

**1. Scope**

This specification covers the Wire to Board pitch 4.2mm series connectors.

**2. Applicable documents**

The following documents form a part of this specification to the extent specified herewith. In the event of conflict between the requirements of the specification and the product drawing, the product drawing shall take precedence.  
 In the event of conflict between the requirements of the specification and the referenced documents, this specification shall take precedence.

**3. Ordering information**

Refer to the drawing.

**4. Connector dimensions**

Refer to the drawing.

**5. Material**

Housing: PA66 (UL 94V-0/UL 94V-2)

Color :Transparent

Contacts terminal: Copper alloy

Plating: Tin plated

**6. Accommodated P.C.B layout**

Refer to the drawing.

**7. Rating**

Operating voltage(Max.)            250V AC/DC

Current rating(Max.)                9.0A DC

Temperature range-operating    -40°C -- +105°C(Including terminal temperature rese)

**8. Performance**

| Test item  | Requirement                                                                                                                                                                                                        | Test Condition                                                         |
|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|
| Appearance | Plastic part:smooth and flat surface without discolor,broken,crack,distortion defects is acceptable<br>Metal part:bright and even surface without rust,oxide,fog and obvious physical damage defects is acceptable | Visual by eye<br>Light: > 1.0<br>Lamp: (200~300)lx<br>Space:(0.3~0.5)m |

**Electrical Performance**

|                    |              |                                                                                                                |
|--------------------|--------------|----------------------------------------------------------------------------------------------------------------|
| Contact Resistance | 10 mΩ (Max.) | Mate connectors, measure by dry circuit, 20mV MAX., 10mA.<br>Mated Length : 50mm<br>(Based upon JIS C5402 5.4) |
|--------------------|--------------|----------------------------------------------------------------------------------------------------------------|

| Test item                             | Requirement                | Test Condition                                                                                                                         |
|---------------------------------------|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| Insulation Resistance                 | 1000 MΩ (Min.)             | Mate connectors, apply 500V DC between adjacent terminals or ground.<br>(Based upon JIS C5402 5.2/MIL-STD-202 method 302 cond.B)       |
| Withstand voltage                     | No breakdown and flashover | Mate connectors, apply 1500V AC for 1 minute between adjacent terminal or ground.<br>(Based upon JIS C5402 5.1/MIL-STD -202 Method301) |
| Contact resistance on crimped portion | 10 mΩ (Max.)               | Crimp the maximum applicable wire on to the terminal, measure by dry circuit, 20mV MAX., 10mA.<br>Wire Length : 50mm                   |

**Mechanical Performance**

|                                  |                  |                                                                                                   |                                                                      |                                                                                                                             |
|----------------------------------|------------------|---------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Insertion and Withdrawal Force   | Insertion force  | 1.5kgf (Max.) per circuit                                                                         | Insertion and withdrawal connectors at the speed rate of 1mm/s~5mm/s |                                                                                                                             |
|                                  | Withdrawal force | 0.05kgf (Min.) per circuit                                                                        |                                                                      |                                                                                                                             |
| Terminal/Housing Retention Force | 2.0kgf (Min.)    | Apply axial pull out force at a speed of 25±3mm/minute on the terminal assembled In the housing.  |                                                                      |                                                                                                                             |
| Crimping pull Out Force          | AWG#16           | AWG#18                                                                                            | AWG#20                                                               | Fix the crimped terminal, apply axial pull out force on the wire at a speed of 25±3mm/minute<br>(Based upon JIS C5402 6.22) |
|                                  | 9.0Kgf(Min.)     | 9.0Kgf(Min.)                                                                                      | 6.0Kgf(Min.)                                                         |                                                                                                                             |
|                                  | AWG#22           | AWG#24                                                                                            | AWG#26                                                               |                                                                                                                             |
|                                  | 4.0Kgf(Min.)     | 2.9Kgf(Min.)                                                                                      | 1.9Kgf(Min.)                                                         |                                                                                                                             |
|                                  | AWG#28           |                                                                                                   |                                                                      |                                                                                                                             |
| Pin retentive Force              | 1.0kgf (Min.)    | Apply axial push force at a speed of 25±3mm/minute on the contact pin assembled in the base wafer |                                                                      |                                                                                                                             |

**Environmental Performance and others**

|                                |                    |            |                                                                                                                   |
|--------------------------------|--------------------|------------|-------------------------------------------------------------------------------------------------------------------|
| Heat resistance                | Appearance         | No Damage  | Mated connector shall be placed in an oven for 96±4 hours at +105±2°C.<br>(Based upon JIS C5402 7.8)              |
|                                | Contact Resistance | 20 mΩ Max. |                                                                                                                   |
| Cold resistance                | Appearance         | No Damage  | Mated connector shall be placed in a temperature chamber for 96±4 hours at -40±3°C<br>(Based upon JIS C5402 7.9)  |
|                                | Contact Resistance | 20 mΩ Max. |                                                                                                                   |
| Repeated Insertion/ withdrawal | Contact Resistance | 20 mΩ Max. | Mate connector up to 30 cycles repeatedly at a rate of 10 cycles/ minute. After which test the contact resistance |

| Test item                    | Requirement                                           |               | Test Condition                                                                                                                                                                                                                                                                  |
|------------------------------|-------------------------------------------------------|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Humidity                     | Appearance                                            | No Damage     | Mated connector shall be placed in a humidity chamber on the following conditions.<br>Temperature: 40±2°C<br>Relative humidity: 90~95%<br>Duration : 96 Hours<br>(Based upon MIL-STD-202 Method 103 condition A)                                                                |
|                              | Contact Resistance                                    | 20 mΩ Max.    |                                                                                                                                                                                                                                                                                 |
|                              | Withstand voltage                                     | 1500 V AC/min |                                                                                                                                                                                                                                                                                 |
|                              | Insulation Resistance                                 | 1000 MΩ Min.  |                                                                                                                                                                                                                                                                                 |
| Temperature Cycling          | Appearance                                            | No Damage     | Mated connector shall be set to temperature cycling for 5 cycles of which 1 cycle consists of:<br>1>.-40°C ~ 30 minutes<br>2>.+105°C ~ 30 minutes<br>(Based upon JIS C0025)                                                                                                     |
|                              | Contact Resistance                                    | 20 mΩ Max.    |                                                                                                                                                                                                                                                                                 |
| Temperature Rise             | 30 °C Max.                                            |               | Apply rated current load on mated connector in series-connection. Measure change of temperature on contact using thermocouples for 4 hours.<br>(Based upon UL 1977)                                                                                                             |
| Vibration                    | Appearance                                            | No Damage     | Amplitude:±0.35mm<br>Frequency:10~55Hz<br>Frequency:(55~500)Hz<br>Acceleration:50m/s <sup>2</sup><br>Duration:2h in each X.Y.Z axes                                                                                                                                             |
|                              | Contact Resistance                                    | 20 mΩ Max.    |                                                                                                                                                                                                                                                                                 |
|                              | Discontinuity                                         | 1μ sec Max.   |                                                                                                                                                                                                                                                                                 |
| Shock                        | Appearance                                            | No Damage     | 50G, 3 strokes in each X.Y.Z axes<br>(Based upon JIS C0041)                                                                                                                                                                                                                     |
|                              | Contact Resistance                                    | 20 mΩ Max.    |                                                                                                                                                                                                                                                                                 |
|                              | Discontinuity                                         | 1μ sec Max.   |                                                                                                                                                                                                                                                                                 |
| Salt Spray                   | Appearance                                            | No Damage     | Mated connector shall be placed in a salt spray chamber on the following conditions.<br>Salt Solution Density : 5±1%<br>Temperature : 35±2°C<br>Duration : First punch,second plate:24±4Hours<br>First plate,second punch:8±2Hours<br>Remarks : we make sure the important area |
|                              | Contact Resistance                                    | 20 mΩ Max.    |                                                                                                                                                                                                                                                                                 |
| Solderability                | 95% of immersed area must show no voids nor pin holes |               | Immerse fluxed soldered section of contact pin into a solder bath for 3±0.5sec, temperature: 230±5°C                                                                                                                                                                            |
| Resistance to soldering heat | Appearance                                            | No Damage     | Soldering Time: 5±1sec heat<br>Soldering Temperature: 260±5 °C                                                                                                                                                                                                                  |