

SDL 2.5 water proof connector

1. INTRODUCTION

1.1 Purpose

This is product verification test. The purpose of this test is to evaluate the performance of oil immersion.

1.2 Scope

This report covers the electrical and environmental performance of the SDL 2.5 water proof connector. Testing was performed at TE Connectivity Shanghai Electrical Test Laboratory (Building ID 554) between 2021-05-06 and 2021-05-08. The associated test number is TP-21-01017.

1.3 Conclusion

Based on the test results, all TE samples meet the requirement according to customer requirement, except competitor's samples. The results in this report only effect on the sampling specimens.

1.4 Test Specimens

Specimens with the following part numbers were used for test:

Test Group	Part No.	Description	Qty. (pcs)	Part No.	Description	Qty. (pcs)	Comments
1	2321924-2	RECEPTACLE HOUSING FREE HANGING 2PIN	5	2321928-1	TAB TERMINAL SDL2.5 WATERPROOF	10	Crimped with 22AWG wire
	2321918-2	PLUG HOUSING SDL2.5 WATERPROOF 2PIN	5	2321921-1	RECEPTACLE TERMINAL	10	Crimped with 22AWG wire
	2321924-4	RECEPTACLE HOUSING FREE HANGING 4PIN	5	2321928-1	TAB TERMINAL SDL2.5 WATERPROOF	20	Crimped with 22AWG wire
	2321924-4	RECEPTACLE HOUSING FREE HANGING 4PIN	5	2321921-1	RECEPTACLE TERMINAL	20	Crimped with 22AWG wire
	Sample-1	Competitor sample 2P	1	/	/	2	/
	Sample-2	Competitor sample 4P	1	/	/	4	/



Fig.1 Test Specimens

1.5 Test Sequence

Test Item	Test Group
	1
	Test Sequence
Dielectric Withstanding Voltage	4,8
Examination of Product	1,9
Insulation Resistance	3,7
Low Level Contact Resistance	2,6
Oil Proof Test	5

Note: a). Test group defined per customer requirement.
 b). Numbers indicate sequence in which tests are performed.

1.6 Environmental Conditions

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

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

2. TEST PROCEDUES

2.1 Dielectric Withstanding Voltage

Hold at 1.1 kilovolts AC for 1 minute. Test between contacts in adjacent circuits on mated connector.
 Requirement: 1 minute hold without a creep discharge or flashover.
 Current Leakage: 5 mA (maximum)
 Test Method: ECIA EIA-364-20F-2019

2.2 Examination of Product

Visual Examination. There shall be no corrosive influence on the performance and no physical damage that would impair product performance.
 Test Method: ECIA EIA-364-18B-2017

2.3 Insulation Resistance

The insulation resistance shall be measured with a test voltage of 500 V dc for 2 minutes.
 Requirement: 1000 MΩ (minimum)
 Test Method: ECIA EIA-364-21E-2014

2.4 Low Level Contact Resistance

Measure and record the contact resistance with a test current of 100 milliamperes maximum and 20 millivolts open circuit (source) voltage maximum.
 Requirement: Initial: 10 mΩ (milliohm) (maximum)
 Final: 20 mΩ (milliohm) (maximum)
 Test Method: ECIA EIA-364-23C-2006

2.5 Oil Proof Test

Test at room temperature, immerse the connector 5 cm below the oil level for 3 hours. The oil is cooking oil which meets GB 2716-2018 requirement. Wiped oil of connector outer surface after test.
 Requirement: Visual or magnifying inspection the connector cavity after test, there should be no oil ingress.
 Test Method: Customer specified requirement.

3. SUMMARY OF TEST

Group	SN	Description	Test Item	Qty (pcs)	Test Result				Requirement	Conclusion
					Max	Min	Avg	Unit		
1	1	/	Examination of Product	22	No physical damage			/	No physical damage	Meet Spec
	2	TE_2P	Low Level Contact Resistance	5	5.31	4.57	4.90	mΩ	10 mΩ Max.	Meet Spec
	2	TE_4P	Low Level Contact Resistance	5	5.84	4.49	4.89	mΩ	10 mΩ Max.	Meet Spec
	2	Competitor_2P	Low Level Contact Resistance	1	8.19	7.54	7.87	mΩ	10 mΩ Max.	Meet Spec
	2	Competitor_4P	Low Level Contact Resistance	1	41.56	30.40	36.22	mΩ	10 mΩMax.	Not meet Spec
	3	TE_2P	Insulation Resistance	5	2.61	1.04	1.61	E12Ω	1000 MΩ Min.	Meet Spec
	3	TE_4P	Insulation Resistance	5	2.01	0.14	0.77	E12Ω	1000 MΩ Min.	Meet Spec
	3	Competitor_2P	Insulation Resistance	1	0.59	0.59	0.59	E12Ω	1000 MΩ Min.	Meet Spec
	3	Competitor_4P	Insulation Resistance	1	0.56	0.44	0.49	E12Ω	1000 MΩ Min.	Meet Spec
	4	TE_2P	Dielectric Withstanding Voltage	5	No breakdown or flashover.			/	No breakdown or flashover.	Meet Spec
	4	TE_6P	Dielectric Withstanding Voltage	5	No breakdown or flashover.			/	No breakdown or flashover.	Meet Spec
	4	Competitor_2P	Dielectric Withstanding Voltage	1	No breakdown or flashover.			/	No breakdown or flashover.	Meet Spec
	4	Competitor_6P	Dielectric Withstanding Voltage	1	No breakdown or flashover.			/	No breakdown or flashover.	Meet Spec
	5	TE_2P	Oil Proof Test	5	No oil ingress			/	No oil ingress	Meet Spec
	5	TE_4P	Oil Proof Test	5	No oil ingress			/	No oil ingress	Meet Spec
	5	Competitor_2P	Oil Proof Test	1	Oil ingress			/	No oil ingress	Not meet spec
	5	Competitor_4P	Oil Proof Test	1	Oil ingress			/	No oil ingress	Not meet spec
	6	TE_2P	Low Level Contact Resistance	5	6.93	4.73	5.18	mΩ	20 mΩMax.	Meet Spec
	6	TE_4P	Low Level Contact Resistance	5	5.42	4.68	5.04	mΩ	20 mΩMax.	Meet Spec
	6	Competitor_2P	Low Level Contact Resistance	1	7.59	7.19	7.39	mΩ	20 mΩMax.	Meet Spec
6	Competitor_4P	Low Level Contact Resistance	1	40.91	23.91	33.60	mΩ	20 mΩMax.	Not meet Spec	
7	TE_2P	Insulation Resistance	5	5.94	2.44	3.73	E11Ω	1000 MΩ Min.	Meet Spec	
7	TE_4P	Insulation Resistance	5	7.19	0.53	3.65	E11Ω	1000 MΩ Min.	Meet Spec	

Group	SN	Description	Test Item	Qty (pcs)	Test Result				Requirement	Conclusion
					Max	Min	Avg	Unit		
	7	Competitor_2P	Insulation Resistance	1	1.64	1.64	1.64	E11Ω	1000 MΩ Min.	Meet Spec
	7	Competitor_4P	Insulation Resistance	1	1.12	0.77	0.92	E11Ω	1000 MΩ Min.	Meet Spec
	8	TE_2P	Dielectric Withstanding Voltage	5	No breakdown or flashover.			/	No breakdown or flashover.	Meet Spec
	8	TE_6P	Dielectric Withstanding Voltage	5	No breakdown or flashover.			/	No breakdown or flashover.	Meet Spec
	8	Competitor_2P	Dielectric Withstanding Voltage	1	No breakdown or flashover.			/	No breakdown or flashover.	Meet Spec
	8	Competitor_6P	Dielectric Withstanding Voltage	1	No breakdown or flashover.			/	No breakdown or flashover.	Meet Spec
	9	/	Examination of Product	22	No physical damage			/	No physical damage	Meet Spec

4. VALIDATION

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2021-04-19

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2021-05-08

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