
Twin Leaf Connector

1. SCOPE

1.1. Content

This specification covers the performance requirements for the AMP® Twin Leaf mother board connector. This connector is a multi-contact, edge board type assembly for wrap or solder applications. Connectors are available having .100, .125, .150 or .156 inch centerline spacing between adjacent contacts and .200 inch spacing between contact rows.

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.

2.2. The following documents describe testing of this product:

- A. 109-9000: Packaging Components Division Connector Test Methods.
- B. MIL-STD-1344: Test Methods for Electrical Connectors.

3. PERFORMANCE REQUIREMENTS

3.1. Ratings

- A. Current: 3.0 amperes maximum per contact
- B. Temperature: -55° to 105° C

3.2. Test Requirements and Procedures Summary

Test Description	Requirements	Procedure												
Examination of Product	Meets requirements of drawing	Dimensional and visual												
Termination Resistance, Low Level	.010 ohms maximum	50 mv maximum open circuit, 100 ma maximum short circuit.												
Termination Resistance Rated Current	.010 ohms maximum	3 amperes												
Insulation Resistance	5000 megohms minimum initial; 1000 megohms minimum final	500 vdc, unmated.												
Dielectric Withstanding Voltage	<p style="text-align: center;">Test Voltage vrms Centerline Spacing</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: left;">Altitude</td> <td style="text-align: center;">.100/.125</td> <td style="text-align: center;">.150/.156</td> </tr> <tr> <td style="text-align: left;">Sea Level</td> <td style="text-align: center;">1000</td> <td style="text-align: center;">1500</td> </tr> <tr> <td style="text-align: left;">50,000 ft.</td> <td style="text-align: center;">400</td> <td style="text-align: center;">600</td> </tr> <tr> <td style="text-align: left;">70,000 ft.</td> <td style="text-align: center;">280</td> <td style="text-align: center;">400</td> </tr> </table> <p>5 ma maximum leakage</p>	Altitude	.100/.125	.150/.156	Sea Level	1000	1500	50,000 ft.	400	600	70,000 ft.	280	400	Unmated connectors, test between adjacent contacts, and contacts to mounting hardware.
Altitude	.100/.125	.150/.156												
Sea Level	1000	1500												
50,000 ft.	400	600												
70,000 ft.	280	400												
Contact Separation Force	1.0 ounce minimum per contact pair	Size 3 times with maximum thickness gage .070; check with minimum thickness gage .054.												
Connector Mating Force	16.0 ounces maximum average per contact pair	Maximum thickness gage .070.												
Durability	No evidence of physical damage; meet contact separation force and termination resistance rated current.	100 cycles mating and unmating with maximum thickness gage .070.												
Temperature Cycling	No physical damage.	-55° to 105° C												
Vibration	No interruption of continuity greater than 1 microsecond; no physical damage	Series wired and mated with printed circuit board. 10 to 55 Hz; .06 inch double amplitude, 100 ma current.												

Figure 1 (cont)

Test Description	Requirements	Procedure
Shock (Specified Pulse)	No interruption of continuity greater than 1 microsecond; no physical damage.	Series wired and mated with printed circuit board. 100 G's, 6 milliseconds, sawtooth, 100 ma current.
Humidity	Remove from the chamber and air dry at room ambient conditions for 4 hours before electrical tests. Meet insulation resistance final and dielectric withstanding voltage.	90-95% RH, 96 hours 40° C; unmated.

Figure 1 (end)

3.3. Connector Tests and Sequence

Test	MIL-STD-1344 Method	109-9000 Requirement Paragraph	Test Sequence	
			1	2
Examination of Product		5.1.	X	X
Connector Mating Force	2013.1	5.8.		X
Termination Resistance, Low Level (b)	3002.1	5.2.	X	X
Termination Resistance, Rated Current (b)	3004.1	5.3.	X	X
Insulation Resistance	3003.1	5.4.	X	
Dielectric Withstanding Voltage	3001.1 cond I, III & IV	5.5.	X	
Contact Separation Force	2014	5.7.		X
Durability Contact Separation Force Termination Resistance, Rated Current	2016	5.10.	X	X
Temperature Cycling (a)	1003.1, cond A	5.11.	X	
Vibration	2005.1, cond I	5.12.		X
Shock (Specified Pulse)	2004.1, cond G	5.13.		X
Humidity Insulation Resistance Dielectric Withstanding Voltage	1002.2 Type I, cond B	5.14.	X	
Termination Resistance, Low Level (b)	3002.1	5.2.	X	X
Termination Resistance, Rated Current (b)	3004.1	5.3.	X	X

(a) Upper temperature limit 105°C

(b) See Figure 3

Figure 2

3.4. Selection of Test Samples

- A. Test samples shall consist of 6 connectors containing the largest 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. Connectors shall be mounted in accordance with AMP Instruction Sheet 7498. Card guides, screws, keys and other hardware normally used with the connectors shall be included with the test specimens.

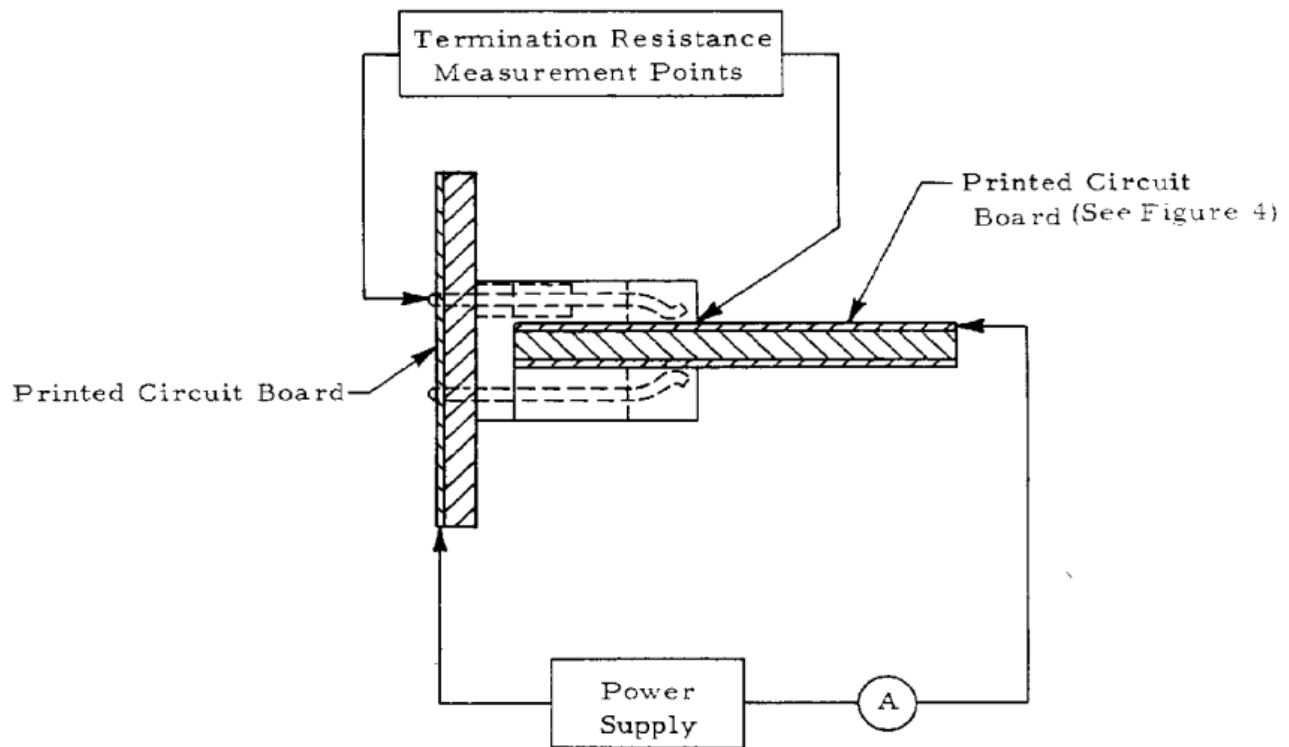
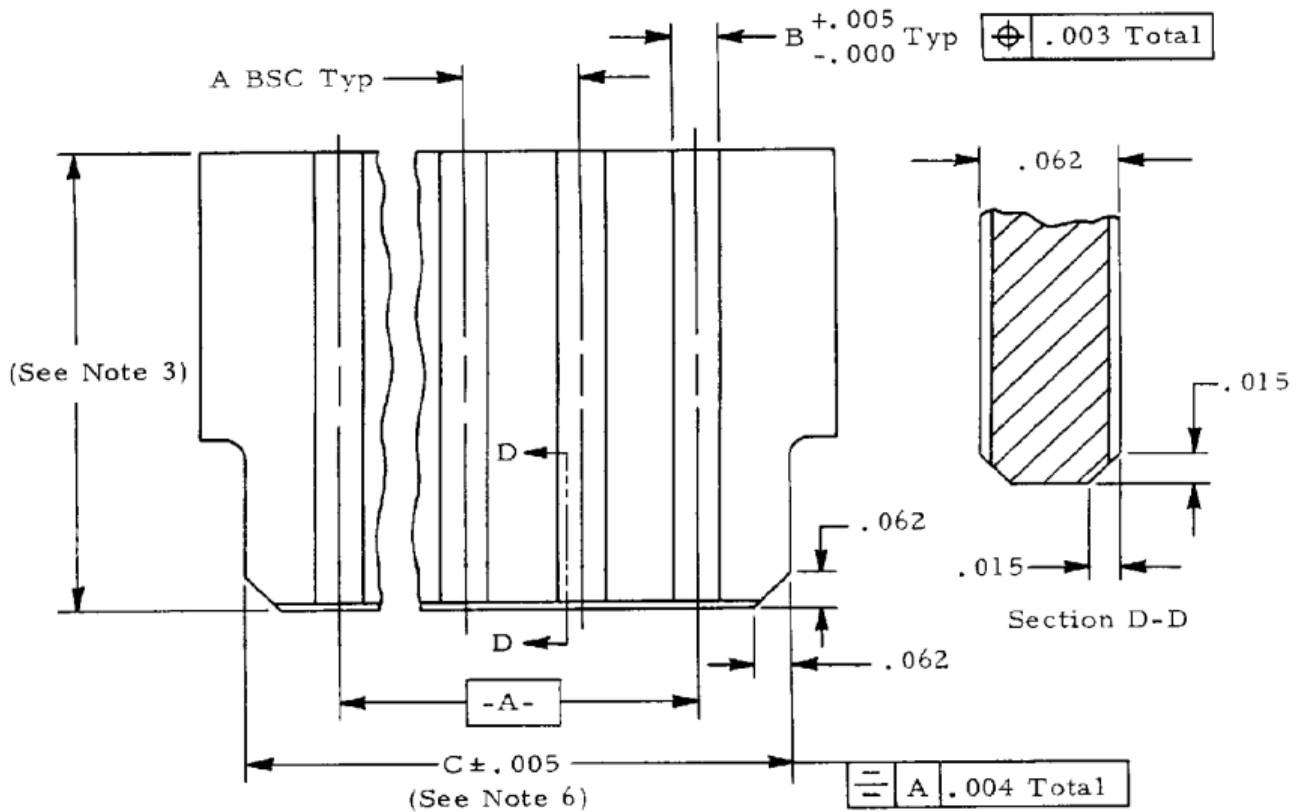


Figure 3

Typical Termination Resistance Measurement Points for Board to Board Type Connectors



Connector Contact Spacing	A BSC	B
.100	.100	.052
.125	.125	.078
.150	.150	.094
.156	.156	.094

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 2 oz copper and gold 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.

Figure 4
Printed Circuit Board

