Product specification

1. Scope

This specification applies to the Pitch 1mm dual-row series connectors, specifying the product's performance indicators, test methods and test requirements.

Applicable Product Models: FWF10013/FWF10014/FHG10008/FT10007 series

2. Applicable Standards

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

2.1 GB/T2421	Testing method for Environmental of Electrical Connectors Class1:General Principles
2.2 GB/T2423	Testing method for Environmental of Electrical Connectors
2.3 GB/T2424	Testing method for Environmental of Electrical Connectors
2.4 GB/T5095	Testing procedure/method for components of electric equipment

3. Parameter Range

Parameter Name	Value & Unit
Rated Current	1.0A [AC (rms)/DC] (When using 28 AWG wire)
Rated Voltage	50V 【AC（rms）/DC】
Operating Temperature Range	-40 ℃ ~+105 ℃ (FHG10008: -25 ℃ ~+85 ℃)
Applicable Wire Gauge	28 AWG~32 AWG
Applicable PCB Thickness	1.6mm

4. Appearance and Dimensions

4.1 Appearance：Product surface without defect、dirt、crack、and mechanical damage, Contact without rust plating not oxides and not peeled

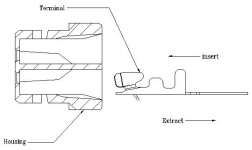
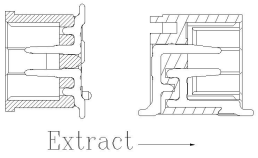
4.2 Appearance and dimensions shall comply with the requirements of product drawings.

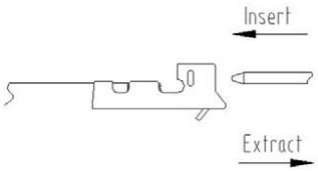
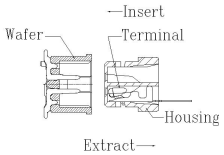
4.3 Exchangeable: Exchangeable with same specification products.

5. Materials

Component		Material Specification	Color
Wafer	Housing	LCP (UL94V-0)	Natural
	Contact	Copper Alloy (Tin-Plated)	-
	Solder TAB	Copper Alloy (Tin-Plated)	-
Housing		PA66 (UL94V-0)	White
Terminal		Copper Alloy (Tin-Plated)	-

6. Mechanical Performance

Serial No.	Item	Test Method	Technical Requirements
6.1	Appearance	Checking by eye (GB/T 5095.1 Method 1a)	Comply with Clause 4.1
6.2	Insertion force and Retention Force for Contact	Axial Insert and withdraw force on the contact in the housing at a rate of 25 mm per minute (GB/T 5095.8 Method 15d / EIA-364-29B) 	Insertion Force ≤19.6N; Retention Force ≥8N;
6.3	Retention Force for Pin	Apply thrust force on the Pin in the wafer at a rate of 25mm/min (GB/T 5095.8 Method 15a / EIA-364-29B) 	Retention Force ≥3N

6.4	Crimping Pull Out Force	Fix the crimped contact, Axial pull out force on the contact in the housing at a rate less than 25 mm/min (GB/T 5095.8-1997 Method 16d / EIA-364-08B) 	28AWG: ≥13N; 30AWG: ≥8N; 32AWG: ≥6N
6.5	Insertion and Extraction Force for Connector	Apply Axial Insert and withdraw force on the contact in the housing at a rate of 25 mm/min (GB/T 5095.7 Method 13b / EIA-364-13B) 	Refer to the attachment
6.6	Random Vibration	Mated connectors subjected to vibration conditions: 10~55~10Hz, amplitude 1.52mm, 2h per axis, 100mA current applied (GB/T 5095.4 Method 6d / EIA-364-28D)	Appearance: No damage; Current Discontinuity ≤1μs; Contact Resistance ≤40mΩ
6.7	Shock	Mated connectors shocked 3 times per 6 directions, 100mA current applied; Shock strength 490m/s², duration 11ms (GB/T 5095.4 Method 6c / EIA-364-27B)	Appearance: No damage; Current Discontinuity ≤1μs
6.8	Durability	30 cycles mating and unmating test at the speed 10 cycles per minute (GB/T 5095.5 Method 9a / EIA-364-09C)	Appearance: No damage; Contact Resistance ≤40mΩ
6.9	Insertion and Extraction Force for Pin in the Contact	Fixed contact and dynamometer, inserted and pulled out pin contact along the axis at a rate of 25 mm/min (GB/T 5095.7 Method 13b / EIA-364-13B)	Insertion Force≤19.6N; Extraction Force≥0.5N

7. Electrical Performance

Serial No.	Item	Test Method	Technical Requirements
7.1	Contact Resistance	Mate connectors with dry circuit to test Contact Resistance (GB/T 5095.2 Method 2a / EIA-364-23B)	Initial ≤20mΩ; Final ≤40mΩ
7.2	Insulation Resistance	Apply a voltage of 500V DC between adjacent contacts and between contacts to ground GB/T 5095.2 Method 3a / EIA-364-21C)	Initial ≥100MΩ; Final ≥50MΩ
7.3	Withstand Voltage	Apply a voltage of AC 500 V for 1 minute between adjacent contacts and between contacts to ground, leakage current 1mA (GB/T 5095.2 Method 4a / EIA-364-20B)	No breakdown and arcing
7.4	Temperature Rise	Mate connectors and measure the temperature rise of contact when the maximum AC rated current is passed (GB/T 5095.3 Method 5a / EIA-364-70A)	△30℃ Max

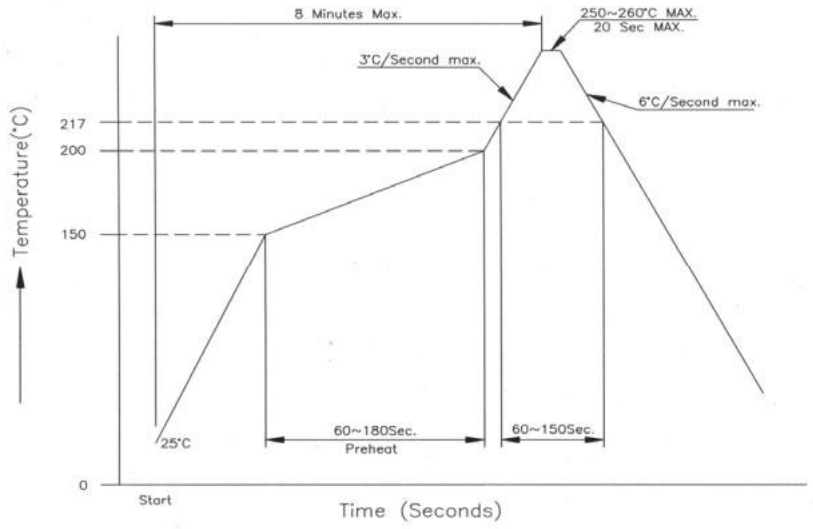
8. Environmental Performance

Serial No.	Item	Test Method	Technical Requirements
8.1	Heat Resistance	Mate connector exposed to the condition of 85±2℃ for 96 hours, recovery time 1~2 hours (GB/T 5095.6 Method 11i / EIA-364-17B)	Appearance: No damage; Contact Resistance ≤40mΩ; Insulation Resistance ≥50MΩ; Withstand Voltage ≥500V
8.2	Cold Resistance	Mated connectors exposed to the condition of -25±2℃for 96 hours, recovery time 1~2 hours (GB/T 5095.6 Method 11j / EIA-364-17B)	
8.3	Humidity	Mated connector exposed to 40±2℃, 90~95% Humidity for 96 hours, recovery time 1~2 hours (GB/T 5095.6 Method 11c / EIA-364-31B)	Appearance: No damage; Contact Resistance ≤40mΩ; Insulation Resistance ≥50MΩ

8.4	Temperature Cycling	Thermal shock test: -25±3℃ 30min → Room temp 10-15min → 85±3℃ 30min → Room temp 10-15min, total 5 cycles	Appearance: No damage; Contact Resistance ≤40mΩ; Insulation Resistance ≥50MΩ; No exposure of metal parts
8.5	Salt Spray	Sample suspended, 5±1% NaCl mist at 35±2℃ for 24h, rinsed with distilled water, recovery 1~2h (GB/T 5095.6 Method 11f / EIA-364-26B)	Appearance: No damage; Slight corrosion on cutting surface of pre-plated profiles acceptable; Contact Resistance ≤40mΩ
8.6	Solderability	Soldering test: Solder Temperature 245±5℃, Immersion period 3±0.5S (GB/T 5095.6 Method 12a / EIA-364-52)	Area of Soldering ≥95%
8.7	Resistance to Soldering Heat	1.Manual soldering : (350±5)℃ for (3±0.5) seconds; Soldering time: 20 S Max ; Soldering pot: 255±5℃; Please refer to the 9.1 solder reflow temperature curve (GB/T 5095.6 Method 12E / EIA-364-56A)	Appearance: No damage

9. Reflow Temperature Curve

9.1 SMT Lead-Free Process Temperature Curve



Note: The above parameters are for the curve diagram; actual calibration shall be combined with production equipment.

6.6 Appendix: Insertion and Extraction Force of Finished Product

Circuits (n)	1st Insertion Force (N) Max	1st Extraction Force (N) Min
4	17.84	1.96
6	21.76	2.94
8	25.68	3.92
10	29.60	4.90
12	33.52	5.88
14	37.44	6.86
16	41.36	7.84
18	45.28	8.82
20	49.20	9.80
22	53.12	10.78
24	57.04	11.76
26	60.96	12.74
28	64.88	13.72
30	68.80	14.70
32	72.72	15.68
34	76.64	16.66
36	80.56	17.64
38	84.48	18.62
40	88.40	19.60
50	92.32	19.60
60	96.24	19.60