1. **Scope**

Wafer Connector pitch 3.96mm series
This specification covers the Wafer Connector FWF39601/FWF39602 Series

2. **Ordering information**

Refer to the drawing.

3. **Connector dimensions**

Refer to the drawing.

4. **Material**

Housing: Thermoplastic (UL 94V-0)
Color: White/Natural
Terminal: Copper alloy
Plating: Tin plated

5. **Accommodated P.C.B layout**

Refer to the drawing.

6. **Rating**

Operating voltage(Max.)	250V AC/DC
Current rating(Max.)	7.0A AC/DC
Temperature range-operating	-25°C -- +85°C(Including terminal temperature rese)

7. **Performance**

Test item	Requirement	Test Condition
Electrical Performance		
Contact Resistance	10mΩ Max.	Mate connectors, measure by dry circuit, 20mV Max., 10mA. Mated Length : 50mm (AWG. #18) (Based upon JIS C5402 5.4)
Insulation Resistance	1000 MΩ Min.	Mate connectors, apply 500V DC between adjacent terminals or ground. (Based upon JIS C5402 5.2/MIL-STD-202 method 302 Cond.B)
Dielectric Strength	No breakdown and flashove	Mate connectors, apply 1500V AC for 1 minute between adjacent terminal or ground. (Based upon JIS C5402 5.1/MIL-STD-202 Method 301)
Contact resistance on crimped portion	10mΩ Max.	Crimp the maximum applicable wire on to the terminal, measure by dry circuit, 20mV MAX., 10mA. Wire Length : 50mm (AWG.#18)

Test item	Requirement	Test Condition
Mechanical Performance		
Insertion force and extraction force	Refer to paragraph 8	Insert and extract connectors at a speed of 25±3mm/minute.
Crimping pull out force	Wire size: #18 / #20 / #22 1 width: 2.0±0.1 1 height: 1.13~1.22 / 1.03~1.12 / 0.93~1.02 2 width: 2.8±0.1 2 height: 2.45 / 2.34 / 2.14 Crimp strength: 9.0kg min. / 6.0kg min. / 4.0kg min. 1. Conductor (mm) 2: Insulation (mm)	Fix the crimped terminal, apply axial pull out force on the wire at a speed of 25±3mm/minute. (Based upon JIS C5402 6.22)
Terminal insertion force	1.5kgf Max.	Insert the crimped terminal into the housing at a speed of 25±3mm/min.
Terminal/ Housing retention force	3.0kgf Min.	Apply axial pull out force at a speed of 25±3mm/minute on the terminal assembled In the housing.
Pin retention force	3.0kgf 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		
Repeated Insertion and Withdrawal	Contact Resistance: 20mΩ Max.	Mate connector up to 30 cycles repeatedly at a rate of 10 cycles/ minute. After which test the contact resistance.
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. (Based upon UL 1977)
Vibration	Appearance: No Damage Contact Resistance: 20mΩ Max. Discontinuity: 1μ sec Max.	Amplitude: 1.52mm P.P Sweep time: 10-55-10Hz/minute Duration: 2 hours in each X、Y、Z axlals. (Based upon MIL-STD-202 method 201)
Shock	Appearance: No Damage Contact Resistance: 20mΩ Max. Discontinuity: 1μ sec Max.	50G, 3 strokes in each X、Y、Z. axlals. (Based upon JIS C0041/MIL-STD-202 method 213B Cond.A)

Test item	Requirement		Test Condition
Heat resistance	Appearance	No Damage	Mated connector shall be placed in an oven for 96±4 hours at +120±2°C. (Based upon JIS C5402 7.8)
	Contact Resistance	20mΩ Max.	
Cold resistance	Appearance	No Damage	Mated connector shall be placed in a temperature chamber for 96±4 hours at -25±3°C (Based upon JIS C5402 7.9)
	Contact Resistance	20mΩ Max.	
Humidity	Appearance	No Damage	Mated connector shall be placed in a humidity chamber on the following conditions. Temperature: 40±2°C Relative humidity: 90~95% Duration : 96 Hours (Based upon JIS C0022/MIL-STD-202 Method 103B Cond.B)
	Contact Resistance	20mΩ Max.	
	Dielectric Strength	1500V,AC/min	
	Insulation Resistance	500MΩ Min.	
Temperature cycling	Appearance	No Damage	Mated connector shall be set to temperature cycling for 5 cycles of which 1 cycle consists of : 1>.+25°C ~ 3 minutes 2>.-25°C ~ 30 minutes 3>.+25°C ~ 3 minutes 4>.+85°C ~ 30 minutes (Based upon JIS C5402 7.2)
	Contact Resistance	20mΩ Max.	
	Dielectric Strength	1500V,AC/min	
	Insulation Resistance	500MΩ Min.	
Salt Spray	Appearance	No Damage	Mated connector shall be placed in a salt spray chamber on the following conditions. Salt Solution Density : 5±1% Temperature : 35±2°C Duration : 24±4 Hours (Based upon JIS C5402 7.1/MIL-STD-202 Method 101D Cond.B)
	Contact Resistance	20mΩ 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	No Damage in appearance		Mated connector shall be dipped on solder bath for 5±0.5sec temperature: 260±5°C

8. **Insertion force and withdrawal force**

(Unit:kgf)

Circuits	Insertion (Max.)	Withdrawal (Min.)		
	Initial	Initial	10th	30th
2	2.0	0.60	0.50	0.40
3	3.0	0.90	0.75	0.60
4	4.0	1.20	1.00	0.80
5	4.8	1.50	1.25	1.00
6	5.6	1.80	1.50	1.20
7	6.4	2.10	1.75	1.40
8	7.2	2.40	2.00	1.60
9	8.0	2.70	2.25	1.80
10	8.8	3.00	2.50	2.00
11	9.6	3.30	2.75	2.20
12	10.0	3.60	3.00	2.40
13	10.4	3.90	3.25	2.60
14	10.8	4.20	3.50	2.80
15	11.2	4.50	3.75	3.00