• **With soldering terminals**



FEATURES

1. 0.4 mm pitch and support for mated heights of up to 1.5 mm, 2.0 mm, 2.5 mm, 3.0 mm, 3.5 mm, and 4.0 mm.
2. Strong resistance to adverse environments! Utilizes TOUGH CONTACT construction for high contact reliability.
3. It is constructed with impact dispersion keys inside the body to disperse shocks when dropped.



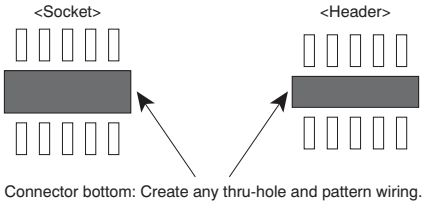
A high level of shock resistance is ensured by dispersing impact over the four locations where the socket indentations and header protrusions are mated together.

Note: The following numbers of contacts are not supported due to suction surface factors.

- Without soldering terminals: 18 contacts or less
- With soldering terminals: 22 contacts or less

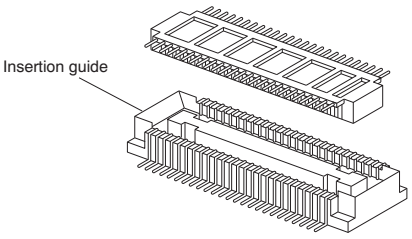
4. Construction makes designing devices easier.

1) The lower connector bottom surface construction prevents contact and shorts between the PCB and metal terminals. This enables freedom in pattern wiring, helping to make PCB's smaller.

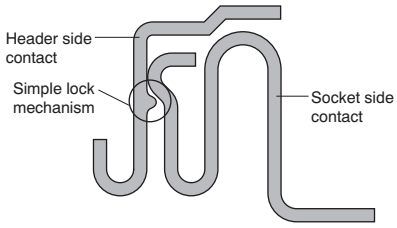


Connector bottom: Create any thru-hole and pattern wiring.

2) Guides are provided to take up any position shift and facilitate insertion.



3) The connector has a simple lock mechanism.
Superior mated operation with click feel to indicate that mated is complete.

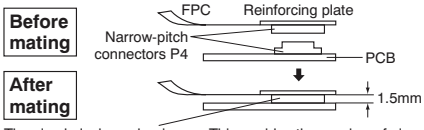


5. Design makes efficient mounting.
Features a terminal flatness of 0.08 mm, construction resistant to creeping flux, and design that facilitates visual inspection of the soldered part.
6. Connectors for inspection available
Connectors for inspection are available that are ideal for modular unit inspection and inspection in device assembly processes.

APPLICATIONS

Compact portable devices "Cellular phones, DVC, Digital cameras, etc"

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 while the size remains the same as that for existing FPC connectors. This, in turn, contributes to making products and equipment more compact.

ORDERING INFORMATION

AXK □ □□ □ □ □ □ **G**

7: Narrow Pitch Connector P4 (0.4 mm pitch) Socket
8: Narrow Pitch Connector P4 (0.4 mm pitch) Header

Number of contacts (2 digits)

Mated height
<Socket>
1: For mated height 1.5 mm
2: For mated height 2.0 mm
3: For mated height 2.5 mm and 3.0 mm
4: For mated height 3.5 mm
5: For mated height 4.0 mm
<Header>
1: For mated height 1.5 mm, 2.0 mm and 2.5 mm
2: For mated height 3.0 mm, 3.5 mm and 4.0 mm

Functions
2: With soldering terminals, without positioning bosses
4: Without soldering terminals, without positioning bosses

Surface treatment (Contact portion / Terminal portion)
<Socket>
7: Ni plating on base, Au plating on surface (for Ni barrier available)
<Header>
5: Ni plating on base, Au plating on surface

Other specifications
<Header>
W: V notch and post edge horseshoe bend type product

Packing
G: 3,000 pieces embossed tape and plastic reel x 2*

Notes: 1. Only a socket of mated height 3.5 mm and 4.0 mm: 2,000 pieces embossed tape and plastic reel x 2.
2. Please note that the models with a soldering terminals (8th digit of part number is “2”) and those without a soldering terminals (8th digit of part number is “4”) are shaped differently and are not compatible.

PRODUCT TYPES

1. Without soldering terminals TOUGH CONTACT

Mated height	Number of contacts	Part number		Packing	
		Socket	Header	Inner carton	Outer carton
		TOUGH CONTACT	TOUGH CONTACT		
1.5 mm	14	AXK714147G	AXK814145WG	3,000 pieces	6,000 pieces
	16	AXK716147G	AXK816145WG		
	20	AXK720147G	AXK820145WG		
	22	AXK722147G	AXK822145WG		
	24	AXK724147G	AXK824145WG		
	26	AXK726147G	AXK826145WG		
	28	AXK728147G	AXK828145WG		
	30	AXK730147G	AXK830145WG		
	34	AXK734147G	AXK834145WG		
	36	AXK736147G	AXK836145WG		
	40	AXK740147G	AXK840145WG		
	42	AXK742147G	AXK842145WG		
	44	AXK744147G	AXK844145WG		
	50	AXK750147G	AXK850145WG		
	54	AXK754147G	AXK854145WG		
	60	AXK760147G	AXK860145WG		
	64	AXK764147G	AXK864145WG		
	70	AXK770147G	AXK870145WG		
	80	AXK780147G	AXK880145WG		
	90	AXK790147G	AXK890145WG		
	100	AXK700147G	AXK800145WG		
2.0 mm	14	AXK714247G	AXK814145WG		
	20	AXK720247G	AXK820145WG		
	24	AXK724247G	AXK824145WG		
	26	AXK726247G	AXK826145WG		
	30	AXK730247G	AXK830145WG		
	34	AXK734247G	AXK834145WG		
	38	AXK738247G	AXK838145WG		
	40	AXK740247G	AXK840145WG		
	50	AXK750247G	AXK850145WG		
	54	AXK754247G	AXK854145WG		
	60	AXK760247G	AXK860145WG		
	70	AXK770247G	AXK870145WG		
	80	AXK780247G	AXK880145WG		
	100	AXK700247G	AXK800145WG		
2.5 mm	14	AXK714347G	AXK814145WG		
	20	AXK720347G	AXK820145WG		
	24	AXK724347G	AXK824145WG		
	30	AXK730347G	AXK830145WG		
	34	AXK734347G	AXK834145WG		
	40	AXK740347G	AXK840145WG		
	44	AXK744347G	AXK844145WG		
	50	AXK750347G	AXK850145WG		
	60	AXK760347G	AXK860145WG		
	70	AXK770347G	AXK870145WG		
	80	AXK780347G	AXK880145WG		
	90	AXK790347G	AXK890145WG		
	100	AXK700347G	AXK800145WG		
3.0 mm	20	AXK720347G	AXK820245WG		
	24	AXK724347G	AXK824245WG		
	30	AXK730347G	AXK830245WG		
	40	AXK740347G	AXK840245WG		
	50	AXK750347G	AXK850245WG		
	60	AXK760347G	AXK860245WG		
	80	AXK780347G	AXK880245WG		
	100	AXK700347G	AXK800245WG		
3.5 mm	20	AXK720447G	AXK820245WG	Socket: 2,000 pieces Header: 3,000 pieces	Socket: 4,000 pieces Header: 6,000 pieces
	30	AXK730447G	AXK830245WG		
	40	AXK740447G	AXK840245WG		
4.0 mm	24	AXK724547G	AXK824245WG		

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 138.)
Samples: Small lot orders are possible.
2. The above part numbers are for connectors without positioning bosses, which are standard. When ordering connectors with positioning bosses, please contact our sales office.
3. “W” indicates a product with V notch and post edge horseshoe bend. (“Post edge horseshoe bend” refers to a construction that makes it difficult for the header post edge to deform when the connector is inserted and removed at an angle.)
4. Previous V notch types (“Y” in 10 th place of the header part number) and the current V notch + post edge horseshoe bend types (“W” in the 10 th place of the header part number) are compatible for mating.
5. Different number of contacts are available on-demand production only. Please contact us for more details.

2. With soldering terminals TOUGH CONTACT

Mated height	Number of contacts	Part number		Packing	
		Socket	Header	Inner carton	Outer carton
		TOUGH CONTACT	TOUGH CONTACT		
1.5 mm	10	AXK710127G	AXK810125WG	3,000 pieces	6,000 pieces
	12	AXK712127G	AXK812125WG		
	20	AXK720127G	AXK820125WG		
	22	AXK722127G	AXK822125WG		
	24	AXK724127G	AXK824125WG		
	28	AXK728127G	AXK828125WG		
	30	AXK730127G	AXK830125WG		
	34	AXK734127G	AXK834125WG		
	36	AXK736127G	AXK836125WG		
	40	AXK740127G	AXK840125WG		
	44	AXK744127G	AXK844125WG		
	46	AXK746127G	AXK846125WG		
	50	AXK750127G	AXK850125WG		
	60	AXK760127G	AXK860125WG		
	80	AXK780127G	AXK880125WG		
	90	AXK790127G	AXK890125WG		
	100	AXK700127G	AXK800125WG		
2.0 mm	20	AXK720227G	AXK820125WG		
	24	AXK724227G	AXK824125WG		
	30	AXK730227G	AXK830125WG		
	34	AXK734227G	AXK834125WG		
	40	AXK740227G	AXK840125WG		
	50	AXK750227G	AXK850125WG		
	60	AXK760227G	AXK860125WG		
	80	AXK780227G	AXK880125WG		
2.5 mm	12	AXK712327G	AXK812125WG		
	20	AXK720327G	AXK820125WG		
	28	AXK728327G	AXK828125WG		
	32	AXK732327G	AXK832125WG		
	36	AXK736327G	AXK836125WG		
	40	AXK740327G	AXK840125WG		
	50	AXK750327G	AXK850125WG		
	60	AXK760327G	AXK860125WG		
	80	AXK780327G	AXK880125WG		
	90	AXK790327G	AXK890125WG		
3.0 mm	20	AXK720327G	AXK820225WG		
	36	AXK736327G	AXK836225WG		
	40	AXK740327G	AXK840225WG		
	50	AXK750327G	AXK850225WG		
	60	AXK760327G	AXK860225WG		
	70	AXK770327G	AXK870225WG		
	80	AXK780327G	AXK880225WG		
	90	AXK790327G	AXK890225WG		
3.5 mm	20	AXK720427G	AXK820225WG	Socket: 2,000 pieces Header: 3,000 pieces	Socket: 4,000 pieces Header: 6,000 pieces
	30	AXK730427G	AXK830225WG		
	40	AXK740427G	AXK840225WG		
	50	AXK750427G	AXK850225WG		
	60	AXK760427G	AXK860225WG		
	70	AXK770427G	AXK870225WG		
	80	AXK780427G	AXK880225WG		
4.0 mm	34	AXK734527G	AXK834225WG	Socket: 2,000 pieces Header: 3,000 pieces	Socket: 4,000 pieces Header: 6,000 pieces
	42	AXK742527G	AXK842225WG		
	50	AXK750527G	AXK850225WG		
	80	AXK780527G	AXK880225WG		

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5. Different number of contacts are available on-demand production only. Please contact us for more details.

SPECIFICATIONS

1. Characteristics

Item		Specifications	Conditions
Electrical characteristics	Rated current	0.3A/contact (Max. 5 A at total contacts)	
	Rated voltage	60V AC/DC	
	Breakdown voltage	150V AC for 1 min.	Detection current: 1mA
	Insulation resistance	Min. 1,000MΩ (initial)	Using 250V DC megger (applied for 1 min.)
	Contact resistance	Max. 70mΩ	Based on the contact resistance measurement method specified by JIS C 5402.
Mechanical characteristics	Composite insertion force	Max. 0.981N {100gf}/contacts × contacts (initial)	
	Composite removal force	Min. 0.0588N {6gf}/contacts × contacts (Mated height 1.5 mm, without removal and soldering terminal) Min. 0.118N {12gf}/contacts × contacts (Mated height 1.5 mm, except without removal and soldering terminal)	
	Post holding force	Min. 0.981N {100gf}/contacts	Measuring the maximum force. As the contact is axially pull out.
Environmental characteristics	Ambient temperature	–55°C to +85°C	No freezing at low temperatures
	Soldering heat resistance	Max. peak temperature of 260°C (on the surface of the PC board around the connector terminals)	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. No dew condensation.
	Thermal shock resistance (header and socket mated)	5 cycles, insulation resistance min. 100MΩ, contact resistance max. 70mΩ	Sequence 1. –55 $^{0}_{-3}$°C, 30 minutes 2. ~ , Max. 5 minutes 3. 85 $^{+3}_{0}$°C, 30 minutes 4. ~ , Max. 5 minutes
	Humidity resistance (header and socket mated)	120 hours, insulation resistance min. 100MΩ, contact resistance max. 70mΩ	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. 70mΩ	Bath temperature 35±2°C, saltwater concentration 5±1%
	H_2S resistance (header and socket mated)	48 hours, contact resistance max. 70mΩ	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: 0.04g Header: 0.02g	

2. Material and surface treatment

Part name	Material	Surface treatment
Molded portion	LCP resin (UL94V-0)	—
Contact and 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) However, upper terminal of Ni barrier production: Exposed over Ni The area adjacent to the terminal of the sockets on models with Ni barrier is exposed to Ni on base.
Soldering terminals portion	Copper alloy	Ni plating on base, Sn plating on surface (Except for front terminal)

DIMENSIONS

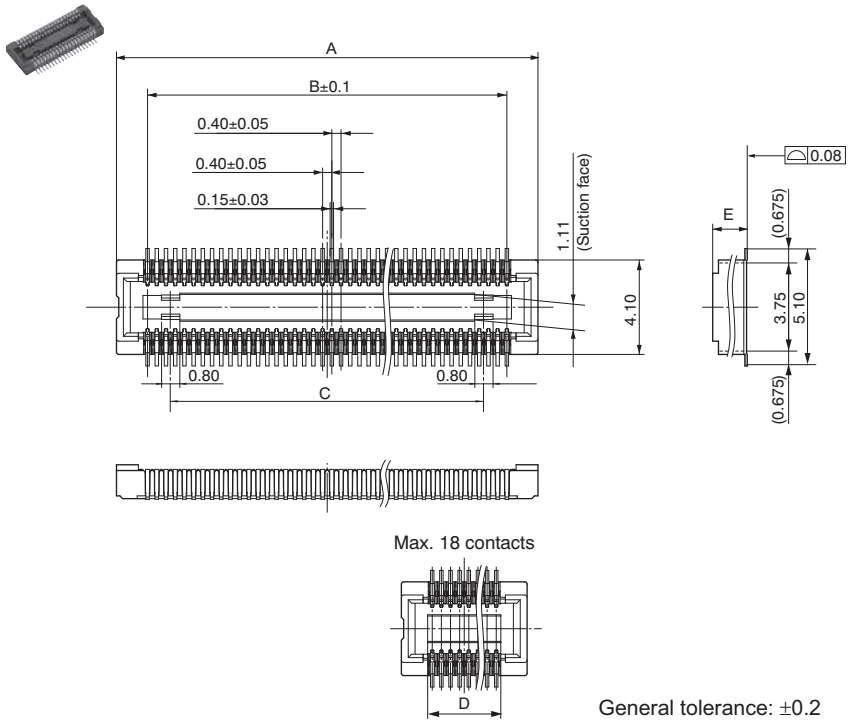
Interested in CAD data? You can obtain CAD data for all products with a **CAD Data** mark from your local Panasonic Electric Works representative.

(Unit: mm)

1. Without Soldering Terminals

Socket (Mated height: 1.5 mm, 2.0 mm, 2.5 mm, 3.0 mm, 3.5 mm and 4.0 mm)

CAD Data



General tolerance: ±0.2

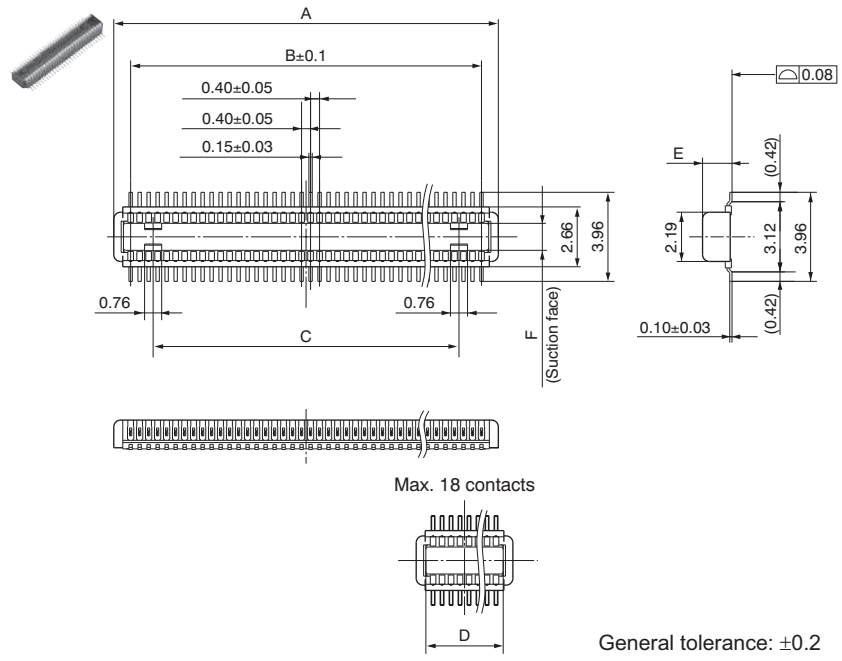
Dimension table (mm)

Number of contacts/ dimension	A	B	C	D
14	5.1	2.4	—	2.8
16	5.5	2.8	—	3.2
20	6.3	3.6	1.6	—
22	6.7	4.0	2.0	—
24	7.1	4.4	2.4	—
26	7.5	4.8	2.8	—
28	7.9	5.2	3.2	—
30	8.3	5.6	3.6	—
34	9.1	6.4	4.4	—
36	9.5	6.8	4.8	—
38	9.9	7.2	5.2	—
40	10.3	7.6	5.6	—
42	10.7	8.0	6.0	—
44	11.1	8.4	6.4	—
50	12.3	9.6	7.6	—
54	13.1	10.4	8.4	—
60	14.3	11.6	9.6	—
64	15.1	12.4	10.4	—
70	16.3	13.6	11.6	—
80	18.3	15.6	13.6	—
90	20.3	17.6	15.6	—
100	22.3	19.6	17.6	—

Mated height/dimension	E
1.5mm	1.50
2.0mm	1.92
2.5mm, 3.0mm	2.42
3.5mm	2.92
4.0mm	3.42

Header (Mated height: 1.5 mm, 2.0 mm, 2.5 mm, 3.0 mm, 3.5 mm and 4.0 mm)

CAD Data



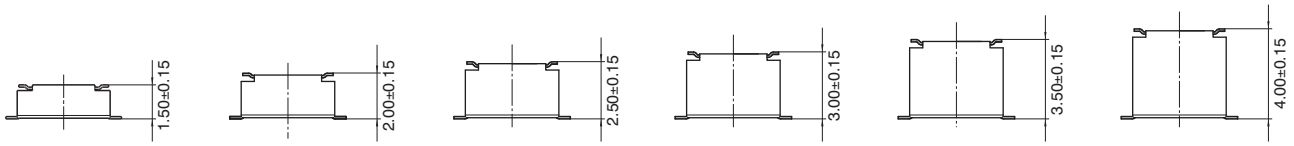
General tolerance: ±0.2

Dimension table (mm)

Number of contacts/ dimension	A	B	C	D
14	3.9	2.4	—	3.04
16	4.3	2.8	—	3.44
20	5.1	3.6	1.6	—
22	5.5	4.0	2.0	—
24	5.9	4.4	2.4	—
26	6.3	4.8	2.8	—
28	6.7	5.2	3.2	—
30	7.1	5.6	3.6	—
34	7.9	6.4	4.4	—
36	8.3	6.8	4.8	—
38	8.7	7.2	5.2	—
40	9.1	7.6	5.6	—
42	9.5	8.0	6.0	—
44	9.9	8.4	6.4	—
50	11.1	9.6	7.6	—
54	11.9	10.4	8.4	—
60	13.1	11.6	9.6	—
64	13.9	12.4	10.4	—
70	15.1	13.6	11.6	—
80	17.1	15.6	13.6	—
90	19.1	17.6	15.6	—
100	21.1	19.6	17.6	—

Mated height/dimension	E	F
1.5mm, 2.0mm, 2.5mm	1.31	1.20
3.0mm, 3.5mm, 4.0mm	2.26	1.26

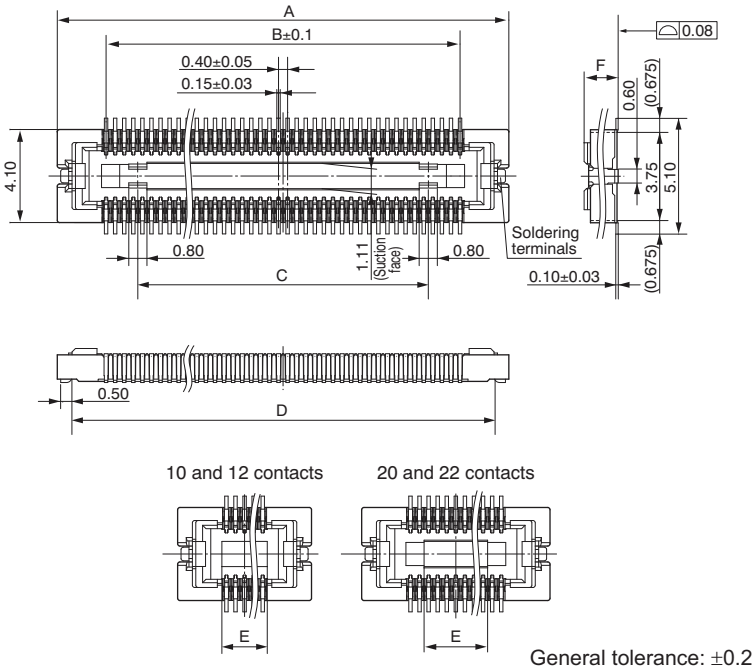
Socket and Header are mated



2. With Soldering Terminals

Socket (Mated height: 1.5mm, 2.0mm, 2.5mm, 3.0mm, 3.5mm and 4.0mm)

CAD Data



General tolerance: ±0.2

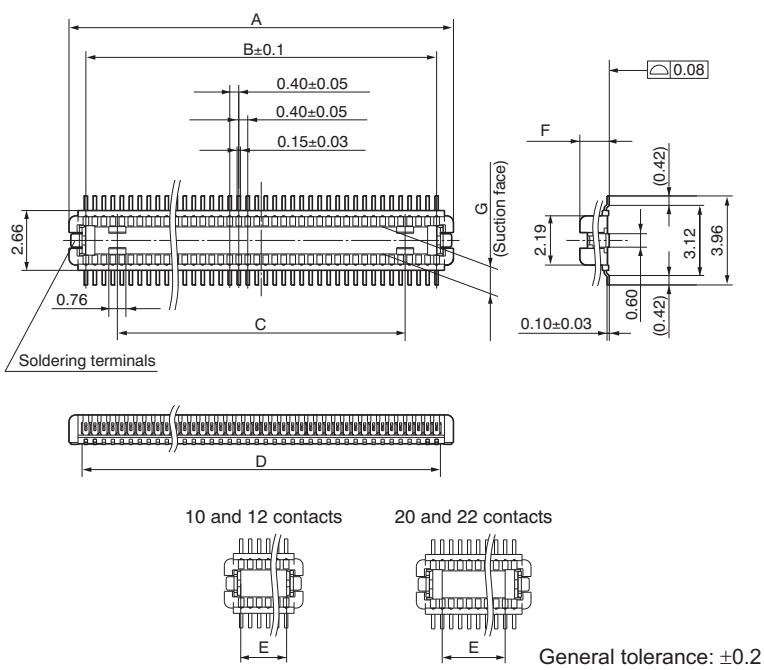
Dimension table (mm)

Number of contacts/ dimension	A	B	C	D	E
10	5.90	1.60	—	4.60	2.00
12	6.30	2.00	—	5.00	2.40
20	7.90	3.60	—	6.60	2.40
22	8.30	4.00	—	7.00	2.80
24	8.70	4.40	1.60	7.40	—
28	9.50	5.20	2.40	8.20	—
30	9.90	5.60	2.80	8.60	—
32	10.30	6.00	3.20	9.00	—
34	10.70	6.40	3.60	9.40	—
36	11.10	6.80	4.00	9.40	—
40	11.90	7.60	4.80	10.60	—
42	12.30	8.00	5.20	11.00	—
44	12.70	8.40	5.60	11.40	—
46	13.10	8.80	6.00	11.80	—
50	13.90	9.60	6.80	12.60	—
60	15.90	11.60	8.80	14.60	—
70	17.90	13.60	10.80	16.60	—
80	19.90	15.60	12.80	18.60	—
90	21.90	17.60	14.80	20.60	—
100	23.90	19.60	16.80	22.60	—

Mated height/dimension	F
1.5mm	1.50
2.0mm	1.92
2.5mm, 3.0mm	2.42
3.5mm	2.92
4.0mm	3.42

Header (Mated height: 1.5mm, 2.0mm, 2.5mm, 3.0mm, 3.5mm and 4.0mm)

CAD Data



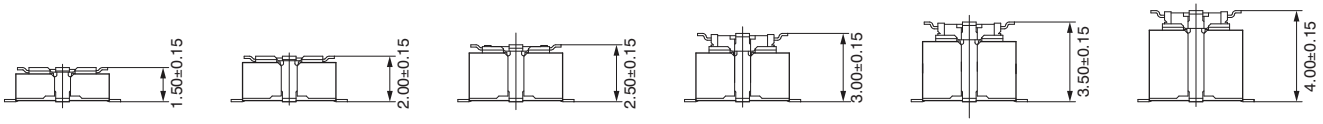
General tolerance: ±0.2

Dimension table (mm)

Number of contacts/ dimension	A	B	C	D	E
10	3.10	1.60	—	1.94	1.64
12	3.50	2.00	—	2.34	2.04
20	5.10	3.60	—	3.94	2.80
22	5.50	4.00	—	4.34	3.20
24	5.90	4.40	1.60	4.74	—
28	6.70	5.20	2.40	5.54	—
30	7.10	5.60	2.80	5.94	—
32	7.50	6.00	3.20	6.34	—
34	7.90	6.40	3.60	6.74	—
36	8.30	6.80	4.00	7.14	—
40	9.10	7.60	4.80	7.94	—
42	9.50	8.00	5.20	8.34	—
44	9.90	8.40	5.60	8.74	—
46	10.30	8.80	6.00	9.14	—
50	11.10	9.60	6.80	9.94	—
60	13.10	11.60	8.80	11.94	—
70	15.10	13.60	10.80	13.94	—
80	17.10	15.60	12.80	15.94	—
90	19.10	17.60	14.80	17.94	—
100	21.10	19.60	16.80	19.94	—

Mated height/dimension	F	G
1.5mm, 2.0mm, 2.5mm	1.31	1.20
3.0mm, 3.5mm, 4.0mm	2.26	1.26

Socket and Header are mated.

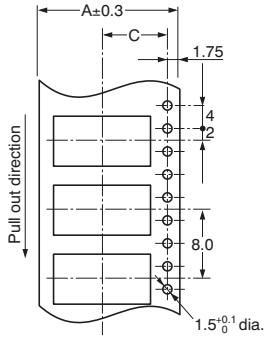


EMBOSSED TAPE DIMENSIONS (unit: mm, Common for respective contact type, socket and header)

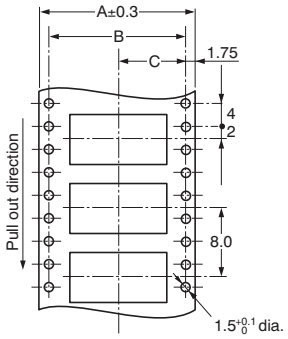
• Tape dimensions (Conforming to JIS C 0806-1990. However, some tapes have mounting hole pitches that do not comply with the standard.)

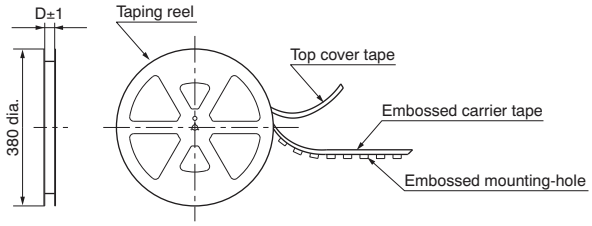
• Plastic reel dimensions (Conforming to EIAJ ET-7200B)

Tape I



Tape II





Dimension table (mm)

1. Without Soldering Terminals

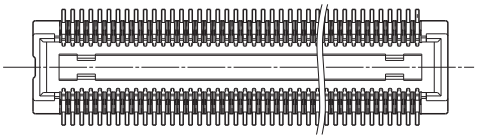
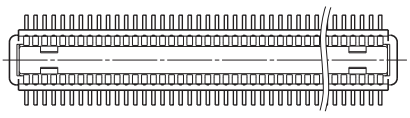
Mated height	Number of contacts		Type of taping	A	B	C	D	Quantity per reel
	Socket	Header						
Common for socket and header: 1.5 mm, 2.0 mm, 2.5 mm and 3.0 mm Header: 3.5mm and 4.0 mm	Max. 18	Max. 18	Tape I	16.0	—	7.5	17.4	3,000
	20 to 70	20 to 70	Tape I	24.0	—	11.5	25.4	3,000
	80 to 100	80 to 100	Tape II	32.0	28.4	14.2	33.4	3,000
	80 to 100	—	Tape II	44.0	40.4	20.2	45.4	3,000
Socket: 3.5mm and 4.0 mm	20 to 40		Tape I	24.0	—	11.5	25.4	2,000

2. With Soldering Terminals

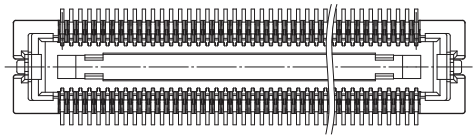
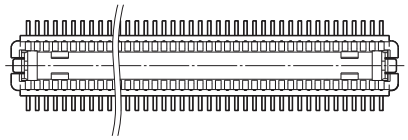
Mated height	Number of contacts		Type of taping	A	B	C	D	Quantity per reel
	Socket	Header						
Common for socket and header: 1.5 mm, 2.0 mm, 2.5 mm and 3.0 mm Header: 3.5mm and 4.0 mm	Max. 18	Max. 18	Tape I	16.0	—	7.5	17.4	3,000
	20 to 60	20 to 70	Tape I	24.0	—	11.5	25.4	3,000
	70 to 90	80 to 100	Tape II	32.0	28.4	14.2	33.4	3,000
	100	—	Tape II	44.0	40.4	20.2	45.4	3,000
Socket: 3.5mm and 4.0 mm	20 to 60		Tape I	24.0	—	11.5	25.4	2,000
	70 to 90		Tape II	32.0	28.4	14.2	33.4	2,000

3. Connector orientation with respect to direction of progress of embossed tape

1) Without soldering terminals

Type / Direction of tape progress	Common for P4
	Socket  Header  Note: There is no indication on this product regarding top-bottom or left-right orientation.

2) With soldering terminals

Type / Direction of tape progress	Common for P4
	Socket  Header  Note: There is no indication on this product regarding top-bottom or left-right orientation.

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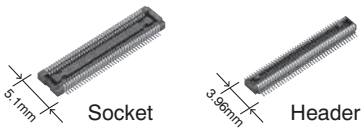
ideas for life

For board-to-board | For board-to-FPC

Connectors for inspection usage (0.4mm pitch)

P4 Series



FEATURES

1. 3,000 insertion and removals (when as recommended)
2. Same external dimensions and foot pattern as standard type.
3. Improved mating
Insertion and removal have become easier due to a reduction in the mating retention force required by the simple locking structure and also in the amount of force needed for insertion and removal. (We cannot warrant anything regarding mating retention.)

APPLICATIONS

Ideal for module unit inspection and equipment assembly inspection

TABLE OF PRODUCT TYPES

☆: Available for sale

Product name	Number of contacts																							
	10	12	14	16	20	22	24	26	28	30	34	36	40	42	44	46	50	54	60	64	70	80	90	100
P4 for inspection without soldering terminals			☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆		☆	☆	☆	☆	☆	☆	☆	☆
P4 for inspection with soldering terminals	☆	☆			☆	☆	☆		☆	☆	☆		☆		☆	☆	☆		☆			☆	☆	☆

Notes: 1. You can use with each mated height in common.
2. Please inquire about numbers of contacts other than those given above.
3. Please inquire with us regarding delivery times.
4. Please keep the minimum unit for ordering no less than 50 pieces per lot.
5. Please inquire for further information.

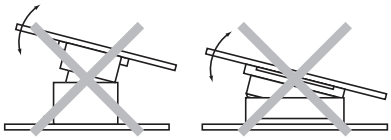
PRODUCT TYPES

Specifications			Part No.	Specifications			Part No.
Socket	With soldering terminals	Without positioning bosses	AXK7E**26G	Header	With soldering terminals	Without positioning bosses	AXK8E**26WG
	Without soldering terminals	Without positioning bosses	AXK7E**46G		Without soldering terminals	Without positioning bosses	AXK8E**46WG

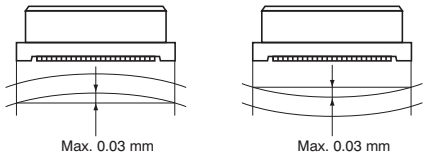
Notes: 1. When placing an order, substitute the "*" (asterisk) in the above part number with the number of contacts for the required connector.
2. The above part numbers are for connectors without positioning bosses, which are standard. When ordering connectors with positioning bosses, please contact our sales office.

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 please 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.

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

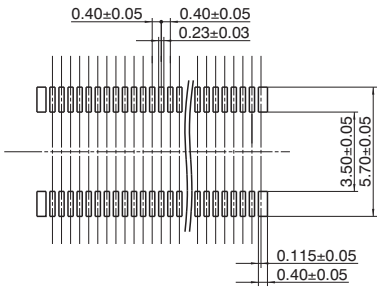
The figures to the right are recommended metal mask patterns.

Please use them as a reference.

1) Without soldering terminals

Socket

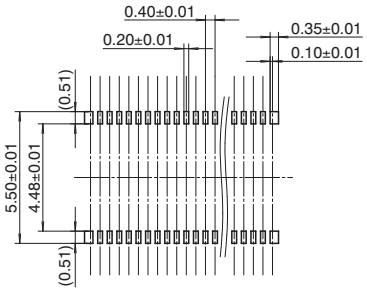
Recommended PC board pattern (TOP VIEW)



Recommended metal mask pattern

Metal mask thickness: Here, 150 μm

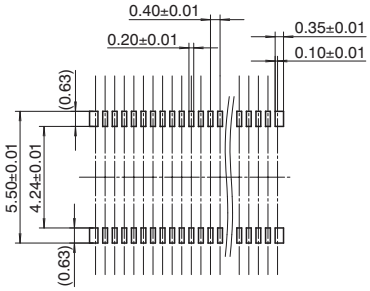
(Opening area ratio: 40%)



Recommended metal mask pattern

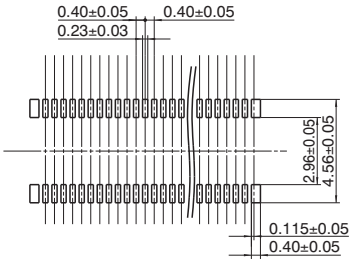
Metal mask thickness: Here, 120 μm

(Opening area ratio: 50%)



Header

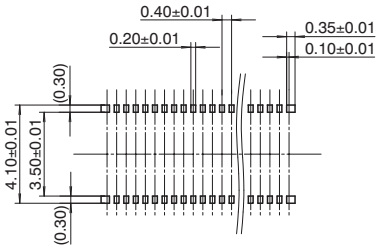
Recommended PC board pattern (TOP VIEW)



Recommended metal mask pattern

Metal mask thickness: Here, 150 μm

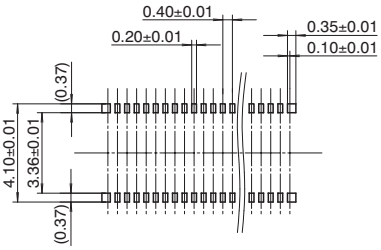
(Opening area ratio: 32%)



Recommended metal mask pattern

Metal mask thickness: Here, 120 μm

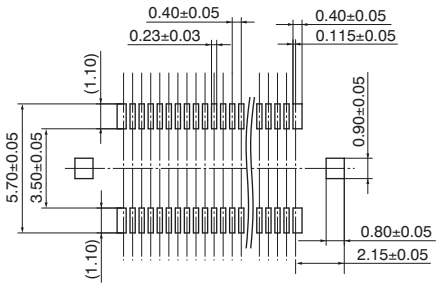
(Opening area ratio: 40%)



2) With soldering terminals

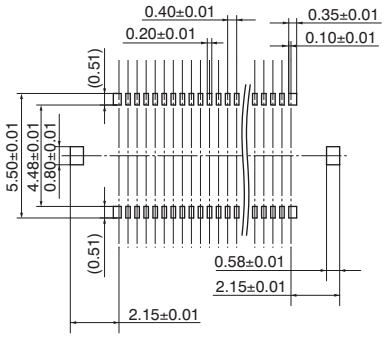
Socket

Recommended PC board pattern (TOP VIEW)



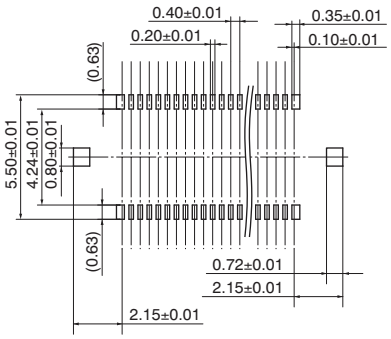
Recommended metal mask pattern

Metal mask thickness: Here, 150 μm
(Terminal portion opening area ratio: 40%)
(Metal portion opening area ratio: 65%)



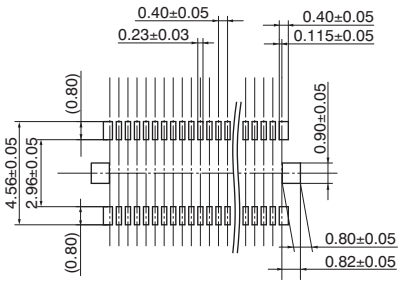
Recommended metal mask pattern

Metal mask thickness: Here, 120 μm
(Terminal portion opening area ratio: 50%)
(Metal portion opening area ratio: 80%)



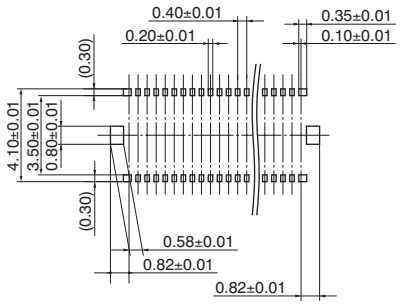
Header

Recommended PC board pattern (TOP VIEW)



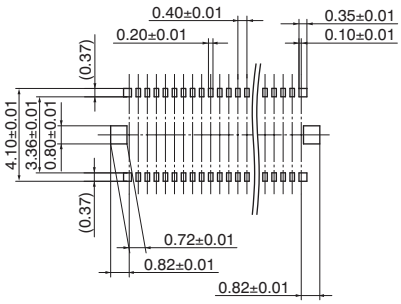
Recommended metal mask pattern

Metal mask thickness: Here, 150 μm
(Terminal portion opening area ratio: 32%)
(Metal portion opening area ratio: 65%)



Recommended metal mask pattern

Metal mask thickness: Here, 120 μm
(Terminal portion opening area ratio: 40%)
(Metal portion opening area ratio: 80%)



For Cautions for Use, see Connector Technical Information (page 136). For other details, please verify with the product specification sheets.

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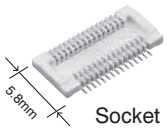
For board-to-board

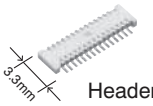
Narrow pitch connectors (0.5mm pitch)

P5KL Series

TOUGH CONTACT



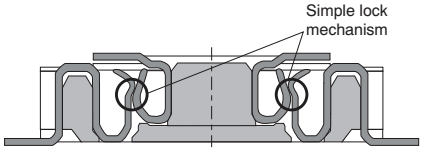
Socket



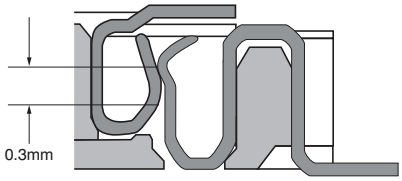
Header

FEATURES

1. Low profile mating height of 1.2 mm with 0.5 mm pitch, was obtained. It contributes to device compactness.
2. Strong resistance to adverse environments! Utilizes TOUGH CONTACT construction for high contact reliability.
3. Simple lock structure employed to further increase connection reliability



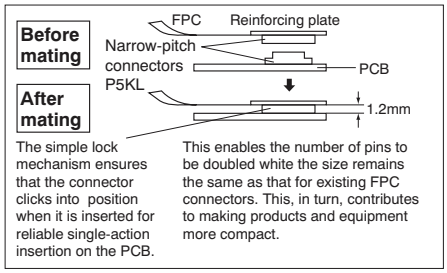
4. Effective mating length 0.3 mm



APPLICATIONS

Compact portable devices "Cellular phones, DVC, Digital cameras, etc"

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.

ORDERING INFORMATION

AXK □□ □□ 3 □ 7 G

5L: Narrow Pitch Connector P5KL (0.5 mm pitch) Socket
6L: Narrow Pitch Connector P5KL (0.5 mm pitch) Header

Number of contacts (2 digits)

Mated height
<Socket>
3: For mated height 1.2 mm
<Header>
3: For mated height 1.2 mm

Functions
3: With positioning bosses
4: Without positioning bosses

Surface treatment (Contact portion / Terminal portion)
7: Ni plating on base, Au plating on surface (for Ni barrier available)

Packing
G: 3,000 pieces embossed tape and plastic reel x 2 (for Ni barrier available)

PRODUCT TYPES

Mated height	No. of contacts	Part No.		Packing quantity	
		Socket	Header	Inner carton (1-reel)	Outer carton
		TOUGH CONTACT	TOUGH CONTACT		
1.2 mm	10	AXK5L10347G	AXK6L10347G	3,000 pieces	6,000 pieces (2-reel)
	12	AXK5L12347G	AXK6L12347G		
	20	AXK5L20347G	AXK6L20347G		
	24	AXK5L24347G	AXK6L24347G		
	30	AXK5L30347G	AXK6L30347G		
	34	AXK5L34347G	AXK6L34347G		
	40	AXK5L40347G	AXK6L40347G		
	46	AXK5L46347G	AXK6L46347G		
	50	AXK5L50347G	AXK6L50347G		
	60	AXK5L60347G	AXK6L60347G		

Notes) 1. Regarding ordering units: During production, Please make orders in 1-reel units. Samples for mounting confirmation: Please consult us. Samples: Small lot orders are possible. Please consult us.
2. The standard type comes without 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. 10 contacts for sockets: AXK5L10337G
3. Previous non-TOUGH CONTACT types and current TOUGH CONTACT types are compatible for mating.

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	Based on the contact resistance measurement method specified by JIS C 5402.
Mechanical characteristics	Composite insertion force	Max. 0.981N {100gf}/contacts × contacts (initial)	
	Composite removal force	Min. 0.0588N {6gf}/contacts × contacts	
	Holding force of terminal securing section	Min. 0.981N {100gf}/contact	Measuring the maximum force. As the contact is axially pull out.
Environmental characteristics	Ambient temperature	–55°C to +85°C	No freezing at low temperatures
	Soldering heat resistance	Max. peak temperature of 260°C (on the surface of the PC board around the connector terminals)	Infrared reflow soldering
		300°C within 5 seconds 350°C within 3 seconds	Soldering iron
	Storage temperature	–55°C to +85°C (product only) –40°C to +50°C (emboss packing)	No freezing at low temperatures. No dew condensation.
	Thermal shock resistance (header and socket mated)	5 cycles, insulation resistance min. 100MΩ, contact resistance max. 90mΩ	Sequence 1. –55 $^{0}_{-3}$°C, 30 minutes 2. ~ , Max. 5 minutes 3. 85 $^{+3}_{0}$°C, 30 minutes 4. ~ , Max. 5 minutes
	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		20 contacts; Socket: 0.05g; Header: 0.02g	

2. Material and surface treatment

Part name	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.)

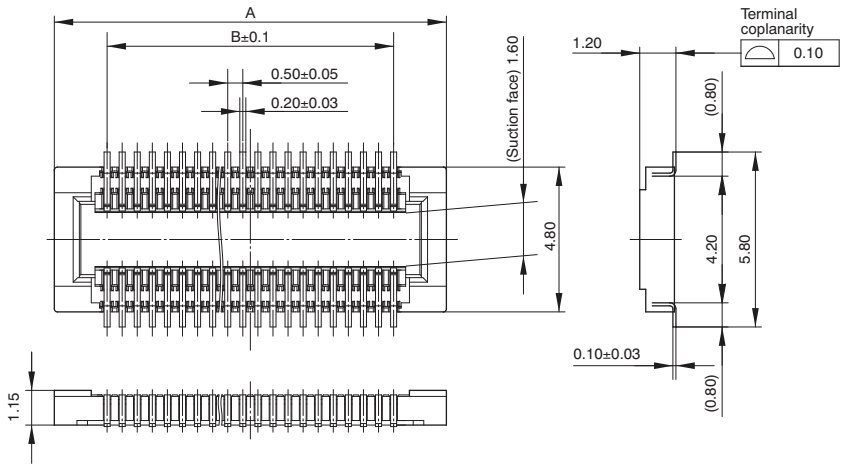
DIMENSIONS

Interested in CAD data? You can obtain CAD data for all products with a **CAD Data** mark from your local Panasonic Electric Works representative.

(Unit: mm)

• Socket (Mated height: 1.2mm)

CAD Data



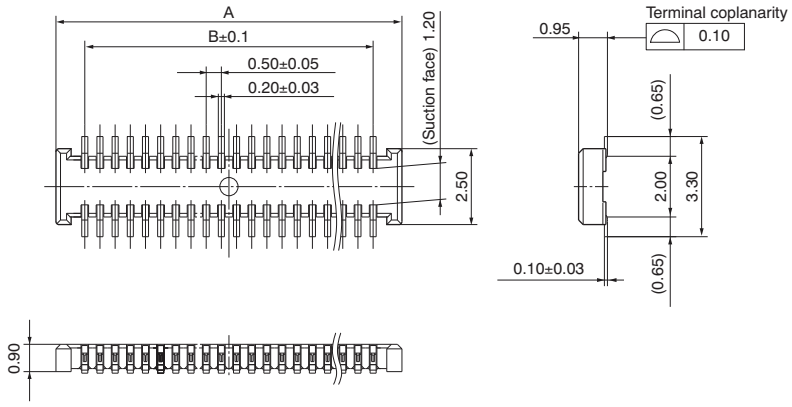
Dimension table (mm)

No. of contacts	A	B
10	5.50	2.00
12	6.00	2.50
20	8.00	4.50
24	9.00	5.50
30	10.50	7.00
34	11.50	8.00
40	13.00	9.50
46	14.50	11.00
50	15.50	12.00
60	18.00	14.50

General tolerance: ±0.2

• Header (Mated height: 1.2mm)

CAD Data

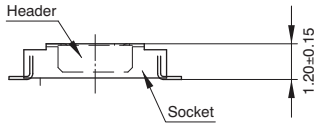


Dimension table (mm)

No. of contacts	A	B
10	3.90	2.00
12	4.40	2.50
20	6.40	4.50
24	7.40	5.50
30	8.90	7.00
34	9.90	8.00
40	11.40	9.50
46	12.90	11.00
50	13.90	12.00
60	16.40	14.50

General tolerance: ±0.2

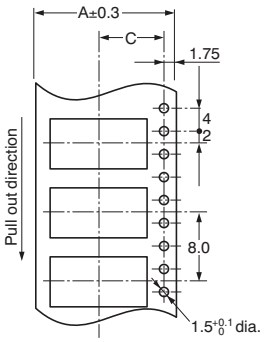
• Socket and header are mated



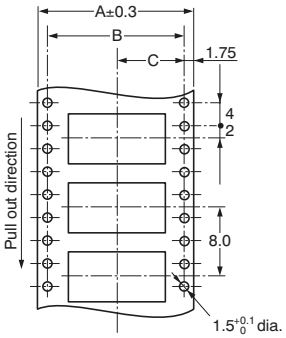
EMBOSSED TAPE DIMENSIONS (unit: mm, Common for respective contact type, socket and header)

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

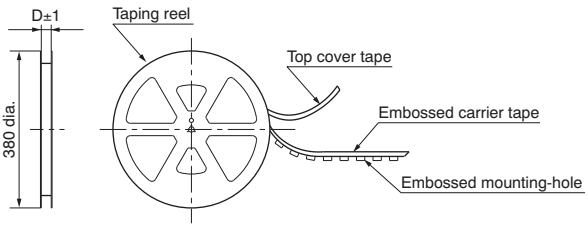
Tape I



Tape II



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

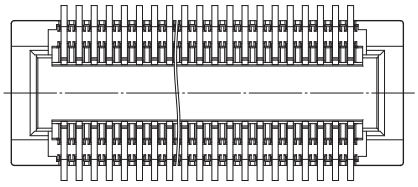
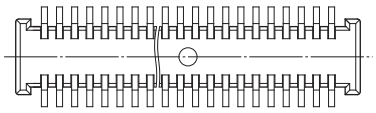


Dimension table (mm)

Suffix: G (1 reel, 3,000 pieces embossed tape: Plastic reel package)

Mated height	No. of contacts	Type of taping	A	B	C	D	Quantity per reel
Socket and header are common: 1.2mm	10 to 18	Tape I	16.0	—	7.5	17.4	3,000 pcs.
	20 to 50	Tape I	24.0	—	11.5	25.4	3,000 pcs.
	60	Tape II	32.0	28.4	14.2	33.4	3,000 pcs.

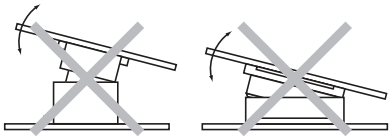
Connector orientation with respect to direction of progress of embossed tape

Direction of tape progress \ Type	Common for P5KL
↓	Socket  Header 

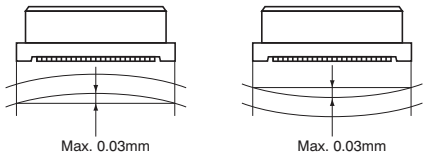
Note: There is no indication on this product regarding top-bottom or left-right orientation.

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.

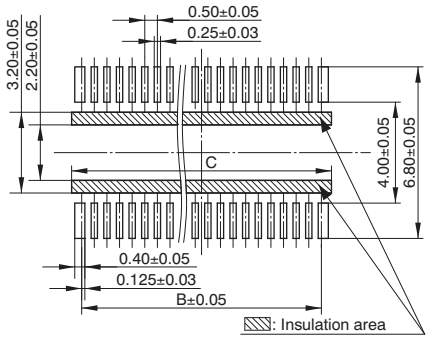


3. PC Boards and Recommended Metal Mask Patterns

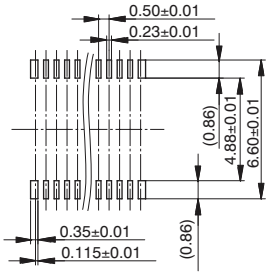
Connectors are mounted with high density, with a pitch interval of 0.4 to 0.5 mm. It is therefore necessary to make sure that the right levels of solder are used, in order to reduce solder bridge and other issues. The figures to the right are recommended metal mask patterns. Please use them as a reference.

• Socket

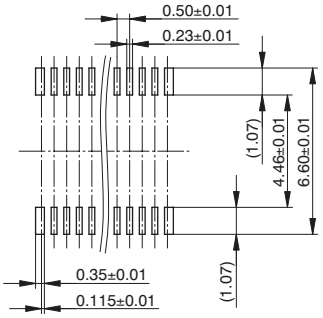
Recommended PC board pattern (TOP VIEW)



Recommended metal mask pattern
Metal mask thickness: 150 μm
(Terminal portion opening area ratio: 57%)

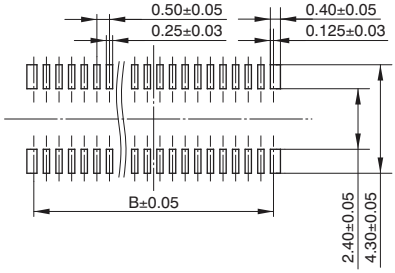


Recommended metal mask pattern
Metal mask thickness: 120 μm
(Terminal portion opening area ratio: 70%)

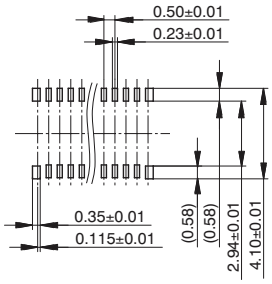


• Header

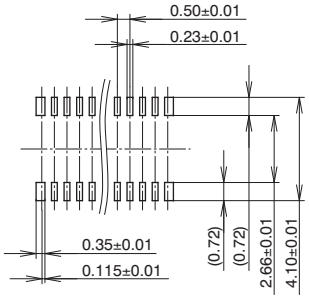
Recommended PC board pattern (TOP VIEW)



Recommended metal mask pattern
Metal mask thickness: 150 μm
(Terminal portion opening area ratio: 56%)



Recommended metal mask pattern
Metal mask thickness: 120 μm
(Terminal portion opening area ratio: 70%)



Notes: 1. See the dimension table on page 83 for more information on the B dimension of the socket and header.
2. The socket C dimension is the B dimension in the dimensions table with 0.8 added.

For Cautions for Use, see Connector Technical Information (page 136). For other details, please verify with the product specification sheets.

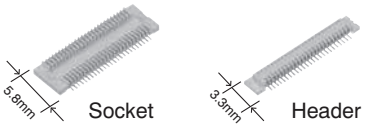
Panasonic
ideas for life

For board-to-board | For board-to-FPC

Narrow pitch connectors (0.5mm pitch)

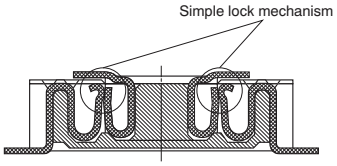
P5KF Series

TOUGH CONTACT

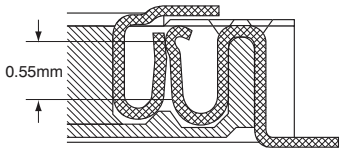


FEATURES

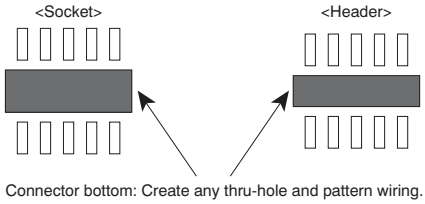
1. The connector is a two-piece structure and 0.5mm pitch.
The product lineup consists of the mated height of 1.5mm, 2.0mm and 2.5mm.
2. Strong resistance to adverse environments! Utilizes TOUGH CONTACT construction for high contact reliability.
3. Simple locking structure
Superior mating operation with click feel to indicate that mating is complete.



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. The lower connector bottom surface construction prevents contact and shorts between the PCB and metal terminals.
This enables freedom in pattern wiring, helping to make PCB's smaller.



Connector bottom: Create any thru-hole and pattern wiring.

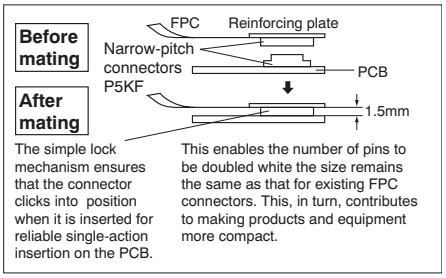
6. Automatic mounting inspection is facilitated by the gull-wing terminal shape which makes mounting verification easy.

7. Connectors for inspection available
Connectors for inspection are available that are ideal for modular unit inspection and inspection in device assembly processes.

APPLICATIONS

Compact portable devices "Cellular phones, DVC, Digital cameras, etc"

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.

ORDERING INFORMATION

AXK □ □□ □ □ 7 Y G

5F: Narrow Pitch Connector P5KF (0.5 mm pitch) Socket
6F: Narrow Pitch Connector P5KF (0.5 mm pitch) Header

Number of contacts (2 digits)

Mated height
<Socket>
3: For mated height 1.5 mm
5: For mated height 2.0 mm and 2.5 mm
<Header>
3: For mated height 1.5 mm and 2.0 mm
5: For mated height 2.5 mm

Functions
3: With positioning bosses
4: Without positioning bosses

Surface treatment (Contact portion / Terminal portion)
<Socket>
7: Ni plating on base, Au plating on surface/Ni plating on base, Au plating on surface (for Ni barrier available)

Contact portion
<Socket> Y: V notch type product (chamfered on both ends)
<Header> Y: V notch type product

Packing
G: 2,000 pieces embossed tape and plastic reel x 2

PRODUCT TYPES

Mated height	No. of contacts	Part No.		Packing	
		Socket	Header	Inner carton (1-reel)	Outer carton
		TOUGH CONTACT	TOUGH CONTACT		
1.5 mm	10	AXK5F10347YG	AXK6F10347YG	2,000 pieces	4,000 pieces
	12	AXK5F12347YG	AXK6F12347YG		
	14	AXK5F14347YG	AXK6F14347YG		
	16	AXK5F16347YG	AXK6F16347YG		
	18	AXK5F18347YG	AXK6F18347YG		
	20	AXK5F20347YG	AXK6F20347YG		
	22	AXK5F22347YG	AXK6F22347YG		
	24	AXK5F24347YG	AXK6F24347YG		
	26	AXK5F26347YG	AXK6F26347YG		
	30	AXK5F30347YG	AXK6F30347YG		
	32	AXK5F32347YG	AXK6F32347YG		
	34	AXK5F34347YG	AXK6F34347YG		
	40	AXK5F40347YG	AXK6F40347YG		
	50	AXK5F50347YG	AXK6F50347YG		
	60	AXK5F60347YG	AXK6F60347YG		
	70	AXK5F70347YG	AXK6F70347YG		
	80	AXK5F80347YG	AXK6F80347YG		
2.0 mm	10	AXK5F10547YG	AXK6F10347YG		
	12	AXK5F12547YG	AXK6F12347YG		
	14	AXK5F14547YG	AXK6F14347YG		
	16	AXK5F16547YG	AXK6F16347YG		
	18	AXK5F18547YG	AXK6F18347YG		
	20	AXK5F20547YG	AXK6F20347YG		
	22	AXK5F22547YG	AXK6F22347YG		
	24	AXK5F24547YG	AXK6F24347YG		
	26	AXK5F26547YG	AXK6F26347YG		
	30	AXK5F30547YG	AXK6F30347YG		
	34	AXK5F34547YG	AXK6F34347YG		
	40	AXK5F40547YG	AXK6F40347YG		
	50	AXK5F50547YG	AXK6F50347YG		
	60	AXK5F60547YG	AXK6F60347YG		
	70	AXK5F70547YG	AXK6F70347YG		
	80	AXK5F80547YG	AXK6F80347YG		
	100	AXK5F00547YG	AXK6F00347YG		
2.5 mm	10	AXK5F10547YG	AXK6F10547YG		
	12	AXK5F12547YG	AXK6F12547YG		
	14	AXK5F14547YG	AXK6F14547YG		
	16	AXK5F16547YG	AXK6F16547YG		
	20	AXK5F20547YG	AXK6F20547YG		
	22	AXK5F22547YG	AXK6F22547YG		
	24	AXK5F24547YG	AXK6F24547YG		
	30	AXK5F30547YG	AXK6F30547YG		
	34	AXK5F34547YG	AXK6F34547YG		
	36	AXK5F36547YG	AXK6F36547YG		
	40	AXK5F40547YG	AXK6F40547YG		
	44	AXK5F44547YG	AXK6F44547YG		
	50	AXK5F50547YG	AXK6F50547YG		
	60	AXK5F60547YG	AXK6F60547YG		
	70	AXK5F70547YG	AXK6F70547YG		
	80	AXK5F80547YG	AXK6F80547YG		
	100	AXK5F00547YG	AXK6F00547YG		

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 138.)
Samples: Small lot orders are possible. Please consult us.
2. The standard type comes without 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: AXK5F1033<u>7</u>YG
3. 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.)
4. Previous non-TOUGH CONTACT types and current TOUGH CONTACT types are compatible for mating.

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	Based on the contact resistance measurement method specified by JIS C 5402.
Mechanical characteristics	Composite insertion force	Max. 0.981N/contacts × contacts (initial)	
	Composite removal force	Min. 0.0588N/contacts × contacts	
	Contact holding force	Min. 0.981N/contact	Measuring the maximum force. As the contact is axially pull out.
Environmental characteristics	Ambient temperature	–55°C to +85°C	No freezing at low temperatures
	Soldering heat resistance	Max. peak temperature of 260°C (on the surface of the PC board around the connector terminals)	Infrared reflow soldering
		300°C within 5 seconds, 350°C within 3 seconds	Soldering iron
	Storage temperature	–55°C to +85°C (product only) –40°C to +50°C (emboss packing)	No freezing at low temperatures. No dew condensation.
	Thermal shock resistance (header and socket mated)	5 cycles, insulation resistance min. 100MΩ, contact resistance max. 90mΩ	Sequence 1. -55^{0}_{-3}°C, 30 minutes 2. ~, Max. 5 minutes 3. 85^{+3}_{0}°C, 30 minutes 4. ~, Max. 5 minutes
	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	LCP 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.)

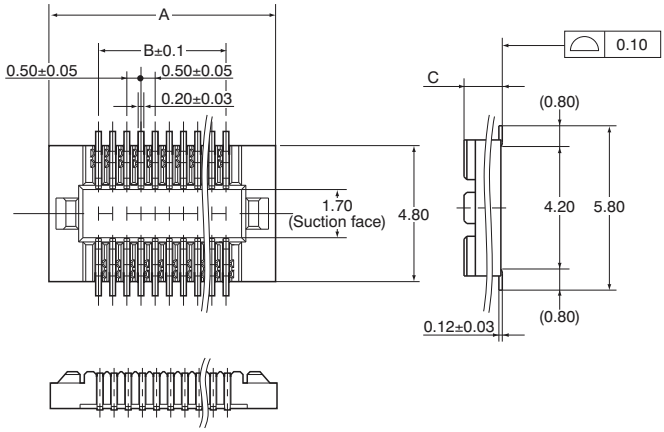
DIMENSIONS

Interested in CAD data? You can obtain CAD data for all products with a **CAD Data** mark from your local Panasonic Electric Works representative.

(Unit: mm)

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

CAD Data



Dimension table (mm)

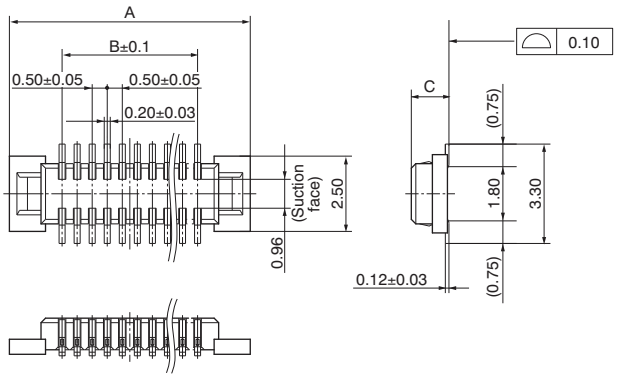
No. of contacts	A	B
10	5.50	2.00
12	6.00	2.50
14	6.50	3.00
16	7.00	3.50
18	7.50	4.00
20	8.00	4.50
22	8.50	5.00
24	9.00	5.50
26	9.50	6.00
30	10.50	7.00
32	11.00	7.50
34	11.50	8.00
36	12.00	8.50
40	13.00	9.50
44	14.00	10.50
50	15.50	12.00
60	18.00	14.50
70	20.50	17.00
80	23.00	19.50
100	28.00	24.50

General tolerance: ±0.2

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

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

CAD Data



Dimension table (mm)

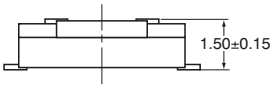
No. of contacts	A	B
10	5.50	2.00
12	6.00	2.50
14	6.50	3.00
16	7.00	3.50
18	7.50	4.00
20	8.00	4.50
22	8.50	5.00
24	9.00	5.50
26	9.50	6.00
30	10.50	7.00
32	11.00	7.50
34	11.50	8.00
36	12.00	8.50
40	13.00	9.50
44	14.00	10.50
50	15.50	12.00
60	18.00	14.50
70	20.50	17.00
80	23.00	19.50
100	28.00	24.50

General tolerance: ±0.2

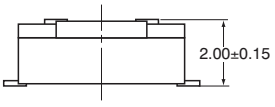
Mated height	C
1.5 mm, 2.0 mm	1.25
2.5 mm	1.75

• Socket and header are mated

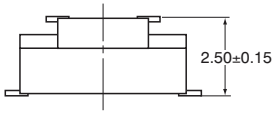
Mated height: 1.5 mm



Mated height: 2.0 mm



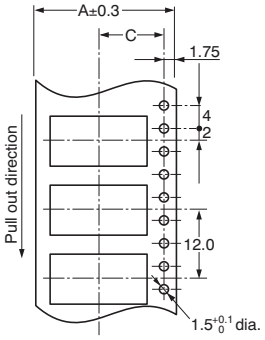
Mated height: 2.5 mm



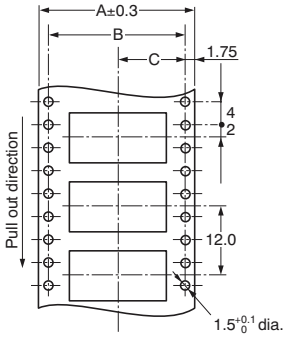
EMBOSSED TAPE DIMENSIONS (unit: mm, Common for respective contact type, socket and header)

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

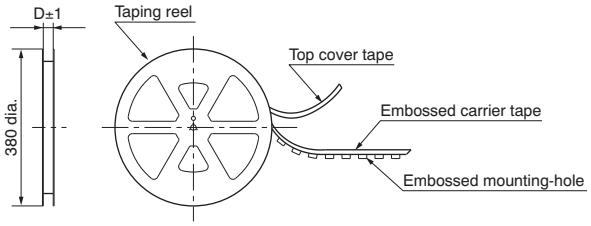
Tape I



Tape II



• Plastic reel dimensions (Conforming to EIAJ ET–7200B)

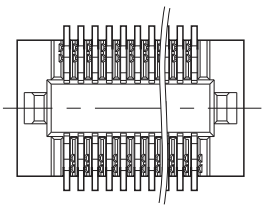
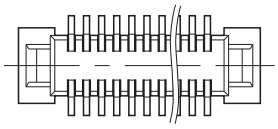


Dimension table (mm)

Suffix: G (1 reel, 2,000 pieces embossed tape: Plastic reel package)

Mated height	No. of contacts	Type of taping	A	B	C	D	Quantity per reel
Socket and header are common: 1.5mm, 2.0mm, 2.5mm	10 to 58	Tape I	24.0	—	11.5	25.4	2,000 pcs.
	60 to 70	Tape II	32.0	28.4	14.2	33.4	2,000 pcs.
	72 to 100	Tape II	44.0	40.4	20.2	45.4	2,000 pcs.

Connector orientation with respect to direction of progress of embossed tape

Direction of tape progress \ Type	Common for P5KF
	Socket  Header 

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

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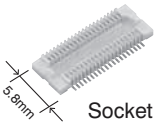
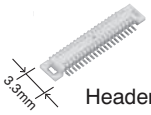
For board-to-board | For board-to-FPC

Connectors for inspection usage (0.5mm pitch)

P5KF Series



Socket



Header

FEATURES

1. 3,000 insertion and removals (when as recommended)
2. Same external dimensions and foot pattern as standard type.
3. Improved mating
Insertion and removal have become easier due to a reduction in the mating retention force required by the simple locking structure and also in the amount of force needed for insertion and removal. (We cannot warrant anything regarding mating retention.)

APPLICATIONS

Ideal for module unit inspection and equipment assembly inspection

TABLE OF PRODUCT TYPES

☆: Available for sale

Product name	Number of contacts																	
P5KF for inspection	10	12	14	16	18	20	22	24	26	30	32	34	40	50	60	70	80	100
	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆

Notes: 1. You can use with each mated height in common.
2. Please inquire about numbers of contacts other than those given above.
3. Please inquire with us regarding delivery times.
4. Please keep the minimum unit for ordering no less than 50 pieces per lot.
5. Please inquire for further information.

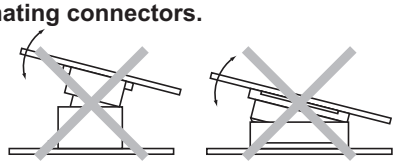
PRODUCT TYPES

Specifications		Part No.	Specifications		Part No.
Socket	With positioning bosses	AXK5FE∗∗36G	Header	With positioning bosses	AXK6FE∗∗36G
	Without positioning bosses	AXK5FE∗∗46G		Without positioning bosses	AXK6FE∗∗46G

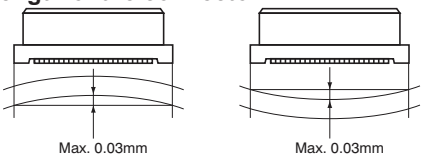
Note: When placing an order, substitute the "∗" (asterisk) in the above part number with the number of contacts for the required connector.

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 please 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.

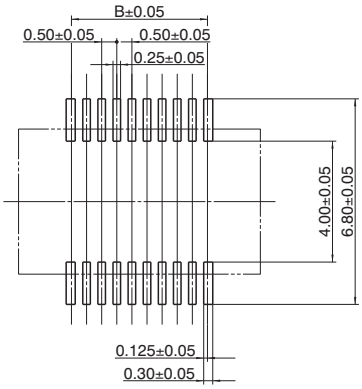


3. PC Boards and Recommended Metal Mask Patterns

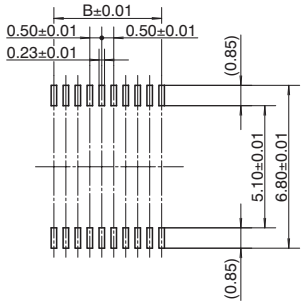
Connectors are mounted with high density, with a pitch interval of 0.4 to 0.5 mm. It is therefore necessary to make sure that the right levels of solder are used, in order to reduce solder bridge and other issues. The figures to the right are recommended metal mask patterns. Please use them as a reference.

• Socket

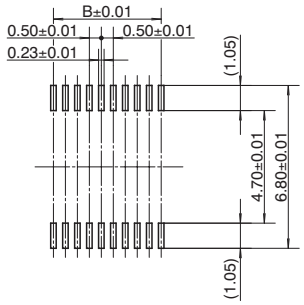
Recommended PC board pattern
(TOP VIEW)



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

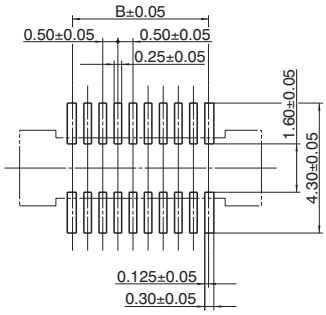


Recommended metal mask pattern
Metal mask thickness: Here, 120 μm
(Opening area ratio: 69%)

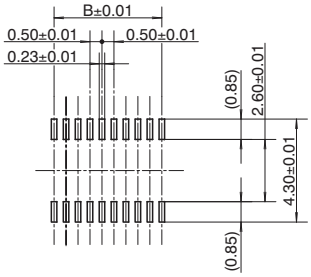


• Header

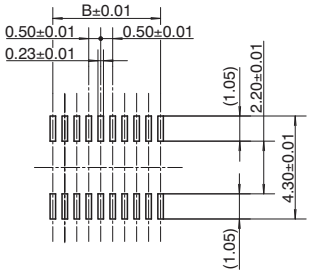
Recommended PC board pattern
(TOP VIEW)



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 89 for more information on the B dimension of the socket and header.

For Cautions for Use, see Connector Technical Information (page 136). For other details, please verify with the product specification sheets.

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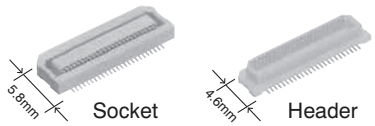
For board-to-board

Narrow pitch connectors (0.5mm pitch)

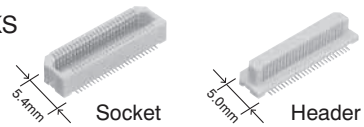
P5K, P5KS Series

TOUGH CONTACT

• P5K



• P5KS



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

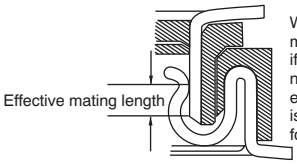
FEATURES

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.

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

2. Strong resistance to adverse environments! Utilizes TOUGH CONTACT construction for high contact reliability.

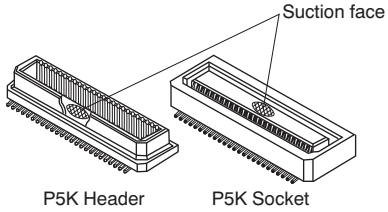
3. Even with the low profile, the effective mating length has been extended to ensure that there is some latitude in the mating.



Type	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.

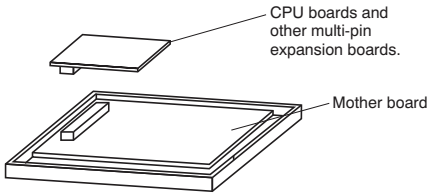


APPLICATIONS

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)

AXK □ □□ □ □ 7 Y G

5: Narrow Pitch Connector P5K Socket
6: Narrow Pitch Connector P5K Header

Number of contacts (2 digits)

Mated height
<Socket>
1: For mated height 3.0 mm and 3.5 mm
<Header>
2: For mated height 3.5 mm
3: For mated height 3.0 mm

Functions
3: With positioning bosses
4: Without positioning bosses

Surface treatment (Contact portion / Terminal portion)
7: Ni plating on base, Au plating on surface /
Ni plating on base, Au plating on surface (Ni barrier product)

Contact portion
<Socket> Y: V notch type product
<Header> Y: V notch type product

Packing
G: 1,500 pieces embossed tape and plastic reel x 2

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)

AXK □ □□ □ □ 7 Y G

5S: Narrow Pitch Connector P5KS Socket
6S: Narrow Pitch Connector P5KS Header

Number of contacts (2 digits)

Mated height
<Socket>
0: For mated height 4.0 mm, 5.0 mm and 6.0 mm
2: For mated height 4.5 mm, 5.5 mm and 6.5 mm
3: For mated height 7.0 mm, 8.0 mm and 9.0 mm
<Header>
4: For mated height 4.0 mm, 4.5 mm and 7.0 mm
5: For mated height 5.0 mm, 5.5 mm and 8.0 mm
6: For mated height 6.0 mm, 6.5 mm and 9.0 mm

Functions
3: With positioning boss and direction for protection from reverse mating
4: Without positioning boss/with direction for protection from reverse mating
7: With positioning boss/without direction for protection from reverse mating
8: Without positioning boss and direction for protection from reverse mating

Surface treatment (Contact portion / Terminal portion)
7: Ni plating on base, Au plating on surface /
Ni plating on base, Au plating on surface (Ni barrier product)

Contact portion
<Socket> Y: V notch type product
<Header> Y: V notch type product

Packing
G: 1,500 pieces embossed tape and plastic reel ¥ 2
(Socket: Mated heights 4.0 mm, 4.5 mm, 5.0 mm, 5.5 mm, 6.0 mm, 6.5 mm
Header: Mated heights 4.0 mm, 4.5 mm, 7.0 mm)
1,000 pieces plastic reel x 2
(Socket: Mated heights 7.0 mm, 8.0 mm, 9.0 mm
Header: Mated heights 5.0 mm, 5.5 mm, 6.0 mm, 6.5 mm, 8.0 mm, 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

Product name	Mated height	No. of contacts	Part No.		Packing	
			Socket	Header	Inner carton (1 reel)	Outer carton
			TOUGH CONTACT	TOUGH CONTACT		
P5K	3.0 mm	20	AXK520147YG	AXK620347YG	1,500 pieces	3,000 pieces
		22	AXK522147YG	AXK622347YG		
		30	AXK530147YG	AXK630347YG		
		40	AXK540147YG	AXK640347YG		
		50	AXK550147YG	AXK650347YG		
		60	AXK560147YG	AXK660347YG		
		70	AXK570147YG	AXK670347YG		
		80	AXK580147YG	AXK680347YG		
		100	AXK500147YG	AXK600347YG		
		120	AXK5A2147YG	AXK6A2347YG		
	3.5 mm	20	AXK520147YG	AXK620247YG		
		22	AXK522147YG	AXK622247YG		
		30	AXK530147YG	AXK630247YG		
		34	AXK534147YG	AXK634247YG		
		40	AXK540147YG	AXK640247YG		
		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 138.)
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: AXK52013**7**YG
3. Previous non-TOUGH CONTACT types and current TOUGH CONTACT types are compatible for mating.

2. P5KS

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

Product name	Mated height	No. of contacts	Part No.		Packing	
			Socket	Header	Inner carton (1 reel)	Outer carton
			TOUGH CONTACT	TOUGH CONTACT		
P5KS	7.0 mm	20	AXK5S20347YG	AXK6S20447YG	Socket: 1,000 pieces Header: 1,500 pieces	Socket: 2,000 pieces Header: 3,000 pieces
		30	AXK5S30347YG	AXK6S30447YG		
		40	AXK5S40347YG	AXK6S40447YG		
		50	AXK5S50347YG	AXK6S50447YG		
		60	AXK5S60347YG	AXK6S60447YG		
		70	AXK5S70347YG	AXK6S70447YG		
		80	AXK5S80347YG	AXK6S80447YG		
		100	AXK5S00347YG	AXK6S00447YG		
	8.0 mm	20	AXK5S20347YG	AXK6S20547YG	1,000 pieces	2,000 pieces
		30	AXK5S30347YG	AXK6S30547YG		
		40	AXK5S40347YG	AXK6S40547YG		
		50	AXK5S50347YG	AXK6S50547YG		
		60	AXK5S60347YG	AXK6S60547YG		
		70	AXK5S70347YG	AXK6S70547YG		
		80	AXK5S80347YG	AXK6S80547YG		
		100	AXK5S00347YG	AXK6S00547YG		
	9.0 mm	20	AXK5S20347YG	AXK6S20647YG		
		30	AXK5S30347YG	AXK6S30647YG		
		40	AXK5S40347YG	AXK6S40647YG		
		50	AXK5S50347YG	AXK6S50647YG		
		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 138.)
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-TOUGH CONTACT types and current TOUGH CONTACT types are compatible for mating.

SPECIFICATIONS

1. Characteristics

Item		Specifications			Conditions
		3mm, 3.5mm type	4mm, 4.5mm, 5mm, 5.5mm, 6mm, 6.5mm type	7mm, 8mm, 9mm type	
Electrical characteristics	Rated current	0.5A/terminal (Max. 10A)	0.5A/terminal (Max. 16A)		
	Rated voltage	60V AC/DC			
	Breakdown voltage	150V AC for 1 min.			Detection current: 1mA
	Insulation resistance	Min. 1000MΩ			Using 500V DC megger
	Contact resistance	Max. 60mΩ		Max. 80mΩ	Based on the contact resistance measurement method specified by JIS C 5402.
Mechanical characteristics	Composite insertion force	Max. 0.785N {80gf} × no. of contacts (initial)			
	Composite removal force	Min. 0.0588N {6gf} × no. of contacts			
	Contact holding force	Min. 0.98N {100gf}/contacts			Measuring the maximum force. As the contact is axially pull out.
Environmental characteristics	Ambient temperature	–55°C to +85°C			No freezing at low temperatures
	Soldering heat resistance	Max. peak temperature of 260°C (on the surface of the PC board around the connector terminals)			Infrared reflow soldering
		300°C within 5 sec., 350°C within 3 sec.			Soldering iron
	Thermal shock resistance (header and socket mated)	5 cycles, insulation resistance min. 100MΩ, contact resistance max. 60mΩ		5 cycles, insulation resistance min. 100MΩ, contact resistance max. 80mΩ	Sequence 1. –55 $^{0}_{-3}$°C, 30 minutes 2. ~ , Max. 5 minutes 3. 85 $^{+3}_{0}$°C, 30 minutes 4. ~ , Max. 5 minutes
	Humidity resistance (header and socket mated)	120 hours, insulation resistance min. 100MΩ, contact resistance max. 60mΩ		120 hours, insulation resistance min. 100MΩ, contact resistance max. 80mΩ	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. 60mΩ		24 hours, insulation resistance min. 100MΩ, contact resistance max. 80mΩ	Bath temperature 35±2°C, saltwarter concentration 5±1%
	H_2S resistance (header and socket mated)	48 hours, contact resistance max. 60mΩ		48 hours, contact resistance max. 80mΩ	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 Socket: 0.17g Header: 0.09g P5KS 4mm 30 contacts Socket: 0.18g Header: 0.16g			

2. Material and surface treatment

Part name	Mated height 3mm, 3.5mm, 4mm, 4.5mm, 5mm, 5.5mm, 6mm, 6.5mm, 7mm, 8mm, 9mm	
	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

Interested in CAD data? You can obtain CAD data for all products with a **CAD Data** mark from your local Panasonic Electric Works representative.

(Unit: mm)

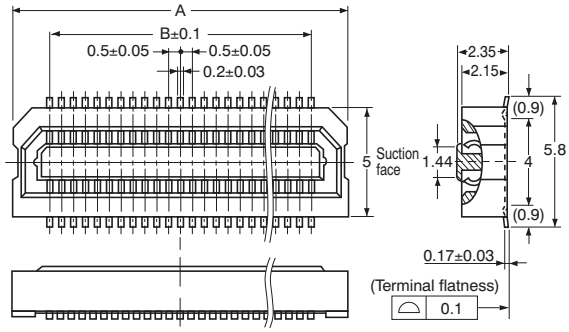
P5K: Mated height 3mm, 3.5mm type

• Socket

CAD Data

Dimension table (mm)

No. of contacts	A	B
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



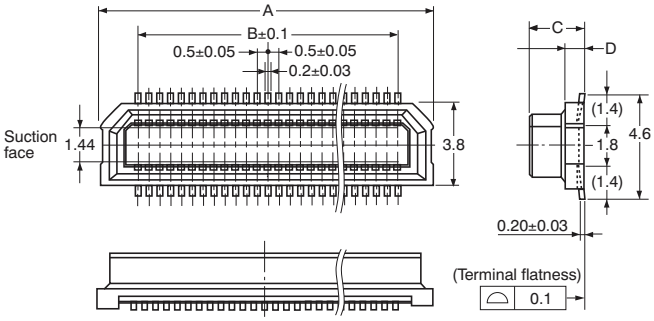
General tolerance: ±0.2

• Header

CAD Data

Dimension table (mm)

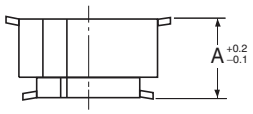
No. of contacts	A	B
20	8.20	4.50
22	8.70	5.00
30	10.70	7.00
34	11.70	8.00
40	13.20	9.50
50	15.70	12.00
60	18.20	14.50
70	20.70	17.00
80	23.20	19.50
100	28.20	24.50
120	33.20	29.50



General tolerance: ±0.2

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

• Socket and header are mated



Mated height	A
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, 6.5mm, 7.0mm, 8.0mm, and 9.0mm) cannot be mated to this type.

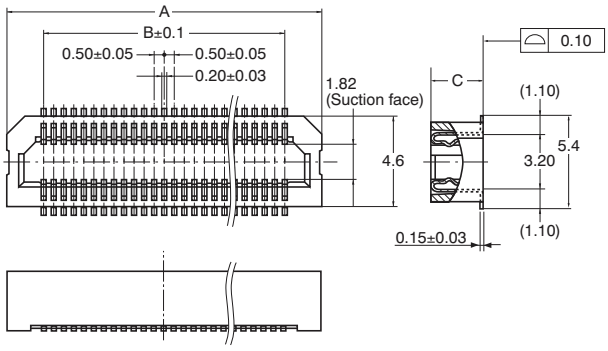
P5KS: Mated height 4.0mm, 4.5mm, 5.0mm, 5.5mm, 6.0mm, 6.5mm, 7.0mm, 8.0mm, 9.0mm type

• Socket

CAD Data

Dimension table (mm)

No. of contacts	A	B
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

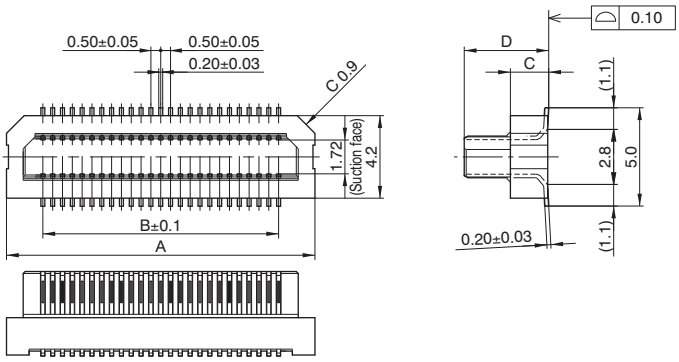
Mated height	C
4.0 mm, 5.0 mm, 6.0 mm	3.05
4.5 mm, 5.5 mm, 6.5 mm	3.55
7.0 mm, 8.0 mm, 9.0 mm	6.05

• Header

CAD Data

Dimension table (mm)

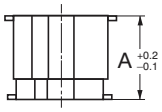
No. of contacts	A	B
20	8.20	4.50
24	9.20	5.50
30	10.70	7.00
34	11.70	8.00
36	12.20	8.50
40	13.20	9.50
50	15.70	12.00
60	18.20	14.50
70	20.70	17.00
80	23.20	19.50
100	28.20	24.50



General tolerance: ±0.2

Mated height	C	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.

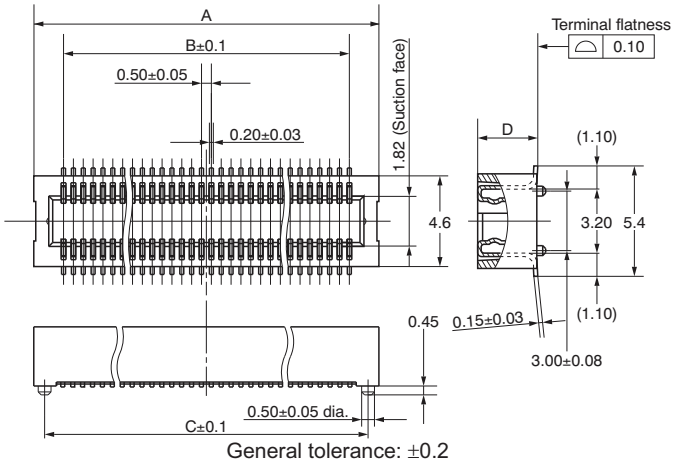
Mated height	A
4.0 mm	4.0
4.5 mm	4.5
5.0 mm	5.0
5.5 mm	5.5
6.0 mm	6.0
6.5 mm	6.5
7.0 mm	7.0
8.0 mm	8.0
9.0 mm	9.0

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

• Socket

CAD Data

No. of contacts	A	B	C
120	32.50	29.50	32.00
130	35.00	32.00	34.50
160	42.50	39.50	42.00



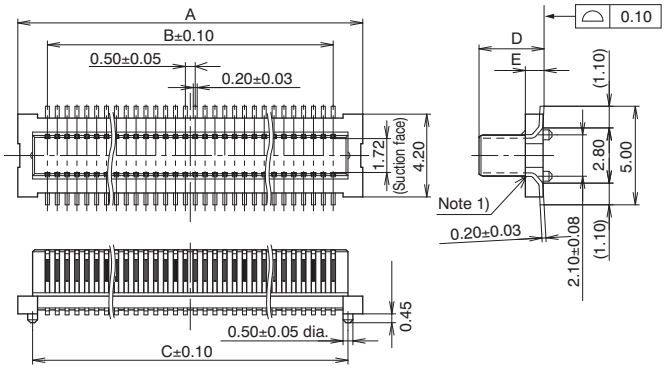
General tolerance: ±0.2

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

• Header

CAD Data

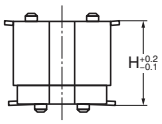
No. of contacts	A	B	C
120	32.50	29.50	31.00
130	35.00	32.00	33.50
160	42.50	39.50	41.00



General tolerance: ±0.2

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

• Socket and header are mated



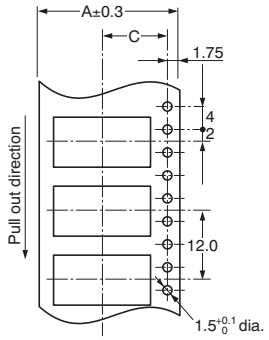
Mated height	H
4.0 mm	4.0
4.5 mm	4.5
6.5 mm	6.5

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.

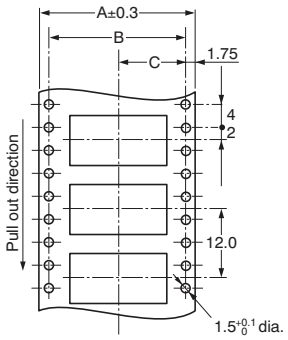
EMBOSSED TAPE DIMENSIONS (unit: mm, Common for respective contact type, socket and header)

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

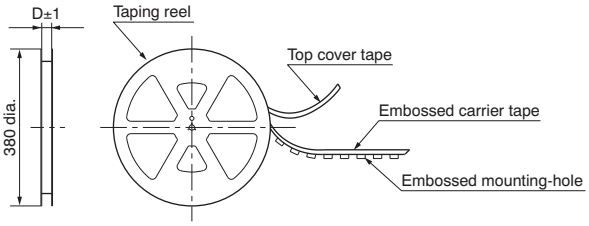
Tape I



Tape II



• Plastic reel dimensions (Conforming to EIAJ ET–7200B)

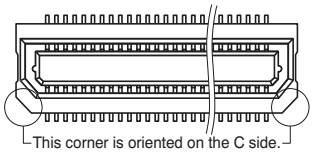
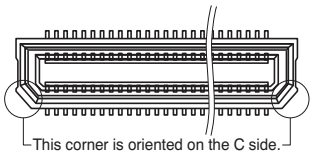
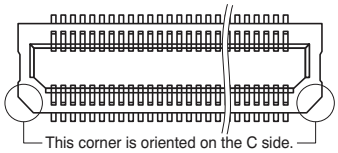
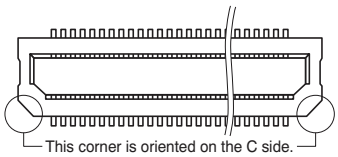
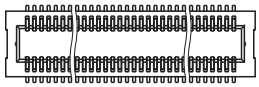
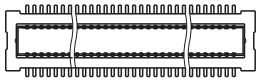


Dimension table (mm)

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

Type	Mated height	No. of contacts	Type of taping	A	B	C	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	
		80 to 100	Tape II	44.0	40.4	20.2	45.4	
		120	Tape II	56.0	52.4	26.2	57.4	
P5KS	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	1,500 pcs.
		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	
		120 to 160	Tape II	56.0	52.4	26.2	57.4	
	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	1,000 pcs.
		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

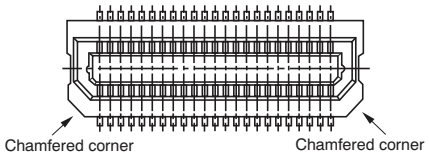
Direction of tape progress / Type	P5K	P5KS (Less than 100 contacts)	P5KS 120, 130, 160 contacts
↓	Socket  This corner is oriented on the C side. Header  This corner is oriented on the C side.	Socket  This corner is oriented on the C side. Header  This corner is oriented on the C side.	Socket  Header  Note: There is no indication on this product regarding top-bottom or left-right orientation.

NOTES

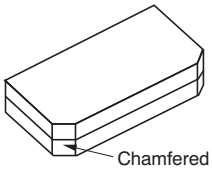
1. Prevention of reverse mating

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.

Outline (top view)



Mating state

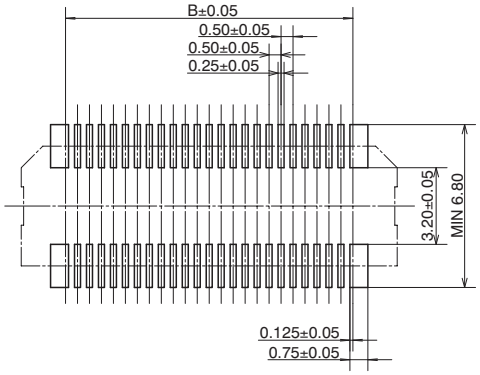


2. PC Boards and Recommended Metal Mask Patterns

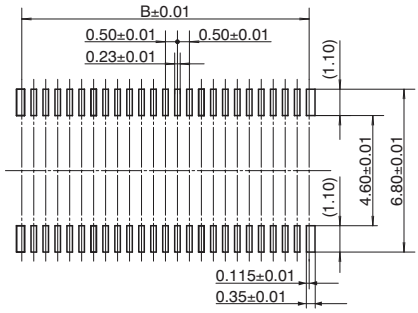
Connectors are mounted with high density, with a pitch interval of 0.4 to 0.5 mm. It is therefore necessary to make sure that the right levels of solder are used, in order to reduce solder bridge and other issues. The figures to the right are recommended metal mask patterns. Please use them as a reference.

• P5K Socket

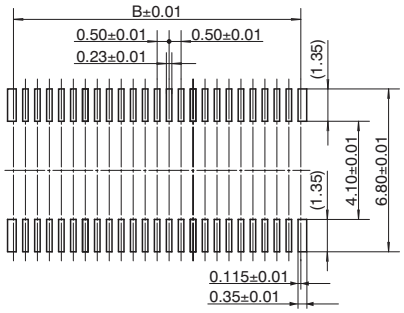
Recommended PC board pattern
(TOP VIEW)



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

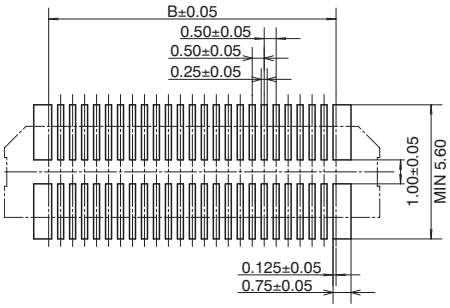


Recommended metal mask pattern
Metal mask thickness: Here, 120 μm
(Opening area ratio: 69%)

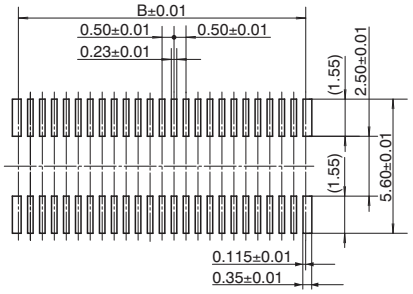


• P5K Header

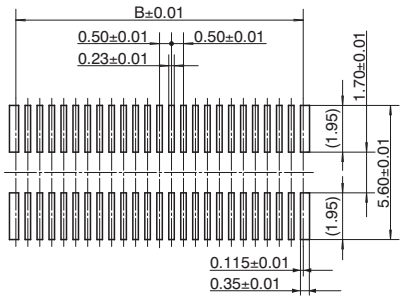
Recommended PC board pattern
(TOP VIEW)



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



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

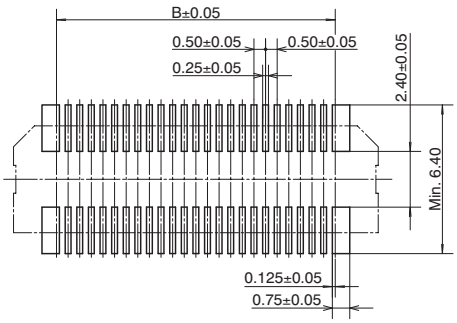


* See the dimension table on page 98 for more information on the B dimension of the socket and header.

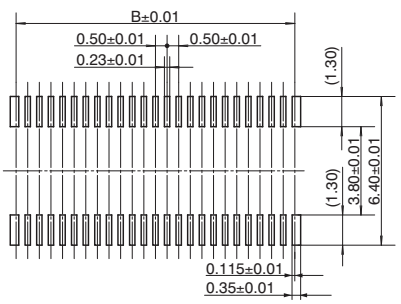
P5KS: Mated height 4.0mm, 4.5mm, 5.0mm, 5.5mm, 6.0mm, 6.5mm, 7.0mm, 8.0mm, 9.0mm type

• Socket

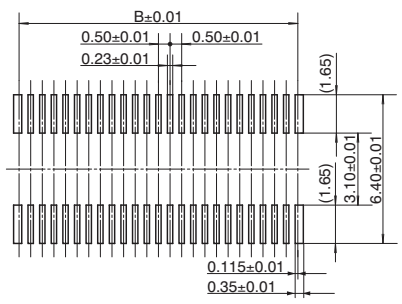
Recommended PC board pattern
(TOP VIEW)



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



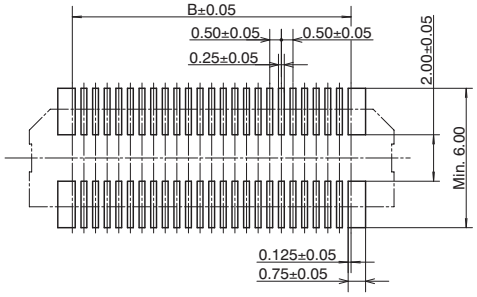
Recommended metal mask pattern
Metal mask thickness: Here, 120 μm
(Opening area ratio: 76%)



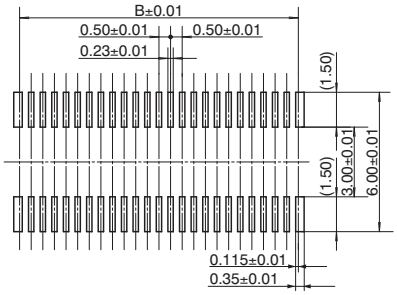
* See the dimension table on page 99 for more information on the B dimension.

• Header

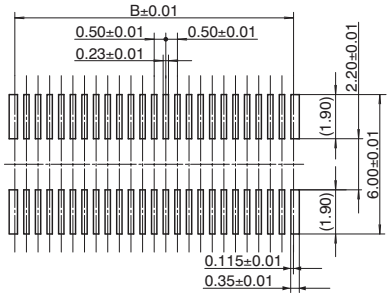
Recommended PC board pattern
(TOP VIEW)



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%)

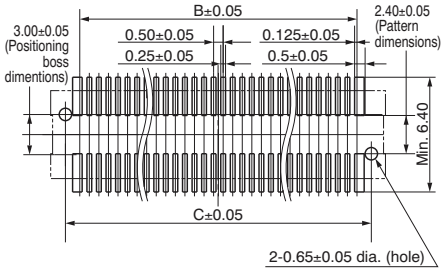


* See the dimension table on page 99 for more information on the B dimension.

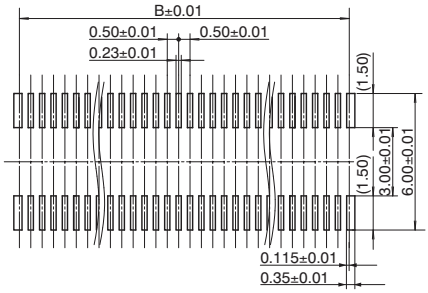
P5KS: Mated height 4.0mm, 4.5mm for 120 contacts and 160 contacts types, 6.5mm for 130 contacts type

• Socket

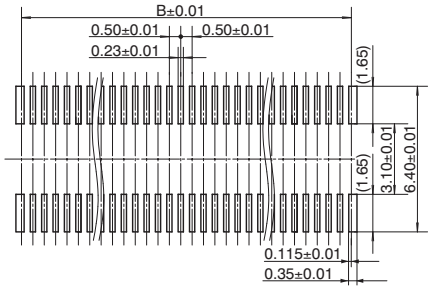
Recommended PC board pattern
(TOP VIEW)



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



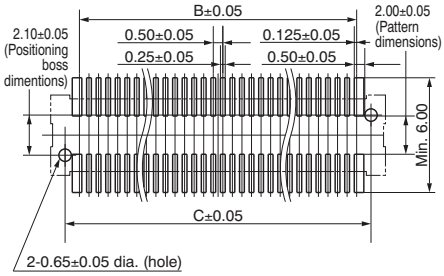
Recommended metal mask pattern
Metal mask thickness: Here, 120 μm
(Opening area ratio: 76%)



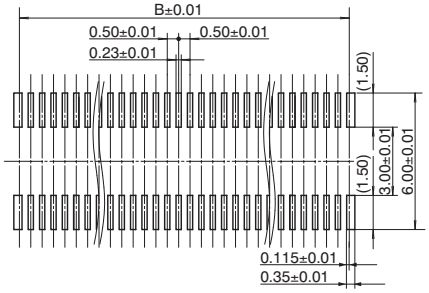
* See the dimension table on page 100 for more information on the B and C dimensions.

• Header

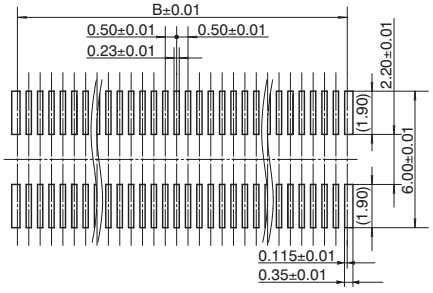
Recommended PC board pattern
(TOP VIEW)



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

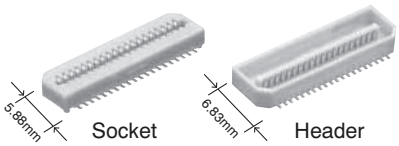


Recommended metal mask pattern
Metal mask thickness: Here, 120 μm
(Opening area ratio: 87%)



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

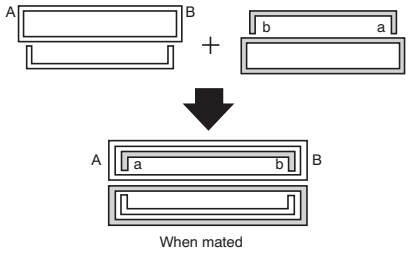
For Cautions for Use, see Connector Technical Information (page 136). For other details, please verify with the product specification sheets.



FEATURES

1. The product lineup consists of the low profile of 3.0 mm, 3.5 mm, 4.0 mm, 4.5 mm, 5.0 mm, 5.5 mm, 6.0 mm, 7.0 mm, 8.0 mm, 11.5 mm, and 13.0 mm 14.0 mm.

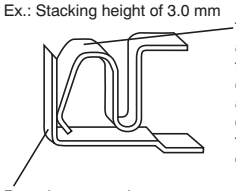
2. For the 11.5-mm type, the socket and header have the same shape.
This simplifies management of stock and delivering.



3. Perfect for portable devices, the bellows-type contacts provide a strong resistance against falling, impacts, and forced insertions and removals.

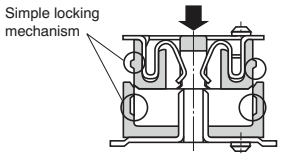
Bellows-type contacts
Bellows-type contacts resist mating stress and offer high contact reliability.

Ex.: Stacking height of 3.0 mm



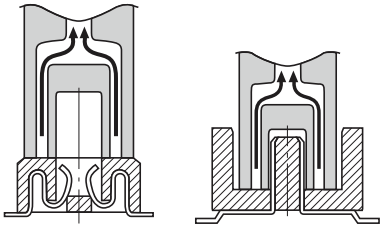
4. Porosity treatment applied for improved resistance against corrosion.

5. Simple lock mechanism
Lock mechanism ensures proper contact and provides resistance against vibrations and shocks.
3.0 mm, 3.5 mm, 4.0 mm, 4.5 mm, 5.0 mm, 5.5 mm, 6.0 mm, 7.0 mm, 8.0 mm, 13.0 mm, and 14.0 mm.

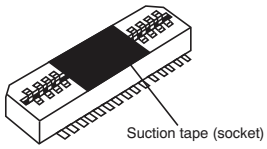


The simple lock mechanism is not featured on the 11.5-mm type. However, proper contact and resistance against vibrations and shocks are both ensured by the long mating length.

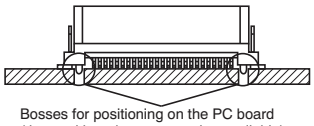
6. Automatic mounting (excluding 11.5 mm type)
1) Automatic mounting machine is available with an exclusive mounting nozzle.
Using the following types of suction nozzles make the connectors compatible with automatic mounting without the need for suction tape.



Suction tape and covers are also available for compatibility with other types of mounting machines.



2) Positioning bosses (those without bosses are also available)



APPLICATIONS

Small portable equipment, laptop computers, video equipment, radio communication, cellular telephones, etc.

ORDERING INFORMATION

1. P8 (11.5 mm)

AXN 1 □□ □ 0 1 1 5 □

1: Narrow Pitch Connector P8 (0.8 mm pitch)
Socket and header are common

Number of contacts (2 digits)

Suction cover
Nil: Without suction tape
C: With suction tape

Terminal shape/Mated direction/Mated height
0: For SMD vertical mating, mated height 11.5 mm

Functions
1: With soldering terminals, with positioning bosses

Surface treatment (Contact portion / Terminal portion)
1: Ni plating on base, Au plating on surface / Ni plating on base, Au plating on surface

Other specifications
5: Part control number

Packing
P: Embossed tape and paper reel x 2
S: Tube package

2. P8 (3.0 mm, 3.5 mm, 4.0 mm, 4.5 mm, 5.0 mm, 5.5 mm, 6.0 mm, 7.0 mm, 8.0 mm, 13.0 mm, 14.0 mm)

AXN □ □□ □ □ □ □ □ □

3: Narrow Pitch Connector P8 (0.8 mm pitch) Socket
4: Narrow Pitch Connector P8 (0.8 mm pitch) Header

Number of contacts (2 digits)

Suction tape and cover
Nil: Socket; without suction tape, Header; without suction cover
C: Socket; with suction tape, Header; with suction cover

Mated height
<Socket>
0: For mated height 3.0 mm, 4.0 mm and 5.0 mm
1: For mated height 6.0 mm, 7.0 mm, 8.0 mm, 13.0 mm and 14.0 mm
2: For mated height 3.5 mm, 4.5 mm and 5.5 mm
<Header>
0: For mated height 13.0 mm
1: For mated height 14.0 mm
3: For mated height 3.0 mm, 3.5 mm and 6.0 mm
4: For mated height 4.0 mm, 4.5 mm and 7.0 mm
5: For mated height 5.0 mm, 5.5 mm and 8.0 mm

Functions
3: With positioning bosses
(Except for mated height 13.0 mm header, embossed tape packing)
4: Without positioning bosses
(Mated height 13.0 mm header, embossed tape packing and mated height 14.0 mm header only)

Surface treatment (Contact portion / Terminal portion)
<Socket>
0: Ni plating on base, Au plating on surface / Ni plating on base, Au plating on surface (Applies to mated heights of 6.0 to 14.0 mm.)
8: Ni plating on base, Au plating on surface / Ni plating on base, Au plating on surface (Applies to mated heights of 3.0 to 5.5 mm.)
<Header>
0: Ni plating on base, Au plating on surface / Ni plating on base, Au plating on surface

Packing
J: 1,500 pieces embossed tape and paper reel x 2
P: 1,000 pieces embossed tape and paper reel x 2
S: Tube package

Notes: 1. The tape width for 100-pin embossed tape packaging is non-JIS standard. Please inquire.
2. The depth of the embossed tape for headers with 13 mm and 14 mm mated heights is non-JIS standard. Please test with your mounter before using.
3. Models possible for "J" packaging are as follows:
Socket mated heights: 3.0 mm, 3.5 mm, 4.0 mm, 4.5 mm, 5.0 mm, and 5.5 mm
Headers: Mated heights 3.0 mm, 3.5 mm, and 6.0 mm

PRODUCT TYPES

Mated height	No. of contacts	Stick package				Embossed tape package			
		Part No.		Packing quantity		Part No.		Packing quantity	
		Socket	Header	Stick	Outer carton	Socket	Header	Inner carton (1 reel)	Outer carton
3.0 mm	16	AXN316038S	AXN416330S	50 pcs.	300 pcs.	AXN316038*	AXN416330*	Note 1) "Asterisk" mark on end of part No.; J: 1,500 pieces (recommendation) P: 1,000 pieces	Note 1) "Asterisk" mark on end of part No.; J: 3,000 pieces (recommendation) P: 2,000 pieces
	20	AXN320038S	AXN420330S	50 pcs.	300 pcs.	AXN320038*	AXN420330*		
	24	AXN324038S	AXN424330S	30 pcs.	300 pcs.	AXN324038*	AXN424330*		
	26	AXN326038S	AXN426330S	30 pcs.	300 pcs.	AXN326038*	AXN426330*		
	30	AXN330038S	AXN430330S	30 pcs.	300 pcs.	AXN330038*	AXN430330*		
	40	AXN340038S	AXN440330S	25 pcs.	300 pcs.	AXN340038*	AXN440330*		
	50	AXN350038S	AXN450330S	20 pcs.	300 pcs.	AXN350038*	AXN450330*		
	60	AXN360038S	AXN460330S	15 pcs.	300 pcs.	AXN360038*	AXN460330*		
	80	AXN380038S	AXN480330S	12 pcs.	300 pcs.	AXN380038*	AXN480330*		
	100	AXN300038S	AXN400330S	12 pcs.	300 pcs.	—	—		
3.5 mm	16	AXN316238S	AXN416330S	50 pcs.	300 pcs.	AXN316238*	AXN416330*		
	24	AXN324238S	AXN424330S	30 pcs.	300 pcs.	AXN324238*	AXN424330*		
	26	AXN326238S	AXN426330S	30 pcs.	300 pcs.	AXN326238*	AXN426330*		
	30	AXN330238S	AXN430330S	30 pcs.	300 pcs.	AXN330238*	AXN430330*		
	60	AXN360238S	AXN460330S	15 pcs.	300 pcs.	AXN360238*	AXN460330*		
4.0 mm	16	AXN316038S	AXN416430S	50 pcs.	300 pcs.	AXN316038*	AXN416430P		
	20	AXN320038S	AXN420430S	50 pcs.	300 pcs.	AXN320038*	AXN420430P		
	26	AXN326038S	AXN426430S	30 pcs.	300 pcs.	AXN326038*	AXN426430P		
	30	AXN330038S	AXN430430S	30 pcs.	300 pcs.	AXN330038*	AXN430430P		
	40	AXN340038S	AXN440430S	25 pcs.	300 pcs.	AXN340038*	AXN440430P		
	50	AXN350038S	AXN450430S	20 pcs.	300 pcs.	AXN350038*	AXN450430P		
	60	AXN360038S	AXN460430S	15 pcs.	300 pcs.	AXN360038*	AXN460430P		
	80	AXN380038S	AXN480430S	12 pcs.	300 pcs.	AXN380038*	AXN480430P		
	100	AXN300038S	AXN400430S	12 pcs.	300 pcs.	—	—		
4.5 mm	16	AXN316238S	AXN416430S	50 pcs.	300 pcs.	AXN316238*	AXN416430P		
	26	AXN326238S	AXN426430S	30 pcs.	300 pcs.	AXN326238*	AXN426430P		
	30	AXN330238S	AXN430430S	30 pcs.	300 pcs.	AXN330238*	AXN430430P		
	60	AXN360238S	AXN460430S	15 pcs.	300 pcs.	AXN360238*	AXN460430P		
5.0 mm	12	AXN312038S	AXN412530S	50 pcs.	300 pcs.	AXN312038*	AXN412530P		
	14	AXN314038S	AXN414530S	50 pcs.	300 pcs.	AXN314038*	AXN414530P		
	20	AXN320038S	AXN420530S	50 pcs.	300 pcs.	AXN320038*	AXN420530P		
	24	AXN324038S	AXN424530S	30 pcs.	300 pcs.	AXN324038*	AXN424530P		
	26	AXN326038S	AXN426530S	30 pcs.	300 pcs.	AXN326038*	AXN426530P		
	30	AXN330038S	AXN430530S	30 pcs.	300 pcs.	AXN330038*	AXN430530P		
	40	AXN340038S	AXN440530S	25 pcs.	300 pcs.	AXN340038*	AXN440530P		
	50	AXN350038S	AXN450530S	20 pcs.	300 pcs.	AXN350038*	AXN450530P		
	60	AXN360038S	AXN460530S	15 pcs.	300 pcs.	AXN360038*	AXN460530P		
	80	AXN380038S	AXN480530S	12 pcs.	300 pcs.	AXN380038*	AXN480530P		
	100	AXN300038S	AXN400530S	12 pcs.	300 pcs.	—	—		
5.5 mm	12	AXN312238S	AXN412530S	50 pcs.	300 pcs.	AXN312238*	AXN412530P		
	24	AXN324238S	AXN424530S	30 pcs.	300 pcs.	AXN324238*	AXN424530P		
	26	AXN326238S	AXN426530S	30 pcs.	300 pcs.	AXN326238*	AXN426530P		
	30	AXN330238S	AXN430530S	30 pcs.	300 pcs.	AXN330238*	AXN430530P		
	60	AXN360238S	AXN460530S	15 pcs.	300 pcs.	AXN360238*	AXN460530P		
6.0 mm	20	AXN320130S	AXN420330S	50 pcs.	300 pcs.	AXN320130P	AXN420330*		
	24	AXN324130S	AXN424330S	30 pcs.	300 pcs.	AXN324130P	AXN424330*		
	26	AXN326130S	AXN426330S	30 pcs.	300 pcs.	AXN326130P	AXN426330*		
	30	AXN330130S	AXN430330S	30 pcs.	300 pcs.	AXN330130P	AXN430330*		
	40	AXN340130S	AXN440330S	25 pcs.	300 pcs.	AXN340130P	AXN440330*		
	50	AXN350130S	AXN450330S	20 pcs.	300 pcs.	AXN350130P	AXN450330*		
	60	AXN360130S	AXN460330S	15 pcs.	300 pcs.	AXN360130P	AXN460330*		
	64	AXN364130S	AXN464330S	15 pcs.	300 pcs.	AXN364130P	AXN464330*		
	80	AXN380130S	AXN480330S	12 pcs.	300 pcs.	AXN380130P	AXN480330*		
	100	AXN300130S	AXN400330S	12 pcs.	300 pcs.	—	—		
7.0 mm	20	AXN320130S	AXN420430S	50 pcs.	300 pcs.	AXN320130P	AXN420430P		
	22	AXN322130S	AXN422430S	30 pcs.	300 pcs.	AXN322130P	AXN422430P		
	26	AXN326130S	AXN426430S	30 pcs.	300 pcs.	AXN326130P	AXN426430P		
	30	AXN330130S	AXN430430S	30 pcs.	300 pcs.	AXN330130P	AXN430430P		
	40	AXN340130S	AXN440430S	25 pcs.	300 pcs.	AXN340130P	AXN440430P		
	50	AXN350130S	AXN450430S	20 pcs.	300 pcs.	AXN350130P	AXN450430P		
	60	AXN360130S	AXN460430S	15 pcs.	300 pcs.	AXN360130P	AXN460430P		
	80	AXN380130S	AXN480430S	12 pcs.	300 pcs.	AXN380130P	AXN480430P		
	100	AXN300130S	AXN400430S	12 pcs.	300 pcs.	—	—		

Mated height	No. of contacts	Stick package				Embossed tape package			
		Part No.		Packing quantity		Part No.		Packing quantity	
		Socket	Header	Stick	Outer carton	Socket	Header	Inner carton (1 reel)	Outer carton
8.0 mm	20	AXN320130S	AXN420530S	50 pcs.	300 pcs.	AXN320130P	AXN420530P	1,000 pcs.	2,000 pcs.
	22	AXN322130S	AXN422530S	30 pcs.	300 pcs.	AXN322130P	AXN422530P		
	24	AXN324130S	AXN424530S	30 pcs.	300 pcs.	AXN324130P	AXN424530P		
	26	AXN326130S	AXN426530S	30 pcs.	300 pcs.	AXN326130P	AXN426530P		
	30	AXN330130S	AXN430530S	30 pcs.	300 pcs.	AXN330130P	AXN430530P		
	34	AXN334130S	AXN434530S	30 pcs.	300 pcs.	AXN334130P	AXN434530P		
	40	AXN340130S	AXN440530S	25 pcs.	300 pcs.	AXN340130P	AXN440530P		
	50	AXN350130S	AXN450530S	20 pcs.	300 pcs.	AXN350130P	AXN450530P		
	60	AXN360130S	AXN460530S	15 pcs.	300 pcs.	AXN360130P	AXN460530P		
	80	AXN380130S	AXN480530S	12 pcs.	300 pcs.	AXN380130P	AXN480530P		
	100	AXN300130S	AXN400530S	12 pcs.	300 pcs.	—	—	—	—
11.5 mm	30	AXN1300115S (Socket, Header)		30 pcs.	300 pcs.	AXN1300115P (Socket, Header)		350 pcs.	700 pcs.
	40	AXN1400115S (Socket, Header)		25 pcs.	300 pcs.	AXN1400115P (Socket, Header)		350 pcs.	700 pcs.
	50	AXN1500115S (Socket, Header)		20 pcs.	300 pcs.	AXN1500115P (Socket, Header)		350 pcs.	700 pcs.
	80	AXN1800115S (Socket, Header)		12 pcs.	300 pcs.	AXN1800115P (Socket, Header)		250 pcs.	500 pcs.
	100	AXN1000115S (Socket, Header)		12 pcs.	300 pcs.	—		—	—
13.0 mm	20	AXN320130S	AXN420030S	50 pcs.	300 pcs.	AXN320130P	AXN420040P Note 6)	Socket: 1,000 pcs. Header: 500 pcs.	Socket: 2,000 pcs. Header: 1,000 pcs.
	30	AXN330130S	AXN430030S	30 pcs.	300 pcs.	AXN330130P	AXN430040P Note 6)		
	40	AXN340130S	AXN440030S	25 pcs.	300 pcs.	AXN340130P	AXN440040P Note 6)		
	50	AXN350130S	AXN450030S	20 pcs.	300 pcs.	AXN350130P	AXN450040P Note 6)		
	60	AXN360130S	AXN460030S	15 pcs.	300 pcs.	AXN360130P	AXN460040P Note 6)		
	80	AXN380130S	AXN480030S	12 pcs.	300 pcs.	AXN380130P	AXN480040P Note 6)		
14.0 mm	20	AXN320130S	AXN420130S	50 pcs.	300 pcs.	AXN320130P	AXN420130P	Socket: 1,000 pcs. Header: 400 pcs.	Socket: 2,000 pcs. Header: 800 pcs.

Notes) 1. Please add following suffix at * marked positions.
J: Inner carton (1 reel) 1,500 pcs. (Outer carton: 3,000 pcs.)
P: Inner carton (1 reel) 1,000 pcs. (Outer carton: 2,000 pcs.)
In order to reduce the amount of packaging materials used to help protect the global environment, it is recommended that each packaging box contains 1,500 units with the “J” product number suffix.
As for the part No. P is suffixed, only 1,000 pcs. reel is available.
2. 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 138.)
Samples: Small lot orders are possible. Change the suffix “J” to the suffix “P.”
3. Connectors with suction tape are also available except for 16 contacts type. For this type of connector, insert the letter “C” between the 6th and 7th column of the ordering number.
Example: For a 20-contact socket with 3mm mated height (embossed tape package): AXN320C038P
4. The standard type comes with positioning bosses. Connectors without positioning bosses are available for on-demand production (3,000 pcs./lot or more). Please inquire.
5. Since the embossed tape width of 100-contact connectors packaged with embossed tape exceeds the JIS standard, please consult us.
6. Headers that have 13.0 mm mating height and embossed tape packaging do not come with positioning bosses.
The depth of the embossed tape for headers with 13.0 mm and 14.0 mm mating heights is non-JIS compliant. Please test with your mounter before using.

SPECIFICATIONS

1. Characteristics

Item		Specifications		Conditions
		3mm, 3.5mm, 4mm, 4.5mm, 5.0mm, 5.5mm, 6.0mm, 7.0mm, 8.0mm, 13.0mm, 14.0mm type	11.5mm type	
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		Using 500V DC megger
	Contact resistance	Max. 60mΩ	Max. 50mΩ	Based on the contact resistance measurement method specified by JIS C 5402.
Mechanical characteristics	Composite insertion force	Max. 43.1N {4.40kgf} (30 contacts)	Max. 0.785N {80gf} × no. of contacts (initial)	
	Composite removal force	Min. 6.37N {0.65kgf} (30 contacts)	Min. 0.127N {13gf} × no. of contacts	
	Contact holding force	40 contacts or less: Min. 1.96N {200 gf} 50 contacts or more: Min. 0.981N {100 gf}	Min. 1.96N {200 gf}	Measuring the maximum force. As the contact is axially pull out.
Environmental characteristics	Ambient temperature	–55°C to +85°C		No freezing at low temperatures
	Soldering heat resistance	Max. peak temperature of 245°C (on the surface of the PC board around the connector terminals)		Infrared reflow soldering
		300°C within 5 seconds		Soldering iron
	Storage temperature	–55°C to +85°C (product only) –40°C to +50°C (standard packing)		No freezing at low temperatures. No dew condensation.
	Thermal shock resistance (header and socket mated)	5 cycles, insulation resistance min. 100MΩ, contact resistance max. 60mΩ	5 cycles, insulation resistance min. 100MΩ, contact resistance max. 50mΩ	Sequence 1. –55$^{0}_{-3}$°C, 30 minutes 2. ~ , Max. 5 minutes 3. 85$^{+3}_{0}$°C, 30 minutes 4. ~ , Max. 5 minutes
	Humidity resistance (header and socket mated)	120 hours, insulation resistance min. 100MΩ, contact resistance max. 60mΩ	240 hours, insulation resistance min. 100MΩ, contact resistance max. 50mΩ	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. 60mΩ	48 hours, insulation resistance min. 100MΩ, contact resistance max. 50mΩ	Bath temperature 35±2°C, saltwarter concentration 5±1%
	H_2S resistance (header and socket mated)	48 hours, contact resistance max. 60mΩ	96 hours, contact resistance max. 50mΩ	Bath temperature 40±2°C, gas concentration 3±1 ppm, humidity 75 to 80% R.H.
	SO_2 resistance (header and socket mated)	48 hours, contact resistance max. 60mΩ	96 hours, contact resistance max. 50mΩ	Bath temperature 40±2°C, gas concentration 10±3 ppm, humidity 90 to 95% R.H.
Lifetime characteristics	Insertion and removal life	50 times	100 times	Repeated insertion and removal speed of max. 200 times/hours
Unit weight		Mated height 3mm 30 contacts; Socket: 0.26g Header: 0.26g 50 contacts; Socket: 0.40g Header: 0.44g		

2. Material and surface treatment

Part name	3.0mm, 3.5mm, 4.0mm, 4.5mm, 5.0mm, 5.5mm, 6.0mm, 7.0mm, 8.0mm, 13.0mm, 14.0mm type		11.5mm type	
	Material	Surface treatment	Material	Surface treatment
Molded portion	Heat-resistant resin (UL94V-0)	—	LCP resin (UL94V-0)	—
Bracket	—	—	Copper alloy	Cu plating on base, Sn plating on surface
Contact	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)	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)

DIMENSIONS

Interested in CAD data? You can obtain CAD data for all products with a **CAD Data** mark from your local Panasonic Electric Works representative.

(Unit: mm)

• Mated height 3.0mm, 4.0mm, 4.5mm, 5.0mm, 5.5mm, 6.0mm, 7.0mm, 8.0mm, 13.0mm, 14.0mm type

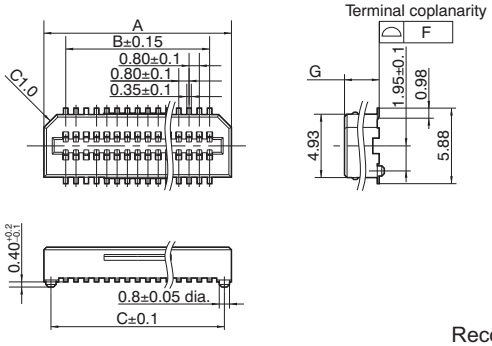
1) Socket

CAD Data

Dimension table (mm)

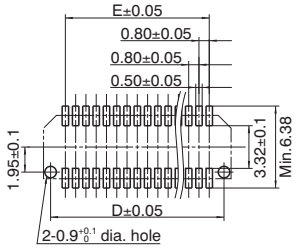
No. of contacts	A	B	C	D	E	F
12	7.40	4.00	6.30	6.30	4.00	0.1
14	8.20	4.80	7.10	7.10	4.80	
16	9.00	5.60	7.90	7.90	5.60	
20	10.60	7.20	9.50	9.50	7.20	
22	11.40	8.00	10.30	10.30	8.00	
24	12.20	8.80	11.10	11.10	8.80	
26	13.00	9.60	11.90	11.90	9.60	
30	14.60	11.20	13.50	13.50	11.20	
34	16.20	12.80	15.10	15.10	12.80	
40	18.60	15.20	17.50	17.50	15.20	
50	23.40	19.20	21.50	21.50	19.20	0.15
60	27.40	23.20	25.50	25.50	23.20	
64	29.00	24.80	27.10	27.10	24.80	
80	35.40	31.20	33.50	33.50	31.20	
100	43.40	39.20	41.50	41.50	39.20	

Mated height	G
3.0mm, 4.0mm, 5.0mm common	2.2
3.5mm, 4.5mm, 5.5mm common	2.7
6.0mm, 7.0mm, 8.0mm, 13.0mm, 14.0mm common	5.2



General tolerance: ±0.3

Recommended PC board pattern (TOP VIEW)



2) Header

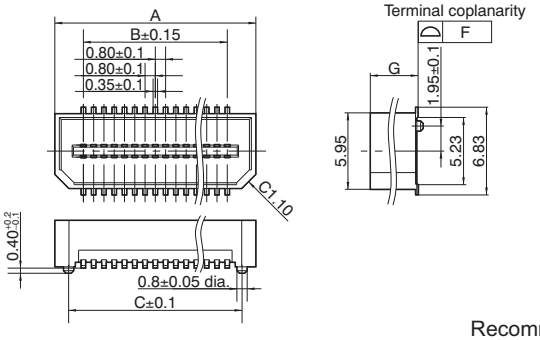
CAD Data

Dimension table (mm)

No. of contacts	A	B	C	D	E	F
12	8.45	4.00	6.30	6.30	4.00	0.1
14	9.25	4.80	7.10	7.10	4.80	
16	10.05	5.60	7.90	7.90	5.60	
20	11.65	7.20	9.50	9.50	7.20	
22	12.45	8.00	10.30	10.30	8.00	
24	13.25	8.80	11.10	11.10	8.80	
26	14.05	9.60	11.90	11.90	9.60	
30	15.65	11.20	13.50	13.50	11.20	
34	17.25	12.80	15.10	15.10	12.80	
40	19.65	15.20	17.50	17.50	15.20	
50	25.85	19.20	21.50	21.50	19.20	Note) 0.15
60	29.85	23.20	25.50	25.50	23.20	
64	31.45	24.80	27.10	27.10	24.80	
80	37.85	31.20	33.50	33.50	31.20	
100	45.85	39.20	41.50	41.50	39.20	

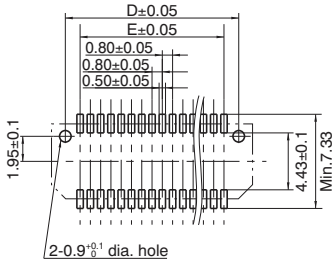
Note) The 13 mm mated height (20 to 80 contacts) terminal flatness is 0.1 mm.

Mated height	G
3.0mm, 3.5mm, 6.0mm common	2.72
4.0mm, 4.5mm, 7.0mm common	3.72
5.0mm, 5.5mm, 8.0mm common	4.72
13.0mm	10.14
14.0mm	11.14

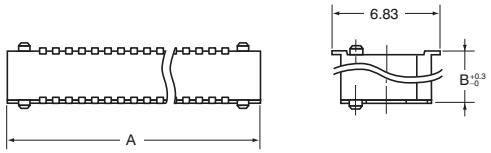


General tolerance: ±0.3

Recommended PC board pattern (TOP VIEW)



3) Socket and header are mated



Dimension table (mm)

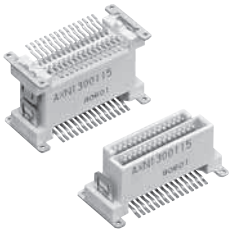
No. of contacts	A
12	8.45
14	9.25
16	10.05
20	11.65
22	12.45
24	13.25
26	14.05
30	15.65
34	17.25
40	19.65
50	25.85
60	29.85
64	31.45
80	37.85
100	45.85

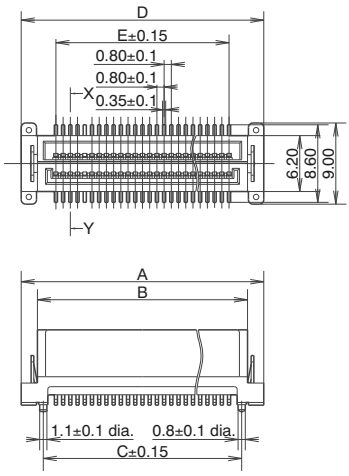
Mated height	B
3.0mm	3
3.5mm	3.5
4.0mm	4
4.5mm	4.5
5.0mm	5
5.5mm	5.5
6.0mm	6
7.0mm	7
8.0mm	8
13.0mm	13
14.0mm	14

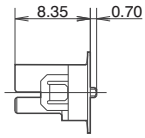
Note) Common for all mated heights.

• Mated height 11.5mm type (Socket and Header)
(30 contacts, 40 contacts, 50 contacts)

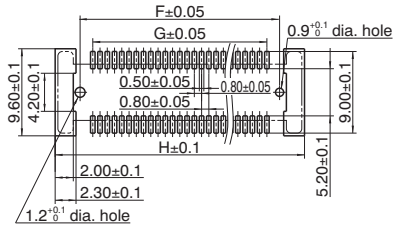
CAD Data





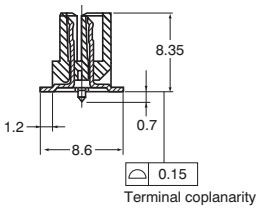


Recommended PC board pattern
(TOP VIEW)

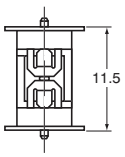


General tolerance: ±0.3

X-Y cross section



Stacking mated diagram

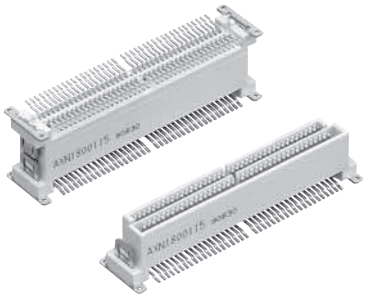


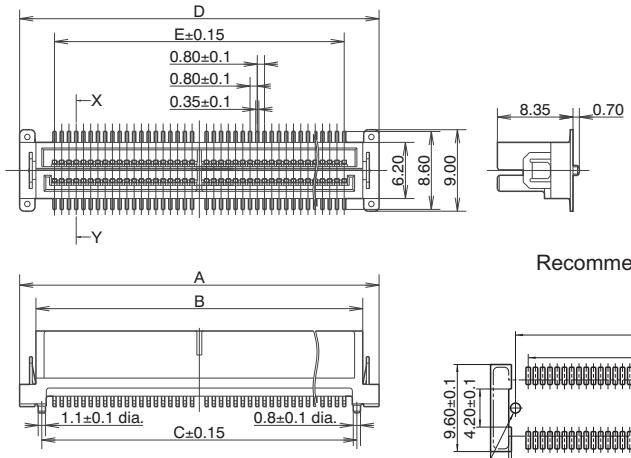
Dimension table (mm)

No. of contacts	A	B	C	D	E	F	G	H
30	18.9	15.3	14.0	18.9	11.2	14.0	11.2	19.5
40	22.9	19.3	18.0	22.9	15.2	18.0	15.2	23.5
50	26.9	23.3	22.0	26.9	19.2	22.0	19.2	27.5

• Mated height 11.5mm type (Socket and Header)
(80 contacts, 100 contacts)

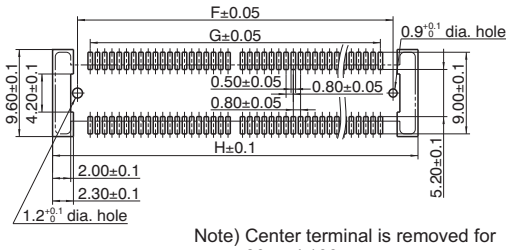
CAD Data





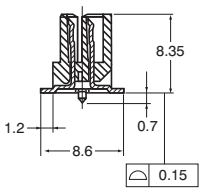
General tolerance: ±0.3

Recommended PC board pattern
(TOP VIEW)



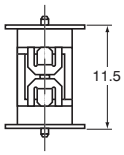
Note) Center terminal is removed for
80 and 100 contact type

X-Y cross section



Terminal coplanarity

Stacking mated diagram



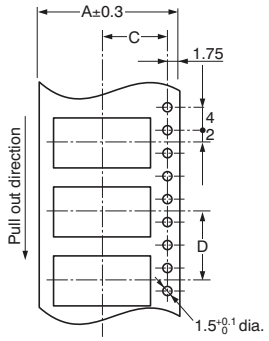
Dimension table (mm)

No. of contacts	A	B	C	D	E	F	G	H
80	39.7	36.1	34.8	39.7	32.0	34.8	32.0	40.3
100	47.7	44.1	42.8	47.7	40.0	42.8	40.0	48.3

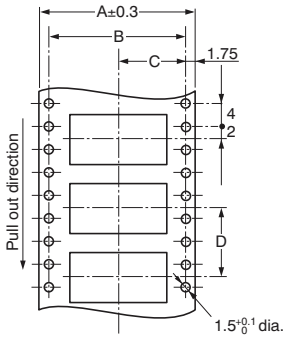
EMBOSSED TAPE DIMENSIONS (unit: mm, Common for respective contact type, socket and header)

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

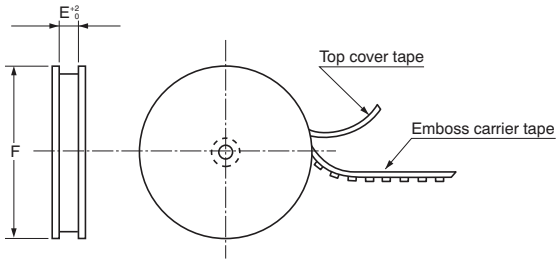
Tape I



Tape II



• Paper reel dimensions (Conforming to JIS C 0806-1990)



Dimension table (mm)

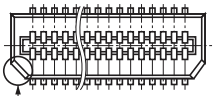
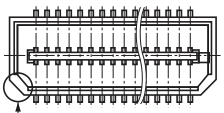
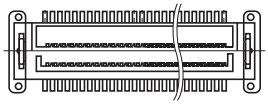
(1) Suffix: J (1 reel, 1,500 pieces embossed tape package)

Mated height	No. of contacts	Type of taping	A	B	C	D	E	F	Quantity per reel
Socket: 3.0mm, 3.5mm, 4.0mm, 4.5mm, 5.0mm, 5.5mm Header: 3.0mm, 3.5mm, 6.0mm	12 to 32	Tape I	24.0	—	11.5	12.0	24.4	370 dia.	1,500 pcs.
	34 to 40	Tape II	32.0	28.4	14.2	12.0	32.4	370 dia.	
	50 to 60	Tape II	44.0	40.4	20.2	12.0	44.4	370 dia.	
	80	Tape II	56.0	52.4	26.2	12.0	56.4	370 dia.	

(2) Suffix: P (1 reel, 1,000, 500, 350 and 250 pieces embossed tape package)

Mated height	No. of contacts	Type of taping	A	B	C	D	E	F	Quantity per reel
Socket: 3.0mm, 3.5mm, 4.0mm, 4.5mm, 5.0mm, 5.5mm Header: 3.0mm, 3.5mm, 4.0mm, 4.5mm, 6.0mm, 7.0mm	12 to 32	Tape I	24.0	—	11.5	12.0	24.4	330 dia.	1,000 pcs.
	34 to 40	Tape II	32.0	28.4	14.2	12.0	32.4	330 dia.	
	50 to 60	Tape II	44.0	40.4	20.2	12.0	44.4	330 dia.	
	80	Tape II	56.0	52.4	26.2	12.0	56.4	330 dia.	
Socket: 6.0mm, 7.0mm, 8.0mm, 13.0mm, 14.0mm Header: 5.0mm, 5.5mm, 8.0mm	16 to 32	Tape I	24.0	—	11.5	12.0	24.4	370 dia.	1,000 pcs.
	34 to 40	Tape II	32.0	28.4	14.2	12.0	32.4	370 dia.	
	50 to 60	Tape II	44.0	40.4	20.2	12.0	44.4	370 dia.	
	80	Tape II	56.0	52.4	26.2	12.0	56.4	370 dia.	
11.5mm	30 to 40	Tape II	32.0	28.4	14.2	24.0	32.4	370 dia.	350 pcs.
	50	Tape II	44.0	40.4	20.2	24.0	44.4	370 dia.	350 pcs.
	80	Tape II	56.0	52.4	26.2	24.0	56.4	370 dia.	250 pcs.
Header: 13.0mm	20	Tape I	24.0	—	11.5	16.0	24.4	370 dia.	500 pcs.
	30	Tape I	24.0	—	11.5	16.0	24.4	370 dia.	500 pcs.
	40	Tape II	32.0	28.4	14.2	16.0	32.4	370 dia.	500 pcs.
	50	Tape II	44.0	40.4	20.2	16.0	44.4	370 dia.	500 pcs.
	60	Tape II	44.0	40.4	20.2	16.0	44.4	370 dia.	500 pcs.
	80	Tape II	56.0	52.4	26.2	16.0	56.4	370 dia.	500 pcs.
Header: 14.0mm	20	Tape I	24.0	—	11.5	16.0	24.4	370 dia.	400 pcs.

Connector orientation with respect to direction of progress of embossed tape

Type / Direction of tape progress	Mated height: 3.0mm, 3.5mm, 4.0mm, 4.5mm, 5.0mm, 5.5mm, 6.0mm, 7.0mm, 8.0mm, 13.0mm	Stacking height 11.5mm
⬇	Socket  This corner is oriented on the C side. Header  This corner is oriented on the C side.	Socket and header are common 

NOTES

Note that types having a mated height of 11.5mm cannot be mated with products having other mated heights even though the shape of their socket headers is the same as the rated shape (position of the positioning boss and arrangement of mounting pads) is different.

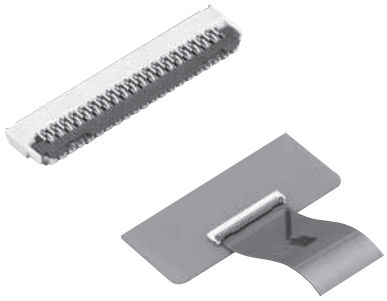
For Cautions for Use, see Connector Technical Information (page 136). For other details, please verify with the product specification sheets.

Panasonic
ideas for life

For FPC

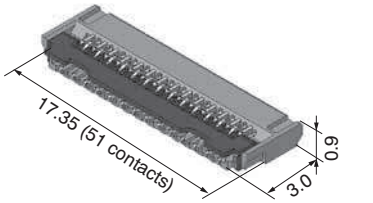
FPC connectors (0.3mm pitch) Front lock with FPC tabs

Y3FT Series



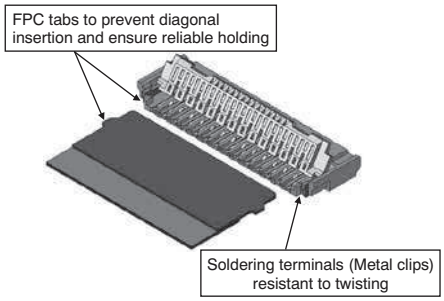
FEATURES

1. Low-profile, space-saving design (pitch: 0.3mm)
The 0.9mm height, 3.0mm depth contributes to the miniaturization and thickness reduction of target products.
* The total depth including the lever is 3.2mm.



Unit: mm

2. Compatible with FPC with tabs, reliability is increased through secure connectibility
Thanks to a design in which the FPC tab portion attaches to the protruding resin part, depth is reduced which makes the product more compact and makes it possible to position during insertion, prevent diagonal insertion, and hold temporarily. This results in secure FPC insertion. (Y3F is compatible with FPC without tabs.)



3. Equipped with soldering terminals for higher mounting strength
4. Easy-to-handle front lock structure
5. Wiring patterns can be located underneath the connector.
6. Ni barrier with high resistance to solder creep

APPLICATIONS

Compact mobile devices "Cellular phones, Digital cameras and DVC, etc"

ORDERING INFORMATION

AYF	3	1			1	5

31: FPC Connector 0.3 mm pitch
(Front lock, ZIF type with FPC tabs)

Number of contacts (2 digits)

Contact direction
1: Bottom contact

Surface treatment (Contact portion / Terminal portion)
5: Au plating/Au flash plating (Ni barrier)

PRODUCT TYPES

Height	Number of contacts	Part number	Packing	
			Inner carton	Outer carton
0.9 mm	13	AYF311315	5,000 pieces	10,000 pieces
	15	AYF311515		
	17	AYF311715		
	23	AYF312315		
	25	AYF312515		
	27	AYF312715		
	29	AYF312915		
	31	AYF313115		
	33	AYF313315		
	35	AYF313515		
	39	AYF313915		
	41	AYF314115		
	45	AYF314515		
	51	AYF315115		

Notes: 1. Order unit;
For mass production: in 1-inner carton (1-reel) units
Samples for mounting check: in 50-connector units. Please contact our sales office.
2. Please contact are sales office for connectors having a number of contacts other than those listed above.

SPECIFICATIONS

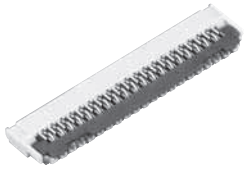
1. Characteristics

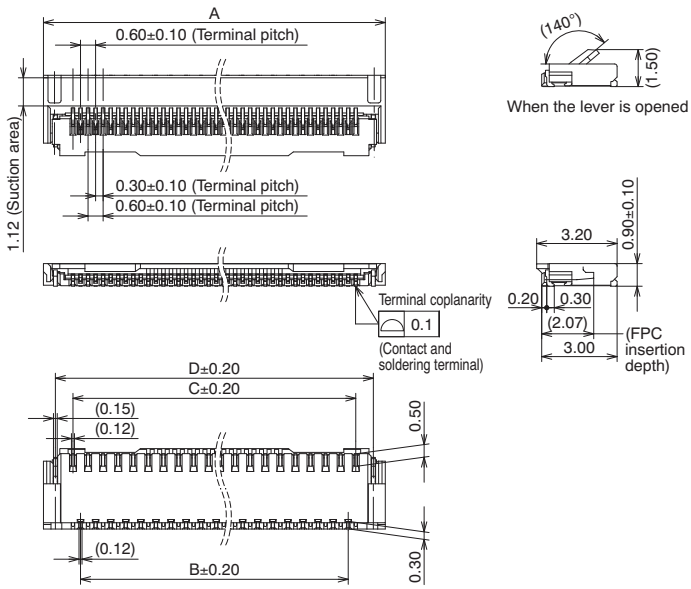
Item		Specifications	Conditions
Electrical characteristics	Rated current	0.2A/contact	
	Rated voltage	50V AC/DC	
	Insulation resistance	Min. 1,000MΩ (initial)	Using 250V DC megger (applied for 1 min.)
	Breakdown voltage	150V AC for 1 min.	No short-circuiting or damage at a detection current of 1 mA when the specified voltage is applied for one minute.
	Contact resistance	Max. 80mΩ	Based on the contact resistance measurement method specified by JIS C 5402.
Mechanical characteristics	FPC holding force	Min. 0.23N/contacts × contacts (initial)	Measurement of the maximum force applied until the inserted compatible FPC is pulled out in the insertion axis direction while the connector lever is closed
	Contact holding force	Min. 0.2N/contacts	Measuring the maximum force. As the contact is axially pull out.
	Soldering terminal holding force	Min. 0.2N/contacts	Measuring the maximum force. As the soldering terminal is axially pull out.
Environmental characteristics	Ambient temperature	–55°C to +85°C	No freezing at low temperatures. No dew condensation.
	Storage temperature	–55°C to +85°C (product only) –40°C to +50°C (emboss packing)	
	Thermal shock resistance (with FPC inserted)	5 cycles, insulation resistance min. 100MΩ, contact resistance max. 80mΩ	Sequence 1. -55^{0}_{-3}°C, 30 minutes 2. ~ , Max. 5 minutes 3. 85^{+3}_{0}°C, 30 minutes 4. ~ , Max. 5 minutes
	Humidity resistance (with FPC inserted)	120 hours, insulation resistance min. 100MΩ, contact resistance max. 80mΩ	Bath temperature 40±2°C, humidity 90 to 95% R.H.
	Saltwater spray resistance (with FPC inserted)	24 hours, insulation resistance min. 100MΩ, contact resistance max. 80mΩ	Bath temperature 35±2°C, saltwater concentration 5±1%
	H_2S resistance (with FPC inserted)	48 hours, contact resistance max. 80mΩ	Bath temperature 40±2°C, gas concentration 3±1 ppm, humidity 75 to 80% R.H.
	Soldering heat resistance	Peak temperature: 260°C or less	Reflow soldering
		300°C within 5 sec. 350°C within 3 sec.	Soldering iron
Lifetime characteristics	Insertion and removal life	30 times	Repeated insertion and removal: min. 10 sec./time
Unit weight		51-contact type: 0.09 g	

2. Material and surface treatment

Part name	Material	Surface treatment
Molded portion	Housing: LCP resin (UL94V-0) Lever: LCP resin (UL94V-0)	—
Contact	Copper alloy	Contact portion; Base: Ni plating, Surface: Au plating Terminal portion; Base: Ni plating, Surface: Au plating
Soldering terminal portion	Copper alloy	Base: Ni plating, Surface: Au plating

DIMENSIONS (Unit: mm)

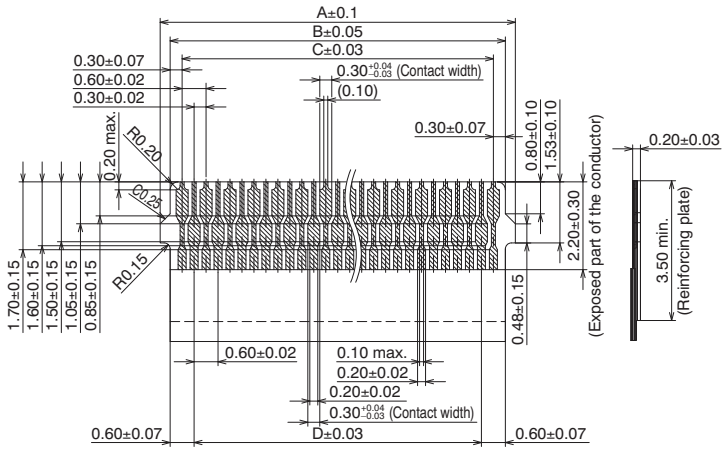




Number of contacts/ dimension	A	B	C	D
13	6.25	3.30	3.90	5.30
15	6.55	3.60	4.20	5.60
17	7.15	4.20	4.80	6.20
23	8.95	6.00	6.60	8.00
25	9.55	6.60	7.20	8.60
27	10.15	7.20	7.80	9.20
29	10.75	7.80	8.40	9.80
31	11.35	8.40	9.00	10.40
33	11.95	9.00	9.60	11.00
35	12.55	9.60	10.20	11.60
39	13.75	10.80	11.40	12.80
41	14.35	11.40	12.00	13.40
45	15.55	12.60	13.20	14.60
51	17.35	14.40	15.00	16.40

RECOMMENDED FPC DIMENSIONS

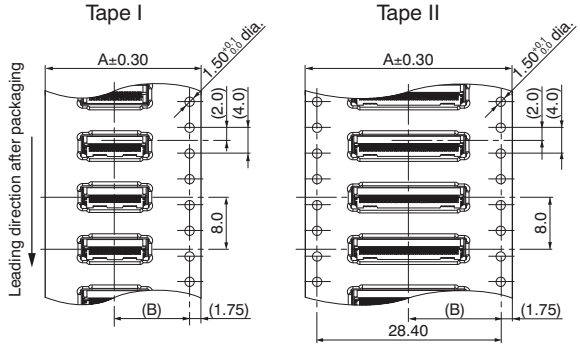
(Finished thickness: t = 0.2±0.03)
The conductive parts should be based by Ni plating and then Au plating.



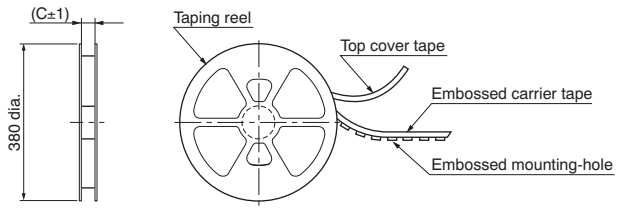
Number of contacts/ dimension	A	B	C	D
13	5.00	4.50	3.90	3.30
15	5.30	4.80	4.20	3.60
17	5.90	5.40	4.80	4.20
23	7.70	7.20	6.60	6.00
25	8.30	7.80	7.20	6.60
27	8.90	8.40	7.80	7.20
29	9.50	9.00	8.40	7.80
31	10.10	9.60	9.00	8.40
33	10.70	10.20	9.60	9.00
35	11.30	10.80	10.20	9.60
39	12.50	12.00	11.40	10.80
41	13.10	12.60	12.00	11.40
45	14.30	13.80	13.20	12.60
51	16.10	15.60	15.00	14.40

EMBOSSED TAPE DIMENSIONS (Unit: mm) (Common for respective contact type)

• Specifications for taping



• Specifications for the plastic reel
(In accordance with EIAJ ET-7200B.)



• **Dimension table** (Unit: mm)

Number of contacts	Type of taping	A	B	C	Quantity per reel
13 to 17 contacts	Tape I	16.0	7.5	17.4	5,000
23 to 45 contacts	Tape I	24.0	11.5	25.4	5,000
51 contacts	Tape II	32.0	14.2	33.4	5,000

• **Connector orientation with respect to embossed tape feeding direction**

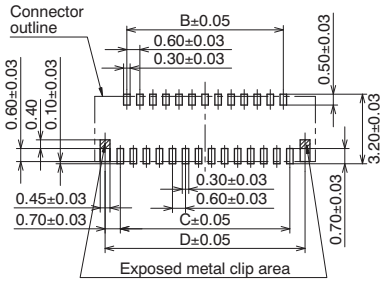
Direction of tape progress \ Type	Y3FT
	

NOTES

1. Recommended PC board and metal mask patterns

Appropriate control of solder amount is required to minimize solder bridges and other defects for connectors with 0.3 mm, 0.4 mm or 0.5 mm pitch terminals, which require high-density mounting. Refer to the recommended PC board pattern.

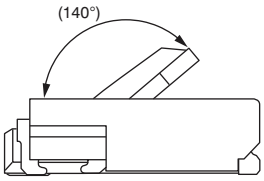
Recommended PC board pattern
(Mount pad arrangement pattern)



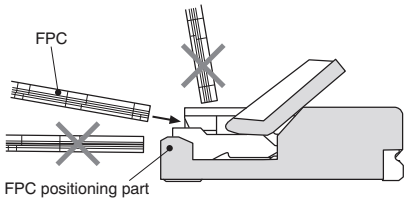
Number of contacts/ dimension	B	C	D
13	3.30	3.90	5.30
15	3.60	4.20	5.60
17	4.20	4.80	6.20
23	6.00	6.60	8.00
25	6.60	7.20	8.60
27	7.20	7.80	9.20
29	7.80	8.40	9.80
31	8.40	9.00	10.40
33	9.00	9.60	11.00
35	9.60	10.20	11.60
39	10.80	11.40	12.80
41	11.40	12.00	13.40
45	12.60	13.20	14.60
51	14.40	15.00	16.40

2. Precautions for insertion/removal of FPC

To open the lever, hold its center and turn it up. A load applied to the lever unevenly or on only one side may deform and break the lever. Do not apply an excessive load to the lever in the opening direction; otherwise, the terminals may be deformed. Don't further apply an excessive load to the fully opened lever; otherwise, the lever may be deformed. Fully open the lever to insert an FPC. Since this product connects at the bottom, please insert the FPC so that its electrode plane is facing the board to which it will be mounted. Do not insert the FPC in the reverse direction of the contact section; otherwise, operation failures or malfunctions may be caused.



This product has a structure to position an inserted FPC using the FPC tabs. Therefore, insert an FPC at an angle to the board. If the FPC is inserted in the direction parallel to the board, the molded positioning parts block the FPC, leading to incomplete insertion. An FPC inserted at an excessive angle to the board may cause the deformation of metal parts, FPC insertion failures, and FPC circuit breakages.



Insert the FPC to the full depth of the connector without altering the angle.
When closing the lever, use the ball(s) of your finger to push the entire lever or both sides of it. Be careful. If pressure to the lever is applied unevenly, such as to an edge only, it may deform or break. Also, make sure that the lever is closed completely. Not doing so will cause a faulty connection.
Avoid applying an excessive load to the top of the lever during or after closing the lever. Otherwise, the terminals may be deformed.
Remove the FPC at an angle with the lever fully opened. If the lever is closed, or if the FPC is forcedly pulled into a direction parallel to the board, the molded part may break.
After an FPC is inserted, carefully handle it so as not to apply excessive stress to the base of the FPC.

For Cautions for Use, see Connector Technical Information (page 140). For other details, please verify with the product specification sheets.

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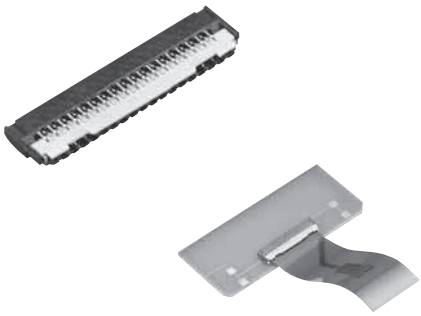
For FPC

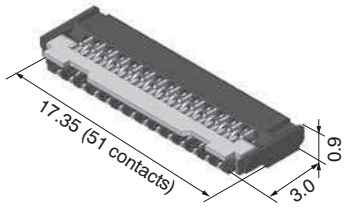
FPC connectors (0.3mm pitch) Front lock without FPC tabs

Y3F Series



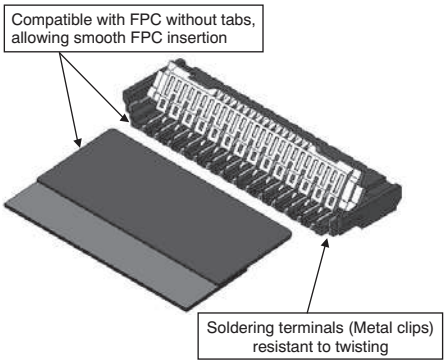
FEATURES

1. Low-profile, space-saving design (pitch: 0.3mm)
The 0.9mm height, 3.0mm depth contributes to the miniaturization and thickness reduction of target products.
* The total depth including the lever is 3.2mm.



Unit: mm

2. Compatible with FPC without tabs, allowing smooth FPC insertion
Compatible with without FPC tabs, allowing smooth FPC insertion
(Y3FT is compatible with FPC with tabs.)



3. Equipped with soldering terminals for higher mounting strength
4. Easy-to-handle front lock structure
5. Wiring patterns can be located underneath the connector.
6. Ni barrier with high resistance to solder creep

APPLICATIONS

Compact mobile devices "Cellular phones, Digital cameras and DVC, etc"

ORDERING INFORMATION

AYF	3	2			1	5

32: FPC Connector 0.3 mm pitch
(Front lock, ZIF type without FPC tabs)

Number of contacts (2 digits)

Contact direction
1: Bottom contact

Surface treatment (Contact portion / Terminal portion)
5: Au plating/Au flash plating (Ni barrier)

PRODUCT TYPES

Height	Number of contacts	Part number	Packing	
			Inner carton	Outer carton
0.9 mm	13	AYF321315	5,000 pieces	10,000 pieces
	15	AYF321515		
	17	AYF321715		
	23	AYF322315		
	25	AYF322515		
	27	AYF322715		
	29	AYF322915		
	31	AYF323115		
	33	AYF323315		
	35	AYF323515		
	39	AYF323915		
	41	AYF324115		
	45	AYF324515		
	51	AYF325115		

Notes: 1. Order unit;
For mass production: in 1-inner carton (1-reel) units
Samples for mounting check: in 50-connector units. Please contact our sales office.
2. Please contact are sales office for connectors having a number of contacts other than those listed above.

SPECIFICATIONS

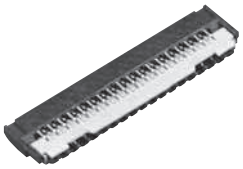
1. Characteristics

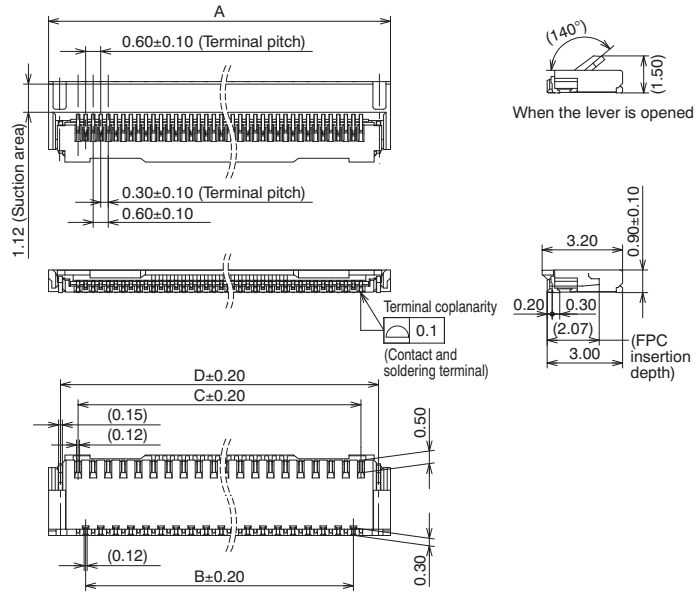
Item		Specifications	Conditions
Electrical characteristics	Rated current	0.2A/contact	
	Rated voltage	50V AC/DC	
	Insulation resistance	Min. 1,000MΩ (initial)	Using 250V DC megger (applied for 1 min.)
	Breakdown voltage	150V AC for 1 min.	No short-circuiting or damage at a detection current of 1 mA when the specified voltage is applied for one minute.
	Contact resistance	Max. 80mΩ	Based on the contact resistance measurement method specified by JIS C 5402.
Mechanical characteristics	FPC holding force	Min. 0.13N/contacts × contacts (initial)	Measurement of the maximum force applied until the inserted compatible FPC is pulled out in the insertion axis direction while the connector lever is closed
	Contact holding force	Min. 0.2N/contacts	Measuring the maximum force. As the contact is axially pull out.
	Soldering terminal holding force	Min. 0.2N/contacts	Measuring the maximum force. As the soldering terminal is axially pull out.
Environmental characteristics	Ambient temperature	–55°C to +85°C	No freezing at low temperatures. No dew condensation.
	Storage temperature	–55°C to +85°C (product only) –40°C to +50°C (emboss packing)	
	Thermal shock resistance (with FPC inserted)	5 cycles, insulation resistance min. 100MΩ, contact resistance max. 80mΩ	Sequence 1. -55^{0}_{-3}°C, 30 minutes 2. ~ , Max. 5 minutes 3. 85^{+3}_{0}°C, 30 minutes 4. ~ , Max. 5 minutes
	Humidity resistance (with FPC inserted)	120 hours, insulation resistance min. 100MΩ, contact resistance max. 80mΩ	Bath temperature 40±2°C, humidity 90 to 95% R.H.
	Saltwater spray resistance (with FPC inserted)	24 hours, insulation resistance min. 100MΩ, contact resistance max. 80mΩ	Bath temperature 35±2°C, saltwater concentration 5±1%
	H_2S resistance (with FPC inserted)	48 hours, contact resistance max. 80mΩ	Bath temperature 40±2°C, gas concentration 3±1 ppm, humidity 75 to 80% R.H.
	Soldering heat resistance	Peak temperature: 260°C or less	Reflow soldering
		300°C within 5 sec. 350°C within 3 sec.	Soldering iron
Lifetime characteristics	Insertion and removal life	30 times	Repeated insertion and removal: min. 10 sec./time
Unit weight		51-contact type: 0.09 g	

2. Material and surface treatment

Part name	Material	Surface treatment
Molded portion	Housing: LCP resin (UL94V-0) Lever: LCP resin (UL94V-0)	—
Contact	Copper alloy	Contact portion; Base: Ni plating, Surface: Au plating Terminal portion; Base: Ni plating, Surface: Au plating
Soldering terminal portion	Copper alloy	Base: Ni plating, Surface: Au plating

DIMENSIONS (Unit: mm)



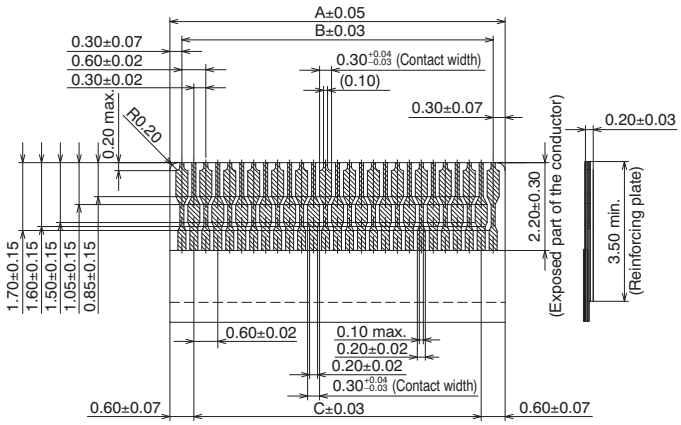


Number of contacts/ dimension	A	B	C	D
13	6.25	3.30	3.90	5.30
15	6.55	3.60	4.20	5.60
17	7.15	4.20	4.80	6.20
23	8.95	6.00	6.60	8.00
25	9.55	6.60	7.20	8.60
27	10.15	7.20	7.80	9.20
29	10.75	7.80	8.40	9.80
31	11.35	8.40	9.00	10.40
33	11.95	9.00	9.60	11.00
35	12.55	9.60	10.20	11.60
39	13.75	10.80	11.40	12.80
41	14.35	11.40	12.00	13.40
45	15.55	12.60	13.20	14.60
51	17.35	14.40	15.00	16.40

RECOMMENDED FPC DIMENSIONS

(Finished thickness: t = 0.2±0.03)

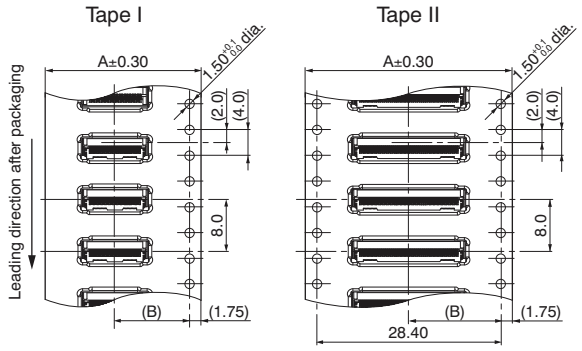
The conductive parts should be based by Ni plating and then Au plating.



Number of contacts/ dimension	A	B	C
13	4.50	3.90	3.30
15	4.80	4.20	3.60
17	5.40	4.80	4.20
23	7.20	6.60	6.00
25	7.80	7.20	6.60
27	8.40	7.80	7.20
29	9.00	8.40	7.80
31	9.60	9.00	8.40
33	10.20	9.60	9.00
35	10.80	10.20	9.60
39	12.00	11.40	10.80
41	12.60	12.00	11.40
45	13.80	13.20	12.60
51	15.60	15.00	14.40

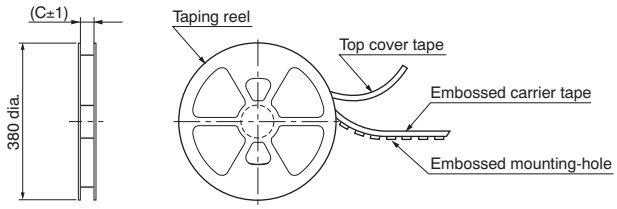
EMBOSSED TAPE DIMENSIONS (Unit: mm) (Common for respective contact type)

• Specifications for taping



• Specifications for the plastic reel

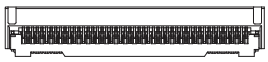
(In accordance with EIAJ ET-7200B.)



• Dimension table (Unit: mm)

Number of contacts	Type of taping	A	B	C	Quantity per reel
13 to 17 contacts	Tape I	16.0	7.5	17.4	5,000
23 to 45 contacts	Tape I	24.0	11.5	25.4	5,000
51 contacts	Tape II	32.0	14.2	33.4	5,000

• Connector orientation with respect to embossed tape feeding direction

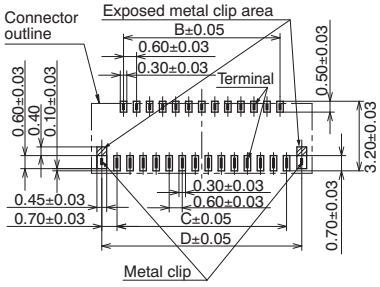
Direction of tape progress \ Type	Y3F
	

NOTES

1. Recommended PC board and metal mask patterns

Appropriate control of solder amount is required to minimize solder bridges and other defects for connectors with 0.3 mm, 0.4 mm or 0.5 mm pitch terminals, which require high-density mounting. Refer to the recommended PC board pattern.

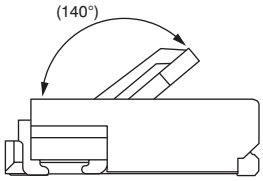
Recommended PC board pattern
(Mount pad arrangement pattern)



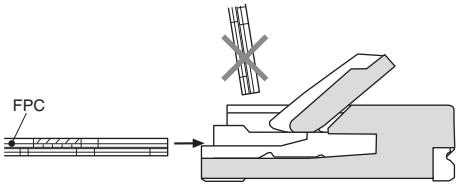
Number of contacts/ dimension	B	C	D
13	3.30	3.90	5.30
15	3.60	4.20	5.60
17	4.20	4.80	6.20
23	6.00	6.60	8.00
25	6.60	7.20	8.60
27	7.20	7.80	9.20
29	7.80	8.40	9.80
31	8.40	9.00	10.40
33	9.00	9.60	11.00
35	9.60	10.20	11.60
39	10.80	11.40	12.80
41	11.40	12.00	13.40
45	12.60	13.20	14.60
51	14.40	15.00	16.40

2. Precautions for insertion/removal of FPC

To open the lever, hold its center and turn it up. A load applied to the lever unevenly or on only one side may deform and break the lever. Do not apply an excessive load to the lever in the opening direction; otherwise, the terminals may be deformed. Don't further apply an excessive load to the fully opened lever; otherwise, the lever may be deformed. Fully open the lever to insert an FPC. Since this product connects at the bottom, please insert the FPC so that its electrode plane is facing the board to which it will be mounted. Do not insert the FPC in the reverse direction of the contact section; otherwise, operation failures or malfunctions may be caused.



Completely insert the FPC horizontally. An FPC inserted at an excessive angle to the board may cause the deformation of metal parts, FPC insertion failures, and FPC circuit breakages.



Insert the FPC to the full depth of the connector without altering the angle.
When closing the lever, use the ball(s) of your finger to push the entire lever or both sides of it. Be careful. If pressure to the lever is applied unevenly, such as to an edge only, it may deform or break. Also, make sure that the lever is closed completely. Not doing so will cause a faulty connection.
Avoid applying an excessive load to the top of the lever during or after closing the lever. Otherwise, the terminals may be deformed.
Remove the FPC at parallel with the lever fully opened. If the lever is closed, or if the FPC is forcedly pulled, the molded part may break.
After an FPC is inserted, carefully handle it so as not to apply excessive stress to the base of the FPC.

For Cautions for Use, see Connector Technical Information (page 140). For other details, please verify with the product specification sheets.

Panasonic
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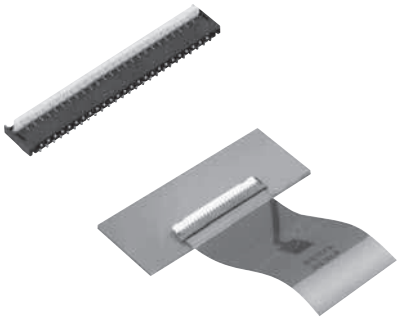
For FPC

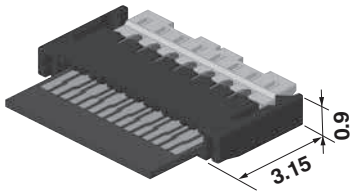
FPC connectors (0.3mm pitch) Back lock

Y3B Series



FEATURES

1. Ultra slim and low profile design (Pitch: 0.3 mm)
The adoption of the back lock has achieved the ultra-slim body with a 3.15 mm depth (including the lever). The 0.9 mm low-profile facilitates the thickness and size reduction of target equipment.



Unit: mm

2. Mechanical design freedom achieved by top and bottom double contacts
The top and bottom double contacts eliminate the need of using different connectors (with either top or bottom contacts) depending on the FPC wiring conditions.

3. Easy-to-handle back lock structure
4. Man-hours for assembly can be reduced by delivering the connectors with their levers opened.
5. Wiring patterns can be located underneath the connector.
6. Ni barrier with high resistance to solder creep

APPLICATIONS

Compact mobile devices "Cellular phones, Digital cameras and DVC, etc"

ORDERING INFORMATION

AYF	3	3			3	5

33: FPC Connector 0.3 mm pitch (Back lock)

Number of contacts (2 digits)

Contact direction
3: Top and bottom double contacts

Surface treatment (Contact portion / Terminal portion)
5: Au plating/Au flash plating (Ni barrier)

PRODUCT TYPES

Height	Number of contacts	Part number	Packing	
			Inner carton	Outer carton
0.9 mm	7	AYF330735	5,000 pieces	10,000 pieces
	8	AYF330835		
	9	AYF330935		
	11	AYF331135		
	13	AYF331335		
	15	AYF331535		
	17	AYF331735		
	21	AYF332135		
	23	AYF332335		
	25	AYF332535		
	27	AYF332735		
	31	AYF333135		
	33	AYF333335		
	35	AYF333535		
	37	AYF333735		
	39	AYF333935		
	45	AYF334535		
	51	AYF335135		

Notes: 1. Order unit;
For mass production: in 1-inner carton (1-reel) units
Samples for mounting check: in 50-connector units. Please contact our sales office.
2. Please contact our sales office for connectors having a number of contacts other than those listed above.

SPECIFICATIONS

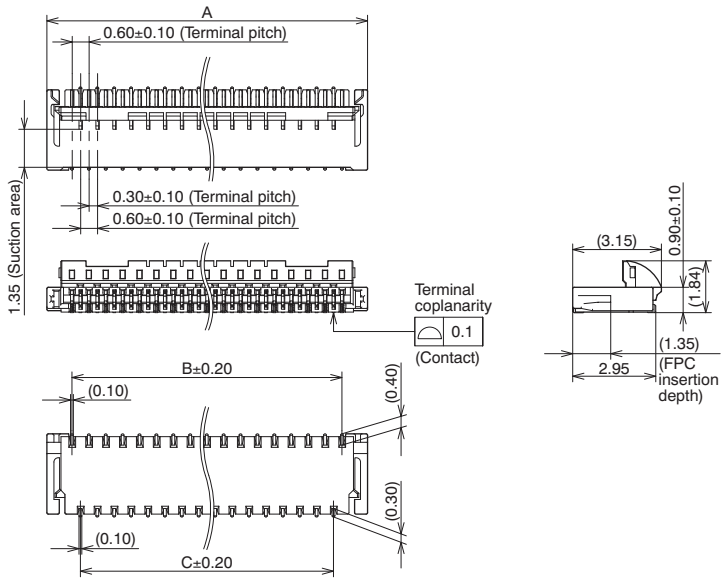
1. Characteristics

Item		Specifications	Conditions
Electrical characteristics	Rated current	0.2A/contact	
	Rated voltage	50V AC/DC	
	Insulation resistance	Min. 1,000MΩ (initial)	Using 250V DC megger (applied for 1 min.)
	Breakdown voltage	150V AC for 1 min.	No short-circuiting or damage at a detection current of 1 mA when the specified voltage is applied for one minute.
	Contact resistance	Max. 100mΩ	Based on the contact resistance measurement method specified by JIS C 5402.
Mechanical characteristics	FPC holding force	Min. 0.13N/contacts × contacts (initial)	Measurement of the maximum force applied until the inserted compatible FPC is pulled out in the insertion axis direction while the connector lever is closed
	Contact holding force	Min. 0.2N/contacts	Measuring the maximum force. As the contact is axially pull out.
Environmental characteristics	Ambient temperature	–55°C to +85°C	No freezing at low temperatures. No dew condensation.
	Storage temperature	–55°C to +85°C (product only) –40°C to +50°C (emboss packing)	
	Thermal shock resistance (with FPC inserted)	5 cycles, insulation resistance min. 100MΩ, contact resistance max. 80mΩ	Sequence 1. –55 $^{0}_{-3}$°C, 30 minutes 2. ~ , Max. 5 minutes 3. 85 $^{+3}_{0}$°C, 30 minutes 4. ~ , Max. 5 minutes
	Humidity resistance (with FPC inserted)	120 hours, insulation resistance min. 100MΩ, contact resistance max. 100mΩ	Bath temperature 40±2°C, humidity 90 to 95% R.H.
	Saltwater spray resistance (with FPC inserted)	24 hours, insulation resistance min. 100MΩ, contact resistance max. 100mΩ	Bath temperature 35±2°C, saltwater concentration 5±1%
	H_2S resistance (with FPC inserted)	48 hours, contact resistance max. 100mΩ	Bath temperature 40±2°C, gas concentration 3±1 ppm, humidity 75 to 80% R.H.
	Soldering heat resistance	Peak temperature: 260°C or less	Reflow soldering
		300°C within 5 sec. 350°C within 3 sec.	Soldering iron
Lifetime characteristics	Insertion and removal life	20 times	Repeated insertion and removal: min. 10 sec./time
Unit weight		51-contact type: 0.08 g	

2. Material and surface treatment

Part name	Material	Surface treatment
Molded portion	Housing: LCP resin (UL94V-0) Lever: LCP resin (UL94V-0)	—
Contact	Copper alloy	Contact portion; Base: Ni plating, Surface: Au plating Terminal portion; Base: Ni plating, Surface: Au plating

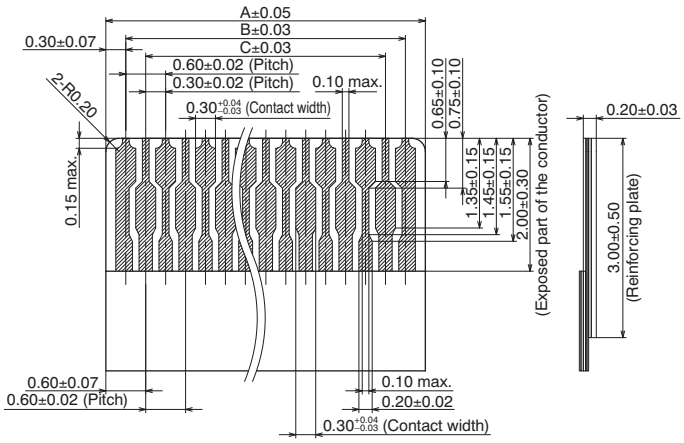
DIMENSIONS (Unit: mm)



Number of contacts/ dimension	A	B	C
7	3.60	1.80	1.20
8	3.90	2.10	1.50
9	4.20	2.40	1.80
11	4.80	3.00	2.40
13	5.40	3.60	3.00
15	6.00	4.20	3.60
17	6.60	4.80	4.20
21	7.80	6.00	5.40
23	8.40	6.60	6.00
25	9.00	7.20	6.60
27	9.60	7.80	7.20
31	10.80	9.00	8.40
33	11.40	9.60	9.00
35	12.00	10.20	9.60
37	12.60	10.80	10.20
39	13.20	11.40	10.80
45	15.00	13.20	12.60
51	16.80	15.00	14.40

RECOMMENDED FPC DIMENSIONS

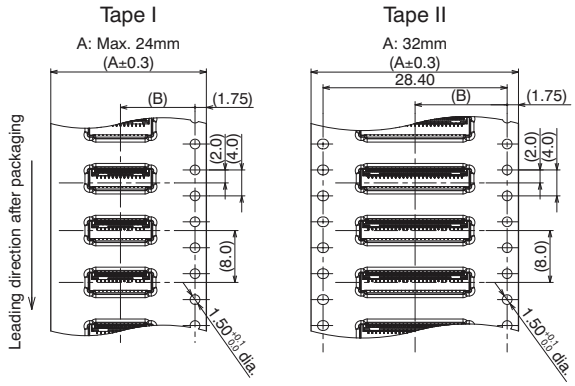
(Finished thickness: t = 0.2±0.03)
The conductive parts should be based by Ni plating and then Au plating.



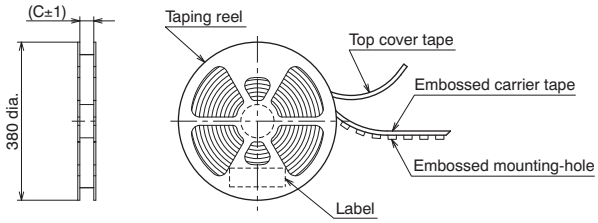
Number of contacts/ dimension	A	B	C
7	2.40	1.80	1.20
8	2.70	2.10	1.50
9	3.00	2.40	1.80
11	3.60	3.00	2.40
13	4.20	3.60	3.00
15	4.80	4.20	3.60
17	5.40	4.80	4.20
21	6.60	6.00	5.40
23	7.20	6.60	6.00
25	7.80	7.20	6.60
27	8.40	7.80	7.20
31	9.60	9.00	8.40
33	10.20	9.60	9.00
35	10.80	10.20	9.60
37	11.40	10.80	10.20
39	12.00	11.40	10.80
45	13.80	13.20	12.60
51	15.60	15.00	14.40

EMBOSSED TAPE DIMENSIONS (Unit: mm) (Common for respective contact type)

• Specifications for taping



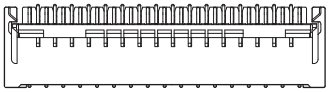
• Specifications for the plastic reel
(In accordance with EIAJ ET-7200B.)



• Dimension table (Unit: mm)

Number of contacts	Type of taping	A	B	C	Quantity per reel
7 to 17 contacts	Tape I	16.0	7.5	17.4	5,000
21 to 45 contacts	Tape I	24.0	11.5	25.4	5,000
51 contacts	Tape II	32.0	14.2	33.4	5,000

• Connector orientation with respect to embossed tape feeding direction

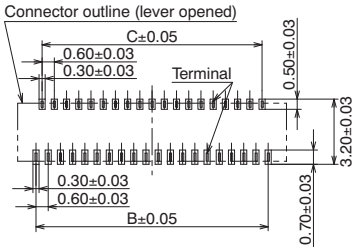
Direction of tape progress \ Type	Y3B
↓	

NOTES

1. Recommended PC board and metal mask patterns

Appropriate control of solder amount is required to minimize solder bridges and other defects for connectors with 0.3 mm, 0.4 mm or 0.5 mm pitch terminals, which require high-density mounting. Refer to the recommended PC board pattern.

Recommended PC board pattern
(Mount pad arrangement pattern)



Number of contacts/ dimension	B	C
7	1.80	1.20
9	2.40	1.80
11	3.00	2.40
13	3.60	3.00
15	4.20	3.60
17	4.80	4.20
21	6.00	5.40
23	6.60	6.00
25	7.20	6.60
27	7.80	7.20
31	9.00	8.40
33	9.60	9.00
35	10.20	9.60
39	11.40	10.80
45	13.20	12.60
51	15.00	14.40

2. Precautions for insertion/removal of FPC

Avoid touching the lever (applying any external force) until an FPC is inserted. Failure to follow this instruction will cause the contacts to warp, leading to the contact tips interfering with the insertion of an FPC, deforming the terminals.

Do not open/close the lever without an FPC inserted. Failure to follow this instruction may cause the lever to be removed, terminals to be deformed, and/ or the FPC insertion force to increase.

These connectors are of the back lock type, which has the FPC insertion section on the opposite side of the lever. Be careful not to make a mistake in the FPC insertion position or the lever opening/ closing position. Otherwise, a contact failure or connector breakage may occur.

These connectors have top and bottom double contacts. Do not insert an FPC upside down. Inserting an FPC in a direction opposite to that you intended may cause an operation failure or malfunction.

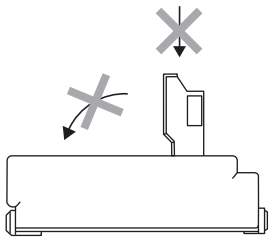
Insert an FPC with the lever opened at right angle, that is, in the factory default position.

Completely insert the FPC horizontally. An FPC inserted at an excessive angle to the board may cause the deformation of metal parts, FPC insertion failures, and FPC circuit breakages.

Insert the FPC to the full depth of the connector without altering the angle.

Do not apply an excessive load to the lever in the opening direction beyond its open position; otherwise, the lever may be deformed or removed.

Do not apply an excessive load to the lever in a direction perpendicular to the lever rotation axis or in the lever opening direction; otherwise, the terminals may be deformed, and the lever may be removed.



To close the lever, turn down the lever by pressing the entire lever or both sides of the lever with the balls of fingers.

Be careful. If pressure to the lever is applied unevenly, such as to an edge only, it may deform or break. Also, make sure that the lever is closed completely. Not doing so will cause a faulty connection.

Avoid applying an excessive load to the top of the lever during or after closing the lever. Otherwise, the terminals may be deformed.

When opening the lever to remove the FPC, ensure that the lever will not go over the initial position; otherwise, the lever may be removed.

Remove the FPC at parallel with the lever fully opened. If the lever is closed, or if the FPC is forcedly pulled, the product or FPC may break.

If a lever is accidentally detached during the handling of a connector, do not use the connector any longer.

After an FPC is inserted, carefully handle it so as not to apply excessive stress to the base of the FPC.

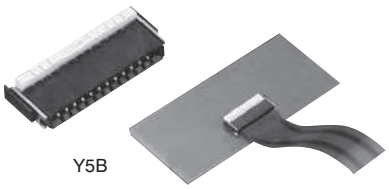
For Cautions for Use, see Connector Technical Information (page 140). For other details, please verify with the product specification sheets.

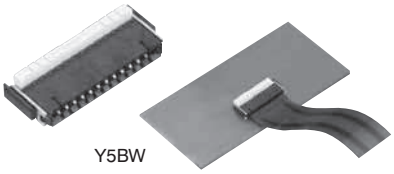
Panasonic
ideas for life

For FPC/FFC*

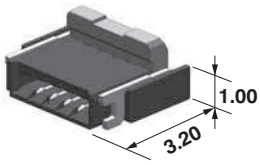
FPC connectors (0.5mm pitch) Back lock

Y5B/Y5BW Series


Y5B


Y5BW

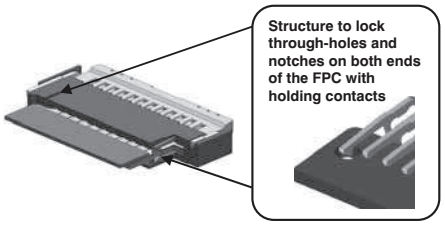
Low profile and space saving body of 1.0 mm high and 3.20 mm deep (3.70 mm including the lever)
Y5B and Y5BW can have a minimum of four and two contacts respectively, contributing to the miniaturization and thickness reduction of target equipment.



Unit: mm

4 contacts (Y5B: minimum)

• Wiring patterns can be located underneath the connector.
• Man-hours for assembly can be reduced by delivering the connectors with their levers opened.
• Y5BW features advanced functionality, including a structure to temporarily hold the FPC and a higher holding force.
The FPC holding contacts located on both ends of the connector facilitate positioning of FPC and further enhance the FPC holding force.



Applicable FPC shapes


With notches **With through-holes**

(1) The holding contacts lock the FPC by its through-holes or notches, allowing users to confirm the completion of the FPC insertion operation.
(2) The inserted FPC can be temporarily held until the lever is closed.
(3) When the lever is closed, the holding contacts lock the FPC by its through-holes and notches, enhancing the FPC holding force.

* (Y5BW is compatible with FPC only.)

FEATURES

• Low profile, space saving back lock type with improved lever operability
• Mechanical design freedom achieved by top and bottom double contacts
• Wide selection, including a type with a small number of contacts

APPLICATIONS

A wide range of digital equipment, including mobile phones, PCs, DSCs, and DVCs. Ideal for their touch panels and LCD backlights, which require connectors with a small number of contacts.

ORDERING INFORMATION

AYF 5 3 □□ □ 5

53: FPC Connector 0.5 mm pitch (Back lock)
Number of contacts (2 digits)
Function
3: Top and bottom double contacts (Y5B)
6: Top and bottom double contacts, lock holding type (Y5BW)
Surface treatment (Contact portion / Terminal portion)
5: Au plating/Au flash plating (Ni barrier)

PRODUCT TYPES

Height	Y5B		Y5BW		Packing	
	Number of contacts	Part number	Number of contacts	Part number	Inner carton (1-reel)	Outer carton
1.0 mm	4	AYF530435	2	AYF530265	5,000 pieces	10,000 pieces
	5	AYF530535	3	AYF530365		
	6	AYF530635	4	AYF530465		
	8	AYF530835	6	AYF530665		
	10	AYF531035	8	AYF530865		
	12	AYF531235	10	AYF531065		
	14	AYF531435	12	AYF531265		
	16	AYF531635	14	AYF531465		
	24	AYF532435	22	AYF532265		
	28	AYF532835	26	AYF532665		
	50	AYF535035	48	AYF534865		

Notes: 1. Order unit;
For mass production: in 1-inner carton (1-reel) units
Samples for mounting check: in 50-connector units. Please contact our sales office.
2. Please contact are sales office for connectors having a number of contacts other than those listed above.

SPECIFICATIONS

1. Characteristics

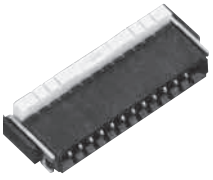
Item		Specifications	Conditions
Electrical characteristics	Rated current	0.5A/contact	
	Rated voltage	50V AC/DC	
	Insulation resistance	Min. 1,000MΩ (initial)	Using 250V DC megger (applied for 1 min.)
	Breakdown voltage	250V AC for 1 min.	No short-circuiting or damage at a detection current of 1 mA when the specified voltage is applied for one minute.
	Contact resistance	Max. 80mΩ	Based on the contact resistance measurement method specified by JIS C 5402.
Mechanical characteristics	FPC holding force	Y5B: Min. 0.2N/contacts × contacts (initial) Y5BW: Min. 0.2N/contacts × contacts + 2.0N (initial)	Measurement of the maximum force applied until the inserted compatible FPC is pulled out in the insertion axis direction while the connector lever is closed
	Contact holding force	Min. 0.2N/contacts	Y5B: Measuring the maximum force. As the contact is axially pull out. Y5BW: Measuring the maximum force. As the contact and holding terminal are axially pull out.
	Soldering terminal holding force	Min. 0.2N/contacts	Measuring the maximum force. As the soldering terminal is axially pull out.
Environmental characteristics	Ambient temperature	–55°C to +85°C	No freezing at low temperatures. No dew condensation.
	Storage temperature	–55°C to +85°C (product only) –40°C to +50°C (emboss packing)	
	Thermal shock resistance (with FPC inserted)	5 cycles, insulation resistance min. 100MΩ, contact resistance max. 100mΩ	Sequence 1. –55 $^{0}_{-3}$°C, 30 minutes 2. ~ , Max. 5 minutes 3. 85 $^{+3}_{0}$°C, 30 minutes 4. ~ , Max. 5 minutes
	Humidity resistance (with FPC inserted)	120 hours, insulation resistance min. 100MΩ, contact resistance max. 100mΩ	Bath temperature 40±2°C, humidity 90 to 95% R.H.
	Saltwater spray resistance (with FPC inserted)	24 hours, insulation resistance min. 100MΩ, contact resistance max. 100mΩ	Bath temperature 35±2°C, saltwater concentration 5±1%
	H_2S resistance (with FPC inserted)	48 hours, contact resistance max. 100mΩ	Bath temperature 40±2°C, gas concentration 3±1 ppm, humidity 75 to 80% R.H.
	Soldering heat resistance	Peak temperature: 260°C or less	Reflow soldering
		300°C within 5 sec. 350°C within 3 sec.	Soldering iron
Lifetime characteristics	Insertion and removal life	20 times	Repeated insertion and removal: min. 10 sec./time
Unit weight		Y5B (50 contacts): 0.16 g	

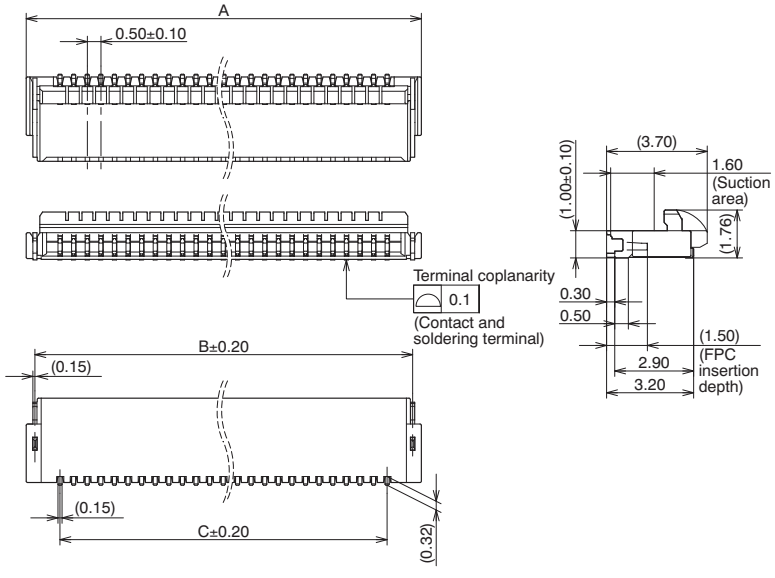
2. Material and surface treatment

Part name	Material	Surface treatment
Molded portion	Housing: LCP resin (UL94V-0) Lever: LCP resin (UL94V-0)	—
Contact	Copper alloy	Contact portion; Base: Ni plating, Surface: Au plating Terminal portion; Base: Ni plating, Surface: Au plating
Holding contact portion	Copper alloy	Terminal portion; Base: Ni plating, Surface: Au plating
Soldering terminal portion	Copper alloy	Base: Ni plating, Surface: Au plating

DIMENSIONS (Unit: mm)

Y5B

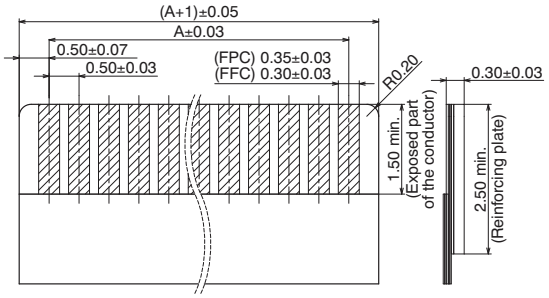




Number of contacts/ dimension	A	B	C
4	4.00	3.36	1.50
5	4.50	3.86	2.00
6	5.00	4.36	2.50
8	6.00	5.36	3.50
10	7.00	6.36	4.50
12	8.00	7.36	5.50
14	9.00	8.36	6.50
16	10.00	9.36	7.50
24	14.00	13.36	11.50
28	16.00	15.36	13.50
50	27.00	26.36	24.50

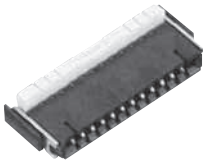
Y5B RECOMMENDED FPC/FFC DIMENSIONS

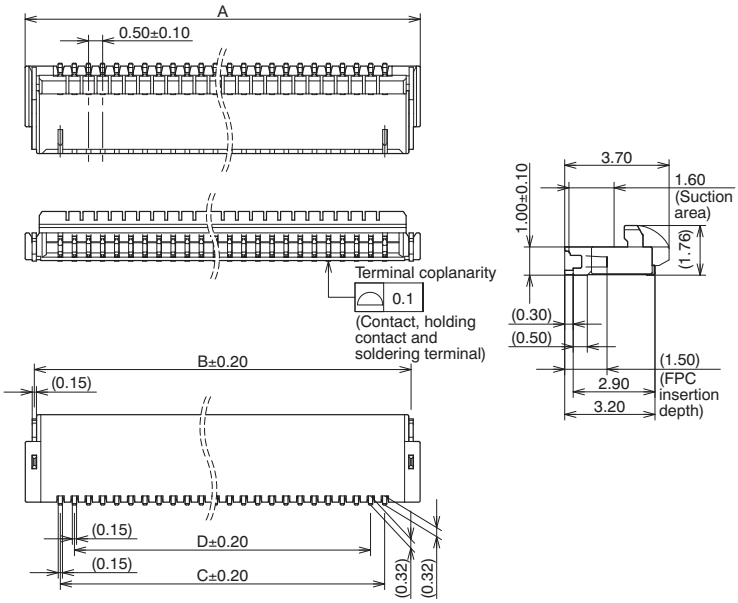
The conductive parts should be based by Ni plating and then Au plating.



Number of contacts/ dimension	A
4	1.50
5	2.00
6	2.50
8	3.50
10	4.50
12	5.50
14	6.50
16	7.50
24	11.50
28	13.50
50	24.50

Y5BW



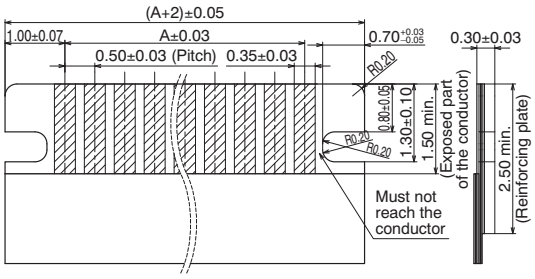


Number of contacts/ dimension	A	B	C	D
2	4.00	3.36	1.50	0.50
3	4.50	3.86	2.00	1.00
4	5.00	4.36	2.50	1.50
6	6.00	5.36	3.50	2.50
8	7.00	6.36	4.50	3.50
10	8.00	7.36	5.50	4.50
12	9.00	8.36	6.50	5.50
14	10.00	9.36	7.50	6.50
22	14.00	13.36	11.50	10.50
26	16.00	15.36	13.50	12.50
48	27.00	26.36	24.50	23.50

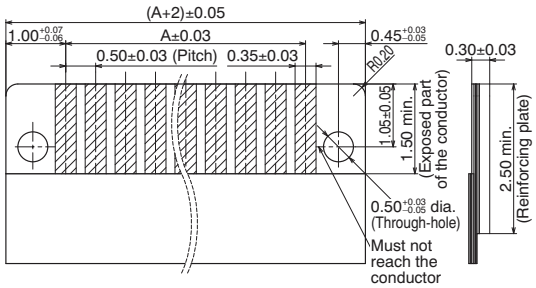
Y5BW RECOMMENDED FPC DIMENSIONS

The conductive parts should be based by Ni plating and then Au plating.

Notches type



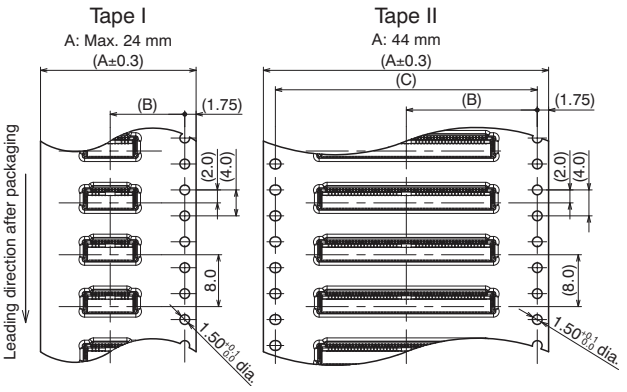
Through-holes type



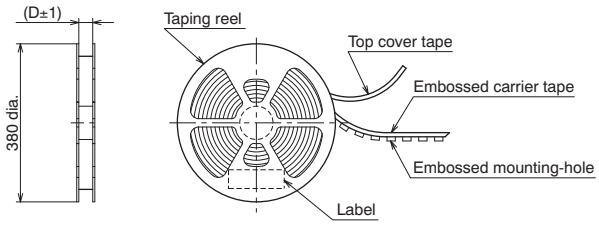
Number of contacts/ dimension	A
2	0.50
3	1.00
4	1.50
6	2.50
8	3.50
10	4.50
12	5.50
14	6.50
22	10.50
26	12.50
48	23.50

EMBOSSED TAPE DIMENSIONS (Unit: mm) (Common for respective contact type)

• Specifications for taping



• Specifications for the plastic reel
(In accordance with EIAJ ET-7200B.)



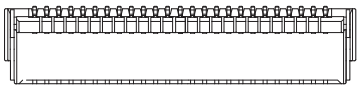
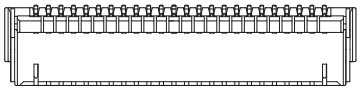
• Y5B Dimension table (Unit: mm)

Number of contacts	Type of taping	A	B	C	D	Quantity per reel
4 to 10 contacts	Tape I	16.0	7.5	–	17.4	5,000
12 to 28 contacts	Tape I	24.0	11.5	–	25.4	5,000
50 contacts	Tape II	44.0	20.2	40.4	45.4	5,000

• Y5BW Dimension table (Unit: mm)

Number of contacts	Type of taping	A	B	C	D	Quantity per reel
2 to 8 contacts	Tape I	16.0	7.5	–	17.4	5,000
10 to 26 contacts	Tape I	24.0	11.5	–	25.4	5,000
48 contacts	Tape II	44.0	20.2	40.4	45.4	5,000

• Connector orientation with respect to embossed tape feeding direction

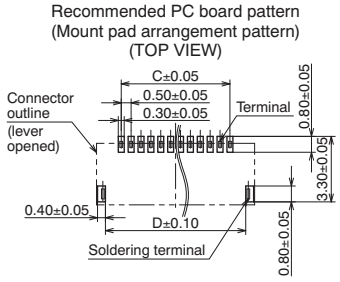
Type / Direction of tape progress	Y5B	Y5BW
		

NOTES

1. Recommended PC board and metal mask patterns

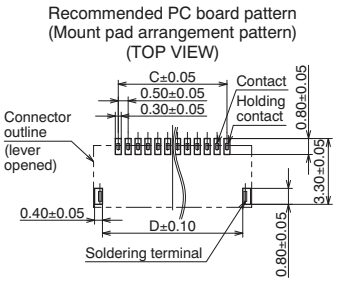
Appropriate control of solder amount is required to minimize solder bridges and other defects for connectors with 0.3 mm or 0.5 mm pitch terminals, which require high-density mounting. Refer to the recommended PC board pattern.

• Y5B



Number of contacts/ dimension	C	D
4	1.50	3.10
5	2.00	3.60
6	2.50	4.10
8	3.50	5.10
10	4.50	6.10
12	5.50	7.10
14	6.50	8.10
16	7.50	9.10
24	11.50	13.10
28	13.50	15.10
50	24.50	26.10

• Y5BW



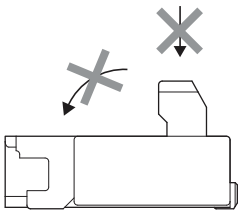
Number of contacts/ dimension	C	D
2	1.50	3.10
3	2.00	3.60
4	2.50	4.10
6	3.50	5.10
8	4.50	6.10
10	5.50	7.10
12	6.50	8.10
14	7.50	9.10
22	11.50	13.10
26	13.50	15.10
48	24.50	26.10

2. Precautions for insertion/removal of FPC

Do not apply an excessive load to the lever in the opening direction beyond its open position; otherwise, the lever may be deformed or removed.

Do not open/close the lever without an FPC inserted; otherwise, the terminals may be deformed, and the FPC insertion force may increase.

Do not apply an excessive load to the lever in a direction perpendicular to the lever rotation axis or in the lever opening direction; otherwise, the terminals may be deformed, and the lever may be removed.



These connectors are of the back lock type, which has the FPC insertion section on the opposite side of the lever. Be careful not to make a mistake in the FPC insertion position or the lever opening/closing position. Otherwise, a contact failure or connector breakage may occur.

These connectors have top and bottom double contacts. Do not insert an FPC upside down. Inserting an FPC in a direction opposite to that you intended may cause an operation failure or malfunction.

Fully open the lever to insert an FPC.

Completely insert the FPC horizontally. An FPC inserted at an excessive angle to the board may cause the deformation of metal parts, FPC insertion failures, and FPC circuit breakages. Insert the FPC to the full depth of the connector without altering the angle.

To close the lever, turn down the lever by pressing the entire lever or both sides of the lever with the balls of fingers.

Be careful. If pressure to the lever is applied unevenly, such as to an edge only, it may deform or break. Also, make sure that the lever is closed completely. Not doing so will cause a faulty connection.

Avoid applying an excessive load to the top of the lever during or after closing the lever. Otherwise, the terminals may be deformed.

When opening the lever to remove the FPC, ensure that the lever will not go over the initial position; otherwise, the lever may be removed.

Remove the FPC at parallel with the lever fully opened. If the lever is closed, or if the FPC is forcedly pulled, the product or FPC may break.

If a lever is accidentally detached during the handling of a connector, do not use the connector any longer.

After an FPC is inserted, carefully handle it so as not to apply excessive stress to the base of the FPC.

3. Cautions for using Y5BW

The holding contacts cannot be used as conductors.

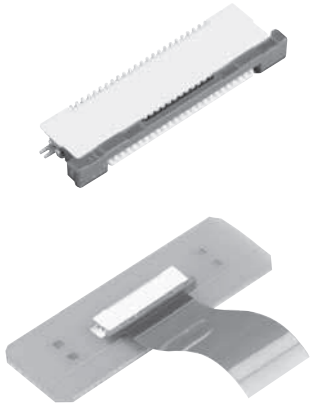
The holding contacts are located on both ends of the contacts, and the shape of the soldered portions is the same as that of the other contacts. Therefore, be careful to avoid any confusion.

For Cautions for Use, see Connector Technical Information (page 140). For other details, please verify with the product specification sheets.

For FPC/FFC

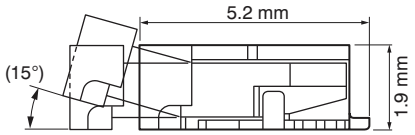
FPC connectors (0.5mm pitch) Slide lock

Y5S Series



FEATURES

1. A wide variety of digital equipments
The 0.5mm pitch, 1.9mm height, and 5.2mm depth are suitable for a variety of digital equipment.



2. Slide lock structure
The slide lock structure facilitates FPC connection work.

3. Equipped with soldering terminals for higher mounting strength

APPLICATIONS

Digital equipment, such as PCs, digital TVs, HDDs, car navigation systems, home-use game machines, multifunction fax machines, and security cameras

ORDERING INFORMATION

AYF 5 1 □ □ 1 5

51: FPC Connector 0.5 mm pitch (Slide lock)

Number of contacts (2 digits)

Contact direction
1: Bottom contact

Surface treatment (Contact portion / Terminal portion)
5: Au plating/Au flash plating

PRODUCT TYPES

Height	Number of contacts	Part number	Packing	
			Inner carton	Outer carton
1.9 mm	15	AYF511515	2,000 pieces	4,000 pieces
	24	AYF512415		

Note: Order unit;
For mass production: in 1-inner carton (1-reel) units
Samples for mounting check: in 50-connector units.
Samples: Small lot orders are possible. Please contact our sales office.

SPECIFICATIONS

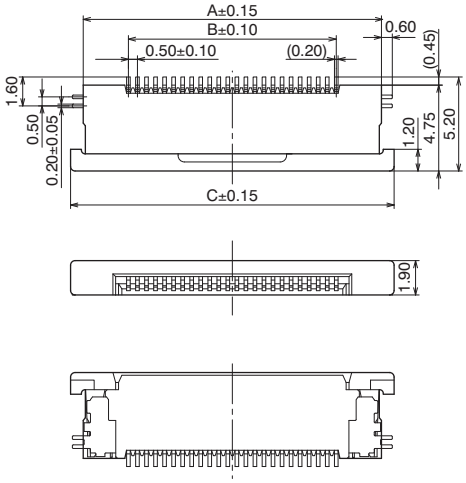
1. Characteristics

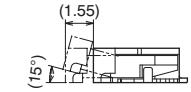
Item		Specifications	Conditions
Electrical characteristics	Rated current	0.5A/contact	
	Rated voltage	50V AC/DC	
	Insulation resistance	Min. 1,000MΩ (initial)	Using 250V DC megger
	Breakdown voltage	250V AC for 1 min.	No short-circuiting or damage at a detection current of 1 mA when the specified voltage is applied for one minute.
	Contact resistance	Max. 45mΩ	Based on the contact resistance measurement method specified by JIS C 5402.
Mechanical characteristics	FPC/FFC holding force	Min. 0.2N/contacts × contacts (initial)	Measurement of the maximum force applied until the inserted compatible FPC is pulled out in the insertion axis direction while the connector lever is closed
	Contact holding force	Min. 1.5N/contacts	Measuring the maximum force. As the contact is axially pull out.
	Soldering terminal holding force	Min. 1.5N/contacts	Measuring the maximum force. As the soldering terminal is axially pull out.
Environmental characteristics	Ambient temperature	–55°C to +85°C	No freezing at low temperatures. No dew condensation.
	Storage temperature	–55°C to +85°C (product only) –40°C to +50°C (emboss packing)	
	Thermal shock resistance (with FPC/FFC inserted)	5 cycles, contact resistance max. 45mΩ	Sequence 1. –40°C, 30 minutes 2. Normal temperature (+20 to 35°C), 5 to 15 minutes 3. +85°C, 30 minutes 4. Normal temperature (+20 to 35°C), 5 to 15 minutes
	Humidity resistance (with FPC/FFC inserted)	120 hours, insulation resistance min. 500MΩ, contact resistance max. 45mΩ	Bath temperature 40±2°C, humidity 90 to 95% R.H.
	Saltwater spray resistance (with FPC/FFC inserted)	24 hours, contact resistance max. 45mΩ	Bath temperature 35±2°C, saltwater concentration 5±1%
	H_2S resistance (with FPC/FFC inserted)	48 hours, contact resistance max. 45mΩ	Bath temperature 40±2°C, gas concentration 3±1 ppm, humidity 75% R.H.
	Soldering heat resistance	Peak temperature: 250°C or less	Reflow soldering
		300°C within 5 sec. 350°C within 3 sec.	Soldering iron
Lifetime characteristics	Insertion and removal life	30 times	Repeated insertion and removal: min. 10 sec./time
Unit weight		24-contact type: 0.32 g	

2. Material and surface treatment

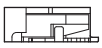
Part name	Material	Surface treatment
Molded portion	Housing: Polyamide resin Slider: PPS resin	—
Contact	Copper alloy	Contact portion; Base: Ni plating, Surface: Au plating Terminal portion; Base: Ni plating, Surface: Au plating
Soldering terminal portion	Copper alloy	Base: Ni plating, Surface: Sn plating

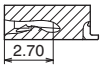
DIMENSIONS (Unit: mm)





When the slider is opened (reference)



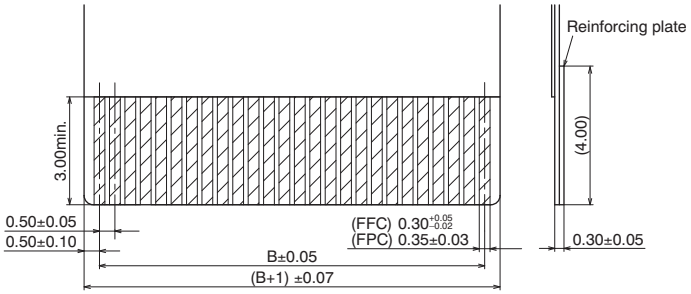


(FPC insertion depth)

Number of contacts/ dimension	A	B	C
15	12.0	7.0	13.4
24	16.5	11.5	17.9

RECOMMENDED FPC/FFC DIMENSIONS

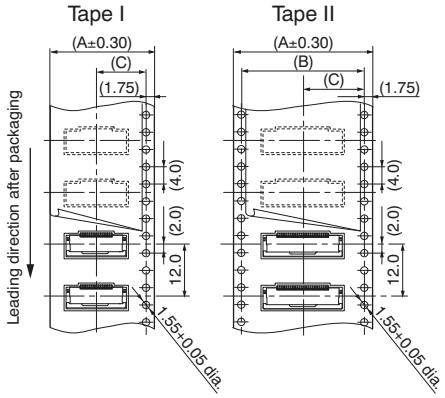
Surface finish: Au plating



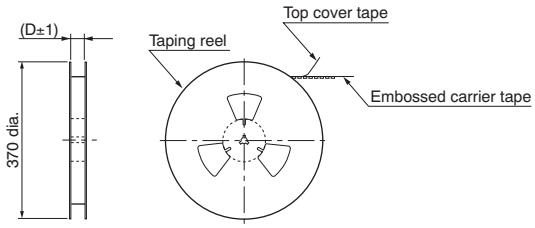
Number of contacts/ dimension	B
15	7.0
24	11.5

EMBOSSED TAPE DIMENSIONS (Unit: mm)

• Specifications for taping



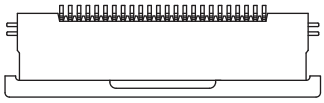
• Specifications for reel



• Dimension table (Unit: mm)

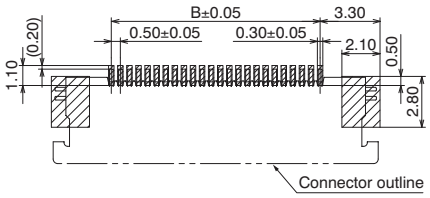
Number of contacts	Type of taping	A	B	C	D	Quantity per reel
15 contacts	Tape I	24.0	–	11.5	25.0	2,000
24 contacts	Tape II	32.0	28.4	14.2	33.0	2,000

• Connector orientation with respect to embossed tape feeding direction

Direction of tape progress \ Type	Y5S
⬇	

NOTES

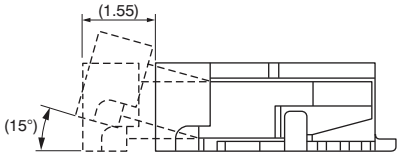
1. Recommended PC board pattern



Number of contacts/ dimension	B
15	7.0
24	11.5

2. Precautions for insertion/removal of FPC/FFC

A load applied to the slider unevenly or on only one side may deform the slider. Fully open the slider lock to insert an FPC. Don't further apply an excessive load to the fully released slider lock; otherwise, the slider may be deformed.



Remove the FPC in a direction parallel to the board with the slider lock fully released. If the slider is closed, or if the FPC is forcedly pulled into a direction parallel to the board, the connector may break.

After an FPC is inserted, carefully handle it so as not to apply excessive stress to the base of the FPC.

For Cautions for Use, see Connector Technical Information (page 140). For other details, please verify with the product specification sheets.

Panasonic
ideas for life

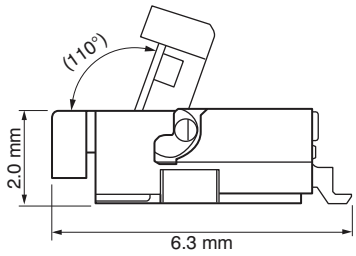
For FPC/FFC

FPC connectors (0.5mm pitch) Front lock

Y5F Series

FEATURES

1. A wide variety of digital equipments
The 0.5mm pitch, 2.0mm height, and 6.3mm depth are suitable for a variety of digital equipment.



2. Front lock structure with tactile feedback
The front lock structure facilitates FPC connection work.

3. Equipped with soldering terminals for higher mounting strength

APPLICATIONS

Digital equipment, such as PCs, digital TVs, HDDs, car navigation systems, home-use game machines, multifunction fax machines, and security cameras

ORDERING INFORMATION

AYF 5 2 [ ][ ] 1 5

52: FPC Connector 0.5 mm pitch (Front lock)

Number of contacts (2 digits)

Contact direction
1: Bottom contact

Surface treatment (Contact portion / Terminal portion)
5: Au plating/Au flash plating

PRODUCT TYPES

Height	Number of contacts	Part number	Packing	
			Inner carton	Outer carton
2.0 mm	26	AYF522615	2,000 pieces	4,000 pieces
	28	AYF522815		
	34	AYF523415		
	40	AYF524015		
	45	AYF524515		
	50	AYF525015		
	54	AYF525415		

Note: Order unit;
For mass production: in 1-inner carton (1-reel) units
Samples for mounting check: in 50-connector units.
Samples: Small lot orders are possible. Please contact our sales office.

SPECIFICATIONS

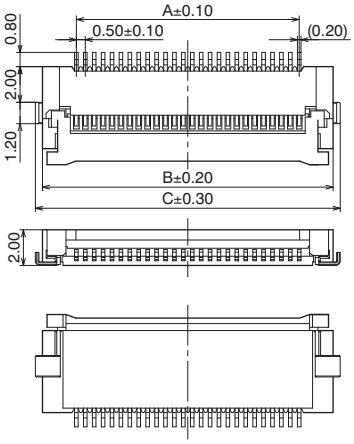
1. Characteristics

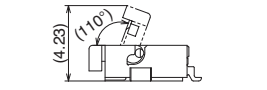
Item		Specifications	Conditions
Electrical characteristics	Rated current	0.5A/contact	
	Rated voltage	50V AC/DC	
	Insulation resistance	Min. 1,000MΩ (initial)	Using 250V DC megger
	Breakdown voltage	250V AC for 1 min.	No short-circuiting or damage at a detection current of 1 mA when the specified voltage is applied for one minute.
	Contact resistance	Max. 45mΩ	Measurement using HP4338B based on the measurement method specified by JIS C 5402.
Mechanical characteristics	FPC/FFC holding force	Min. 0.2N/contacts × contacts (initial)	Measurement of the maximum force applied until the inserted compatible FPC is pulled out in the insertion axis direction while the connector lever is closed
	Contact holding force	Min. 1.0N/contacts	Measuring the maximum force. As the contact is axially pull out.
	Soldering terminal holding force	Min. 1.0N/contacts	Measuring the maximum force. As the soldering terminal is axially pull out.
Environmental characteristics	Ambient temperature	–55°C to +85°C	No freezing at low temperatures. No dew condensation.
	Storage temperature	–55°C to +85°C (product only) –40°C to +50°C (emboss packing)	
	Thermal shock resistance (with FPC/FFC inserted)	5 cycles, contact resistance max. 45mΩ	Sequence 1. –40°C, 30 minutes 2. Normal temperature (+20 to 35°C), 5 to 15 minutes 3. +85°C, 30 minutes 4. Normal temperature (+20 to 35°C), 5 to 15 minutes
	Humidity resistance (with FPC/FFC inserted)	120 hours, insulation resistance min. 500MΩ, contact resistance max. 45mΩ	Bath temperature 40±2°C, humidity 90 to 95% R.H.
	Saltwater spray resistance (with FPC/FFC inserted)	24 hours, contact resistance max. 45mΩ	Bath temperature 35±2°C, saltwater concentration 5±1%
	H_2S resistance (with FPC/FFC inserted)	48 hours, contact resistance max. 45mΩ	Bath temperature 40±2°C, gas concentration 3±1 ppm, humidity 75% R.H.
	Soldering heat resistance	Peak temperature: 260°C or less	Reflow soldering
		300°C within 5 sec. 350°C within 3 sec.	Soldering iron
Lifetime characteristics	Insertion and removal life	30 times	Repeated insertion and removal: min. 10 sec./time
Unit weight		50-contact type: 0.51 g	

2. Material and surface treatment

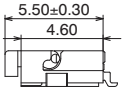
Part name	Material	Surface treatment
Molded portion	Housing: LCP resin Lever: Polyamide resin	—
Contact	Copper alloy	Contact portion; Base: Ni plating, Surface: Au plating Terminal portion; Base: Ni plating, Surface: Au plating
Soldering terminal portion	Copper alloy	Base: Ni plating, Surface: Sn plating

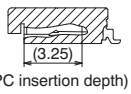
DIMENSIONS (Unit: mm)





When the lever is rotated (reference)



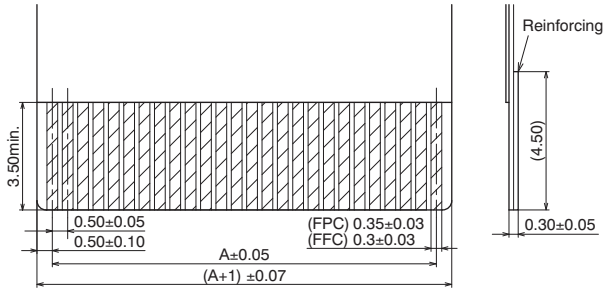


(FPC insertion depth)

Number of contacts/ dimension	A	B	C
26	12.5	16.3	17.1
28	13.5	17.3	18.1
34	16.5	20.3	21.1
40	19.5	23.3	24.1
45	22.0	25.8	26.6
50	24.5	28.3	29.1
54	26.5	30.3	31.1

RECOMMENDED FPC/FFC DIMENSIONS

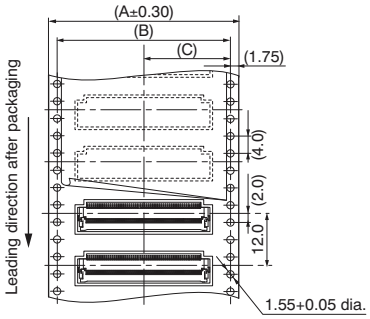
Surface finish: Au plating



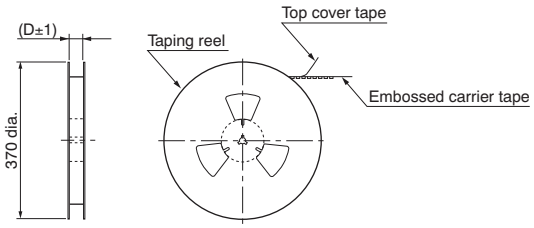
Number of contacts/ dimension	A
26	12.5
28	13.5
34	16.5
40	19.5
45	22.0
50	24.5
54	26.5

EMBOSSED TAPE DIMENSIONS (Unit: mm) (Common for respective contact type)

• Specifications for taping



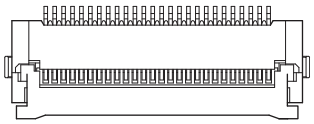
• Specifications for reel



• Dimension table (Unit: mm)

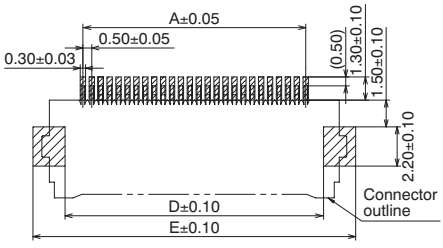
Number of contacts	A	B	C	D	Quantity per reel
26, 28 and 34 contacts	32.0	28.4	14.2	33.0	2,000
40, 45, 50 and 54 contacts	44.0	40.4	20.2	45.0	2,000

• Connector orientation with respect to embossed tape feeding direction

Type / Direction of tape progress	Y5F
↓	

NOTES

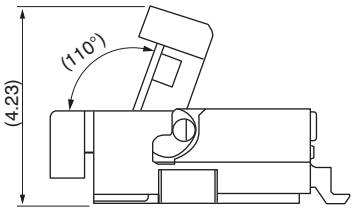
1. Recommended PC board pattern



Number of contacts/ dimension	A	D	E
26	12.5	14.5	18.1
28	13.5	15.5	19.1
34	16.5	18.5	22.1
40	19.5	21.5	25.1
45	22.0	24.0	27.6
50	24.5	26.5	30.1
54	26.5	28.5	32.1

2. Precautions for insertion/removal of FPC/FFC

When the connector has 40 or more contacts, press both ends of the lever with two fingers to lock the lever. If only the center of the lever is pressed, a lock failure may occur, leading to a continuity failure or connector breakage.
When the connector has less than 40 contacts, open/close the lever at its center. A load applied to the lever unevenly or on only one side may deform the lever.
Fully open the lever to insert an FPC.
Don't further apply an excessive load to the fully opened lever; otherwise, the lever may be deformed.



When the lever is half-opened, the cable cannot be inserted.
Don't pull out the FPC when the lever is locked; otherwise, this may result in a continuity failure or connector breakage.
After an FPC is inserted, carefully handle it so as not to apply excessive stress to the base of the FPC.

For Cautions for Use, see Connector Technical Information (page 140). For other details, please verify with the product specification sheets.

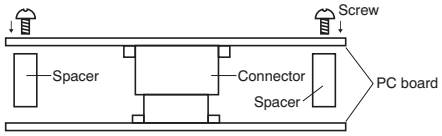
Connector Technical Information

GENERAL NOTES ON USING SMD TYPE CONNECTORS

Regarding the design of devices and PC board patterns

1. When connecting several connectors together by stacking, make sure to maintain proper accuracy in the design of structure and mounting equipment so that the connectors are not subjected to twisting and torsional forces.
2. With mounting equipment, there may be up to a ±0.2 to 0.3-mm error in positioning. Be sure to design PC boards and patterns while taking into consideration the performance and abilities of the required equipment.
3. Some connectors have tabs embossed on the body to aid in positioning. When using these connectors, make sure that the PC board is designed with positioning holes to match these tabs.
4. To ensure the required mechanical strength when soldering the connector terminals, make sure the PC board meets recommended PC board pattern design dimensions given.
5. For all connectors of the narrow-pitch series, to prevent the PC board from coming off during vibrations or impacts, and to prevent loads from falling directly on the soldered portions, be sure to design some means to fix the PC board in place.

   Example) Secure in place with screws



   When connecting PC boards, take appropriate measures to prevent the connector from coming off.
6. Notes when using a FPC:

   (1) When the connector is soldered to an FPC board, during its insertion and removal procedures, forces may be applied to the terminals and cause the soldering to come off. It is recommended to use a reinforcement board on the backside of the FPC board to which the connector is being connected. Please make the reinforcement board dimensions bigger than the outer limits of the recommended PC board pattern (should be approximately 1 mm greater than the outer limit). Material should be glass epoxy or polyimide, and the thickness should be between 0.2 and 0.3 mm.

   (2) Collisions, impacts, or turning of FPC boards, may apply forces on the connector and cause it to come loose. Therefore, make to design retaining plates or screws that will fix the connector in place.
7. The narrow-pitch connector series is designed to be compact and thin. Although ease of handling has been taken into account, take care when mating the connectors, as displacement or angled mating could damage or deform the connector.

Regarding the selection of the connector placement machine and the mounting procedures

1. Select the placement machine taking into consideration the connector height, required positioning accuracy, and packaging conditions.
2. Be aware that if the catching force of the placement machine is too great, it may deform the shape of the connector body or connector terminals.
3. Be aware that during mounting, external forces may be applied to the connector contact surfaces and terminals and cause deformations.
4. Depending on the size of the connector being used, self alignment may not be possible.
   In such cases, be sure to carefully position the terminal with the PC board pattern.
5. The positioning bosses give an approximate alignment for positioning on the PC board. For accurate positioning of the connector when mounting it to the PC board, we recommend using an automatic positioning machine.

Regarding soldering

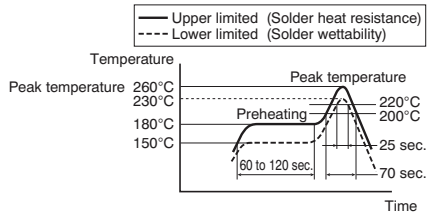
■ **Reflow soldering**

1. Measure the recommended profile temperature for reflow soldering by placing a sensor on the PC board near the connector surface or terminals. (The setting for the sensor will differ depending on the sensor used, so be sure to carefully read the instructions that comes with it.)
2. As for cream solder printing, screen printing is recommended.
3. See the specifications and drawings for the product in question for the metal mask pattern diagrams.
4. When mounting on both sides of the PC board and the connector is mounting on the underside, use adhesives or other means to ensure the connector is properly fixed to the PC board. (Double reflow soldering on the same side is possible.)
5. N_2 reflow, conducting reflow soldering in a nitrogen atmosphere, increases the solder flow too greatly, enabling wicking to occur. Make sure that the solder feed rate and temperature profile are appropriate.

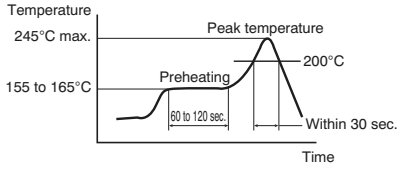
Soldering conditions

Please use the reflow temperature profile conditions recommended below for reflow soldering. Please contact us before using a temperature profile other than that described below (e.g. lead-free solder).

- Narrow-pitch connectors (except P5 floating and P8 type)



- Narrow-pitch connector (P5 floating, P8)



For products other than the ones above, please refer to the latest product specifications.

6. The temperatures are measured at the surface of the PC board near the connector terminals. (The setting for the sensor will differ depending on the sensor used, so be sure to carefully read the instructions that comes with it.)
7. The temperature profiles given in this catalog are values measured when using the connector on a resin-based PC board. When performed reflow soldering on a metal board (iron, aluminum, etc.) or a metal table to mount on a FPC, make sure there is no deformation or discoloration of the connector beforehand and then begin mounting.

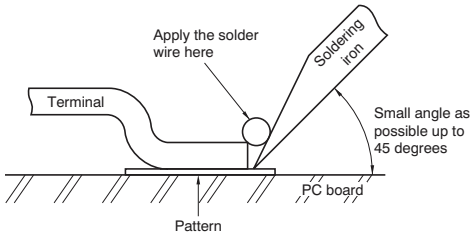
■ **Hand soldering**

1. Set the soldering iron so that the tip temperature is less than that given in the table below.

Table A

SMD type connectors	300°C within 5 sec. 350°C within 3 sec.

2. Do not allow flux to spread onto the connector leads or PC board. This may lead to flux rising up to the connector inside.
3. Touch the soldering iron to the foot pattern. After the foot pattern and connector terminal are heated, apply the solder wire so it melts at the end of the connector terminals.



4. Be aware that soldering while applying a load on the connector terminals may cause improper operation of the connector.
5. Thoroughly clean the soldering iron.
6. Flux from the solder wire may get on the contact surfaces during soldering operations. After soldering, carefully check the contact surfaces and clean off any solder before use.
7. For soldering of prototype devices during product development, you can perform soldering at the necessary locations by heating with a hot-air gun by applying cream solder to the foot pattern beforehand. However, at this time, make sure that the air pressure does not move connectors by carefully holding them down with tweezers or other similar tool. Also, be careful not to go too close to the connectors and melt any of the molded components.
8. When soldering the shell terminals of, for example, I/O connectors, avoid applying an excessive amount of solder, or it may flow into the shell.

Example:

Inflidge Industrial, Ltd.
Super Air Heater
Digital temperature controller
Air heater with internal temperature sensor

■ **Solder reworking**

1. Finish reworking in one operation.
2. For reworking of the solder bridge, use a soldering iron with a flat tip. To prevent flux from climbing up to the contact surfaces, do not add more flux.
3. Keep the soldering iron tip temperature below the temperature given in Table A.
4. When soldering the shell terminals of, for example, I/O connectors, avoid applying an excessive amount of solder, or it may flow into the shell.

■ Handling Single Components

1. Make sure not to drop or allow parts to fall from work bench
2. Excessive force applied to the terminals could cause them to warp, come out, or weaken the adhesive strength of the solder. Handle with care.
3. Repeated bending of the terminals may break them.
4. Do not use alcohol for cleaning. Doing so may whiten the surface of molded parts.

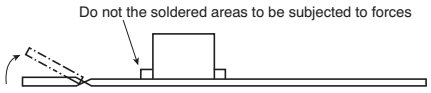
■ Cleaning flux from PC board

1. To increase the cleanliness of the cleaning fluid and cleaning operations, prepare equipment for a cleaning process that begins with boil cleaning, ultrasonic cleaning, and then to vapor cleaning.
2. Carefully oversee the cleanliness of the cleaning fluids to make sure that the contact surfaces do not become dirty from the cleaning fluid itself.
3. Since some powerful cleaning may dissolve molded components of the connector and wipe off printed letters, we recommend aqua pura electronic parts cleaners. Consult us if you wish other types of cleaning fluids.
4. Please note that the surfaces of molded parts may whiten when cleaned with alcohol.

■ Handling the PC board

• Handling the PC board after mounting the connector

When cutting or bending the PC board after mounting the connector, be careful that the soldered sections are subjected to excessive forces.



Storage of connectors

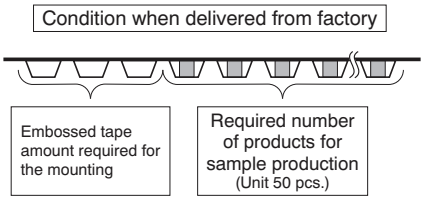
1. To prevent trouble from voids or air pockets by heat of reflow soldering, avoid storing the connectors in areas of high humidity. When storing the connectors for more than six months, be sure to store them in a storage area where the humidity is properly controlled.
2. Depending on the connector type, the color of the connector may vary from connector to connector if produced at different times, and some connectors more even change color slightly if subjected to ultraviolet rays during storage. This is normal and will not affect the operation of the connector.
3. When storing the connectors with the PC boards assembled and components alreeady set, be careful not to stack them up so the connectors are subjected to excessive forces.
4. Avoid storing the connectors in locations with excessive dust. The dust may accumulate and cause improper connections at the contact surfaces.

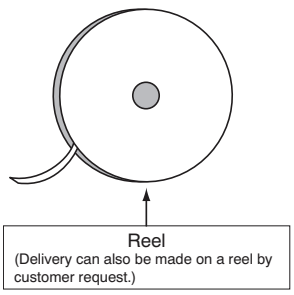
Other Notes

1. These products are made for the design of compact and lightweight devices and therefore the thickness of the molded components has been made very thin. Therefore, be careful during insertion and removal operations for excessive forces applied may damage the products.
2. Dropping of the products or rugged mishandling may bend or damage the terminals and even hinder proper reflow soldering.
3. Before soldering, try not to insert or remove the connector more than absolutely necessary.
4. When coating the PC board after soldering the connector to prevent the deterioration of insulation, perform the coating in such a way so that the coating does not get on the connector.
5. There may be variations in the colors of products from different production lots. This is normal.
6. The connectors are not meant to be used for switching.
7. Be sure not to allow external pressure to act on connectors when assembling PCBs or moving in block assemblies.

Regarding sample orders to confirm proper mounting

When ordering samples to confirm proper mounting with the placement machine, connectors are delivered in 50-piece units in the condition given right. Consult a sales representative for ordering sample units.





For other details, please refer to the latest product specifications.

GENERAL NOTES ON USING ADVANCED SERIES NARROW-PITCH CONNECTORS

■ **Connector mounting**

In case the connector is picked up by chucking during mounting, an excessive mounter chucking force may deform the molded or metal part of the connector. Consult us in advance if chucking is to be applied.

■ **Soldering**

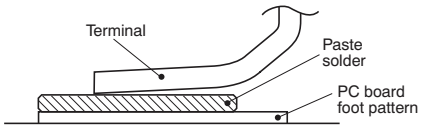
1. Manual soldering

- Due to the low profile, if an excessive amount of solder is applied to this product during manual soldering, the solder may creep up to near the contact points, or interference by solder may cause imperfect contact.
- Make sure that the soldering iron tip is heated within the temperature and time limits indicated in the specifications.
- Flux from the solder wire may adhere to the contact surfaces during soldering operations. After soldering, carefully check the contact surfaces and clean off any flux before use.
- Be aware that a load applied to the connector terminals while soldering may displace the contact.
- Thoroughly clean the iron tip.

2. Reflow soldering

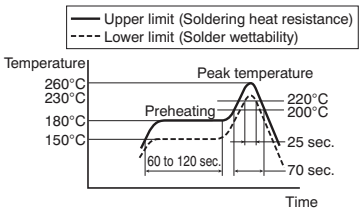
- Screen-printing is recommended for printing paste solder.
- To determine the relationship between the screen opening area and the PC-board foot pattern area, refer to the diagrams in the recommended patterns for PC boards and metal masks. Make sure to use the terminal tip as a reference position when setting.

Avoid an excessive amount of solder from being applied, otherwise, interference by the solder will cause an imperfect contact.



- Consult us when using a screen-printing thickness other than that recommended.
- Depending on the size of the connector being used, self alignment may not be possible. Accordingly, carefully position the terminal with the PC board pattern.
- The recommended reflow temperature profile is given in the figure below

Recommended reflow temperature profile



- The temperature is measured on the surface of the PC board near the connector terminal.
- Some solder and flux types may cause serious solder creeping. Take the solder and flux characteristics into consideration when setting the reflow soldering conditions.
- When performing reflow soldering on the back of the PC board after reflow soldering the connector, secure the connector using, for example, an adhesive (Double reflow soldering on the same side is possible)

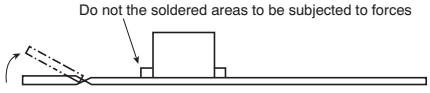
3. Reworking on a soldered portion

- Finish reworking in one operation.
- For reworking of the solder bridge, use a soldering iron with a flat tip. Do not add flux, otherwise, the flux may creep to the contact parts.
- Use a soldering iron whose tip temperature is within the temperature range specified in the specifications.

■ **Do not drop the product or handle it carelessly. Otherwise, the terminals may become deformed due to excessive force or the solderability during reflow soldering may degrade.**

■ **Do not insert or remove the connector when it is not soldered. Also, forcibly applied external pressure on the terminals can weaken the adherence of the terminals to the molded part or cause the terminals to lose their evenness.**

■ **When cutting or bending the PC board after mounting the connector, be careful that the soldered sections are subjected to excessive forces.**



■ **Notes when using a FPC**

- When the connector is soldered to an FPC board, during its insertion and removal procedures, forces may be applied to the terminals and cause the soldering to come off. It is recommended to use a reinforcement board on the backside of the FPC board to which the connector is being connected. Make sure that the reinforcing plate is larger than the outline of the recommended PC board pattern (Outline + approx. 1 mm). The reinforcing plate is made of SUS, glass epoxy or polyimide that is 0.2 to 0.3 mm thick.
- This connector employs a simple locking structure. However, the connector may come off depending on the size and weight of the FPC, layout and reaction force of FPC, or by drop impact. Make sure to fully check the equipment's condition. To prevent any problem with loose connectors, adopt measures to prevent the connector from coming off inside the equipment.

■ **Other Notes**

When coating the PC board after soldering the connector to prevent the deterioration of insulation, perform the coating in such a way so that the coating does not get on the connector.
The connectors are not meant to be used for switching.
For other details, please refer to the latest product specifications.

GENERAL NOTES FOR USING FPC CONNECTORS

■ **PC board design**

Design the recommended foot pattern in order to secure the mechanical strength in the soldered areas of the terminal.

■ **FPC and equipment design**

Design the FPC based on the recommended dimensions to ensure the required connector performance.
In addition, carefully check the equipment design and take required measures for the equipment to prevent the FPC from being removed subsequent to a fall, vibration, or other impact due to the FPC size, weight, or the reaction force of the routed FPC.

■ **Connector mounting**

In case the connector is picked up by chucking during mounting, an excessive mounter chucking force may deform the molded or metal part of the connector. Consult us in advance if chucking is to be applied.

■ **Soldering**

1. Manual soldering.

- Due to the low profile, if an excessive amount of solder is applied to this product during manual soldering, the solder may creep up to near the contact points, or interference by solder may cause imperfect contact.
- Make sure that the soldering iron tip is heated within the temperature and time limits indicated in the specifications.
- Flux from the solder wire may adhere to the contact surfaces during soldering operations. After soldering, carefully check the contact surfaces and clean off any flux before use.
- Be aware that a load applied to the connector terminals while soldering may displace the contact.
- Thoroughly clean the iron tip.

2. Reflow soldering

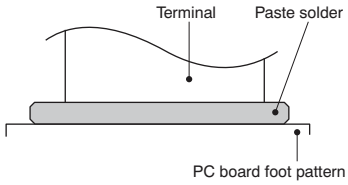
- Screen-printing is recommended for printing paste solder.

Y3FT/Y3F/Y3B/Y5F/Y5B/Y5BW

To determine the relationship between the screen opening area and the PC board foot pattern area, refer to the diagrams in the recommended patterns for PC boards and metal masks when setting.
Note that excess solder on the terminals prevents complete insertion of the FPC, and that excess solder on the metal clips prevents the lever from rotating.

Y5S

Note that excess solder inhibits the slider lock operation.

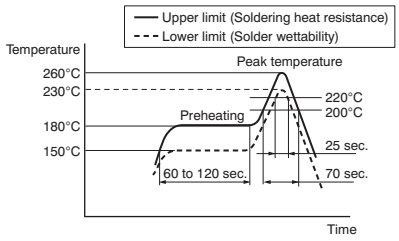


Y3FT/Y3F/Y3B/Y5S/Y5F/Y5B/Y5BW

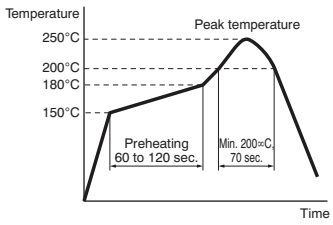
Screen thickness of 120μm is recommended for paste solder printing.

- Consult us when using a screen-printing thickness other than that recommended.
- Depending on the size of the connector being used, self alignment may not be possible. Accordingly, carefully position the terminal with the PC board pattern.
- The recommended reflow temperature profile is given in the figure below

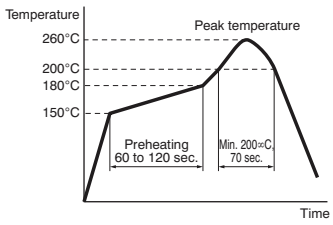
Recommended reflow temperature profile
Y3FT/Y3F/Y3B/Y5B/Y5BW



Y5S



Y5F



- The temperature is measured on the surface of the PC board near the connector terminal.
- Some solder and flux types may cause serious solder creeping. Take the solder and flux characteristics into consideration when setting the reflow soldering conditions.
- When performing reflow soldering on the back of the PC board after reflow soldering the connector, secure the connector using, for example, an adhesive. (Double reflow soldering on the same side is possible)

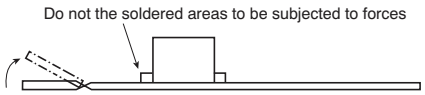
3. Reworking on a soldered portion

- Finish reworking in one operation.
- For reworking of the solder bridge, use a soldering iron with a flat tip. Do not add flux, otherwise, the flux may creep to the contact parts.
- Use a soldering iron whose tip temperature is within the temperature range specified in the specifications.

■ **Do not drop the product or handle carelessly. Otherwise, the terminals may become deformed due to excessive force or the solderability during reflow soldering may degrade.**

■ **Don't open/close the lever or insert/remove an FPC until the connector is soldered. Forcibly applied external pressure on the terminals can weaken the adherence of the terminals to the molded part or cause the terminals to lose their evenness. In addition, do not insert an FPC into the connector before soldering the connector.**

■ **When cutting or bending the PC board after mounting the connector, be careful that the soldered sections are subjected to excessive forces.**



■ **Other Notes**

When coating the PC board after soldering the connector to prevent the deterioration of insulation, perform the coating in such a way so that the coating does not get on the connector.
The connectors are not meant to be used for switching.
For other details, please refer to the latest product specifications.

Global Network

North America | Europe | Asia Pacific | China | Japan

Panasonic Electric Works

Please contact our Global Sales Companies in:

Europe

▸ Headquarters	Panasonic Electric Works Europe AG	Rudolf-Diesel-Ring 2, 83607 Holzkirchen, Tel. +49 (0) 8024 648-0, Fax +49 (0) 8024 648-111, www.panasonic-electric-works.com
▸ Austria	Panasonic Electric Works Austria GmbH	Josef Madersperger Str. 2, 2362 Biedermannsdorf, Tel. +43 (0) 2236-26846, Fax +43 (0) 2236-46133 www.panasonic-electric-works.at
	PEW Electronic Materials Europe GmbH	Ennshafenstraße 30, 4470 Enns, Tel. +43 (0) 7223 883, Fax +43 (0) 7223 88333, www.panasonic-electronic-materials.com
▸ Benelux	Panasonic Electric Works Sales Western Europe B.V.	De Rijn 4, (Postbus 211), 5684 PJ Best, (5680 AE Best), Netherlands, Tel. +31 (0) 499 372727, Fax +31 (0) 499 372185, www.panasonic-electric-works.nl
▸ Czech Republic	Panasonic Electric Works Czech s.r.o.	Sales Office Brno, Administrative centre PLATINIUM, Veveri 111, 616 00 Brno, Tel. (+420-) 374 799 990, Fax (+420-) 374 799 999, www.panasonic-electric-works.cz
▸ France	Panasonic Electric Works Sales Western Europe B.V.	Succursale française, 10, rue des petits ruisseaux, 91370 Verrières Le Buisson, Tél. +33 (0) 1 6013 5757, Fax +33 (0) 1 6013 5758, www.panasonic-electric-works.fr
▸ Germany	Panasonic Electric Works Europe AG	Rudolf-Diesel-Ring 2, 83607 Holzkirchen, Tel. +49 (0) 8024 648-0, Fax +49 (0) 8024 648-111, www.panasonic-electric-works.de
▸ Hungary	Panasonic Electric Works Europe AG	Magyarországi Közvetlen Kereskedelmi Képviselet, 1117 Budapest, Neumann János u. 1., Tel. +36 1 999 89 26 www.panasonic-electric-works.hu
▸ Ireland	Panasonic Electric Works UK Ltd.	Irish Branch Office, Dublin, Tel. +353 (0) 14600969, Fax +353 (0) 14601131, www.panasonic-electric-works.co.uk
▸ Italy	Panasonic Electric Works Italia srl	Via del Commercio 3-5 (Z.I. Ferlina), 37012 Bussolengo (VR), Tel. +39 (0) 456752711, Fax +39 (0) 456700444, www.panasonic-electric-works.it
▸ Nordic Countries	Panasonic Electric Works Nordic AB	Knarrarnäsgatan 15, 164 40 Kista, Sweden, Tel. +46 859476680, Fax +46 859476690, www.panasonic-electric-works.se Jungmansgatan 12, 21119 Malmö, Tel. +46 40 697 7000, Fax +46 40 697 7099, www.panasonic-fire-security.com
▸ Poland	Panasonic Electric Works Polska sp. z o.o	ul. Wołoska 9A, 02-583 Warszawa, Tel. +48 (0) 22 338-11-33, Fax +48 (0) 22 338-12-00, www.panasonic-electric-works.pl
▸ Portugal	Panasonic Electric Works España S.A.	Portuguese Branch Office, Avda Adelino Amaro da Costa 728 R/C J, 2750-277 Cascais, Tel. +351 214812520, Fax +351 214812529
▸ Spain	Panasonic Electric Works España S.A.	Barajas Park, San Severo 20, 28042 Madrid, Tel. +34 913293875, Fax +34 913292976, www.panasonic-electric-works.es
▸ Switzerland	Panasonic Electric Works Schweiz AG	Grundstrasse 8, 6343 Rotkreuz, Tel. +41 (0) 41 7997050, Fax +41 (0) 41 7997055, www.panasonic-electric-works.ch
▸ United Kingdom	Panasonic Electric Works UK Ltd.	Sunrise Parkway, Linford Wood, Milton Keynes, MK14 6 LF, Tel. +44 (0) 1908 231555, Fax +44 (0) 1908 231599, www.panasonic-electric-works.co.uk

North & South America

▸ USA	PEW Corporation of America	629 Central Avenue, New Providence, N.J. 07974, Tel. 1-908-464-3550, Fax 1-908-464-8513, www.pewa.panasonic.com

Asia Pacific / China / Japan

▸ China	Panasonic Electric Works (China) Co., Ltd.	Level 2, Tower W3, The Towers Oriental Plaza, No. 2, East Chang An Ave., Dong Cheng District, Beijing 100738, Tel. (010) 5925-5988, Fax (010) 5925-5973
▸ Hong Kong	Panasonic Electric Works (Hong Kong) Co., Ltd.	RM1205-9, 12/F, Tower 2, The Gateway, 25 Canton Road, Tsimshatsui, Kowloon, Hong Kong, Tel. (0852) 2956-3118, Fax (0852) 2956-0398
▸ Japan	Panasonic Electric Works Co., Ltd.	1048 Kadoma, Kadoma-shi, Osaka 571-8686, Japan, Tel. (06) 6908-1050, Fax (06) 6908-5781, http://panasonic-electric-works.net
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