



QUALIFICATION TEST REPORT

CONNECTOR, PDS 125 BUS PLUG

501-166

Rev. 0

Product Specification: 108-1101 Rev. 0
CTL No.: CTL1080-109-015
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CORPORATE TEST LABORATORY

Qualification Test Report Connector, PDS 125 Bus Plug

1. Introduction

1.1 Purpose

Testing was performed on AMP's PDS 125 BUS Plug Connector to determine its conformance to the requirements of AMP Product Specification 108-1101 Rev.0.

1.2 Scope

This report covers the electrical, mechanical, and environmental performance of the PDS 125 Bus Plug Connector manufactured by the Business Development Division of the Capital Goods Business Sector. The testing was performed between October 18, 1989 and November 1, 1990.

1.3 Conclusion

The PDS 125 BUS Plug Connector meets the electrical, mechanical, and environmental performance requirements of AMP Product Specification 108-1101 Rev. 0.

1.4 Product Description

AMP Pluggable Bus Bar Connector (125 series) is designed to be used as a part of the AMP Power Distribution System (PDS). Connectors designated as 125F have mounting flanges at right angle to the bus bar. Those designated as 125F2 have mounting flanges in-line with the bus bar. Power can be supplied to the connector through the mounting plane or through a cable.

The Contacts are made of Copper alloy with silver over nickel plating. The contacts are lubricated. The Housing (antioverstress plate) is stainless steel.

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 Number	Description
1	30	104501-1	125-F2 Assembly
	60	N/A	.125x4x12" Copper Bar
2	8	104502-1	125-F Assembly
	8	N/A	.125x4x12" Copper Bar

1.6 Qualification Test Sequence

Test or Examination	Test Groups	
	1	2
Examination of Product	1,10	1,4
Termination Resistance, Specified Current	2,8	
T-Rise vs. Current	3,9	
Vibration	7	
Mating Force		2
Unmating Force		3
Durability	4	
Mixed Flowing Gas	5	
Temperature Life	6	

The numbers indicate sequence in which tests were performed.

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 Department of the Capital Good Business Sector.

2.2 Termination Resistance, Specified Current - Group 1

All termination resistance measurements taken at the specified current of 1.0 amperes dc. were less than 100 microhms.

Test Group	No. of Samples	Condition	Test Current	Min.	Max.	Mean
1	20	Initial	1.0	26.70	33.98	29.81
		Final	1.0	24.86	32.55	27.39

All values in microhms

2.3 Temperature Rise vs. Current - Group 1

All assemblies had a temperature rise of less than 30°C above ambient when a specified current of 569 amperes dc was applied.

2.4 Vibration - Group 1

Following vibration, no cracks, breaks, or loose parts on the connector assemblies were visible. The maximum change in resistance (ΔR) recorded during vibration was less than 37.5 microhms.

2.5 Mating Force - Group 2

All mating force measurements were less than 30 pounds.

2.6 Unmating Force - Group 2

All unmating force measurements were greater than 1.0 pounds.

2.7 Durability - Group 1

No physical damage occurred to the assemblies as a result of mating and unmating the assemblies to bus bars 100 times.

2.8 Mixed Flowing Gas - Group 1

No evidence of physical damage to the assemblies or the bus bars was visible as a result of exposure to the pollutants of mixed flowing gas.

2.9 Temperature Life - Group 1

No evidence of physical damage to the assembly or the bus bars was visible as a result of exposure to an elevated temperature.

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, Specified Current

Termination resistance measurements taken at the specified current of 1.0 amperes dc were made, using a four terminal measuring technique (Figure 1).

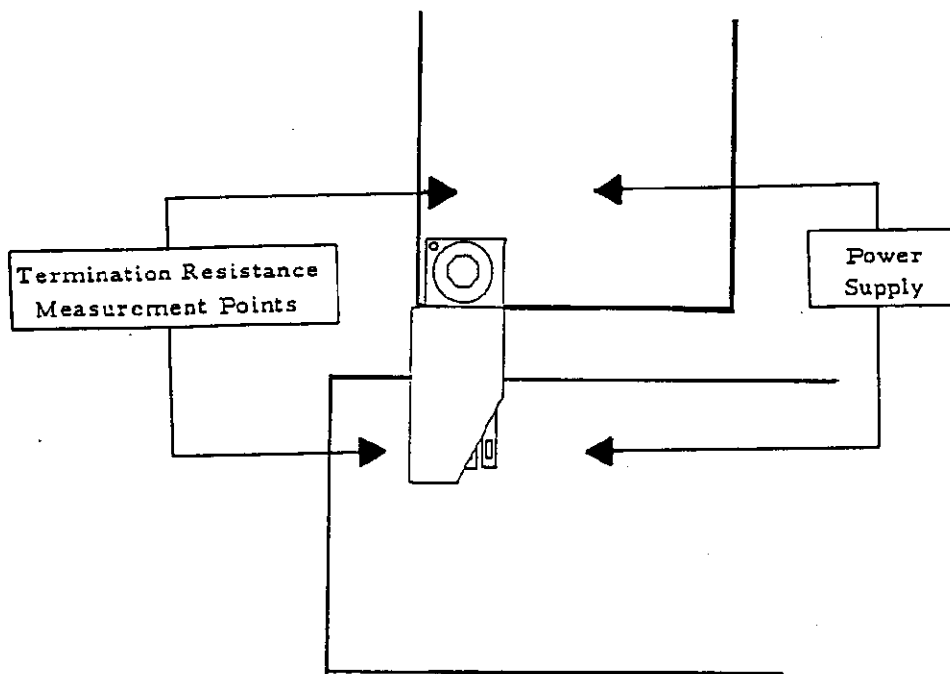


Figure 1
Typical Termination Resistance Measurement Points

3.3 Temperature Rise vs Specified Current

Assembly temperature was measured, while energized at the specified current of 569 amperes dc. Thermocouples were attached to the connectors to measure their temperatures. This temperature was then subtracted from the ambient temperature to find the temperature rise. When three readings at five minute intervals were the same, the readings were recorded.

3.4 Vibration, Random

Mated assemblies were subjected to a random vibration test, specified by a random vibration spectrum, with excitation frequency bounds of 10 and 70 hertz. The power spectral density was $0.5 G^2/Hz$. The root-mean square amplitude of the excitation was 5 GRMS.

3.5 Mating Force

The force required to mate assemblies to a bus bar was measured, using a free floating fixture with the rate of travel at 0.5 inch/minute.

3.6 Unmating Force

The force required to unmate assemblies from a bus bar was measured, using a free floating fixture with the rate of travel at 0.5 inch/minute.

3.7 Durability

Assemblies were mated and unmated, to a bus bar 100 times at a rate not exceeding 500 per hour.

3.8 Mixed Flowing Gas, Class III

Mated assemblies were exposed for 20 days to an 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.

3.9 Temperature Life

Mated assemblies were exposed to a temperature of 125°C for 792 hours.

4. Validation

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