Connector, AMPLIMITE*, .050 Series, Stacked

1. INTRODUCTION

1.1. Purpose

Testing was performed on the AMP* .050 Series Stacked AMPLIMITE* connector to determine its conformance to the requirements of AMP Product Specification 108-1228-1 Rev. A.

1.2. Scope

This report covers the electrical, mechanical, and environmental performance of the .050 Series Stacked AMPLIMITE connector manufactured by the Global Personal Computer Division. The testing was performed between February 24, 1997 and April 18, 1997.

1.3. Conclusion

The .050 Series Stacked AMPLIMITE connector, listed in paragraph 1.5., meets the electrical, mechanical, and environmental performance requirements of AMP Product Specification 108-1228-1 Rev. A.

1.4. Product Description

The .050 Series Stacked AMPLIMITE connectors utilize the standard .050 Series receptacle interface. The stacked connectors are designed to optimize board space.

1.5. Test Samples

The test samples were randomly selected from normal current production lots, and the following part numbers were used for test:

Test Group	Quantity	Part Nbr	Description
1,2	10	787678-1	50 Position Receptacle
1,2	10	1-750913-7	50 Position Plug

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| Indicates change

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1.6. Qualification Test Sequence

Test or Examination	Test Groups (a)	
	1	2
Examination of Product	1,7	1,6
Termination Resistance, Dry Circuit	2,6	3,5
Capacitance		2(b)
Vibration	4	
Physical Shock	5	
Durability	3	
Mixed Flowing Gas		4

NOTE

(a) The numbers indicate sequence in which tests were performed.
(b) Unmated and unmounted samples.

2. SUMMARY OF TESTING

2.1. Examination of Product - All Groups

All samples submitted for testing were selected from normal current production lots. They were inspected and accepted by the Product Assurance.

2.2. Termination Resistance, Dry Circuit - Groups 1 and 2

All termination resistance measurements, taken at 100 milliamperes DC and 50 millivolts open circuit voltage were less than 30 milliohms for the upper connector and 25 milliohms for the lower connector.

Test Group	Nbr of Data Pts.	Condition	Min	Max	Mean
		Upper Connector			
1	30	Initial	16.10	23.30	20.169
		After Mechanical	16.48	22.84	19.880
2	30	Initial	16.80	25.11	20.238
		After Mixed Gas	16.92	25.06	20.433
		Lower Connector			
1	30	Initial	11.79	19.45	15.315
		After Mechanical	13.63	18.63	16.058

All values in milliohms

2.3. Capacitance - Group 2

All capacitance measurements were less than 3.0 picofarads.

2.4. Vibration - Group 1

No discontinuities of the contacts were detected during vibration. Following vibration, no cracks, breaks, or loose parts on the connector assemblies were visible.

2.5. Physical Shock - Group 1

No discontinuities of the contacts were detected during physical shock. Following physical shock testing, no cracks, breaks, or loose parts on the connector assemblies were visible.

2.6. Durability - Group 1

No physical damage occurred to the samples as a result of mating and unmating the connector 500 times.

2.7. Mixed Flowing Gas - Group 2

No evidence of physical damage to either the contacts or the connector was visible as a result of exposure to the pollutants of mixed flowing gas.

3. TEST METHODS

3.1. Examination of Product

Product drawings and inspection plans were used to examine the samples. They were examined visually and functionally.

3.2. Termination Resistance, Low Level

Termination resistance measurements at low level current were made using a four terminal measuring technique (Figure 1). The test current was maintained at 100 milliamperes DC with an open circuit voltage of 50 millivolts DC.

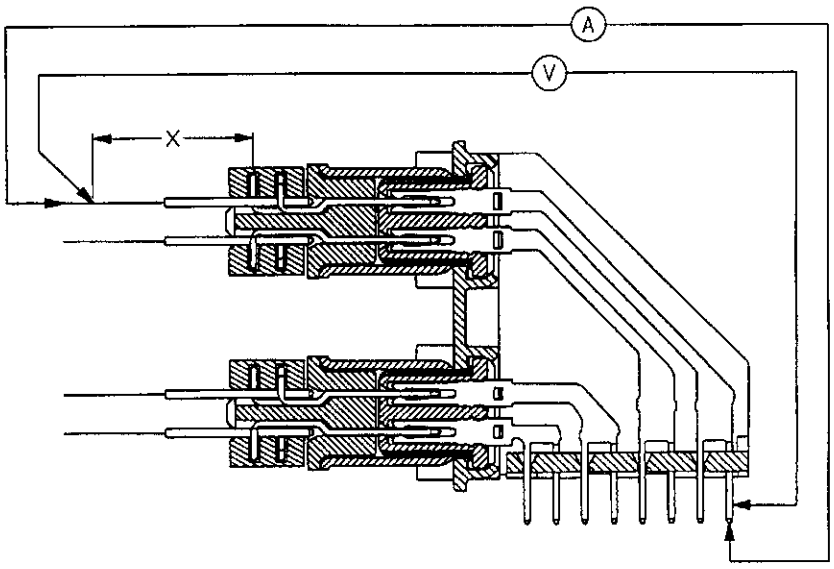

Figure 1
Typical Termination Resistance Measurement Points

3.3. Capacitance

Capacitance was measured between the adjacent contacts of unmated connectors, using a test frequency of 1.0 MHz.

3.4. Vibration, Random

Mated connectors were subjected to a random vibration test, specified by a random vibration spectrum, with excitation frequency bounds of 50 and 2000 Hz. The power spectral density at 50 Hz was 0.01 G^2/Hz. The spectrum sloped up at 6 dB per octave to a PSD of 0.04 G^2/Hz at 100 Hz. The spectrum was flat at 0.04 G^2/Hz from 100 to 1000 Hz. The spectrum sloped down at 6 dB per octave to the upper bound frequency of 2000 Hz, at which the PSD was 0.01 G^2/Hz. The root-mean square amplitude of the excitation was 7.56 GRMS. Samples were vibrated for 20 minutes in each of three mutually perpendicular axes, for a total test time of 60 minutes. The connectors were monitored for discontinuities greater than one microsecond, using a current of 100 milliamperes in the monitoring circuit.

3.5. Physical Shock

Mated connectors were subjected to a physical shock test, having a half-sine waveform of 30 gravity units (g peak) and a duration of 11 milliseconds. Three shocks in each direction were applied along the three mutually perpendicular planes, for a total of 18 shocks. The connectors were monitored for discontinuities greater than one microsecond, using a current of 100 milliamperes in the monitoring circuit.

3.6. Durability

Connectors were mated and unmated 500 times at a rate not exceeding 800 per hour.

3.7. Mixed Flowing Gas, Class III

Mated connectors were exposed for 20 days to a mixed flowing gas Class III exposure. Class III exposure is defined as a temperature of 30°C and a relative humidity of 75% with the pollutants of Cl_2 at 20 ppb, NO_2 at 200 ppb, and H_2S at 100 ppb. Samples were preconditioned with 10 cycles of durability.

4. VALIDATION

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