

PRODUCT SPECIFICATION

1. SCOPE

1.1. Content

This specification covers the performance, tests and quality requirements for the AMP* programmable DIP (dual-inline-package) shunt.

1.2. Description

DIP shunts are multiplicity of fixed conductors confined in a thermoplastic DIP package. Package allows for selective disconnection by the severing of individual conductors. The 7600 series standard shunt package requires a special hand tool or other suitable means to sever the conductors. The 7610 series machine insertable shunt package requires less force to sever the conductors so a pen, pencil or the special hand tool would be sufficient means. Design allows for the reconnection of the severed conductors by manual solder bridging. Devices are designed for programming electronic circuitry.

1.3. Position

DIP shunts are available in 2 thru 12 positions with standard fixed conductors. Optionally, packages can be supplied preprogrammed to specific requirements.

1.4. Termination

Standard DIP shunt package termination consists of contacts on a .300 x .100 inch pattern for application directly on printed circuit boards or into DIP receptacles. Recommended hole size for printed circuit board use is .035 diameter.

1.5. 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

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.

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Product Code:4544

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				CHK D.Gingerich 6/19/80				
				APP D.Shaffer 6/19/80	NO 108-7533	REV D	LOC B	
D	Revise per ECN AG-1947	<i>PR</i>	<i>6/12 90</i>	PAGE 1 OF 6	TITLE SHUNT, DIP, PROGRAMMABLE			
LTR	REVISION RECORD	APP	DATE					

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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. IS-7768 : Instruction Sheet
- E. 114-1054 : Application Specification
- E. 501-101 : Test 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

- A. Conductors: Brass with tin or optional gold plate
- B. Housing: Thermoplastic polyester, glass filled

3.3. Ratings

- A. Current:
 - (1) 2 amperes maximum for 7600 series
 - (2) 1 ampere maximum for 7610 series
- B. Temperature: -55° to 105°C

3.4. Performance and Test Description

The product is designed to meet the electrical, mechanical and environmental performance requirements specified in Figure 1. All tests are performed at ambient temperature unless otherwise specified.

CAUTION

In order to rebridge a severed connection, it is recommended that the operation be performed as quickly as possible. Avoid direct contact of the soldering iron with the plastic material. The soldering iron tip shall be .032 inch diameter maximum and operate at a maximum temperature of 260°C. It is further suggested that only low temperature, typically 177°C, solder be used

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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.	Subject shunts to 50 mv maximum open circuit at 100 ma maximum closed circuit, see Figure 3; AMP Spec 109-6-1. A minimum of 25 random reading shall be measured
Dielectric Withstanding Voltage	500 vdc dielectric withstanding voltage, one minute hold. 1 milliampere maximum leakage current. No flashover or corona.	Test between 20 adjacent closed circuit and across 20 open circuits; AMP Spec 109-29-1.
Insulation Resistance	10,000 megohms minimum.	Test between 20 adjacent closed circuits and across 20 open circuits; AMP Spec 109-28-3.
Capacitance	2 picofarads maximum.	Test between 20 adjacent closed circuits and across 20 open circuits; AMP Spec 109-47, cond D.
Temperature Rise vs Current	Maximum temperature rise 20°C from ambient.	Measure temperature rise of 1 shunt circuit to 12 vdc at rated current until stabilized; AMP Spec 109-45-1.
MECHANICAL		
Resistance to Soldering Heat	No physical damage. Termination resistance, dry circuit.	Subject shunt to soldering heat of 260°C for 10 seconds; AMP Spec 109-63-3.
Solderability	Contact tabs shall have a solder coverage of 95% minimum.	Subject shunts to solderability; AMP Spec 109-11-3.
Terminal Strength, Pull Test	No physical damage.	Subject open circuit shunts terminal to axial pull of 2 pounds; AMP Spec 109-64, cond A.

Figure 1 (cont)

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Test Description	Requirement	Procedure
Terminal Strength, Bend Test	No physical damage	Subject shunt terminals to two 45° bend cycles; AMP Spec 109-64, cond B.
ENVIRONMENTAL		
Thermal Shock	Dielectric withstanding voltage. No physical damage.	Subject shunts to 5 cycles between -55° and 105°C; AMP Spec 109-22.
Humidity-Temperature Cycling	Insulation resistance. No physical damage.	Subject shunts to 10 humidity-temperature cycles between 25° and 65°C at 95% RH; AMP Spec 109-23, method III, cond B, less steps 7a 7b.

Figure 1 (end)

3.6. Product Qualification and Retention of Qualification Test Sequences

Test or Examination	Test Group (a)				
	1	2	3	4	5
	Test Sequence (b)				
Examination of Product	1,8	1,6	1,5	1,3	1,3
Termination Resistance, Dry Circuit	2				
Dielectric Withstanding Voltage	3	2,4			
Insulation Resistance	4		2,4		
Capacitance	5				
Temperature Rise vs Current (c)		5			
Resistance to Soldering Heat				2	
Solderability					2
Terminal Strength, Pull (d)	6				
Terminal Strength, Bend (e)	7				
Thermal Shock		3			
Humidity-Temperature Cycling			3		

(a) See Para 4.1.A

(b) Numbers indicate sequence in which tests are performed

(c) Test only 1 closed circuit, unprogrammed, shunt. See Figure 3

(d) Test only 3 open circuit, programmed, shunts. See IS 7768

(e) Test only 3 closed circuit, unprogrammed, shunts

Figure 2

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4. QUALITY ASSURANCE PROVISIONS

4.1. Qualification Testing

A. Sample Selection

Shunt housings and contacts shall be prepared in accordance with applicable Instruction Sheets. They shall be selected at random from current production. All test groups shall consist of six 8 position shunts.

B. Test Sequence

Qualification inspection shall be verified by testing samples as specified in Figure 2.

4.2. Retention of Qualification

If, in a five-year period, no changes to the product or process occur, the product shall be subjected to group 1 of the testing described in the test sequence, see Figure 2. Justification for exceeding this time limit must be documented and approved by the division manager.

4.3. Requalification Testing

If changes significantly affecting form, fit, or function are made to the product or to the 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.

4.4. 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. When product failure occurs, corrective action shall be taken and samples resubmitted for qualification. Testing to confirm corrective action is required before resubmittal.

4.5. Quality Conformance Inspection

The applicable AMP quality inspection plan will 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.

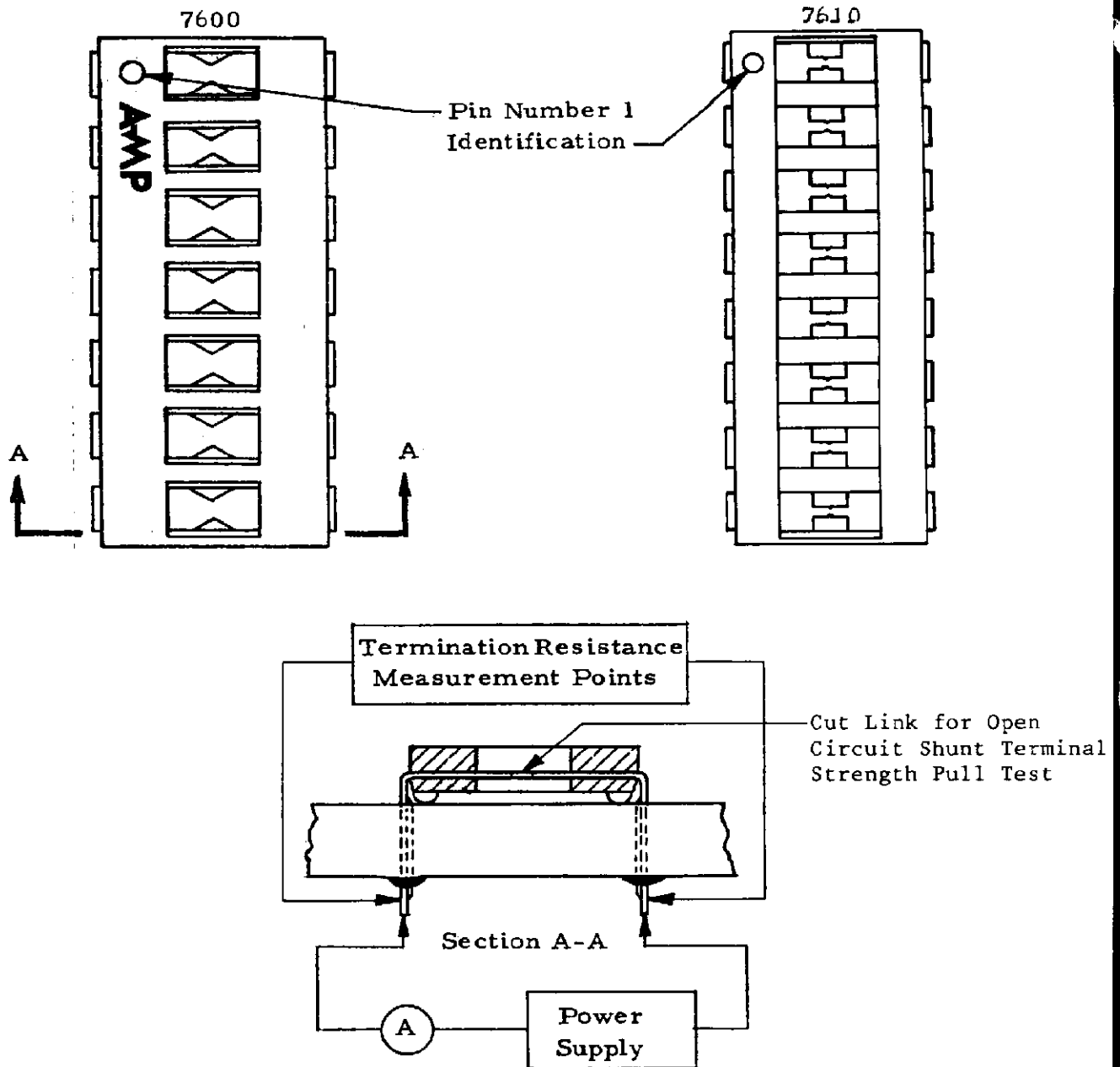


Figure 3
Termination resistance Measurement Points, Typical

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