

3 Pin latched wire to wire poke in Connector**1. Purpose:**

This is qualification test. The purpose of this test is to evaluate the performance of 3 Pin latched Wire to Wire poke in Connector.

Testing was performed on below products to determine it compliance with the requirements of product specification 108-137160.

2. Scope:

This is test report for 3 Pin latched Wire to Wire poke in Connector. Testing was performed at TE Connectivity Shanghai Electrical Components Test Laboratory between Mar, 2016 to Jun, 2016.

3. Conclusion:

The product met the electrical, mechanical, and environmental performance requirements of TE product specification 108-137160.

4. Test samples:

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

Description	Product Part No.
Plug assembly for 3 Pin latched Wire to Wire Connector	2834054-*
Receptacle assembly for 3 Pin latched Wire to Wire Connector	*-2834055-*
3 Pin latched Wire to Wire Connector (Mated)	2834056-*

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 100V DC between adjacent contacts for 1 min.

Requirements: 1000 MΩMin.initial, 100 MΩMin. Final.

Test Method: EIA-364-21

5.4 Withstanding voltage

Unmated connector with 2200 V AC between adjacent contacts for 1 min.

Requirements: No breakdown.

Test Method: EIA-364-20

5.5 Current rating

Measured at maximum rated current with series all contacts.

Current: 8A with 16&18AWG, 3A with 20&22AWG

Requirement: Temperature rise should be 30°C Max.

Test method: EIA-364-70

5.6 Durability

Mating and unmating specimens for 10 cycles at a max rate of 500 cycles per hour.

Requirement: No mechanical damage; No change to performance; Contact resistance: 20mΩ Max;

Test method: EIA-364-09

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 Wire insertion force

Measuring max force during wire insertion operation. Operating speed : 10mm/minute.

Requirements: 20N Max for 18-22AWG Solid Wire

30N Max for Tin Dipped 16AWG stranded wire(26 strands Max.),18AWG stranded wire(16 strands Max.) and 20AWG stranded wire(7 strands Max.).

Test method: EIA-364-13

5.10 Wire retention force

Measuring max force during wire pull out operation. Operating speed : 10mm/minute.

Requirements: 44.5N Min : 18-20 AWG solid wire or Tin dipped stranded wire (18AWG with16 strands

Max. ,20AWG with 7 strands). 35.6N Min.: 22AWG solid wire. 66.7N Min.:16AWG with 26 strands Max.).Test

method: EIA-364-13

5.11 Mating force

Measure force necessary to mate specimens at a max rate of 12.7mm per minute.

Requirements: 40 Max.

Test method: EIA-364-13

5.12 Unmating force(With latch)

Measure force necessary to unmate specimens at a max rate of 12.7mm per minute.

Requirements: 30N Min.

Test method: EIA-364-13

5.13 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 20mΩ Max.

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

5.14 Humidity (cycling Temperature)

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

Requirements: Contact resistance 20mΩ Max.

Test method: EIA-364-31, Method III

5.15 Temperature life

Subject mated specimens to 105 °C for 250 hours. Measure resistance without opening the mating.

Requirements: LLCR 20mΩ Max.

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

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

Temperature:15°C to 35°C Relative Humidity: 25% to 75%

7. Test Sequence

Test group	a	b	c	d	e	f
Examination of product	1, 6	1, 8	1, 8	1,, 6	1, 4	1,6
Contact resistance	2, 5	2, 4, 7		2, 5	2	
Insulation resistance			3, 6			
Withstanding Voltage			2, 7			
Current rating					3	
Random vibration	4					
Mechanical shock	3					
Durability		3		3		
Mating force						4
Unmating force						5
Thermal shock		5	4			
Wire insertion force						2
Wire retention force						3
Humidity -temperature cycling		6	5			
Temperature life				4		
Sample size	5pcs	5pcs	5pcs	5pcs	5pcs	5pcs

8. Test Result

Group	Test Item	N	Condition	Test Result			Requirement	Judgment
				Max	Min	Ave		
A	Examination of Product	5	Initial	No physical damage occurred			No abnormalities	Pass
	Contact resistance	5	Initial	2.58	3.75	3.16	<20mΩ	Pass
	Mechanical Shock	5	Final	No discontinuities of 1 microsecond or longer duration occurred			No abnormalities	Pass
	Random Vibration	5	Final	No discontinuities of 1 microsecond or longer duration occurred			No abnormalities	Pass
	Contact resistance	5	Final	2.73	2.85	3.10	<20mΩ	Pass
	Examination of Product	5	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	2.57	2.64	3.11	<20mΩ	Pass
	Durability	5	Final	No physical damage occurred			No abnormalities	Pass

	Contact resistance	5	Final	2.65	2.85	3.12	<20mΩ	Pass
	Thermal Shock	5	Final	No physical damage occurred			No abnormalities	Pass
	Humidity (cycling Temperature	5	Final	No physical damage occurred			No abnormalities	Pass
	Contact resistance	5	Final	5.01	4.44	5.04	<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	1.08E+11	19.9E+11	1.33E+11	>1000MΩ	Pass
	Thermal shock	5	Final	No physical damage occurred			No abnormalities	Pass
	Humidity (cycling Temperature	5	Final	No physical damage occurred			No abnormalities	Pass
	Insulation resistance	5	Final	1.89E+9	2.75E+9	20.53E+9	>100MΩ	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	5	Initial	No physical damage occurred			No abnormalities	Pass
	Contact resistance	5	Initial	2.59	2.77	2.86	<20mΩ	Pass
	Durability	5	Final	No physical damage occurred			No abnormalities	Pass
	Temperature life	5	Final	No physical damage occurred			No abnormalities	Pass
	Contact resistance	5	Final	3.86	3.32	3.40	<20mΩ	Pass
	Examination of Product	5	Final	No physical damage occurred			No abnormalities	Pass
E	Examination of Product	5	Initial	No physical damage occurred			No abnormalities	Pass
	Contact resistance	5	Final	3.65	2.98	3.26	No abnormalities	Pass
	Current rating(18AWG)	5	Final	19.67	20.64	21.33	<30°C	Pass

	Current rating(22AWG)	5	Final	9.59	9.86	9.98	<30°C	Pass
	Examination of Product	5	Final	No physical damage occurred			No abnormalities	Pass
F	Examination of Product	5	Initial	No physical damage occurred			No abnormalities	Pass
	Wire insertion force (16AWG Tin dipped stranded)	5	Final	14.96	15.65	16.87	<30N	Pass
	Wire insertion force (18AWG solid)	5	Final	13.12	15.29	12.74	<20N	Pass
	Wire insertion force (18AWG Tin dipped stranded)	5	Final	13.47	15.32	14.71	<30N	Pass
	Wire insertion force (20AWG solid)	5	Final	11.37	11.88	10.55	<20N	Pass
	Wire insertion force (20AWG Tin dipped stranded)	5	Final	14.72	14.62	15.25	<30N	Pass
	Wire insertion force (22AWG solid)	5	Final	9.92	9.48	10.69	<20N	Pass
	Wire retention force (16AWG Tin dipped stranded)	5	Final	110.53	107.31	112.75	>66.7N	Pass
	Wire retention force (18AWG solid)	5	Final	81.59	89.25	91.81	>44.5N	Pass
	Wire retention force (18AWG Tin dipped stranded)	5	Final	91.50	84.34	95.59	>44.5N	Pass
	Wire retention force (20AWG solid)	5	Final	60.56	63.91	64.25	>44.5N	Pass
	Wire retention force (20AWG Tin dipped stranded)	5	Final	80.38	88.09	75.84	>44.5N	Pass
	Wire retention force (22AWG solid)	5	Final	53.56	52.87	54.36	>35.6N	Pass
	Mating force	5	Final	8.04N	8.56N	8.98N	<40N	Pass
	Unmating force	5	Final	92.53	105.75	114.47	>30N	Pass

END