



1.25mm Wire To Board Series, Contact and Housing

1. SCOPE

1.1. Content

This specification covers performance, tests, and quality requirements for 1.25mm Wire to Board CONNECTOR.

1.2. Qualification

When tests are performed on the subject product line, procedures specified in Figure 1 shall be used. All inspections shall be performed using the applicable inspection plan and product drawing.

1.3. Qualification Test Results

Successful qualification testing on the subject product line was completed in the Qualification Test Report number for this testing is 501-161268.

1.4. Revision Summary

Revisions to this specification include:

- Initial release of specification.

2. APPLICABLE DOCUMENTS AND FORMS

The following documents form a part of this specification to the extent specified herein. Unless otherwise specified, the latest edition of the document applies. 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. TE Connectivity Specifications

114-160812	Application Specification
501-161268	Qualification Test Report

2.2. Commercial Standards and Specifications

IEC 61984	International Standard – Safety Requirements and Tests
IEC 60335	International Standard – Safety of Household and Similar Appliance
IEC 60512	International Standard – Connectors for Electronic Equipment – Tests and Measurements
IEC 60695	International Standard – Fire Hazard Testing
UL 1977	Safety Standards – Component Connectors for Use in Data, Signal, Control, and Power Applications
EIA-364	Electrical Connector/Socket Test Procedures Including Environmental Classifications

2.3. Reference Documents

109-1	General Requirements for Testing
102-950	Qualification of Separable Interface Connectors

3. REQUIREMENTS

3.1. Design and Construction

Product shall be of the design, construction, materials and physical dimensions specified on the applicable product drawing.

3.2. Materials

Materials used in the construction of this product shall be as specified on the applicable TE drawing.

- A. Housing: Thermoplastic High Temperature 94V-0.
- B. Contacts: Copper Alloy, Gold plated on contact area, Tin-lead plated on solder tails, Nickel underplated all over.

3.3. Ratings

- A. Voltage Rating: 100VAC
- B. Current Rating: 1 A for AWG#28 to #30; 0.8A for AWG #32.
- C. Temperature Rating: -40°C to +85°C

3.4. Performance Requirements and Test Description

The product should meet the electrical, mechanical and environmental performance requirements specified in Figure 1. All tests shall be performed at ambient environmental conditions otherwise specified.

3.5. Test Requirements and Procedure Summary

NO.	Test items	Requirements			Procedures
1	Conformity of Product physical requirements	Product shall conform to the requirements of applicable Product Drawing and Application Specification			Visually, inspection per applicable quality inspection plan.
ELECTRICAL PERFORMANCE REQUIREMENTS					
2	Termination Resistance	Initial	20m ohms max.		Subject mated contacts assembled in housing to closed circuit current of 50mA max at open circuit voltage of 50mV max.
		Final	40m ohms max.		
3	Insulation Resistance	100M ohms min. (Initial) 10M ohms min. (Final)			Measure by applying test potential between adjacent contacts, and between the contacts and ground in the mated connector assembly. MIL-STD-202, Method 301
4	Dielectric Strength	Connector must withstand test potential of 250VAC for 1 min.			Measure by applying test potential between adjacent contacts, and between the contacts and ground in the mated connector assembly. MIL-STD-202, Method 301
MECHANICAL PERFORMANCE REQUIREMENTS					
5	Mating/Unmating Force	Circuit Pos	Mating N(kgf max)	Unmating N(kgf min)	Subject terminated contact and pin to mate and unmate to measure the force required to insert and extract by operating at a rate of 25mm a minute.
		2	24.5N (2.5kgf)	1.77N (0.18kgf)	
		8	53.9N (5.5kgf)	4.22N (0.43kgf)	
		15	88.2N (9.0kgf)	6.28N (0.64kgf)	
6	Durability	Termination resistance ?R=10mO shall be met. See Note			Subject connector assembly to 50 cycles of repeated mating / Unmating at a rate of 10 cycles a minute.
7	Terminal/Housing Retention Force	800 gf min per contact			Apply axial load to terminated contact at a rate of 25mm a minute
8	Tensile Strength of Wire Termination	AWG#28-14.7N(1.5kgf) min. AWG#30-9.8N(1.0kgf) min. AWG#32-4.9N(0.5kgf)min.			Apply axial load to terminated contact at a rate of 100mm a minute

NO.	Test description	Requirement	Procedure
9	Single PIN insertion and withdrawal force	Insertion Force standard 4.9N(0.5kgf). Withdrawal force standard 0.49N(0.05kgf)	Apply axial load to terminated contact at a rate of 25mm a minute
10	PIN Retention Force	Retention force standard 4.9N(0.5kgf)min.	Apply axial load to terminated contact at a rate of 25mm a minute
ENVIRONMENTAL PERFORMANCE REQUIREMENTS			
11	Temperature Life (Heat Aging)	Termination resistance (low level) shall be met. NO Physical damage	Subject mated connector assemblies to temperature life at 85°C ± 2°C for 96hours.
12	Humidity Steady State	Insulation Resistance(Final) 500Mohms min. Termination resistance (low level) shall be met. NO Physical damage	Subject mated connector to steady state humidity at 60°C ± 2°C and 90~95%R.H for 96hours.
13	Salt Spray	30mΩ Max(Final) NO Physical damage	Exposing in a heat chamber at a temperature of 35°C ± 2°C for 48 hours. EIA-364-26A,condition A.
14	Solderability	The contact solder tails should be covered by a continuous new solder coating for 95% Minimum of affected area.	Subject contacts to solderability testing as specified and solder transfer at 230°C ± 5°C for 3~5sec. MIL-STD-202,Method 208
15	Resistance to Reflow Soldering Heat	No physical damage	Subject connector mounted on printed circuit boards to solder bath at 260°C ± 5°C for 10 ± 2 seconds (Flow soldering). AT 350°C ± 5°C for 3 ± 1 seconds (Manual soldering). MIL-STD-202,Method 210,Condition C

Figure 1



NOTE

Shall meet visual requirements, show no physical damage, and meet requirements of additional tests as specified in the Product Qualification and Requalification Test Sequence shown in Figure 2.

3.6. Product Qualification and Requalification Test Sequence

Test Examination	Test Group					
	A	B	C	D	E	F
	Test Sequence(a)					
Examination of Product	1, 10	1, 6	1, 5	1, 5	1, 4	1, 5
Termination Resistance	2, 8		2, 4	2, 4		
Insulation Resistance		2, 5				
Dielectric Withstanding Voltage		3				
Mating/Unmating Voltage	3, 4, 6, 7					
Durability	5					
Terminal/Housing Retention Force	9					
Tensile Strength of Wire Termination						2
Single PIN insertion and withdrawal force						3
PIN Retention Force						4
Temperature Life				3		
Humidity Steady State		4				
Salt spray			3			
Solderability					2	
Resistance to Reflow Soldering Heat					3	

Figure 2



NOTE

(a) See paragraph 4.2.

(b) Numbers indicate sequence in which tests are performed.

4. QUALITY ASSURANCE PROVISIONS

4.1. Test Conditions

Unless otherwise specified, all the tests shall be performed in any combination of the following test conditions shown in Figure 3.

Temperature	15°C – 35°C
Relative Humidity	45% – 75%
Atmospheric Pressure	86.6 – 106.6 kPa

Figure 3

4.2. Qualification Testing

A. Specimen Selection

Specimens shall be prepared in accordance with applicable instruction sheets and shall be selected at random from current production.

B. Test Sequence

Qualification inspection shall be verified by testing specimens as specified in Figure 2.

4.3. Requalification Testing

If changes significantly affecting form, fit or function are made to the product or manufacturing process, product assurance shall coordinate requalification testing, consisting of all or part of the original testing sequence as determined by development/product, quality and reliability engineering.

4.4. Acceptance

Acceptance is based on verification that the product meets the requirements in Figure 1. Failures attributed to equipment, test setup or operator deficiencies shall not disqualify the product. If product failure occurs, corrective action shall be taken, and specimens resubmitted for qualification. Testing to confirm corrective action is required before resubmittal.

4.5. Quality Conformance Inspection

The applicable quality inspection plan shall specify the sampling acceptable quality level to be used. Dimensional and functional requirements shall be in accordance with the applicable product drawing and this specification.