

PRODUCT SPECIFICATION

1. SCOPE

1.1. Content

This specification covers the performance requirements for the AMP* .062 diameter pin and socket terminals. These terminals, when inserted into housings not manufactured by AMP Incorporated provide a highly reliable and economic means of grouping multi-lead connections in today's home entertainment centers, appliances, vending machines, computers and other sophisticated commercial equipment.

1.2. 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.

2.1. AMP Specifications

- A. 109-1: General Requirements for Test Specifications
- B. 109 Series: Test Specifications as indicated in Figure 1
- C. 114-1013: Terminal, Pin and Socket, .062 Diameter, Application of

3. REQUIREMENTS

3.1. Design and Construction

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

3.2. Materials

- A. Pins: Brass, pre-tin
- B. Sockets: Brass and phosphor bronze, pre-tin
- C. Housings: Nylon 6/6 (Not AMP Manufactured)

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DIST 49		B Change per ECN AG-473		PR 7/26 84		DR <i>Frank R. K. Swad</i> 3-12-79		AMP AMP INCORPORATED Harrisburg, Pa.	
						CHK <i>R. K. Swad</i> 3-12-79			
A Rev Figure 1		PR 8-27-80		APP <i>A. E. TRAVIS</i> 3/12/79		LOC B	NO A	108-1037	REV B
						NAME			
LTR REVISION RECORD		APP		DATE		SHEET 1 OF 6			
TERMINAL, PIN AND SOCKET, .062 DIAMETER									

3.3. Ratings

- A. Current/Voltage: 250 vac at 9.0 amperes maximum
B. Operating temperature: -55° to 105°C

3.4. Performance and Test Description

Terminals shall be designed to meet the electrical, mechanical and environmental performance requirements specified in Figure 1.

3.5. Test Requirements and Procedures Summary

Test Description	Requirement	Procedure															
Examination of Product	Meets requirements of product drawing and AMP Specification 114-1013.	Visual, dimensional and functional per applicable inspection plan.															
ELECTRICAL																	
Dielectric Withstanding Voltage (a)	1.0 KVAC dielectric withstanding voltage	Test between adjacent pins and sockets of mated connector assemblies; AMP Spec 109-29.															
Insulation Resistance (a)	1000 megohms minimum initial	Test between adjacent pins and sockets of mated connector assemblies; AMP Spec 109-28.															
Termination Resistance, Specified Current (a)	<table><tr><td>Wire Size, AWG</td><td>Test Current, amp</td><td>Resistance, milliohms max initial</td></tr><tr><td>24</td><td>1.5</td><td>3.50</td></tr><tr><td>22</td><td>3.0</td><td>3.50</td></tr><tr><td>20</td><td>4.5</td><td>3.00</td></tr><tr><td>18</td><td>6.0</td><td>3.00</td></tr></table>	Wire Size, AWG	Test Current, amp	Resistance, milliohms max initial	24	1.5	3.50	22	3.0	3.50	20	4.5	3.00	18	6.0	3.00	Measure potential drop of mated contacts assembled in housing, see Figure 4; AMP Spec 109-25, calculate resistance.
Wire Size, AWG	Test Current, amp	Resistance, milliohms max initial															
24	1.5	3.50															
22	3.0	3.50															
20	4.5	3.00															
18	6.0	3.00															
Temperature Rise vs Current (a) (b)	Temperature rise, see Figure 2; termination resistance, specified current.	T-rise at rated current; AMP Spec 109-45.															

Figure 1 (cont)

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Test Description	Requirement	Procedure										
MECHANICAL												
Mating Force (a)	2.5 pounds maximum per contact.	Measure force necessary to mate connector assembly with locking latches disengaged. Mount connector in fixtures and perform test at .5 inches per minute. Align connector halves where mechanical mating begins and mate additional 0.100 inch measuring force. AMP Spec 109-42, cond. A, calculate force per contact.										
Unmating Force (a)	0.3 pound minimum per contact.	Measure force necessary to unmate connector assembly with locking latches disengaged. Mount connector in fixtures and perform test at .5 inches per minute. AMP Spec 109-42, cond A calculate force per contact.										
Contact Insertion Force (a)	4.0 pounds maximum per contact.	Measure force necessary to insert contact into housing; AMP Spec 109-41.										
Contact Retention (a)	7.0 pounds minimum.	Apply an axial load to contact, by gripping wire, at a rate of .5 inch/minute; AMP Spec 109-30.										
Crimp Tensile	Wire Size, Crimp Tensile, <table><tr><td>AWG</td><td>lb min</td></tr><tr><td>24</td><td>10</td></tr><tr><td>22</td><td>10</td></tr><tr><td>20</td><td>13</td></tr><tr><td>18</td><td>14</td></tr></table>	AWG	lb min	24	10	22	10	20	13	18	14	Determine crimp tensile at a rate of 1 inch/minute; AMP Spec 109-16.
AWG	lb min											
24	10											
22	10											
20	13											
18	14											

Figure 1 (cont)

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Test Description	Requirement	Procedure
Durability (a)	Mating and unmating force; termination resistance, specified current.	Mate and unmate connector assemblies for 10 cycles; mount appropriate connector half in panel and manually mate; AMP Spec 109-27.

- (a) These tests are conducted using 6/6 nylon housings not manufactured by AMP Incorporated, and the requirements as specified are based on the use of these housings.
- (b) Maximum rated current that can be carried by this product is limited by the maximum operating temperature of housings, which is 105°C, and temperature rise of contacts which is 30°C. Variables which shall be considered for each application are: wire size, connector size, contact material and ambient temperature.

Figure 1 (end)

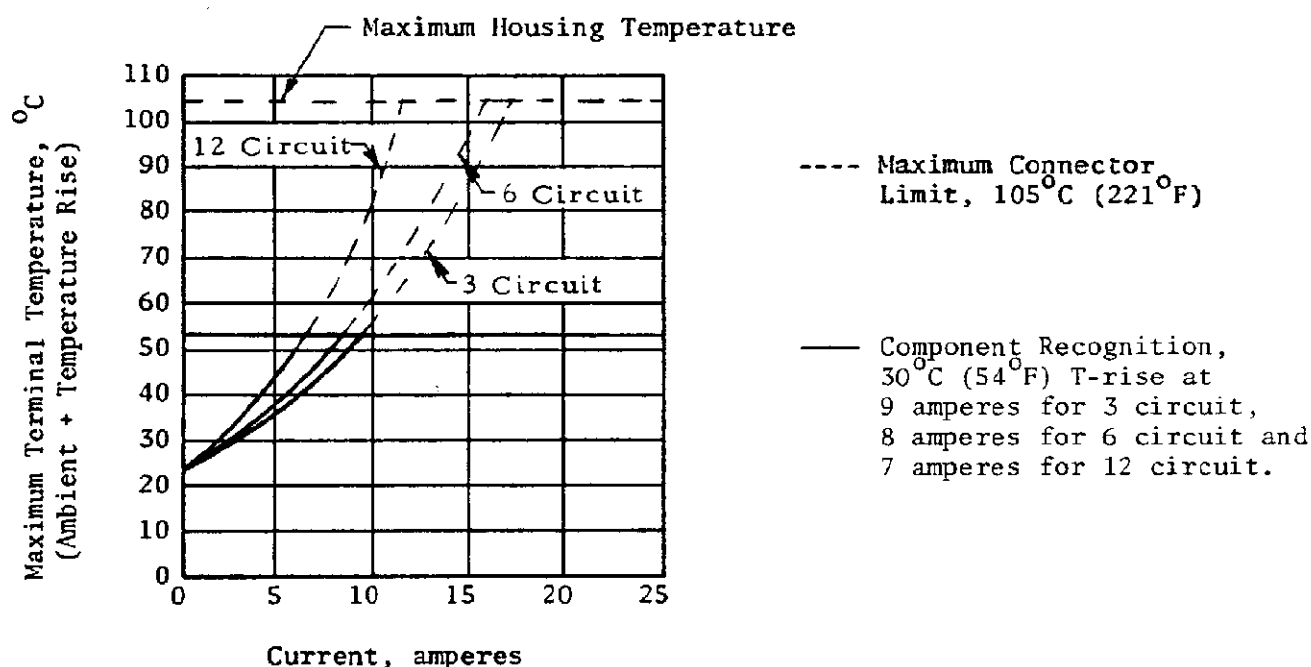


Figure 2
Terminal Temperature Rise vs Current/Circuit;
3, 6 and 12 Circuit Free Hanging Housing on 18 AWG Wire

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3.6. Connector Tests and Sequence

Test of Examination	Test Group (a)				
	1	2	3	4	5
	Test Sequence (b)				
Examination of Product	1				
Dielectric Withstanding Voltage		2			
Insulation Resistance		3			
Termination Resistance, Specified Current		4,6	2		
Temperature Rise vs Current			1		
Mating Force		1			
Unmating Force		7			
Contact Insertion Force				1	
Contact Retention				2	
Crimp Tensile					1
Durability		5			

(a) See Para 4.1.A.

(b) Numbers indicate sequence in which tests are performed.

Figure 3

4. QUALITY ASSURANCE PROVISIONS

4.1. Qualification Testing

A. Sample Selection

Connector housings and contacts shall be prepared in accordance with applicable Instruction Sheets. They shall be selected at random from current production. Group 1 shall consist of 5 contacts of each part. Test groups 2 and 3 shall consist of 4 connector assemblies per group. Housings and wire sizes shall be chosen randomly in order to cover the range of the product line. Group 4 samples shall consist of 15 pin and socket contacts crimped on #18 AWG wire and tested with appropriate random housings. Group 5 samples shall consist of 15 pin and socket contacts per wire size. All contacts shall be crimped to appropriate PN 103501 and 103502 tin plated test conductors in accordance with AMP Specification 114-1013.

B. Test Sequence

Qualification inspection shall be verified by testing samples as specified in Figure 3.

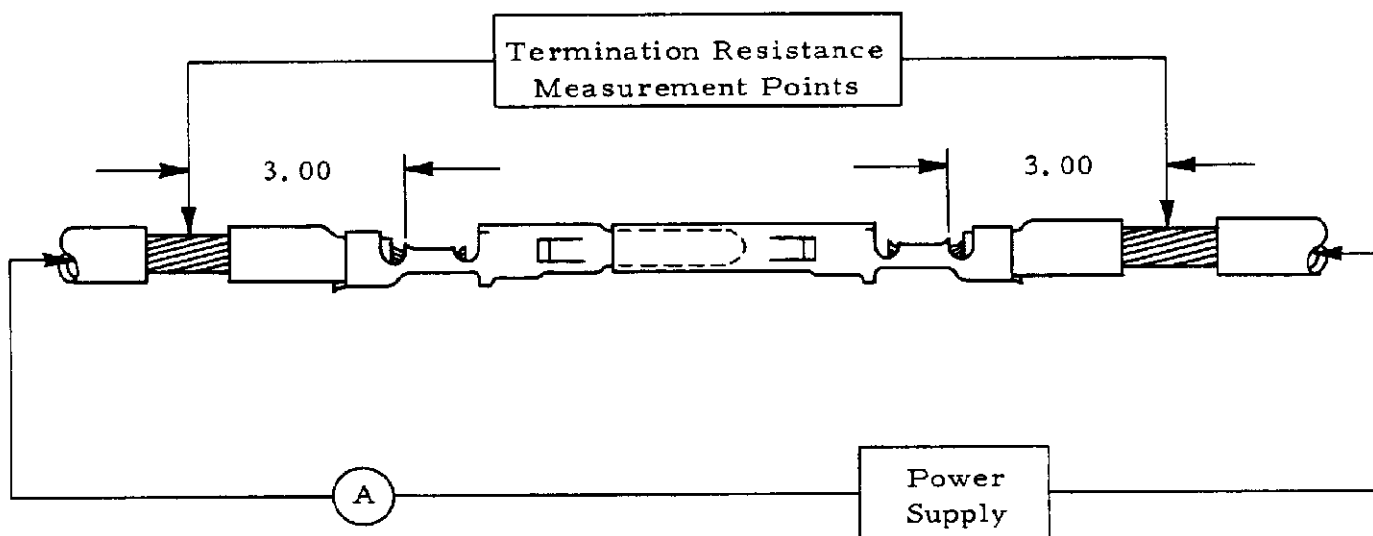
SHEET <u>5</u> OF <u>6</u>	AMP		AMP INCORPORATED Harrisburg, Pa.	
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C. Acceptance

- (1) Requirements put on test samples, as indicated in the requirements portion of Figure 1, exist as either the upper or lower statistical tolerance limit (95% confidence, 99% reliability). All samples tested in accordance with this specification shall meet the stated tolerance limit.
- (2) 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.

4.2. Quality Conformance Inspection

The applicable AMP 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.



- Notes:
1. A 1 foot minimum length of continuous lead for heat dissipation.
 2. Termination resistance equals millivolts divided by test current less resistance of 6 inches of wire.

Figure 4

Termination Resistance Measurement Points

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