

PRODUCT SPECIFICATION

1. SCOPE

1.1. Content

This specification covers the performance requirements of the AMP* high current edge connector. This is a multi-contact connector capable of carrying 30 amperes maximum per contact.

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-T-10727: Tin Plating, Electrodeposited
- B. MIL-STD-105: Sampling Procedures and Tables for Inspection by Attributes
- C. MIL-STD-275: Printed Wiring for Electronic Equipment

2.2. The following documents describe testing 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. Voltage: 600 vac max (250 vac max for UL and VDE approval)
- B. Current: 30 amperes max per contact (Number of contacts in a connector carrying 30 amperes is limited by the T-rise of the connector and the printed circuit board.)
- C. Temperature: -40° to 95°C

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NO 108-9045

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				CHK <i>H. [unclear]</i> 7-14-77				
				APP <i>D. [unclear]</i> 7-14-77	LOC B	A	NO 108-9045	REV 0
				SHEET 1 OF 5	NAME CONNECTOR, EDGE, HIGH CURRENT			
DIST 14	LTR	REVISION RECORD	APP	DATE				

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3.2. Test Requirements and Procedures Summary

Test Description	Requirements	Procedure
Examination of Product	Meet requirements of drawing.	Dimensional and visual.
Termination Resistance, Low Level	.002 ohm max.	50 mv max open circuit, 100 ma max short circuit.
Termination Resistance, Rated Current	.002 ohm max.	Wire Size, Current, AWG amp 10 30 12 23 14 17 16 13
Insulation Resistance	1000 megohms min.	500 vdc.
Dielectric Withstanding Voltage (Sea Level)	5 ma max leakage.	Unmated connectors, test between adjacent contacts, and contacts to mounting hardware; 1800 vac.
Contact Engaging Force	40.0 oz max.	Max thickness gage .070.
Contact Separating Force	3.0 oz min.	Size 3 times with max thickness gage .070; check with min thickness gage .054.
Connector Mating Force	48.0 oz max per contact.	Max thickness gage .070.
Durability	No evidence of physical damage; meet termination resistance and contact separation force.	Mate and unmate using max thickness gage .070, 25 cycles for 150 μ in tin plate.
Thermal Shock	No evidence of physical damage.	-40° to 95°C, 5 cycles.
Vibration	No interruption of continuity greater than 1 microsecond; no physical damage.	10-55 Hz, .06 inch total excursion, mated with printed circuit board.
Physical Shock	No interruption of continuity greater than 1 microsecond; no physical damage.	75 G's peak, 6 msec, sawtooth; mated with printed circuit board.
Humidity, Steady State	Meet insulation resistance and dielectric withstanding voltage.	90-95% RH, 96 hours, 40°C; unmated.
Contact Retention (Crimped Contacts)	Contacts shall not dislodge from its normal locking position.	Axial load of 10.0 lb applied to contacts lead.

Figure 1 (cont)

		AMP INCORPORATED Harrisburg, Pa.		SHEET <u>2</u> OF <u>5</u>	
LOC B	A	NO 108-9045	REV 0		
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Test Description	Requirements	Procedure																				
Crimp Resistance	<table border="1"> <thead> <tr> <th>Wire Size, AWG</th> <th>Test Current, amp</th> <th>Resistance, milliohms, Initial</th> <th>Resistance, milliohms, Final</th> </tr> </thead> <tbody> <tr> <td>10</td> <td>30</td> <td>.15</td> <td>.25</td> </tr> <tr> <td>12</td> <td>23</td> <td>.22</td> <td>.35</td> </tr> <tr> <td>14</td> <td>17</td> <td>.30</td> <td>.50</td> </tr> <tr> <td>16</td> <td>13</td> <td>.40</td> <td>.65</td> </tr> </tbody> </table>	Wire Size, AWG	Test Current, amp	Resistance, milliohms, Initial	Resistance, milliohms, Final	10	30	.15	.25	12	23	.22	.35	14	17	.30	.50	16	13	.40	.65	Measure potential drop across crimped contact between wire .38 inches from end of contact and the end of the wire barrel nearest the contact transition.
Wire Size, AWG	Test Current, amp	Resistance, milliohms, Initial	Resistance, milliohms, Final																			
10	30	.15	.25																			
12	23	.22	.35																			
14	17	.30	.50																			
16	13	.40	.65																			
Current Cycling	Crimp resistance shall not exceed "Final" value.	125% rated current for 30 min, 15 min no current, total of 50 cycles.																				
Crimp Tensile	<table border="1"> <thead> <tr> <th>Wire Size, AWG</th> <th>Tensile Strength, lb, min</th> </tr> </thead> <tbody> <tr> <td>10</td> <td>90</td> </tr> <tr> <td>12</td> <td>70</td> </tr> <tr> <td>14</td> <td>55</td> </tr> <tr> <td>16</td> <td>42</td> </tr> </tbody> </table>	Wire Size, AWG	Tensile Strength, lb, min	10	90	12	70	14	55	16	42	Axial tensile load as shown; wire shall not separate from contact.										
Wire Size, AWG	Tensile Strength, lb, min																					
10	90																					
12	70																					
14	55																					
16	42																					

Figure 1 (end)

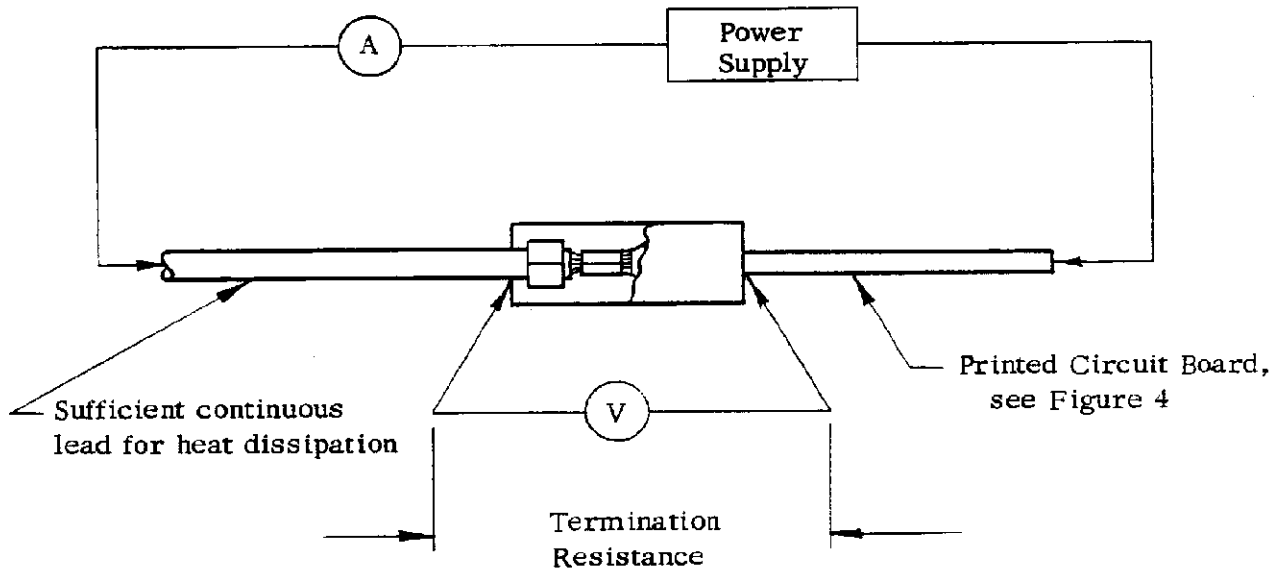


Figure 2

Termination Resistance Test Circuit

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3.3. Connector Tests and Sequence

Test	MIL-STD-202 Method	109-9000 Requirement 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	
Insulation Resistance	302, Cond B	5.4.	X	X	
Dielectric Withstanding Voltage	301	5.5.	X	X	
Contact Engaging Force		5.6.		X	
Contact Separation Force		5.7.		X	
Thermal Shock (c)	107, Cond A	5.11.	X		
Durability		5.10.	X	X	
Contact Separation Force					
Termination Resistance, Low Level					
Vibration	201	5.12.		X	
Physical Shock	213, Cond H	5.13.		X	
Humidity, Steady State	103, Cond B	5.14.	X		
Insulation Resistance					
Dielectric Withstanding Voltage					
Termination Resistance, Low Level (b)		5.2.	X	X	
Termination Resistance, Rated Current (b)	307	5.3.	X	X	
Contact Retention		5.16.	X	X	
Crimp Resistance		5.17.			X
Current Cycling		5.18.			X
Crimp Resistance		5.17.			X
Crimp Tensile		5.19.			X

- (a) Test sequence 1 and 2 are connectors with contacts and hardware. Test sequence 3 is contacts.
- (b) See Figure 2.
- (c) Lower limit -40°C, upper limit 95°C.


Figure 3

3.4. Selection of Test Samples

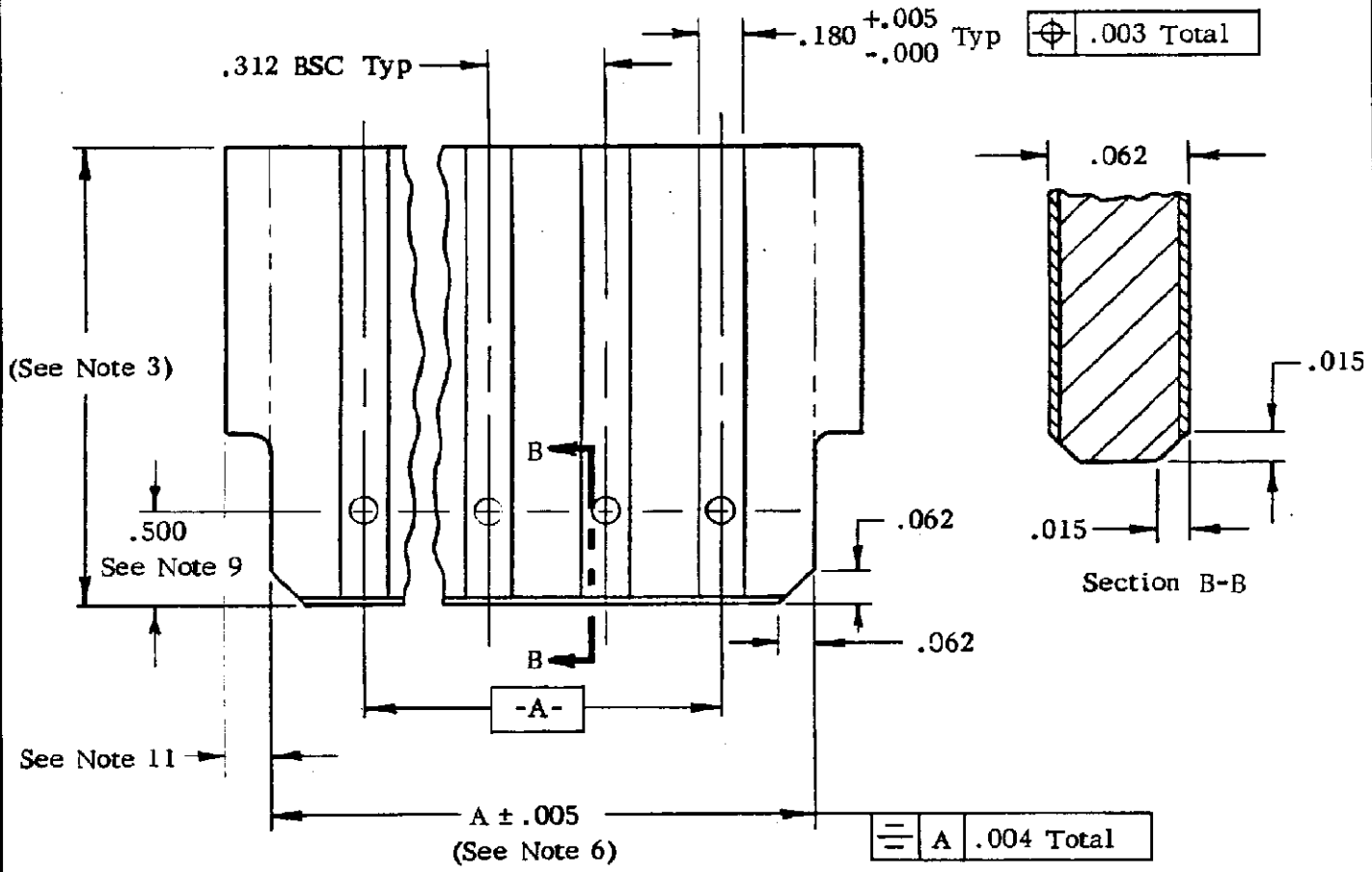
- A. Test samples shall consist of 6 connectors of the greatest number of positions of each connector type offered, 3 each Test Sequence 1 and Test Sequence 2. Two additional specimens shall be selected from the least number of positions offered and tested to Test Sequence 2.
- B. Twenty contacts of each style and desired wire size shall be tested to Test Sequence 3.

3.5. Acceptance Quality Level

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

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Notes:

1. Dimensions are in inches.
2. Unless otherwise specified, tolerance is $\pm .005$.
3. The test card shall extend $4.00 \pm .02$ from the receptacle after insertion.
4. Number of contacts shall be the same as on the corresponding printed wiring connector.
5. Printed circuit test board shall be 5 oz-copper and tin/lead over nickel plated per MIL-STD-275.
6. This dimension shall be the minimum connector card slot length minus .008.
7. Conductor configuration optional beyond card slot depth.
8. Printed wiring shall be identical on both sides.
9. Printed wiring required on both sides of board for 15-30 amp application and shall be commoned on the printed circuit board at location indicated.
10. 15 amp max for single sided printed circuit board.
11. Optional configuration when required for use with card guides or test fixtures. Dimension to be determined to meet fixture design.

Figure 4
Printed Circuit Board

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NAME CONNECTOR, EDGE, HIGH CURRENT			