



187 Positive Lock Receptacle MK-II for 0.8T Tab (Heat Resistant)

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Product Specification

108-61158

14APR2016 Rev. A1

1. Scope

1.1 Content

This specification covers the requirements for product performance, test methods and quality assurance provisions of 187 Positive Lock Receptacle MK-II for 0.8T Tab (Heat Resistant).
Applicable product descriptions and part Numbers are as shown below.

Part number	Product Description	Remarks
2297529-1	Receptacle Contact	Applicable Wire Size: 0.34~0.53 mm ² (AWG #22~#20) Applicable Insulation DIA: Ø 1.56~2.15 mm

1.2. Qualification

When tests are performed on the subject product line, procedures specified in 3.5 shall be used.
All inspections shall be performed using the applicable inspection plan and product drawing.

2. Applicable Documents

The following documents form a part of this specification to the extent specified herein. Unless otherwise specified, the latest edition of the document applies. In the event of conflict between the requirements of this specification and the product drawing, the product drawing shall take precedence. In the event of conflict between the requirements of this specification and the referenced documents, this specification shall take precedence.

2.1. TE Specifications

- A. EIA 364 Test Specification
- B. 114-61066 Application Specification
- C. 501-61128 Qualification Test Report

3. Requirements

3.1 Design and Construction

Product shall be of the design, construction and physical dimension specified on the applicable product drawing.

3.2 Materials

Materials used in the construction of this product shall be as specified on the applicable product drawing.

- A. Receptacle Contact: Stainless Steel (Austenitic)

3.3 Ratings

- A. Voltage Rating: 300 VAC
- B. Current Rating: Applicable current carrying capability.
Mating TAB : Nickel Plated Steel

Wire Size (AWG)	Current A(DC)
#22	2
#20	3
2X #22	2+2

- C. Temperature Rating: -40°C ~ +200°C (Ambient temperature + Temperature rising due to application of current, 200°C rating of wire shall be used.)



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3.4. Performance Requirements & Test Description:

The product should be designed to meet the electrical, mechanical and environmental performance requirements specified in 3.5. All tests shall be performed in the room temperature unless otherwise specified.

3.5 Test requirements and Procedure Summary:

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
		Electrical Requirements		
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.
		Mechanical Requirements		
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		

[Fig. 1 (CONT.)]



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3.5.7	Low Frequency Vibration	No electrical discontinuity greater than 1μsec. Shall occur. 50mΩMax.(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
Environmental Requirements			
3.5.8	Humidity-Temperature Cycling	50mΩMax.(Final)	Mated contact Temperature : 40°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	50mΩMax.(Final)	Mated contact 72 cycles between -40°C/30 min. and 150°C/30 min; EIA-364-32
3.5.10	Salt spray	50mΩMax.(Final)	Mated contact Salt concentration: 5% Temperature: 35°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	50mΩMax.(Final)	Mated contact Temperature : 200°C Time : 96 hours The sample must meet the requirement of the termination resistance – low level after the EIA-364-17

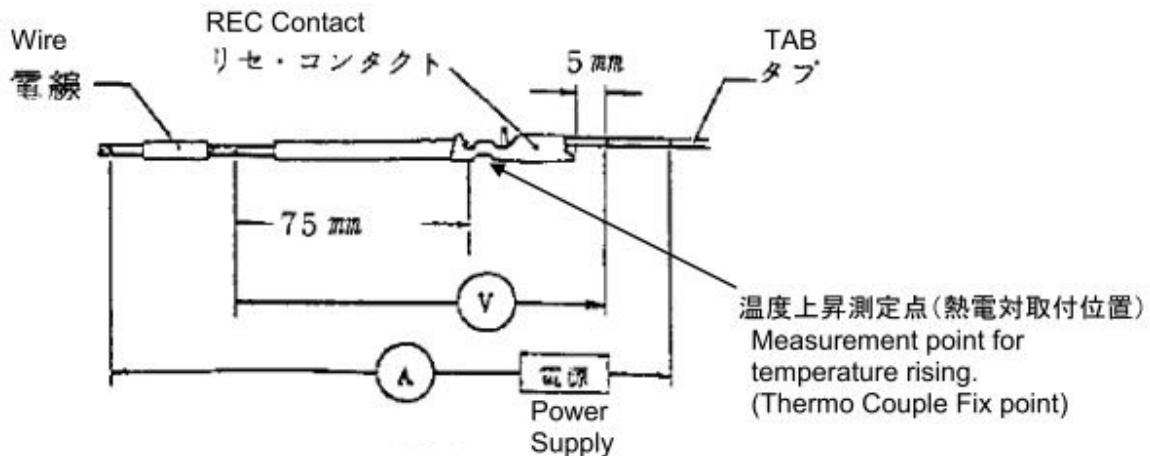
[Fig. 1 (END)]

3.6 PRODUCT QUALIFICATION TEST SEQUENCE

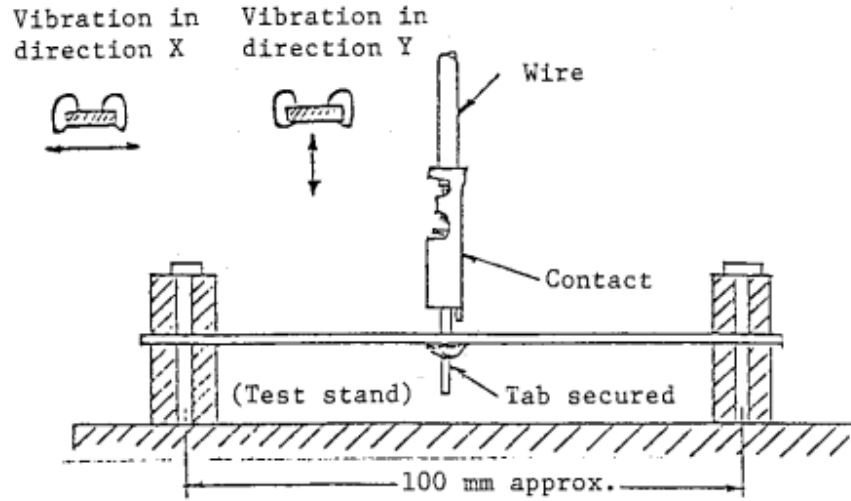
Test Items		Test Group				
		1	2	3	4	5
Test Sequence (a)						
1	Examination of Product	1	1,	1	1	1
2	Termination Resistance (Low Level Contact Resistance)					2,4,6,8,10,12
3	Temperature Rising	2				
4	Crimp Tensile Strength		2			
5	Contact Locking Strength			2		
6	Contact Mating Force				2	
6	Contact 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.

[Fig. 2]



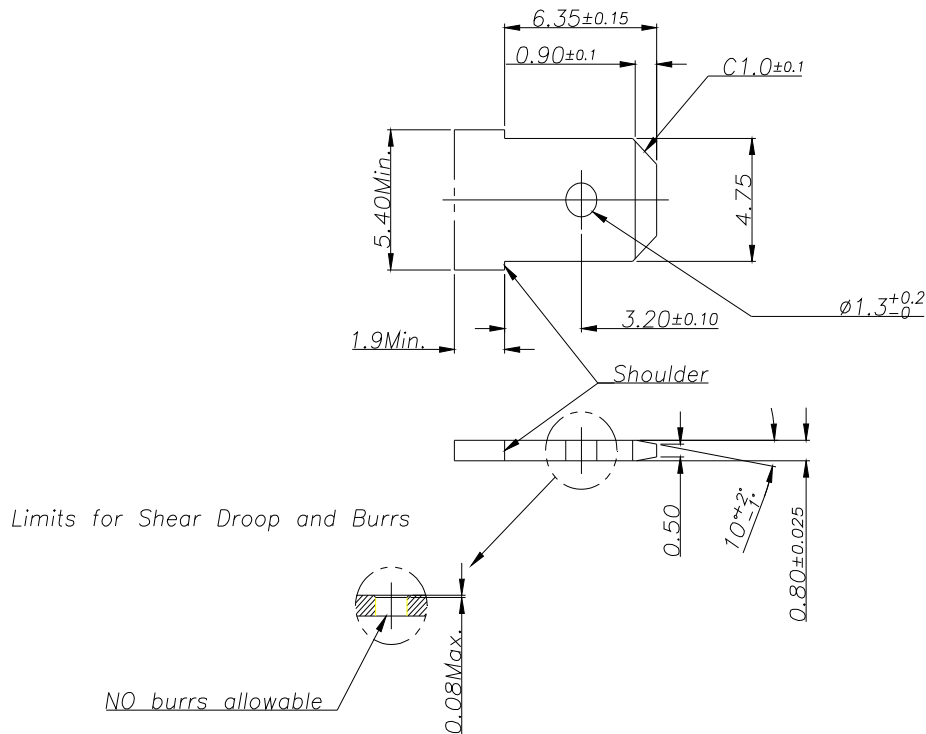
[Fig. 3 Termination Resistance]



[Fig. 4 Vibration (Low Frequency)]

4. Applicable Mating Tab Design

Applicable mating tab shall be fabricated in accordance with the construction and dimensions shown in Fig. 5. 0.8t TAB material shall be made of Nickel Plated Steel.



[Fig. 5 Tab Design]



5. Quality Assurance Provisions

5.1 Test Conditions

All the tests shall be performed in any combination of the following test conditions, unless otherwise specified.

Temperature	15~35°C
Relative Humidity	45~75%
Atmospheric Pressure	86.6~106.6 Kpa

5.2 Tests:

5.2.1 Test Specimens:

The test specimens to be employed for the tests shall be conforming to the requirements specified in the applicable product drawings. The crimped contacts shall be prepared in accordance with the requirements of applicable specification (114-61066). No samples shall be reused in the test, unless otherwise specified.

5.2.2 Applicable Wires

The wires to be used for crimping the samples for performance testing shall be conforming to the requirements specified in Fig. 6.

AWG	Calculated Cross Sectional area of Conductor (mm ²)	Number of Strand	Diameter of a Strand (Ø mm)	Insulation Outer Diameter (mm)	Applicable Wire Spec
22	0.33	13	0.18	1.95	UL 3122
	0.34	17	0.16	1.56	UL 3398
20	0.53	21	0.18	2.15	UL 3122
	0.52	26	0.16	1.86	UL 3398

[Fig. 6]

Note 1) Refer to the Application Specification 114-61066 for double wire crimping.

5.3 Requalification Testing

If changes significantly affecting form, fit or functions are made to the product or manufacturing process, product assurance shall coordinate requalification testing, consisting of all or part of the original testing sequence as determined by development/product, quality and reliability engineering.

5.4 Acceptance

Acceptance is based on verification that the product meets the requirements of Section 3.5. Failures attributed to equipment, test setup or operator deficiencies shall not disqualify the product. If product failure occurs, corrective action shall be taken and specimens resubmitted for qualification. Testing to confirm corrective action is required before resubmitted.

5.5 Quality Conformance Inspection

The applicable quality inspection plan shall specify the sampling acceptable quality level to be used. Dimensional and functional requirements shall be in accordance with the applicable product drawing and this specification.



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6. REVISION HISTORY

Rev.	Revision Record	DATE
A	Released	17MAR2016
A1	Contact mating force is clarified.	14APR2016

7. SPECIFICATION APPROVAL

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