
Connector, Short Point Receptacle Contact

1. SCOPE

1.1. Content

This specification covers performance, tests and quality requirements for TE Connectivity (TE) short point receptacle contact and connector system. This contact is a separable electrical connection device for mating to .025 inch square posts. It can be crimped to 20 to 32 AWG wire sizes and is intended to be used with a connector housing with centerline spacing of at least .100 inch.

1.2. Qualification

When tests are performed on subject product line, procedures specified in 109 Series Test 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. TE Documents

- 109-1: General Requirements for Test Specifications
- 109 Series: Test Specifications as indicated in Figure 1
- 114-25038: Application Specification
- 501-292: Qualification Test Report

3. REQUIREMENTS

3.1. Design and Construction

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

3.2. Materials

- Contact: Copper alloy, duplex plated gold and tin over nickel plating
- Housing: Polyamide, black, glass filled, UL94V-0

3.3. Ratings

- Voltage: 300 volts AC
- Current: Signal application only
- Temperature: -65 to 105°C

3.4. Performance and Test Description

Product is designed to meet 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 and Application Specification 114-25038.	Visual, dimensional and functional per applicable quality inspection plan.								
ELECTRICAL										
Termination resistance.	15 milliohms maximum initial. 20 milliohms maximum final.	TE Spec 109-6-1. Subject mated contacts assembled in housing to 50 mv maximum open circuit at 100 ma maximum. See Figure 3.								
Insulation resistance.	5000 megohms minimum initial. 1000 megohms minimum final.	TE Spec 109-28-4. Test between adjacent contacts of samples.								
Dielectric withstanding voltage.	<table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td>Test Voltage</td> <td>Altitude, Feet</td> </tr> <tr> <td>750</td> <td>Sea level</td> </tr> <tr> <td>300</td> <td>50000</td> </tr> <tr> <td>275</td> <td>70000</td> </tr> </table>	Test Voltage	Altitude, Feet	750	Sea level	300	50000	275	70000	TE Spec 109-29-1. Test between adjacent contacts of samples.
Test Voltage	Altitude, Feet									
750	Sea level									
300	50000									
275	70000									
MECHANICAL										
Vibration, sinusoidal.	No discontinuities of 1 microsecond or longer duration. See Note.	TE Spec 109-21-3. Subject mated samples to 15 G's between 10-2000-10 Hz traversed in 20 minutes. 4 hours in each of 3 mutually perpendicular planes. See Figure 4.								
Physical shock.	No discontinuities of 1 microsecond or longer duration. See Note.	TE Spec 109-26-7. Subject mated samples to 50 G's sawtooth 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 200 cycles for 30 µin gold plating, 75 cycles for 15 µin gold plating, and 25 cycles for tin-lead plating at maximum rate of 200 cycles per hour.								
Contact retention.	Contacts shall not dislodge.	TE Spec 109-30. Apply axial load of 3 pounds to contacts.								

Figure 1 (continued)

Test Description	Requirement	Procedure
Mating force.	9 ounces maximum for gold contacts. 21 ounces maximum for tin contacts.	TE Spec 109-42, Condition A. Measure force necessary to mate samples at maximum rate of 1 inch per minute.
Unmating force.	1.5 ounces minimum.	TE Spec 109-42, Condition A. Measure force necessary to unmate samples at maximum rate of 1 inch per minute.
ENVIRONMENTAL		
Thermal shock.	See Note.	TE Spec 109-22. Subject mated samples to 5 cycles between -65 and 105°C.
Humidity-temperature cycling.	See Note.	TE Spec 109-23-3, Condition B. Subject mated samples to 10 cycles between 25 and 65°C at 95% RH.
Temperature life.	See Note.	TE Spec 109-43. Subject mated samples to temperature life at 105°C for 500 hours.
Mixed flowing gas.	See Note.	TE Spec 109-85-3. Subject mated samples to environmental class III for 20 days.

NOTE

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

- NOTE**
- (a) See paragraph 4.1.A.
 - (b) Numbers indicate sequence in which tests are performed.
 - (c) Applies to gold plated product only.
 - (d) Applies to tin plated product only.
 - (e) Shall be unmounted.
 - (f) 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 connectors containing at least 30 contacts total with receptacles crimped to wire and an equal amount of posts of identical plating type and thickness to mate with receptacles. Test group 1 shall consist of minimum and maximum position size connectors available. All contacts shall be crimped to appropriate size tin plated stranded copper test conductors in accordance with Application Specification 114-25038.

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

The applicable 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.

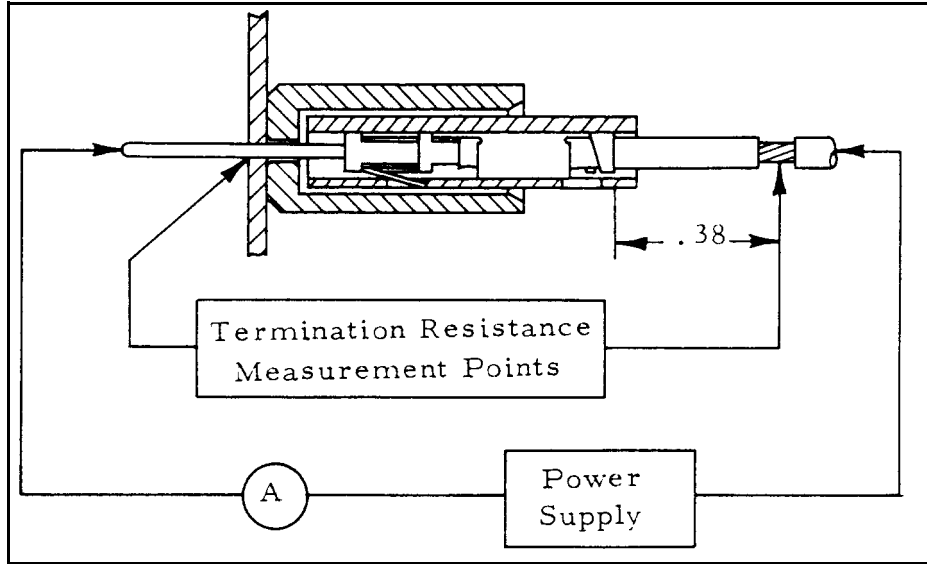


Figure 3
Termination Resistance Measurement Points

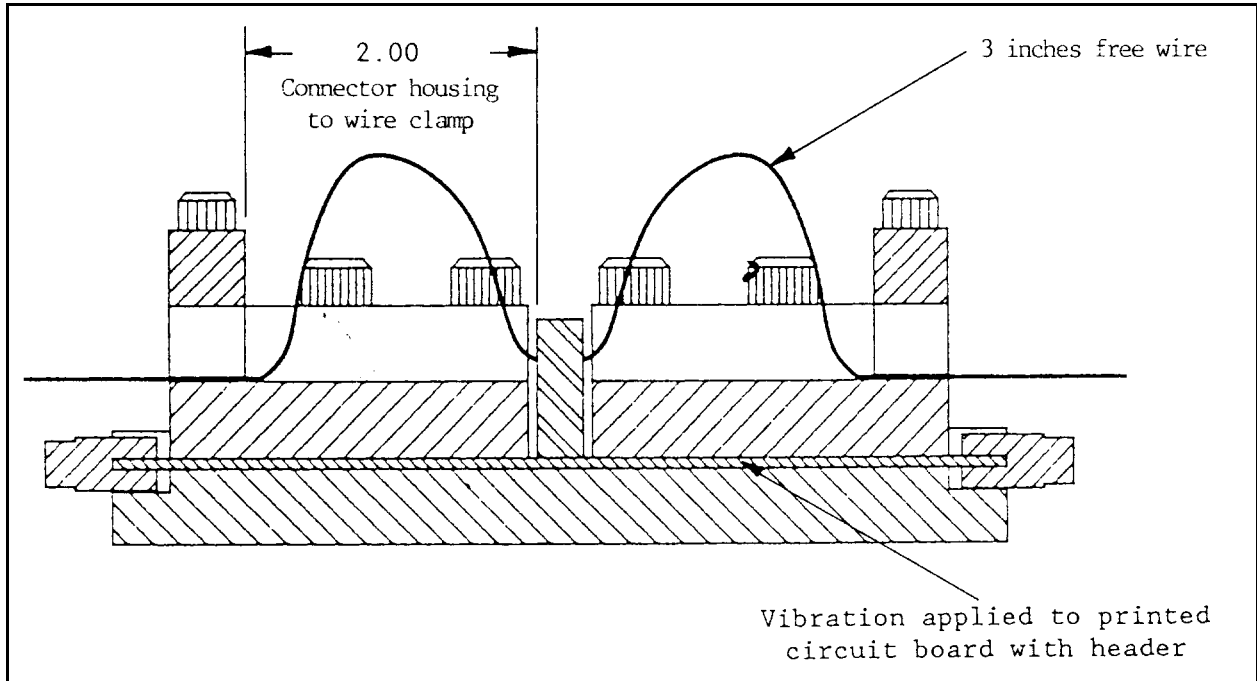


Figure 4
Vibration & Physical Shock Mounting Fixture