1.0 OBJECTIVE

This specification defines the performance, test, quality, and reliability requirements of Clincher™ Latch Headers.

2.0 SCOPE

This specification is applicable to the termination characteristics of the Clincher™ Latch Header when mated with the FCI Clincher Latching Receptacle. This product provides board to flat cable and board to flex interconnect capabilities in vertical and right angle single row configurations on 0.100" pitch.

3.0 GENERAL

This document is composed of the following sections:

4.0 APPLICABLE DOCUMENTS

4.1 Specifications

4.1.1 Engineering drawings
4.1.2 Process drawings

4.2 Military Standards/Specifications

4.2.1 MIL-STD-202: Test methods for electronic and electrical component parts.
4.2.2 MIL-STD-1344: Test methods for electrical connectors
4.2.3 MIL-C-45662: Calibration system requirements
4.2.4 MIL-G-45204: Gold Plating, Electrodeposited
4.2.5 MIL-P-45209: Palladium Plating, Electrodeposited
4.2.6 MIL-P-81728: Plating, Tin-Lead, Electrodeposited

4.3 Federal Specifications

4.3.1 QQ-N-290 Nickel Plating (Electrodeposited)

4.4 Other Standards/Specifications

4.4.1 UL-94-V0: Flammability
4.4.2 ASTM B-159: Phosphor Bronze Wire
4.4.3 FCI BUS-19-002: Solderability of Plated Materials or Contacts

4.5 FCI Lab Reports - Supporting Data

4.5.1 EL-95-09-037
EL-96-01-040

5.0 REQUIREMENTS

5.1 Qualification

Connectors furnished under this specification shall be capable of meeting the qualification test requirements specified herein.

5.2 Material

The material for each component shall be as specified herein or equivalent.

5.2.1 Pins: Pins shall be Phosphor Bronze Alloy UNS C51000 drawn wire in accordance with ASTM B-159.

5.2.3 Insulator: High temperature resin with a flame retardant rating of UL-94-V0.

5.3 Finish

The finish of the pins shall be as specified herein for the options as listed in the product drawings under consideration.

5.3.1 Gold Finish: As defined by product drawings, the pins will be plated with the specified thickness of gold per MIL-G-45204, Type II, Grade C over 50 u" nickel per QQ-N-290, Class 2.

5.3.2 Tin Lead Finish: As defined by product drawings, the pins will be plated with 120µ" minimum thickness of 93/7 tin lead per MIL-P-81728 over 50µ" of nickel per QQ-N-290, Class 2.

5.3.3 GXT™ (Palladium Alloy) Finish: As defined by product drawings, the pins will be plated with a thin gold flash over the specified thickness of palladium alloy per MIL-P-45209 over 50 u" of nickel per QQ-N-290, Class 2.

5.4 Design and Construction

Connectors shall be of the design, construction and physical dimensions specified on the applicable product drawings.

6.0 ELECTRICAL CHARACTERISTICS

6.1 Insulation Resistance - The insulation resistance of the unmated connector shall not be less than 5,000 megohms when measured in accordance with MIL-STD-202, Method 302. The following details shall apply:

a. Test Voltage: 500 V DC.
b. Electrification Time: One minute.
c. Points of Measurement: Between adjacent pins.

6.2 Dielectric Withstanding Voltage - There shall be no evidence of arc-over, insulation breakdown or excessive leakage current (> 1 milliampere) when the unmated connector is tested in accordance with MIL-STD-1344, Method 3001.1. The following details shall apply:

a. Test Voltage: 1500 Volts (DC, RMS or AC, 60 Hz).
b. Test Duration: 60 seconds.
c. Test Condition: 1 (760 Torr - sea level).
d. Points of Measurement: Between adjacent pins.

6.3 Capacitance - The capacitance between adjacent pins in an unmated connector shall not exceed 2.0 picofarads when measured in accordance with MIL-STD-202, Method 305, at a frequency of 100 kilohertz.

7.0 MECHANICAL CHARACTERISTICS

7.1 Pin Retention - Individual pins shall withstand an axial load of 2.0 pounds minimum applied at a rate of 0.2 inches/minute without dislodging from the insulator. Reference MIL-STD-1344A, Method 2007.1.

7.2 Latch Retention - When properly mated and latched with the Clincher™ Latching Receptacle, the latch shall withstand an axial load of 6.0 pounds minimum applied at a rate of 0.2 inches/minute without unmating.

8.0 ENVIRONMENTAL CONDITIONS

After exposure to the following environmental conditions in accordance with the specified test procedure and details, the product shall show no physical damage and shall meet the electrical requirements per paragraph 6.0 as specified in the Table I test sequences. Connectors shall be unmated during exposure.

8.1 Thermal Shock - MIL-STD-202, Method 107.

a. Test Condition: B (25, 1 hour cycles).
b. Temperature Range: -65 to +105 deg. Celsius.
c. Time at Each Temperature: 30 minutes.
d. Transfer Time - 5 minutes, maximum.

8.2 High Temperature Life - MIL-STD-202, Method 108.

a. Test Temperature: 105 deg. Celsius.
b. Test Duration: B (250) hours.

8.3 Solderability - FCI BUS-19-002 & MIL-STD-202, Method 208C.

a. Contact areas evaluated shall meet the Method 208 requirements.

8.4 Resistance to Solder Heat - MIL-STD-202, Method 210B.

a. Test Condition: E
b. There shall be no evidence of physical or mechanical damage.

8.5 IR Reflow - Test IR profile per Chart I. There shall be no evidence of physical or mechanical damage after reflow.

a. Peak Temperature: 245 +/- 5 deg. Celsius.

9.0 QUALITY ASSURANCE PROVISIONS

9.1 Equipment Calibration - All test equipment and inspection facilities used in the performance of any test shall be maintained in a calibration system in accordance with MIL-C-45662 and ISO 9000.

9.2 Inspection Conditions - Unless otherwise specified herein, all inspections shall be performed under the following ambient conditions:

a. Temperature: 25 +/- 5 degrees Celsius
b. Relative Humidity: 30 to 60%
c. Barometric Pressure: Local ambient

9.3 Sample Quantity and Description

9.3.1 The qualification samples shall consist of nine of the eight position size connectors of the particular type being tested.

9.4 Acceptance

9.4.1 Electrical and mechanical requirements placed on test samples as indicated in paragraphs 6.0 and 7.0 shall be established from test data using appropriate statistical techniques or shall herwise be customer specified, and all samples tested in accordance with this product specification shall meet the stated requirements.

9.4.2 Failures attributed to equipment, test setup or operator error shall not disqualify the product. If product failure occurs, corrective action shall be taken and samples submitted for qualification.

9.5 Qualification Testing - Qualification testing shall be performed on samples produced with equipment and procedures normally used in production. The test sequence shall be as shown in Table I.

9.6 Requalification Testing - If any of the following conditions occur, the responsible product engineer shall initiate requalification testing consisting of all applicable parts of the qualification test matrix, Table I.

a. A significant design change is made to the existing product which impacts the product form, fit or function. Examples of significant changes shall include, but not be limited to, changes in the plating material composition or thickness, contact force, contact surface geometry, insulator design, contact base material, or contact lubrication requirements.

b. A significant change is made to the manufacturing process which impacts the product form, fit or function.

c. A significant event occurs during production or end use requiring corrective action to be taken relative to the product design or manufacturing process.

CHART I - IR REFLOW PROFILE

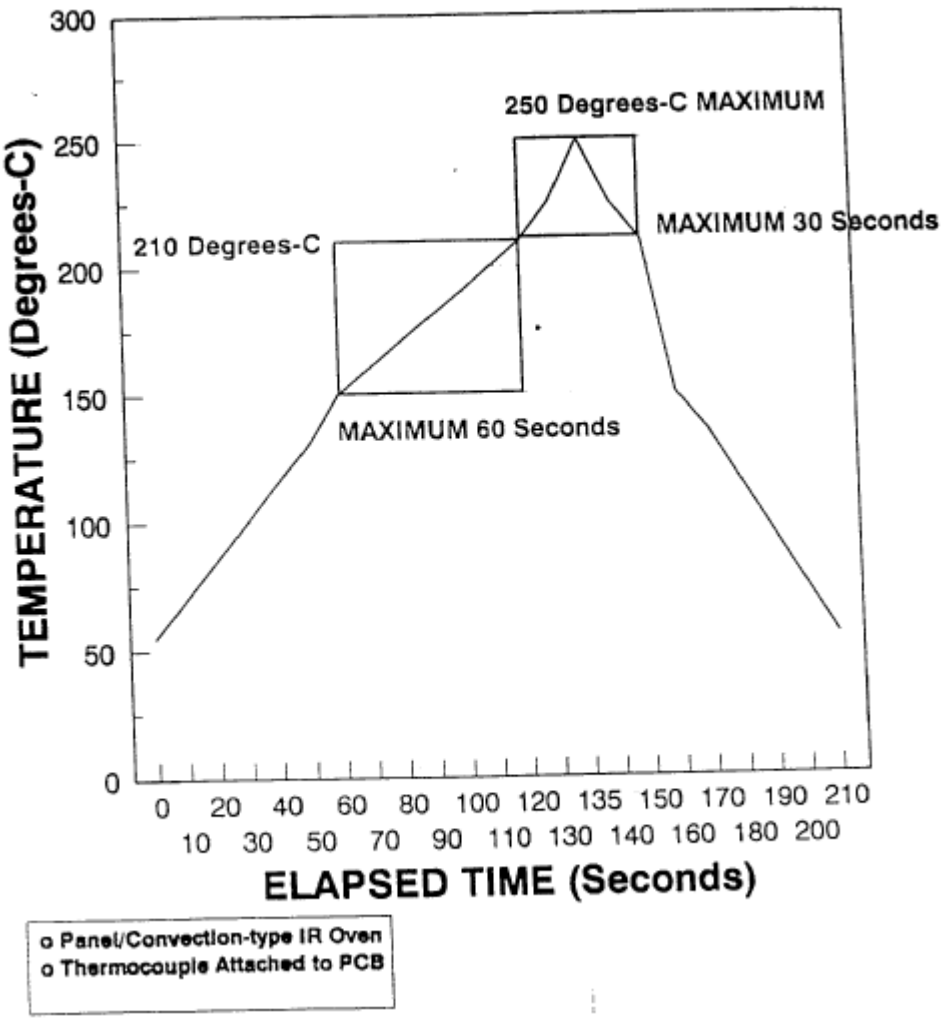

TABLE I - QUALIFICATION TESTING MATRIX

TEST	PAR	TEST GROUP 1 TEST SEQUENCE	2	3
NO. OF SAMPLES/SIZE	9.3.1	3	3	3
EXAM. OF PRODUCT	5.4	1,6,11,16	1	1
INSULATION RESISTANCE	6.1	2,7,12,17		
DIELECTRIC WITHSTAND	6.2	3,8,13,18		
CAPACITANCE	6.3	4,9,14,19		
PIN RETENTION	7.1		2	
LATCH RETENTION	7.2		3	
THERMAL SHOCK	8.1	5		
HIGH TEMPERATURE LIFE	8.2	10		
SOLDERABILITY	8.3			2
RES. TO SOLDER HEAT	8.4		4	
IR REFLOW	8.5	15		

REVISION RECORD

REV	PAGE	DESCRIPTION	EC #	DATE
1	ALL	New Spec	V50910	09/07/95
A	ALL	Release, change 4.5.1 and 9.3.1	V60838	05/23/96
B	3	5.3.2 ---change min. thickness from 150µ" to 120µ" and add "over 50µ"……..	V71287	11/03/97
C	ALL	Revised format to be consistent with GS-01-001, and change BERG, Dupont, etc. references to FCI. Change document number prefix from GES to GS.	V01949	08/15/00
D	All	New FCI Logo	V06-0701	08/31/06

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