.100 Inch Centerline Crimp-Snap Connectors

1. SCOPE

1.1. Content

This specification covers performance, tests and quality requirements for the TE Connectivity (TE) .100 inch centerline Crimp-Snap connectors. The Crimp-Snap Terminal .100 product is a wire-to-board connection consisting of crimp-snap contacts seated in a housing that mates to .025 inch square post headers on .100 inch centerline and is designed to be terminated to 22 to 26 AWG wire.

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.

Successful qualification testing on the subject product line was completed on 18Apr96. The Qualification Test Report number for this testing is 501-341. Additional testing was completed on 10Jul09 and 27Jul10. This documentation is on file at and available from Engineering Practices and Standards (EPS).

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 requirements of this specification and the referenced documents, this specification shall take precedence.

2.1. TE Documents

- 109-1: Test Specification (General Requirements for Test Specifications)
- 109 Series: Test Specifications as indicated in Figure 1
- 109-151: Test Specification (Current Rating Verification)
- 114-16019: Application Specification (CST-100 Connectors for Crimp Snap Terminals)
- 501-341: Qualification Test Report (.100 Inch Centerline Crimp-Snap Connectors)

2.2. Industry Standard

EIA-364: Electrical Connector/Socket Test Procedures Including Environmental Classifications

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

- Voltage: 250 volts AC
- Current: See Figure 4 for applicable current carrying capability
- Temperature: -55 to 105℃

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 and Application Specification 114-16019.	Visual, dimensional and functional per applicable quality inspection plan.
ELECTRICAL		
Termination resistance.	10 milliohms maximum final.	TE 109-6-1. Subject mated contacts assembled in housing to 50 millivolts maximum open circuit at 100 milliamperes maximum. See Figure 3.
Insulation resistance.	1000 megohms minimum initial. 100 megohms minimum final.	TE Spec 109-28-4. Test between adjacent contacts of mated or unmated specimens.
Dielectric withstanding voltage.	One minute hold with no breakdown or flashover. 1.3 milliamperes maximum leakage current.	TE Spec 109-29-1. 1000 volts AC at sea level. Test between adjacent contacts of mated or unmated specimens.
Temperature rise vs current.	30℃ maximum temperatur e rise at specified current.	TE Spec 109-45-1. Measure temperature rise vs current. See Figure 4.
MECHANICAL		
Solderability.	Solderable area shall have a minimum of 95% solder coverage.	TE Spec 109-11-2. Subject header posts to solderability.
Sinusoidal vibration.	No discontinuities of 1 microsecond or longer duration. See Note.	TE Spec 109-21-1. Subject mated specimens to 10-55-10 Hz traversed in 1 minute with .06 inch maximum excursion. Two hours in each of 3 mutually perpendicular planes. See Figure 5.

Figure 1 (continued)

Test Description	Requirement	Procedure
Physical shock.	No discontinuities of 1 microsecond or longer duration. See Note.	TE Spec 109-26-1. Subject mated specimens to 50 G's half-sine shock pulses of 11 milliseconds duration. Three shocks in each direction applied along 3 mutually perpendicular planes, 18 total shocks. See Figure 5.
Durability.	See Note.	TE Spec 109-27. Manually mate and unmate specimens friction lock headers for 15 cycles at maximum rate of 10 cycles per minute.
Mating force.	Two pounds maximum per contact.	TE Spec 109-42, Condition A. Measure force necessary to mate specimens with friction lock headers a distance of .200 inch from point of initial contact at a maximum rate of .5 inch per minute.
Unmating force.	.80 pound minimum per contact.	TE Spec 109-42, Condition A. Measure force necessary to unmate specimens from friction lock headers at a maximum rate of .5 inch per minute.
Crimp tensile.	Wire Size (AWG) / Crimp Tensile (Lbs minimum) 22 / 11 24 / 10 26 / 7	EIA-364-8. Measure crimp tensile at a maximum rate of 1 inch per minute.
ENVIRONMENTAL		
Thermal shock.	See Note.	TE Spec 109-22. Subject mated specimens to 10 cycles between -55 and 105℃.
Humidity/temperature cycling.	See Note.	TE Spec 109-23-3, Condition B. Subject mated specimens to 10 cycles between 25 and 65℃ at 95% RH.
Temperature life.	See Note.	TE Spec 109-43. Subject mated specimens to temperature life at 105℃ for 792 hours.
Mixed flowing gas.	See Note.	TE Spec 109-85-2. Subject mated specimens to environmental class II for 14 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	4	5	6
	Test Sequence (b)					
Examination of product	1,9	1,9	1,7	1,5	1,3	1,3
Termination resistance	3,7	2,7		2,4		
Insulation resistance			2,5			
Dielectric withstanding voltage			3,6			
Temperature rise vs current		3,8				
Solderability					2	
Sinusoidal vibration	5	6(c)				
Physical shock	6					
Durability	4					
Mating force	2					
Unmating force	8					
Crimp tensile						2
Thermal shock			4			
Humidity/temperature cycling		4(d)				
Temperature life		5				
Mixed flowing gas				3		

NOTE

(a) See paragraph 4.1.A.
(b) Numbers indicate sequence in which tests are performed.
(c) Discontinuities shall not be measured. Energize at 18 °C level for 100% loadings per Test Specification 109-151.
(d) 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, 2, 3 and 4 shall each consist of a minimum of 5 connector assemblies with a minimum of 30 data points. Test group 5 shall consist of a minimum of 5 headers with a minimum of 30 header posts. Test group 6 shall consist of 25 specimens of each wire size. Specimens for additional testing in test group 1 shall consist of 24, 6 position assemblies with the following plating configurations for CST-100 contact to header: 30 µin Au to 30 µin Au; 30 µin Au to 30 µin PdNi; 30 µin PdNi to 30 µin Au; and 30 µin PdNi to 30 µin PdNi. Specimens for additional testing in test group 4 shall consist of 24, 6 position assemblies with the following plating configurations for CST-100 contact to header: 30 µin Au to 30 µin Au; 30 µin Au to 30 µin PdNi; 30 µin PdNi to 30 µin Au; 30 µin PdNi to 30 µin PdNi; 15 µin Au to 15 µin Au; 15 µin Au to 15 µin PdNi; 15 µin PdNi to 15 µin Au; and 15 µin PdNi to 15 µin PdNi.

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. If 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 quality inspection plan will 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.

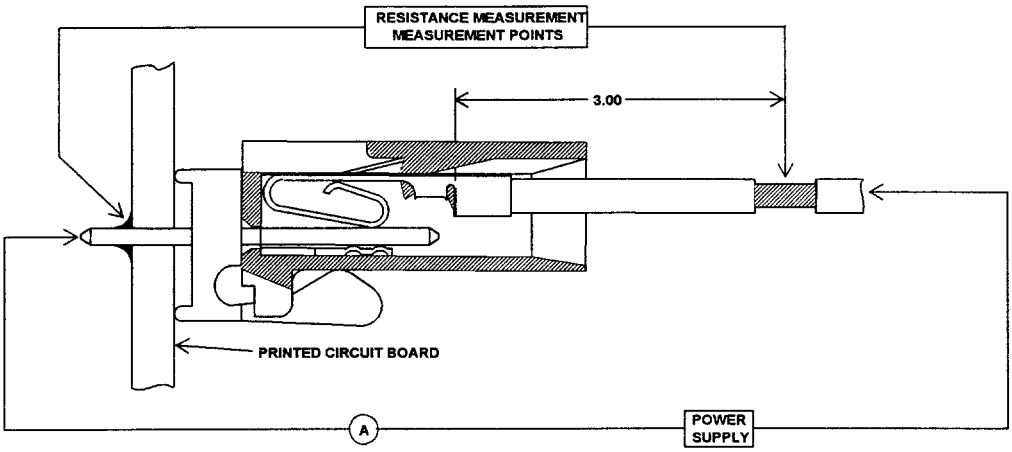

Figure 3
Termination Resistance Measurement Points

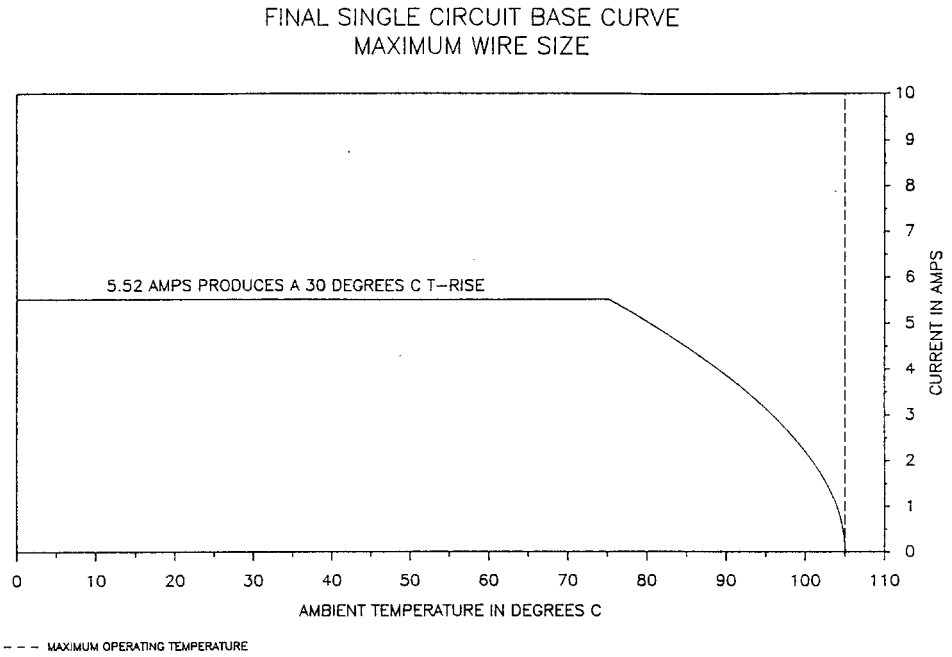

Figure 4A
Current Carrying Capability

Percent Connector Loading (20 position connector)	Wire Size AWG		
	26	24	22
Single Contact	0.74638	0.85868	1.0
50	0.50479	0.58073	0.67631
100	0.42088	0.48421	0.56390

NOTE *To determine the acceptable current carrying capacity for the percentage connector loading and wire gage indicated, use the Multiplication Factor (F) from the above chart and multiply it times the Base rated Current for a single circuit at maximum ambient operating temperature as shown in Figure 4A.*

Figure 4B
Current Rating

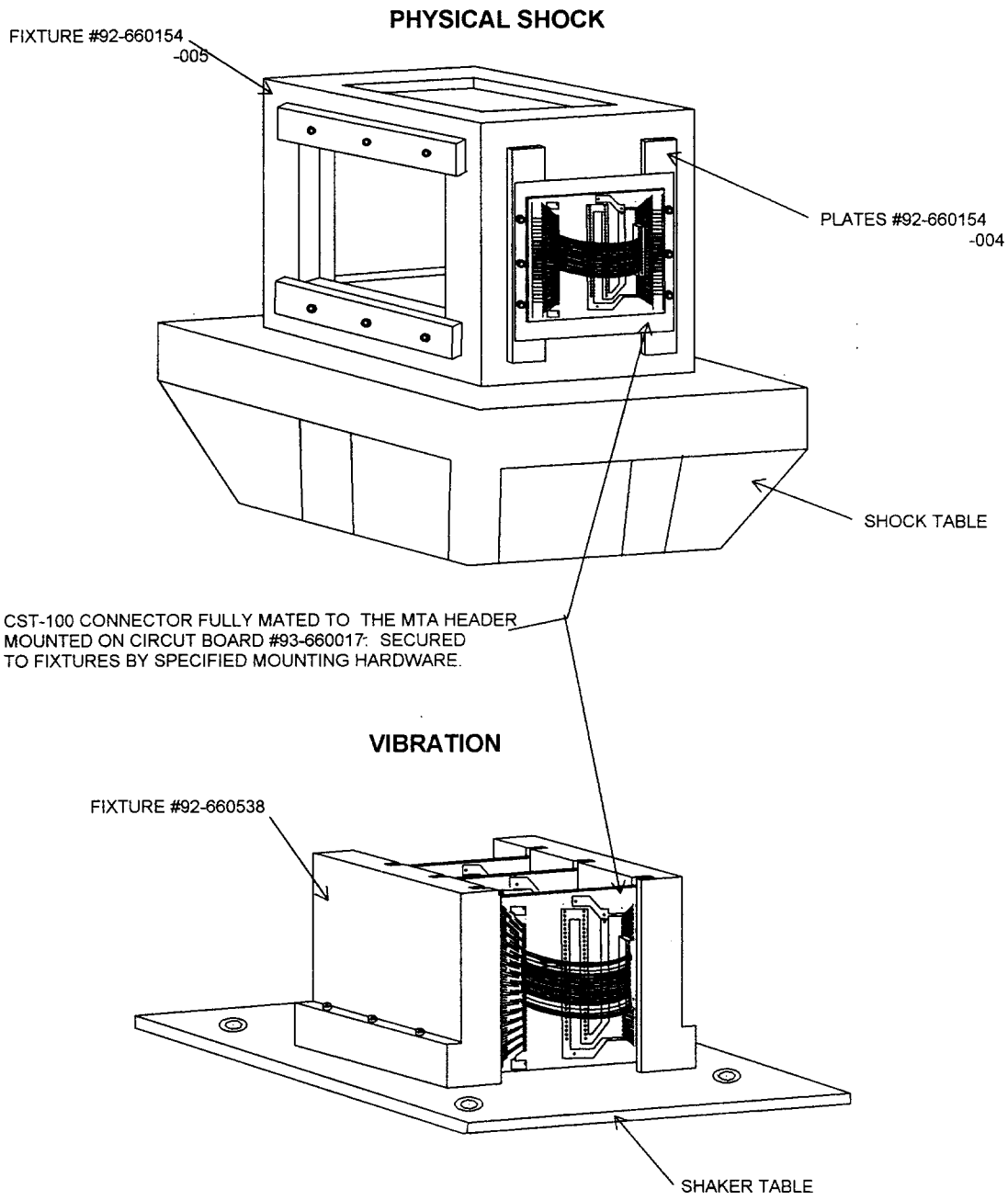

Figure 5
Vibration & Physical Shock Mounting Fixture