Panasonic
ideas for life

Short Form
Connectors

European activities:

The activities of Panasonic Electric Works in Europe started more than 30 years ago by developing, in cooperation with their European customers, new generations of electromechanical relays which successfully contributed to more efficient and economical devices.

Meanwhile, our European organization is gradually involved in the sales, production and development of products from all divisions of the mother company Panasonic Electric Works in Japan. This is mainly done under Panasonic brand (sensors under SUNX brand).

Panasonic Electric Works Europe AG is the Headquarters for the sales companies in a large number of European countries. With the cooperation of these and various other partner companies, we can offer a full-coverage service throughout Europe.

Our sales companies are organized on a local basis so that they reflect national characteristics and take account of the economic conditions specific to each country.

Within a framework where tasks are shared with the Panasonic Electric Works companies, PEW Europe AG is responsible for planning, development, technical service, central marketing, material management, controlling, IT and worldwide co-ordination. A central European warehouse and production facilities in Pfaffenhofen (D), Plana (CZ), Enns (A) also fall under PEW Europe AG's administrative umbrella.

The Panasonic Electric Works European group has offices located in Austria, the Benelux countries, Czech Republic, Germany, France, Poland, United Kingdom, Ireland, Italy, Portugal, Sweden, Switzerland, Spain and Hungary.

Connectors

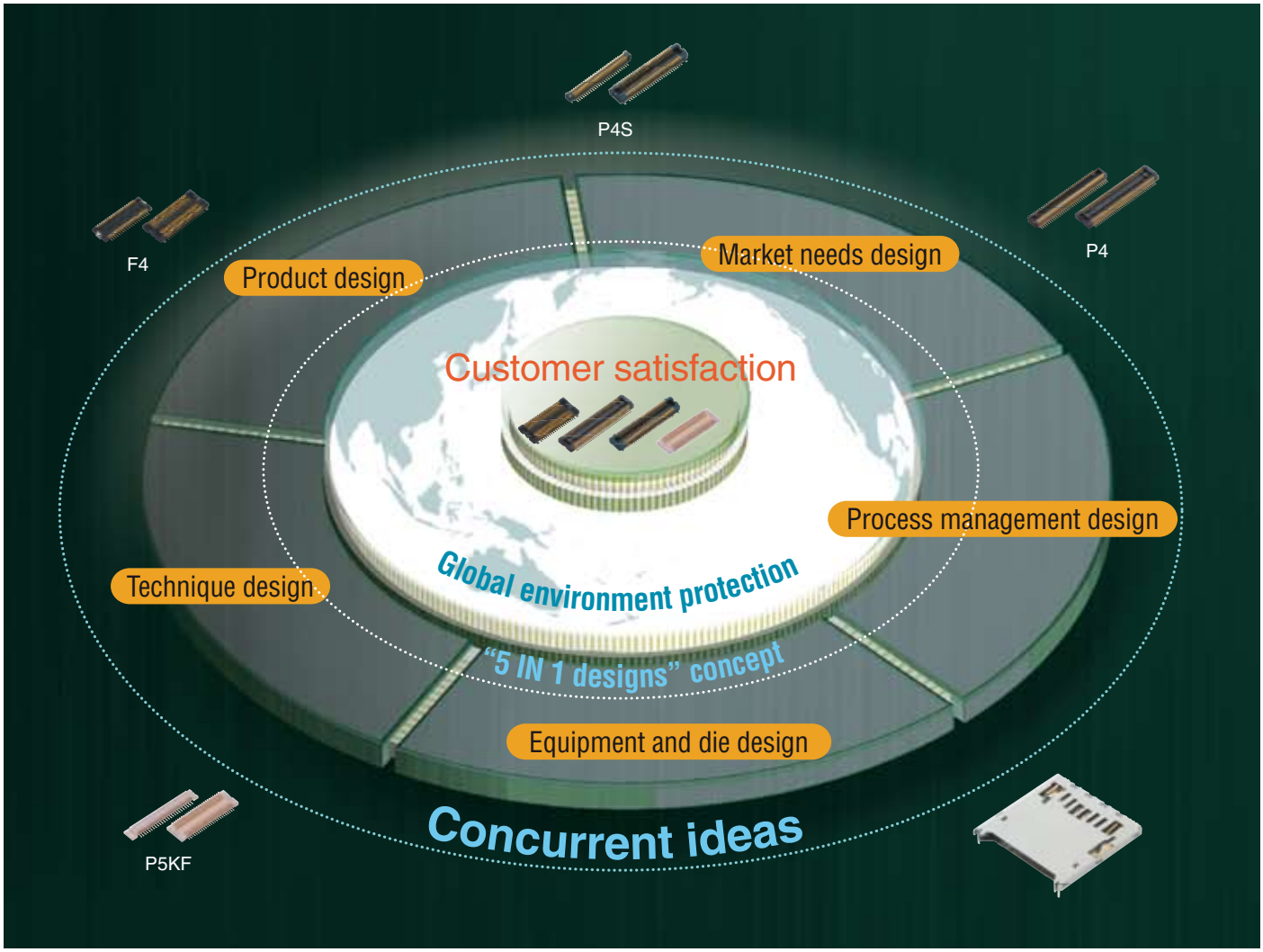
Applying multi-faceted computer analyses that make use of our vast know-how, we develop highly reliable, ultra-miniature connectors that are able to withstand various environments.

Featuring superior anti-shock characteristics with an ultra-low profile, the lineup starts with Board-to-Board and Board-to-FPC connectors and goes on to include sockets for mini SD cards that excel in contact reliability and durability. These connectors meet the connection needs of the digital era.

Changes in specifications being strived for include such factors as smaller devices and the ability to function in a multitude of environments, which in turn increase the level of reliability required of connectors.

Panasonic Electric Works has developed the tough contact, a technology that will increase device reliability in a wide range of environments.

“5 IN 1 designs” concept



From control devices and electronic materials that support state-of-the-art electronic technology to products essential for living, Panasonic Electric Works brings you products that affect a wide range of aspects in our daily lives.

Looking ahead, we will continue to create and offer attractive products that accurately reflect society’s needs.

At the same time we are paying attention to changes in lifestyle and to the heightened awareness in regard to global environmental conservation. Our business activities are focused directly on the future of our social environment.

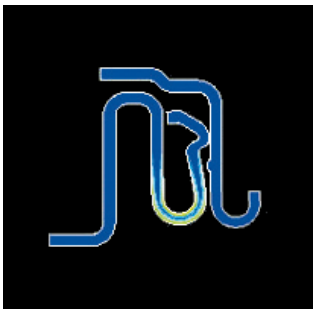
TOUGH CONTACT

Tough against dropping!

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

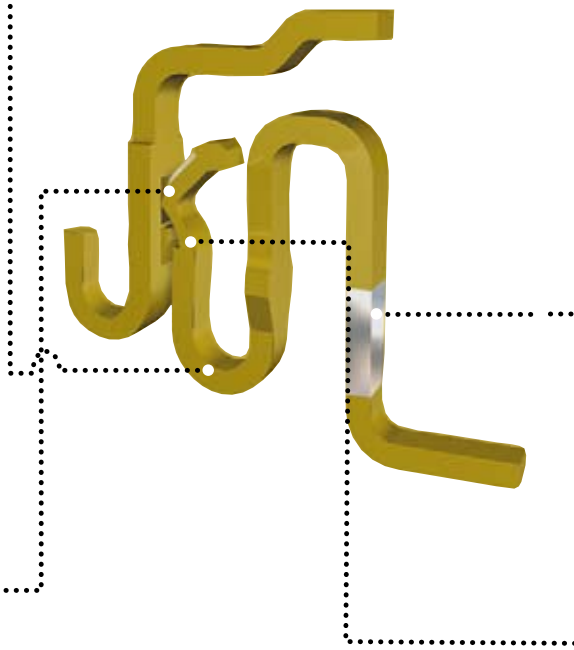
High precision curved molding that provides the optimum amount of spring characteristics for contacts is made possible through precision metal processing, one of our core technologies.

The need to withstand the shock of dropping and twisting during insertion has increased in mobile devices.



■ Simulation analysis

We analyzed what the ideal spring shape would be to bring the optimum spring characteristic to the contact, and then precision molded it.



Tough against foreign particles and flux!

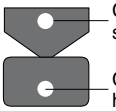
V notch improves contact reliability (resistance to entry of foreign particles)

By using the edge for the contacting part, contact pressure per unit area has been increased. Compared to previous contacts, the ability to remove flux and foreign particles has increased. Also are prevented from getting inside.

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

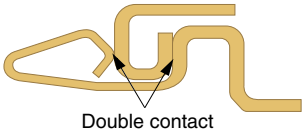
■ Evaluation example of plastic powder adhering to post contact surface

■ Product without notch



■ V notched product

■ F4 Contact Construction View



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

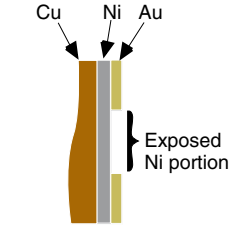
Tough against solder rise!

Anti-solder-rise efficiency increased due to Ni barrier

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

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

■ Exposed Ni barrier portion

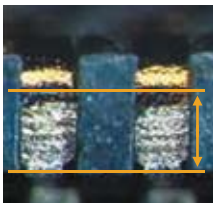


Cross section of the socket side contact

■ Solder rise after reflow

Example without Ni barrier

Example with Ni barrier



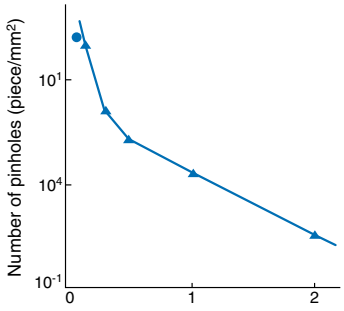
Solder paste coating conditions:
Metal screen thickness; 120mm; Open ratio 90% (solder amount 136% of recommended value)
Reflow conditions:
(lead-free solder conditions) temperature profile; 260°C peak temperature, atmosphere;
N2 reflow (nitrogen concentration 1000ppm)

Tough against corrosive gases!

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

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

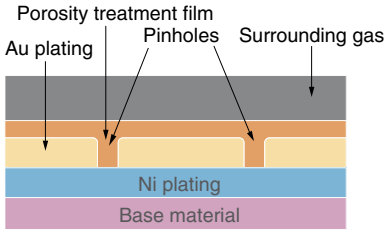
- Improvement in resistance to corrosion
- Improvement in insertion/ removal durability
- Improvement in contact reliability for digital signals



Relationship between gold plate thickness and number of pinholes

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

■ Plating technology (Porosity treatment technology)



■ Improvement of the corrosion resistance

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

<Porosity-treated product>

<Conventional product>

Corroded mainly at the pinholes.

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

Product Range Overview

	YF31-Series	YF32-Series	YF51-Series	YF52-Series	F35S-Series	P35S-Series	A4F-Series	A4S-Series	F4S-Series	F4-Series	P4S-Series		P4-Series						P5KL-Series
	AYF31	AYF32	AYF51	AYF52	AXT7/8	AXT1/ AXT2	AXE3/ AXE4	AXE5/ AXE6	AXT5/ AXT6	AXK7L/ AXK8L	AXT3/ AXT4		AXK7/ AXK8						AXK5L/ AXK6L
Contact-Pitch mm	0.3	0.3	0.5	0.5	0.35	0.35	0.4	0.4	0.4	0.4	0.4		0.4						0.5
Mating height mm	0.9	0.9	1.9	2	1	1.5	0.6	0.8	1	0.9	1.5	3.0	1.5	2.0	2.5	3.0	3.5	4.0	1.2
No of contacts																			
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12							•	•	•	•			•						•
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28						•	•	•	•	•	•		•						
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100						•					•	•	•	•	•				
120												•							
130																			
160																			

P5KF-Series			P5K-Series		P5KS-Series									P5 Floating	P8-Series											
AXK5F/ AXK6F			AXK5/ AXK6		AXK5S/ AXK6S									AXN5/ AXN6	AXN1/AXN3/AXN4											
0.5			0.5		0.5									0.5	0.8											
1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	8.0	9.0	5.0	3.0	3.5	4.0	4.5	5.0	5.5	6.0	7.0	8.0	11.5	13.0	14.0
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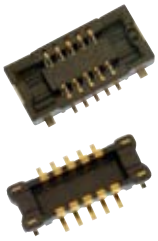
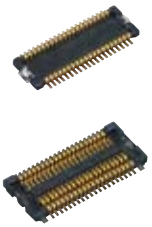
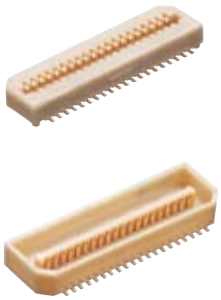
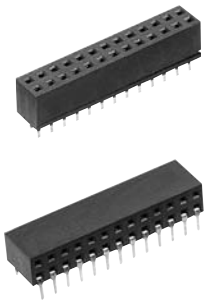
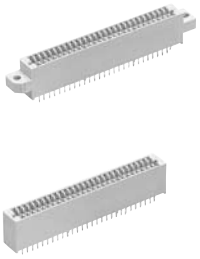
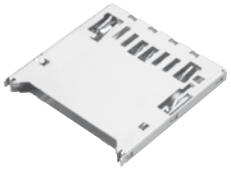
Type	Board to FPC	Board to FPC	Board to FPC	Board to FPC	Board to FPC
					
Series	**YF31**	**YF32**	**YF51**	**YF52**	**F35S**
Part number	AYF31	AYF32	AYF51	AYF52	AXT7/AXT8
Mounting method	SMD	SMD	SMD	SMD	SMD
Contact pitch (mm)	0.3	0.3	0.5	0.5	0.35
Features	Low profile, space-saving design. FPC with tabs contributing to hold FPC temporarily. Resistant to twisting due retention fittings. Improved PC board design flexibility. Front lock structure.	Low profile, space-saving design; front lock structure. For FPCs without tabs, allowing smooth FPC insertion; equipped with metal clips for higher mounting strength.	Resistant to twisting due to retention fittings. Slide lock structure.	Front lock structure. Resistant to twisting due to retention fittings.	Space saving design 0.35mm pitch, 1.0mm mating height, environmentally resistant TOUGH CONTACT structure; simple lock structure ensures a superior mating/unmating operation feel.
Stacking height (mm)	0.9	0.9	1.9	2	1.0
Number of contacts	39 / 51	15 / 17 / 23 / 29 / 31 / 33 / 35 / 39 / 41 / 45 / 51	15 / 24	26 / 34 / 40 / 45 / 50 / 54	40 / 50 / 60 / 70 / 80
Rated current / contact (A)	0.2	0.2	0.5	0.5	0.25
Rated current at total contacts (A)	n.a.	n.a.	n.a.	n.a.	n.a.
Rated voltage (VAC/VDC)	50	50	50	50	60
Insertion and removal life times	30	30	30	30	50
Ambient temperature	–55°C to +85°C	–55°C to +85°C	–55°C to +85°C	–55°C to +85°C	–55°C to +85°C

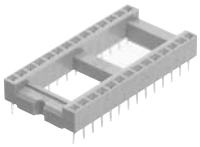
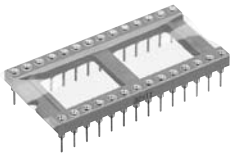
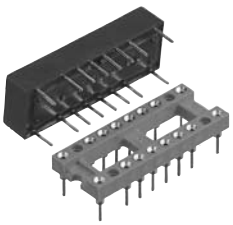
Board to Board Board to FPC	Board to FPC	Board to FPC	Board to FPC	Board to FPC
				
P35S	**A4F**	**A4S**	**F4**	**F4S**
AXT1 / AXT2	AXE3 / AXE4	AXE5 / AXE6	AXK7L / AXK8L	AXT5 / AXT6
SMD	SMD	SMD	SMD	SMD
0.35	0.4	0.4	0.4	0.4
Strong resistance to various environments. Pattern wiring possible on PC board below connectors. Bellows type V notch Ni barrier. Porosity treatment.	One of the world's thinnest two-piece connectors having a 0.6mm mating height. Space saving design. Bellows type V notch Ni barrier. Porosity treatment.	One of the world's slimmest two-piece connectors having a 2.5mm width. Gull wing terminal structure. Bellows type V notch Ni barrier. Porosity treatment.	Strong resistance to various environments. Pattern wiring possible on PC board below connectors. Bellows type V notch Ni barrier. Porosity treatment.	Strong resistance to various environments. Bellows-type V notch (double contact) Ni barrier. Porosity treatment.
1.5	0.6	0.8	0.9	1
20–100	10–50	10–80	10–80	10–50
0.25	0.3	0.3	0.3	0.3
4	5	5	5	10
60	60	60	60	60
50	30	30	50	50
–55°C to +85°C	–55°C to +85°C	–55°C to +85°C	–55°C to +85°C	–55°C to +85°C

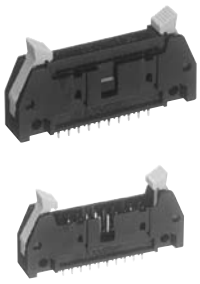
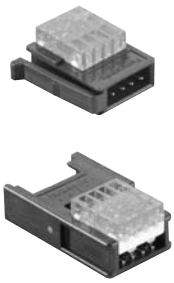
Type	Board to Board Board to FPC	Board to Board Board to FPC	Board to Board Board to FPC	Board to Board Board to FPC
				
Series	**P4**	**P4S**	**P5KL**	**P5KF**
Part number	AXK7 / AXK8	AXT3 / AXT4	AXK5L / AXK6L	AXK5F / AXK6F
Mounting method	SMD	SMD	SMD	SMD
Contact pitch (mm)	0.4	0.4	0.5	0.5
Features	Strong resistance to various environments. Pattern wiring possible on PC board below connectors. Bellows type V notch Ni barrier. Porosity treatment.	Strong resistance to various environments. Pattern wiring possible on PC board below connectors. Bellows type V notch Ni barrier. Porosity treatment.	Strong resistance to various environments. Pattern wiring possible on PC board below connectors. Bellows type V notch Ni barrier. Porosity treatment.	Strong resistance to various environments. Pattern wiring possible on PC board below connectors. Bellows type V notch Ni barrier. Porosity treatment.
Stacking height (mm)	1.0 / 2.0 / 2.5 / 3.0 / 3.5 / 4.0	1.5 / 3.0	1.2	1.5 / 2.0 / 2.5
Number of contacts	10–60	10–100	10–60	10–100
Rated current / contact (A)	0.5	0.3	0.5	0.5
Rated current at total contacts (A)	10	5	10	10
Rated voltage (VAC/VDC)	60	60	60	60
Insertion and removal life times	50	50	50	50
Ambient temperature	–55°C to +85°C	–55°C to +85°C	–55°C to +85°C	–55°C to +85°C

Board to Board	Board to Board	Board to Board	Board to Board
			
P5K	**P5KS**	**Floating type**	**P8**
AXK5 / AXK6	AXK5S / AXK6S	AXN5 / AXN6	AXN3 / AXN4
SMD	SMD	SMD	SMD
0.5	0.5	0.5	0.8
Strong resistance to various environments. Bellows-type V notch (double contact) Ni barrier. Porosity treatment.	Strong resistance to various environments. Bellows-type V notch (double contact) Ni barrier. Porosity treatment.	Porosity treatment.	Bellows-type. Porosity treatment.
3.0 / 3.5	4.0 / 4.5 / 5.0 / 5.5 / 6.0 / 6.5 / 7.0 8.0 / 9.0	5.0	3.0 / 3.5 / 4.0 / 4.5 / 5.0 / 5.5 / 6.0 / 7.0 / 8.0 / 11.5 / 13.0 / 14.0
20–100	20–100	20–100	12–100
0.5	0.2	0.2	0.5
10	16	–	–
60	60	60	60
50	50	20	50; 100 (11.5mm)
–55°C to +85°C	–55°C to +85°C	–55°C to +85°C	–55°C to +85°C

Type	Board to Board	Board to Board	Board to Board	Board to fine coaxial wire
				
Series	**DIN connectors**	**BB sockets**	**Card-edge connectors**	**Fine coaxial wire connectors**
Part number	AXD1 / AXD2 / AXD8	AXB1	AXC4 / AXC8	AXC5
Mounting method	DIP	DIP	SMD	SMD
Contact pitch (mm)	2.54	2.54	1	0.3
Features	Complient with DIN and IEC standards.	Combination with open type headers supports a variety of Board-to-Board connections.	High contact reliability and excellent insertion/removal performance. The low insertion force and long life type has a unique soft insertion structure with steps provided in the contacts, which achieves a low insertion force.	Bellows-type V notch Ni barrier. Porosity treatment.
Mounting height (mm)	–	–	–	1.5
Number of contacts	20–100	10–64	34–100	40
Rated current / contact (A)	2	2	3	0.3
Rated current at total contacts (A)	n/a	n/a	n/a	5
Rated voltage (VAC/VDC)	300VAC	250VAC	250VAC	60
Insertion and removal life times	1000	500	30,000	30
Ambient temperature	–55°C to +125°C	–55°C to +105°C	–55°C to +105°C	–55°C to +85°C

Interface Connectors	Interface Connectors	Sockets for SD Memory Card	Adapter for microSD Card	Adapter for microSD Card
				
RF (coaxial) connectors	**microUSB**	**(R-type)**	**Adapter for microSD to SDcard**	**Adapter for microSD to miniSDcard**
AXR1	AXJ5	AXA2R	AXA4A	AXA4B
SMD / Cable	SMD	SMD	–	–
–	1.3	–	–	–
Space saving receptacle with low profile excellent frequency characteristics floating mechanism absorbs mating deviation.	Compliant with the new generation USB standard. Two metal clips ensure secure fixing to PC board.	Enhanced robustness and EMI resistance achieved by the laser-welded double-sided metal shell. SDHC card compatible, with card jump-out and wrong insertion prevention functions.	Fully compatible with T-Flash cards RoHS-compliant.	Simple lock mechanism that prevents unwanted ejection of card. Fully compatible with T-Flash card. Insertion and removal life:10,000 times.
–	–	–	With a simple card lock mechanism. Fully compatible with T-Flash card.	Push in pull removal type.
–	microB right angle terminal	On board mounting standard type/On board mounting reverse type	Series A (4 contacts)	miniAB, miniB (5 contacts)
–	1.0	0.5	0.5	0.5
–	–	–	–	–
–	30	–	–	–
–	10,000	10,000	10,000	10,000
–	–55°C to +85°C	–25°C to +90°C	–25°C to +85°C	–25°C to +85°C

Type	IC Sockets	IC Sockets	IC Sockets	IC Sockets
				
Series	**SOP IC sockets/ SSOP IC sockets**	**µIC sockets**	**Round pin type IC sockets**	**Sockets for PC board relays**
Part number	AXS6N / AXS6S	AXS2	AXS1	AXS1
Mounting method	SMD	DIP	DIP	DIP
Contact pitch (mm)	0.8; 1.27	2.54	2.54	2.54
Features	For mass productivity and high resistance to vibration and impact.	Four-side tulip-style micro-contacts provides both high reliability and economy.	High reliability achieved by the round pins with four-point contact structure.	Round pin type sockets with pins arranged exclusively for PC board signal relays TQ4, DS2.
Mounting height (mm)	–	–	–	–
Number of contacts	SOP 44 contacts SSOP 70 contacts	6–40	DIL 8–64 SIL 32	8–16
Rated current / contact (A)	0.5	1	1	2
Rated current at total contacts (A)	–	–	–	–
Rated voltage (VAC/VDC)	–	–	–	–
Insertion and removal life times	–	1000	100	–
Ambient temperature	–55°C to +85°C	–55°C to +125°C	–55°C to +125°C	–55°C to +125°C

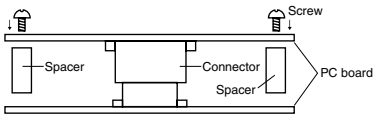
Board to flat Cable	Board to Board	Board to flat Cable	Board to Wire	Board to Wire
				
MIL type connectors	**Low profile type headers**	**PCB type connectors**	**Wire press sockets**	**Simple wire-press connectors**
AXM1 / AXM2 / AXM3 AXM8	AXL2	AXP4 / AXP5 / AXP6	AXW	AXF11 / AXF12 / AXF21
DIP	DIP	DIP	DIP	–
2.54	2.54	2.54	2.54	–
Mounting space can be reduced by mounting the connectors in close contact with one another. Two-piece type connectors with excellent connection workability.	One-piece type connectors for printed circuit boards that meet the need for high-density mounting.	One-piece type connectors for printed circuit boards that meet the need for high-density mounting.	The pressure connection method eliminates the wire-cover stripping step, significantly facilitates wiring work, and improves the contact reliability.	Reducing wiring operations with easy press.
–	–	–	–	–
10–64	10–64	10–64	10–64	4
1	2	1	AWG#22, 24: 3A; AWG#26: 2A; AWG#28: 1A	AWG#20: 3A, AWG#22: 2A; AWG#24: 1A; AWG#26,28: 0,5A
–	–	–	–	–
–	250VAC	–	250VAC	32
500	500	–	500	500
–55°C to +105°C	–55°C to +105°C	–55°C to +105°C	–50°C to +105°C	–35°C to +70°C

NOTES FOR USING SMD TYPE CONNECTORS (Common)

Regarding the design of devices and PC board patterns

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

Example) Secure in place with screws



When connecting PC boards, take appropriate measures to prevent the connector from coming off.
6) Notes when using a FPC.
(1) When the connector is soldered to an FPC board, during its insertion and removal procedures, forces may be applied to the terminals and cause the soldering to come off. It is recommended to use a reinforcement board (dimensions bigger than outer limits of the recommended PC board pattern drawings; determine the required thickness through experimentation) on the backside of the FPC board to which the connector is being connected.
(2) Collisions, impacts, or turning of FPC boards, may apply forces on the connector and cause it to come loose. Therefore, make to design retaining plates or screws that will fix the connector in place.
7) The narrow-pitch connector series is designed to be compact and thin. Although ease of handling has been taken into account, take care when mating the connectors, as displacement or angled mating could damage or deform the connector.
8) The AXR3, AXR3W, AXR5, AXR6 and AXR7 Series are designed with minimal thickness in order to be compact and lightweight. Therefore, please design product enclosures in such a way that there will be no excessive twisting during insertion and removal.

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

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

Regarding soldering

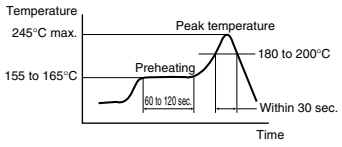
1. Reflow soldering

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

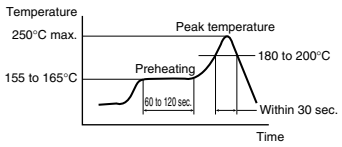
Soldering conditions

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

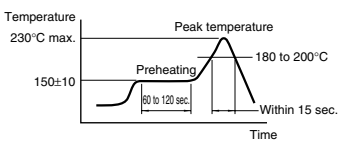
- Narrow-pitch connector for all series
- I/O connector for all series
- HDMI connectors
- mini USB connectors
- USB connectors
- IEEE1394 connectorsè
- RF (Coaxial) connectors
- SOP IC sockets



- Socket for SD memory card



- BB sockets



6) The temperatures are measured at the surface of the PC board near the connector terminals.
7) The temperature profiles given in this catalog are values measured when using the connector on a resin-based PC board. When performed reflow soldering on a metal board (iron, aluminum, etc.) or a metal table to mount on a FPC, make sure there is no deformation or discoloration of the connector beforehand and then begin mounting.

2. Hand soldering

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

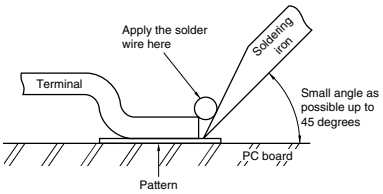
Table A

Product name	Soldering iron temperature
SMD type connectors	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.

NOTES FOR USING SMD TYPE CONNECTORS (Common)

3) Touch the soldering iron to the foot pattern. After the foot pattern and connector terminal are heated, apply the solder wire so it melts at the end of the connector terminals.



4) Be aware that soldering while applying a load on the connector terminals may cause improper operation of the connector.
5) Thoroughly clean the soldering iron.
6) Flux from the solder wire may get on the contact surfaces during soldering operations. After soldering, carefully check the contact surfaces and clean off any solder before use.
7) For soldering of prototype devices during product development, you can perform soldering at the necessary locations by heating with a hot-air gun by applying cream solder to the foot pattern beforehand. However, at this time, make sure that the air pressure does not move connectors by carefully holding them down with tweezers or other similar tool. Also, be careful not to go too close to the connectors and melt any of the molded components.
Example:
Inflidge Industrial, Ltd.
Super Air Heater
Digital temperature controller
Air heater with internal temperature sensor

3. Solder reworking
1) Finish reworking in one operation.
2) For reworking of the solder bridge, use a soldering iron with a flat tip. To prevent flux from climbing up to the contact surfaces, do not add more flux.
3) Keep the soldering iron tip temperature below the temperature given in Table A.

Handling Single Components

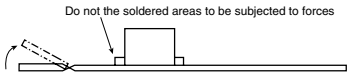
1) Make sure not to drop or allow parts to fall from work bench.
2) Excessive force applied to the terminals could cause them to warp, come out, or weaken the adhesive strength of the solder. Handle with care.
3) Repeated bending of the terminals may break them.
4) Do not use alcohol for cleaning. Doing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

Cleaning flux from PC board

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

Handling the PC board

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



Storage of connectors

1) To prevent trouble from voids or air pockets by heat of reflow soldering, avoid storing the connectors in areas of high humidity. When storing the connectors for more than six months, be sure to store them in a storage area where the humidity is properly controlled.
2) Depending on the connector type, the color of the connector may vary from connector to connector if produced at different times, and some connectors more even change color slightly if subjected to ultraviolet rays during storage. This is normal and will not affect the operation of the connector.
3) When storing the connectors with the PC boards assembled and components 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.

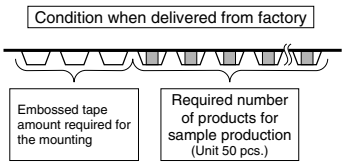
Other Notes

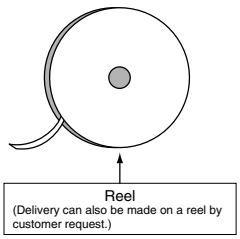
1) These products are made for the design of compact and lightweight devices and therefore the thickness of the molded components has been made very thin. Therefore, be careful during insertion and removal operations for excessive forces applied may damage the products.
2) Dropping of the products or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

Regarding sample orders to confirm proper mounting

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

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





NOTES ON USE FOR I/O CONNECTOR SERIES (Common)

Handling

1. Handling plugs

Please warn the end-user of the following in the instruction manual or similar.

1) Do not apply excessive force when inserting. Doing so could damage the receptacle body or plug housing.

2) The plug orientation is designed to avoid plugging in the wrong way. Be sure of the orientation of the plug. Do not force in a plug. Doing so could damage the receptacle body or plug housing.

3) Do not remove the plug before the lock has been completely released, or apply excessive force by prying the plug out of the receptacle. Doing so could adversely affect locking strength during mating, or damage the plug.

4) Do not pull the plug out by the cable, or otherwise remove the plug in an improper fashion. Doing so could exert undue stress on the bushing or cable and contact solder, and cause the connection to break. Be sure to release the lock and grasp the plug when disconnecting.

5) The plug is not dust or water resistant.

2. PCB handling after mounting of receptacle and plug (Board mounting type)

1) Make sure that PCB warping is no more than 0.03 mm over the entire connector length.

2) When assembling PCBs or storing them in block assemblies, make sure that undue weight is not exerted on a stacked connector.

3) Be sure not to allow external pressure to act on connectors when assembling PCBs or moving in block assemblies.

Other Notes

1. Attach a Cover

We recommend using a cover to prevent dirt and dust from entering the receptacle during use. Design the cover for long-term use so that it can withstand repeated use and be easily removed from the main unit.

2. Plug Harness Finishing

Plug Assembly Procedure instruction sheets are available. Please check them with your assembly procedures.

3. Coating Materials

If you coat the PCB after soldering for insulation and to prevent wear, make sure that the coating does not adhere to the connector.

4. To prevent end-users from disassembling the plug, please either warn the end-user in the instruction manual or provide a screw lock with suitable marking to prevent disassembly.

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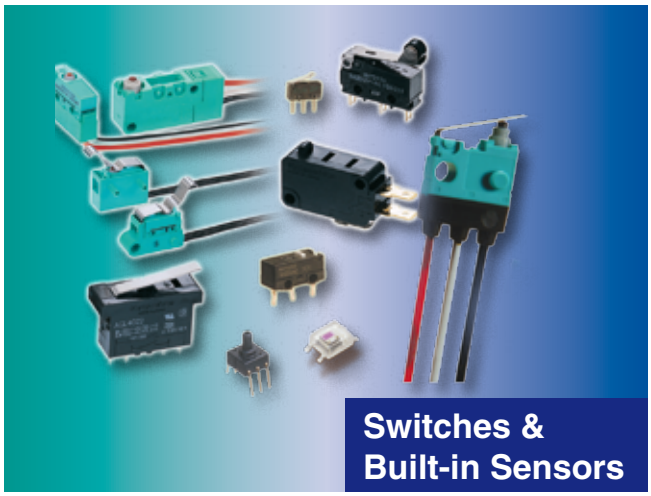

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