




# Qualification Test Report

187 P-LOCK REC MK-II FOR 0.8T TAB, HEAT RESISTANT

March 10, 2016.



Tested & Reported By	Reviewed By	Approved By	Test Date	From November 22, 2015 To January 29, 2016
			Classification	Unrestricted

## ● **TE CONNECTIVITY QUALIFICATION TEST REPORT**

Test Name : Qualification for 187 P-LOCK REC MK-II FOR 0.8T TAB, HEAT

### 1. Introduction

#### 1-1 Purpose

Testing was performed on the 187 P-LOCK REC MK-II FOR 0.8T TAB, HEAT RESISTANT to determine if it conformance to the requirements of Product Specification 108-61158, Rev.A

#### 1-2 Scope

This report covers the electrical, mechanical, environmental performance requirements of the 187 P-LOCK REC MK-II FOR 0.8T TAB, HEAT RESISTANT  
The testing was performed between November 22, 2015 and January 29, 2016.

#### 1-3 Test Samples

The test samples were randomly selected from normal current production lots.

P/N	Description
2297529-1	187 P-LOCK REC MK-II FOR 0.8T TAB, HEAT RESISTANT
62298-2	TAB, FASTON, 4.75 [.187] SERIES

#### 1-4 Conclusion

The 187 P-LOCK REC MK-II FOR 0.8T TAB, HEAT RESISTANT meets the electrical, mechanical and environmental performance requirements of Product Specification 108-61158, Rev.A

#### 1-5 Attachment

- 1) Test Sequence
- 2) Requirements and Test Procedure
- 3) Test Result
- 4) Photograph of Test
- 5) Test Request

# 1) Test Sequence

Test Items		Test Group				
		1	2	3	4	5
		Test Sequence (a)				
1	Examination of Product	1	1,	1	1	1
2	Termination Resistance (Low Level Contact Resistance)					2,4,6,8,10,12
3	Temperature Rising	2				
4	Crimp Tensile Strength		2			
5	Contact Locking Strength			2		
6	Contact Mating Force				2	
6	Contact Unmating Force				3	
7	Low Frequency Vibration					3
8	Humidity-Temperature Cycling					5
9	Thermal shock					7
10	Salt spray					9
11	Heat Aging					11

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

## 2) Requirements and Test Procedure

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No.	Test Items	Requirements		Procedures
3.5.1	Examination of Product	Meets requirements of product drawing and TE/ specification (114-61066).		Visual inspection. EIA-364-18
		<b>Electrical Requirements</b>		
3.5.2	Termination Resistance (Low Level Contact Resistance)	20 mΩ Max.(Initial) 50 mΩ Max.(Final)		Subject mated contact assembled in housing to 20mV Max. open circuit at 100mA. Take the resistance of the wire only away from measurement. Fig.3 TE Spec. 109-5311-1 EIA-364-23
3.5.3	Temperature Rising	30°C Max. under loaded specified current		Engage with the tab contact having an applicable wire crimped, secure a thermocouple to the crimp area and apply a rated current to measure temperature rising when an equilibrium is reached. Temperature rising shall be found by subtracting room temperature from the measured reading. TE Spec. 109-5310 EIA-364-70, Method 1.
		<b>Mechanical Requirements</b>		
3.5.4	Crimp Tensile Strength	Wire Size (AWG)	Crimp Tensile (Min) kgf	Apply an axial pull-off load to crimped wire of contact secured on the tester. Subject take insulation barrel away. Operation Speed : 100mm/min. One of wire shall be measured from double crimped wires of contact. TE Spec. 109-5205 EIA-364-5
		#22	5.0	
		#20	7.0	
		2 x #22	5.0	
3.5.5	Contact Locking Strength	6.0 kgf Min		Measure contact locking strength. Operation Speed : 100mm/min
3.5.6	Contact Mating Force	4.5 kgf Max		Measure the contact mating force. Contact must be unlocked when measuring the unmating force. Operation Speed : 100mm/min TE Spec. 109-5206 EIA-364-13
3.5.6	Contact Unmating Force	Initial : 0.8kgf~4.0kgf 6th : 0.6kgf~ 3.5kgf		

3.5.7	Low Frequency Vibration	No electrical discontinuity greater than 1 $\mu$ sec. Shall occur. 50m $\Omega$ Max.(Final)	Series connect a contact, apply a test current of 0.1A DC, and test under the following conditions prescribed. Frequency : 10-55-10 Hz/min Amplitude (both sides) : 1.5mm Test time : 2 hours each in directions X and Y The sample must meet the requirement of the termination resistance – low level after the test. TE Spec. 109-5201 EIA-364-28 Condition 1 See Fig. 4
<b>Environmental Requirements</b>			
3.5.8	Humidity-Temperature Cycling	50m $\Omega$ Max.(Final)	Mated contact Temperature : 40 $^{\circ}$ C Humidity : 90~95% R.H. Duration : 96 hours The sample must meet the requirement of the termination resistance – low level after the test. TE Spec. 109-5106 EIA-364-31
3.5.9	Thermal shock	50m $\Omega$ Max.(Final)	Mated contact 72 cycles between -40 $^{\circ}$ C/30 min. and 150 $^{\circ}$ C/30 min; EIA-364-32
3.5.10	Salt spray	50m $\Omega$ Max.(Final)	Mated contact Salt concentration: 5% Temperature: 35 $^{\circ}$ C Time: 96 hours After the test, rinse the sample in water, sit it for 1 hour for drying room temperature. EIA-364-26
3.5.11	Heat Aging	50m $\Omega$ Max.(Final)	Mated contact Temperature : 200 $^{\circ}$ C Time : 96 hours The sample must meet the requirement of the termination resistance – low level after the EIA-364-17

3) Test Result  
- Test Group 1

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NO	Test Items	Test Condition	Acceptance criteria	Unit	Test Result									Judgment
					Wire (AWG)	S1	S2	S3	S4	S5	Min.	Max.	Avg.	
1	Examination of Product	Initial	Meets requirements of product drawing and TE specification(114-61066)	-	-	OK	OK	OK	OK	OK	-	-	-	OK
2	Temperature Rising	Initial	$\Delta$ 30 °C Max. AWG 20 : 3A AWG 22 : 2A AWG 22x2 : 2+2A	°C	#20	7.20	7.03	8.05	6.97	7.90	6.97	8.05	7.43	OK
					#22	4.12	4.98	4.20	4.30	4.75	4.12	4.98	4.47	OK
					#22x2	9.84	9.46	9.09	8.95	9.18	8.95	9.84	9.30	OK

- Test Group 2

NO	Test Items	Test Condition	Acceptance criteria	Unit	Test Result									Judgment
					Wire (AWG)	S1	S2	S3	S4	S5	Min.	Max.	Avg.	
1	Examination of Product	Initial	Meets requirements of product drawing and TE specification(114-61066)	-	-	OK	OK	OK	OK	OK	-	-	-	OK
2	Crimp Tensile Strength	Initial	7.0kgf Min.	kgf	#20	11.83	11.40	12.17	12.36	11.58	11.40	12.36	11.87	OK
			5.0kgf Min.		#22	8.52	8.89	7.86	8.03	7.95	7.86	8.89	8.25	OK
			5.0kgf Min.		#22x2	7.74	7.98	7.18	7.27	7.34	7.18	7.98	7.50	OK

- Test Group 3

NO	Test Items	Test Condition	Acceptance criteria	Unit	Test Result									Judgment
					Wire (AWG)	S1	S2	S3	S4	S5	Min.	Max.	Avg.	
1	Examination of Product	Initial	Meets requirements of product drawing and TE specification(114-61066)	-	-	OK	OK	OK	OK	OK	-	-	-	OK
2	Contact Locking Strength	Initial	6.0kgf Min.	kgf	-	9.90	8.41	9.33	7.85	7.29	7.29	9.90	8.56	OK

- Test Group 4

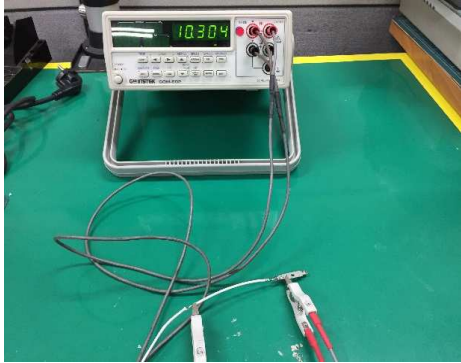

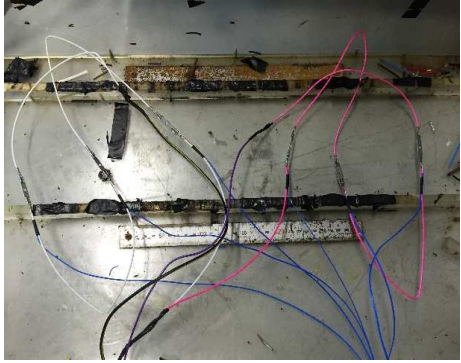



NO	Test Items	Test Condition	Acceptance criteria	Unit	Test Result									Judgment
					Wire (AWG)	S1	S2	S3	S4	S5	Min.	Max.	Avg.	
1	Examination of Product	Initial	Meets requirements of product drawing and TE specification(114-61066)	-	-	OK	OK	OK	OK	OK	-	-	-	OK
2	Contact Mating Force	Initial	4.5kgf Max.	kgf	-	2.78	2.83	2.91	2.94	2.62	2.62	2.94	2.82	OK
3	Contact Unmating Force	Initial	0.8 ~ 4.0kgf		-	1.30	1.33	1.35	1.39	1.36	1.30	1.39	1.35	OK
		6th	0.6 ~ 3.5 kgf		-	1.15	1.21	1.19	1.24	1.18	1.15	1.24	1.19	OK

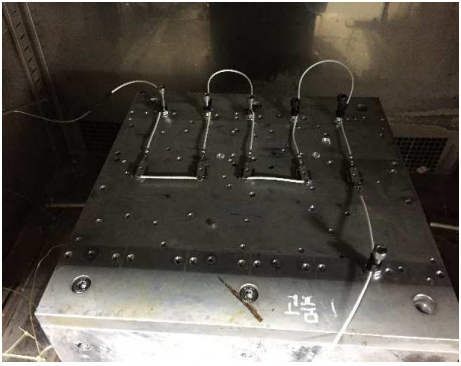




- Test Group 5

NO	Test Items	Test Condition	Acceptance criteria	Unit	Test Result									Judgment
					Wire (AWG)	S1	S2	S3	S4	S5	Min.	Max.	Avg.	
1	Examination of Product	Initial	Meets requirements of product drawing and TE specification(114-61066)	-	-	OK	OK	OK	OK	OK	-	-	-	OK
2	Termination Resistance(Low Level)	Initial	20mΩ Max.	mΩ	-	7.28	7.09	7.15	7.18	7.20	7.09	7.28	7.18	OK
		After Vibration	50mΩ Max.			7.60	7.42	7.49	7.54	7.53	7.42	7.60	7.52	OK
		After Humidity				7.68	7.48	7.52	7.59	7.58	7.48	7.68	7.57	OK
		After Thermal Shock				8.84	8.58	8.62	8.71	8.67	8.58	8.84	8.68	OK
		After Salt Spray				8.90	8.62	8.68	8.75	8.69	8.62	8.90	8.73	OK
		After Heat Aging				9.02	8.75	8.81	8.97	8.84	8.75	9.02	8.88	OK
3	Vibration(Low Frequency)	Initial	No electrical discontinuity greater than 1μ sec. shall occur.	-	-	OK	OK	OK	OK	OK	-	-	-	OK



4) Photograph of Test

NO.	Test Items	Photograph	Remark	NO.	Test Items	Photograph	Remark
1	Termination Resistance (Low Level)		-	4	Contact Mating Force		-
2	Temperature Rising		-	5	Contact Unmating Force		-
3	Crimp Tensile Strength		-	6	Contact Locking Strength		-

NO.	Test Items	Photograph	Remark	NO.	Test Items	Photograph	Remark
7	Vibration (Low Frequency)		-	10	Salt Spray		-
8	Humidity Temperature Cycling		-	11	Heat Aging		-
9	Thermal Shock		-	12	-	-	-