

PRODUCT SPECIFICATION

1. SCOPE

1.1. Content

This specification covers the performance requirements for the AMP* mini box contact connector assembly. These are plug and receptacle connectors which provide a connection method on .050 centerline.

1.2. Qualification

When testing or inspecting the subject product, this document shall always be supported by the applicable product drawing and by 109-9000, Packaging Components Division Connector Test Methods. In case of conflict the order of document precedence is as follows:

- A. Product Drawing
- B. This Product Specification
- C. 109-9000: Packaging Components Division Connector Test Methods

2. APPLICABLE DOCUMENTS

2.1. Applicable portions of the following documents form a part of the manufacturing control of this product.

- A. MIL-G-45204: Gold Plating, Electrodeposited
- B. MIL-STD-105: Sampling Procedures and Tables for Inspection by Attributes

2.2. The following documents describe handling and use of this product.

- A. 109-9000: Packaging Components Division Connector Test Methods
- B. MIL-STD-202: Test Methods for Electronic and Electrical Component Parts


3. PERFORMANCE REQUIREMENTS

3.1. Ratings

- A. Current: 1.5 amperes max per contact
- B. Temperature: -65 to 125 C

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| | | | | | | | | | | |
|--|-------------------------------|-----------|---------------|--------|--------------------------------------|----------|--|----------|----------|----------|
| CONTROLLED DOCUMENT This specification is a controlled document per AMP Specification 102-21. It is subject to change and Corporate Standards should be contacted for latest revision. | | | | DR | C. Fritz | 11/16/76 |  AMP Incorporated Harrisburg, PA 17105-3608 | | | |
| | | | | CHK | H. Hagan | 11/16/76 | | | | |
| | | | | APP | G. Preputnick | 11/16/76 | NO | 108-9046 | REV D | LOC B |
| D | Revise per EC 0600-0094-93 | <i>AB</i> | <i>4/1/93</i> | PAGE | TITLE CONNECTOR, MINI BOX CONTACT | | | | | |
| LTR | REVISION RECORD | APP | DATE | 1 OF 5 | | | | | | |

3.2. Test Requirements and Procedures Summary

| Test Description | Requirement | Procedure |
|---|--|--|
| Examination of Product | Meet requirements of drawing. | Dimensional and visual. |
| Termination Resistance, Low Level | Connector Resistance, ohms max Initial Final Standard .015 .020 Right Angle .025 .030 | 50 mv max open circuit. 100 ma max short circuit. |
| Termination Resistance, Rated Current | Connector Resistance, ohms max Initial Final Standard .015 .020 Right Angle .025 .030 | 1.5 amp |
| Insulation Resistance Dielectric Withstanding Voltage | 1,000 megohms min. Altitude Test Voltage, rms Sea Level 600 70,000 ft 150 | Mated, 500 vdc. Mated connectors, test between adjacent contacts, and contacts to mounting hardware. |
| Contact Engaging Force | 6 oz max. | Size 3 times with .019 diameter post simulator prior to gaging. Then check with .019 diameter post simulator to depth of .147. |
| Connector Mating Force | .30 lb times number of contacts max. | Fully insert plug and receptacle after 3 unmonitored cycles. |
| Connector Unmating Force | .03 lb times number of contacts min. | Fully withdraw plug and receptacle. |
| Durability | No mechanical damage, connector mating and unmating force. | .000050 gold, 500 cycles; .000030 gold, 200 cycles. |
| Thermal Shock | No evidence of physical damage; mate and unmate at extremes. | -65° to 125°C, unmated; mate and unmate during fifth cycle. |
| Vibration | No interruption of continuity greater than 1 microsecond; no physical damage. | 10-2000 Hz; 15 G peak; mated; energized with 100 milliamp dc current. |
| Physical Shock | No interruption of continuity greater than 1 microsecond; no physical damage. | 100 G peak, 6 msec, sawtooth; mated; energized with 100 milliamp dc current. |
| Moisture Resistance | Meet insulation resistance and dielectric withstanding voltage. | 10 days test, mated, 90-98% RH, 2 cycles per day. |
| Contact Separating Force | .10 oz min. | Size 3 times with .019 diameter post simulator; check with .017 diameter post simulator to depth of .147. |

Figure 1 (cont)

| | | | | |
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| Test Description | Requirement | Procedure |
|------------------------------|---|--|
| Salt Spray (Corrosion) | Termination resistance, low level and rated current. | 5% solution, 48 hr, mated. |
| Solderability | 95% coverage min; 10X magnification. | 230° ± 5°C, 5 ± 1/2 sec. |
| Resistance to Soldering Heat | No evidence of physical damage; meet contact retention. | 260 + 5°C, 10 ± 2 sec on a mounting board. |
| Contact Retention | Contacts shall not dislodge from housing. | Axial load of .75 lb pull applied to individual contact. |

Figure 1 (end)

3.3. Connector Tests and Sequence

| Test | MIL-STD-202 Method | 109-9000 Requiring Paragraph | Test Sequence (a) | | |
|---|--------------------|------------------------------|-------------------|---|---|
| | | | 1 | 2 | 3 |
| Examination of Product | | 5.1. | X | X | X |
| Connector Mating Force | | 5.8. | | X | |
| Termination Resistance, Low Level (b) | | 5.2. | X | X | |
| Termination Resistance, Rated Current (b) | 307 | 5.3. | X | X | |
| Connector Unmating Force | | 5.9. | | X | |
| Insulation Resistance | 302, Cond B | 5.4. | X | | |
| Dielectric Withstanding Voltage | 301 | 5.5. | X | | |
| Contact Engaging Force (c) | | 5.6. | | X | |
| Contact Separation Force (c) | | 5.7. | | X | |
| Thermal Shock | 107, Cond B | 5.11. | X | | |
| Durability | | 5.10. | X | X | |
| Connector Mating & Unmating Force | | | | | |
| Vibration | 204, Cond B | 5.12. | | X | |
| Physical Shock | 213, Cond I | 5.13. | | X | |
| Moisture Resistance | 106 Except 7B | 5.14. | X | | |
| Insulation Resistance | | | | | |
| Dielectric Withstanding Voltage | | | | | |
| Salt Spray (Corrosion) | 101, Cond B | 5.15.B. | | X | |
| Termination Resistance Low Level (b) | | 5.2. | X | X | |
| Termination Resistance Rated Current (b) | 307 | 5.3. | X | X | |
| Solderability | 208 | | | | X |
| Resistance to Soldering Heat (d) | 210, Cond C | | | | X |
| Contact Retention | | 5.16. | | | X |

- (a) Test sequence 1 and 2 samples are mounted on PC boards. Test sequence 3 samples are unmounted.
- (b) See Figures 3 or 4.
- (c) See Figure 5.
- (d) Receptacle assemblies only.

Figure 2

3.4. Selection of Test Samples

- A. Test samples shall consist of 6 connectors, 3 each Test Sequence 1 and Test Sequence 2. Three additional specimens shall be selected and tested to Test Sequence 3.

3.5. Acceptance Quality Level

MIL-STD-105, Inspection Level II, Normal Inspection, AQL 1.5%.

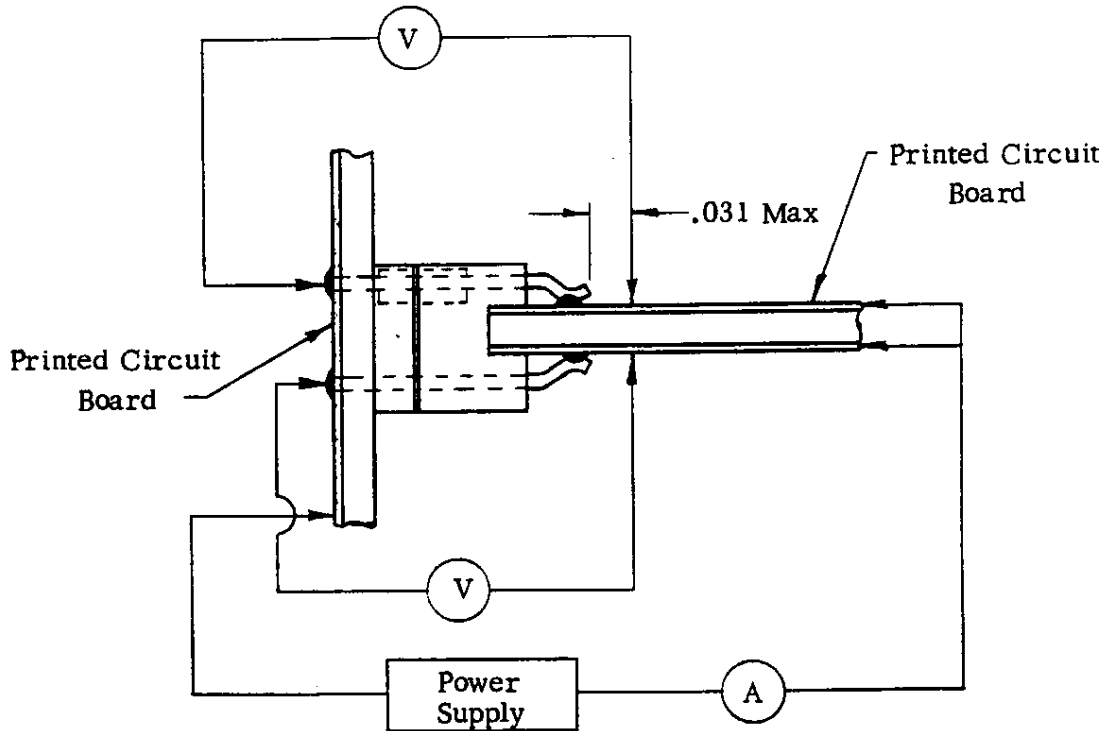


Figure 3
Termination Resistance Test Circuit for Standard Connector

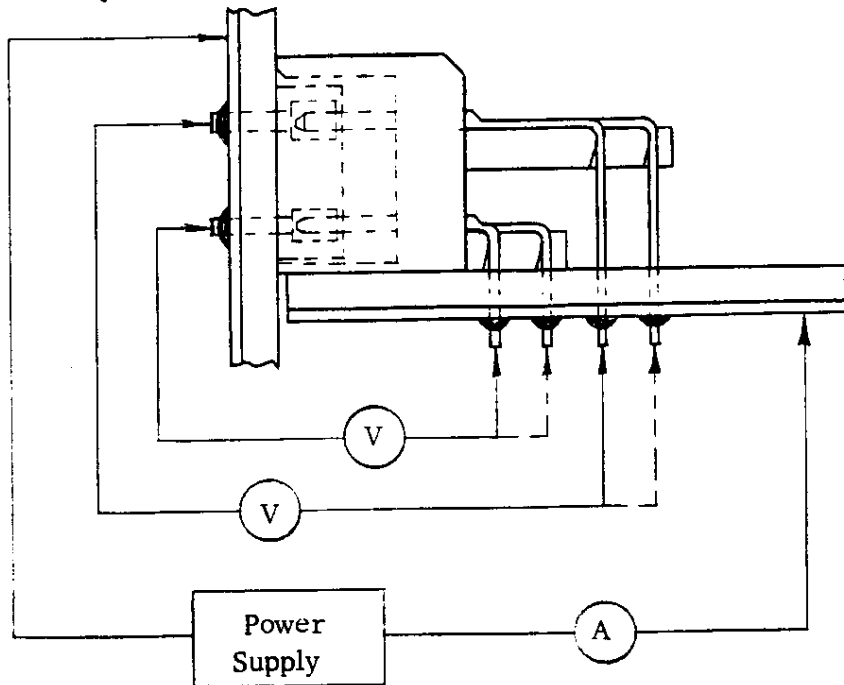
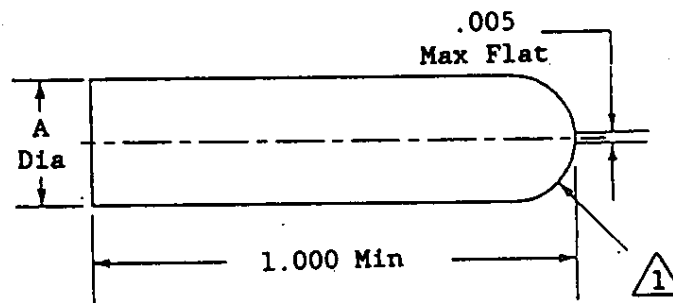


Figure 4
Termination Resistance Test Circuit for Right Angle Connector



| Gage | A Diameter |
|-------------------------|------------------------|
| Engaging (Maximum) | .0190 +.0001 -.0000 |
| Separating (Minimum) | .0170 +.0001 -.0000 |

- Note: 1 Spherical radius shall be 1/2 pin diameter and smoothly blended without a break into pin diameter.
 2 Material: Steel
 3 Heat treat: RC 58 minimum
 4 Finish: 6 to 10 microinches root mean square

Figure 5
Individual Post Simulator

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