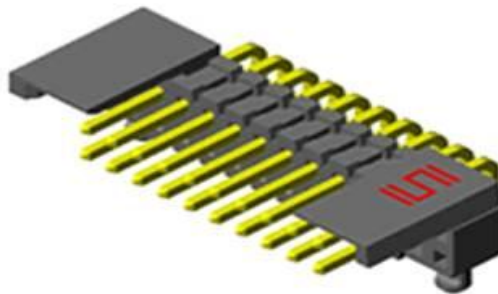
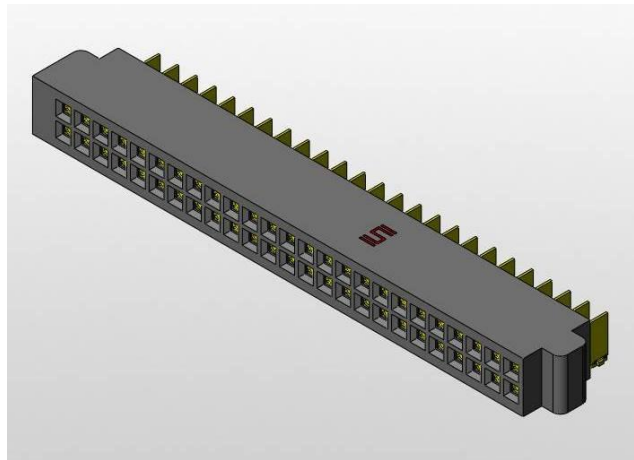




Project Number: Design Qualification Test Report		Tracking Code: 112491_Report_Rev_3	
Requested by: Mark Shireman		Date: 2/8/2013	Product Rev: N/A
Part #: SFMH-125-02-L-D\FSH-125-04-L-DH		Lot #: N/A	Tech: Kason He Eng: Vico Zhao
Part description: SFMH\FSH			Qty to test: 80
Test Start: 2/25/2011	Test Completed: 3/21/2011		



DESIGN QUALIFICATION TEST REPORT

SFMH\FSH
SFMH-125-02-L-D\FSH-125-04-L-DH

CERTIFICATION

All instruments and measuring equipment were calibrated to National Institute for Standards and Technology (NIST) traceable standards according to ISO 10012-1 and ANSI/NCSL 2540-1, as applicable.

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SCOPE

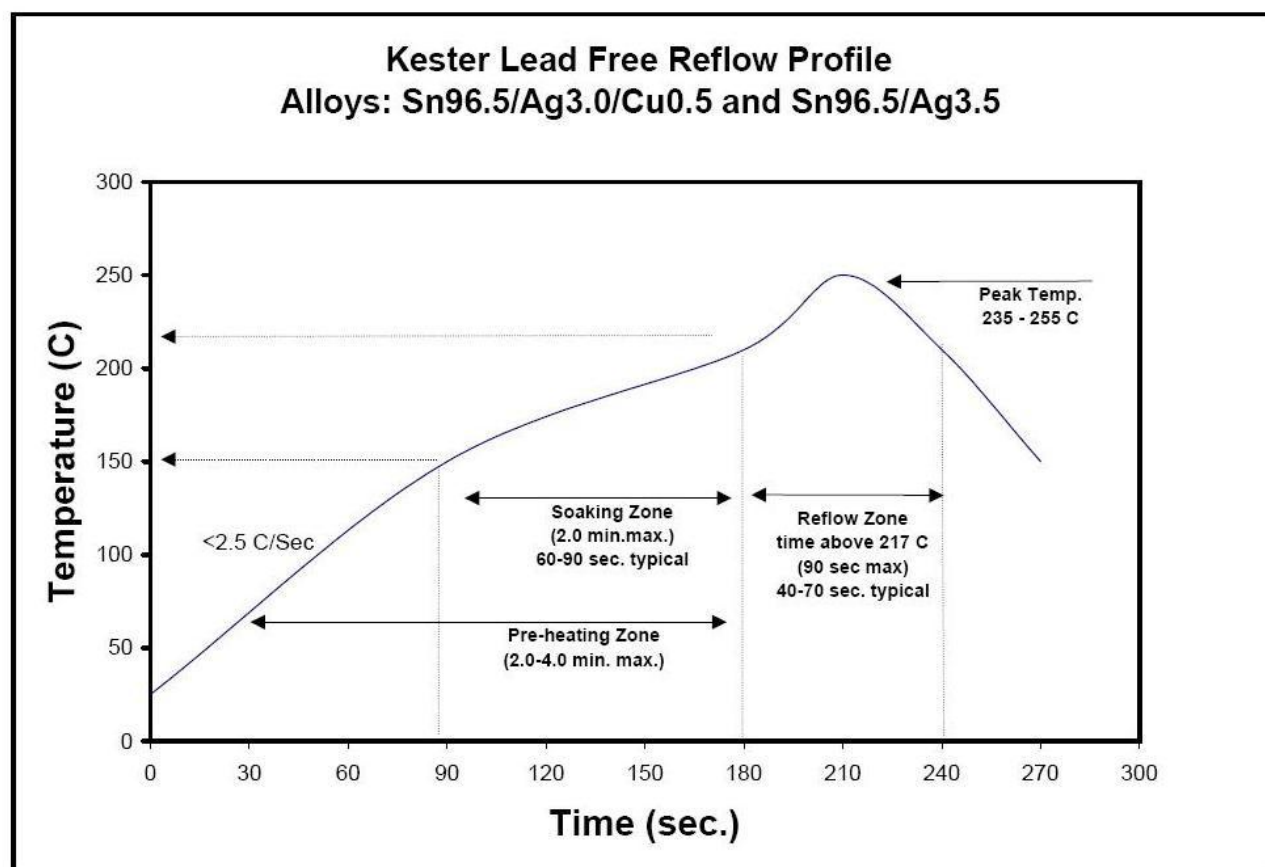
To perform the following tests: Design qualification test. Please see test plan.

APPLICABLE DOCUMENTS

Standards: EIA Publication 364

TEST SAMPLES AND PREPARATION

- 1) All materials were manufactured in accordance with the applicable product specification.
- 2) All test samples were identified and encoded to maintain traceability throughout the test sequences.
- 3) After soldering, the parts to be used for LLCr and DWV/IR testing were cleaned according to TLWI-0001.
- 4) Either an automated cleaning procedure or an ultrasonic cleaning procedure may be used.
- 5) The automated procedure is used with aqueous compatible soldering materials.
- 6) Parts not intended for testing LLCr and DWV/IR are visually inspected and cleaned if necessary.
- 7) Any additional preparation will be noted in the individual test sequences.
- 8) Solder Information: Lead Free
- 9) Re-Flow Time/Temp: See accompanying profile.
- 10) Samtec Test PCBs used: PCB-102982-TST

TYPICAL OVEN PROFILE (Soldering Parts to Test Boards)

FLOWCHARTS**Gas Tight**

TEST STEP	GROUP A1 192 Points
01	LLCR-1
02	Gas Tight
03	LLCR-2

Gas Tight = EIA-364-36A

LLCR = EIA-364-23, LLCR

20 mV Max, 100 mA Max

Use Keithley 580 or 3706 in 4 wire dry circuit mode

Normal Force

TEST STEP	GROUP A1 Individual Contacts (8-10 min)	GROUP A2 Individual Contacts (8-10 min)
01	Contact Gaps	Contact Gaps
02	Setup Approved	Thermal Aging (Mated and Undisturbed)
03	Normal Force (in the body and soldered on PCB unless otherwise specified)	Contact Gaps
04		Setup Approved
05		Normal Force (in the body and soldered on PCB unless otherwise specified)

Thermal Aging = EIA-364-17, Test Condition 4 (105°C)

Time Condition 'B' (250 Hours)

Normal Force = EIA-364-04

(Perpendicular) Displacement Force = 12.7 mm/min $\pm$ 6 mm/min

Spec is 50 N @ 1 mm displacement

Contact Gaps / Height - No standard method. Usually measured optically

Gaps to be taken on a minimum of 20% of each part tested

FLOWCHARTS Continued**Thermal Aging**

TEST STEP	GROUP A1 8 Boards Thermal Aging (Mated)
01	Contact Gaps
02	Forces - Mating / Unmating
03	LLCR-1
04	Thermal Aging (Mated and Undisturbed)
05	LLCR-2
06	Forces - Mating / Unmating
07	Contact Gaps

Thermal Aging = EIA-364-17, Test Condition 4 (105°C)

Time Condition 'B' (250 Hours)

Mating / Unmating Forces = EIA-364-13

Contact Gaps / Height - No standard method. Usually measured optically.

Gaps to be taken on a minimum of 20% of each part tested

LLCR = EIA-364-23, LLCR

20 mV Max, 100 mA Max

Use Keithley 580 or 3706 in 4 wire dry circuit mode

FLOWCHARTS Continued**Durability/Mating/Unmating/Gaps**

TEST STEP	GROUP B1 8 Boards (largest position submitted)	GROUP B2 8 Boards (middle position submitted)	GROUP B3 8 Boards (smallest position submitted)
01	Contact Gaps	Contact Gaps	Contact Gaps
02	LLCR-1	Forces - Mating / Unmating	Forces - Mating / Unmating
03	Forces - Mating / Unmating	25 Cycles	25 Cycles
04	25 Cycles	Forces - Mating / Unmating	Forces - Mating / Unmating
05	Forces - Mating / Unmating	25 Cycles (50 Total)	25 Cycles (50 Total)
06	25 Cycles (50 Total)	Forces - Mating / Unmating	Forces - Mating / Unmating
07	Forces - Mating / Unmating	25 Cycles (75 Total)	25 Cycles (75 Total)
08	25 Cycles (75 Total)	Forces - Mating / Unmating	Forces - Mating / Unmating
09	Forces - Mating / Unmating	25 Cycles (100 Total)	25 Cycles (100 Total)
10	25 Cycles (100 Total)	Forces - Mating / Unmating	Forces - Mating / Unmating
11	Forces - Mating / Unmating		
12	Clean w/Compressed Air		
13	Contact Gaps		
14	LLCR-2		
15	Thermal Shock (Mated and Undisturbed)		
16	LLCR-3		
17	Cyclic Humidity (Mated and Undisturbed)		
18	LLCR-4		
19	Forces - Mating / Unmating		

Thermal Shock = EIA-364-32, Table II, Test Condition I:

-55°C to +85°C 1/2 hour dwell, 100 cycles

Humidity = EIA-364-31, Test Condition B (240 Hours)

and Method III (+25°C to +65°C @ 90% RH to 98% RH)

ambient pre-condition and delete steps 7a and 7b

Mating / Unmating Forces = EIA-364-13

Contact Gaps / Height - No standard method. Usually measured optically.

Gaps to be taken on a minimum of 20% of each part tested

LLCR = EIA-364-23, LLCR

20 mV Max, 100 mA Max

Use Keithley 580 or 3706 in 4 wire dry circuit mode

FLOWCHARTS Continued**IR & DWV**

TEST STEP	GROUP A1 2 Mated Sets Break Down Pin-to-Pin	GROUP A2 2 Unmated of Part # Being Tested Break Down Pin-to-Pin	GROUP A3 2 Unmated of Mating Part # Break Down Pin-to-Pin	GROUP B1 2 Mated Sets Pin-to-Pin
01	DWV/Break Down Voltage	DWV/Break Down Voltage	DWV/Break Down Voltage	IR & DWV at test voltage (on both mated sets and on each connector unmated)
02				Thermal Shock (Mated and Undisturbed)
03				IR & DWV at test voltage (on both mated sets and on each connector unmated)
04				Cyclic Humidity (Mated and Undisturbed)
05				IR & DWV at test voltage (on both mated sets and on each connector unmated)

DWV on Group B1 to be performed at Test Voltage

DWV test voltage is equal to 75% of the lowest break down voltage from Groups A1, A2 or A3

Thermal Shock = EIA-364-32, Table II, Test Condition I:

-55°C to +85°C 1/2 hour dwell, 100 cycles

Humidity = EIA-364-31, Test Condition B (240 Hours)

and Method III (+25°C to +65°C @ 90% RH to 98% RH)

ambient pre-condition and delete steps 7a and 7b

IR = EIA-364-21

DWV = EIA-364-20, Test Condition 1

TEST STEP	GROUP C1 2 Mated Sets Break Down Row-to-Row	GROUP C2 2 Unmated of Part # Being Tested Break Down Row-to-Row	GROUP C3 2 Unmated of Mating Part # Break Down Row-to-Row	GROUP D1 2 Mated Sets Row-to-Row
01	DWV/Break Down Voltage	DWV/Break Down Voltage	DWV/Break Down Voltage	IR & DWV at test voltage (on both mated sets and on each connector unmated)
02				Thermal Shock (Mated and Undisturbed)
03				IR & DWV at test voltage (on both mated sets and on each connector unmated)
04				Cyclic Humidity (Mated and Undisturbed)
05				IR & DWV at test voltage (on both mated sets and on each connector unmated)

FLOWCHARTS Continued**Current Carrying Capacity - Double Row**

TEST STEP	GROUP B1 3 Mated Assemblies 2 Contacts Powered	GROUP B2 3 Mated Assemblies 4 Contacts Powered	GROUP B3 3 Mated Assemblies 6 Contacts Powered	GROUP B4 3 Mated Assemblies 8 Contacts Powered	GROUP B5 3 Mated Assemblies All Contacts Powered
01	CCC	CCC	CCC	CCC	CCC

(TIN PLATING) - Tabulate calculated current at RT, 65°C, 75°C and 95°C
after derating 20% and based on 105°C

(GOLD PLATING) - Tabulate calculated current at RT, 85°C, 95°C and 115°C
after derating 20% and based on 125°C

CCC, Temp rise = EIA-364-70

Mechanical Shock / Vibration / LLCR

TEST STEP	GROUP A1 192 Points
01	LLCR-1
02	Shock
03	Vibration
04	LLCR-2

Mechanical Shock = EIA 364-27 Half Sine,

100 g's, 6 milliSeconds (Condition "C") each axis

Vibration = EIA 364-28, Random Vibration

7.56 g RMS, Condition VB --- 2 hours/axis

LLCR = EIA-364-23, LLCR

20 mV Max, 100 mA Max

Use Keithley 580 or 3706 in 4 wire dry circuit mode

Shock / Vibration / nanoSecond Event Detection

TEST STEP	GROUP A1 60 Points
01	Event Detection, Shock
02	Event Detection, Vibration

Mechanical Shock = EIA 364-27 Half Sine,

100 g's, 6 milliSeconds (Condition "C") each axis

Vibration = EIA 364-28, Random Vibration

7.56 g RMS, Condition VB --- 2 hours/axis

Event detection requirement during Shock / Vibration is 50 nanoseconds minimum

ATTRIBUTE DEFINITIONS

The following is a brief, simplified description of attributes.

THERMAL SHOCK:

- 1) EIA-364-32, *Thermal Shock (Temperature Cycling) Test Procedure for Electrical Connectors*.
- 2) Test Condition 1: -55°C to +85°C
- 3) Test Time: ½ hour dwell at each temperature extreme
- 4) Number of Cycles: 100
- 5) All test samples are pre-conditioned at ambient.
- 6) All test samples are exposed to environmental stressing in the mated condition.

THERMAL:

- 1) EIA-364-17, *Temperature Life with or without Electrical Load Test Procedure for Electrical Connectors*.
- 2) Test Condition 4 at 105° C.
- 3) Test Time Condition B for 250 hours.
- 4) All test samples are pre-conditioned at ambient.
- 5) All test samples are exposed to environmental stressing in the mated condition.

HUMIDITY:

- 1) Reference document: EIA-364-31, *Humidity Test Procedure for Electrical Connectors*.
- 2) Test Condition B, 240 Hours.
- 3) Method III, +25° C to + 65° C, 90% to 98% Relative Humidity excluding sub-cycles 7a and 7b.
- 4) All samples are pre-conditioned at ambient.
- 5) All test samples are exposed to environmental stressing in the mated condition.

MECHANICAL SHOCK (Specified Pulse):

- 1) Reference document: EIA-364-27, *Mechanical Shock Test Procedure for Electrical Connectors*
- 2) Test Condition C
- 3) Peak Value: 100 G
- 4) Duration: 6 Milliseconds
- 5) Wave Form: Half Sine
- 6) Velocity: 12.3 ft/s
- 7) Number of Shocks: 3 Shocks / Direction, 3 Axis (18 Total)

VIBRATION:

- 1) Reference document: EIA-364-28, *Vibration Test Procedure for Electrical Connectors*
- 2) Test Condition V, Letter B
- 3) Power Spectral Density: 0.04 G² / Hz
- 4) G 'RMS': 7.56
- 5) Frequency: 50 to 2000 Hz
- 6) Duration: 2.0 Hours per axis (3 axis total)

NANOSECOND-EVENT DETECTION:

- 1) Reference document: EIA-364-87, *Nanosecond-Event Detection for Electrical Connectors*
- 2) Prior to test, the samples were characterized to assure the low nanosecond event being monitored will trigger the detector.
- 3) After characterization it was determined the test samples could be monitored for 50 nanosecond events

ATTRIBUTE DEFINITIONS Continued

The following is a brief, simplified description of attributes.

TEMPERATURE RISE (Current Carrying Capacity, CCC):

- 1) EIA-364-70, *Temperature Rise versus Current Test Procedure for Electrical Connectors and Sockets*.
- 2) When current passes through a contact, the temperature of the contact increases as a result of I^2R (resistive) heating.
- 3) The number of contacts being investigated plays a significant part in power dissipation and therefore temperature rise.
- 4) The size of the temperature probe can affect the measured temperature.
- 5) Copper traces on PC boards will contribute to temperature rise:
 - a. Self heating (resistive)
 - b. Reduction in heat sink capacity affecting the heated contacts
- 6) A de-rating curve, usually 20%, is calculated.
- 7) Calculated de-rated currents at three temperature points are reported:
 - a. Ambient
 - b. 80° C
 - c. 95° C
 - d. 115° C
- 8) Typically, neighboring contacts (in close proximity to maximize heat build up) are energized.
- 9) The thermocouple (or temperature measuring probe) will be positioned at a location to sense the maximum temperature in the vicinity of the heat generation area.
- 10) A computer program, *TR 803.exe*, ensures accurate stability for data acquisition.
- 11) Hook-up wire cross section is larger than the cross section of any connector leads/PC board traces, jumpers, etc.
- 12) Hook-up wire length is longer than the minimum specified in the referencing standard.

CONTACT GAPS:

- 1) Gaps above the surrounding plastic surface were measured before and after stressing the contacts (e.g. thermal aging, mechanical cycling, etc.).
- 2) Typically, all contacts on the connector are measured.

MATING/UNMATING:

- 1) Reference document: EIA-364-13, *Mating and Unmating Forces Test Procedure for Electrical Connectors*.
- 2) The full insertion position was to within 0.003" to 0.004" of the plug bottoming out in the receptacle to prevent damage to the system under test.
- 3) One of the mating parts is secured to a floating X-Y table to prevent damage during cycling.

ATTRIBUTE DEFINITIONS Continued

The following is a brief, simplified description of attributes.

NORMAL FORCE (FOR CONTACTS TESTED OUTSIDE THE HOUSING):

- 1) Reference document: EIA-364-04, *Normal Force Test Procedure for Electrical Connectors*.
- 2) The contacts shall be tested in the loose state, *not* inserted in connector housing.
- 3) The contacts shall be prepared to allow access to the spring member at the same attitude and deflection level as would occur in actual use.
- 4) In the event that portions of the contact prevent insertion of the test probe and/or deflection of the spring member under evaluation, said material shall be removed leaving the appropriate contact surfaces exposed.
- 5) In the case of multi-tine contacts, each tine shall be tested independently on separate samples as required.
- 6) The connector housing shall be simulated, if required, in order to provide an accurate representation of the actual contact system performance.
- 7) A holding fixture shall be fashioned to allow the contact to be properly deflected.
- 8) Said holding fixture shall be mounted on a floating, adjustable, X-Y table on the base of the Dillon TC², computer controlled test stand with a deflection measurement system accuracy of 5 μ m (0.0002").
- 9) The probe shall be attached to a Dillon P/N 49761-0105, 5 N (1.1 Lb) load cell providing an accuracy of $\pm$ 0.2%.
- 10) The nominal deflection rate shall be 5 mm (0.2")/minute.
- 11) Unless otherwise noted a minimum of five contacts shall be tested.
- 12) The force/deflection characteristic to load and unload each contact shall be repeated five times.
- 13) The system shall utilize the TC² software in order to acquire and record the test data.
- 14) The permanent set of each contact shall be measured within the TC² software.
- 15) The acquired data shall be graphed with the deflection data on the X-axis and the force data on the Y-axis and a print out will be stored with the Tracking Code paperwork.

ATTRIBUTE DEFINITIONS Continued

The following is a brief, simplified description of attributes.

INSULATION RESISTANCE (IR):

To determine the resistance of insulation materials to leakage of current through or on the surface of these materials when a DC potential is applied.

- 1) PROCEDURE:
 - a. Reference document: EIA-364-21, *Insulation Resistance Test Procedure for Electrical Connectors*.
 - b. Test Conditions:
 - i. Between Adjacent Contacts or Signal-to-Ground
 - ii. Electrification Time 2.0 minutes
 - iii. Test Voltage (500 VDC) corresponds to calibration settings for measuring resistances.
- 2) MEASUREMENTS:
- 3) When the specified test voltage is applied (VDC), the insulation resistance shall not be less than 5000 megohms.

DIELECTRIC WITHSTANDING VOLTAGE (DWV):

To determine if the sockets can operate at its rated voltage and withstand momentary over potentials due to switching, surges, and other similar phenomenon. Separate samples are used to evaluate the effect of environmental stresses so not to influence the readings from arcing that occurs during the measurement process.

- 1) PROCEDURE:
 - a. Reference document: EIA-364-20, *Withstanding Voltage Test Procedure for Electrical Connectors*.
 - b. Test Conditions:
 - i. Between Adjacent Contacts or Signal-to-Ground
 - ii. Barometric Test Condition 1
 - iii. Rate of Application 500 V/Sec
 - iv. Test Voltage (VAC) until breakdown occurs
- 2) MEASUREMENTS/CALCULATIONS
 - a. The breakdown voltage shall be measured and recorded.
 - b. The dielectric withstanding voltage shall be recorded as 75% of the minimum breakdown voltage.
 - c. The working voltage shall be recorded as one-third (1/3) of the dielectric withstanding voltage (one-fourth of the breakdown voltage).

LLCR:

- 1) EIA-364-23, *Low Level Contact Resistance Test Procedure for Electrical Connectors and Sockets*.
- 2) A computer program, *LLCR 221.exe*, ensures repeatability for data acquisition.
- 3) The following guidelines are used to categorize the changes in LLCR as a result from stressing
 - a. $\leq +5.0$ mOhms:----- Stable
 - b. $+5.1$ to $+10.0$ mOhms:----- Minor
 - c. $+10.1$ to $+15.0$ mOhms:----- Acceptable
 - d. $+15.1$ to $+50.0$ mOhms:----- Marginal
 - e. $+50.1$ to $+2000$ mOhms:----- Unstable
 - f. $>+2000$ mOhms:----- Open Failure

ATTRIBUTE DEFINITIONS Continued

The following is a brief, simplified description of attributes.

GAS TIGHT:

To provide method for evaluating the ability of the contacting surfaces in preventing penetration of harsh vapors which might lead to oxide formation that may degrade the electrical performance of the contact system.

- 1) EIA-364-23, *Low Level Contact Resistance Test Procedure for Electrical Connectors and Sockets*.
- 2) A computer program, *LLCR 221.exe*, ensures repeatability for data acquisition.
- 3) The following guidelines are used to categorize the changes in LLCR as a result from stressing
 - a. $\leq +5.0$ mOhms:----- Stable
 - b. $+5.1$ to $+10.0$ mOhms:----- Minor
 - c. $+10.1$ to $+15.0$ mOhms:----- Acceptable
 - d. $+15.1$ to $+50.0$ mOhms:----- Marginal
 - e. $+50.1$ to $+2000$ mOhms:----- Unstable
 - f. $>+2000$ mOhms:----- Open Failure
- 4) Procedure:
 - a. Reference document: EIA-364-36, *Test Procedure for Determination of Gas-Tight Characteristics for Electrical Connectors, Sockets and/or Contact Systems*.
 - b. Test Conditions:
 - i. Class II--- Mated pairs of contacts assembled to their plastic housings.
 - ii. Reagent grade Nitric Acid shall be used of sufficient volume to saturate the test chamber
 - iii. The ratio of the volume of the test chamber to the surface area of the acid shall be 10:1.
 - iv. The chamber shall be saturated with the vapor for at least 15 minutes before samples are added.
 - v. Exposure time, 55 to 65 minutes.
 - vi. The samples shall be no closer to the chamber walls than 1 inches and no closer to the surface of the acid than 3 inches.
 - vii. The samples shall be dried after exposure for a minimum of 1 hour.
 - viii. Drying temperature 50° C
 - ix. The final LLCR shall be conducted within 1 hour after drying.

RESULTS

Temperature Rise, CCC at a 20% de-rating

- CCC for a 30°C Temperature Rise -----2.6A per contact with 2 adjacent contacts powered
- CCC for a 30°C Temperature Rise -----2.0A per contact with 4 adjacent contacts powered
- CCC for a 30°C Temperature Rise -----1.6A per contact with 6 adjacent contacts powered
- CCC for a 30°C Temperature Rise -----1.5A per contact with 8 adjacent contacts powered
- CCC for a 30°C Temperature Rise -----0.9A per contact with all adjacent contacts powered

Contact Gaps

Normal Force Group

Group A1

- Initial
 - Min-----0.0122 in
 - Max -----0.0149 in

Group A2

- Initial
 - Min-----0.0129 in
 - Max -----0.0139 in
- Thermal
 - Min-----0.0128 in
 - Max -----0.0143 in

Thermal Aging Group

- Initial
 - Min-----0.0113 in
 - Max -----0.0138 in
- Thermal
 - Min-----0.0117 in
 - Max -----0.0156 in

Mating\Unmating Durability Group

- Initial
 - Min-----0.0115 in
 - Max -----0.0141 in
- After 100 Cycles
 - Min-----0.0122 in
 - Max -----0.0160 in

RESULTS Continued

Mating – Unmating Forces

Thermal Aging Group

- **Initial**
 - **Mating**
 - **Min**-----14.43 Lbs
 - **Max**-----19.36 Lbs
 - **Unmating**
 - **Min**-----10.22 Lbs
 - **Max**-----13.52 Lbs
- **Thermal**
 - **Mating**
 - **Min**----- 9.82 Lbs
 - **Max**-----15.10 Lbs
 - **Unmating**
 - **Min**----- 5.97 Lbs
 - **Max**----- 8.52 Lbs

RESULTS Continued**Mating – Unmating Forces****Mating\Unmating Durability (SFMH-125-02-L-D\FSH-125-04-L-DH)**

- **Initial**
 - **Mating**
 - **Min**-----12.95 Lbs
 - **Max**-----15.37 Lbs
 - **Unmating**
 - **Min**----- 9.49 Lbs
 - **Max**-----11.02 Lbs
- **After 25 Cycles**
 - **Mating**
 - **Min**-----10.41 Lbs
 - **Max**-----13.89 Lbs
 - **Unmating**
 - **Min**----- 8.48 Lbs
 - **Max**-----11.12 Lbs
- **After 50 Cycles**
 - **Mating**
 - **Min**-----10.89 Lbs
 - **Max**-----13.54 Lbs
 - **Unmating**
 - **Min**----- 9.72 Lbs
 - **Max**-----10.87 Lbs
- **After 75 Cycles**
 - **Mating**
 - **Min**-----10.23 Lbs
 - **Max**-----13.04 Lbs
 - **Unmating**
 - **Min**----- 9.21 Lbs
 - **Max**-----10.53 Lbs
- **After 100 Cycles**
 - **Mating**
 - **Min**----- 9.71 Lbs
 - **Max**-----12.74 Lbs
 - **Unmating**
 - **Min**----- 8.85 Lbs
 - **Max**-----10.52 Lbs
- **Humidity**
 - **Mating**
 - **Min**----- 8.05 Lbs
 - **Max**-----10.96 Lbs
 - **Unmating**
 - **Min**----- 7.41 Lbs
 - **Max**----- 8.73 Lbs

RESULTS Continued**Mating – Unmating Forces****Mating\Unmating Basic (SFMH-115-02-L-D\FSH-115-04-L-DH)**

- **Initial**
 - **Mating**
 - **Min** ----- 6.22 Lbs
 - **Max** ----- 7.96 Lbs
 - **Unmating**
 - **Min** ----- 6.01 Lbs
 - **Max** ----- 7.04 Lbs
- **After 25 Cycles**
 - **Mating**
 - **Min** ----- 6.89 Lbs
 - **Max** ----- 8.25 Lbs
 - **Unmating**
 - **Min** ----- 7.28 Lbs
 - **Max** ----- 8.34 Lbs
- **After 50 Cycles**
 - **Mating**
 - **Min** ----- 7.91 Lbs
 - **Max** ----- 8.86 Lbs
 - **Unmating**
 - **Min** ----- 8.42 Lbs
 - **Max** ----- 9.58 Lbs
- **After 75 Cycles**
 - **Mating**
 - **Min** ----- 7.77 Lbs
 - **Max** ----- 9.95 Lbs
 - **Unmating**
 - **Min** ----- 8.25 Lbs
 - **Max** ----- 10.13 Lbs
- **After 100 Cycles**
 - **Mating**
 - **Min** ----- 8.64 Lbs
 - **Max** ----- 10.06 Lbs
 - **Unmating**
 - **Min** ----- 9.26 Lbs
 - **Max** ----- 10.70 Lbs

RESULTS Continued**Mating – Unmating Forces****Mating\Unmating Basic (SFMH-105-02-L-D\FSH-105-04-L-DH)**

- **Initial**
 - **Mating**
 - **Min**-----1.85 Lbs
 - **Max**-----2.57 Lbs
 - **Unmating**
 - **Min**-----1.77 Lbs
 - **Max**-----2.37 Lbs
- **After 25 Cycles**
 - **Mating**
 - **Min**-----2.03 Lbs
 - **Max**-----2.78 Lbs
 - **Unmating**
 - **Min**-----2.40 Lbs
 - **Max**-----2.81 Lbs
- **After 50 Cycles**
 - **Mating**
 - **Min**-----2.35 Lbs
 - **Max**-----2.96 Lbs
 - **Unmating**
 - **Min**-----2.59 Lbs
 - **Max**-----3.04 Lbs
- **After 75 Cycles**
 - **Mating**
 - **Min**-----2.01 Lbs
 - **Max**-----3.11 Lbs
 - **Unmating**
 - **Min**-----2.45 Lbs
 - **Max**-----3.35 Lbs
- **After 100 Cycles**
 - **Mating**
 - **Min**-----2.45 Lbs
 - **Max**-----3.16 Lbs
 - **Unmating**
 - **Min**-----2.98 Lbs
 - **Max**-----3.56 Lbs

Normal Force at 0.14 mm deflection

- **Initial**
 - **Min**-----91.00 gf **Set** ---- 0.010 mm
 - **Max** -----112.00 gf **Set** ---- 0.032 mm
- **Thermal**
 - **Min**-----90.50 gf **Set** ---- 0.011 mm
 - **Max** -----107.00 gf **Set** ---- 0.035 mm

RESULTS Continued**Insulation Resistance minimums, IR****Pin to Pin**

- **Initial**
 - Mated-----10000 Meg Ω ----- Pass
 - Unmated -----10000 Meg Ω ----- Pass
- **Thermal**
 - Mated-----10000 Meg Ω ----- Pass
 - Unmated -----10000 Meg Ω ----- Pass
- **Humidity**
 - Mated-----10000 Meg Ω ----- Pass
 - Unmated -----10000 Meg Ω ----- Pass

Row to Row

- **Initial**
 - Mated-----10000 Meg Ω ----- Pass
 - Unmated -----10000 Meg Ω ----- Pass
- **Thermal**
 - Mated-----10000 Meg Ω ----- Pass
 - Unmated -----10000 Meg Ω ----- Pass
- **Humidity**
 - Mated-----10000 Meg Ω ----- Pass
 - Unmated -----10000 Meg Ω ----- Pass

Dielectric Withstanding Voltage minimums, DWV

- **Minimums**
 - Breakdown Voltage-----850 VAC
 - Test Voltage -----638 VAC
 - Working Voltage -----213 VAC

Pin to Pin

- **Initial DWV** -----Passed
- **Thermal DWV** -----Passed
- **Humidity DWV** -----Passed

Row to Row

- **Initial DWV** -----Passed
- **Thermal DWV** -----Passed
- **Humidity DWV** -----Passed

RESULTS Continued**LLCR Gas Tight (192 LLCR test points)**

- **Initial** ----- 15.8 mOhms Max
- **Gas-Tight**
 - **<= +5.0 mOhms** ----- 192 Points ----- Stable
 - **+5.1 to +10.0 mOhms** ----- 0 Points ----- Minor
 - **+10.1 to +15.0 mOhms** ----- 0 Points ----- Acceptable
 - **+15.1 to +50.0 mOhms** ----- 0 Points ----- Marginal
 - **+50.1 to +2000 mOhms** ----- 0 Points ----- Unstable
 - **>+2000 mOhms** ----- 0 Points ----- Open Failure

LLCR Thermal Aging (192 LLCR test points)

- **Initial** ----- 15.2 mOhms Max
- **Thermal**
 - **<= +5.0 mOhms** ----- 192 Points ----- Stable
 - **+5.1 to +10.0 mOhms** ----- 0 Points ----- Minor
 - **+10.1 to +15.0 mOhms** ----- 0 Points ----- Acceptable
 - **+15.1 to +50.0 mOhms** ----- 0 Points ----- Marginal
 - **+50.1 to +2000 mOhms** ----- 0 Points ----- Unstable
 - **>+2000 mOhms** ----- 0 Points ----- Open Failure

RESULTS Continued**LLCR Durability (192 LLCR test points)**

- **Initial** ----- 15.0 mOhms Max
- **Durability, 100 Cycles**
 - <= +5.0 mOhms ----- 185 Points ----- Stable
 - +5.1 to +10.0 mOhms ----- 7 Points ----- Minor
 - +10.1 to +15.0 mOhms ----- 0 Points ----- Acceptable
 - +15.1 to +50.0 mOhms ----- 0 Points ----- Marginal
 - +50.1 to +2000 mOhms ----- 0 Points ----- Unstable
 - >+2000 mOhms ----- 0 Points ----- Open Failure
- **Thermal**
 - <= +5.0 mOhms ----- 192 Points ----- Stable
 - +5.1 to +10.0 mOhms ----- 0 Points ----- Minor
 - +10.1 to +15.0 mOhms ----- 0 Points ----- Acceptable
 - +15.1 to +50.0 mOhms ----- 0 Points ----- Marginal
 - +50.1 to +2000 mOhms ----- 0 Points ----- Unstable
 - >+2000 mOhms ----- 0 Points ----- Open Failure
- **Humidity**
 - <= +5.0 mOhms ----- 192 Points ----- Stable
 - +5.1 to +10.0 mOhms ----- 0 Points ----- Minor
 - +10.1 to +15.0 mOhms ----- 0 Points ----- Acceptable
 - +15.1 to +50.0 mOhms ----- 0 Points ----- Marginal
 - +50.1 to +2000 mOhms ----- 0 Points ----- Unstable
 - >+2000 mOhms ----- 0 Points ----- Open Failure

LLCR Mechanical Shock & Random Vibration (191 LLCR test points)

- **Initial** ----- 15.7 mOhms Max
- **Shock & Vibration**
 - <= +5.0 mOhms ----- 191 Points ----- Stable
 - +5.1 to +10.0 mOhms ----- 0 Points ----- Minor
 - +10.1 to +15.0 mOhms ----- 0 Points ----- Acceptable
 - +15.1 to +50.0 mOhms ----- 0 Points ----- Marginal
 - +50.1 to +2000 mOhms ----- 0 Points ----- Unstable
 - >+2000 mOhms ----- 0 Points ----- Open Failure

Note: Board 5, Pos 24 was omitted due to broken solder joint

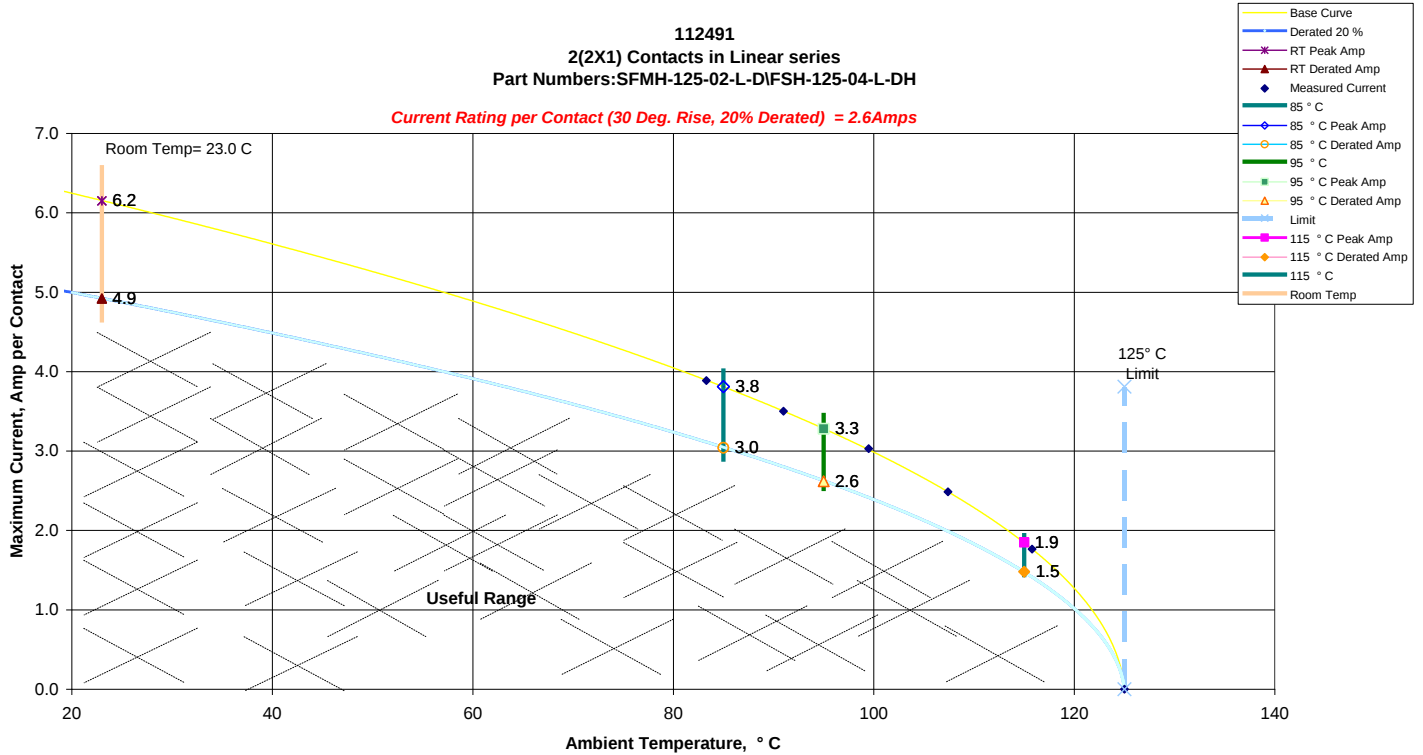
Mechanical Shock & Random Vibration:

- **Shock**
 - **No Damage**----- Passed
 - **50 Nanoseconds**----- Passed
- **Vibration**
 - **No Damage**----- Passed
 - **50 Nanoseconds**----- Passed

DATA SUMMARIES

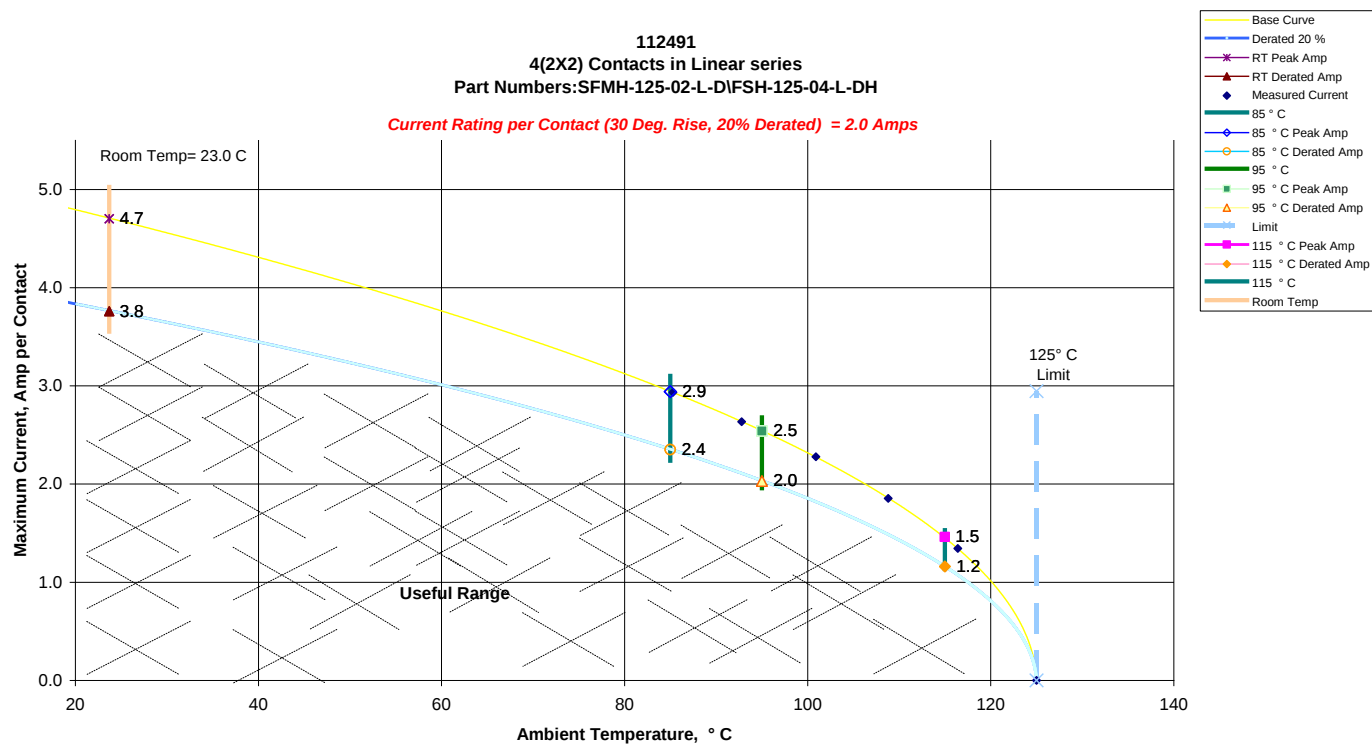
TEMPERATURE RISE (Current Carrying Capacity, CCC):

- 1) High quality thermocouples whose temperature slopes track one another were used for temperature monitoring.
- 2) The thermocouples were placed at a location to sense the maximum temperature generated during testing.
- 3) Temperature readings recorded are those for which three successive readings, 15 minutes apart, differ less than 1° C (computer controlled data acquisition).
- 4) Adjacent contacts were powered:
 - a. Linear configuration with 2 adjacent conductors/contacts powered



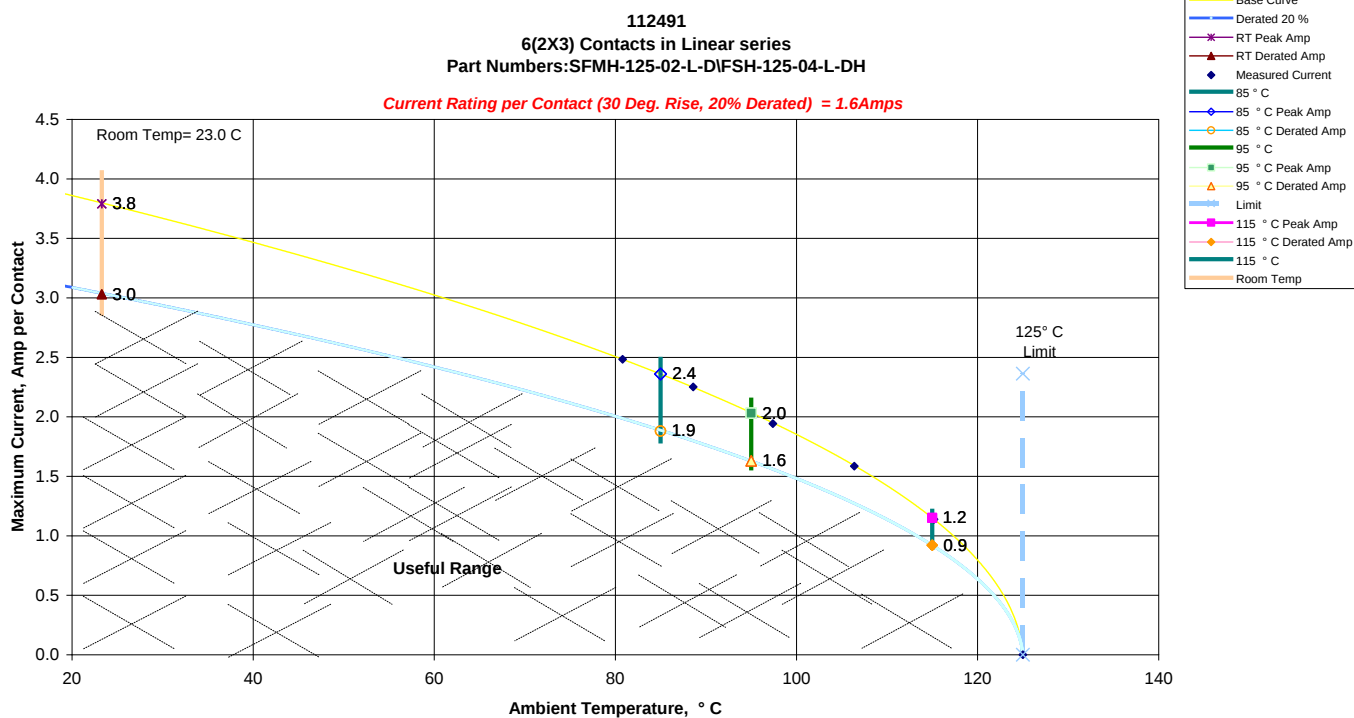
DATA SUMMARIES Continued

b. Linear configuration with 4 adjacent conductors/contacts powered



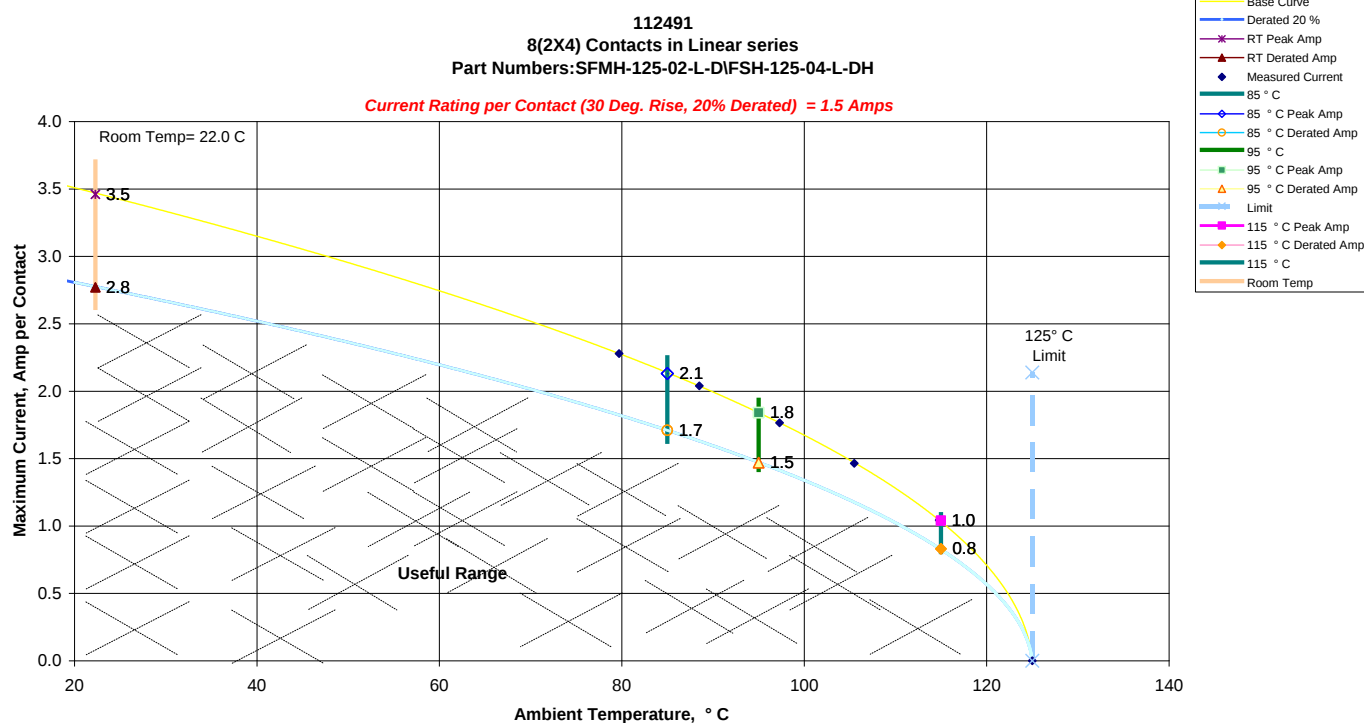
DATA SUMMARIES Continued

c. Linear configuration with 6 adjacent conductors/contacts powered



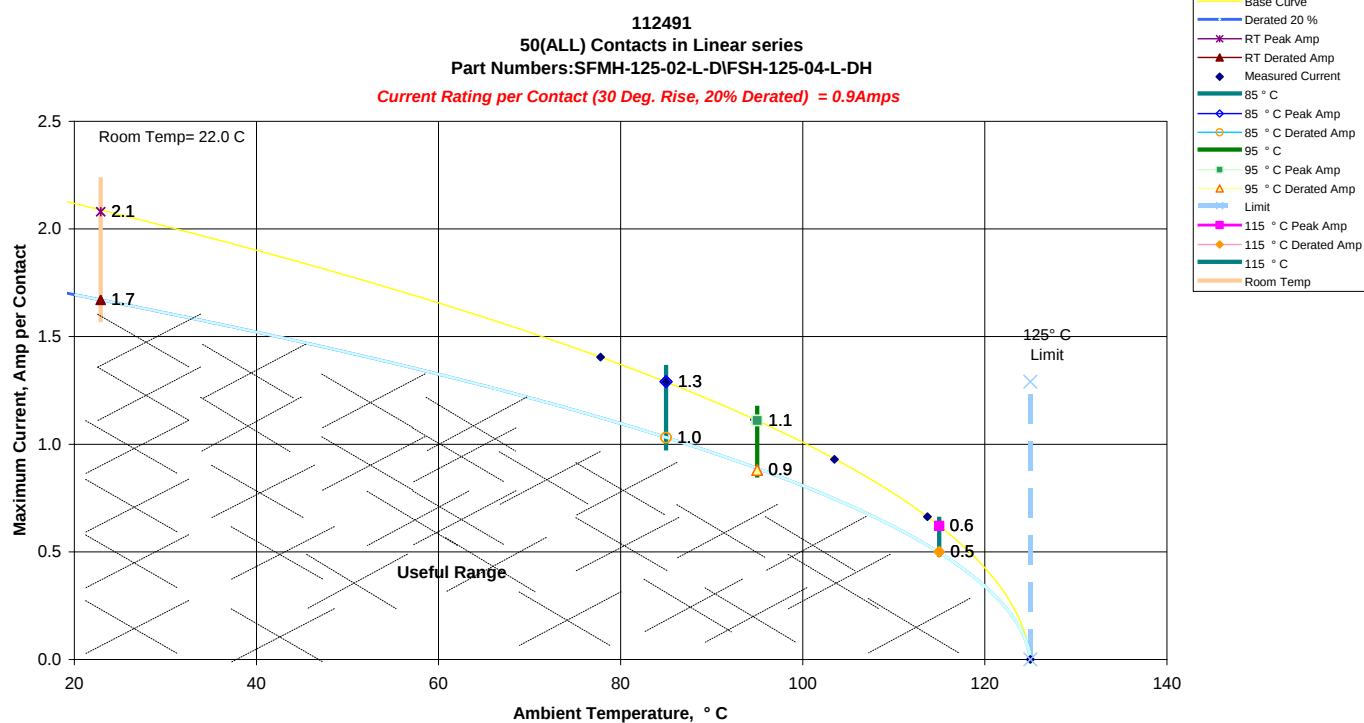
DATA SUMMARIES Continued

d. Linear configuration with 8 adjacent conductors/contacts powered



DATA SUMMARIES Continued

e. Linear configuration with all adjacent conductors/contacts powered



DATA SUMMARIES Continued**CONTACT GAPS:****Normal Force Group****Group A1**

Initial	
Units:	inches
<i>Minimum</i>	0.0122
<i>Maximum</i>	0.0149
<i>Average</i>	0.0131
<i>St. Dev.</i>	0.0007
<i>Count</i>	10

Group A2

Initial		After Thermal	
Units:	inches	Units:	inches
<i>Minimum</i>	0.0124	<i>Minimum</i>	0.0129
<i>Maximum</i>	0.0131	<i>Maximum</i>	0.0137
<i>Average</i>	0.0128	<i>Average</i>	0.0132
<i>St. Dev.</i>	0.0002	<i>St. Dev.</i>	0.0003
<i>Count</i>	10	<i>Count</i>	10

Thermal Aging Group

Initial		After Thermal	
Units:	inches	Units:	inches
<i>Minimum</i>	0.0113	<i>Minimum</i>	0.0117
<i>Maximum</i>	0.0138	<i>Maximum</i>	0.0156
<i>Average</i>	0.0127	<i>Average</i>	0.0143
<i>St. Dev.</i>	0.0008	<i>St. Dev.</i>	0.0008
<i>Count</i>	80	<i>Count</i>	80

Mating\Unmating Durability Group

Initial		After 100 Cycles	
Units:	inches	Units:	inches
<i>Minimum</i>	0.0115	<i>Minimum</i>	0.0122
<i>Maximum</i>	0.0141	<i>Maximum</i>	0.0160
<i>Average</i>	0.0127	<i>Average</i>	0.0133
<i>St. Dev.</i>	0.0007	<i>St. Dev.</i>	0.0007
<i>Count</i>	80	<i>Count</i>	80

DATA SUMMARIES Continued**MATING/UNMATING:****Thermal Aging Group**

	Initial				After Thermal			
	Mating		Unmating		Mating		Unmating	
	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)
Minimum	64.18	14.43	45.46	10.22	43.68	9.82	26.55	5.97
Maximum	86.11	19.36	60.14	13.52	67.16	15.10	37.90	8.52
Average	73.21	16.46	49.80	11.20	49.90	11.22	34.32	7.72
St Dev	6.84	1.54	4.59	1.03	8.13	1.83	3.50	0.79
Count	8	8	8	8	8	8	8	8

Mating\Unmating Durability (SFMH-125-02-L-D\FSH-125-04-L-DH)

	Initial				25 Cycles			
	Mating		Unmating		Mating		Unmating	
	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)
Minimum	57.60	12.95	42.21	9.49	46.30	10.41	37.72	8.48
Maximum	68.37	15.37	49.02	11.02	61.78	13.89	49.46	11.12
Average	61.45	13.82	45.00	10.12	54.37	12.22	45.79	10.29
St Dev	3.74	0.84	2.45	0.55	5.13	1.15	3.53	0.79
Count	8	8	8	8	8	8	8	8
	50 Cycles				75 Cycles			
	Mating		Unmating		Mating		Unmating	
	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)
Minimum	48.44	10.89	43.23	9.72	45.50	10.23	40.97	9.21
Maximum	60.23	13.54	48.35	10.87	58.00	13.04	46.84	10.53
Average	54.17	12.18	46.23	10.39	52.93	11.90	45.24	10.17
St Dev	4.20	0.94	1.81	0.41	4.30	0.97	1.87	0.42
Count	8	8	8	8	8	8	8	8
	100 Cycles				After Humidity			
	Mating		Unmating		Mating		Unmating	
	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)
Minimum	43.19	9.71	39.36	8.85	35.80	8.05	32.95	7.41
Maximum	56.67	12.74	46.79	10.52	48.74	10.96	38.84	8.73
Average	50.93	11.45	44.50	10.00	41.93	9.43	36.18	8.13
St Dev	3.91	0.88	2.34	0.53	3.82	0.86	1.94	0.44
Count	8	8	8	8	8	8	8	8

DATA SUMMARIES Continued**MATING/UNMATING:**

Mating\Unmating Basic (SFMH-115-02-L-D\FSH-115-04-L-DH)

	Initial				After 25 Cycles			
	Mating		Unmating		Mating		Unmating	
	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)
Minimum	27.67	6.22	26.73	6.01	30.65	6.89	32.38	7.28
Maximum	35.41	7.96	31.31	7.04	36.70	8.25	37.10	8.34
Average	30.34	6.82	28.66	6.44	33.03	7.43	34.37	7.73
St Dev	2.87	0.65	1.44	0.32	2.08	0.47	2.16	0.49
Count	8	8	8	8	8	8	8	8
	After 50 Cycles				After 75 Cycles			
	Mating		Unmating		Mating		Unmating	
	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)
Minimum	35.18	7.91	37.45	8.42	34.56	7.77	36.70	8.25
Maximum	39.41	8.86	42.61	9.58	44.26	9.95	45.06	10.13
Average	37.74	8.48	40.24	9.05	39.63	8.91	41.38	9.30
St Dev	1.55	0.35	2.09	0.47	2.98	0.67	2.95	0.66
Count	8	8	8	8	8	8	8	8
	After 100 Cycles							
	Mating		Unmating					
	Newtons	Force (Lbs)	Newtons	Force (Lbs)				
Minimum	38.43	8.64	41.19	9.26				
Maximum	44.75	10.06	47.59	10.70				
Average	40.64	9.14	43.61	9.81				
St Dev	2.12	0.48	2.16	0.49				
Count	8	8	8	8				

DATA SUMMARIES Continued**MATING/UNMATING:**

Mating\Unmating Basic (SFMH-105-02-L-D\FSH-105-04-L-DH)

	Initial				After 25 Cycles			
	Mating		Unmating		Mating		Unmating	
	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)
Minimum	8.23	1.85	7.87	1.77	9.03	2.03	10.68	2.40
Maximum	11.43	2.57	10.54	2.37	12.37	2.78	12.50	2.81
Average	10.10	2.27	9.07	2.04	11.25	2.53	11.45	2.57
St Dev	1.14	0.26	0.78	0.18	0.98	0.22	0.58	0.13
Count	8	8	8	8	8	8	8	8
	After 50 Cycles				After 75 Cycles			
	Mating		Unmating		Mating		Unmating	
	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)
Minimum	10.45	2.35	11.52	2.59	8.94	2.01	10.90	2.45
Maximum	13.17	2.96	13.52	3.04	13.83	3.11	14.90	3.35
Average	12.08	2.72	12.75	2.87	12.51	2.81	13.29	2.99
St Dev	0.82	0.18	0.70	0.16	1.50	0.34	1.23	0.28
Count	8	8	8	8	8	8	8	8
	After 100 Cycles							
	Mating		Unmating					
	Newtons	Force (Lbs)	Newtons	Force (Lbs)				
Minimum	10.90	2.45	13.26	2.98				
Maximum	14.06	3.16	15.83	3.56				
Average	13.26	2.98	14.66	3.30				
St Dev	1.04	0.23	0.96	0.22				
Count	8	8	8	8				

DATA SUMMARIES Continued**NORMAL FORCE (FOR CONTACTS TESTED IN THE HOUSING):**

- 1) Calibrated force gauges are used along with computer controlled positioning equipment.
- 2) For Normal force 8-10 measurements are taken and the averages reported.

Initial	Deflections in mm Forces in Grams				
	<u>0.0200</u>	<u>0.0500</u>	<u>0.1000</u>	<u>0.1400</u>	<i>SET</i>
Averages	14.98	36.65	71.53	98.99	0.0225
Min	13.80	34.10	67.60	91.00	0.0100
Max	16.40	40.00	80.70	112.00	0.0320
St. Dev	0.940	1.807	4.540	7.197	0.0077
Count	10	10	10	10	10

After Thermals	Deflections in inches Forces in Grams				
	<u>0.0200</u>	<u>0.0500</u>	<u>0.1000</u>	<u>0.1400</u>	<i>SET</i>
Averages	17.22	40.61	75.58	99.37	0.0232
Min	16.10	38.00	68.60	90.50	0.0110
Max	20.30	48.90	82.40	107.00	0.0350
St. Dev	1.492	3.218	4.475	5.736	0.0077
Count	10	10	10	10	10

INSULATION RESISTANCE (IR):

	Pin to Pin		
	Mated	Unmated	Unmated
Minimum	SFMH/FSH	SFMH	FSH
Initial	10000	10000	10000
Thermal	10000	10000	10000
Humidity	10000	10000	10000

	Row to Row		
	Mated	Unmated	Unmated
Minimum	SFMH/FSH	SFMH	FSH
Initial	10000	Not Tested	10000
Thermal	10000	Not Tested	10000
Humidity	10000	Not Tested	10000

DIELECTRIC WITHSTANDING VOLTAGE (DWV):

Voltage Rating Summary	
Minimum	SFMH/FSH
Break Down Voltage	850
Test Voltage	638
Working Voltage	213

Pin to Pin	
Initial Test Voltage	Passed
After Thermal Test Voltage	Passed
After Humidity Test Voltage	Passed

Row to Row	
Initial Test Voltage	Passed
After Thermal Test Voltage	Passed
After Humidity Test Voltage	Passed

DATA SUMMARIES Continued**LLCR Durability:**

- 1) A total of 192 points were measured.
- 2) EIA-364-23, *Low Level Contact Resistance Test Procedure for Electrical Connectors and Sockets*.
- 3) A computer program, *LLCR 221.exe*, ensures repeatability for data acquisition.
- 4) The following guidelines are used to categorize the changes in LLCR as a result from stressing.
 - a. $\leq +5.0$ mOhms:----- Stable
 - b. $+5.1$ to $+10.0$ mOhms:----- Minor
 - c. $+10.1$ to $+15.0$ mOhms:----- Acceptable
 - d. $+15.1$ to $+50.0$ mOhms:----- Marginal
 - e. $+50.1$ to $+2000$ mOhms ----- Unstable
 - f. $>+2000$ mOhms:----- Open Failure

Date	2011-2-25	2011-3-4	2011-3-10	2011-3-21
Room Temp C	23	20	22	23
RH	55%	42%	50%	50%
Name	Kason	Kason	Kason	Peter Chen
mOhm values	Actual Initial	Delta 100 Cycles	Delta Thermal	Delta Humidity
Average	12.0	0.5	0.1	-0.1
St. Dev.	1.6	1.4	0.5	0.7
Min	8.2	-0.7	-0.6	-2.9
Max	15.0	7.0	5.0	3.1
Count	192	192	192	192

How many samples are being tested? 8

How many contacts are on each board? 24

	Stable	Minor	Acceptable	Marginal	Unstable	Open
100 Cycles	185	7	0	0	0	0
Thermal	192	0	0	0	0	0
Humidity	192	0	0	0	0	0

DATA SUMMARIES Continued**LLCR Thermal:**

- 1) A total of 192 points were measured.
- 2) EIA-364-23, *Low Level Contact Resistance Test Procedure for Electrical Connectors and Sockets*.
- 3) A computer program, *LLCR 221.exe*, ensures repeatability for data acquisition.
- 4) The following guidelines are used to categorize the changes in LLCR as a result from stressing.
 - a. $\leq +5.0$ mOhms:----- Stable
 - b. $+5.1$ to $+10.0$ mOhms:----- Minor
 - c. $+10.1$ to $+15.0$ mOhms:----- Acceptable
 - d. $+15.1$ to $+50.0$ mOhms:----- Marginal
 - e. $+50.1$ to $+2000$ mOhms ----- Unstable
 - f. $>+2000$ mOhms:----- Open Failure

Date	2011-2-28	2011-3-14
Room Temp C	22	22
RH	54%	52%
Name	kason	Kason He
mOhm values	Actual Initial	Delta Thermal Age
Average	12.0	0.2
St. Dev.	1.7	1.3
Min	9.9	-4.1
Max	15.2	5.0
Count	192	192

How many samples are being tested?

8

How many contacts are on each board?

24

	Stable	Minor	Acceptable	Marginal	Unstable	Open
Thermal Age	192	0	0	0	0	0

DATA SUMMARIES Continued**GAS TIGHT:**

- 1) A total of 192 points were measured.
- 2) EIA-364-23, *Low Level Contact Resistance Test Procedure for Electrical Connectors and Sockets*.
- 3) A computer program, *LLCR 221.exe*, ensures repeatability for data acquisition.
- 4) The following guidelines are used to categorize the changes in LLCR as a result from stressing.
 - a. $\leq +5.0$ mOhms:----- Stable
 - b. $+5.1$ to $+10.0$ mOhms:----- Minor
 - c. $+10.1$ to $+15.0$ mOhms:----- Acceptable
 - d. $+15.1$ to $+50.0$ mOhms:----- Marginal
 - e. $+50.1$ to $+2000$ mOhms:----- Unstable
 - f. $>+2000$ mOhms:----- Open Failure

Date	2011-2-25	1900-1-0
Room Temp C	22	0
RH	54%	0%
Name	kason	0
mOhm values	Actual Initial	Delta Gas Tight
Average	12.1	0.4
St. Dev.	1.7	0.8
Min	9.9	-2.7
Max	15.8	3.9
Count	192	192

How many samples are being tested?

8

How many contacts are on each board?

24

	Stable	Minor	Acceptable	Marginal	Unstable	Open
Gas Tight	192	0	0	0	0	0

DATA SUMMARIES Continued**LLCR Shock & Vibration:**

- 1) A total of 192 points were measured.
- 2) EIA-364-23, *Low Level Contact Resistance Test Procedure for Electrical Connectors and Sockets*.
- 3) A computer program, *LLCR 221.exe*, ensures repeatability for data acquisition.
- 4) The following guidelines are used to categorize the changes in LLCR as a result from stressing.
 - a. $\leq +5.0$ mOhms:----- Stable
 - b. $+5.1$ to $+10.0$ mOhms:----- Minor
 - c. $+10.1$ to $+15.0$ mOhms:----- Acceptable
 - d. $+15.1$ to $+50.0$ mOhms:----- Marginal
 - e. $+50.1$ to $+2000$ mOhms ----- Unstable
 - f. $>+2000$ mOhms:----- Open Failure

Date	2011-7-7	2011-7-29
Room Temp C	22	22
RH	44%	45%
Name	Aaron McKim	Aaron McKim
mOhm values	Actual Initial	Delta Shock / Vibe
Average	12.0	0.0
St. Dev.	1.7	0.2
Min	9.7	-1.1
Max	15.7	1.6
Count	191	191

Note: Board 5, Pos 24 was omitted due to broken solder joint

How many samples are being tested?	<u>8</u>
How many contacts are on each board?	<u>24</u>

	Stable	Minor	Acceptable	Marginal	Unstable	Open
Shock / Vibe	191	0	0	0	0	0

Nanosecond Event Detection:

Shock and Vibration Event Detection Summary	
Contacts tested	60
Test Condition	C, 100g's, 6ms, Half-Sine
Shock Events	0
Test Condition	V-B, 7.56 rms g
Vibration Events	0
Total Events	0

DATA**CONTACT GAPS:****Normal Force Group****Group A1**

Initial	
Units: inches	
Pos.#	B1
1	0.0129
2	0.0149
3	0.0122
4	0.0133
5	0.0133
6	0.0128
7	0.0124
8	0.0132
9	0.0128
10	0.0130

Group A2

Initial	
Units: inches	
Pos.#	B1
1	0.0127
2	0.0129
3	0.0124
4	0.0129
5	0.0130
6	0.0128
7	0.0126
8	0.0126
9	0.0129
10	0.0131
After Thermal	
Units: inches	
Pos.#	B1
1	0.0130
2	0.0132
3	0.0129
4	0.0136
5	0.0137
6	0.0129
7	0.0130
8	0.0132
9	0.0132
10	0.0131

DATA Continued**Thermal Aging Group**

Initial								
Units: inches								
Pos.#	B1	B2	B3	B4	B5	B6	B7	B8
1	0.0124	0.0119	0.0120	0.0134	0.0132	0.0135	0.0135	0.0125
2	0.0136	0.0135	0.0135	0.0113	0.0115	0.0115	0.0124	0.0136
3	0.0135	0.0135	0.0131	0.0135	0.0117	0.0115	0.0121	0.0135
4	0.0119	0.0121	0.0117	0.0122	0.0135	0.0133	0.0135	0.0120
5	0.0133	0.0133	0.0123	0.0123	0.0134	0.0135	0.0136	0.0122
6	0.0118	0.0116	0.0120	0.0134	0.0115	0.0120	0.0126	0.0138
7	0.0136	0.0132	0.0133	0.0136	0.0136	0.0118	0.0138	0.0136
8	0.0121	0.0123	0.0121	0.0118	0.0119	0.0138	0.0121	0.0122
9	0.0124	0.0126	0.0123	0.0118	0.0120	0.0134	0.0128	0.0128
10	0.0133	0.0132	0.0137	0.0131	0.0128	0.0121	0.0136	0.0135
After Thermal								
Units: inches								
Pos.#	B1	B2	B3	B4	B5	B6	B7	B8
1	0.0118	0.0144	0.0144	0.0152	0.0154	0.0151	0.0144	0.0151
2	0.0132	0.0143	0.0148	0.0139	0.0142	0.0141	0.0147	0.0136
3	0.0130	0.0144	0.0156	0.0144	0.0139	0.0141	0.0138	0.0143
4	0.0118	0.0144	0.0146	0.0152	0.0153	0.0148	0.0152	0.0150
5	0.0133	0.0142	0.0144	0.0148	0.0151	0.0139	0.0139	0.0140
6	0.0117	0.0152	0.0145	0.0141	0.0140	0.0146	0.0149	0.0149
7	0.0134	0.0145	0.0143	0.0142	0.0139	0.0152	0.0152	0.0149
8	0.0122	0.0146	0.0149	0.0151	0.0150	0.0141	0.0137	0.0142
9	0.0117	0.0142	0.0142	0.0148	0.0140	0.0141	0.0142	0.0142
10	0.0134	0.0151	0.0149	0.0139	0.0148	0.0147	0.0150	0.0147

DATA Continued**Mating\Unmating Durability Group**

Initial								
Units: inches								
Pos.#	B1	B2	B3	B4	B5	B6	B7	B8
1	0.0121	0.0121	0.0123	0.0122	0.0123	0.0117	0.0121	0.0122
2	0.0128	0.0134	0.0129	0.0131	0.0135	0.0141	0.0134	0.0134
3	0.0121	0.0123	0.0124	0.0117	0.0125	0.0123	0.0117	0.0119
4	0.0132	0.0135	0.0127	0.0130	0.0137	0.0139	0.0135	0.0133
5	0.0121	0.0123	0.0119	0.0120	0.0124	0.0119	0.0119	0.0119
6	0.0131	0.0135	0.0135	0.0130	0.0136	0.0132	0.0136	0.0135
7	0.0119	0.0120	0.0119	0.0115	0.0120	0.0117	0.0117	0.0119
8	0.0131	0.0136	0.0134	0.0129	0.0136	0.0130	0.0134	0.0135
9	0.0117	0.0121	0.0119	0.0117	0.0121	0.0116	0.0119	0.0120
10	0.0131	0.0138	0.0134	0.0130	0.0137	0.0133	0.0136	0.0136
After 100 Cycles								
Units: inches								
Pos.#	B1	B2	B3	B4	B5	B6	B7	B8
1	0.0127	0.0130	0.0128	0.0130	0.0126	0.0124	0.0125	0.0130
2	0.0139	0.0141	0.0137	0.0138	0.0136	0.0132	0.0141	0.0140
3	0.0133	0.0132	0.0128	0.0129	0.0129	0.0124	0.0125	0.0130
4	0.0145	0.0140	0.0138	0.0160	0.0135	0.0132	0.0134	0.0133
5	0.0138	0.0130	0.0126	0.0131	0.0123	0.0124	0.0122	0.0125
6	0.0136	0.0142	0.0134	0.0141	0.0136	0.0138	0.0135	0.0138
7	0.0131	0.0131	0.0125	0.0123	0.0124	0.0124	0.0126	0.0129
8	0.0137	0.0142	0.0135	0.0133	0.0135	0.0134	0.0142	0.0137
9	0.0124	0.0134	0.0124	0.0126	0.0124	0.0123	0.0123	0.0128
10	0.0135	0.0143	0.0137	0.0136	0.0137	0.0132	0.0142	0.0144

DATA Continued**MATING/UNMATING:
Thermal Aging Group**

<u>Sample#</u>	Initial		After Thermals	
	Mating	Unmating	Mating	Unmating
1	19.36	10.23	15.10	5.97
2	15.78	10.22	12.33	7.65
3	15.05	11.33	9.82	8.31
4	14.43	10.98	11.41	8.08
5	16.75	11.18	9.87	8.05
6	17.12	13.52	11.33	8.52
7	15.87	11.25	9.90	7.62
8	17.31	10.86	9.99	7.52

Mating\Unmating Durability (SFMH-125-02-L-D\FSH-125-04-L-DH)

<u>Sample#</u>	Initial		After 25 Cycles		After 50 Cycles		After 75 Cycles		After 100 Cycles		After Humidity	
	Mating	Unmating	Mating	Unmating	Mating	Unmating	Mating	Unmating	Mating	Unmating	Mating	Unmating
1	15.37	9.56	12.85	10.65	12.24	10.15	13.04	10.07	12.74	9.83	10.96	7.63
2	13.41	10.67	11.45	11.12	11.76	10.87	12.55	10.31	11.79	10.30	9.11	8.47
3	13.21	9.65	10.41	8.48	10.89	9.72	10.23	9.21	9.71	8.85	9.61	8.31
4	14.13	10.03	13.58	10.72	13.54	10.76	12.36	10.20	11.59	9.81	8.97	7.41
5	12.95	9.49	11.92	10.09	11.56	10.87	10.83	10.15	11.24	10.35	9.97	8.73
6	14.18	10.12	13.89	10.38	13.51	10.29	12.16	10.53	11.74	10.20	9.75	8.33
7	12.95	10.40	11.94	10.32	12.34	10.19	12.56	10.38	11.87	10.52	9.00	8.07
8	14.33	11.02	11.75	10.59	11.58	10.29	11.47	10.51	10.92	10.17	8.05	8.11

DATA Continued**MATING/UNMATING:****Mating\Unmating Basic (SFMH-115-02-L-D\FSH-115-04-L-DH)**

Sample#	Initial		After 25 Cycles		After 50 Cycles		After 75 Cycles		After 100 Cycles	
	Mating	Unmating	Mating	Unmating	Mating	Unmating	Mating	Unmating	Mating	Unmating
1	7.65	7.04	7.54	8.29	8.60	9.58	9.95	10.13	9.46	9.60
2	6.39	6.12	7.20	7.39	7.91	8.53	9.05	9.30	8.83	9.26
3	6.61	6.58	7.23	7.47	8.69	8.99	9.53	9.81	9.38	9.84
4	6.25	6.31	7.28	7.39	8.16	8.42	8.35	8.60	8.95	9.58
5	6.68	6.55	7.97	8.30	8.73	9.41	8.89	9.75	10.06	10.70
6	7.96	6.33	8.25	8.34	8.86	9.22	8.99	9.71	8.69	10.17
7	6.80	6.61	7.05	7.36	8.74	9.58	7.77	8.25	8.64	9.27
8	6.22	6.01	6.89	7.28	8.18	8.65	8.74	8.88	9.08	10.02

Mating\Unmating Basic (SFMH-105-02-L-D\FSH-105-04-L-DH)

Sample#	Initial		After 25 Cycles		After 50 Cycles		After 75 Cycles		After 100 Cycles	
	Mating	Unmating	Mating	Unmating	Mating	Unmating	Mating	Unmating	Mating	Unmating
1	1.85	1.93	2.03	2.40	2.35	2.71	2.01	2.45	2.45	2.98
2	2.57	2.37	2.78	2.81	2.96	3.04	3.11	3.25	3.15	3.56
3	2.01	2.06	2.52	2.44	2.61	2.59	2.79	2.84	2.86	3.04
4	2.11	1.96	2.51	2.49	2.84	2.97	2.93	3.05	3.16	3.29
5	2.36	2.09	2.65	2.63	2.80	3.02	2.96	3.35	3.02	3.50
6	2.34	1.99	2.59	2.61	2.64	2.81	2.93	2.97	3.02	3.27
7	2.37	1.77	2.52	2.63	2.74	2.86	2.95	2.91	3.11	3.51
8	2.55	2.15	2.64	2.58	2.79	2.93	2.82	3.09	3.07	3.22

DATA Continued**NORMAL FORCE (FOR CONTACTS TESTED OUTSIDE THE HOUSING):**

Initial	Deflections in mm, Forces in Grams				
Sample #	0.0200	0.0500	0.1000	0.1400	SET
1	14.4	34.1	68.9	95.7	0.0320
2	16.4	40.0	80.7	112.0	0.0300
3	15.4	37.4	68.2	91.0	0.0200
4	14.1	36.7	72.5	108.3	0.0320
5	16.1	37.7	69.6	92.6	0.0160
6	14.4	35.7	72.5	100.4	0.0250
7	14.4	35.7	67.6	97.0	0.0240
8	14.7	36.4	69.6	96.7	0.0230
9	16.1	38.4	78.1	104.5	0.0130
10	13.8	34.4	67.6	91.7	0.0100

After Thermals	Deflections in inches, Forces in Grams				
Sample #	0.0200	0.0500	0.1000	0.1400	SET
1	19.3	42.3	75.8	97.0	0.0230
2	17.4	41.7	77.1	100.6	0.0220
3	16.4	38.4	68.6	92.3	0.0350
4	16.1	39.7	71.5	94.7	0.0300
5	16.1	39.0	71.8	90.5	0.0220
6	20.3	48.9	82.4	102.9	0.0300
7	17.7	39.7	73.8	99.1	0.0270
8	16.7	38.7	74.1	102.7	0.0200
9	16.1	38.0	79.7	107.0	0.0120
10	16.1	39.7	81.0	106.9	0.0110

DATA Continued**INSULATION RESISTANCE (IR):**

Initial Insulation Resistance		
Measured In Meg Ohms		

Pin to Pin		
Mated	A	Unmated B
X	X	X
SFMH/FSH	SFMH	FSH
10000	10000	10000
10000	10000	10000

Row to Row		
Mated	A	Unmated B
X		X
SFMH/FSH	SFMH	FSH
10000	X	10000
10000	X	10000

Thermal Insulation Resistance		
Measured In Meg Ohms		

Pin to Pin		
Mated	A	Unmated B
X	X	X
SFMH/FSH	SFMH	FSH
10000	10000	10000
10000	10000	10000

Row to Row		
Mated	A	Unmated B
X		X
SFMH/FSH	SFMH	FSH
10000	X	10000
10000	X	10000

DATA Continued

Humidity Insulation Resistance		
Measured In Meg Ohms		
Pin to Pin		
Mated	A	Unmated B
X	X	X
SFMH/FSH	SFMH	FSH
10000	10000	10000
10000	10000	10000
Row to Row		
Mated	A	Unmated B
X		X
SFMH/FSH	SFMH	FSH
10000	X	10000
10000	X	10000

DATA Continued**DIELECTRIC WITHSTANDING VOLTAGE (DWV):**

Initial Breakdown Voltage		
Test Voltage <i>Until Breakdown Occurs</i>		

Pin to Pin		
Mated	A	Unmated B
x		
SFMH/FSH	SFMH	FSH
1000	1000	1500
1000	1000	1120

Row to Row		
Mated	A	Unmated B
x		
SFMH/FSH	SFMH	FSH
870	x	2000
850	x	2000

Initial DWV		
Test Voltage= 638		

Pin to Pin		
Mated	A	Unmated B
SFMH/FSH	SFMH	FSH
638	638	638
638	638	638

Row to Row		
Mated	A	Unmated B
SFMH/FSH	SFMH	FSH
638	X	638
638	X	638

DATA Continued

Thermal Test Voltage	
Test Voltage= 638	

Pin to Pin		
Mated	A	Unmated B
SFMH/FSH	SFMH	FSH
638	638	638
638	638	638

Row to Row		
Mated	A	Unmated B
SFMH/FSH	SFMH	FSH
638	X	638
638	X	638

Humidity Test Voltage	
Test Voltage= 638	

Pin to Pin		
Mated	A	Unmated B
SFMH/FSH	SFMH	FSH
638	638	638
638	638	638

Row to Row		
Mated	A	Unmated B
SFMH/FSH	SFMH	FSH
638	X	638
638	X	638

DATA Continued**GAS TIGHT:**

	mOhm values	Actual	Delta
Board	Position	Initial	Gas Tight
1	P1	10.2	0.2
1	P2	10.9	0.3
1	P3	11.3	0.0
1	P4	13.5	0.2
1	P5	11.4	0.0
1	P6	13.5	0.6
1	P7	11.3	0.3
1	P8	11.2	0.0
1	P9	10.4	0.3
1	P10	14.4	0.3
1	P11	13.2	0.2
1	P12	14.2	0.2
1	P13	10.5	0.2
1	P14	14.4	0.1
1	P15	10.4	0.3
1	P16	14.2	0.2
1	P17	10.6	0.2
1	P18	10.5	0.1
1	P19	10.5	0.2
1	P20	14.5	0.1
1	P21	10.6	0.2
1	P22	14.4	0.1
1	P23	10.6	0.3
1	P24	10.2	0.2
2	P1	10.9	-0.3
2	P2	11.1	-0.2
2	P3	11.6	0.1
2	P4	11.1	2.6
2	P5	11.7	0.3
2	P6	13.6	0.3
2	P7	11.5	-0.1
2	P8	11.1	-0.1
2	P9	11.0	0.1
2	P10	14.0	0.7
2	P11	14.0	-0.4
2	P12	14.2	0.2
2	P13	11.3	-0.1
2	P14	14.4	-1.3
2	P15	10.6	0.3
2	P16	14.2	0.5
2	P17	10.5	0.3
2	P18	10.5	0.0
2	P19	11.0	-0.1

2	P20	14.8	0.2
2	P21	11.2	-0.1
2	P22	14.4	0.5
2	P23	10.4	0.2
2	P24	9.9	0.3
3	P1	10.6	0.4
3	P2	11.1	0.3
3	P3	11.4	0.1
3	P4	13.8	0.6
3	P5	11.6	0.3
3	P6	13.5	0.9
3	P7	11.6	0.0
3	P8	10.8	0.1
3	P9	10.8	0.7
3	P10	14.3	1.8
3	P11	13.6	0.8
3	P12	14.5	0.8
3	P13	11.2	0.3
3	P14	14.7	-2.1
3	P15	10.6	0.2
3	P16	14.2	1.3
3	P17	10.6	0.3
3	P18	10.5	0.4
3	P19	10.7	0.2
3	P20	14.5	0.3
3	P21	11.1	1.6
3	P22	14.5	-1.8
3	P23	11.1	0.2
3	P24	10.1	0.2
4	P1	10.6	2.3
4	P2	10.6	3.6
4	P3	11.2	0.2
4	P4	13.9	-2.7
4	P5	11.3	0.2
4	P6	13.5	0.1
4	P7	11.4	3.0
4	P8	10.7	3.4
4	P9	10.5	3.9
4	P10	14.0	0.6
4	P11	13.4	0.9
4	P12	14.3	0.6
4	P13	10.8	0.4
4	P14	14.6	0.5
4	P15	10.9	0.4
4	P16	14.1	0.7
4	P17	10.7	0.4
4	P18	10.6	0.4
4	P19	10.3	0.3
4	P20	14.7	0.3

4	P21	10.5	0.4
4	P22	14.6	0.5
4	P23	10.9	0.2
4	P24	10.2	0.4
5	P1	10.9	0.8
5	P2	10.4	0.8
5	P3	11.1	0.4
5	P4	13.5	0.9
5	P5	11.9	-0.1
5	P6	13.3	1.0
5	P7	11.7	0.0
5	P8	11.2	-0.2
5	P9	10.3	0.3
5	P10	13.8	0.6
5	P11	13.6	0.0
5	P12	14.0	0.6
5	P13	10.6	0.1
5	P14	14.5	0.7
5	P15	10.8	0.2
5	P16	13.9	0.7
5	P17	10.7	0.5
5	P18	10.5	0.2
5	P19	11.0	-0.2
5	P20	14.2	0.9
5	P21	10.8	0.1
5	P22	14.4	0.9
5	P23	10.7	0.2
5	P24	10.6	2.7
6	P1	15.8	-2.6
6	P2	10.9	0.3
6	P3	11.4	0.3
6	P4	13.7	0.7
6	P5	11.9	0.0
6	P6	13.7	0.7
6	P7	11.3	0.2
6	P8	11.0	0.3
6	P9	11.1	0.3
6	P10	14.4	0.2
6	P11	13.5	0.5
6	P12	15.0	0.0
6	P13	11.0	0.3
6	P14	14.4	0.5
6	P15	10.7	0.4
6	P16	14.2	0.5
6	P17	10.5	0.5
6	P18	10.5	0.2
6	P19	10.7	0.4
6	P20	14.8	0.2
6	P21	11.1	0.9

6	P22	14.6	1.0
6	P23	10.9	0.6
6	P24	10.1	0.8
7	P1	10.5	2.2
7	P2	10.7	0.8
7	P3	11.2	0.5
7	P4	13.7	-0.5
7	P5	12.0	1.7
7	P6	13.5	1.2
7	P7	11.3	0.8
7	P8	11.0	0.6
7	P9	10.8	1.1
7	P10	14.3	1.5
7	P11	13.9	1.4
7	P12	14.5	0.3
7	P13	11.0	-0.2
7	P14	14.6	0.7
7	P15	11.0	0.2
7	P16	14.2	1.7
7	P17	10.9	0.1
7	P18	10.8	0.4
7	P19	11.3	0.0
7	P20	14.8	-1.5
7	P21	11.0	0.2
7	P22	15.1	0.5
7	P23	10.6	0.2
7	P24	10.4	0.3
8	P1	10.3	0.9
8	P2	10.4	1.1
8	P3	11.3	0.0
8	P4	13.5	0.3
8	P5	11.3	0.7
8	P6	13.9	0.0
8	P7	11.2	0.4
8	P8	10.5	0.5
8	P9	10.7	0.2
8	P10	14.4	0.0
8	P11	13.3	0.3
8	P12	14.0	0.5
8	P13	10.6	0.3
8	P14	15.0	-2.7
8	P15	10.5	0.2
8	P16	14.2	0.1
8	P17	10.8	0.1
8	P18	10.3	0.4
8	P19	10.3	0.9
8	P20	14.3	0.4
8	P21	10.6	0.7
8	P22	14.2	0.5

LLCR Thermal:

8	P23	10.9	0.1
8	P24	9.9	0.4

	mOhm values	Actual	Delta
Board	Position	Initial	Thermal Age
1	P1	10.5	0.2
1	P2	10.5	0.2
1	P3	11.4	0.1
1	P4	13.3	0.4
1	P5	11.8	0.1
1	P6	13.3	0.3
1	P7	11.1	0.2
1	P8	10.7	0.2
1	P9	10.7	0.1
1	P10	14.1	0.2
1	P11	13.9	0.1
1	P12	14.1	0.2
1	P13	10.8	-0.1
1	P14	14.7	-0.2
1	P15	10.8	0.0
1	P16	14.2	0.1
1	P17	10.5	-0.1
1	P18	10.6	0.0
1	P19	10.9	0.0
1	P20	14.7	-0.1
1	P21	10.9	-0.1
1	P22	14.5	0.0
1	P23	10.8	-0.1
1	P24	10.2	-0.1
2	P1	10.6	2.3
2	P2	10.8	2.4
2	P3	11.9	1.9
2	P4	13.3	2.4
2	P5	11.5	2.0
2	P6	13.4	2.6
2	P7	11.3	2.3
2	P8	10.9	1.8
2	P9	10.5	1.9
2	P10	14.3	-2.0
2	P11	13.7	-0.1
2	P12	13.9	0.1
2	P13	10.5	1.2
2	P14	14.0	-1.1
2	P15	10.6	1.0
2	P16	14.0	-0.6
2	P17	10.6	1.0
2	P18	10.6	0.6

2	P19	10.9	0.4
2	P20	14.3	-0.1
2	P21	10.8	0.4
2	P22	14.1	0.0
2	P23	10.2	0.3
2	P24	10.2	3.7
3	P1	10.0	3.6
3	P2	10.6	3.0
3	P3	10.7	1.9
3	P4	13.6	1.1
3	P5	11.1	2.1
3	P6	13.6	-3.0
3	P7	11.0	0.2
3	P8	10.6	0.0
3	P9	10.1	1.4
3	P10	14.3	-4.1
3	P11	13.4	0.8
3	P12	14.2	-0.9
3	P13	10.1	2.5
3	P14	14.6	-3.3
3	P15	10.3	1.7
3	P16	14.0	-2.9
3	P17	10.6	1.4
3	P18	10.5	0.0
3	P19	10.6	1.4
3	P20	14.1	-3.8
3	P21	10.4	0.1
3	P22	14.3	-3.1
3	P23	10.7	0.9
3	P24	10.1	5.0
4	P1	10.3	1.8
4	P2	10.6	0.0
4	P3	11.2	3.0
4	P4	13.5	-3.2
4	P5	11.4	0.1
4	P6	13.6	-1.5
4	P7	11.4	3.2
4	P8	10.7	2.6
4	P9	10.8	0.3
4	P10	14.3	-1.8
4	P11	13.3	-2.2
4	P12	14.4	-3.8
4	P13	10.8	3.7
4	P14	14.7	-1.4
4	P15	10.4	0.7
4	P16	14.0	-1.4
4	P17	10.4	0.1
4	P18	10.3	0.2
4	P19	10.4	2.0

4	P20	14.4	-3.1
4	P21	10.7	1.4
4	P22	14.2	-2.4
4	P23	10.7	1.3
4	P24	10.0	3.6
5	P1	10.4	-0.1
5	P2	10.7	-0.2
5	P3	11.2	0.0
5	P4	13.8	0.0
5	P5	11.5	-0.1
5	P6	13.6	0.0
5	P7	11.3	-0.1
5	P8	10.6	-0.2
5	P9	10.6	-0.1
5	P10	14.0	0.0
5	P11	13.4	-0.1
5	P12	14.6	-0.1
5	P13	10.7	0.0
5	P14	14.5	-0.2
5	P15	10.9	0.0
5	P16	14.0	0.0
5	P17	10.4	0.0
5	P18	10.3	0.0
5	P19	10.3	0.0
5	P20	14.5	-0.1
5	P21	10.7	-0.1
5	P22	14.4	-0.1
5	P23	10.9	0.0
5	P24	9.9	0.0
6	P1	10.2	0.2
6	P2	10.7	0.6
6	P3	11.2	0.2
6	P4	13.4	0.4
6	P5	11.2	0.0
6	P6	13.5	0.1
6	P7	11.0	0.6
6	P8	10.6	0.3
6	P9	10.9	0.1
6	P10	14.3	0.0
6	P11	13.2	0.6
6	P12	14.0	1.0
6	P13	10.7	0.2
6	P14	14.7	0.6
6	P15	10.5	0.2
6	P16	14.2	0.1
6	P17	10.8	0.0
6	P18	10.3	0.2
6	P19	10.5	0.2
6	P20	14.3	0.1

6	P21	10.8	0.0
6	P22	14.1	0.1
6	P23	10.9	0.0
6	P24	9.9	0.2
7	P1	10.2	0.0
7	P2	11.0	0.0
7	P3	11.1	0.0
7	P4	13.6	0.0
7	P5	11.2	0.0
7	P6	13.5	-0.1
7	P7	11.2	-0.1
7	P8	10.7	-0.1
7	P9	10.4	0.0
7	P10	15.2	-0.4
7	P11	13.5	0.1
7	P12	14.8	-0.1
7	P13	10.5	0.1
7	P14	14.5	0.0
7	P15	10.3	0.0
7	P16	14.1	-0.1
7	P17	10.7	0.0
7	P18	10.5	0.0
7	P19	10.6	0.1
7	P20	14.4	-0.1
7	P21	10.7	0.2
7	P22	14.3	0.0
7	P23	10.6	0.2
7	P24	10.3	0.0
8	P1	11.0	0.0
8	P2	11.3	-0.1
8	P3	11.2	0.0
8	P4	13.7	0.0
8	P5	11.6	0.0
8	P6	13.6	0.0
8	P7	11.7	0.0
8	P8	10.9	0.0
8	P9	10.8	0.1
8	P10	14.3	0.0
8	P11	13.4	0.0
8	P12	14.5	-0.1
8	P13	10.6	0.0
8	P14	14.8	0.0
8	P15	10.8	-0.1
8	P16	14.0	-0.1
8	P17	10.9	-0.1
8	P18	10.8	-0.1
8	P19	10.3	-0.1
8	P20	14.4	0.1
8	P21	10.5	0.0

8	P22	14.1	0.1
8	P23	10.9	0.0
8	P24	10.3	0.0

LLCR Durability:

	mOhm values	Actual	Delta	Delta	Delta
Board	Position	Initial	100 Cycles	Thermal	Humidity
1	P1	10.3	-0.2	-0.3	-0.3
1	P2	10.8	0.3	0.1	-0.1
1	P3	11.1	0.3	0.2	0.0
1	P4	13.4	-0.3	-0.3	-0.4
1	P5	11.3	-0.1	-0.2	-0.4
1	P6	13.5	-0.2	-0.2	-0.3
1	P7	11.3	0.1	0.0	-0.2
1	P8	11.3	-0.2	-0.4	-0.6
1	P9	10.5	0.2	0.1	0.0
1	P10	14.0	-0.4	-0.4	-0.4
1	P11	13.4	-0.1	-0.1	-0.1
1	P12	13.9	0.0	0.0	-0.1
1	P13	11.0	-0.1	-0.1	-0.2
1	P14	14.3	1.0	0.9	0.4
1	P15	10.5	-0.1	-0.1	-0.2
1	P16	14.1	0.0	0.0	-0.3
1	P17	10.8	-0.3	-0.2	-0.3
1	P18	10.6	-0.2	-0.2	-0.2
1	P19	10.9	-0.4	-0.4	-0.4
1	P20	14.9	-0.7	-0.6	-0.7
1	P21	10.5	0.3	0.3	0.3
1	P22	14.3	-0.2	-0.2	-0.2
1	P23	10.5	-0.1	-0.1	-0.1
1	P24	10.2	-0.3	-0.3	-0.3
2	P1	10.9	6.3	5.0	0.1
2	P2	11.2	4.0	0.1	-0.1
2	P3	11.8	3.6	-0.1	-0.4
2	P4	14.2	4.3	0.4	-2.5
2	P5	12.1	3.7	0.0	-0.3
2	P6	14.0	4.3	-0.2	-2.5
2	P7	11.9	3.2	-0.4	-0.6
2	P8	11.2	3.3	-0.1	-0.2
2	P9	10.9	3.1	-0.2	-0.4
2	P10	14.7	6.2	1.1	-1.7
2	P11	13.9	5.3	0.0	-2.8
2	P12	14.9	6.1	0.9	-1.5
2	P13	11.0	2.0	0.1	0.4
2	P14	15.0	5.8	0.4	-2.9
2	P15	10.9	1.7	0.0	2.7
2	P16	14.6	6.3	0.7	-2.2
2	P17	10.6	1.5	-0.1	2.0

2	P18	10.6	0.7	0.0	3.1
2	P19	10.5	0.6	0.1	2.5
2	P20	14.2	0.2	0.4	-1.7
2	P21	10.8	0.4	-0.1	1.6
2	P22	14.2	0.5	0.8	-1.4
2	P23	10.9	0.4	0.1	1.0
2	P24	8.2	1.5	0.7	1.7
3	P1	12.6	2.7	1.1	-0.5
3	P2	10.7	0.2	0.4	0.2
3	P3	10.8	0.3	0.5	0.2
3	P4	13.2	0.1	0.3	0.4
3	P5	10.9	0.4	0.4	0.1
3	P6	13.3	0.0	0.3	0.0
3	P7	11.1	0.4	0.8	0.2
3	P8	10.9	0.2	0.4	0.4
3	P9	10.4	0.2	0.4	0.3
3	P10	14.1	-0.1	0.1	0.2
3	P11	13.7	-0.1	0.0	-0.1
3	P12	14.3	-0.1	0.0	0.5
3	P13	10.8	0.0	0.1	0.1
3	P14	14.2	-0.1	0.0	0.2
3	P15	10.5	0.5	0.6	0.3
3	P16	14.3	0.0	0.0	0.0
3	P17	10.6	0.1	0.1	0.2
3	P18	10.6	0.1	0.1	0.1
3	P19	10.9	0.3	0.4	0.4
3	P20	14.2	0.1	0.4	0.2
3	P21	10.6	0.1	0.3	0.2
3	P22	14.1	0.1	0.3	0.3
3	P23	10.3	0.2	0.3	0.5
3	P24	10.0	0.1	0.2	0.2
4	P1	10.2	0.7	1.6	1.5
4	P2	10.7	0.4	0.3	0.2
4	P3	11.3	0.0	0.0	0.0
4	P4	13.5	-0.1	-0.1	-0.2
4	P5	11.4	-0.4	-0.2	-0.3
4	P6	13.5	-0.1	0.2	0.2
4	P7	11.5	0.2	0.1	0.0
4	P8	11.2	-0.2	-0.1	-0.1
4	P9	10.6	0.0	0.2	0.1
4	P10	14.0	0.2	0.4	0.2
4	P11	13.3	0.2	0.2	0.0
4	P12	13.8	0.0	0.2	0.0
4	P13	10.9	-0.3	-0.1	-0.2
4	P14	14.6	0.4	0.5	-1.6
4	P15	10.7	-0.1	0.1	-0.1
4	P16	14.1	0.3	0.2	0.1
4	P17	10.8	0.3	0.2	0.1
4	P18	10.8	0.2	0.3	0.1

4	P19	11.4	-0.1	0.2	0.0
4	P20	14.3	0.1	0.2	0.1
4	P21	10.7	-0.2	0.0	-0.1
4	P22	14.3	0.3	0.2	0.1
4	P23	10.4	0.3	0.5	0.4
4	P24	10.2	0.0	0.3	0.2
5	P1	10.6	0.8	0.7	0.5
5	P2	11.0	0.5	0.1	0.1
5	P3	11.5	-0.2	-0.3	-0.4
5	P4	13.5	0.2	0.3	0.2
5	P5	11.4	-0.1	-0.2	-0.3
5	P6	13.4	-0.2	0.0	-0.1
5	P7	11.6	0.1	-0.1	-0.1
5	P8	11.0	0.2	0.1	0.0
5	P9	10.6	0.5	0.3	0.1
5	P10	14.0	0.3	0.4	0.2
5	P11	13.7	-0.3	-0.2	-0.3
5	P12	14.0	-0.2	-0.1	-0.1
5	P13	10.7	-0.1	-0.2	-0.2
5	P14	14.2	0.0	0.1	0.0
5	P15	10.7	0.1	0.0	0.0
5	P16	14.5	-0.1	0.0	-0.2
5	P17	10.8	0.0	0.0	-0.1
5	P18	10.7	-0.1	0.0	-0.1
5	P19	11.3	-0.3	-0.2	-0.3
5	P20	14.2	0.2	0.3	0.2
5	P21	10.9	-0.1	0.0	-0.1
5	P22	14.3	0.2	0.4	0.2
5	P23	10.5	0.0	0.0	-0.1
5	P24	10.3	0.0	-0.1	-0.1
6	P1	10.7	-0.4	0.3	0.2
6	P2	10.5	0.0	0.1	0.0
6	P3	10.9	0.2	0.0	0.0
6	P4	13.4	-0.1	-0.1	-0.2
6	P5	11.4	0.1	0.1	0.0
6	P6	13.1	-0.1	0.0	-0.1
6	P7	11.3	-0.1	-0.1	-0.2
6	P8	11.3	-0.6	-0.6	-0.7
6	P9	10.5	0.0	0.0	-0.1
6	P10	13.8	0.0	-0.1	-0.2
6	P11	13.4	-0.3	-0.2	-0.3
6	P12	13.8	0.5	0.1	0.0
6	P13	10.4	0.0	0.1	0.0
6	P14	14.3	0.2	-0.1	-0.2
6	P15	10.8	-0.1	-0.3	-0.3
6	P16	13.9	0.0	0.0	-0.1
6	P17	10.6	0.1	0.0	0.0
6	P18	10.5	0.1	0.1	0.0
6	P19	10.9	-0.5	-0.2	-0.3

6	P20	14.0	0.1	0.3	0.2
6	P21	10.3	0.0	0.1	0.0
6	P22	14.3	-0.2	0.0	-0.1
6	P23	10.6	-0.1	0.0	0.0
6	P24	10.5	-0.4	-0.1	-0.1
7	P1	10.6	0.1	0.1	0.0
7	P2	10.5	0.0	0.1	0.0
7	P3	11.0	0.0	0.1	0.0
7	P4	13.4	0.2	0.1	0.0
7	P5	11.2	0.0	-0.1	-0.2
7	P6	13.6	-0.2	0.1	0.0
7	P7	11.4	0.3	0.3	0.3
7	P8	10.7	-0.2	-0.2	-0.3
7	P9	10.3	0.1	0.0	0.0
7	P10	14.2	0.1	0.0	-0.1
7	P11	13.3	0.3	0.0	-0.2
7	P12	14.1	0.2	0.2	0.1
7	P13	10.5	-0.2	0.0	-0.1
7	P14	15.0	0.1	-0.6	-0.8
7	P15	10.6	0.3	0.4	0.4
7	P16	14.0	0.7	0.5	0.1
7	P17	10.9	0.3	0.2	0.2
7	P18	10.5	0.0	0.1	0.1
7	P19	10.2	0.0	0.1	0.1
7	P20	14.3	0.3	0.2	0.0
7	P21	10.2	0.0	0.0	0.0
7	P22	14.3	0.1	0.4	0.2
7	P23	10.7	0.2	0.2	0.1
7	P24	10.2	0.6	0.3	0.3
8	P1	10.2	7.0	2.4	1.0
8	P2	11.0	-0.3	-0.2	0.5
8	P3	11.1	0.0	-0.1	0.0
8	P4	13.6	-0.1	-0.2	0.2
8	P5	11.2	-0.1	-0.2	0.1
8	P6	13.7	0.0	0.0	0.2
8	P7	11.4	-0.1	-0.2	0.0
8	P8	11.3	-0.3	-0.3	-0.1
8	P9	10.5	0.0	-0.1	0.3
8	P10	14.6	0.6	0.1	-1.0
8	P11	13.6	-0.1	-0.2	0.0
8	P12	14.3	0.6	0.5	-1.0
8	P13	10.6	0.0	-0.1	0.2
8	P14	14.4	0.2	0.2	-2.3
8	P15	10.4	0.0	-0.1	0.4
8	P16	14.4	0.1	-0.1	-2.3
8	P17	10.7	0.0	-0.1	0.3
8	P18	10.6	-0.1	-0.2	-0.1
8	P19	10.4	0.2	0.2	1.3
8	P20	14.3	0.1	0.1	-0.8

8	P21	10.5	0.2	0.2	0.8
8	P22	14.2	0.0	0.2	-0.7
8	P23	10.4	0.1	0.1	0.4
8	P24	10.1	0.0	0.0	0.2

LLCR Shock / Vibration:

	mOhm values	Actual	Delta
Board	Position	Initial	Shock / Vibe
1	P1	10.3	0.6
1	P2	10.9	0.0
1	P3	11.4	0.0
1	P4	13.8	0.3
1	P5	11.3	0.1
1	P6	13.7	0.2
1	P7	13.2	1.6
1	P8	11.6	0.1
1	P9	10.9	0.0
1	P10	14.3	0.0
1	P11	13.7	-0.1
1	P12	14.1	-0.2
1	P13	11.0	0.2
1	P14	14.6	0.0
1	P15	10.8	0.0
1	P16	14.3	0.0
1	P17	10.6	0.1
1	P18	10.4	0.0
1	P19	11.0	-0.1
1	P20	14.6	0.0
1	P21	10.9	0.0
1	P22	14.6	0.0
1	P23	10.5	0.0
1	P24	10.5	-0.1
2	P1	11.0	-0.6
2	P2	10.8	-0.1
2	P3	11.0	-0.1
2	P4	13.7	0.0
2	P5	11.5	-0.1
2	P6	13.9	-0.1
2	P7	11.6	-0.1
2	P8	10.6	-0.1
2	P9	10.6	0.0
2	P10	14.1	0.0
2	P11	13.6	0.1
2	P12	14.1	0.1
2	P13	10.5	0.0
2	P14	14.2	0.0
2	P15	10.6	0.0
2	P16	14.0	0.1

2	P17	10.7	-0.1
2	P18	10.7	-0.1
2	P19	10.4	-0.1
2	P20	14.5	-0.1
2	P21	10.6	-0.2
2	P22	15.7	-1.1
2	P23	10.8	0.0
2	P24	10.5	-0.1
3	P1	10.1	0.1
3	P2	10.7	0.0
3	P3	11.4	0.1
3	P4	13.8	0.1
3	P5	11.2	0.1
3	P6	13.8	0.1
3	P7	11.3	-0.1
3	P8	10.7	0.3
3	P9	10.8	0.0
3	P10	14.6	0.1
3	P11	13.5	0.0
3	P12	14.5	-0.1
3	P13	10.9	0.0
3	P14	14.7	0.0
3	P15	11.0	0.0
3	P16	14.1	0.2
3	P17	10.6	0.0
3	P18	10.5	0.0
3	P19	10.5	0.1
3	P20	14.6	0.0
3	P21	10.9	0.0
3	P22	14.5	0.1
3	P23	10.9	0.1
3	P24	10.0	0.0
4	P1	10.5	0.1
4	P2	10.9	-0.2
4	P3	11.2	0.1
4	P4	13.4	0.2
4	P5	11.3	0.1
4	P6	13.7	0.2
4	P7	11.4	0.0
4	P8	11.0	0.1
4	P9	11.1	0.2
4	P10	14.1	-0.1
4	P11	13.3	-0.4
4	P12	14.1	-0.4
4	P13	10.7	0.1
4	P14	14.2	0.2
4	P15	10.5	0.1
4	P16	14.1	0.1
4	P17	10.5	0.0

4	P18	10.3	0.1
4	P19	10.5	0.1
4	P20	14.1	0.2
4	P21	11.0	0.1
4	P22	14.2	0.2
4	P23	10.6	0.1
4	P24	9.7	0.2
5	P1	10.4	-0.1
5	P2	10.5	0.1
5	P3	11.2	-0.1
5	P4	13.5	0.0
5	P5	11.1	0.2
5	P6	13.3	0.1
5	P7	11.3	0.0
5	P8	10.5	0.1
5	P9	10.7	-0.1
5	P10	14.0	0.0
5	P11	13.6	-0.1
5	P12	14.4	-0.2
5	P13	10.8	-0.1
5	P14	14.0	0.2
5	P15	10.2	0.1
5	P16	13.9	0.1
5	P17	10.4	0.1
5	P18	10.3	0.1
5	P19	10.5	0.0
5	P20	14.2	0.0
5	P21	11.0	-0.1
5	P22	14.4	0.0
5	P23	10.5	-0.1
6	P1	10.8	0.0
6	P2	10.6	-0.1
6	P3	11.4	-0.1
6	P4	13.6	0.0
6	P5	11.8	0.0
6	P6	13.8	0.0
6	P7	11.5	-0.1
6	P8	10.6	-0.1
6	P9	10.8	0.0
6	P10	14.2	0.0
6	P11	13.6	0.0
6	P12	14.3	0.1
6	P13	10.9	0.0
6	P14	14.5	-0.1
6	P15	10.1	0.8
6	P16	14.1	0.1
6	P17	10.5	0.0
6	P18	10.5	0.0
6	P19	10.3	0.0

6	P20	14.6	0.1
6	P21	10.9	0.1
6	P22	14.3	0.2
6	P23	11.1	0.0
6	P24	10.0	0.0
7	P1	9.7	0.0
7	P2	11.2	-0.2
7	P3	11.7	-0.2
7	P4	13.8	-0.1
7	P5	11.7	-0.1
7	P6	13.5	-0.2
7	P7	11.8	-0.3
7	P8	11.3	-0.1
7	P9	11.1	-0.2
7	P10	14.3	0.0
7	P11	13.8	0.0
7	P12	14.2	0.0
7	P13	11.2	0.0
7	P14	14.6	-0.1
7	P15	11.2	-0.1
7	P16	14.1	0.0
7	P17	10.9	0.0
7	P18	10.9	-0.1
7	P19	11.3	0.1
7	P20	15.1	-0.2
7	P21	11.7	-0.3
7	P22	15.3	0.0
7	P23	11.0	-0.1
7	P24	10.3	-0.1
8	P1	10.6	-0.2
8	P2	10.2	-0.1
8	P3	11.0	-0.1
8	P4	13.4	-0.2
8	P5	11.1	0.0
8	P6	13.2	0.1
8	P7	11.6	-0.2
8	P8	10.7	-0.1
8	P9	10.5	-0.1
8	P10	13.9	0.1
8	P11	13.4	0.1
8	P12	13.8	0.1
8	P13	10.6	-0.1
8	P14	14.1	0.0
8	P15	10.7	-0.1
8	P16	13.9	0.0
8	P17	10.6	0.0
8	P18	10.6	-0.1
8	P19	11.0	-0.1
8	P20	14.4	0.0

Tracking Code: 112491_Report_Rev_1	Part #: SFMH-125-02-L-D\FSH-125-04-L-DH
Part description: SFMH\FSH	

8	P21	10.5	0.0
8	P22	14.3	0.2
8	P23	10.6	0.0
8	P24	10.3	0.0

EQUIPMENT AND CALIBRATION SCHEDULES**Equipment #:** HZ-TCT-01**Description:** Normal force analyzer**Manufacturer:** Mecmesin Multitester**Model:** Mecmesin Multitester 2.5-i**Serial #:** 08-1049-04**Accuracy:** Last Cal: 4/27/2011, Next Cal: 4/26/2012**Equipment #:** HZ-OV-01**Description:** Oven**Manufacturer:** Huida**Model:** CS101-1E**Serial #:** CS101-1E-B**Accuracy:** Last Cal: 12/14/2010, Next Cal: 12/13/2011**Equipment #:** HZ-THC-01**Description:** Humidity transmitter**Manufacturer:** Thermtron**Model:** HMM30C**Serial #:** D0240037**Accuracy:** Last Cal: 3/2/2011, Next Cal: 3/1/2012**Equipment #:** HZ-OGP-01**Description:** Video measurement system**Manufacturer:** OGP**Model:** SMARTSCOPE FLASH 200**Serial #:** SVW2003632**Accuracy:** Last Cal: 6/9/2011, Next Cal: 6/8/2012**Equipment #:** HZ-MO-01**Description:** Micro-ohmmeter**Manufacturer:** Keithley**Model:** 2700**Serial #:** 1199807**Accuracy:** Last Cal: 4/27/2011, Next Cal: 4/26/2012**Equipment #:** HZ-PS-01**Description:** Power Supply**Manufacturer:** Agilent**Model:** 6031A**Serial #:** MY41000982**Accuracy:** Last Cal: 4/27/2011, Next Cal: 4/26/2012**Equipment #:** HZ-TSC-01**Description:** Vertical Thermal Shock Chamber**Manufacturer:** Cincinnatti Sub Zero**Model:** VTS-3-6-6-SC/AC**Serial #:** 10-VT14994**Accuracy:** See Manual

... Last Cal: 06/28/2011, Next Cal: 06/27/2012

EQUIPMENT AND CALIBRATION SCHEDULES Continued**Equipment #:** HZ-HPM-01**Description:** NA9636H**Manufacturer:** Ainuo**Model:** 6031A**Serial #:** 089601091**Accuracy:** Last Cal: 3/8/2011, Next Cal: 3/7/2012**Equipment #:** SVC-01**Description:** Shock & Vibration Table**Manufacturer:** Data Physics**Model:** LE-DSA-10-20K**Serial #:** 10037**Accuracy:** See Manual

... Last Cal: 11/31/2010, Next Cal: 11/31/2011

Equipment #: ACLM-01**Description:** Accelerometer**Manufacturer:** PCB Piezotronics**Model:** 352C03**Serial #:** 115819**Accuracy:** See Manual

... Last Cal: 07/09/2011, Next Cal: 07/09/2012

Equipment #: ED-03**Description:** Event Detector**Manufacturer:** Analysis Tech**Model:** 32EHD**Serial #:** 1100604**Accuracy:** See Manual

... Last Cal: 06/04/2011, Next Cal: 06/04/2012