1.25mm Wire To Board Series，90° SMT / 180° DIP Connector

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

	Test Item	Requirement	Procedure
1	Examination of Product	Meets requirements of product drawing. No physical damage.	Visual inspection
Electrical Requirement			
2	Termination Resistance	20 mΩ Max	Subject mated contacts assembled in housing to 20mV Max open circuit at 10mA Max.
3	Insulation Resistance	1000 MΩ Min. (Initial) 100 MΩ Min. (Finial)	Impressed voltage 500 VDC Test between adjacent circuits and contact
4	Dielectric withstanding Voltage	No creeping discharge nor flashover shall occur. Current leakage: 0.5 mA MAX	500 VAC for 1minute Test between adjacent circuits and contact
5	Temperature Rising	30C° Max. under loaded rating current	Contact series-wired, apply test current of loaded rating current to the circuit, and measure the temperature rising by probing on soldered areas of contacts, after the temperature becomes stabilized deduct ambient temperature from the measured value.
Mechanical Requirement			
6	Connector Mating Force	1 kgf/pin Max.	Operation Speed: 10 mm/min. Measure the force required to mate connector
7	Connector Unmating Force	0.1 kgf/pin Min.	Operation Speed: 10 mm/min. Measure the force required to unmate connector

8	Durability	See note.	Operation Speed: 10 cycle/min. No. of Cycles: 25 Cycles
9	Vibration	No electrical discontinuity greater than 1 microsecond shall occur. See note.	Subject mated connectors to 10-55-10 Hz traversed in 1 minute at 1.52mm amplitude 2 Hours each of 3 mutually perpendicular planes, passing DC 1mA current during the test.
10	Physical Shock	No electrical discontinuity greater than 1 microsecond shall occur. See note.	Accelerate Velocity: 490m/s2 50G Waveform: Half-sine shock plus Duration: 11msec No. of Drops: 3 drops each to normal and reversed directions of X, Y and Z axes, totally 18 drops, passing DC 1mA current during the test.
Environmental Requirements			
11	Temperature Life (Heat Aging)	See note.	Mated Connector 85C°, 250 hours
12	Thermal Shock	See note.	Mated Connector -55+/-3C° (30 minutes), +85+/-2C° (30 minutes) Making this a cycle, repeat 5 cycles
13	Humidity-Temperature Cycle	See note.	Mated Connector 25 – 65C°, 95% R.H., 10 cycles (See Figure 2)
14	Salt Spray	See note.	Subject mated connectors to 35+/-2C° and 5+/-1% salt condition for 48 hours. After test, rinse the sample with water and recondition the room temperature for 1 hour.
15	Solderability	The inspected area of each lead must have 95% solder coverage minimum.	Steam Aging Preconditioning: 93°C +3/-5°C, 8 hours ±15 min. Reflow Temperature: 230 - 245°C Reflow Time: 50 - 70 s. JESD22-B102D, Condition C
16	Resistance to Reflow Soldering Heat	See note.	Moisture Soak Preconditioning: 85°C and 85% RH. for 168 hours. Preheat Temp.: 150 – 200°C, 60 – 180 s. Time over liquidus (217°C): 60 – 150 s. Peak Temp.: 260 +0/-5°C, 20 – 40 s. Duration: 3 cycles. Tyco spec. 109-201, Condition B

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 501-161232 and 501-161234.

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
501-161232	Qualification Test Report
501-161234	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, natural color.

B. Contacts: Brass.

3.3. Ratings

A. Voltage Rating: 100VAC

B. Current Rating: **1** A for AWG#28

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

	Test Item	Requirement	Procedure

1	Examination of Product	Meets requirements of product drawing. No physical damage.	Visual inspection
Electrical Requirement			
2	Termination Resistance	20 mΩ Max	Subject mated contacts assembled in housing to 20mV Max open circuit at 10mA Max.
3	Insulation Resistance	1000 MΩ Min. (Initial) 100 MΩ Min. (Finial)	Impressed voltage 500 VDC Test between adjacent circuits and contact
4	Dielectric withstanding Voltage	No creeping discharge nor flashover shall occur. Current leakage: 0.5 mA MAX	500 VAC for 1minute Test between adjacent circuits and contact
5	Temperature Rising	30C° Max. under loaded rating current	Contact series-wired, apply test current of loaded rating current to the circuit, and measure the temperature rising by probing on soldered areas of contacts, after the temperature becomes stabilized deduct ambient temperature from the measured value.
Mechanical Requirement			
6	Connector Mating Force	1 kgf/pin Max.	Operation Speed: 10 mm/min. Measure the force required to mate connector
7	Connector Unmating Force	0.1 kgf/pin Min.	Operation Speed: 10 mm/min. Measure the force required to unmate connector
8	Durability	See note.	Operation Speed: 10 cycle/min. No. of Cycles: 25 Cycles
9	Vibration	No electrical discontinuity greater than 1 microsecond shall occur. See note.	Subject mated connectors to 10-55-10 Hz traversed in 1 minute at 1.52mm amplitude 2 Hours each of 3 mutually perpendicular planes, passing DC 1mA current during the test.
10	Physical Shock	No electrical discontinuity greater than 1 microsecond shall occur. See note.	Accelerate Velocity: 490m/s2 50G Waveform: Half-sine shock plus Duration: 11msec No. of Drops: 3 drops each to normal and reversed directions of X, Y and Z axes, totally 18 drops, passing DC 1mA current during the test.
Environmental Requirements			

11	Temperature Life (Heat Aging)	See note.	Mated Connector 85C°, 250 hours
12	Thermal Shock	See note.	Mated Connector -55+/-3C° (30 minutes), +85+/-2C° (30 minutes) Making this a cycle, repeat 5 cycles
13	Humidity-Temperature Cycle	See note.	Mated Connector 25 – 65C°, 95% R.H., 10 cycles (See Figure 2)
14	Salt Spray	See note.	Subject mated connectors to 35+/-2C° and 5+/-1% salt condition for 48 hours. After test, rinse the sample with water and recondition the room temperature for 1 hour.
15	Solderability	The inspected area of each lead must have 95% solder coverage minimum.	Steam Aging Preconditioning: 93°C +3/-5°C, 8 hours ±15 min. Reflow Temperature: 230 - 245°C Reflow Time: 50 - 70 s. JESD22-B102D, Condition C
16	Resistance to Reflow Soldering Heat	See note.	Moisture Soak Preconditioning: 85°C and 85% RH. for 168 hours. Preheat Temp.: 150 – 200°C, 60 – 180 s. Time over liquidus (217°C): 60 – 150 s. Peak Temp.: 260 +0/-5°C, 20 – 40 s. Duration: 3 cycles. Tyco spec. 109-201, Condition B

. All tests shall be performed at ambient environmental conditions otherwise specified.

3.5. Test Requirements and Procedure Summary

	Test Item	Requirement	Procedure
1	Examination of Product	Meets requirements of product drawing. No physical damage.	Visual inspection
Electrical Requirement			
2	Termination Resistance	20 mΩ Max	Subject mated contacts assembled in housing to 20mV Max open circuit at 10mA Max.
3	Insulation Resistance	1000 MΩ Min. (Initial) 100 MΩ Min. (Finial)	Impressed voltage 500 VDC Test between adjacent circuits and contact
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5	Temperature Rising	30C° Max. under loaded rating current	Contact series-wired, apply test current of loaded rating current to the circuit, and measure the temperature rising by probing on soldered areas of contacts, after the temperature becomes stabilized deduct ambient temperature from the measured value.
Mechanical Requirement			
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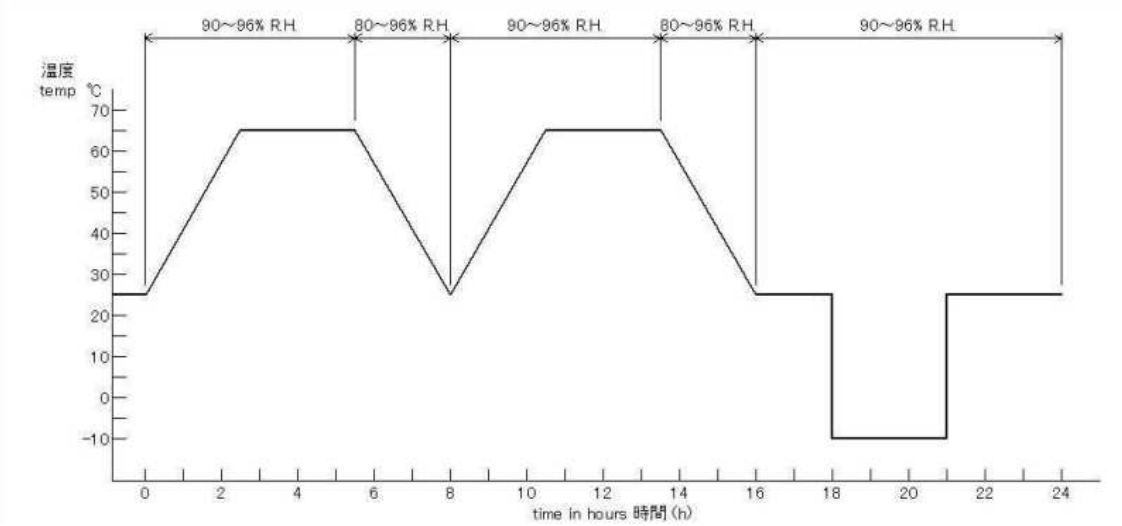
NOTE

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 .

Humidity-Temperature Cycle



Temperature reduced 25°C to –10°C within 10 minutes. Humidity uncontrolled at a temperature less than 25°C.

Figure 2

3.6. Product Qualification and Requalification Test Sequence

Test Examination	Test Group									
	A	B	C	D	E	F	G	H	I	J
Examination of Product	1, 7	1, 9	1, 6	1, 5	1, 5	1, 5	1, 5	1, 3	1, 3	1, 3
Termination Resistance		2, 8	2, 5	2, 4	2, 4	2, 4	2, 4			
Insulation Resistance	2, 5									
Dielectric withstanding Voltage	3, 6									
Temperature Rising										2
Connector Mating Force		3, 7								
Connector Unmating Force		4, 6								
Durability		5								
Vibration			3							

Physical Shock			4							
Temperature Life				3						
Thermal Shock					3					
Humidity Temperature Cycling	4					3				
Salt Spray							3			
Solderability								2		
Resistance to Reflow Soldering Heat									2	

NOTE (a) Numbers indicate sequence in which tests are performed.

Figure 3

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 .

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

Figure 4

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 3.

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

	Test Item	Requirement	Procedure
1	Examination of Product	Meets requirements of product drawing. No physical damage.	Visual inspection

Electrical Requirement			
2	Termination Resistance	20 mΩ Max	Subject mated contacts assembled in housing to 20mV Max open circuit at 10mA Max.
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. 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.