
Giga-Bit Interface Converter Module

1. SCOPE

1.1. Content

This specification covers performance, tests and quality requirements for the AMP* Giga-Bit Interface Converter (GBIC) Module, Definition "2" Copper High Speed Serial Data Connector (HSSDC), and Definition "2" Copper DB-9 Intraenclosure.

1.2. Qualification

When tests are performed on the subject product line, procedures specified in Figure 1 shall be used. All inspections shall be performed using the applicable inspection plan and product drawing.

1.3. Qualification Test Results

Successful qualification testing on the subject product line was completed on 16Aug99. The Qualification Test Report number for this testing is 501-490. This documentation is on file at and available from Engineering Practices and Standards (EPS).

2. APPLICABLE DOCUMENTS

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

- A. 108-1548: Product Specification (Connector, CHAMP*, Blindmate, .050 Series I)
- B. 108-1705: Product Specification (Connector, High Speed Serial Data)
- C. 108-40005: Product Specification (Connector, AMPLIMITE*, Subminiature D)
- D. 109 Series: Test Specifications as indicated in Figure 1
- E. 109-1: General Requirements for Test Specifications
- F. 109-197: AMP Test Specifications vs EIA and IEC Test Methods
- G. 501-490: Qualification Test Report

3. REQUIREMENTS

3.1. Design and Construction

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

3.2. Materials

Materials used in the construction of this product shall be as specified on the applicable product drawing.

3.3. Ratings

- A. Voltage: 4.75 to 5.25 volts DC
- B. Current: Signal application only
- C. Temperature: -10 to 70°C
- D. Humidity: 10 to 90% RH, non-condensing

3.4. Performance and Test Description

Product is designed to meet the electrical, mechanical and environmental performance requirements specified in Figure 1. Unless otherwise specified, all tests shall be performed at ambient environmental conditions per AMP Specification 109-1.

3.5. Test Requirements and Procedures Summary

Test Description	Requirement	Procedure
Examination of product.	Meets requirements of product drawing.	Visual, dimensional and functional per applicable quality inspection plan.
ELECTRICAL		
Termination resistance.	Maximum/minimum ΔR 10 milliohms.	AMP Spec 109-6-1. Subject specimens to 50 millivolt maximum open circuit voltage at 100 milliamperes maximum. See Figure 3.
Insulation resistance.	100 megohms minimum.	AMP Spec 109-28-4. Test between CHAMP contacts 12 and 13, and 18 and 19 of mated specimens.
Dielectric withstanding voltage.	300 volts AC at sea level. 1 minute hold with no breakdown or flashover.	AMP Spec 109-29-1. Test between CHAMP contacts 12 and 13, and 18 and 19 of mated specimens.
MECHANICAL		
Vibration, random.	No discontinuities of 1 microsecond or longer duration. See Note.	AMP Spec 109-21-7. Subject mated specimens to 3.13 G's rms between 5-500 Hz. 15 minutes in each of 3 mutually perpendicular planes. See Figure 4.
Mechanical shock, specified pulse.	No discontinuities of 1 microsecond or longer duration. See Note.	AMP Spec 109-26-1, except 30 G's. Subject mated specimens to 30 G's half-sine shock pulses of 11 milliseconds duration. 3 shocks in each direction applied along 3 mutually perpendicular planes, 18 total shocks. See Figure 4.

Figure 1 (cont)

Test Description	Requirement	Procedure
Durability.	See Note.	AMP Spec 109-27. Manually mate and unmate the 2 connector interfaces of each test specimen for 100 cycles at a maximum rate of 600 cycles per hour.
Mating force.	35 Newtons maximum.	AMP Spec 109-42, Condition A. Measure force necessary to mate specimens at a maximum rate of 12.7 mm per minute.
Unmating force.	24 Newtons maximum.	AMP Spec 109-42, Condition A. Measure force necessary to unmate specimens with latches disabled at a maximum rate of 12.7 mm per minute.
Retention.	125 Newtons minimum. See Note.	AMP Spec 109-50. Apply constant force of 125 Newtons to a fully loaded specimen for a minimum of 1 second. See Figure 5.
ENVIRONMENTAL		
Thermal shock.	See Note.	AMP Spec 109-22. Subject mated specimens to 5 cycles between -10 and 70°C.
Humidity-temperature cycling.	See Note.	AMP Spec 109-23-3, Condition B. Subject mated specimens to 10 cycles between 25 and 65°C at 95% RH.
Temperature life.	See Note.	AMP Spec 109-43. Subject mated specimens to temperature life at 70°C for 500 hours.

NOTE *Shall meet visual requirements, show no physical damage, and meet requirements of additional tests as specified in the Product Qualification and Requalification Test Sequence shown in Figure 2.*

Figure 1 (end)

3.6. Product Qualification and Requalification Test Sequence

Test or Examination	Test Group (a)			
	1	2	3	4
	Test Sequence (b)			
Examination of product	1,10	1,8	1,5	1,10
Termination resistance	3,7		2,4	3,7
Insulation resistance		2,6		
Dielectric withstanding voltage		3,7		
Vibration	5			5
Mechanical shock	6			6
Durability	4			4
Mating force	2			2
Unmating force	9			9
Retention	8			8
Thermal shock		4		
Humidity-temperature cycling		5		
Temperature life			3(c)	

NOTE (a) See paragraph 4.1.A.
 (b) Numbers indicate sequence in which tests are performed.
 (c) Precondition specimens with 10 cycles durability.

Figure 2

4. QUALITY ASSURANCE PROVISIONS

4.1. Qualification Testing

A. Specimen Selection

Specimens shall be prepared in accordance with applicable Instruction Sheets and shall be selected at random from current production. Test groups 1 and 3 shall each consist of 5 passive GBIC connectors with HSSDC connector interface, and 5 CHAMP Blindmate media converter module guide assemblies. Test group 2 shall consist of 5 passive GBIC connectors with HSSDC connector interface. Test group 4 shall consist of 5 passive GBIC connectors with DB-9 connector interface, and 5 CHAMP Blindmate media converter module guide assemblies.

B. Test Sequence

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

4.2. Requalification Testing

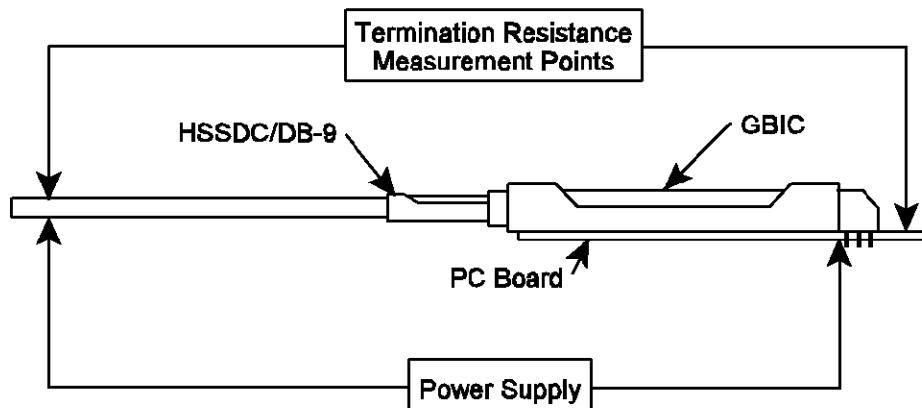
If changes significantly affecting form, fit or function are made to the product or manufacturing process, product assurance shall coordinate requalification testing, consisting of all or part of the original testing sequence as determined by development/product, quality and reliability engineering.

4.3. Acceptance

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

4.4. Quality Conformance Inspection

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



NOTE Replace the 4 internal board capacitors by soldering a 24 AWG wire across the pads of each capacitor. Determine the GBIC system termination resistance by measuring the specimen as shown.

Figure 3
Termination Resistance Measurement Points

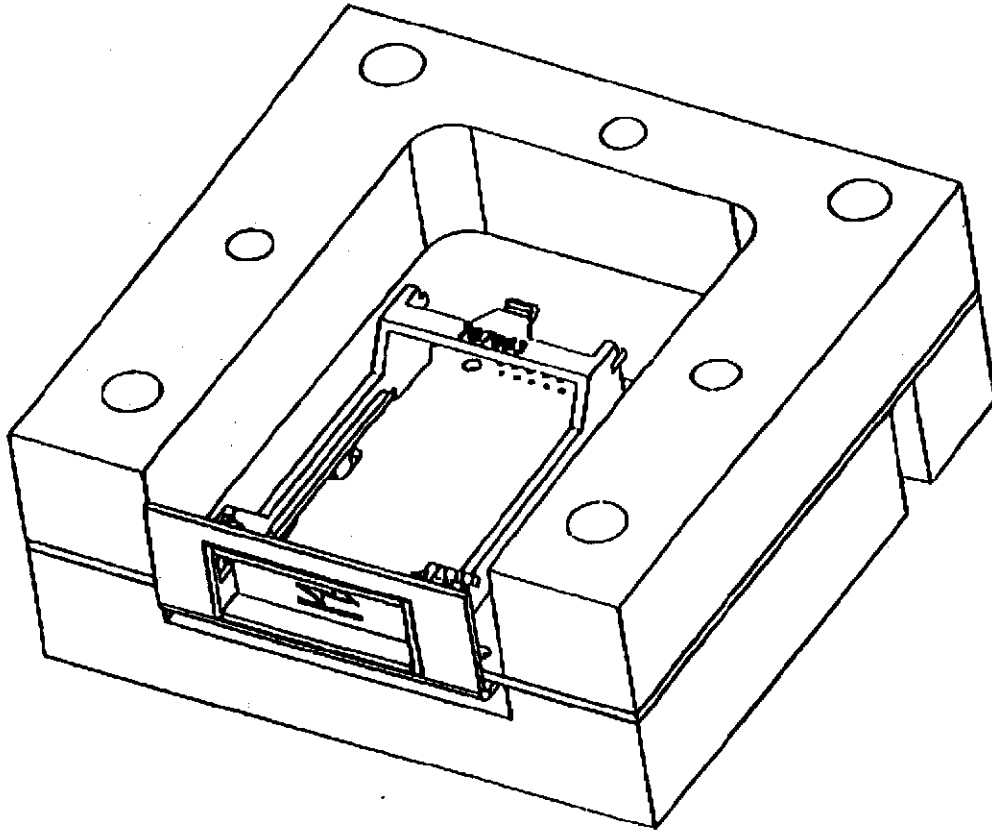


Figure 4
Vibration & Mechanical Shock Mounting Fixture

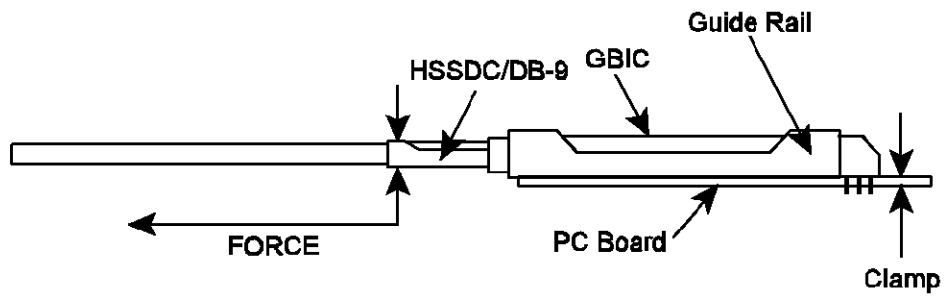


Figure 5
Retention Mounting Fixture