

## Product Change Notice: Various A4S, Y5B/Y5BW Series Connectors Packaging Change For 500 Piece Minimum Order Quantity (MOQ) Type Models

PCN.PG13.7.23.2020

7.23.2020

<b>About This Notice:</b>	To prevent deformation of an embossed carrier tape under high humidity and high temperature environments, Panasonic is changing the packing specification for Connectors by adding silica gel (2 pieces) in the bag which is sealed by thermo-compression bonding.
<b>Effective Date:</b>	August, 2020 production onwards.
<b>Change Details:</b>	<p>Adding silica gel (2 pieces) in the bag and sealing by thermo-compression bonding.</p>
<b>Affected Parts:</b>	See Attached.
<b>Datasheet(s):</b>	See Attached.
<b>Notes:</b>	Part numbers, specifications and pricing remains unchanged.

## Y5B/Y5BW (0.5 mm pitch)

Pitch 0.5 mm, low profile/space saving and double top and bottom contacts construction



### FEATURES

- Double top and bottom contacts construction
- Wiring patterns can be placed under the connector
- Time and effort can be reduced by delivering with lever open
- Lock hold type (Y5BW) with excellent holding force is available (Y5BW: support only FPC)
- Supports high speed transmission standard V-by-One® HS. of THine Electronics, Inc.
- Models that support an ambient temperature of 105°C are also available.

(For more information, please contact our sales office.)

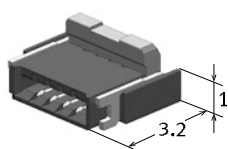
### TYPICAL APPLICATIONS

- Mobile devices and industrial equipment

### DETAILS FEATURES

#### Low profile and space saving design

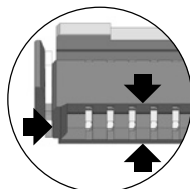
Low profile and space saving design of 1.0 mm high and 3.20 mm deep (3.70 mm with lever)



4 pins (Y5B: minimum)

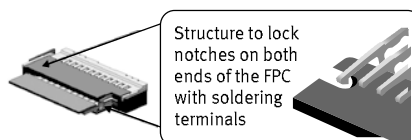
#### Prevent displacement of FPC insertion

Constructed to make positional displacement difficult by surrounding the four sides on the FPC inlet side with wall molding

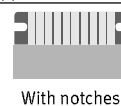


#### Lock hold type (Y5BW) is also available

The FPC holding contacts located on both ends of the connector facilitate positioning of FPC and further enhance the FPC holding force.



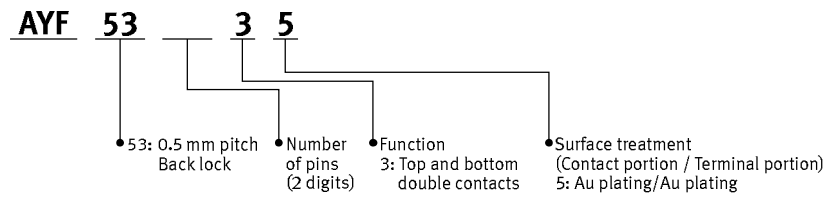
Applicable FPC shape



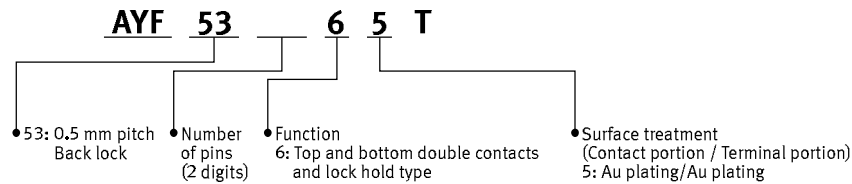
- Notes: 1. The inserted FPC can be temporarily held until the lever is closed.  
2. When the lever is closed, the holding contacts lock the FPC by its notches, enhancing the FPC holding force.

## ORDERING INFORMATION (PART NO.)

### Y5B



### Y5BW



## PRODUCT TYPES

### Y5B

Height	Number of pins	Part No.	Standard packing	
			Inner carton (1-reel)	Outer carton
1.0 mm	4	AYF530435	5,000 pcs.	10,000 pcs.
	5	AYF530535		
	6	AYF530635		
	8	AYF530835		
	10	AYF531035		
	12	AYF531235		
	14	AYF531435		
	16	AYF531635		
	24	AYF532435		
	28	AYF532835		
	30	AYF533035		
	32	AYF533235		
	34	AYF533435		

Notes: 1. Order unit: For volume production: 1-inner carton (1-reel) units. For samples, please contact our sales office.  
2. Please contact our sales office for connectors having a number of pins other than those listed above.

### Y5BW

Height	Number of pins	Part No.	Standard packing	
			Inner carton (1-reel)	Outer carton
1.0 mm	2	AYF530265T	5,000 pcs.	10,000 pcs.
	3	AYF530365T		
	4	AYF530465T		
	6	AYF530665T		
	8	AYF530865T		
	10	AYF531065T		
	12	AYF531265T		
	14	AYF531465T		
	22	AYF532265T		
	26	AYF532665T		
	28	AYF532865T		
	30	AYF533065T		
	32	AYF533265T		

Notes: 1. Order unit: For volume production: 1-inner carton (1-reel) units. For samples, please contact our sales office.  
2. Please contact our sales office for connectors having a number of pins other than those listed above.

## SPECIFICATIONS

## ■ Characteristics

The followings show specifications, when using an applicable FPC (thickness 0.30 mm)

Item		Specifications	Conditions																		
Electrical characteristics	Rated current	0.5 A/pin contact (except for holding contact)																			
	Rated voltage	50 V AC/DC																			
	Dielectric strength	250 V 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. 1,000 MΩ (initial)	Using 250 V DC megger (applied for 1 min.)																		
	Contact resistance	Max. 100 mΩ	Based on the contact resistance measurement method specified by JIS C 5402.																		
Mechanical characteristics	FPC holding force	Y5B: Min. 0.2 N/pin contact × pin contacts (initial) Y5BW: Min. 0.2 N/pin contact × pin contacts + 2.0 N (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																		
Environmental characteristics	Ambient temperature	-55 to +85°C*	No icing. No condensation.																		
	Soldering heat resistance	The initial specification must be satisfied electrically and mechanically.	Reflow soldering: Peak temperature: 260°C or less (on the surface of the PC board around the connector terminals) Soldering iron: 300°C within 5 sec. 350°C within 3 sec.																		
	Storage temperature	-55 to +85°C (product only) -40 to +50°C (emboss packing)	No icing. No condensation.																		
	Thermal shock resistance (with FPC mated)	5 cycles, insulation resistance Min. 100 MΩ, contact resistance Max. 100 mΩ	Conformed to MIL-STD-202F, method 107G <table><tr><th>Order</th><th>Temperature (°C)</th><th>Time (minutes)</th></tr><tr><td>1</td><td>-55<sup>0</sup><sub>-3</sub></td><td>30</td></tr><tr><td>2</td><td>∅</td><td>Max. 5</td></tr><tr><td>3</td><td>85<sup>+3</sup><sub>0</sub></td><td>30</td></tr><tr><td>4</td><td>∅</td><td>Max. 5</td></tr><tr><td></td><td>-55<sup>0</sup><sub>-3</sub></td><td></td></tr></table>	Order	Temperature (°C)	Time (minutes)	1	-55 <sup>0</sup> <sub>-3</sub>	30	2	∅	Max. 5	3	85 <sup>+3</sup> <sub>0</sub>	30	4	∅	Max. 5		-55 <sup>0</sup> <sub>-3</sub>	
	Order	Temperature (°C)	Time (minutes)																		
	1	-55 <sup>0</sup> <sub>-3</sub>	30																		
	2	∅	Max. 5																		
	3	85 <sup>+3</sup> <sub>0</sub>	30																		
4	∅	Max. 5																			
	-55 <sup>0</sup> <sub>-3</sub>																				
Humidity resistance (with FPC mated)	120 hours, insulation resistance Min. 100 MΩ, contact resistance Max. 100 mΩ	Conformed to IEC60068-2-78 Temperature 40±2°C, humidity 90 to 95% RH																			
Saltwater spray resistance (with FPC mated)	24 hours, insulation resistance Min. 100 MΩ, contact resistance Max. 100 mΩ	Conformed to IEC60068-2-11 Temperature 35±2°C, saltwater concentration 5±1%																			
H <sub>2</sub> S resistance (with FPC mated)	48 hours, contact resistance Max. 100 mΩ	Temperature 40±2°C, gas concentration 3±1 ppm, humidity 75 to 80% RH																			
Lifetime characteristics	Insertion and removal life	20 times	Repeated insertion and removal: Min. 10 sec./time																		
Unit weight		Y5B 50 pins: 0.16 g																			

\*There are also products prepared for -55 to +105°C of use ambient temperature. For details, please contact our sales office.

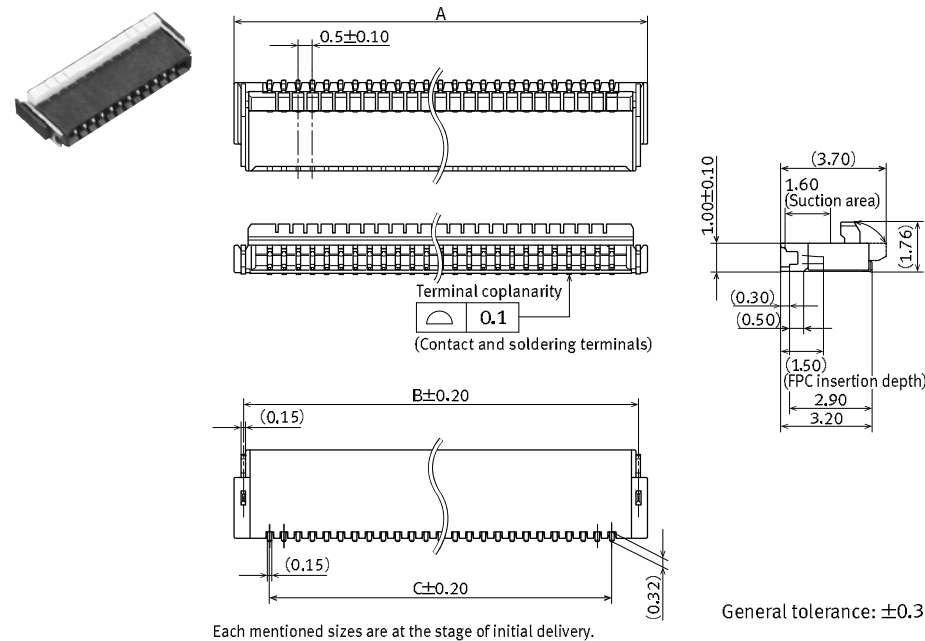
## ■ Material and surface treatment

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 (Only Y5BW)	Copper alloy	Terminal portion; Base: Ni plating, Surface: Au plating
Soldering terminal portion	Copper alloy	Base: Ni plating, Surface: Au plating

Y5B

CAD

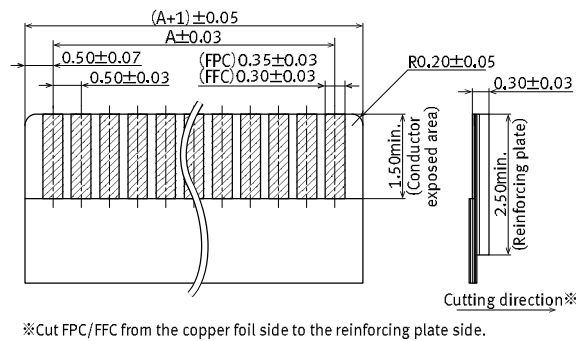
External dimensions



Dimension table			
Dimensions Number of pins	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
30	17.00	16.36	14.50
32	18.00	17.36	15.50
34	19.00	18.36	16.50

Y5B Recommended FPC/FFC dimensions

(Finished thickness: t = 0.3±0.03)  
The conductive parts should be based by Ni plating and then Au plating.

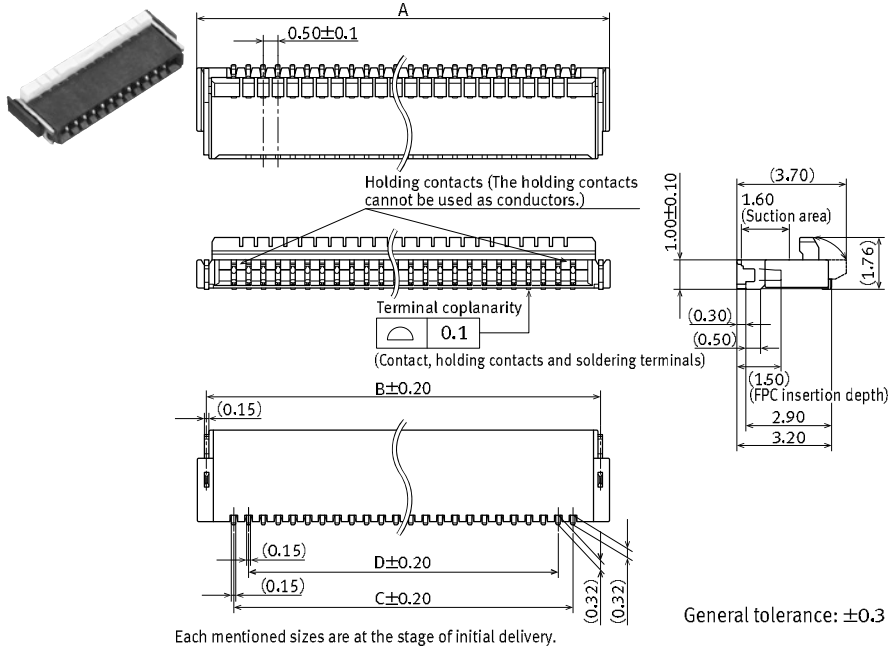


Dimension table	
Dimensions Number of pins	A
4	1.50
5	2.00
6	2.50
8	3.50
10	4.50
12	5.50
14	6.50
16	7.50
24	11.50
28	13.50
30	14.50
32	15.50
34	16.50

## ■ Y5BW

CAD

## External dimensions



Dimension table

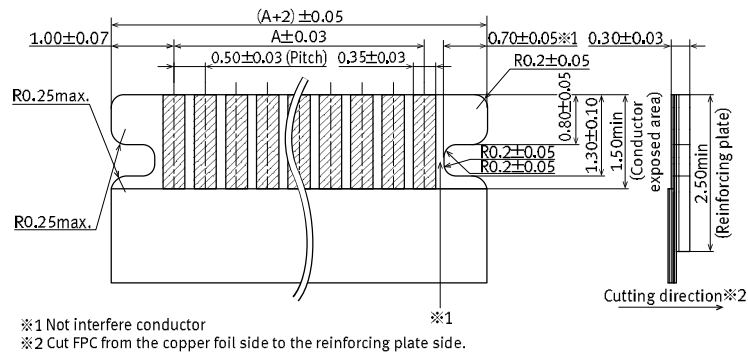
Dimensions Number of pins	A	B	C	D
2	4.00	3.36	1.50	0.50
3	4.50	3.86	2.00	1.00
4	5.00	4.36	2.50	1.50
6	6.00	5.36	3.50	2.50
8	7.00	6.36	4.50	3.50
10	8.00	7.36	5.50	4.50
12	9.00	8.36	6.50	5.50
14	10.00	9.36	7.50	6.50
22	14.00	13.36	11.50	10.50
26	16.00	15.36	13.50	12.50
28	17.00	16.36	14.50	13.50
30	18.00	17.36	15.50	14.50
32	19.00	18.36	16.50	15.50

## ■ Y5BW Recommended FPC dimensions

(Finished thickness:  $t = 0.3 \pm 0.03$ )

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

## Notch type



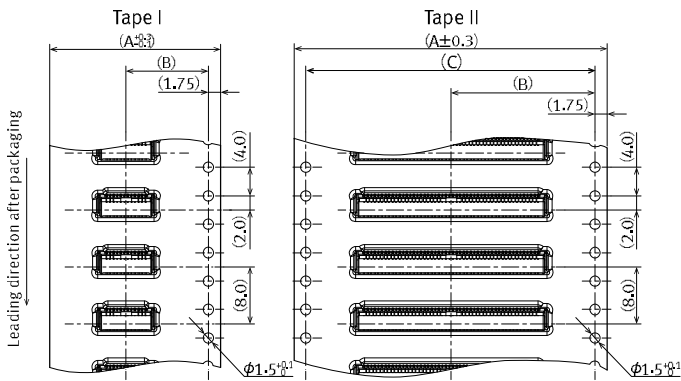
Dimension table

Dimensions Number of pins	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
28	13.50
30	14.50
32	15.50

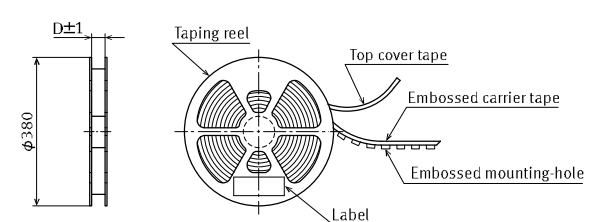
EMBOSSED TAPE DIMENSIONS

Unit: mm

■ Specifications for taping



■ Specifications for the plastic reel  
In accordance with EIAJ ET-7200B.



■ Dimension table

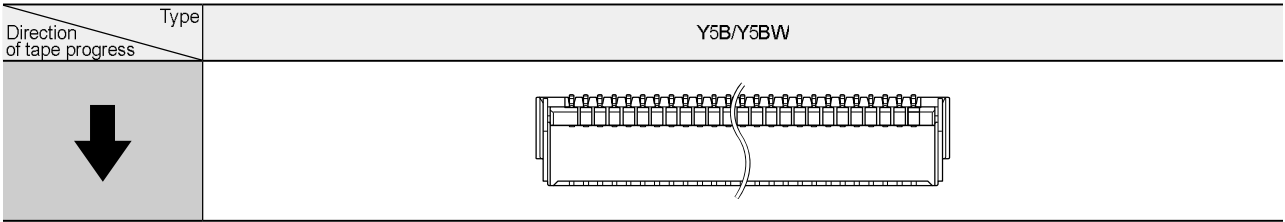
● Y5B

Number of pins	Type of taping	A	B	C	D	Quantity per reel
4 to 10	Tape I	16.0	7.5	-	17.4	5,000
12 to 30	Tape I	24.0	11.5	-	25.4	5,000
32 to 34	Tape II	32.0	14.2	28.4	33.4	5,000

● Y5BW

Number of pins	Type of taping	A	B	C	D	Quantity per reel
2 to 8	Tape I	16.0	7.5	-	17.4	5,000
10 to 28	Tape I	24.0	11.5	-	25.4	5,000
30 to 32	Tape II	32.0	14.2	28.4	33.4	5,000

■ Connector orientation with respect to embossed tape feeding direction



## NOTES

Unit: mm

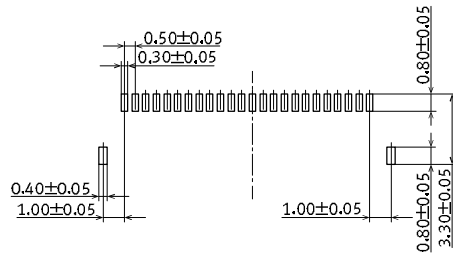
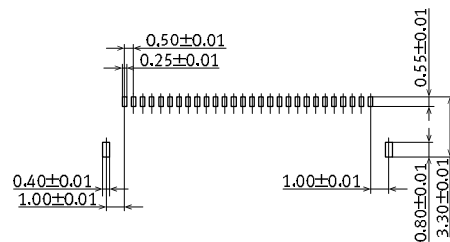
## ■ Design of PC board patterns

Conduct the recommended foot pattern design, in order to preserve the mechanical strength of terminal solder areas.

## ■ Recommended PC board and metal mask patterns

Connectors are mounted with high pitch density, intervals of 0.4 mm, 0.5 mm or 0.6 mm. In order to reduce solder and flux rise, solder bridges and other issues make sure the proper levels of solder is used.

The figures are recommended patterns. Please use them as a reference.

● Recommended PC board pattern  
(mounting layout)● Recommended metal mask pattern  
Metal mask thickness: When 120  $\mu\text{m}$   
(Terminal opening ratio: 57%)  
(Metal-part opening ratio: 100%)

Please refer to **"the latest product specifications"** when designing your product.

•Requests to customers:

<https://industrial.panasonic.com/ac/e/salespolicies/>



# Notes on Using FPC/FFC Connectors

## About safety remarks

- Do not use these connectors beyond the specification sheets. The usage outside of specified rated current, dielectric strength, and environmental conditions and so on may cause circuitry damage via abnormal heating, smoke, and fire.
- In order to avoid accidents, your thorough specification review is appreciated. Please contact our sales office if your usage is out of the specifications. Otherwise, Panasonic Corporation cannot guarantee the quality and reliability.
- Panasonic Corporation is consistently striving to improve quality and reliability. However, the fact remains that electrical components and devices generally cause failures at a given statistical probability. Furthermore, their durability varies with use environments or use conditions. In this respect, please check for actual electrical components and devices under actual conditions before use. Continued usage in a state of degraded condition may cause the deteriorated insulation, thus result in abnormal heat, smoke or firing. Please carry out safety design and periodic maintenance including redundancy design, design for fire spread prevention, and design for malfunction prevention so that no accidents resulting in injury or death, fire accidents, or social damage will be caused as a result of failure of the products or ending life of the products.

## PC board design

- Design the recommended foot pattern in order to secure the mechanical strength in the soldered areas of the terminal.
- In order to facilitate the connector mount, make sure to design the board with reduced warpage.
- Please design and pay attention to the distance from the board edge to the pattern. When cutting the board, do not give an excessive stress to the connector, which risks damaging the connector.
- Y5BW  
Depending on FPC/FFC dimension and FPC/FFC insertion location, there is a possibility that the holding contact and an FPC/FFC pattern of both end of signal contacts are in shortcircuited. Please design the equipment not to be affected even if a board pattern of holding contacts and an FPC/FFC pattern of both end of signal contacts are in short-circuited.  
(For example: Do not connect a board pattern of holding contacts and GND. If connect a board pattern of holding contacts and GND, also connect board pattern of both end of signal contacts.)

## FPC/FFC and equipment design

- Design the FPC/FFC based with recommended dimensions to ensure the required connector performance.
- When back lock type is used, secure enough space for closing the lever and for open-close operation of the lever.
- Make sure that connector positioning and FPC/FFC length are appropriate to prevent diagonal insertion of the FPC/FFC.
- Due to the FPC/FFC size, weight, or the reaction force of the routed FPC/FFC, FPC/FFC removed and connector deformation may occur by a fall, vibration, or other impact. When using FPC/FFC connector for smart phones, cellular phones and other applications which require falling resistance, please pay attention to precautions.
- Carefully check the equipment design and take required measures to prevent the FPC/FFC removed.
- If the shock of falling, vibration is applied to the FPC/FFC, please design the equipment not to be applied a load to connector, such as fixing the FPC/FFC.
- Make sure to design the FPC/FFC insertion part with reduced warpage. Otherwise, the warpage may adversely affect the FPC/FFC insertion.
- Y5BH  
When using in high-speed transmission applications, please take care when designing the FPC/FFC, because the differential impedance values may be uneven depending on FPC/FFC dimensions settings, uneven dimensions, and layering composition.
- Y5BW  
**The holding contacts cannot be used as conductors.**  
**The holding contacts are located on both ends of the connector, and the shape of the soldered portions is the same as that of the signal contacts. Use caution to ensure connect identification.**

## Connector mounting

- Excessive moulder chucking force may deform the molded or metal part of the connector. Consult us in advance if chucking is to be applied.
- In case of dry condition, please note the occurrence of static electricity. The product may be adhered to the embossed carrier tape or the cover tape in dry condition. Recommended humidity is from 40 to 60%RH and please remove static electricity by ionizer in manufacturing process.

## Soldering

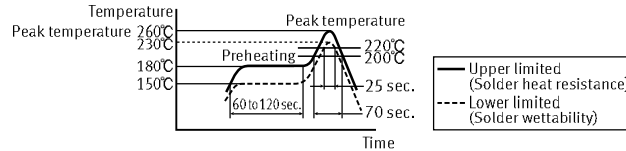
### Manual soldering

- As this product is compact size, please avoid the excessive solder. Because the excessive solder makes creepage and flux wicking at contact portion, or impact contact by soldering interference.
- Please use the soldering iron under specified temperature and times.

- Soldering flux may contaminate the contact portion, please check the contact portion after soldering with a magnifying glass. If the contamination is found, please clean the contamination before use.
- As excessive force to terminal by manual soldering has some possibilities of contact portion deformation, please be careful to the force by hand.
- Please clean soldering iron tip.

### Reflow soldering

- When cream solder printing is used, screen method is recommended.
- To achieve the appropriate soldering state, make sure that the reflow temperature, PC board foot pattern, window size and thickness of metal mask are recommended condition.
- Note that excess solder on the terminals prevents complete insertion of the FPC/FFC, and causes flux climbing up.
- A screen thickness of 120 $\mu$ m is recommended during cream solder printing.
- When applying the different thickness of a screen, please contact our sales office.
- There may be a case of difficult self-alignment depending on the connector size. In that case, please be careful to align terminals and solder pads.
- The following diagram shows the recommended reflow soldering temperature profile.



- Infrared reflow soldering is able to passed two times.
- The temperature is measured on the PC board surface near connector terminals.
- The condition of solder or flux creepage and wettability depend on the type of solder and flux. Please set the reflow temperature and oxygen level by considering the solder and flux characteristics.
- Do not use resin-containing solder. Otherwise, the contacts might be firmly fixed.
- 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.)  
**Do not apply reflow heating while a lever is closing (or on the way of closing)**  
The terminals may be deformed by reflow heating with a lever is closing (or on the way of closing).

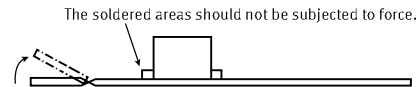
### Rework of soldering portion.

- Rework shall be only one time.
- Please avoid the supplementary flux in case of rework for soldering bridge, as this may cause flux creepage to contact portion.  
When adding the solder for reworking, do not add an excessive solder.
- Please use the soldering iron under specified temperature.

### As the excessive force on the terminals may cause the deformation and the integrity of solderability will be lost during reflow soldering, please avoid dropping or rough handling of the product.

### When the soldering is not completed, do not open/close the lever or insert/remove an FPC/FFC. And the external compulsory force to the terminal may cause the fixing force lowering between the terminal and the molding or the coplanarity failures. In addition, do not insert an FPC/FFC into the connector before soldering the connector.

### When cutting or bending the PC board after mounting the connector, please avoid the stress at the soldering portion.

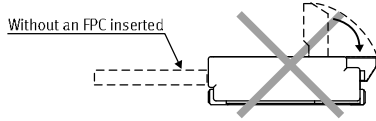


## PC board

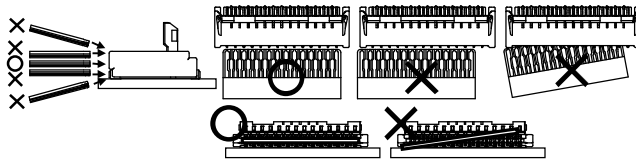
- As thick coverlay/solder resist and adhesive may cause poor soldering, please set thickness of coverlay and adhesive as thin as possible.

### Precautions for insertion/removal of FPC/FFC

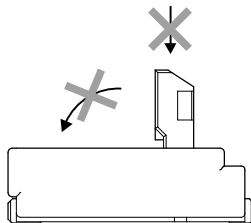
- Avoid touching the lever (applying any external force) until an FPC/FFC is inserted. **Do not open/close the lever without an FPC/FFC inserted.** Failure to follow this instruction will cause the contacts to warp, leading to the contact tips to interfere with the insertion of an FPC/FFC, deforming the terminals. Failure to follow this instruction may cause the lever to be removed, terminals to be deformed, and/or the FPC/FFC insertion force to increase.



- These connectors are of the back lock type, which has the FPC/FFC insertion section on the opposite side of the lever. Be careful not to make a mistake in the FPC/FFC insertion position or the lever opening/closing position. Otherwise, a contact failure or connector breakage may occur.
- Do not insert an FPC/FFC upside down. Inserting an FPC/FFC in a direction opposite to that you intended may cause an operation failure or malfunction.
- Insert an FPC/FFC with the lever opened at right angle, that is, in the factory default position.
- After checking the position of FPC/FFC insertion slot and FPC/FFC, completely insert the FPC/FFC horizontally to the full depth of the connector without altering the angle. An FPC/FFC inserted at an excessive angle to the board may cause the deformation of metal parts, crack of molding parts, FPC/FFC insertion failures, and FPC/FFC circuit breakages.



- Insert the FPC/FFC into the connector after checking the position of FPC/FFC insertion slot and FPC/FFC. Do not insert the FPC/FFC without positioning the FPC/FFC and connector. Otherwise, it may cause connector breakages. When it is hard to insert the FPC/FFC, do not insert the FPC/FFC on that condition. Confirm the FPC/FFC and connector positioning.
- 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.

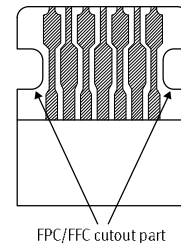


- To close the lever, turn down the lever by pressing the entire lever or both sides of the lever with fingers tips. And close the lever completely. Be careful not to apply partial load to the lever that may cause its deformation or destruction or lever going back to initial position. Close the lever completely to prevent contact failure.
- 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/FFC, rotate the lever to the initial position. Do not push the lever into the FPC/FFC inlet side and ensure that the lever will not go over the initial position; otherwise, it may be deformed or broken.
- To open the lever, if pressure to the lever is applied unevenly, such as to an edge only, it may deform or break.
- Do not open the lever forcefully with something sharp tool, otherwise, the lever may be deformed.
- Remove the FPC/FFC at parallel with the lever fully opened. If the lever is closed, or if the FPC/FFC is forcibly pulled, the product or FPC/FFC may break.
- If a lever is accidentally detached during the handling of a connector, do not use the connector any longer.

■ **After an FPC/FFC is inserted, carefully handle it so as not to apply excessive stress to the base of the FPC/FFC. When using FPC/FFC with a bent condition, please pay attention to precautions below; otherwise, in some conditions it may cause conduction failure, connector breakage, unlocking lever or FPC/FFC disconnection.**

- Design so that a load is not applied to connector directly by FPC/FFC bending.
- Avoid sharp FPC/FFC bending at the root of FPC/FFC insertion part.
- Design so that a load is not applied to the part of FPC/FFC bending.
- If there might be a load on FPC/FFC, please fix the FPC/FFC.
- Y5BW

Fix the FPC/FFC if there might be a load to the cut out, do not apply bending load to the cutout part of FPC/FFC. Otherwise, it may cause FPC/FFC disconnection and deformation since the cutout part of FPC/FFC is subjected to bending stress.



### Cleaning treatment

Cleaning this product is not needed basically. Please note the following points to prevent the negative effect to the product when cleaning is necessary.

- Please keep the cleanliness of the cleaning fluid to make sure that the contact surfaces are not contaminated by the cleaning fluid itself.
- Semi-aqueous cleaning solvent is recommended as some powerful solvent may dissolve the molding portion or the marked letters. Please contact our sales office when other solvent is used.

### Precautions for operating environment and storage environment

- Panasonic Corporation does not guarantee the failures caused by condensation.

### Other precautions

- When the coating material is used for preventing PC board isolation deterioration after soldering, please assure the coating material is not adhered on any part of connector.
- Please avoid the usage of connector as electric switching basically.
- There is no problem on the product quality though the swelling, the black spot, the small scars and the foreign matter, etc. might be generated in the molding parts.
- There is no problem on the product quality though the weld line might be generated in the weld part of molding parts when the use of product is within the specifications.
- The detailed shape of metal parts and molding parts may differ depending on the mold.
- Height in FPC/FFC mating depends on the way to being used, such as mounting condition, thickness of FPC/FFC, and angle of lever lock etc. Please check it by actual equipment.

Please refer to **"the latest product specifications"** when designing your product.

•Requests to customers:

<https://industrial.panasonic.com/ac/e/salespolicies/>

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Please contact .....

## Panasonic Corporation

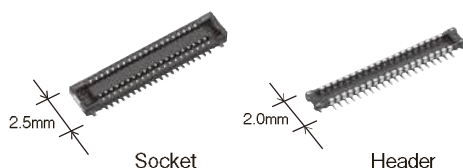
Electromechanical Control Business Division

■1006, Oaza Kadoma, Kadoma-shi, Osaka 571-8506, Japan  
[industrial.panasonic.com/ac/e/](http://industrial.panasonic.com/ac/e/)

# Panasonic®

For board-to-FPC	<b>A4S</b>
<b>Narrow pitch connectors (0.4mm pitch)</b>	

**Being 2.5 mm in width, it facilitates ever-increasing device miniaturization and advanced functionality!**



### FEATURES

1. "TOUGH CONTACT" construction provides high resistance to various environmental.
2. Simple lock structure provides tactile feedback to ensure excellent mating/unmating operation feel.
3. Connectors for inspection available

### APPLICATIONS

Smartphones, laptops and other mobile devices

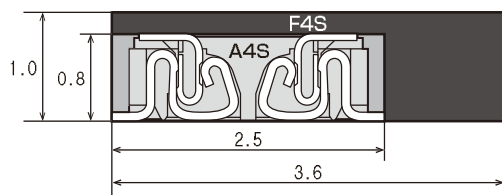
### DETAILED FEATURES

#### Width 2.5 mm slim two-piece type connector

Compact and slim structure contributes overall miniaturization of product design.

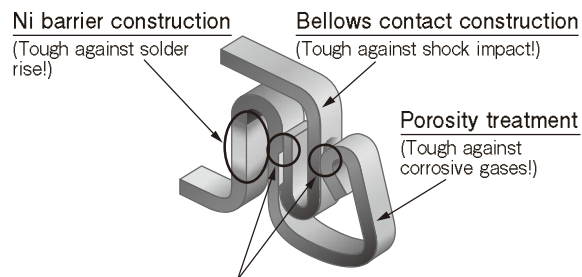
<Compared to F4S (40 pins, when mated)>

Width: 30% down, Footprint: 30% down



#### High resistance to various environments!

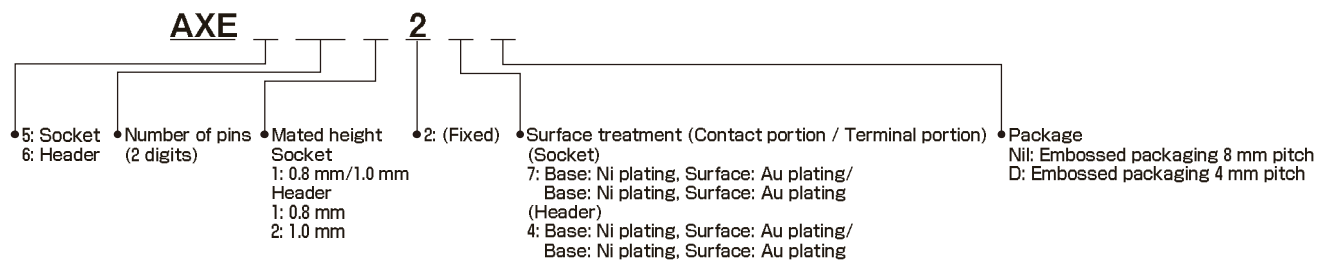
"TOUGH CONTACT" construction provides high contact reliability



#### V notch and Double contact constructions

(Tough against exposure to foreign particles and solder flux!)

### ORDERING INFORMATION



**PRODUCT TYPES****8 mm pitch embossed packaging**

Mated height	Number of pins	Part number		Packing	
		Socket	Header	Inner carton (1-reel)	Outer carton
0.8mm	10	AXE510127	AXE610124	5,000 pieces	10,000 pieces
	12	AXE512127	AXE612124		
	14	AXE514127	AXE614124		
	16	AXE516127	AXE616124		
	18	AXE518127	AXE618124		
	20	AXE520127	AXE620124		
	22	AXE522127	AXE622124		
	24	AXE524127	AXE624124		
	26	AXE526127	AXE626124		
	28	AXE528127	AXE628124		
	30	AXE530127	AXE630124		
	32	AXE532127	AXE632124		
	34	AXE534127	AXE634124		
	36	AXE536127	AXE636124		
	40	AXE540127	AXE640124		
	44	AXE544127	AXE644124		
	50	AXE550127	AXE650124		
	54	AXE554127	AXE654124		
	60	AXE560127	AXE660124		
	64	AXE564127	AXE664124		
1.0mm	70	AXE570127	AXE670124		
	80	AXE580127	AXE680124		
	10	AXE510127	AXE610224		
	12	AXE512127	AXE612224		
	14	AXE514127	AXE614224		
	20	AXE520127	AXE620224		
	24	AXE524127	AXE624224		
	26	AXE526127	AXE626224		
	30	AXE530127	AXE630224		
	32	AXE532127	AXE632224		
	40	AXE540127	AXE640224		
	44	AXE544127	AXE644224		
	50	AXE550127	AXE650224		
	54	AXE554127	AXE654224		
	60	AXE560127	AXE660224		
	70	AXE570127	AXE670224		
	80	AXE580127	AXE680224		

Notes: 1. Order unit: For volume production: 1-inner carton (1-reel) units. For samples, please contact our sales office.

2. Please contact our sales office for connectors having a number of pins other than those listed above.

**4 mm pitch embossed packaging**

Mated height	Number of pins	Part number		Packing	
		Socket	Header	Inner carton (1-reel)	Outer carton
0.8mm	10	AXE510127D	AXE610124D	15,000 pieces	30,000 pieces
	12	AXE512127D	AXE612124D		
	14	AXE514127D	AXE614124D		
	16	AXE516127D	AXE616124D		
	20	AXE520127D	AXE620124D		
	24	AXE524127D	AXE624124D		
	30	AXE530127D	AXE630124D		
	34	AXE534127D	AXE634124D		
	40	AXE540127D	AXE640124D		
	44	AXE544127D	AXE644124D		
	50	AXE550127D	AXE650124D		
	60	AXE560127D	AXE660124D		
	64	AXE564127D	AXE664124D		

Notes: 1. Order unit: For volume production: 1-inner carton (1-reel) units. For samples, please contact our sales office.  
 2. Please contact our sales office for connectors having a number of pins other than those listed above.



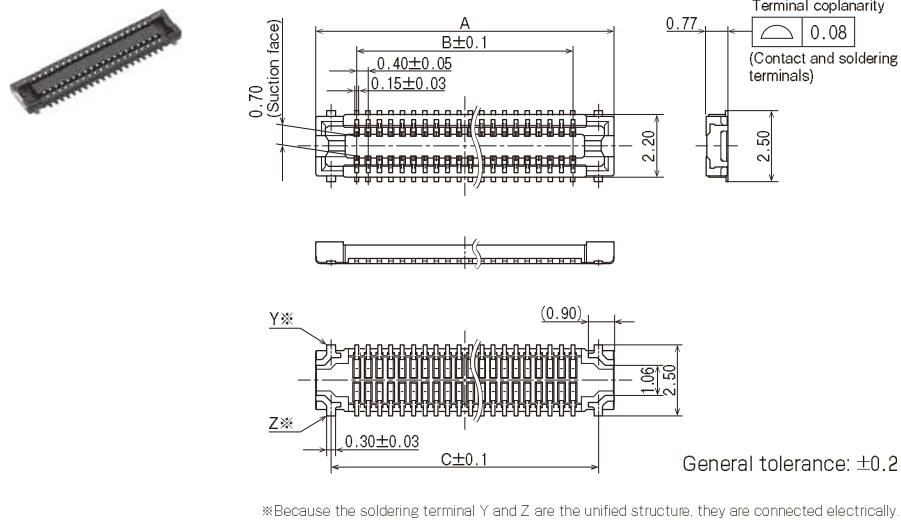
## SPECIFICATIONS

### Characteristics

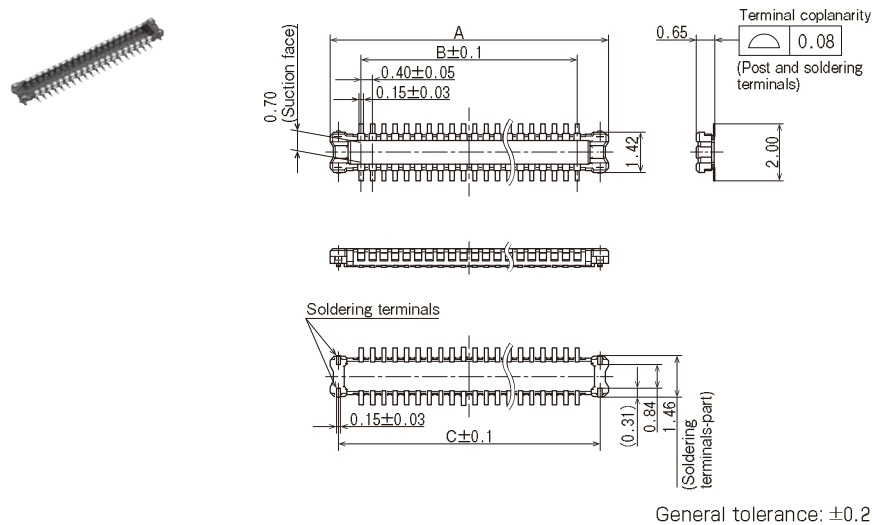
	Item	Specifications	Conditions																		
Electrical characteristics	Rated current	0.3A/pin contact (Max. 5 A at total pin contacts)																			
	Rated voltage	60V AC/DC																			
	Dielectric strength	150V AC for 1 min.	No short-circuiting or damage at a detection current of 1 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/pin contact×pin contacts (initial)																			
	Composite removal force	Min. 0.165N/pin contact×pin contacts																			
Environmental characteristics	Ambient temperature	−55 to +85°C	No icing. No condensation.																		
	Soldering heat resistance	The initial specification must be satisfied electrically and mechanically.	Reflow soldering: Peak temperature: 260°C or less (on the surface of the PC board around the connector terminals) Soldering iron: 300°C within 5 sec. 350°C within 3 sec.																		
	Storage temperature	−55 to +85°C (product only) −40 to +50°C (emboss packing)	No icing. No condensation.																		
	Thermal shock resistance (header and socket mated)	5 cycles, insulation resistance min. 100MΩ, contact resistance max. 90mΩ	Conformed to MIL-STD-202F, method 107G <table><tr><th>Order</th><th>Temperature (°C)</th><th>Time (minutes)</th></tr><tr><td>1</td><td>−55.0</td><td>30</td></tr><tr><td>2</td><td>∅</td><td>Max. 5</td></tr><tr><td>3</td><td>85.0</td><td>30</td></tr><tr><td>4</td><td>∅</td><td>Max. 5</td></tr><tr><td></td><td>−55.0</td><td></td></tr></table>	Order	Temperature (°C)	Time (minutes)	1	−55.0	30	2	∅	Max. 5	3	85.0	30	4	∅	Max. 5		−55.0	
	Order	Temperature (°C)	Time (minutes)																		
	1	−55.0	30																		
	2	∅	Max. 5																		
	3	85.0	30																		
4	∅	Max. 5																			
	−55.0																				
Humidity resistance (header and socket mated)	120 hours, insulation resistance min. 100MΩ, contact resistance max. 90mΩ	Conformed to IEC60068-2-78 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	Conformed to IEC60068-2-11 Temperature 35±2°C, saltwater concentration 5±1%																			
H <sub>2</sub> S resistance (header and socket mated)	48 hours, contact resistance max. 90mΩ	Temperature 40±2°C, gas concentration 3±1 ppm, humidity 75 to 80% R.H.																			
Lifetime characteristics	Insertion and removal life	30 times	Repeated insertion and removal speed of max. 200 times/hours																		
Unit weight		20 pins   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	Copper alloy	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** (Unit: mm)The CAD data of the products with a **CAD** mark can be downloaded from: <http://industrial.panasonic.com/ac/e/>**Socket (Mated height: 0.8 mm and 1.0 mm)****CAD****External dimensions****Dimension table**

Dimensions	A	B	C
Number of pins			
10	4.50	1.60	3.40
12	4.90	2.00	3.80
14	5.30	2.40	4.20
16	5.70	2.80	4.60
18	6.10	3.20	5.00
20	6.50	3.60	5.40
22	6.90	4.00	5.80
24	7.30	4.40	6.20
26	7.70	4.80	6.60
28	8.10	5.20	7.00
30	8.50	5.60	7.40
32	8.90	6.00	7.80
34	9.30	6.40	8.20
36	9.70	6.80	8.60
40	10.50	7.60	9.40
44	11.30	8.40	10.20
50	12.50	9.60	11.40
54	13.30	10.40	12.20
60	14.50	11.60	13.40
64	15.30	12.40	14.20
70	16.50	13.60	15.40
80	18.50	15.60	17.40

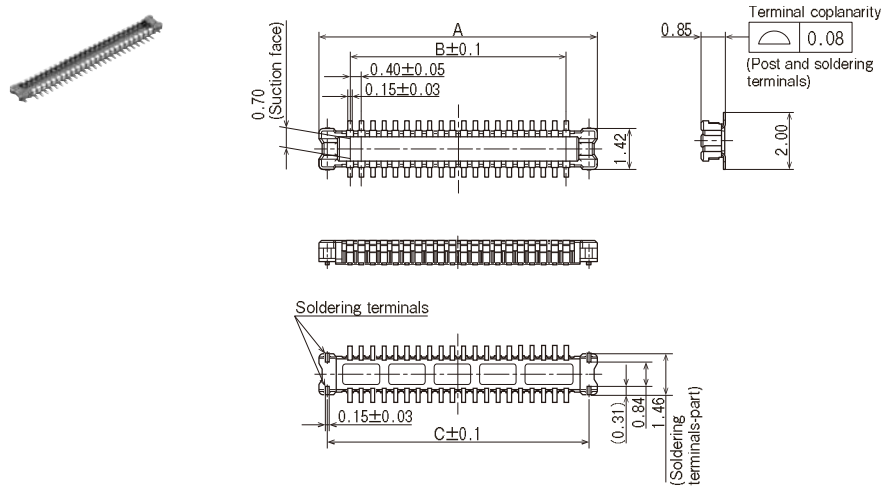
**Header (Mated height: 0.8 mm)****CAD****External dimensions****Dimension table**

Dimensions	A	B	C
Number of pins			
10	3.80	1.60	3.20
12	4.20	2.00	3.60
14	4.60	2.40	4.00
16	5.00	2.80	4.40
18	5.40	3.20	4.80
20	5.80	3.60	5.20
22	6.20	4.00	5.60
24	6.60	4.40	6.00
26	7.00	4.80	6.40
28	7.40	5.20	6.80
30	7.80	5.60	7.20
32	8.20	6.00	7.60
34	8.60	6.40	8.00
36	9.00	6.80	8.40
40	9.80	7.60	9.20
44	10.60	8.40	10.00
50	11.80	9.60	11.20
54	12.60	10.40	12.00
60	13.80	11.60	13.20
64	14.60	12.40	14.00
70	15.80	13.60	15.20
80	17.80	15.60	17.20

Header (Mated height: 1.0 mm)

CAD

External dimensions

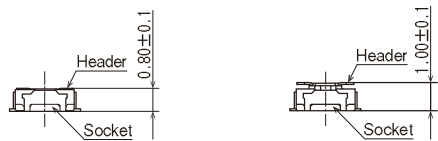


Dimension table

Dimensions	A	B	C
Number of pins			
10	3.80	1.60	3.20
12	4.20	2.00	3.60
14	4.60	2.40	4.00
20	5.80	3.60	5.20
24	6.60	4.40	6.00
26	7.00	4.80	6.40
30	7.80	5.60	7.20
32	8.20	6.00	7.60
40	9.80	7.60	9.20
44	10.60	8.40	10.00
50	11.80	9.60	11.20
54	12.60	10.40	12.00
60	13.80	11.60	13.20
70	15.80	13.60	15.20
80	17.80	15.60	17.20

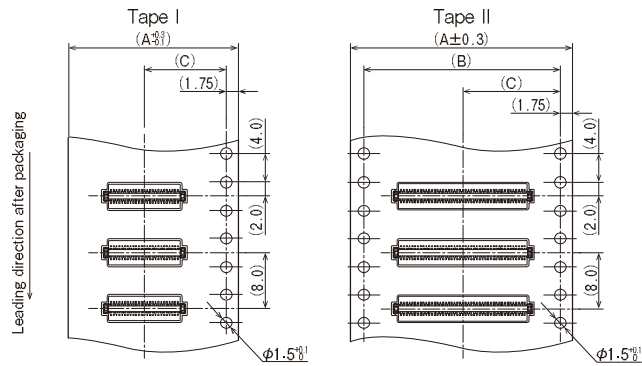
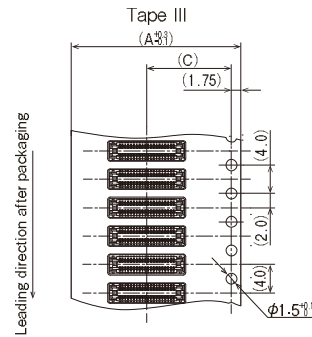
General tolerance:  $\pm 0.2$

Socket and Header are mated

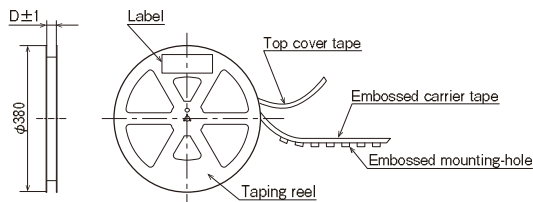


**EMBOSSED TAPE DIMENSIONS** (Unit: mm)**Specifications for taping**

In accordance with JIS C 0806-3:1999. However, not applied to the mounting-hole pitch of some connectors.

**8 mm pitch embossed packaging****4 mm pitch embossed packaging****Specifications for the plastic reel**

In accordance with EIAJ ET-7200B.

**Dimension table****8 mm pitch embossed packaging**

Type/Mated height	Number of pins	Type of taping	A	B	C	D	Quantity per reel
Common for sockets and headers 0.8 mm and 1.0 mm	Max. 24	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

**4 mm pitch embossed packaging**

Type/Mated height	Number of pins	Type of taping	A	B	C	D	Quantity per reel
Common for sockets and headers 0.8 mm	Max. 24	Tape III	16.0	—	7.5	17.4	15,000
	30 to 64	Tape III	24.0	—	11.5	25.4	15,000

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

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

Direction of tape progress	Type	Common for A4S	
		Socket	Header

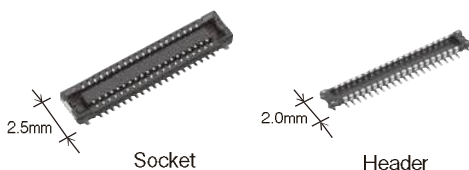
For board-to-FPC

**Connectors for  
inspection usage  
(0.4mm pitch)**
**A4S**

## 3,000 mating and unmating cycles Connectors for inspection usage

### FEATURES

1. 3,000 mating and unmating cycles
2. Same external dimensions and foot pattern as standard type.
3. Improved mating  
Insertion and removal easy due to a reduction in mating retention force. This is made possible by a simple locking structure design.  
(Mating retention force cannot be warranted.)
4. Please avoid using for applications other than inspection.



### APPLICATIONS

Ideal for module unit inspection and equipment assembly inspection

## TABLE OF PRODUCT TYPES

☆: Available for sale

Product name	Number of pins																					
A4S for inspection	10	12	14	16	18	20	22	24	26	28	30	32	34	36	40	44	50	54	60	64	70	80
	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆

Notes: 1. Please contact our sales office about availability and number of pins other than those shown above.  
2. Please keep the minimum order quantities no less than 50 pieces per lot.

## PRODUCT TYPES

Part No.	
Socket	Header
AXE5E**26	AXE6E**26

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

**NOTES** (Unit: mm)**Design of PC board patterns**

Conduct the recommended foot pattern design, in order to preserve the mechanical strength of terminal solder areas.

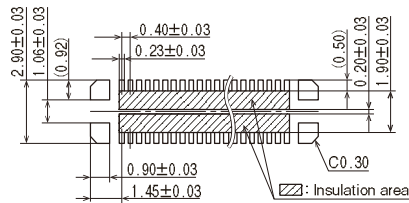
**Recommended PC board and metal mask patterns**

Connectors are mounted with high pitch density, intervals of 0.35 mm, 0.4 mm or 0.5 mm. In order to reduce solder and flux rise, solder bridges and other issues make sure the proper levels of solder is used.

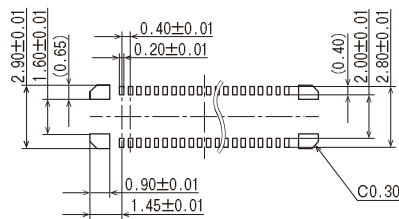
The figures are recommended patterns. Please use them as a reference.

**Socket (Mated height: 0.8 mm and 1.0 mm)**

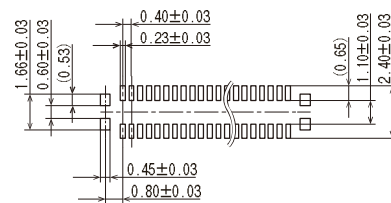
Recommended PC board pattern  
(TOP VIEW)



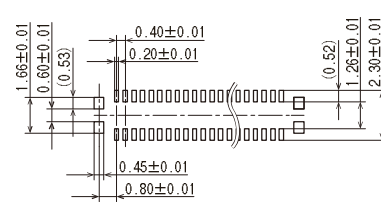
Recommended metal mask pattern  
Metal mask thickness: When 120μm  
(Terminal opening ratio: 70%)  
(Metal-part opening ratio: 70%)

**Header (Mated height: 0.8 mm and 1.0 mm)**

Recommended PC board pattern  
(TOP VIEW)



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



Please refer to the latest product specifications when designing your product.

# Notes on Using Narrow pitch Connectors/ High Current Connectors

## About safety remarks

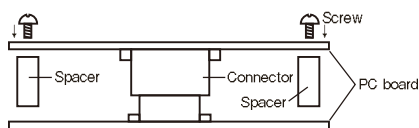
Observe the following safety remarks to prevent accidents and injuries.

1) Do not use these connectors beyond the specification sheets. The usage outside of specified rated current, dielectric strength, and environmental conditions and so on may cause circuitry damage via abnormal heating, smoke, and fire.  
2) In order to avoid accidents, your thorough specification review is appreciated. Please contact our sales office if your usage is out of the specifications. Otherwise, Panasonic Corporation cannot guarantee the quality and reliability.

3) Panasonic Corporation is consistently striving to improve quality and reliability. However, the fact remains that electrical components and devices generally cause failures at a given statistical probability. Furthermore, their durability varies with use environments or use conditions. In this respect, please check for actual electrical components and devices under actual conditions before use. Continued usage in a state of degraded condition may cause the deteriorated insulation, thus result in abnormal heat, smoke or firing. Please carry out safety design and periodic maintenance including redundancy design, design for fire spread prevention, and design for malfunction prevention so that no accidents resulting in injury or death, fire accidents, or social damage will be caused as a result of failure of the products or ending life of the products.

## Regarding the design of devices and PC board patterns

1) When using the board to board connectors, do not connect a pair of board with multiple connectors. Otherwise, misaligned connector positions may cause mating failure or product breakage.  
2) With mounting equipment, there may be up to a  $\pm 0.2$  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) PC board  
Control the thicknesses of the cover lay and adhesive to prevent poor soldering. This connector has no stand-off. Therefore, minimize the thickness of the cover lay, etc. so as to prevent the occurrence of poor soldering.  
6) 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.

7) When mounting connectors on a FPC  
• When the connector soldered to FPC is mated or unmated, solder detachment may occur by the force to the terminals. Connector handling is recommended in the condition when the reinforcing plate is attached to the backside of FPC where the connector is mounted. The external dimension of the reinforcing plate is recommended to be larger than the dimension of "Recommended PC board pattern" (extended dimension of one side is approximately 0.5 to 1.0 mm). The materials and thickness of the reinforcing plate are glass epoxy or polyimide (thickness 0.2 to 0.3 mm) or SUS (thickness 0.1 to 0.2 mm).  
• As this connector has temporary locking structure, the connector mating may be separated by the dropping impact depend on the size, weight or bending force of the FPC. Please consider the measures at usage to prevent the mating separation.  
8) 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

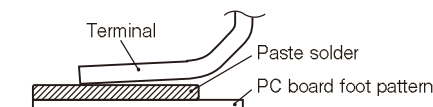
- 1) Select the placement machine taking into consideration the connector height, required positioning accuracy, and packaging conditions.
- 2) Be aware that if the chucking force of the placement machine is too great, it may deform the shape of the connector body or connector terminals.
- 3) Be aware 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.
- 6) In case of dry condition, please note the occurrence of static electricity. The product may be adhered to the embossed carrier tape or the cover tape in dry condition. Recommended humidity is from 40 to 60%RH and please remove static electricity by ionizer in manufacturing process.

## Regarding soldering

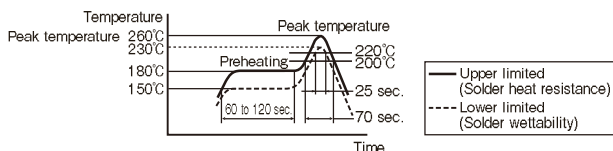
### Reflow soldering

- 1) Measure the recommended profile temperature for reflow soldering by placing a sensor on the PC board near the connector surface or terminals. (Please refer to the specification for detail because the temperature setting differs by products.)
- 2) As for cream solder printing, screen printing is recommended.
- 3) When setting the screen opening area and PC board foot pattern area, refer the recommended PC board pattern and window size of metal mask on the specification sheet, and make sure that the size of board pattern and metal mask at the base of the terminals are not increased.
- 4) Please pay attentions not to provide too much solder. It makes miss mating because of interference at soldering portion when mating.



- 5) 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.)
- 6) The condition of solder or flux rise and wettability varies depending on the type of solder and flux. Solder and flux characteristics should be taken into consideration and also set the reflow temperature and oxygen level.

- 7) Do not use resin-containing solder. Otherwise, the contacts might be firmly fixed.
- 8) Soldering conditions  
Please use the reflow temperature profile conditions recommended below for reflow soldering. Please contact our sales office before using a temperature profile other than that described below (e.g. lead-free solder)



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

- 9) 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 before mounting.
- 10) Please contact our sales office when using a screen-printing thickness other than that recommended.

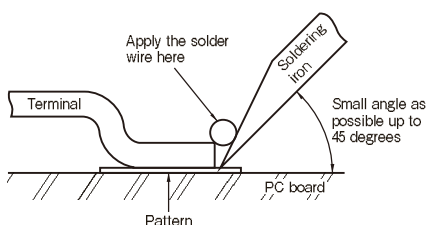
### Hand soldering

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

Table A

Product name	Soldering iron temperature
SMD type connectors all products	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) These connector is low profile type. If too much solder is supplied for hand soldering, It makes miss mating because of interference at soldering portion. Please pay attentions.



## Solder reworking

- 1) Finish reworking in one operation.
- 2) In case of soldering rework of bridges. Do not use supplementary solder flux. Doing so may cause contact problems by flux.
- 3) Keep the soldering iron tip temperature below the temperature given in Table A.

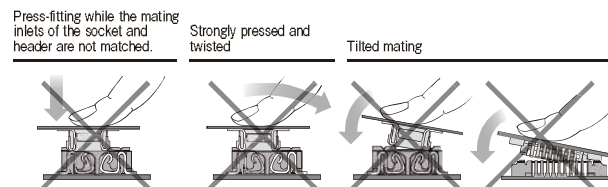
## Handling single components

- 1) Make sure not to drop or allow parts to fall from work bench.
- 2) Excessive force applied to the terminals could cause warping, come out, or weaken the adhesive strength of the solder. Handle with care.

- 3) Do not insert or remove the connector when it is not 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.

## Precautions for mating

This product is designed with ease of handling. However, in order to prevent the deformation or damage of contacts and molding, take care and do not mate the connectors as shown right.



## Cleaning flux from PC board

There is no need to clean this product.

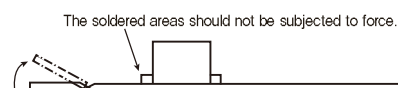
If cleaning it, pay attention to the following points to prevent the negative effect to the product.

- 1) Keep the cleaning solvent clean and prevent the connector contacts from contamination.
- 2) Some cleaning solvents are strong and they may dissolve the molded part and characters, so pure water passed liquid solvent is recommended.

## 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 force.



## Storage of connectors

- 1) To prevent problems from voids or air pockets due to heat of reflow soldering, avoid storing the connectors in areas of high humidity.
- 2) Depending on the connector type, the color of the connector may vary from connector to connector depending on when it is produced. Some connectors may 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 already 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

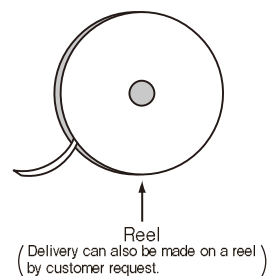
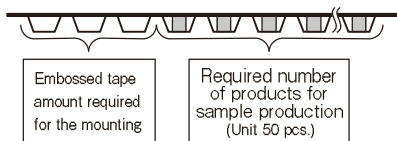
- 1) Do not remove or insert the electrified connector (in the state of carrying current or applying voltage).
- 2) Dropping of the products or rough mishandling may bend or damage the terminals and possibly hinder proper reflow soldering.
- 3) Before soldering, try not to insert or remove the connector 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) Product failures due to condensation are not covered by warranty.

### 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 sale representative for ordering sample units.

Condition when delivered from manufacturing



Please refer to the latest product specifications when designing your product.

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Please contact .....

## Panasonic Corporation

Electromechanical Control Business Division

■ 1006, Oaza Kadoma, Kadoma-shi, Osaka 571-8506, Japan  
[industrial.panasonic.com/ac/e/](http://industrial.panasonic.com/ac/e/)

# Panasonic®

# Panasonic PCN.PG13.7.23.2020 Affected Parts

Affected Series	Affected Part Numbers
A4S	AXE510127A
A4S	AXE512127A
A4S	AXE516127A
A4S	AXE520127A
A4S	AXE524127A
A4S	AXE530127A
A4S	AXE534127A
A4S	AXE540127A
A4S	AXE550127A
A4S	AXE610124A
A4S	AXE612124A
A4S	AXE616124A
A4S	AXE620124A
A4S	AXE624124A
A4S	AXE630124A
A4S	AXE634124A
A4S	AXE640124A
A4S	AXE650124A
Y5B	AYF530435A
Y5B	AYF530635A
Y5B	AYF530835A
Y5B	AYF531035A
Y5B	AYF531235A
Y5B	AYF531435A
Y5B	AYF531635A
Y5B	AYF532435A
Y5BW	AYF530265TA
Y5BW	AYF530465TA
Y5BW	AYF530665TA
Y5BW	AYF530865TA
Y5BW	AYF531065TA
Y5BW	AYF531265TA
Y5BW	AYF531465TA
Y5BW	AYF532265TA

## Y5B/Y5BW (0.5 mm pitch)

Pitch 0.5 mm, low profile/space saving and double top and bottom contacts construction



### FEATURES

- Double top and bottom contacts construction
- Wiring patterns can be placed under the connector
- Time and effort can be reduced by delivering with lever open
- Lock hold type (Y5BW) with excellent holding force is available (Y5BW: support only FPC)
- Supports high speed transmission standard V-by-One® HS. of THine Electronics, Inc.
- Models that support an ambient temperature of 105°C are also available.

(For more information, please contact our sales office.)

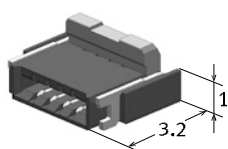
### TYPICAL APPLICATIONS

- Mobile devices and industrial equipment

### DETAILS FEATURES

#### Low profile and space saving design

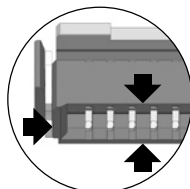
Low profile and space saving design of 1.0 mm high and 3.20 mm deep (3.70 mm with lever)



4 pins (Y5B: minimum)

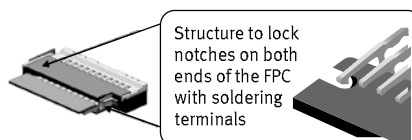
#### Prevent displacement of FPC insertion

Constructed to make positional displacement difficult by surrounding the four sides on the FPC inlet side with wall molding

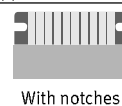


#### Lock hold type (Y5BW) is also available

The FPC holding contacts located on both ends of the connector facilitate positioning of FPC and further enhance the FPC holding force.



Applicable FPC shape

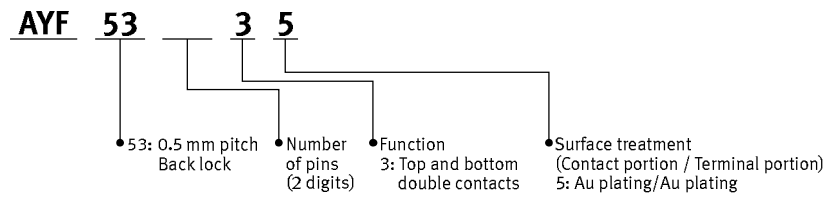


With notches

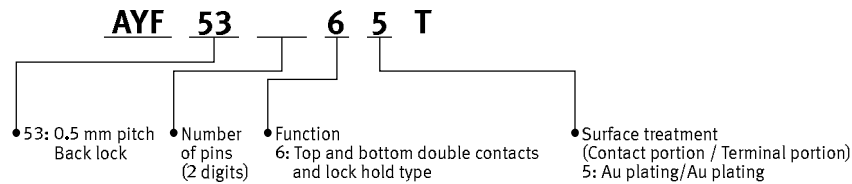
- Notes: 1. The inserted FPC can be temporarily held until the lever is closed.  
2. When the lever is closed, the holding contacts lock the FPC by its notches, enhancing the FPC holding force.

## ORDERING INFORMATION (PART NO.)

### Y5B



### Y5BW



## PRODUCT TYPES

### Y5B

Height	Number of pins	Part No.	Standard packing	
			Inner carton (1-reel)	Outer carton
1.0 mm	4	AYF530435	5,000 pcs.	10,000 pcs.
	5	AYF530535		
	6	AYF530635		
	8	AYF530835		
	10	AYF531035		
	12	AYF531235		
	14	AYF531435		
	16	AYF531635		
	24	AYF532435		
	28	AYF532835		
	30	AYF533035		
	32	AYF533235		
	34	AYF533435		

Notes: 1. Order unit: For volume production: 1-inner carton (1-reel) units. For samples, please contact our sales office.  
2. Please contact our sales office for connectors having a number of pins other than those listed above.

### Y5BW

Height	Number of pins	Part No.	Standard packing	
			Inner carton (1-reel)	Outer carton
1.0 mm	2	AYF530265T	5,000 pcs.	10,000 pcs.
	3	AYF530365T		
	4	AYF530465T		
	6	AYF530665T		
	8	AYF530865T		
	10	AYF531065T		
	12	AYF531265T		
	14	AYF531465T		
	22	AYF532265T		
	26	AYF532665T		
	28	AYF532865T		
	30	AYF533065T		
	32	AYF533265T		

Notes: 1. Order unit: For volume production: 1-inner carton (1-reel) units. For samples, please contact our sales office.  
2. Please contact our sales office for connectors having a number of pins other than those listed above.

## SPECIFICATIONS

## ■ Characteristics

The followings show specifications, when using an applicable FPC (thickness 0.30 mm)

	Item	Specifications	Conditions																		
Electrical characteristics	Rated current	0.5 A/pin contact (except for holding contact)																			
	Rated voltage	50 V AC/DC																			
	Dielectric strength	250 V 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. 1,000 MΩ (initial)	Using 250 V DC megger (applied for 1 min.)																		
	Contact resistance	Max. 100 mΩ	Based on the contact resistance measurement method specified by JIS C 5402.																		
Mechanical characteristics	FPC holding force	Y5B: Min. 0.2 N/pin contact × pin contacts (initial) Y5BW: Min. 0.2 N/pin contact × pin contacts + 2.0 N (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																		
Environmental characteristics	Ambient temperature	-55 to +85°C*	No icing. No condensation.																		
	Soldering heat resistance	The initial specification must be satisfied electrically and mechanically.	Reflow soldering: Peak temperature: 260°C or less (on the surface of the PC board around the connector terminals) Soldering iron: 300°C within 5 sec. 350°C within 3 sec.																		
	Storage temperature	-55 to +85°C (product only) -40 to +50°C (emboss packing)	No icing. No condensation.																		
	Thermal shock resistance (with FPC mated)	5 cycles, insulation resistance Min. 100 MΩ, contact resistance Max. 100 mΩ	Conformed to MIL-STD-202F, method 107G <table><tr><th>Order</th><th>Temperature (°C)</th><th>Time (minutes)</th></tr><tr><td>1</td><td>-55<sub>-3</sub><sup>0</sup></td><td>30</td></tr><tr><td>2</td><td>∅</td><td>Max. 5</td></tr><tr><td>3</td><td>85<sub>0</sub><sup>+3</sup></td><td>30</td></tr><tr><td>4</td><td>∅</td><td>Max. 5</td></tr><tr><td></td><td>-55<sub>-3</sub><sup>0</sup></td><td></td></tr></table>	Order	Temperature (°C)	Time (minutes)	1	-55 <sub>-3</sub> <sup>0</sup>	30	2	∅	Max. 5	3	85 <sub>0</sub> <sup>+3</sup>	30	4	∅	Max. 5		-55 <sub>-3</sub> <sup>0</sup>	
	Order	Temperature (°C)	Time (minutes)																		
	1	-55 <sub>-3</sub> <sup>0</sup>	30																		
	2	∅	Max. 5																		
	3	85 <sub>0</sub> <sup>+3</sup>	30																		
4	∅	Max. 5																			
	-55 <sub>-3</sub> <sup>0</sup>																				
Humidity resistance (with FPC mated)	120 hours, insulation resistance Min. 100 MΩ, contact resistance Max. 100 mΩ	Conformed to IEC60068-2-78 Temperature 40±2°C, humidity 90 to 95% RH																			
Saltwater spray resistance (with FPC mated)	24 hours, insulation resistance Min. 100 MΩ, contact resistance Max. 100 mΩ	Conformed to IEC60068-2-11 Temperature 35±2°C, saltwater concentration 5±1%																			
H <sub>2</sub> S resistance (with FPC mated)	48 hours, contact resistance Max. 100 mΩ	Temperature 40±2°C, gas concentration 3±1 ppm, humidity 75 to 80% RH																			
Lifetime characteristics	Insertion and removal life	20 times	Repeated insertion and removal: Min. 10 sec./time																		
Unit weight		Y5B 50 pins: 0.16 g																			

\*There are also products prepared for -55 to +105°C of use ambient temperature. For details, please contact our sales office.

## ■ 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 (Only Y5BW)	Copper alloy	Terminal portion; Base: Ni plating, Surface: Au plating
Soldering terminal portion	Copper alloy	Base: Ni plating, Surface: Au plating

## DIMENSIONS

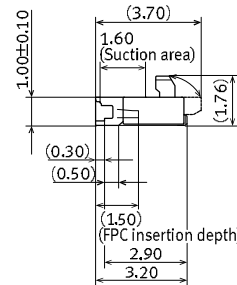
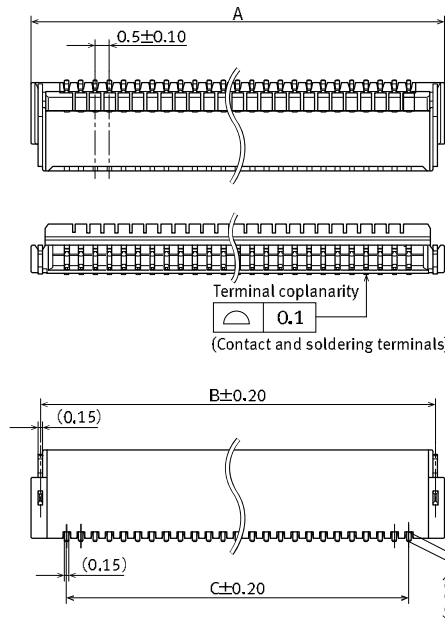
**CAD** The CAD data of the products with a "CAD" mark can be downloaded from our Website.

Unit: mm

### Y5B

#### CAD

#### External dimensions



Dimension table

Dimensions Number of pins	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
30	17.00	16.36	14.50
32	18.00	17.36	15.50
34	19.00	18.36	16.50

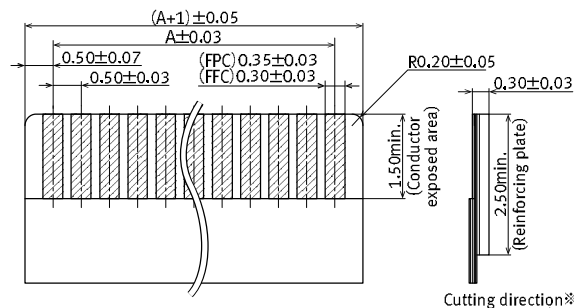
General tolerance:  $\pm 0.3$

Each mentioned sizes are at the stage of initial delivery.

### Y5B Recommended FPC/FFC dimensions

(Finished thickness:  $t = 0.3 \pm 0.03$ )

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



※Cut FPC/FFC from the copper foil side to the reinforcing plate side.

Dimension table

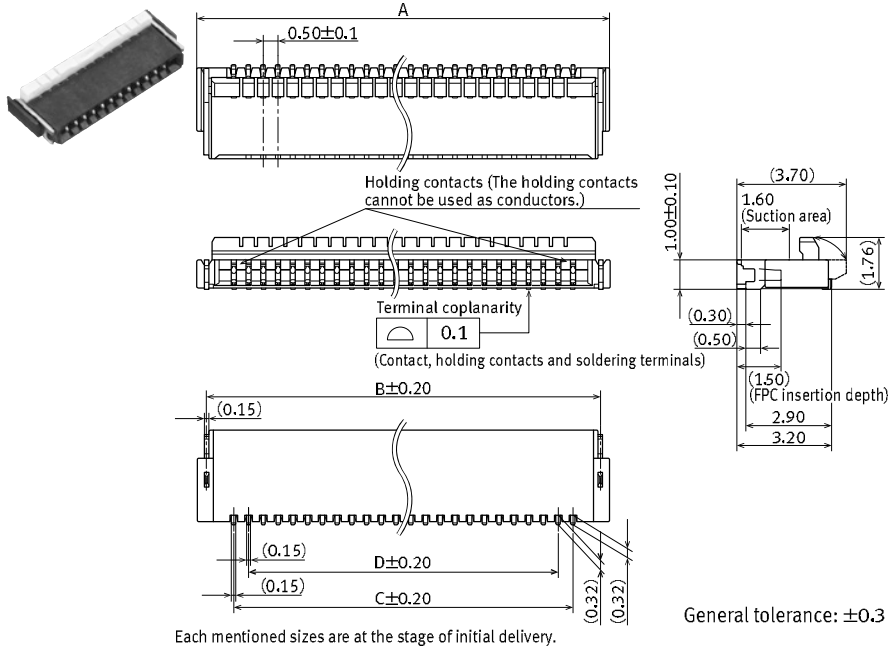
Dimensions Number of pins	A
4	1.50
5	2.00
6	2.50
8	3.50
10	4.50
12	5.50
14	6.50
16	7.50
24	11.50
28	13.50
30	14.50
32	15.50
34	16.50



## ■ Y5BW

CAD

## External dimensions



Dimension table

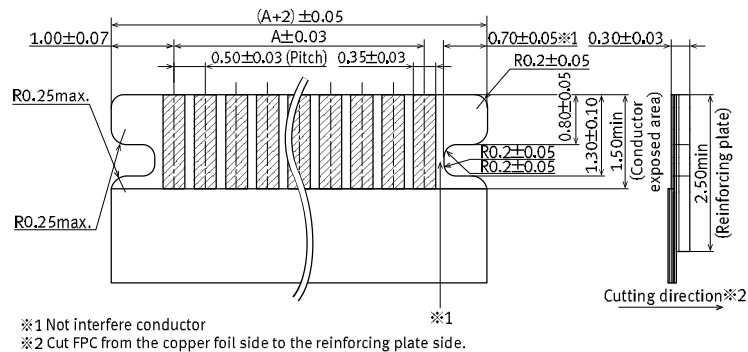
Dimensions Number of pins	A	B	C	D
2	4.00	3.36	1.50	0.50
3	4.50	3.86	2.00	1.00
4	5.00	4.36	2.50	1.50
6	6.00	5.36	3.50	2.50
8	7.00	6.36	4.50	3.50
10	8.00	7.36	5.50	4.50
12	9.00	8.36	6.50	5.50
14	10.00	9.36	7.50	6.50
22	14.00	13.36	11.50	10.50
26	16.00	15.36	13.50	12.50
28	17.00	16.36	14.50	13.50
30	18.00	17.36	15.50	14.50
32	19.00	18.36	16.50	15.50

## ■ Y5BW Recommended FPC dimensions

(Finished thickness:  $t = 0.3 \pm 0.03$ )

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

## Notch type



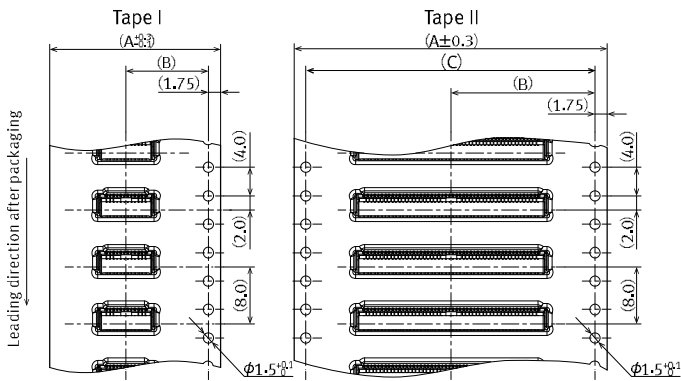
Dimension table

Dimensions Number of pins	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
28	13.50
30	14.50
32	15.50

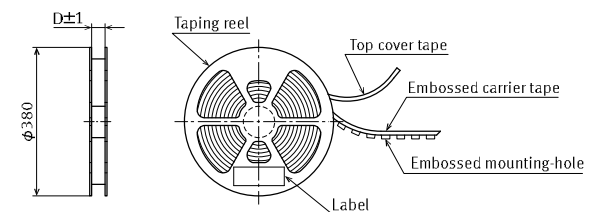
EMBOSSED TAPE DIMENSIONS

Unit: mm

■ Specifications for taping



■ Specifications for the plastic reel  
In accordance with EIAJ ET-7200B.



■ Dimension table

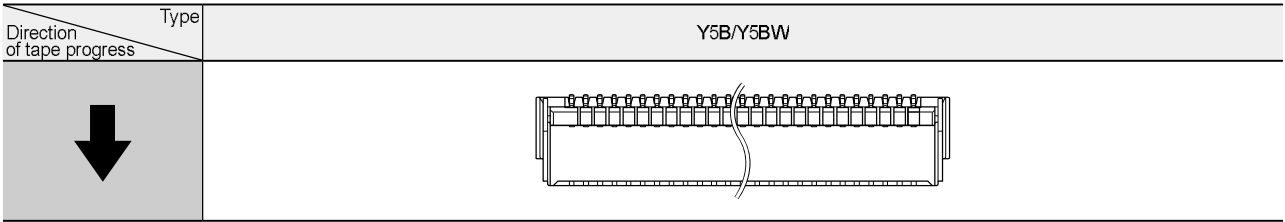
● Y5B

Number of pins	Type of taping	A	B	C	D	Quantity per reel
4 to 10	Tape I	16.0	7.5	-	17.4	5,000
12 to 30	Tape I	24.0	11.5	-	25.4	5,000
32 to 34	Tape II	32.0	14.2	28.4	33.4	5,000

● Y5BW

Number of pins	Type of taping	A	B	C	D	Quantity per reel
2 to 8	Tape I	16.0	7.5	-	17.4	5,000
10 to 28	Tape I	24.0	11.5	-	25.4	5,000
30 to 32	Tape II	32.0	14.2	28.4	33.4	5,000

■ Connector orientation with respect to embossed tape feeding direction



## NOTES

Unit: mm

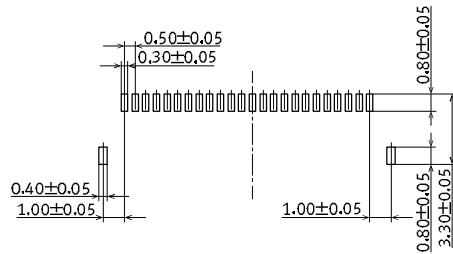
## ■ Design of PC board patterns

Conduct the recommended foot pattern design, in order to preserve the mechanical strength of terminal solder areas.

## ■ Recommended PC board and metal mask patterns

Connectors are mounted with high pitch density, intervals of 0.4 mm, 0.5 mm or 0.6 mm. In order to reduce solder and flux rise, solder bridges and other issues make sure the proper levels of solder is used.

The figures are recommended patterns. Please use them as a reference.

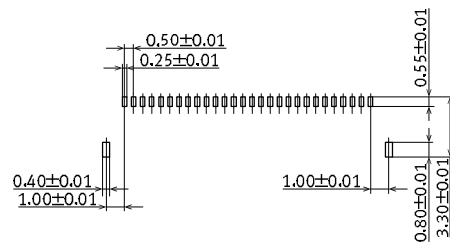
● Recommended PC board pattern  
(mounting layout)

## ● Recommended metal mask pattern

Metal mask thickness: When 120  $\mu\text{m}$

(Terminal opening ratio: 57%)

(Metal-part opening ratio: 100%)



Please refer to **"the latest product specifications"** when designing your product.

•Requests to customers:

<https://industrial.panasonic.com/ac/e/salespolicies/>

# Notes on Using FPC/FFC Connectors

## About safety remarks

- Do not use these connectors beyond the specification sheets. The usage outside of specified rated current, dielectric strength, and environmental conditions and so on may cause circuitry damage via abnormal heating, smoke, and fire.
- In order to avoid accidents, your thorough specification review is appreciated. Please contact our sales office if your usage is out of the specifications. Otherwise, Panasonic Corporation cannot guarantee the quality and reliability.
- Panasonic Corporation is consistently striving to improve quality and reliability. However, the fact remains that electrical components and devices generally cause failures at a given statistical probability. Furthermore, their durability varies with use environments or use conditions. In this respect, please check for actual electrical components and devices under actual conditions before use. Continued usage in a state of degraded condition may cause the deteriorated insulation, thus result in abnormal heat, smoke or firing. Please carry out safety design and periodic maintenance including redundancy design, design for fire spread prevention, and design for malfunction prevention so that no accidents resulting in injury or death, fire accidents, or social damage will be caused as a result of failure of the products or ending life of the products.

## PC board design

- Design the recommended foot pattern in order to secure the mechanical strength in the soldered areas of the terminal.
- In order to facilitate the connector mount, make sure to design the board with reduced warpage.
- Please design and pay attention to the distance from the board edge to the pattern. When cutting the board, do not give an excessive stress to the connector, which risks damaging the connector.
- Y5BW  
Depending on FPC/FFC dimension and FPC/FFC insertion location, there is a possibility that the holding contact and an FPC/FFC pattern of both end of signal contacts are in shortcircuited. Please design the equipment not to be affected even if a board pattern of holding contacts and an FPC/FFC pattern of both end of signal contacts are in short-circuited.  
(For example: Do not connect a board pattern of holding contacts and GND. If connect a board pattern of holding contacts and GND, also connect board pattern of both end of signal contacts.)

## FPC/FFC and equipment design

- Design the FPC/FFC based with recommended dimensions to ensure the required connector performance.
- When back lock type is used, secure enough space for closing the lever and for open-close operation of the lever.
- Make sure that connector positioning and FPC/FFC length are appropriate to prevent diagonal insertion of the FPC/FFC.
- Due to the FPC/FFC size, weight, or the reaction force of the routed FPC/FFC, FPC/FFC removed and connector deformation may occur by a fall, vibration, or other impact. When using FPC/FFC connector for smart phones, cellular phones and other applications which require falling resistance, please pay attention to precautions.
- Carefully check the equipment design and take required measures to prevent the FPC/FFC removed.
- If the shock of falling, vibration is applied to the FPC/FFC, please design the equipment not to be applied a load to connector, such as fixing the FPC/FFC.
- Make sure to design the FPC/FFC insertion part with reduced warpage. Otherwise, the warpage may adversely affect the FPC/FFC insertion.
- Y5BH  
When using in high-speed transmission applications, please take care when designing the FPC/FFC, because the differential impedance values may be uneven depending on FPC/FFC dimensions settings, uneven dimensions, and layering composition.
- Y5BW  
**The holding contacts cannot be used as conductors.**  
**The holding contacts are located on both ends of the connector, and the shape of the soldered portions is the same as that of the signal contacts. Use caution to ensure connect identification.**

## Connector mounting

- Excessive moulder chucking force may deform the molded or metal part of the connector. Consult us in advance if chucking is to be applied.
- In case of dry condition, please note the occurrence of static electricity. The product may be adhered to the embossed carrier tape or the cover tape in dry condition. Recommended humidity is from 40 to 60%RH and please remove static electricity by ionizer in manufacturing process.

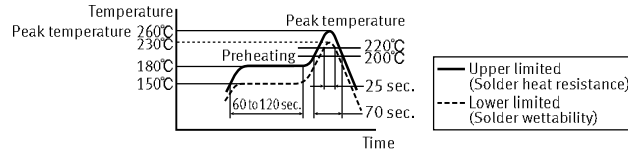
## Soldering

### Manual soldering

- As this product is compact size, please avoid the excessive solder. Because the excessive solder makes creepage and flux wicking at contact portion, or impact contact by soldering interference.
- Please use the soldering iron under specified temperature and times.
- Soldering flux may contaminate the contact portion, please check the contact portion after soldering with a magnifying glass. If the contamination is found, please clean the contamination before use.
- As excessive force to terminal by manual soldering has some possibilities of contact portion deformation, please be careful to the force by hand.
- Please clean soldering iron tip.

### Reflow soldering

- When cream solder printing is used, screen method is recommended.
- To achieve the appropriate soldering state, make sure that the reflow temperature, PC board foot pattern, window size and thickness of metal mask are recommended condition.
- Note that excess solder on the terminals prevents complete insertion of the FPC/FFC, and causes flux climbing up.
- A screen thickness of 120 $\mu$ m is recommended during cream solder printing.
- When applying the different thickness of a screen, please contact our sales office.
- There may be a case of difficult self-alignment depending on the connector size. In that case, please be careful to align terminals and solder pads.
- The following diagram shows the recommended reflow soldering temperature profile.
- Infrared reflow soldering is able to passed two times.
- The temperature is measured on the PC board surface near connector terminals.
- The condition of solder or flux creepage and wettability depend on the type of solder and flux. Please set the reflow temperature and oxygen level by considering the solder and flux characteristics.
- Do not use resin-containing solder. Otherwise, the contacts might be firmly fixed.
- 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.)  
**Do not apply reflow heating while a lever is closing (or on the way of closing)**  
The terminals may be deformed by reflow heating with a lever is closing (or on the way of closing).



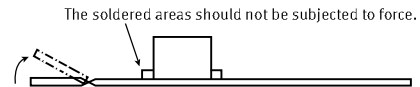
### Rework of soldering portion.

- Rework shall be only one time.
- Please avoid the supplementary flux in case of rework for soldering bridge, as this may cause flux creepage to contact portion.  
When adding the solder for reworking, do not add an excessive solder.
- Please use the soldering iron under specified temperature.

### As the excessive force on the terminals may cause the deformation and the integrity of solderability will be lost during reflow soldering, please avoid dropping or rough handling of the product.

### When the soldering is not completed, do not open/close the lever or insert/remove an FPC/FFC. And the external compulsory force to the terminal may cause the fixing force lowering between the terminal and the molding or the coplanarity failures. In addition, do not insert an FPC/FFC into the connector before soldering the connector.

### When cutting or bending the PC board after mounting the connector, please avoid the stress at the soldering portion.

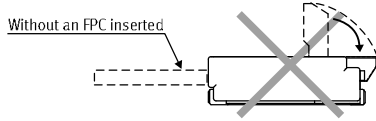


## PC board

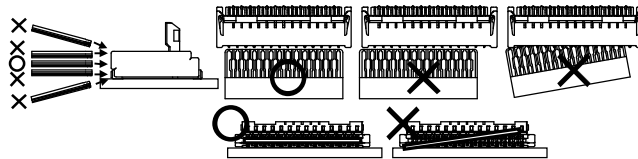
- As thick coverlay/solder resist and adhesive may cause poor soldering, please set thickness of coverlay and adhesive as thin as possible.

## Precautions for insertion/removal of FPC/FFC

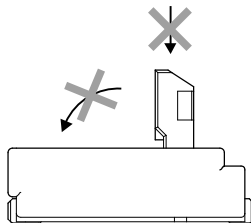
- Avoid touching the lever (applying any external force) until an FPC/FFC is inserted. **Do not open/close the lever without an FPC/FFC inserted.** Failure to follow this instruction will cause the contacts to warp, leading to the contact tips to interfere with the insertion of an FPC/FFC, deforming the terminals. Failure to follow this instruction may cause the lever to be removed, terminals to be deformed, and/or the FPC/FFC insertion force to increase.



- These connectors are of the back lock type, which has the FPC/FFC insertion section on the opposite side of the lever. Be careful not to make a mistake in the FPC/FFC insertion position or the lever opening/closing position. Otherwise, a contact failure or connector breakage may occur.
- Do not insert an FPC/FFC upside down. Inserting an FPC/FFC in a direction opposite to that you intended may cause an operation failure or malfunction.
- Insert an FPC/FFC with the lever opened at right angle, that is, in the factory default position.
- After checking the position of FPC/FFC insertion slot and FPC/FFC, completely insert the FPC/FFC horizontally to the full depth of the connector without altering the angle. An FPC/FFC inserted at an excessive angle to the board may cause the deformation of metal parts, crack of molding parts, FPC/FFC insertion failures, and FPC/FFC circuit breakages.



- Insert the FPC/FFC into the connector after checking the position of FPC/FFC insertion slot and FPC/FFC. Do not insert the FPC/FFC without positioning the FPC/FFC and connector. Otherwise, it may cause connector breakages. When it is hard to insert the FPC/FFC, do not insert the FPC/FFC on that condition. Confirm the FPC/FFC and connector positioning.
- 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.

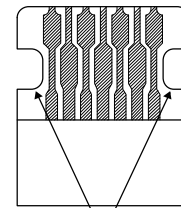


- To close the lever, turn down the lever by pressing the entire lever or both sides of the lever with fingers tips. And close the lever completely. Be careful not to apply partial load to the lever that may cause its deformation or destruction or lever going back to initial position. Close the lever completely to prevent contact failure.
- 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/FFC, rotate the lever to the initial position. Do not push the lever into the FPC/FFC inlet side and ensure that the lever will not go over the initial position; otherwise, it may be deformed or broken.
- To open the lever, if pressure to the lever is applied unevenly, such as to an edge only, it may deform or break.
- Do not open the lever forcefully with something sharp tool, otherwise, the lever may be deformed.
- Remove the FPC/FFC at parallel with the lever fully opened. If the lever is closed, or if the FPC/FFC is forcibly pulled, the product or FPC/FFC may break.
- If a lever is accidentally detached during the handling of a connector, do not use the connector any longer.

■ **After an FPC/FFC is inserted, carefully handle it so as not to apply excessive stress to the base of the FPC/FFC. When using FPC/FFC with a bent condition, please pay attention to precautions below; otherwise, in some conditions it may cause conduction failure, connector breakage, unlocking lever or FPC/FFC disconnection.**

- Design so that a load is not applied to connector directly by FPC/FFC bending.
- Avoid sharp FPC/FFC bending at the root of FPC/FFC insertion part.
- Design so that a load is not applied to the part of FPC/FFC bending.
- If there might be a load on FPC/FFC, please fix the FPC/FFC.
- Y5BW

Fix the FPC/FFC if there might be a load to the cut out, do not apply bending load to the cutout part of FPC/FFC. Otherwise, it may cause FPC/FFC disconnection and deformation since the cutout part of FPC/FFC is subjected to bending stress.



FPC/FFC cutout part

## Cleaning treatment

Cleaning this product is not needed basically. Please note the following points to prevent the negative effect to the product when cleaning is necessary.

- Please keep the cleanliness of the cleaning fluid to make sure that the contact surfaces are not contaminated by the cleaning fluid itself.
- Semi-aqueous cleaning solvent is recommended as some powerful solvent may dissolve the molding portion or the marked letters. Please contact our sales office when other solvent is used.

### Precautions for operating environment and storage environment

- Panasonic Corporation does not guarantee the failures caused by condensation.

### Other precautions

- When the coating material is used for preventing PC board isolation deterioration after soldering, please assure the coating material is not adhered on any part of connector.
- Please avoid the usage of connector as electric switching basically.
- There is no problem on the product quality though the swelling, the black spot, the small scars and the foreign matter, etc. might be generated in the molding parts.
- There is no problem on the product quality though the weld line might be generated in the weld part of molding parts when the use of product is within the specifications.
- The detailed shape of metal parts and molding parts may differ depending on the mold.
- Height in FPC/FFC mating depends on the way to being used, such as mounting condition, thickness of FPC/FFC, and angle of lever lock etc. Please check it by actual equipment.

Please refer to **"the latest product specifications"** when designing your product.

•Requests to customers:

<https://industrial.panasonic.com/ac/e/salespolicies/>

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Please contact .....

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