

3.5mm Top Entry Screwless Connector**1. Purpose:**

This is qualification test. The purpose of this test is to evaluate the performance of 3.5mm Top Entry Screwless Connector. Testing was performed on below products to determine it compliance with the requirements of product specification

2. Scope:

This is test report for 3.5mm Top Entry Screwless Connector. Testing was performed at TE Connectivity Shanghai Electrical Components Test Laboratory between Aug.27th, 2014 and Sep.16th, 2014.

3. Conclusion:

The product met the electrical, mechanical, and environmental performance requirements of TE product specification

4. Test samples:

Samples were taken randomly from current production. The following part numbers were used for test:

Description	Product Part No.
3.5mm Top Entry Screwless Connector	2834011-4

5. Test Method**5.1 Examination of Product**

Visual, dimensional and functional per applicable inspection plan.

Requirements: Meets requirements of product drawing

Test Method: In accordance with EIA-364-18

5.2 Contact Resistance

Subject the specimen to maximum allowed rating current and measure the contact resistance.

Requirements: 20mΩ Max.

Test Method: EIA-364-06

5.3 Insulation resistance

Unmated connector with 500V DC between adjacent contacts for 1 min.

Requirements: 2000 MΩMin.

Test Method: EIA-364-21

5.4 Dielectric strength

Unmated connector with 2000 V AC between adjacent contacts for 1 min.

Requirements: No breakdown.

Test Method: UL1059 Clause 12

5.5 Current rating

Measured at maximum rated current with series all contacts.

Current: 6A

Requirement: Temperature rise should be 30°C Max.

Test method: UL1059 Clause 11

5.6 Durability

For 1 cycle process:

Push down the plastic lever then insert the wire; push down the plastic lever to release the wire; pull out the wire;

Requirement: No mechanical damage; No change to performance;

Total: 5 cycles

5.7 Vibration, Random

Subject mated specimens to 3.10G's rms between 20~500HZ. Fifteen minutes in each of 3 mutually perpendicular planes.

Requirements: Discontinuity max 1 μ s

Test method: EIA-364-28, Test Condition VII, Condition D

5.8 Mechanical shock

Subject mated specimens to 30 G's half-sine shock pulses of 11 milliseconds duration. Three shocks in each direction applied along 3 mutually perpendicular planes, 18 total shocks.

Requirements: Discontinuity max 1 μ s

Test method: EIA-364-27, Condition H

5.9 Secureness test

Wire size:16AWG; Diameter of bushing hole:6.4mm; Height:260mm; Weight:0.45kg

Requirements: The joint between a terminal and the wire of a sample set shall be intact after test.

Test method: UL486

5.10 Pullout force

Wire:16AWG_40N / Wire:20AWG_30N

The terminal shall not separate from the wire as a result.

Test method: UL486

5.11 Thermal Shock

Subject specimens to 25 cycles between -40 and 105°C with 30 minute dwells at temperature extremes and 1 minute transition between temperatures.

Requirements: Contact resistance 20m Ω Max.

Test method: EIA-364-32, Test Condition VII

5.12 Humidity (cycling Temperature)

Subject specimens to 10 cycles (10 days) between 25 °C and 65 °C at 80 to 100% RH.

Requirements: Contact resistance 25mΩ Max.

Test method: EIA-364-31, Method III

5.13 Temperature life

Subject mated specimens to 105 °C for 648 hours.

Requirements: LLCR 20mΩ Max.

Test method: EIA-364-17, Method A, Test Condition 4.

6. Unless otherwise stated, the following environmental conditions prevailed during testing:

Temperature: 5°C to 35°C Relative Humidity: 45 % to 80%

7. Test Sequence

Test group	a	b	c	d	e	f
Examination of product	1,7	1,7	1,7	1,4	1,4	1,4
Contact resistance	2, 5	2, 4, 6	5			
Insulation resistance			3			
Withstanding Voltage			2, 6			3
Temperature Rise						2
Random vibration	3					
Mechanical shock	4					
Durability				2		
Thermal shock			4			
Secureness test					2	
Pullout force	6			3	3	
Humidity -temperature cycling		3				
Temperature life		5				
Sample size	10	5	5	10	10	3

8. Test Result

Group	Test Item	N	Condition	Test Result			Requirement	Judgment
				Max	Min	Ave		
A	Examination of Product	10	Initial	No physical damage occurred			No abnormalities	Pass
	Contact resistance	10	Initial	14.6	8.7	11.6	<20mΩ	Pass
	Random Vibration	10	Final	No discontinuities of 1 microsecond or longer duration occurred			No abnormalities	Pass
	Mechanical Shock	10	Final	No discontinuities of 1 microsecond or longer duration			No abnormal	Pass

				occurred			ities	
	Contact resistance	10	Final	14.1	9.5	12.5	<20mΩ	Pass
	Pullout force (16AWG)	5	Final	89.8	58.1	72.1	>40N	Pass
	Pullout force (20AWG)	5	Final	85.5	59.5	75	>30N	Pass
	Examination of Product	10	Final	No physical damage occurred			No abnormalities	Pass
B	Examination of Product	5	Initial	No physical damage occurred			No abnormalities	Pass
	Contact resistance	5	Initial	11.2	8.4	9.8	<20mΩ	Pass
	Humidity (cycling Temperature)	5	Final	No physical damage occurred			Final	No physical damage occurred
	Contact resistance	5	Final	11.2	9.1	9.7	<20mΩ	Pass
	Temperature life	5	Final	No physical damage occurred			No abnormalities	Pass
	Contact resistance	5	Final	13.6	9.5	11.7	<20mΩ	Pass
	Examination of Product	5	Final	No physical damage occurred			No abnormalities	Pass
C	Examination of Product	5	Initial	No physical damage occurred			No abnormalities	Pass
	Withstanding Voltage	5	Initial	No breakdown			No abnormalities	Pass
	Insulation resistance	5	Initial	>9999			>2000MΩ	Pass
	Thermal shock	5	Final	No physical damage occurred			No abnormalities	Pass
	Contact resistance	5	Final	12.5	8.5	10.4	<20mΩ	Pass
	Withstanding Voltage	5	Final	No breakdown			No abnormalities	Pass
	Examination of Product	5	Final	No physical damage occurred			No abnormalities	Pass
D	Examination of Product	10	Initial	No physical damage occurred			No abnormalities	Pass
	Durability	10	Initial	No physical damage occurred			No abnormalities	Pass
	Pullout force (16AWG)	5	Final	87.8	61.5	75.2	>40N	Pass
	Pullout force (20AWG)	5	Final	90	65.8	77.6	>30N	Pass
	Examination of Product	10	Final	No physical damage occurred			No abnormalities	Pass
E	Examination of Product	10	Initial	No physical damage occurred			No abnormalities	Pass

	Secureness test	10	Final	The joint between a terminal and the wire of a sample set shall be intact after test.			No abnormalities	Pass
	Pullout force (16AWG)	5	Final	89.2	68.5	81.2	>40N	Pass
	Pullout force (20AWG)	5	Final	86.4	74.5	80.2	>30N	Pass
	Examination of Product	5	Final	No physical damage occurred			No abnormalities	Pass
F	Examination of Product	3	Initial	No physical damage occurred			No abnormalities	Pass
	Temperature Rise	3	Final	27.7	24.1	26.2	<30°C	Pass
	Withstanding Voltage	3	Initial	No breakdown			No abnormalities	Pass
	Examination of Product	3	Initial	No physical damage occurred			No abnormalities	Pass

END