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**AMP Modular Jack, side entry, Single / Multi-port  
with Shielding**

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**1. SCOPE****1.1. CONTENTS**

This specification covers the requirements for product performance, test methods and quality assurance provisions of **AMP Modular Jack, side entry, Single / Multi-port with Shielding**.

**1.2 QUALIFICATION**

When tests are performed on the subject product line, the procedures specified in AMP 109 series specifications shall be used. All inspections shall be performed using the applicable inspection plan and product drawing.

**2. APPLICABLE DOCUMENTS AND SPECIFICATIONS**

The following documents form a part of this specification to the extent specified herein. 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.

- A. 109-1: General Requirements for Test Specifications
- B. 109 series: Test Specification as indicated in figure 2
- C. Corporate Bulletin 401-76: Cross-reference between AMP test Specifications and Military or Commercial Documents.
- D. Test Report: 501-57119, 501-57336.
- E. FCC rules for Registration of Telephone Equipment Part 68, Subpart F, Connectors,

**3. REQUIREMENTS****3.1. DESIGN AND CONSTRUCTION**

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

| DR           | DATE        | CHK    | DATE        |
|--------------|-------------|--------|-------------|
| Oblic Hu     | 14-May-2004 | Ted Ke | 14-May-2004 |
| FZ00-0086-04 |             |        |             |

**3.2. MATERIALS**

- A. Housing: High Temp. Thermoplastic, UL94V-0, Black
- B. Contact:
  - Material: Copper Alloy.
  - Plating: Gold Plating on Contact area, Solder tails Tin-lead Or Tin plating, Nickel under-plating all over.
- C. Shielding:
  - Material: Copper Alloy.
  - Plating: Nickel or Gold plating.

**3.3. RATING**

- A. Voltage: 150 VAC max.
- B. Operating Temperature: -40°C to +70°C.
- C. Current: 1A max.
- D. Relative Humidity: 70% ±10% RH.

**3.3.1 APPLICABLE PRINTED CIRCUIT BOARD**

- a. Board Thickness: 1.6mm
- b. Hole Diameter: 0.90mm – 1.10mm

**3.4. PERFORMANCE AND TEST DESCRIPTION**

The product is designed to meet the electrical, mechanical and environmental performance requirements specified in Table 1. All tests are performed at ambient environmental conditions per AMP Specification 109-1 unless otherwise specified.

### 3.5. TEST REQUIREMENTS AND PROCEDURES SUMMARY

TABLE 1

| TEST DESCRIPTION                   | REQUIREMENTS   | PROCEDURES  |
|------------------------------------|--|---|
| Examination of product             | Meets requirements of product drawing and AMP Specification.   | Visual inspection<br>No physical damage.  |
| <b>ELECTRICAL</b>                  |  |   |
| Contact Resistance                 | 20 m $\Omega$ Max. (Initial)<br>30 m $\Omega$ Max. (Final)   | EIA-364-23A   |
| Insulation Resistance              | 500 M $\Omega$ Min. (Initial)<br>200 M $\Omega$ Min. (Final)   | EIA-364-20A<br>100 VDC Adjacent circuits of mated connectors.   |
| Dielectric Withstanding Resistance | No creeping discharge or flashes Occur.  | EIA-364-09B<br>1000 VAC rms. , For 1 minute applied between Adjacent contacts.<br>1500 VAC rms. , For 1 minute applied between Shield and contacts.   |
| <b>MECHANICAL</b>                  |  |   |
| Durability                         | See Note (a)   | EIA-364-09B<br>Operation speed : 10~20 cycles /min.<br>Operation cycles : 750 cycles .  |
| Mating Force.                      | 2 contacts 1.6 Kgf max.<br>4 contacts 1.8 Kgf max.<br>6 contacts 2.1 Kgf max.<br>8 contacts 2.3 Kgf max.<br>10 contacts 2.5 Kgf max. | Mating connectors at maximum rate of 25mm Per minute.   |
| Contact Normal Force               | 100gf Min.   | The samples were measured by a compression / tensile force tester, in accordance with <b>MIL-STD-1344A, Method 2014</b> . The contact normal force was measured using gage ( $\phi 0.56$ mm diameter pin) which is shifted from h2 vertically to the h1 horizontal position, as detailed in Figure 3. |
| <b>ENVIRONMENTAL</b>               |  |   |
| Humidity Test                      | IR: 500 M $\Omega$ Min. (Initial)<br>IR: 200 M $\Omega$ Min. (Final)   | MIL-STD-1344A, Method 1002.2<br>At a temperature of 40°C $\pm$ 2°C and relative humidity of 90~ 95% for 96 hours.   |
| Salt Spray                         | CR: 30 m $\Omega$ Max. (Final)   | EIA-364-26A, Condition A.<br>5% for 24 hours.   |
| Temperature Life                   | CR: 30 m $\Omega$ Max. (Final)   | MIL-STD-1344A, Method 1005.1<br>Temperature 85°C for 250 hours.   |
| <b>PHYSICAL</b>                    |  |   |
| Solderability                      | The test area shall be covered more than 95% of immersed area with fresh solder.   | MIL-STD-202F, Method 208C.<br>Test temperature : 245 $\pm$ 5°C.<br>Dip tails into flux for 5 second, drain, and then dip into the solder pot and keep for 5 seconds.  |
| Resistance to Soldering heat       | See Note(a)  | MIL-STD-202F, Method 208C.<br>260 $\pm$ 10°C, 5 $\pm$ 1 sec.<br>The terminal of jack tested shall be heated to 2mm from a tip of the terminal by a soldering iron.  |

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

### 3.6. PRODUCT QUALIFICATION AND REQUALIFICATION TEST SEQUENCE

TABLE 2

| Test or Examination                | Test Group        |     |     |     |   |   |
|------------------------------------|-------------------|-----|-----|-----|---|---|
|                                    | A                 | B   | C   | D   | E | F |
|                                    | Test Sequence (a) |     |     |     |   |   |
| Examination of Product             | 1,8               | 1,7 | 4   | 4   | 3 |   |
| Contact Resistance                 | 3,5,7             |     | 1,3 | 1,3 |   |   |
| Insulation Resistance              |                   | 2,5 |     |     |   |   |
| Dielectric Withstanding Resistance |                   | 3,6 |     |     |   |   |
| Durability                         | 4                 |     |     |     |   |   |
| Mating Force                       | 2                 |     |     |     |   |   |
| Humidity Test                      | 6                 | 4   |     |     |   |   |
| Salt Spray                         |                   |     | 2   |     |   |   |
| Temperature Life                   |                   |     |     | 2   |   |   |
| Solderability                      |                   |     |     |     | 1 |   |
| Resistance to soldering heat       |                   |     |     |     | 2 |   |
| Contact Normal Force               |                   |     |     |     |   | 1 |

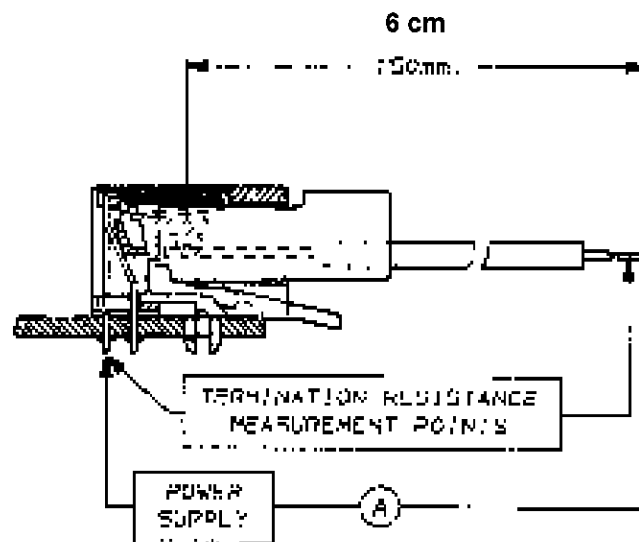
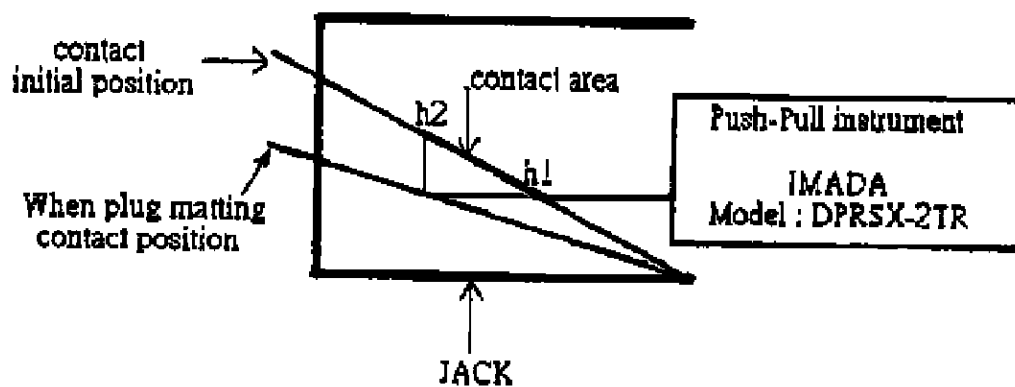


Figure 1



Contact area (from h1 to h2) is the trace of attrition , when plug matting

Figure 2

#### 4. QUALITY ASSURANCE PROVISIONS

##### 4.1 QUALIFICATION TESTING

**A. Test Samples**

The test samples consisted of 25pcs, which were divided into 6 Groups (A, B, C, D, and E, F) with 5pcs. In each group for each corresponding test group defined in Table 2.

**B. Test Condition**

Unless otherwise specified, all tests shall be performed under any combination of the following test conditions:

Temperature: 15 – 30°C

Relative Humidity: 45 – 75%

Atmospheric Pressure: 650 – 800 mmHg

**4.2 RE-QUALIFICATION TESTING**

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

**4.3 ACCEPTANCE**

Acceptance is based on verification that product meets requirements Spelled in Table 2. Data attributed to equipment; test setup or operator deficiencies shall not disqualify product. When product failure occurs, corrective action shall be taken and samples resubmitted for qualification. Testing to confirm corrective action is required before resubmit.

**4.4 QUALITY CONFORMANCE INSPECTION**

Applicable AMP quality inspection plan will specify sampling acceptable quality level to be used. Dimension and functional requirements shall be in accordance with applicable product drawing and this specification.