

Test Report

Qualification Test for 187 SERIES POSITIVE LOCK MK-II 2P REC HSG PN2-176498-6

TE Connectivity (Shanghai) Co., Ltd.



1. INTRODUCTION

1.1 Purpose

Testing was performed on new raw material 187 SERIES POSITIVE LOCK MK-II 2P REC HSG to determine its conformance to the requirements of Product Specification 108-5126

1.2 Scope

This specification covers the electrical and mechanical performance test of new raw material product for 187 SERIES POSITIVE LOCK MK-II 2P REC HSG: 2-176498-6

1.3 Product Description

The product tested with the below receptacle housings and terminals

PART NO.	Description	Notes
2-176498-6	187 SERIES POSITIVE LOCK MK-II 2P REC HSG	Superseded 1-176498-6
170326-1	PL 187 REC 18-14 AWG 0.3 X 14.0 PTPBR	For 14-18 AWG WIRE

1.4 Environmental Conditions

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

Voltage Rating: 250VAC
 Temperature Rating: -40°C to 105°C UL 94V-0
 -40°C to 120°C UL 94V-2

1.5 Qualification Test Sequence

TEST OR EXAMINATION	TEST GROUP AND SEQUENCE							
	A	B	C	D	E	F	G	H
VISUAL EXAMINATION					1	1		
Termination Resistance(Low Level)						2,4,6,8,10		
Dielectric Withstanding Voltage					5,8			1
Insulation Resistance					4,7			
Temperature Rising				1				
Vibration(Low Frequency)						3		
Contact Locking Strength			1					
Contact Retention Force		1						
Connector Unmating Force					2			
Connector Mating Force					3			

Crimp Tensile Strength	1							
Thermal Shock						7	1	
Humidity(Steady State)					6	5		
Salt Spray						9		

*** Notes:**

Numbers indicate the sequence in which the tests are performed.
 Due to the limit of lab resource, Group A/C/D/E/F are not tested this time.

2. TEST CONTENT

TEST DESCRIPTION		PROCEDURE			REQUIREMENT
2.1	Examination of the product	Meets requirements of product drawing and AMP Specification 114-5041			Visually, dimensionally and functionally inspected per applicable quality inspection plan.
2.2	Termination Resistance (Low Level)	3m Ω Max.(Initial) 6m Ω Max.(Final)			Subject mated contacts assembled in housing to 20mV Max open circuit at 10mA. AMP Spec. 109-5311-1
2.3	Insulation Resistance	1000M Ω Min.(Initial) 100M Ω Min.(Final)			Impressed voltage 500VDC. Test between adjacent circuits of unmated connectors. AMP Spec. 109-5302
2.4	Dielectric withstanding Voltage	No creeping discharge nor flashover shall occur. Current Leakage: 1mA Max.			2kVAC for 1 minute. Test between connector/earth of unmated connectors. AMP Spec. 109-5301
2.5	Temperature Rising	30°C Max. under loaded specified current or rating current			Measure temperature rising by energized current. AMP Spec.109-5310-1
2.6	Crimp Tensile Strength	Wire Size		Crimp Tensile(min.)	Apply an axial pull-off load to crimped wire of contact secured on the tester, Operation Speed : 100mm/min. AMP Spec. 109-5205 Condition B
		mm2	(AWG)	N(kgf)	
		0.2	24	19.6(2)	
		0.3	22	49.0(5)	
		0.5	20	78.4(8)	
		0.75	18	117.6(12)	
		1.25	16	205.8(21)	
2.0	14	245.0(25)			
2.7	Contact Retention	49.0N(5kgf)Min.			Apply an axial pull-off load to

	Force		Crimped wire. Operation Speed : 100mm/min. AMP Spec. 109-5212
2.8	Connector Mating Force	1Pos.:29.4N(3.0kgf) Max. 2Pos: 44.1N(4.5kgf) Max. 3Pos: 73.5N(7.5kgf) Max. 4Pos: 107.8N(11.0kgf) Max. 170324-2,170325-2: 1Pos.:35.3N(3.6kgf) Max. 1318306-1(For 0.8t TAB): 1Pos.:39.2N(4.0kgf)Max.	Operation Speed: 100mm/min. Measure the force required to mate connectors. AMP Spec. 109-5206 Condition B Must be use Pre-Tin Brass 0.8t TAB for 1318306-1 only.
2.9	Connector Unmating Force	1Pos: 5.88~29.4N(0.6~3.0kgf) 2Pos: 9.8~44.1N(1.0~4.5kgf) 3Pos: 19.6~73.5N(2.0~7.5kgf) 4Pos: 29.4~107.8N(3.0~11.0kgf)	Operation Speed: 100mm/min. Measure the force required to Unmate connectors. AMP Spec. 109-5206 Condition B Must be use Pre-Tin Brass 0.8t TAB for 1318306-1 only.
2.10	Contact Locking Strength	Initial:58.8N(6kgf) Min. Final: 49.0N(5kgf) Min.	Measure contact locking strength. Operation Speed: 100mm/min. Must be use Pre-Tin Brass 0.8t TAB for 1318306-1 only.
2.11	Vibration (Low Frequency)	No electrical discontinuity greater than 1 μ sec. Shall occur. 6m Ω Max.(Final)	Subject mated connectors to 10-55-10 Hz traversed in 1 minute at 1.52mm amplitude 2 hours each of 3 mutually perpendicular planes. 100mA applied AMP Spec 109-5201 Mounting
2.12	Humidity, Steady State	Insulation Resistance 100M Ω Min. (Final) Termination Resistance 6m Ω Max. (Final)	Mated connector, 90 - 95% R.H. 40°C 96hours AMP Spec.109-5105-1 Condition A
2.13	Thermal Shock	6m Ω Max.(Final)	Subject terminals inserted into housing to 5 cycles between -40°C/30 min. and 105°C/30 min; AMP Spec. 109-5103
2.14	Salt Spray	6m Ω Max.(Final) 49.0N(5kgf) Min.: Contact Locking	Subject mated connectors to 5% salt concentration for 96hours; After the test, rinse the sample in water, sit it for one(1) hour for drying at room temperature.

		Strength	AMP Spec. 109-5101 Condition B
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*** Notes**

- A) Product must be without rust, corrosion transformation, crack and discoloration.
- B) Shall meet visual requirements, show no physical damage, and meet requirements of additional tests as specified in the Product Qualification and Requalification.

3. TEST RESULT

3-1. Test Group B (TEST RECORD TP-18-01158)

3-1-1. Examination of product

Meets requirements of product drawing. No physical damage.

3-1-2. Retention Force Test Data

UNIT: N

Number of Sample	5(WITH CABLE)	5(WITH CRIMP)
Max.	131.78	114.97
Min.	104.38	103.94
Ave.	114.34	110.51
Specification	49N min.	49N min.
Judgment	Pass	Pass

3-2. Test Group G (TEST RECORD TP-18-00730)

3-2-1. Examination of product

Meets requirements of product drawing. No physical damage.

3-2-2. Test Results, No damage or defects detrimental to product performance
 Description of specimens pre-test and the Visual check picture before testing





3-3. Test Group H (TEST RECORD TP-18-00731)

3-3-1. Examination of product

Meets requirements of product drawing. No physical damage.

3-3-2. Dielectric Strength Test Data

Samples No.	1#	2#	3#	4#	5#
1	NB	NB	NB	NB	NB
2	NB	NB	NB	NB	NB
Judgment	Pass	Pass	Pass	Pass	Pass

*** Notes**

NB- No breakdown	B-Breakdown	A-Arcing	D-Other damage
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4. Conclusion

Testing was performed on the electrical and mechanical performance tests of new raw material product for 187 SERIES POSITIVE LOCK MK-II 2P REC HSG: 2-176498-6

5. VALIDATION

Requested by:

Simon Tong

18 05 15

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Product Engineer
Shanghai Engineering Center (CS)

Prepared by:

Coco Xu

18 05 16

_____ / ____ / _____

Test Engineer
Shanghai Engineering Center (CS)

Approved by:

Tim Ding

18 05 18

_____ / ____ / _____

Manager
Shanghai Engineering Center (CS)