PRODUCT SPECIFICATION

1. SCOPE

1.1. Content

This specification covers performance, tests and quality requirements for AMP* ZIF-Line 50 flat flexible discrete circuit .050 inch centerline connector and ZIF-Line 100 flat flexible discreet circuit .100 inch centerline connector. These connectors provide a connection for FEC and can accommodate a thickness range between .004 and .012 inch in contact area with contact pads on .050 and .100 inch centerlines as required. Connectors are for vertical mounting on .062 inch thick printed circuit boards.

1.2. Qualification

When tests are performed on subject product line, procedures specified in AMP 109 series specifications shall be used. All inspections shall be performed using applicable inspection plan and product drawing.

2. APPLICABLE DOCUMENTS

The following documents form a part of this specification to the extent specified herein. Unless otherwise specified, latest edition of the document applies. In the event of conflict between requirements of this specification and product drawing, product drawing shall take precedence. In the event of conflict between requirements of this specification and referenced documents, this specification shall take precedence.

2.1. AMP Documents

A. 109-1: General Requirements for Test Specifications
B. 109 Series: Test Specifications as indicated in Figure 1. (Comply with MIL-STD-202, MIL-STD-1344 and EIA RS-364)
C. Corporate Bulletin 401-76: Cross-reference between AMP Test Specifications and Military or Commercial Documents
D. 114-16014: Application Specification
E. 501-240: Test Report

3. REQUIREMENTS

3.1. Design and Construction

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

* Trademark

Product Code: 5626, 5627

LTR	REVISION RECORD	APP	DATE
0	Release per EC 0020-0083-94	[signature]	14 Feb 94

DR [signature] 2Feb94
CHK [signature] 8FEB94
APP [signature] 9 Feb 94

AMP Incorporated
Harrisburg, PA 17105-3608

NO 108-16025 | REV 0 | LOC B

TITLE CONNECTOR, ZIF-LINE 50 & 100, FLEXIBLE FLAT CONDUCTOR CABLE, .050 & .100 INCH CENTERLINES

3.2. Materials

A. Contact: Phosphor bronze, tin-lead plating
B. Housing: Polyester, glass filled, UL94V-0

3.3. Ratings

A. Voltage: 150 vac
B. Current: 1 ampere maximum for single circuit
C. Temperature: -55 to 105°C

3.4. Performance and Test Description

Product is designed to meet electrical, mechanical and environmental performance requirements specified in Figure 1. All tests are performed at ambient environmental conditions per AMP Specification 109-1 unless otherwise specified.

3.5. Test Requirements and Procedures Summary

Test Description	Requirement	Procedure
Examination of product.	Meets requirements of product drawing and AMP Spec 114-16014.	Visual, dimensional and functional per applicable quality inspection plan.
ELECTRICAL		
Termination resistance, dry circuit.	Δ 20 milliohms maximum final.	Subject mated contacts assembled in housing to 50 mv open circuit at 100 ma maximum. See Figure 3. AMP Spec 109-6-1.
Dielectric withstanding voltage.	500 vac dielectric withstanding voltage. 1 minute hold. No breakdown or flashover.	Test between adjacent contacts of mated connector assemblies. AMP Spec 109-29-1.
Insulation resistance.	500 megohms minimum.	Test between adjacent contacts of mated connector assemblies. AMP Spec 109-28-4.
MECHANICAL		
Vibration, random.	No discontinuities greater than 1 microsecond. See Note (a).	Subject mated connectors to 5.35 G's rms. AMP Spec 109-21-5, Test level A, Duration 20 minutes.

Figure 1 (cont)

Test Description	Requirement	Procedure
Physical shock.	No discontinuities greater than 1 microsecond. See Note (a).	Subject mated connectors to 100 G's sawtooth shock pulses of 6 milliseconds duration. 3 shocks in each direction applied along 3 mutually perpendicular planes, 18 total shocks. AMP Spec 109-26-9.
Cable retention.	1 pound minimum.	Apply axial load to cable in direction perpendicular to top of connector at rate of .5 inch per minute.
Durability.	See Note (a).	Mate and unmate connector assemblies for 50 cycles at maximum rate of 600 cycles per hour. AMP Spec 109-27.
Solderability.	Solderable area shall have minimum of 95% solder coverage.	Subject contacts to solderability. AMP Spec 109-11-1.
ENVIRONMENTAL		
Thermal shock.	See Note (a).	Subject mated connectors to 25 cycles between -55 and 105°C. AMP Spec 109-22.
Humidity-temperature cycling.	See Note (a).	Subject mated connectors to 10 humidity-temperature cycles between 25 and 65°C at 95% RH. AMP Spec 109-23-4, Condition B.
Temperature life.	See Note (a).	Subject mated connectors to temperature life at 105°C for 300 hours. AMP Spec 109-43.

(a) Shall meet visual requirements, show no physical damage and shall meet requirements of additional tests as specified in Test Sequence in Figure 2.

Figure 1 (end)

3.6. Product Qualification and Requalification Test Sequence

Test or Examination	Test Group (a)				
	1	2	3	4	5
	Test Sequence (b)				
Examination of product	1,8	1,5	1,5	1,8	1,3
Termination resistance, dry circuit	2,6	2,4	2,4		
Dielectric withstanding voltage				3,7	
Insulation resistance				2,6	
Vibration	4				
Physical shock	5				
Cable retention	7				
Durability	3				
Solderability					2
Thermal shock				4	
Humidity-temperature cycling			3(c)	5(d)	
Temperature life		3(c)			

(a) See Para 4.1.A.
(b) Numbers indicate sequence in which tests are performed.
(c) Precondition samples with 10 cycles durability.
(d) Without cold shock.

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 and shall be selected at random from current production. All test groups shall consist of 5 connectors with minimum of 45 contacts. All test measurements shall consist of minimum of 30 random readings from each test group. All testing shall be conducted using circuitry consisting of .003 inch thick by .025 inch wide tin plated copper conductors on .050 inch thick centerlines with insulation on 1 side only in contact area. Total thickness in contact area shall be .004 inch minimum. See Application Specification for other circuitry parameters.

B. Test Sequence

Qualification inspection shall be verified by testing samples as specified in Figure 2.

4.2. Requalification Testing

If changes significantly affecting form, fit or function are made to product or manufacturing process, product assurance shall coordinate requalification testing, consisting of all or part of original testing sequence as determined by development/product, quality and reliability engineering.

4.3. Acceptance

Acceptance is based on verification that product meets requirements of Figure 1. Failures attributed to equipment, test setup or operator deficiencies shall not disqualify product. When product failure occurs, corrective action shall be taken and samples resubmitted for qualification. Testing to confirm corrective action is required before resubmittal.

4.4. Quality Conformance Inspection

Applicable AMP quality inspection plan will specify sampling acceptable quality level to be used. Dimensional and functional requirements shall be in accordance with applicable product drawing and this specification.

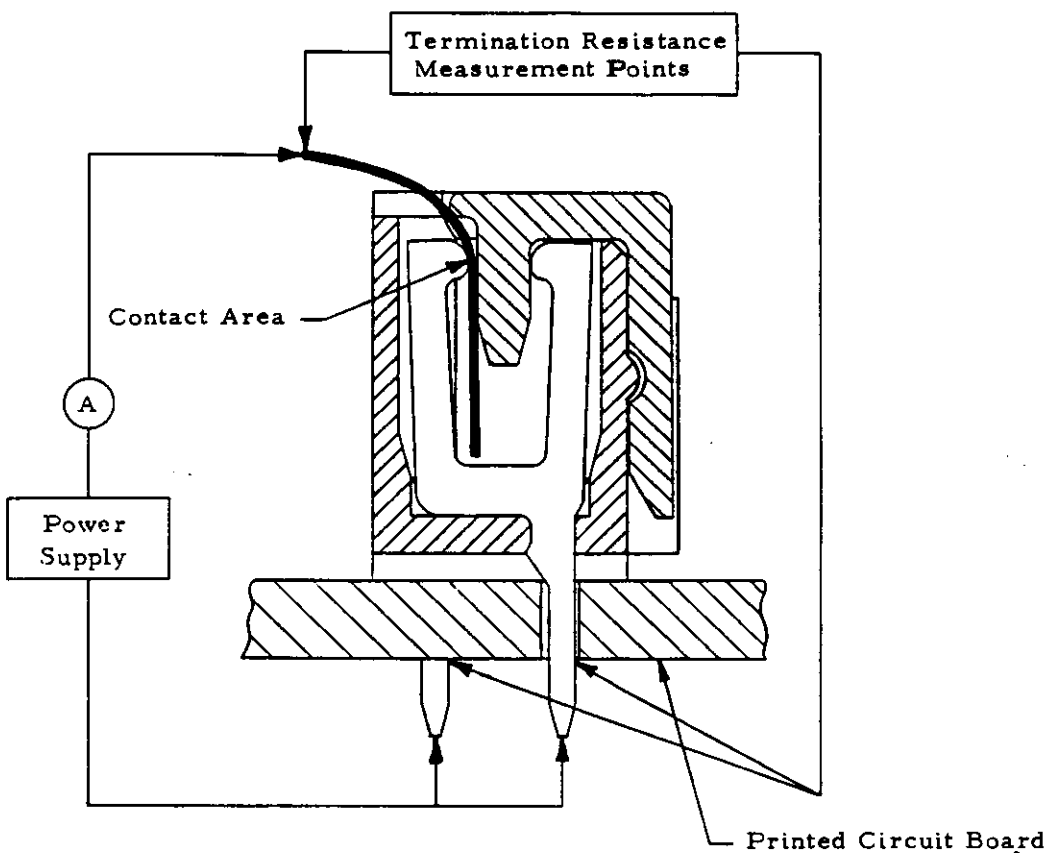

Figure 3
Termination Resistance Measurement Points