Power Tap, Right Angle

1. SCOPE

1.1. Content

This specification covers the performance, tests and quality requirements for AMP* single position pin and receptacle right angle power tap for board-to-board application with .100 X .300 inch ACTION PIN* foot print.

1.2. Qualification

When tests are performed on the subject product line, procedures specified in Figure 1 shall be used. All inspections shall be performed using the applicable inspection plan and product drawing.

1.3. Qualification Test Results

Successful qualification testing on the subject product line was completed on 21Oct97. The test file number for this testing is CTL 8072-004-004. This documentation is on file at and available from the Americas Regional Laboratory.

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. AMP Documents

A. 109-1: General Requirements for Test Specifications
B. 109 Series: Test Specifications as indicated in Figure 1. (Comply with MIL-STD-202, MIL-STD-1344 and EIA RS-364)
C. Corporate Bulletin 401-76: Cross-reference between AMP Test Specifications and Government or Commercial Documents
D. 114-11000: Application Specification
E. 501-398: Qualification Test Report

3. REQUIREMENTS

3.1. Design and Construction

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

* Trademark
| Indicates change

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3.2. Materials

A. ACTION PIN: Phosphor bronze, silver oxide over nickel plating
B. Body: Zinc die casting, silver over copper plating
C. Contact: AMP Louvertac multiple banded arch beams, beryllium copper, silver over nickel plating
D. Housing: Polyester, UL94V-0
E. Pin: Brass, silver over nickel plating

3.3. Ratings

A. Voltage: 600 vac
B. Current: See Figure 4 for applicable current carrying capability
C. Temperature: -55 to 105°C

3.4. Performance and Test Description

Product is designed to meet the electrical, mechanical and environmental performance requirements specified in Figure 1. Unless otherwise specified, all tests shall be performed at ambient environmental conditions per AMP Specification 109-1.

3.5. Test Requirements and Procedures Summary

Test Description	Requirement	Procedure
Examination of product.	Meets requirements of product drawing and AMP Spec 114-11000.	Visual, dimensional and functional per applicable quality inspection plan.
ELECTRICAL		
Termination resistance.	.3 milliohm maximum initial. .5 milliohm maximum final.	AMP 109-6-1. Subject mated contacts assembled in housing to 50 mv maximum open circuit at 100 ma maximum. See Figure 3.
Insulation resistance.	1000 megohms minimum.	AMP Spec 109-28-4. Test between contacts of 2 individual samples held side-by-side.
Dielectric withstanding voltage.	1800 vac at sea level. 1 minute hold with no breakdown or flashover.	AMP Spec 109-29-1. Test between contacts of 2 individual samples held side-by-side.
Temperature rise vs current.	30°C maximum temperature rise at specified current.	AMP Spec 109-45-1. Measure temperature rise vs current. See Figure 4.
MECHANICAL		
Solderability.	Solderable area shall have minimum of 95% solder coverage.	AMP Spec 109-11-2. Subject contacts to solderability.

Figure 1 (cont)

Test Description	Requirement	Procedure
Vibration, sinusoidal.	No discontinuities of 1 microsecond or longer duration. See Note.	AMP Spec 109-21-1. Subject mated samples to 10-55-10 Hz traversed in 1 minute. 2 hours in each of 3 mutually perpendicular planes. See Figure 5.
Physical shock.	No discontinuities of 1 microsecond or longer duration. See Note.	AMP Spec 109-26-1. Subject mated samples to 50 G's half-sine shock pulses of 11 milliseconds duration. 3 shocks in each direction applied along 3 mutually perpendicular planes, 18 total shocks. See Figure 5.
Durability.	See Note.	AMP Spec 109-27. Mate and unmate samples for 25 cycles at maximum rate of 500 cycles per hour.
Mating force.	10 pounds maximum.	AMP Spec 109-42, Condition A. Measure force necessary to mate samples at maximum rate of 1 inch per minute.
Unmating force.	1 pound minimum.	AMP Spec 109-42, Condition A. Measure force necessary to unmate samples at maximum rate of 1 inch per minute.
ENVIRONMENTAL		
Thermal shock.	See Note.	AMP Spec 109-22. Subject mated samples to 5 cycles between -55 and 105°C.
Humidity-temperature cycling.	See Note.	AMP Spec 109-23-3, Condition B. Subject mated samples to 10 cycles between 25 and 65°C at 95% RH.
Temperature life.	See Note.	AMP Spec 109-43. Subject mated samples to temperature life at 105°C for 1000 hours.
Mixed flowing gas.	See Note.	AMP Spec 109-85-2. Subject mated samples to environmental class II for 14 days.

NOTE *Shall meet visual requirements, show no physical damage and shall meet requirements of additional tests as specified in Test Sequence in Figure 2.*

Figure 1 (end)

3.6. Product Qualification and Requalification Test Sequence

Test or Examination	Test Group (a)			
	1	2	3	4
	Test Sequence (b)			
Examination of product	1,9	1,9	1,8	1,3
Termination resistance	3,7	2,7		
Insulation resistance			2,6	
Dielectric withstanding voltage			3,7	
Temperature rise vs current		3,8		
Solderability				2
Vibration	5	6(c)		
Physical shock	6			
Durability	4			
Mating force	2			
Unmating force	8			
Thermal shock			4	
Humidity-temperature cycling			5	
Temperature life		5		
Mixed flowing gas		4(d)		

NOTE

(a) See Para 4.1.A.
(b) Numbers indicate sequence in which tests are performed.
(c) Discontinuities shall not be measured. Energize at 18°C level for 100% loadings per AMP Specification 109-151.
(d) Precondition samples with 10 cycles durability.

Figure 2

4. QUALITY ASSURANCE PROVISIONS

4.1. Qualification Testing

A. Sample Selection

Samples shall be prepared in accordance with applicable Instruction Sheets and shall be selected at random from current production. All test groups shall each consist of a minimum of 5 samples.

B. Test Sequence

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

4.2. Requalification Testing

If changes significantly affecting form, fit or function 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.

4.3. Acceptance

Acceptance is based on verification that the product meets the requirements of Figure 1. Failures attributed to equipment, test setup or operator deficiencies shall not disqualify the product. When product failure occurs, corrective action shall be taken and samples resubmitted for qualification. Testing to confirm corrective action is required before resubmittal.

4.4. Quality Conformance Inspection

The Applicable AMP quality 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.

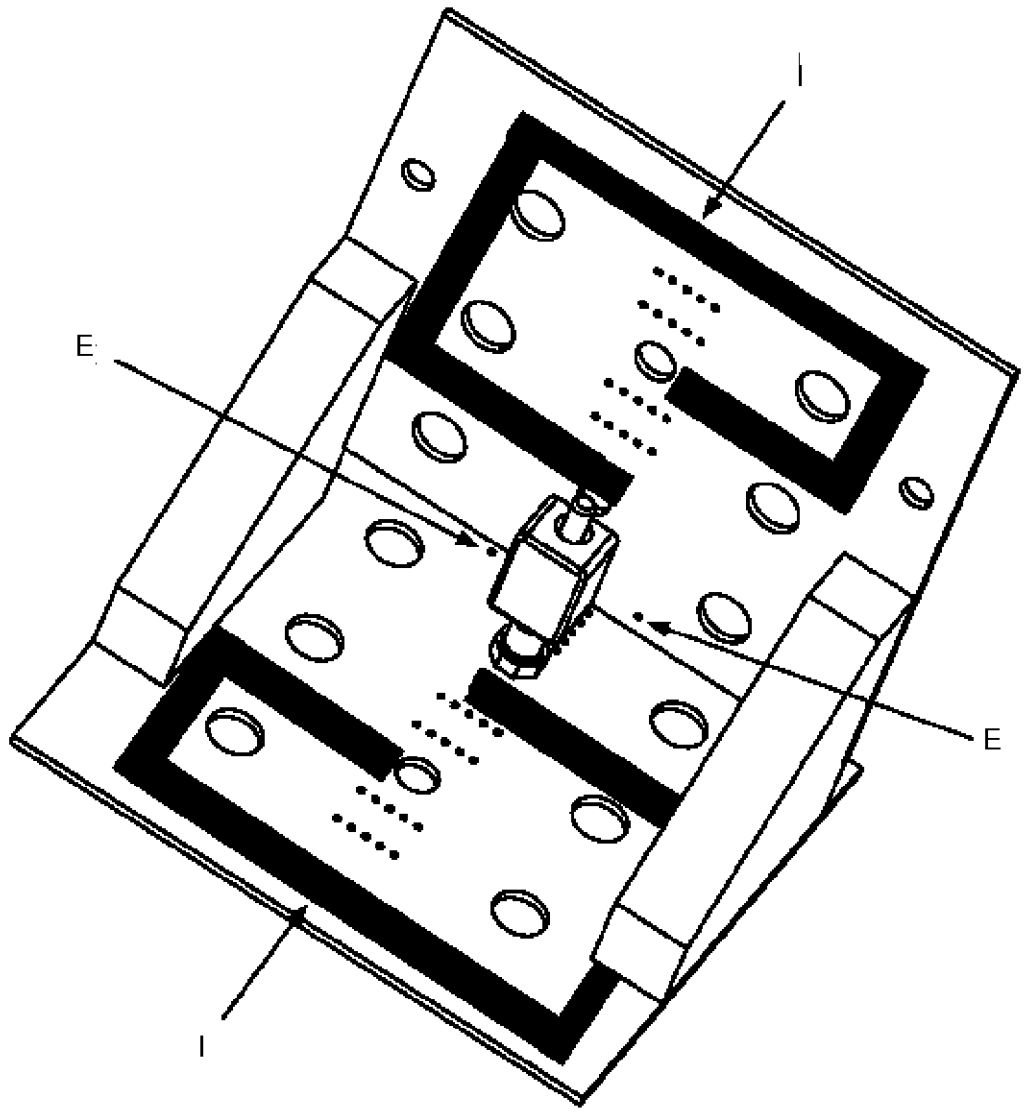


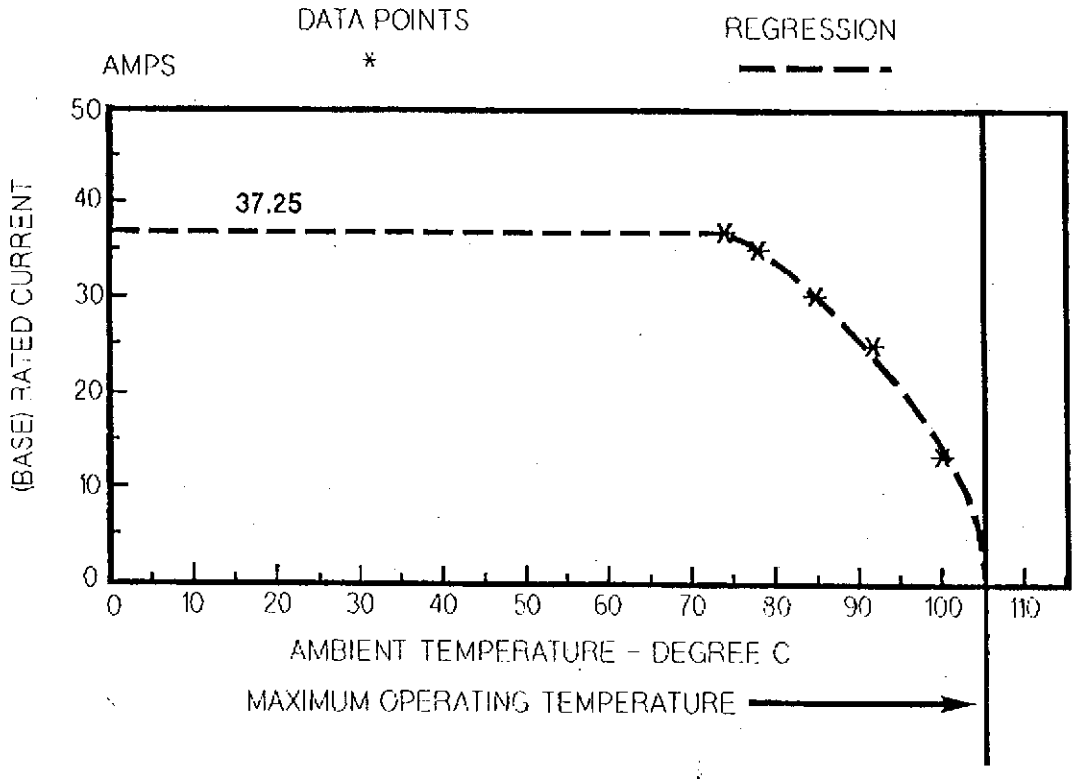
Figure 1
Termination Resistance Measurement Points

CURRENT vs T-RISE

RIGHT ANGLE POWER TAP

UTL

(95% Confidence, 99% Reliability)



NOTE

Results are representative of a .375 inch wide, 5 ounce copper trace. For current carrying capability of other copper weights, consult Design Specification IPC-D-275.

Figure 4

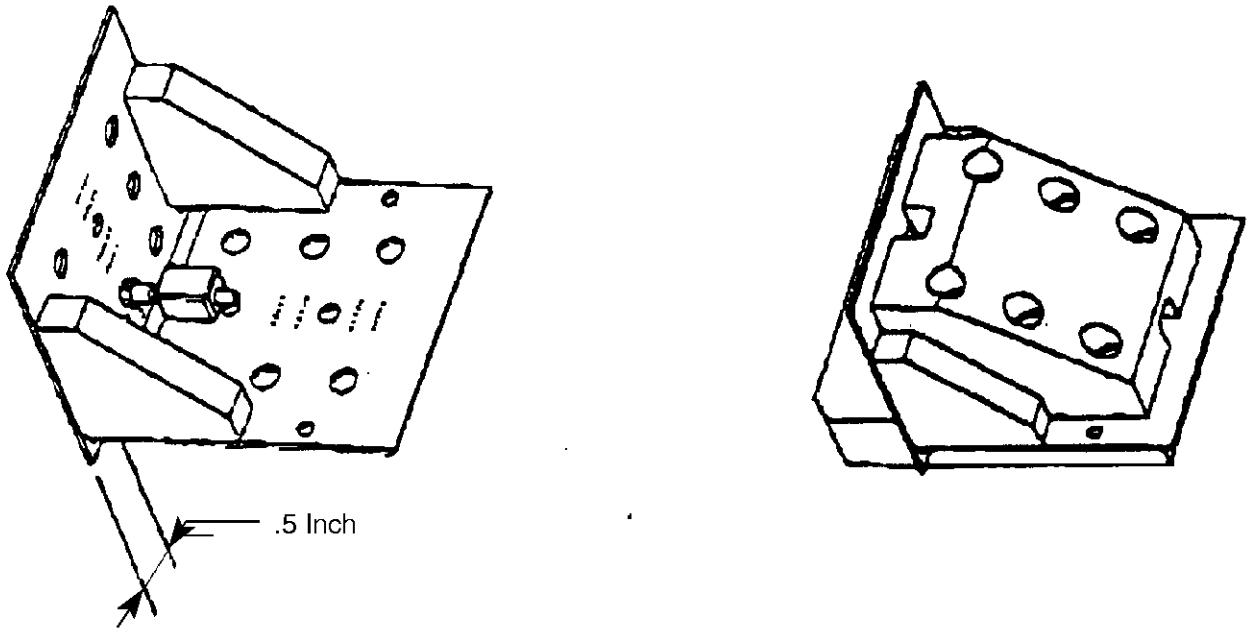


Figure 5
Vibration & Physical Shock Mounting Fixture