



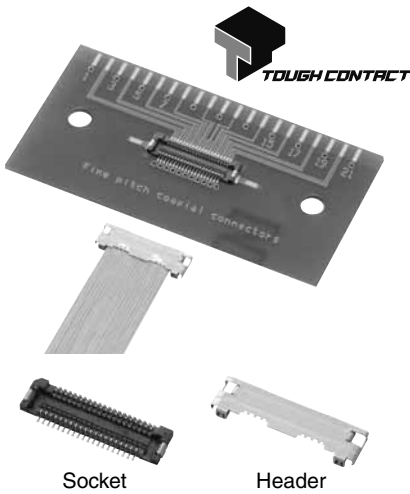
Discontinued as of September 30, 2010

Panasonic

ideas for life

ULTRA COMPACT AND SUPER-FINE COAXIAL WIRE CONNECTOR WITH A MATED HEIGHT OF 1.5 mm AND A TERMINAL PITCH OF 0.3 mm

FINE COAXIAL WIRE CONNECTOR

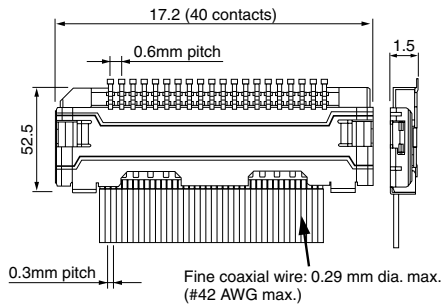


Compliance with RoHS Directive

FEATURES

1. Ultra compact

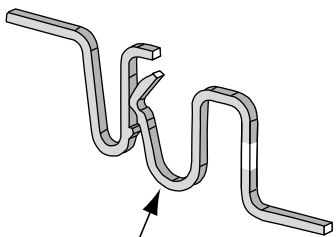
A terminal pitch of 0.3 mm allows for a short length and a wired height of only 1.5 mm.



2. Highly reliable

TOUGH CONTACT has strong resistance to adverse environments. Stable contact reliability is achieved by applying the expertise we accumulated while developing Narrow-pitch connectors for the mobile phone market.

1) Our original bellows contact: High resistance to drop impact and twisting forces.



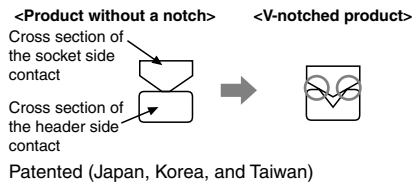
Contacts are formed by bending a thin metal sheet. This provides the contact parts with adequate spring characteristics ensuring greater resistance to twisting forces and drop impacts.

2) V-notch: High resistance to the penetration of foreign matters and flux.

● V-notch

By making contact with the edges and thus increasing the contact pressure, this product can eliminate flux and other foreign matters more effectively than conventional products, which also helps to prevent foreign matters from obstructing the contact.

[Cross Section of Contacts]

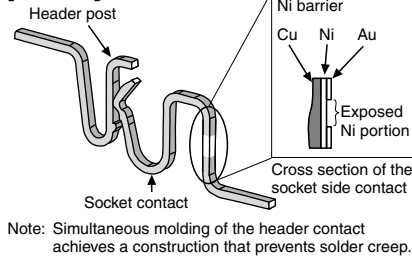


3) Ni barrier: High resistance to solder creep.

● Ni barrier

The exposed nickel-plated portion of the gold-plated contact prevents solder creep despite the ultra low profile of the contact.

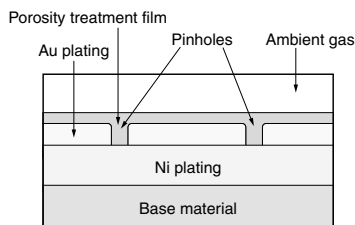
[Contact]



4) Porosity treatment: Resistance to corrosion.

Porosity treatment

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



- Improved in mating/unmating durability
- Improved in resistance to corrosion
- Improved in contact reliability for digital signals

3. Zig-zag DIL terminals with a 0.6 mm pitch used for the socket, facilitating mounting on the PC board.

Compared to the 0.4 mm pitch SIL layout, a better horizontal weight balance is achieved.

Furthermore, these terminals offer,

- (1) Better pickup balance on mounting.
- (2) Good solderability due to the 0.6 mm pitch.
- (3) Prevention of solder bridges during reflow soldering.

4. Designed for fine wiring

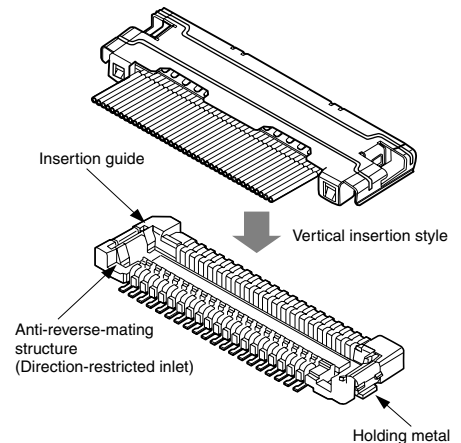
The pulse-heating system allows the use of general-purpose equipment. A shape designed for easy wiring has been adopted, focusing on the operability of fine wiring.

5. Strong resistance to pulling of the fine wire and reliability of wired portion.

The fine wire is sandwiched between the two GND bars and soldered. This structure gives better resistance to pulling than caulking.

6. Vertical insertion style facilitates connector mating.

A vertical mating system featuring a simple locking mechanism and insertion guide facilitates accurate mating.



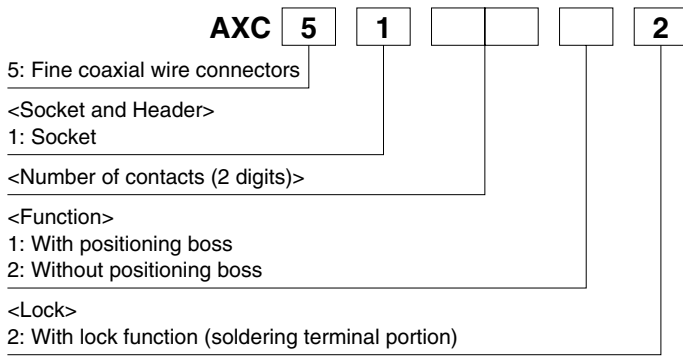
APPLICATIONS

Devices that have a complex rotating hinge mechanism such as mobile phones, DSCs, and DVCs.

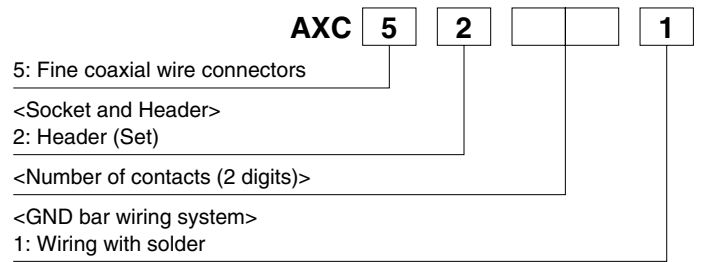


ORDERING INFORMATION

1. Socket



2. Header (Set)



PRODUCT TYPES

1. Socket

| Mated height | No. of contacts | Part Number | Packing quantity | |
|--------------|-----------------|-------------|-------------------------|---------------|
| | | | Inner carton (embossed) | Outer carton |
| 1.5mm | 40 | AXC514022 | 3, 000 pieces | 6, 000 pieces |

Note: The standard type comes without positioning bosses. Connectors with positioning bosses are available on-demand production.

2. Header (Set)

| Mated height | No. of contacts | Part Number | Packing quantity | |
|--------------|-----------------|-------------|-------------------------|---------------|
| | | | Inner carton (embossed) | Outer carton |
| 1.5mm | 40 | AXC52401 | 1, 000 pieces | 2, 000 pieces |

Note: The header removal tool is required for unmating this connector. (See PRECAUTIONS FOR USE.) Please contact us for details.



SPECIFICATIONS

1. Characteristics

| Item | | Specifications | Conditions |
|-------------------------------|---|---|---|
| Electrical characteristics | Rated current | 0.3A/terminal (Max. 5A at total contacts) | Maximum current that one contact can conduct. |
| | Rated voltage | 60V AC/DC | |
| | Insulation resistance | Min. 1, 000 MΩ (initial) | Using 250 V DC megger (applied for 1 minute) |
| | Breakdown voltage | 200 V AC for 1 minute | Rated voltage is applied for one minute and check for short circuit or damage with a detection current of 1mA. |
| | Contact resistance | Max. 90mΩ | Measured based on the milliohmmeter measurement method of JIS C 5402 |
| Mechanical characteristics | Composite insertion force | Max. 50N (40 contacts)(initial) | |
| | Lock strength | Min. 20N/30 sec. (40 contacts)(initial) | |
| | Contact holding force | Socket connector: Min. 0.49N, Socket soldering terminal: Min. 0.98N | Measuring the maximum force. As the contact is axially pull out. |
| | Wire tensile strength (mated) | 5N/30 sec. | No breakage at mated part when 40 restrained pins are pulled by at least 0.98 N. |
| Environmental characteristics | Ambient temperature | -55°C to +85°C | No freezing at low temperatures |
| | Storage environment | -55°C to +85°C (Product unit) -40°C to +50°C (Embossed packing style) -40°C to +50°C (Tray packing style) | No freezing at low temperatures |
| | Thermal shock resistance (header and socket mated) | 5 cycles, insulation resistance min. 100MΩ, contact resistance max. 25mΩ | Sequence 1. -55 $\frac{3}{5}$ °C, 30 minutes 2. 25 $\frac{-10}{5}$ °C, Max. 5 minutes 3. 85 $\frac{3}{5}$ °C, 30 minutes 4. 25 $\frac{-10}{5}$ °C, Max. 5 minutes |
| | Humidity resistance (header and socket mated) | 120 hours, insulation resistance min. 100MΩ, contact resistance max. 25mΩ | 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. 25mΩ | Bath temperature 35±2°C, saltwater concentration 5±1% |
| | H ₂ S resistance (header and socket mated) | 48 hours, contact resistance max. 25mΩ | Bath temperature 40±2°C, gas concentration 3±1 ppm, humidity 75 to 80% R.H. |
| Insertion and removal life | Mechanical life | 30 times, contact resistance max. 25mΩ | Repeated insertion and removal speed of max. 200 times/hours |
| Resistance to soldering heat | Socket | Infrared reflow soldering: Peak temperature 260°C max. (Surface temperature of PC board adjacent to connector terminals) Soldering iron: 350°C for 3 seconds max. 300°C for 5 seconds max. | — |
| | Header | Connected part pulse heat: Peak temperature 290°C for 3 seconds max. (Heater head must not directly contact connector molded part.) Shell retaining part Soldering iron: 350°C for 3 seconds max. 300°C for 5 seconds max. | — |

2. Material and surface treatment

| Part name | Material | Surface treatment |
|--------------|-----------------------|----------------------------|
| Socket | Resin-molding portion | LCP resin (UL94V-0), Black |
| | Contact | Copper alloy |
| | Soldering terminal | Copper alloy |
| Header block | Resin-molding portion | LCP resin (UL94V-0), Black |
| | Post | Copper alloy |
| Shell | Shell | Stainless steel |
| | Insulating tape | Polyimide resin |



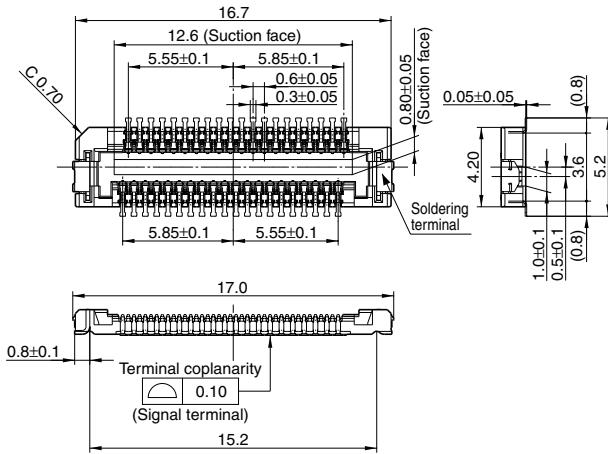
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DIMENSIONS (Unit: mm)

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

• Socket

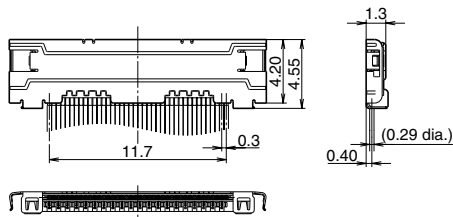
CAD Data



General tolerance: ±0.2

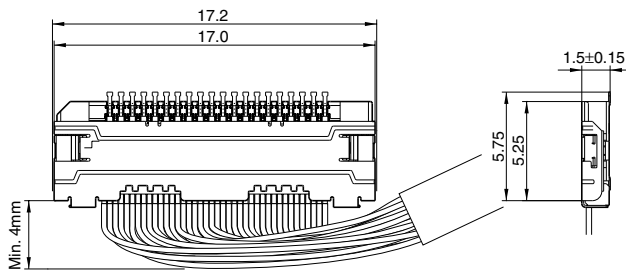
• Header

CAD Data



General tolerance: ±0.2

• Socket and header are mated



General tolerance: ±0.2

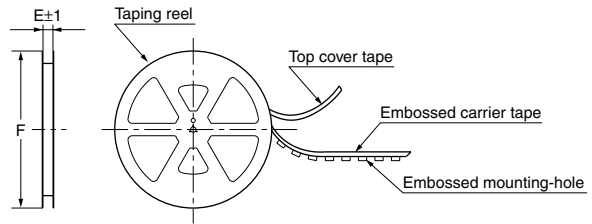
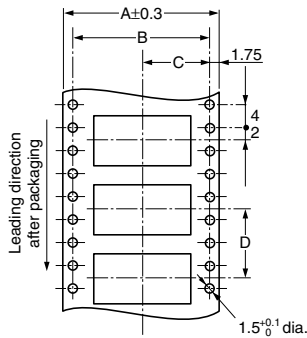
EMBOSSED TAPE DIMENSIONS (Unit: mm) (Common to all sockets and headers)

• **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**

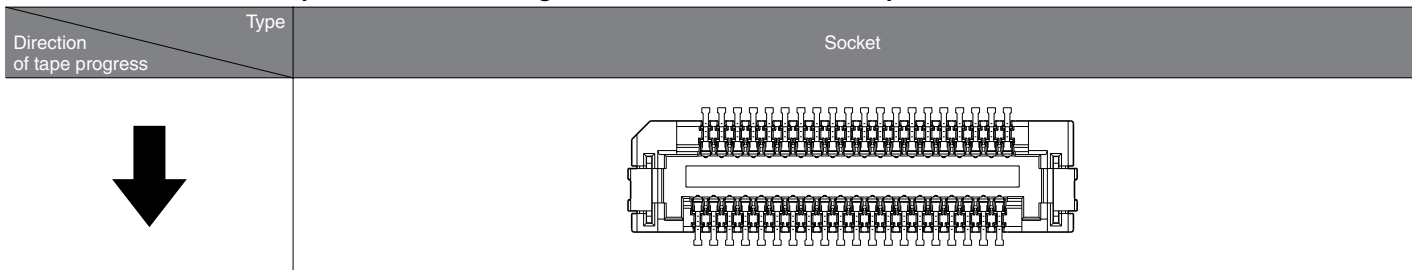
(In accordance with EIAJET-7200B.)



Dimensions (Unit: mm)

| Types | No. of contacts | A | B | C | D | E | F | Quantity per reel |
|--------|-----------------|------|------|------|-----|------|----------|-------------------|
| Socket | 40 | 32.0 | 28.4 | 14.2 | 8.0 | 33.4 | 380 dia. | 3,000 |

Product direction with respect to the forwarding direction of the embossed tape



PRECAUTIONS FOR USE

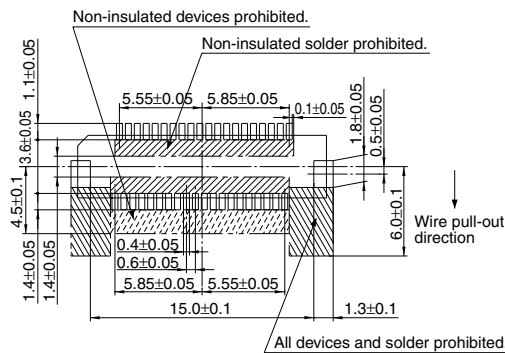
1. Recommended PC Board and Metal Mask Patterns

Sockets are densely mounted with a pitch interval of 0.4 to 0.6 mm.

In order to reduce solder bridges and other defects, the solder amount must be controlled and kept at a proper level. Refer to the recommended patterns on the right for this purpose.

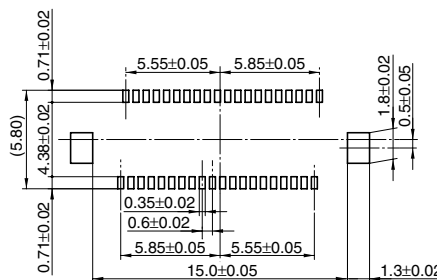
Socket

Recommended PC board pattern (TOP VIEW)



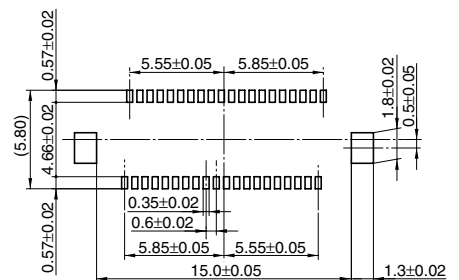
Recommended metal mask opening pattern

Metal mask thickness: When 120 μm
(Terminal opening ratio: 56%)
(Metal-part opening ratio: 100%)



Recommended metal mask opening pattern

Metal mask thickness: When 150 μm
(Terminal opening ratio: 45%)
(Metal-part opening ratio: 100%)





2. Safety precautions

Observe the following safety precautions to prevent accidents and injuries.

1) The use of the connector outside of the specified rated current and withstand voltage ranges may cause abnormal heating, smoke, and fire. Never use the connector beyond the specified ranges of the product.

2) In order to avoid accidents, make sure you have thoroughly reviewed the specifications before use.

Consult us if you plan to use the product in a way not covered by the specifications.

3. Precautions for harnessing and header assembly

The header of this product is wired by soldering the 0.3 mm pitch cable. If harnessing is desired, then carry it out based on the separately attached "Header Assembly Procedures". Make sure to get familiar with and observe all the precautions in the procedures.

4. PC board design

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

5. 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.

6. Soldering

1) Manual soldering.

• Since this is a low-profile product, avoid supplying too much solder when soldering manually. Otherwise, solder may creep into the vicinity of the contact portion, or the contact can lose its springing ability.

• 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

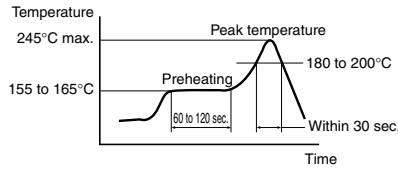
• Screen-printing is recommended for printing paste solder.

• 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.

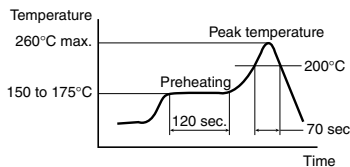
• Consult us when using a screen-printing thickness other than that recommended.

• 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 (eutectic solder)



Recommended reflow temperature profile (lead-free solder)

• The temperature is measured on the surface of the PC board near the connector terminal.

• 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.

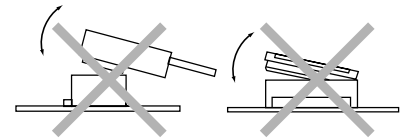
7. Prevention of vibration and shock

1) Since this product has a particularly low-profile, is compact and lightweight, its molded parts are thinned. To prevent the connector from detaching due to vibration and shock, make sure to consider means to avoid applying tension to the connector such as by providing a stopper to fix the connector toward the mating direction or fixing the wire.

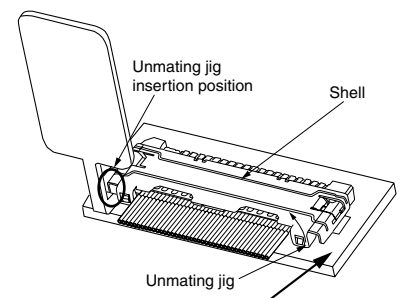
2) Do not drop the product or handle it carelessly. Otherwise, the terminals may become deformed due to excessive force or the solderability during reflow soldering may degrade.

3) 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.

4) Excessive twisting during insertion and removal can lead to product damage and separation of the terminals' soldered part. An excessive force applied around the mating inlet during mating can also lead to product damage. Therefore, be careful when handling the product, and during mating, always align the mating positions and mate in parallel.



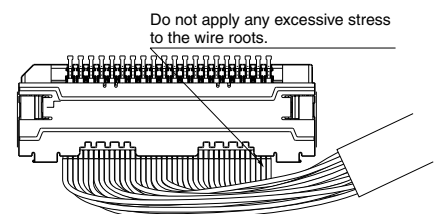
5) Do not pull the wires when unmating the connector. Doing so may damage the product or degrade the locking ability. Unmate the connector by referring to the figure below.



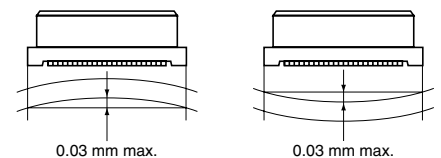
Insert the unmatting jig and, with the lock released, lift it directly up.

Removal of this product requires a header removal tool. Please inquire for details.

6) After harnessing, be careful not to apply any excessive stress to the wire roots.



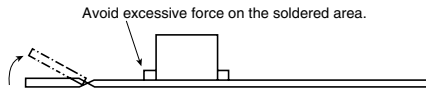
7) Keep the PC board warp within 0.03 mm with respect to the total length of the connector.



8) The positioning boss of this product is for rough positioning with the PC board. For accurate positioning when mounting the connector to a PC board, we recommend positioning by an automated machine.



9) When cutting or bending the PC board after mounting the connector, be careful that no excessive force is applied to the soldered area.



8. Others

- 1) If you coat the PC board after soldering, so as to prevent degradation of the insulation, make sure that the coating agent does not adhere to the connector.
- 2) Basically, you cannot perform switching with the connector.

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