
Connector, CHAMP* .050 Low Profile Docking

1. SCOPE

1.1. Content

This specification covers performance, tests and quality requirements for the CHAMP* .050 series low profile docking connector. This shielded, 200 position, printed circuit board mounted connector system includes right angle and vertical plugs and right angle receptacles.

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 11Nov97. The test file number for this testing is CTL-000-020. This documentation is on file at and available from the Americas Regional Laboratory.

2. APPLICABLE DOCUMENTS

The following 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.

2.1. TE Connectivity (TE) Documents

- 109-1: General Requirements for Test Specifications
- 109 Series: Test Specifications as indicated in Figure 1
- 501-403: 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

- Contact: Copper alloy, gold plating on mating end, tin-lead plating on opposite end, all over nickel plating
- Guide hardware: Brass, nickel over copper plating
- Ground plates: Stainless steel
- Housing: Natural polyester, UL94V-0
- Retention legs: Brass, tin-lead over nickel plating
- Tine plates: Natural polyester, UL94V-0

3.3. Ratings

- Voltage: 500 volts AC
- Current: Signal application only
- Temperature: -55 to 85°C

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 Test 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.	ΔR 25 milliohms maximum.	TE Spec 109-6-1. Subject samples to 50 mv maximum open circuit at 100 ma maximum. See Figure 3.
Insulation resistance.	1000 megohms minimum.	TE Spec 109-28-4. Test between adjacent contacts of mated samples.
Dielectric withstanding voltage.	500 vac at sea level. 1 minute hold with no breakdown or flashover.	TE Spec 109-29-1. Test between adjacent contacts of mated samples.
MECHANICAL		
Solderability.	Solderable area shall have minimum of 95% solder coverage.	TE Spec 109-11-2. Subject contacts to solderability.
Vibration, random.	No discontinuities of 1 microsecond or longer duration. See Note.	TE Spec 109-21-7. Subject mated samples 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.	TE Spec 109-26-1, except 30 G's. Subject mated samples 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.
Durability.	See Note.	TE Spec 109-27. Mate and unmate samples for 500 cycles at a maximum rate of 600 cycles per hour.

Figure 1 (continued)

Test Description	Requirement	Procedure
Mating force.	0.441 Newton maximum average per contact.	TE Spec 109-42, Condition A. Measure force necessary to mate samples at a maximum rate of .5 inch per minute.
Unmating force.	0.147 Newton minimum average per contact.	TE Spec 109-42, Condition A. Measure force necessary to unmate samples at a maximum rate of .5 inch per minute.
ENVIRONMENTAL		
Thermal shock.	See Note.	TE Spec 109-22. Subject unmated samples to 5 cycles between -55 and 85°C.
Humidity-temperature cycling.	See Note.	TE Spec 109-23-3, Condition B. Subject unmated samples to 10 cycles between 25 and 65°C at 95%.
Temperature life.	See Note.	TE Spec 109-43. Subject mated samples to temperature life at 85°C for 300 hours.
Mixed flowing gas.	See Note.	TE Spec 109-85-2. Subject mated samples to environmental class II for 14 days.

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

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

Figure 2

4. QUALITY ASSURANCE PROVISIONS

4.1. Qualification Testing

A. Sample Selection

Samples shall be prepared in accordance with applicable Instruction Sheets and shall be selected at random from current production. All test groups shall each consist of a minimum of 5 samples.

B. Test Sequence

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

4.2. Requalification Testing

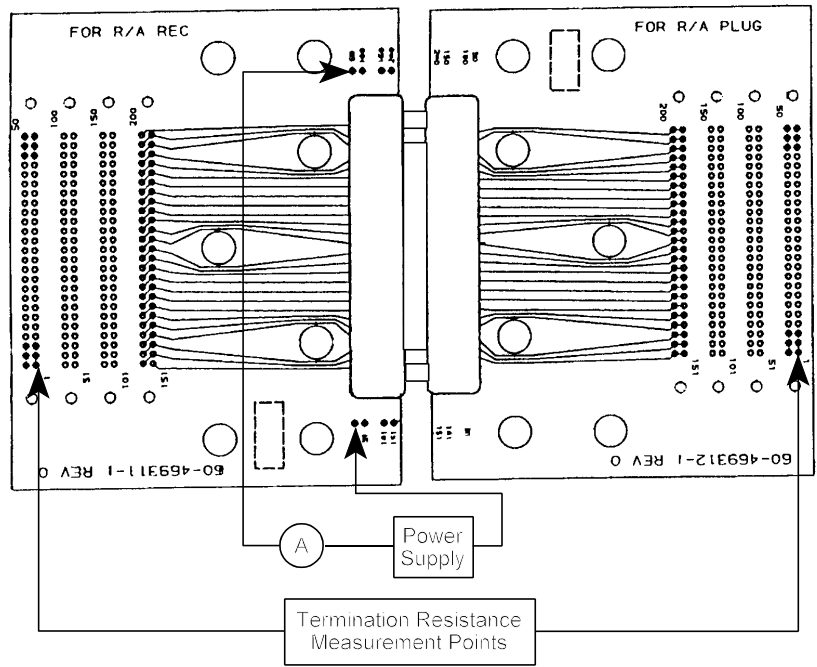
If changes significantly affecting form, fit or function are made to the product or manufacturing process, product assurance shall coordinate requalification testing, consisting of all or part of the original testing sequence as determined by development/product, quality and reliability engineering.

4.3. Acceptance

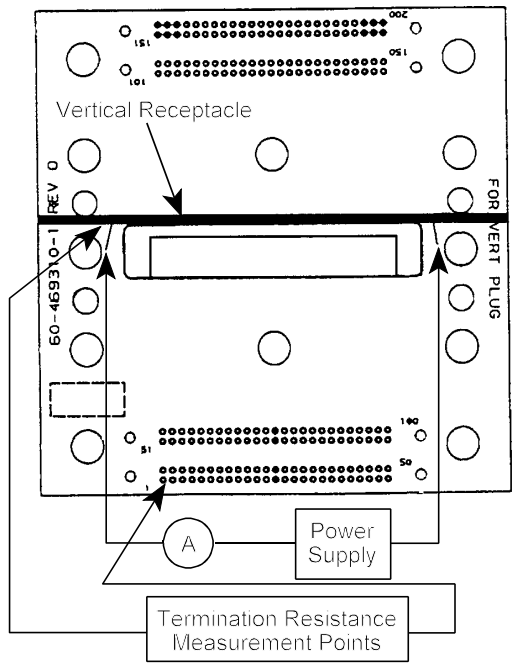
Acceptance is based on verification that the product meets the requirements of Figure 1. Failures attributed to equipment, test setup or operator deficiencies shall not disqualify the product. When product failure occurs, corrective action shall be taken and samples resubmitted for qualification. Testing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

4.4. Quality Conformance Inspection

The applicable 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.

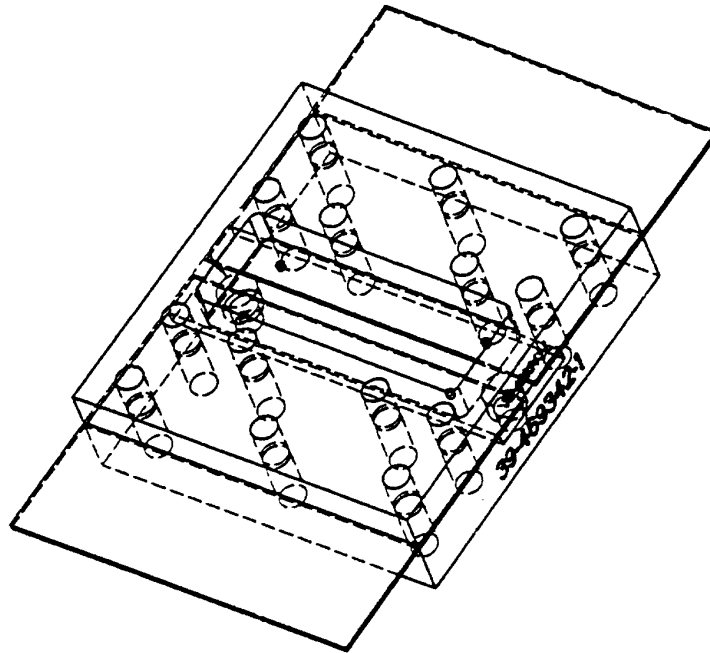


Vertical

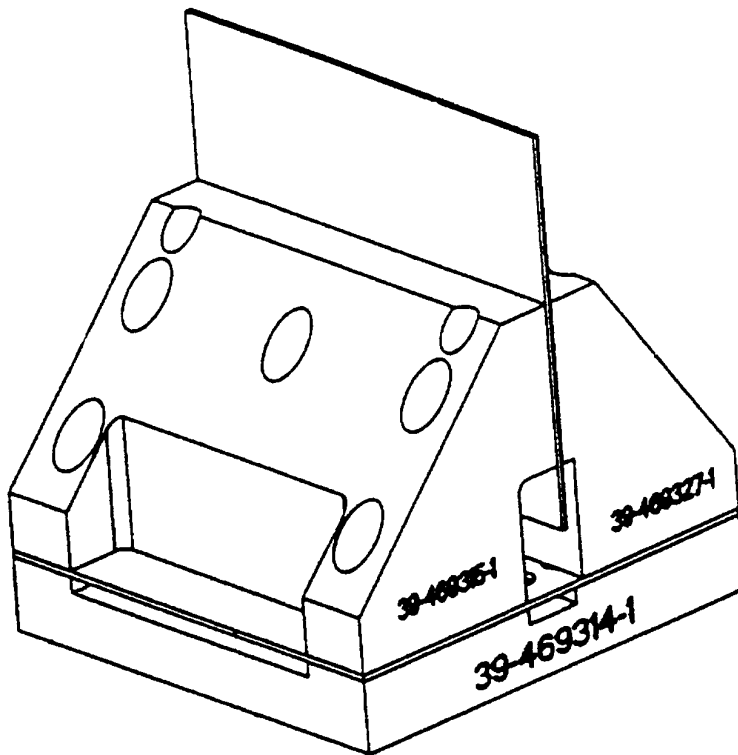


Right Angle

Figure 3
Termination Resistance Measurement Points



Vertical



Right Angle

Figure 4
Vibration & Mechanical Shock Mounting Fixtures