# Inverted Six and Eight Position Surface Mount Shielded Modular Jack Assembly

## 1. SCOPE

1.1. Content

This specification covers performance, tests and quality requirements for the TE Connectivity (TE) inverted six and eight position surface mount shielded modular jack assembly.

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 24Mar00. The Qualification Test Report number for this testing is 501-91-7. This documentation is on file at and available from Engineering Practices and Standards (EPS).

## 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 Documents

- 108-1163: Product Specification
- 109 Series: Test Specifications as indicated in Figure 1
- 109-197: TE Test Specifications vs EIA and IEC Test Methods
- 114-6040: Application Specification
- 501-91-7: Qualification Test Report

2.2. Commercial Standards

- EIA-364: Electrical Connector/Socket Test Procedures Including Environmental Classifications
- ANSI/EIA/TIA-568: Commercial Building Telecommunication Cabling Standard

## 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

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

3.3. Ratings

- Voltage: 150 volts AC
- Current: Signal application only
- Temperature: -40 to 85°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 EIA-364.

3.5. Test Requirements and Procedures Summary

| Test Description | Requirement | Procedure |
|---|---|---|
| Initial examination of product. | Meets requirements of product drawing. | EIA-364.<br>Visual and dimensional inspection per product drawing. |
| Final examination of product. | Meets visual requirements. | EIA-364.<br>Visual inspection. |
| ELECTRICAL | | |
| Dry circuit resistance. | ΔR 10 milliohms max/min. | EIA-364-23.<br>Subject specimens to 100 milliamperes maximum and 20 millivolts maximum open circuit voltage.<br>See Figure 3. |
| Insulation resistance. | 500 megohms minimum. | EIA-364-21.<br>Test between adjacent contacts of unmated specimens. |
| Dielectric withstanding voltage, contact-to-contact. | 1000 volts AC at sea level.<br>1 minute hold with no breakdown or flashover. | EIA-364-20.<br>Test between adjacent contacts of unmated specimens. |
| Dielectric withstanding voltage, contact-to-shield. | 1500 volts AC at sea level.<br>1 minute hold with no breakdown or flashover. | EIA-364-20.<br>Test between all contacts and shield of mated specimens. |
| MECHANICAL | | |
| Vibration, sinusoidal. | No discontinuities of 1 microsecond or longer duration.<br>See Note. | EIA-364-28, Method I.<br>Subject mated specimens to 10-55-10 Hz traversed in 1 minute with 1.5 mm [.06 in] maximum total excursion. 2 hours in each of 3 mutually perpendicular planes.<br>See Figure 4. |

Figure 1 (continued)

| Test Description | Requirement | Procedure |
|---|---|---|
| Mechanical shock, specified pulse. | No discontinuities of 1 microsecond or longer duration.<br>See Note. | EIA-364-27, Method A.<br>Subject mated specimens to 30 G's half-sine shock pulses of 11 milliseconds duration. 3 shocks in each direction applied along 3 mutually perpendicular planes, 18 total shocks.<br>See Figure 4. |
| Durability. | See Note. | EIA-364-9.<br>Mate and unmate specimens for 750 cycles at a maximum rate of 600 cycles per hour. |
| Mating force. | 20.02 N [4.5 lb] maximum. | EIA-364-13.<br>Measure force necessary to mate specimens at a maximum rate of 12.7 mm [.5 in] per minute. |
| Unmating force. | 20.02 N [4.5 lb] maximum. | EIA-364-13.<br>Measure force necessary to unmate specimens at a maximum rate of 12.7 mm [.5 in] per minute. |
| Plug retention in jack. | Plug shall not dislodge from jack. | TE Spec 109-50.<br>Apply axial load of 88.98 N [20 lb] to plug housing mated in jack with latch engaged at a maximum rate of 12.7 mm [.5 in] per minute. |
| Jack retention to printed circuit board. | Jack shall not dislodge from printed circuit board. | TE Spec 109-50.<br>Apply perpendicular load of 44.49 N [10 lb] to jack mounted on a 1.57 mm [.062in] thick printed circuit board at a maximum rate of 50.8 mm [2 in] per minute. |
| ENVIRONMENTAL | | |
| Thermal shock. | See Note. | EIA-364-32.<br>Subject mated and unmated specimens to 100 cycles between -40 and 85°C. |
| Humidity-temperature cycling. | See Note. | EIA-364-31, Method III.<br>Subject specimens to 21, 24 hour cycles between 25 and 65°C at 95% RH with -10°C cold shock. |
| Temperature life. | See Note. | EIA-364-17.<br>Subject mated specimens to 85°C for 500 hours. |

**NOTE** *Shall meet visual requirements, show no physical damage, and meet requirements of additional tests as specified in the Product Qualification and Requalification Test Sequence shown in Figure 2.*

Figure 1 (end)

3.6. Product Qualification and Requalification Test Sequence

| Test or Examination | Test Group (a) | | | | |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| | Test Sequence (b) | | | | |
| Initial examination of product | 1 | 1 | 1 | 1 | 1 |
| Dry circuit resistance | 3,7 | 2,4 | 2,5 | | |
| Insulation resistance | | | | 2,6 | |
| Dielectric withstanding voltage, contact-to-contact | | | | 3,7 | |
| Dielectric withstanding voltage, contact-to-shield | | | | | 4 |
| Vibration | 5 | | | | |
| Mechanical shock | 6 | | | | |
| Durability | 4 | | | | |
| Mating force | 2 | | | | |
| Unmating force | 8 | | | | |
| Plug retention in jack | | | | | 2 |
| Jack retention to printed circuit board | | | | | 3 |
| Thermal shock | | | 3(c) | 4 | |
| Humidity-temperature cycling | | | 4(d) | 5 | |
| Temperature life | | 3(e) | | | |
| Final examination of product | 9 | 5 | 6 | 8 | 5 |

**NOTE**

*(a) See paragraph 4.1.A.*
*(b) Numbers indicate sequence in which tests are performed.*
*(c) Perform 100 cycles of durability prior to thermal shock and 33 cycles of durability after 50 cycles of thermal shock.*
*(d) Perform 33 cycles of durability after 7 days of humidity-temperature cycling and 34 cycles of durability after 21 days of humidity-temperature cycling.*
*(e) Precondition specimens with 10 durability cycles.*

Figure 2

## 4. QUALITY ASSURANCE PROVISIONS

4.1. Qualification Testing

A. Specimen Selection

Specimens shall be prepared in accordance with applicable Instruction Sheets and shall be selected at random from current production. Test group 1 shall consist of 10 specimens. Test groups 2, 3, 4 and 5 shall each consist of 5 specimens.

B. Test Sequence

Qualification inspection shall be verified by testing specimens 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. If product failure occurs, corrective action shall be taken and specimens resubmitted for qualification. Testing to confirm corrective action is required before resubmittal.

4.4. Quality Conformance Inspection

The applicable AMP 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.

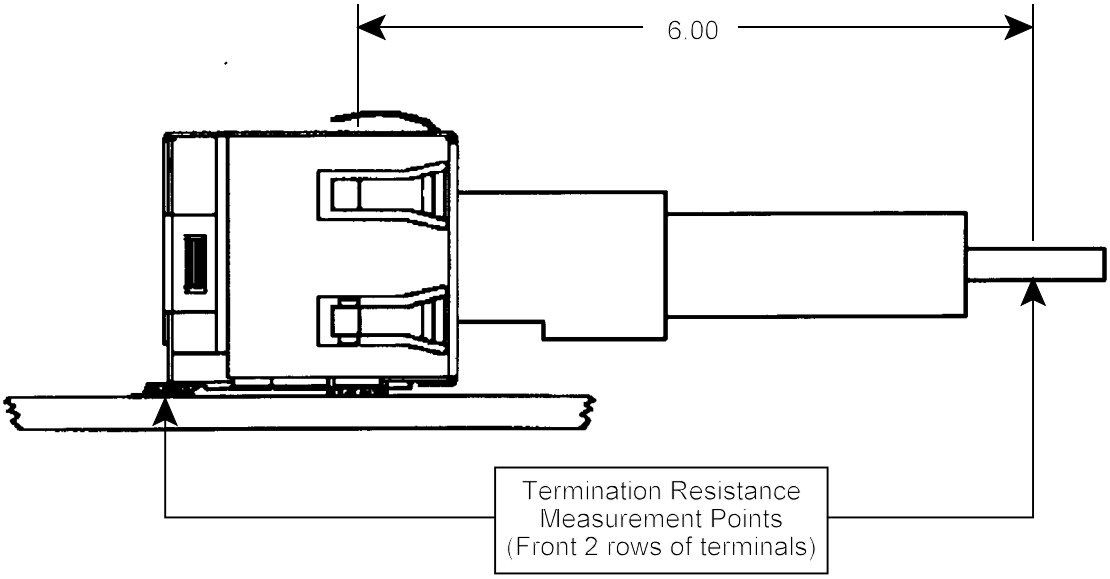


Figure 3
Dry Circuit Resistance Measurement Points

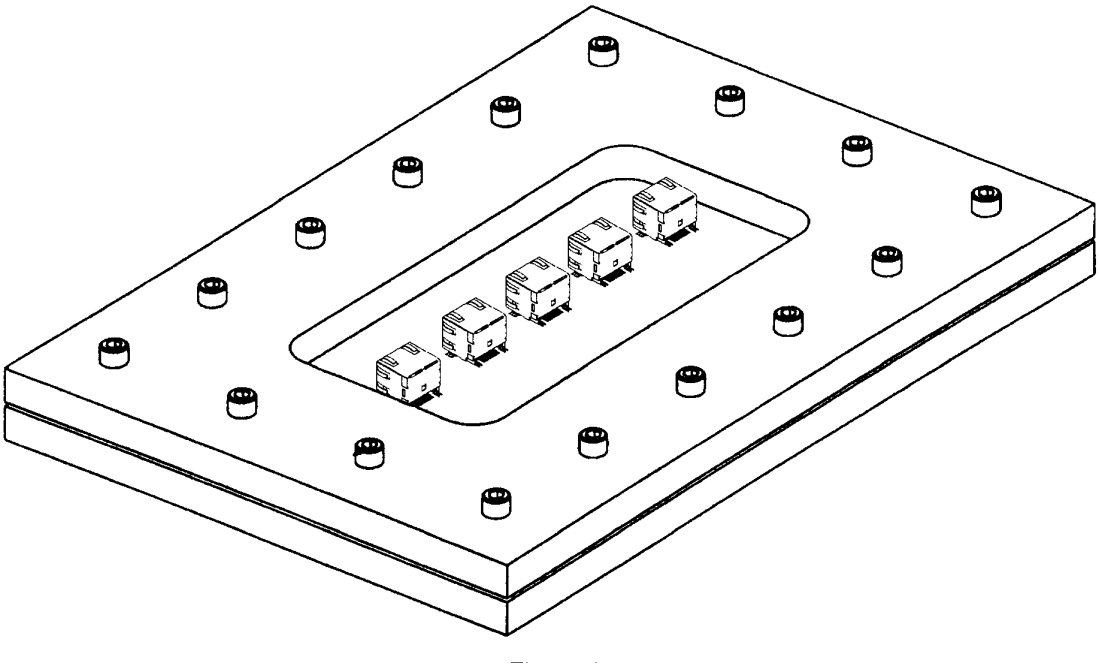

Figure 4
Vibration & Mechanical Shock Mounting Fixture