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**Connector, AMPMODU\*, MTE**

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**1. SCOPE**

## 1.1. Content

This specification covers performance, tests and quality requirements for AMPMODU\* MTE connector system.

## 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.

**2. APPLICABLE DOCUMENTS**

The following TE Connectivity (TE) 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.

- 108-25034-2: AMPMODU\* MTE Right Angle and Vertical Surface Mount Connector
- 109-1: General Requirements for Test Specifications
- 109 Series: Test Specifications as indicated in Figure 1
- 109-197: TE Test Specifications vs EIA and IEC Test Methods
- 114-25026: Application Specification
- 501-316: Qualification Test Report
- 502-1056: Engineering Report

**3. REQUIREMENTS**

## 3.1. Design and Construction

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

## 3.2. Materials

- Contact: Copper alloy
- Housing: Thermoplastic, glass filled, black, UL94V-0

## 3.3. Ratings

- Current: Signal application only
- Temperature: -65 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 Test Specification 109-1.

3.5. Test Requirements and Procedures Summary

| Test Description                 | Requirement  | Procedure   |
|----------------------------------|--|---|
| Examination of product.          | Meets requirements of product drawing and Application Specification 114-25026. | Visual, dimensional and functional per applicable quality inspection plan.  |
| <b>ELECTRICAL</b>                |  |   |
| Termination resistance.          | 15 milliohms maximum.<br>$\Delta R$ 5 milliohms maximum.                       | TE Spec 109-6-1.<br>Subject mated contacts assembled in housing to 50 mv maximum open circuit at 100 ma maximum.<br>See Figure 3.   |
| Insulation resistance.           | 5000 megohms minimum initial.<br>400 megohms minimum final.                    | TE Spec 109-28-4.<br>Test between adjacent contacts of mated samples.   |
| Dielectric withstanding voltage. | 600 volts AC at sea level.   | TE Spec 109-29-1.<br>Test between adjacent contacts of mated samples.   |
| <b>MECHANICAL</b>                |  |   |
| Vibration, sinusoidal.           | No discontinuities of 1 microsecond or longer duration.<br>See Note (a).       | TE Spec 109-21-3.<br>Subject mated gold plated samples to 15 G's 10-2000-10 Hz traversed in 20 minutes. 4 hours in each of 3 mutually perpendicular planes.   |
|                                  |  | TE Spec 109-21-2.<br>Subject mated tin-lead plated samples to 10 G's 10-500-10 Hz traversed in 15 minutes. 3 hours in each of 3 mutually perpendicular planes.  |
| Physical shock.                  | No discontinuities of 1 microsecond or longer duration.<br>See Note (a).       | TE Spec 109-26-7.<br>Subject mated samples to 50 G's sawtooth shock pulses of 11 milliseconds duration. 3 shocks in each direction applied along 3 mutually perpendicular planes, 18 total shocks.                    |
| Durability.                      | See Note (a).  | TE Spec 109-27.<br>Mate and unmate samples for 30 cycles for 100 $\mu$ m tin-lead plating, 75 cycles for 15 $\mu$ m gold plating, and 200 cycles for 30 $\mu$ m gold plating at maximum rate of 10 cycles per minute. |

Figure 1 (continued)

| Test Description   | Requirement   | Procedure   |
|--------------------|---|---|
| Mating force.      | 9 ounces maximum for gold plating.<br>14 ounces maximum for tin-lead plating. | TE Spec 109-42, Condition A.<br>Measure force necessary to mate samples with locking latches removed at maximum rate of .5 inch per minute.   |
| Unmating force.    | 1 ounce minimum.  | TE Spec 109-42, Condition A.<br>Measure force necessary to unmate samples with locking latches removed at maximum rate of .5 inch per minute. |
| Contact retention. | 3 pounds minimum per contact.<br>See Note (b).                                | TE Spec 109-30.   |

ENVIRONMENTAL

|                               |               |   |
|-------------------------------|---------------|---|
| Thermal shock.                | See Note (a). | TE Spec 109-22.<br>Subject mated samples to 5 cycles between -65 and 105°C.   |
| Humidity-temperature cycling. | See Note (a). | TE Spec 109-23-4, Condition B.<br>Subject mated samples to 10 cycles between 25 and 65°C at 95% RH with cold shock. |
| Temperature life.             | See Note (a). | TE Spec 109-43.<br>Subject mated samples to temperature life at 105°C for 500 hours.                                |
| Mixed flowing gas.            | See Note (a). | TE Spec 109-85-2.<br>Subject mated samples to environmental class II for 14 days.                                   |

**NOTE**

- (a) *Shall meet visual requirements, show no physical damage and shall meet the requirements of additional tests as specified in the Test Sequence in Figure 2.*
- (b) *Details of test contained in Engineering Report 502-1056.*

Figure 1 (end)

3.6. Product Qualification and Requalification Test Sequence

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

**NOTE**

- (a) See paragraph 4.1.A.
- (b) Numbers indicate sequence in which tests are performed.
- (c) Applies to gold plated product only.
- (d) Applies to tin-lead plated product only.
- (e) Shall be unmounted.
- (f) Precondition samples with 10 cycles durability.

Figure 2

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#### 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 consist of a minimum of 5 assemblies with a minimum of 30 contacts each.

###### 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 product or manufacturing process, product assurance shall coordinate requalification 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 of Figure 1. Failures 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 resubmittal.

##### 4.4. Quality Conformance Inspection

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

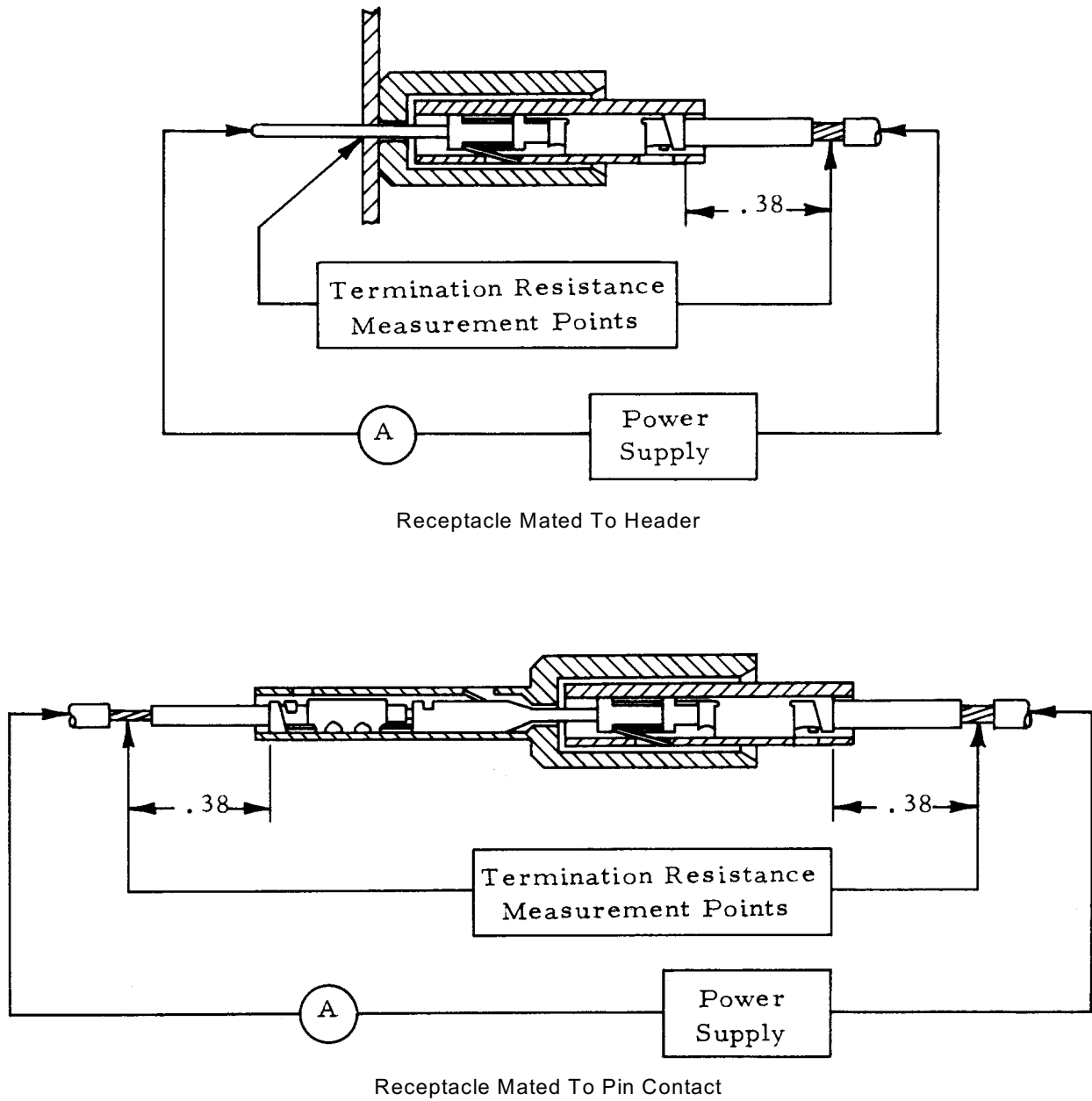


Figure 3  
Termination Resistance Measurement Points