

**Socket, Dual In-Line Package, Low Profile, Gold Plated Spring
Contacts**

1. SCOPE**1.1. Content**

This specification covers performance, tests and quality requirements for AMP* dual in-line package low-profile socket with screw machined sleeves and drawn 3 finger spring contacts. The drawn 3 finger spring contact is designed to accommodate rectangular leads. Both solder tail and wrap post type contact assemblies are included. This family of sockets is designed for automatic and semi-automatic application and includes 6, 8, 14, 16, 18 and 20 position with row spacing of .300 inch; 22 and 24 position with row spacing of .400 inch; 24, 28, 40 and 48 position with row spacing of .600 inch; and 64 position with row spacing of .900 inch.

1.2. Qualification

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

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 Military or Commercial Documents
- D. 501-248: Test Report

3. REQUIREMENTS**3.1. Design and Construction**

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

3.2. Materials

- A. Spring contact: Beryllium copper, gold or tin-lead plating
- B. Sleeve: Brass, gold or tin-lead plating
- C. Housing: Polyester, glass filled, UL94V-0

3.3. Ratings

- A. Current: Signal application only
 B. Temperature:
 (1) Gold: -55 to 125°C
 (2) Tin: -40 to 105°C

3.4. Performance and Test Description

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

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 quality inspection plan. |
| ELECTRICAL | | |
| Termination resistance, dry circuit. | 20 milliohms maximum. ΔR 10 milliohms maximum. | Subject mated contacts assembled in housing to 50 mv open circuit at 100 ma. See Figure 3. AMP Spec 109-6-1. |
| Dielectric withstanding voltage. | 1 kvac dielectric withstanding voltage. 1 minute hold. No breakdown or flashover. | Test between adjacent contacts of unmated sockets. AMP Spec 109-29-1. |
| Insulation resistance. | 10000 megohms minimum. | Test between adjacent contacts of unmated sockets. AMP Spec 109-28-4. |
| Capacitance. | 2 picofarads maximum. | Test between adjacent contacts of unmated sockets. AMP Spec 109-47, Condition E. |
| MECHANICAL | | |
| Vibration. | No discontinuities greater than 1 microsecond. See Note (a). | Subject sockets mated with dummy IC module to 15 G's, 10-2000 Hz with 100 ma current applied. See Figure 4. AMP Spec 109-21-3. |
| Physical shock. | No discontinuities greater than 1 microsecond. See Note (a). | Subject sockets mated with dummy IC module to 100 G's sawtooth shock pulses of 6 milliseconds duration. 3 shocks in each direction applied along 3 mutually perpendicular planes, 18 total shocks. See Figure 4. AMP Spec 109-26-9. |

Figure 1 (cont)

| Test Description | Requirement | Procedure |
|-------------------------------|--|---|
| Engaging force. | 10 ounces maximum average per contact. | Measure force necessary to engage socket with gage. See Figure 5. AMP Spec 109-35. |
| Separating force. | 1 ounce minimum average per contact. | Measure force necessary to separate socket from gage. See Figure 5. AMP Spec 109-35. |
| Durability. | See Note (a). | Mate and unmate sockets with gage for 10 cycles at maximum rate of 600 cycles per hour. See Figure 5. AMP Spec 109-27. |
| Solderability. | Solderable area shall have minimum of 95% solder coverage. | Subject contact tails to solderability. AMP Spec 109-11-3. |
| Resistance to soldering heat. | See Note (a). | Subject socket mounted on printed circuit board to solder bath at 280°C for 10 seconds. AMP Spec 109-63-2. |
| ENVIRONMENTAL | | |
| Thermal shock. | See Note (a). | Subject sockets mated with dummy IC module to 5 cycles between -55 and 125°C for gold plating and -40 to 105°C for tin-lead plating. See Figure 4. AMP Spec 109-22. |
| Humidity-temperature cycling. | See Note (a). | Subject sockets mated with dummy IC module 10 humidity-temperature cycles between 25 and 65°C at 95% RH. See Figure 4. AMP Spec 109-23-4, Condition B. |
| Mixed flowing gas. | See Note (a). | Subject sockets mated with dummy IC module to environmental class III for 20 days. See Figure 4. AMP Spec 109-85-3. |
| Salt spray corrosion. | See Note (a). | Subject sockets mated with dummy IC module to 5% salt spray solution for 48 hours. See Figure 4. AMP Spec 109-24. |

Figure 1 (cont)

| Test Description | Requirement | Procedure |
|-------------------|---------------|---|
| Temperature life. | See Note (a). | Subject sockets mated with dummy IC module to temperature life at 105°C for tin plating and 125°C for gold plating for 1000 hours. See Figure 4. AMP Spec 109-43. |

Note (a) 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(c) | 4(d) | 5 | 6(e) | 7 |
| | Test Sequence (b) | | | | | | |
| Examination of product | 1,8 | 1,5 | 1,5 | 1,5 | 1,8 | 1,4 | 1,8 |
| Termination resistance, dry circuit | 3,6 | 2,4 | 2,4 | 2,4 | | | 2,7 |
| Dielectric withstanding voltage | | | | | 3,7 | | |
| Insulation resistance | | | | | 2,6 | | |
| Capacitance | | | | | 4 | | |
| Vibration | 4 | | | | | | |
| Physical shock | 5 | | | | | | |
| Engaging force | 2 | | | | | | 3 |
| Separating force | 7 | | | | | | 6 |
| Durability | | | | | | | 4 |
| Solderability | | | | | | 2 | |
| Resistance to soldering heat | | | | | | 3 | |
| Thermal shock | | | | | | | 5 |
| Humidity-temperature cycling | | | | | 5 | | |
| Mixed flowing gas | | | | 3 | | | |
| Salt spray corrosion | | | 3 | | | | |
| Temperature life | | 3 | | | | | |

- Note (a) See Para 4.1.A.
 (b) Numbers indicate sequence in which tests are performed.
 (c) Tin plated samples only.
 (d) Gold plated samples only.
 (e) 1 sample only of each plating type used on each test. Tests are not sequential. Tests are performed on solder tail type only.

Figure 2

4. QUALITY ASSURANCE PROVISIONS**4.1. Qualification Testing****A. Sample Selection**

Sockets shall be prepared in accordance with applicable Instruction Sheets and shall be selected at random from current production. Test groups 1, 2, 3, 6 and 7 shall consist of 2 each socket with solder tail type contact assemblies. Test group 4 shall consist of 6 sockets, 3 of each plating type with solder tail type contact assemblies. Test group 5 shall consist of 2 sockets with wrap type post contact assemblies and leach type sleeve plating.

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

Applicable AMP 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.

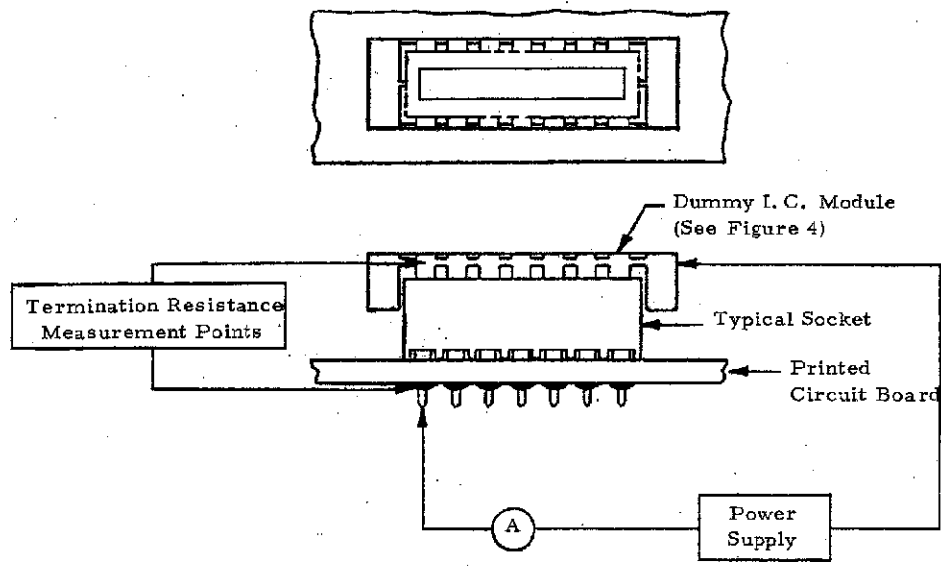
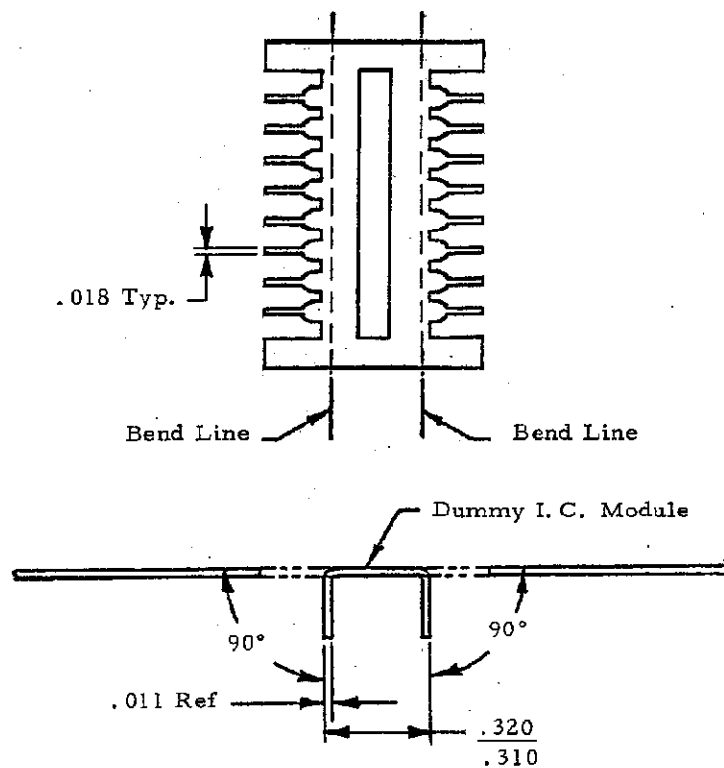
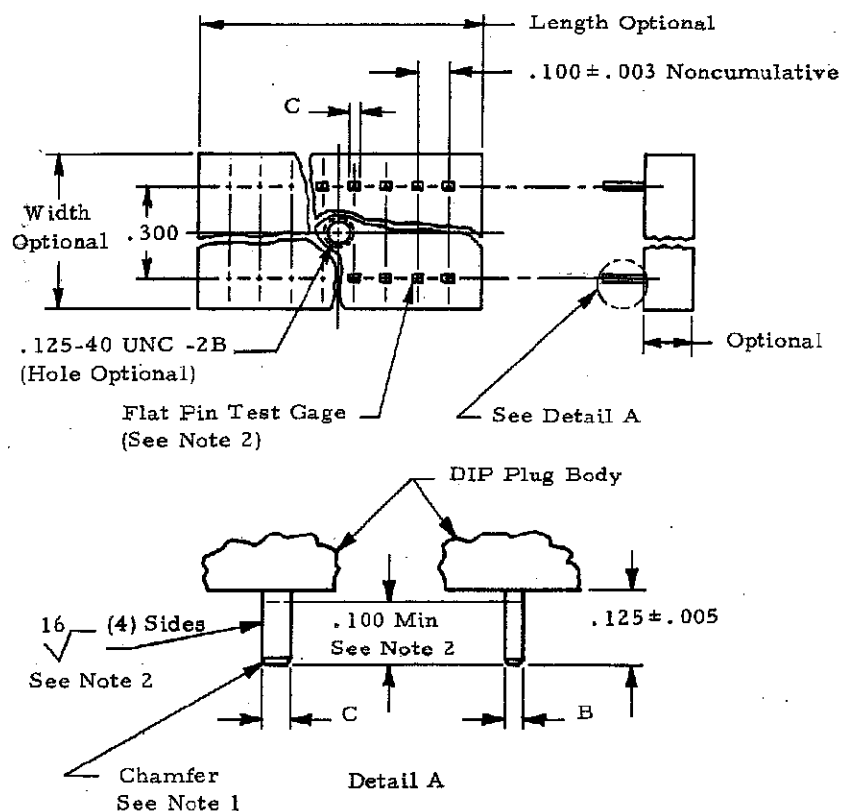


Figure 3
Termination Resistance Measurement Points



Note: Dummy IC module is phosphor bronze alloy with gold over nickel plating. After plating, module shall be formed as shown.

Figure 4
Dummy IC Module For 16 Position Socket



| Gage Title | Gage Number | "B" Dimension | "C" Dimension |
|------------|-------------|---------------|---------------|
| Nominal | 2 | .0110 ± .0005 | .0180 ± .0005 |

- Note: (1) Acceptable chamfer on flat pin shall be .003 to .005 inch by 45° all sides.
 (2) Flat pin test gage material shall be carbon steel.

Figure 5
Engaging & Separating Gage