



.250 Series Tab with ACTION PIN

1. SCOPE

1.1 Content

This Specification covers the performance, tests and quality requirements for the AMP* .250" Series tab with ACTION PIN*, for positive lock receptacle. This positive lock receptacle can either be used with or without an insulating housing.

Available in 2 versions, respectively 2 and 3 Action Pin legs. These 2 versions are available with Ni plated ACTION PIN* legs or with Sn over Ni.

1.2 Definitions

For the purpose of this specification, the following definitions shall apply.

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|----------------------|--|
| A. .250" Series Tab: | A printed circuit board mounted device intended as an interface between the printed circuit board and power leads. |
| B. ACTION PIN* legs: | The pins used on the power distribution tab for distributing current to the printed circuit board. |

1.3 Qualification

When tests are performed on the subject product line, the procedures specified in the appropriate specifications 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. In the event of conflict between 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 AMP Specifications

- | | |
|--------------|--|
| A. 109-1: | General Requirements for Test Specifications |
| B. 108-3017: | Product Spec. for Positive Lock Receptacles (Mk I) |

3. REQUIREMENTS

3.1 Design and Construction

Tabs shall be of the design, construction, and physical dimensions specified on the applicable product drawing.

3.2 Materials

Materials utilized in the manufacture of this product shall be in accordance with the applicable product drawing.

3.3 Ratings

- A. Current: 15 amperes, 3 positions; 10 amperes, 2 positions.
 B. Operating Temperature: -55 °C to 85 °C including current heating effects of the tab.

3.4 Performance and test Description

Tabs shall be designed to meet the electrical, mechanical and environmental performance requirements specified in Figure 1.

3.5 Test Requirements and Procedures Summary

Test Description	Requirement	Procedure
Examination of Product	Meets requirements of product drawing	Visual, dimensional and functional per applicable inspection plan
ELECTRICAL		
Temperature rise vs Current (a)	Temperature rise, 30 °C maximum	T-rise at rated current; AMP Spec. 109-45-1
Current Cycling	No evidence of physical damage	Subject tabs to 250 cycles at 125% of rated current for 15 minutes "ON" - 15 minutes "OFF", AMP Spec. 109-51, cond B, test method 2. Tabs connected with positive lock receptacles acc. 108-3017
MECHANICAL		
Insertion Force ACTION PINS	540 N, maximum for 3 position; 360 N, maximum for 2 position	Measure force necessary to mount power distribution tab onto test board illustrated in Figure 3 using proper insertion tooling
Extraction Force ACTION PINS	90 N, minimum for 3 position; 60 N, minimum for 2 position	Measure force necessary to remove power distribution tab from printed circuit board
Bending	No decreasing of extraction force after bending 8 degrees left or right	Apply force 40 N on the top of the 3 position tab. For 2 positions apply 26 N
ENVIRONMENTAL		
Thermal Shock (b)	No physical damage	Subjects tabs, with positive lock receptacles in place to 5 cycles between -55 °C and 85 °C; AMP Spec. 109-22

Figure 1 (cont)

- (a) Test specimens shall be subjected to rated current and temperature monitored via a thermocouple located on the surface of the tab, as illustrated in Figure 4. Specimens shall be energized via a positive lock receptacle crimped to an AWG //12 stranded copper conductor and locked on the .250" Serie tab.
- (b) Shall show no evidence of damage, cracking or chipping

3.6 Tab qualification and Retention of Qualification Tests and Sequences

Test or Examination	Test Group (a)
	1
	Test Sequence (b)
Examination of Product	1
Temperature Rise vs Current	4
Current Cycling	5
Insertion Force	2
Extraction Force	7
Thermal Shock	3
Bending	6

Figure 2

- (a) See Para 4.1.A. and Para 4.2.
(b) Numbers indicate sequence in which tests are performed.

4. QUALITY ASSURANCE PROVISIONS

4.1. Qualification testing and Retention of Qualification

A. Sample selection

.250" Series tabs shall be inserted in p.c. boards in accordance with Fig.3, with proper insertion tooling. They shall be selected at random from current production. Test Group 1 shall consist of 10 tabs, 3 position and 10 tabs, 2 position.

B. Test Sequence

Qualification inspection and Retention of Qualification inspection shall be verified by testing samples as specified in Figure 2.

C. Acceptance

- (1) Test results from development on pre-qualification samples will be used to determine upper and lower one-sided statistical tolerance limits for 99% reliability confidence, as follows. Let \bar{x} and s denote the sample average and standard deviation, respectively, of the test data. Let k denote the normal distribution one-sided tolerance factor for 95% confidence and 99% reliability. The value of k varies with sample size. Values of k are given in various tables, for example, NBS Handbook 91, Factors for One-Sided Tolerance Limits for Normal Distribution. Suitability of the normal distribution for representing the data shall be verified with normal probability plots, goodness of fit tests, etc.

Then the upper one-sided tolerance limit for 99% reliability at 95% confidence is given by $\bar{x} + ks$. The interpretation of this tolerance limit is as follows: based on the test data, and assuming a normal distribution for the test data, we can be 95% confident that 99% of the population of values represented by the sample data will not exceed $\bar{x} + ks$. For any test parameter for which there is specified an upper requirement which is not to be exceeded, satisfactory performance of the product is achieved when the value of $\bar{x} + ks$ does not exceed the requirement value.

The lower one-sided tolerance limit for 95% confidence and 99% reliability is given by $\bar{x} - ks$. This has a similar interpretation and corresponding application to lower requirement values.

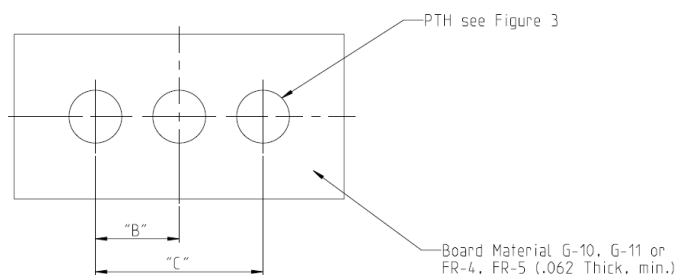
- (2) Failures attributed to equipment, test setup, or operator deficiencies shall not disqualify the product. When product failure occurs, corrective action shall be taken.

4.2 Retention of Qualification

Retention of Qualification testing shall be established by the cognizant divisional engineering function provided that it is conducted within the required time period. Test Group 1 shall consist of 5 tabs, 3 position, and 5 tabs, 2 position.

4.3 Quality conformance Inspection

The applicable AMP inspection plan will 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.



Tab cont.	"B"	"C"
2 A. P.	2.54	
3 A. P.		5.08

Type Hole	Rec'd Drill Size	Drilled Hole Dia.	Plating Thickness		Hole Diameter	
			Copper	Tin/Lead	After Plating	After Reflow
A	1.60 mm	± 0.025	0.025 0.075	0.004 min.	1.39 1.54	1.36 1.54

Figure 3
Printed Circuit Test Board

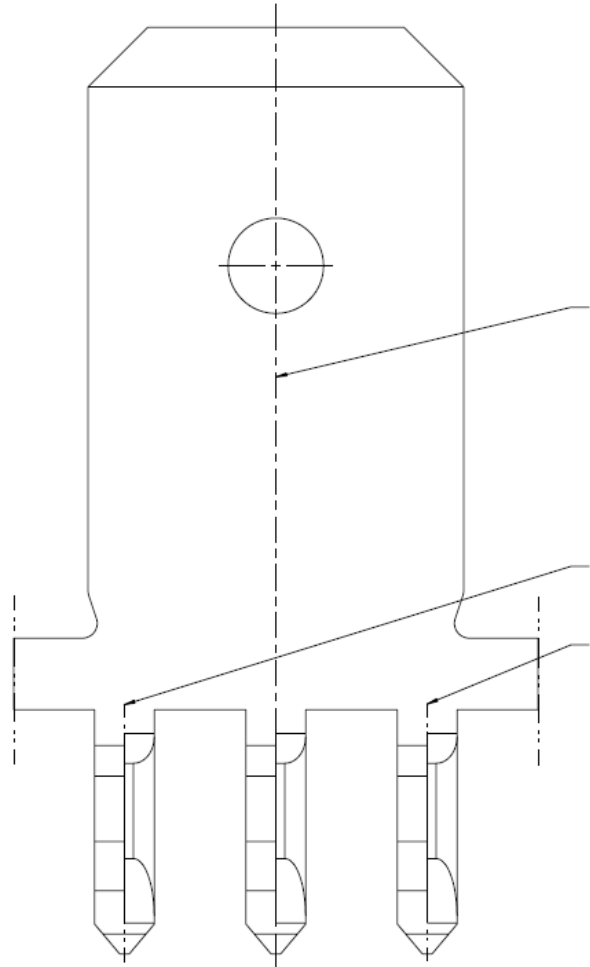


Figure 4
1 = Temperature measuring point.

LTR	REVISION RECORD	DWN	CHK	APP	DATE
P	- General format update - 1.1: Updated plating composition - 1.3: Update of specification definition - 2.1: 109 Series removed - 4.3: Correction of column "Tab cont." on Figure 3	T. FRANK	F. STAUFINGER	S. SPEGEL	04OCT2023