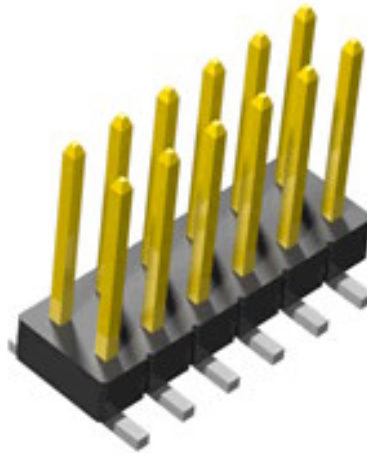
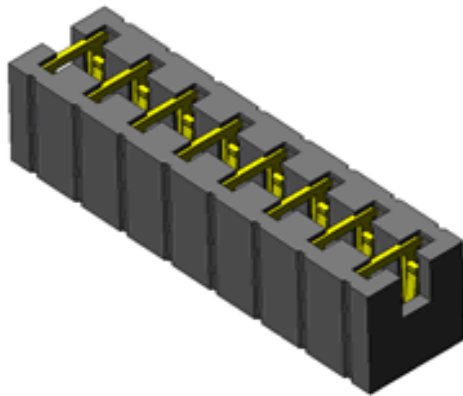




Project Number: Design Qualification Test Report		Tracking Code: 147208_Report_Rev_1	
Requested by: Joe Smallwood		Date: 10/18/2011	Product Rev: 0
Part #: MNT-120-BK-G/TSM-120-01-S-DV		Lot #: N/A	Tech: Peter Chen Eng: Vico Zhao
Part description: MNT/TSM			Qty to test: 45
Test Start: 7/26/2011	Test Completed: 9/2/2011		



Design Qualification Test Report

**MNT/TSM
MNT-120-BK-G/TSM-120-01-S-DV**

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

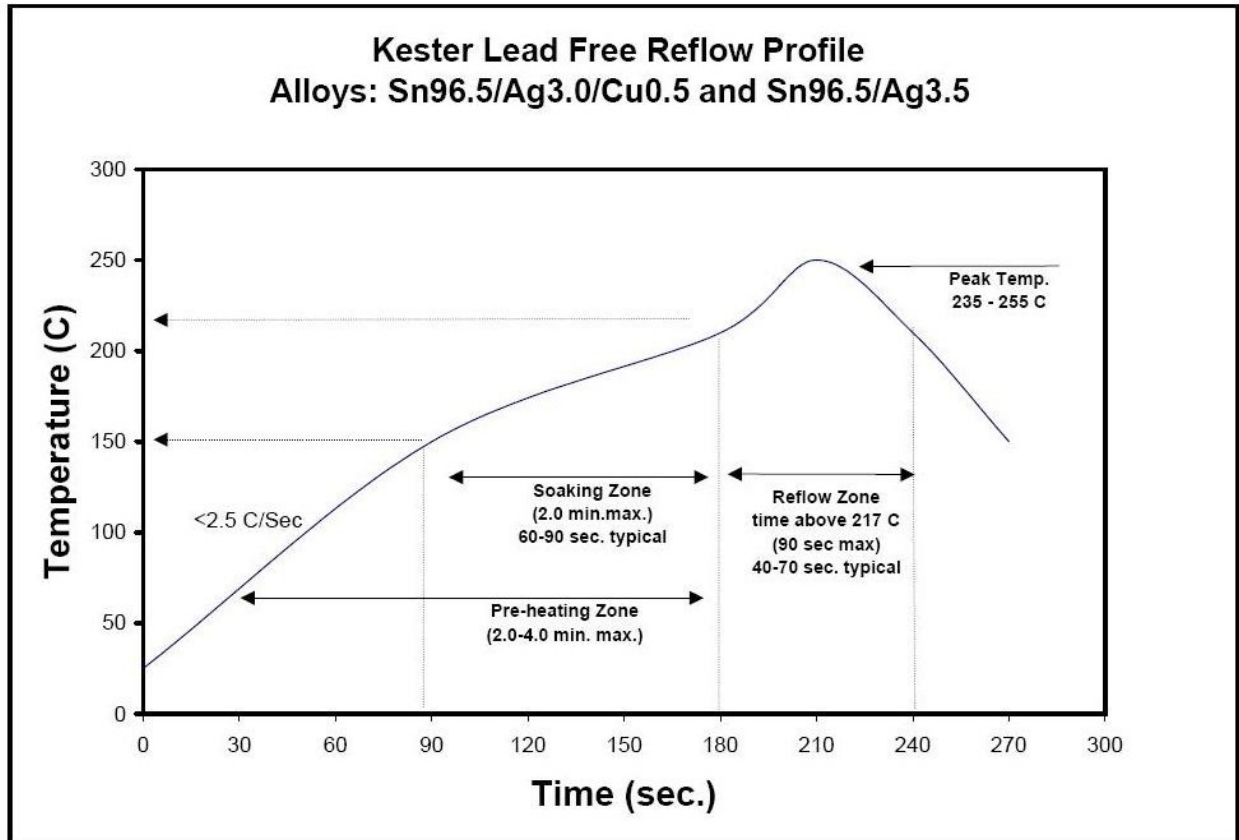
To perform the following tests: Design Qualification Test, Please see test plan.

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-103410-TST-01

TYPICAL OVEN PROFILE (Soldering Parts to Test Boards)

FLOWCHARTS**Gas Tight**

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

Gas Tight = EIA-364-36A

LLCR = EIA-364-23, LLCR

use Keithley 580 in the dry circuit mode, 10 mA Max

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.

LLCR = EIA-364-23, LLCR

20 mV Max, 100 mA Max

Use Keithley 580 or 3706 in 4 wire dry circuit mode

FLOWCHARTS Continued**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

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

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

TEST STEP	GROUP A1 3 Mated Assemblies 1 Contact Powered	GROUP A2 3 Mated Assemblies 2 Contacts Powered	GROUP A3 3 Mated Assemblies 3 Contacts Powered
01	CCC	CCC	CCC
TEST STEP	GROUP A4 3 Mated Assemblies 4 Contacts Powered	GROUP A5 3 Mated Assemblies All Contacts Powered	
01	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

FLOWCHARTS Continued**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

The following is a brief, simplified description of attributes.

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.

NORMAL FORCE (FOR CONTACTS TESTED IN THE HOUSING):

- 1) Reference document: EIA-364-04, *Normal Force Test Procedure for Electrical Connectors*.
- 2) The contacts shall be tested in the connector housing.
- 3) If necessary, a "window" shall be made in the connector body to allow a probe to engage and deflect the contact at the same attitude and distance (plus 0.05 mm [0.002"]) as would occur in actual use.
- 4) The connector housing shall be placed in a holding fixture that does not interfere with or otherwise influence the contact force or deflection.
- 5) 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 5.0 μm (0.0002").
- 6) The nominal deflection rate shall be 5 mm (0.2")/minute.
- 7) Unless otherwise noted a minimum of five contacts shall be tested.
- 8) The force/deflection characteristic to load and unload each contact shall be repeated five times.
- 9) The system shall utilize the TC² software in order to acquire and record the test data.
- 10) The permanent set of each contact shall be measured within the TC² software.
- 11) 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.

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.

ATTRIBUTE DEFINITIONS

The following is a brief, simplified description of attributes.

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. Rate of Application 500 V/Sec
 - iii. 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)..

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.

ATTRIBUTE DEFINITIONS

The following is a brief, simplified description of attributes.

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

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 -----3.9 A per contact with 1 adjacent contacts powered
- CCC for a 30°C Temperature Rise -----3.3 A per contact with 2 adjacent contacts powered
- CCC for a 30°C Temperature Rise -----2.9 A per contact with 3 adjacent contacts powered
- CCC for a 30°C Temperature Rise -----2.7 A per contact with 4 adjacent contacts powered
- CCC for a 30°C Temperature Rise -----2.1 A per contact with all adjacent contacts powered

Contact Gaps**Mating&Unmating durability**

- **Initial**
 - Min -----0.0080 Inch
 - Max-----0.0095 Inch
- **After 100 Cycles**
 - Min -----0.0102 Inch
 - Max-----0.0123 Inch

Thermal aging

- **Initial**
 - Min -----0.0072 Inch
 - Max-----0.0091 Inch
- **After thermal aging**
 - Min -----0.0097 Inch
 - Max-----0.0118 Inch

Normal force initial

- **Initial**
 - Min -----0.0087 Inch
 - Max-----0.0096 Inch

Normal force after thermal

- **Initial**
 - Min -----0.0079 Inch
 - Max-----0.0086 Inch
- **After thermal aging**
 - Min -----0.0081 Inch
 - Max-----0.0090 Inch

RESULTS Continued**Mating /unmating force****Mating&Unmating durability (largest position submitted: MNT-120-BK-G/TSM-120-01-S-DV):**

- **Initial**
 - **Mating**
 - **Min** ----- 15.30 Lbs
 - **Max** ----- 18.31 Lbs
 - **Unmating**
 - **Min** ----- 11.01 Lbs
 - **Max** ----- 12.44 Lbs
- **After 25 Cycles**
 - **Mating**
 - **Min** ----- 14.42 Lbs
 - **Max** ----- 15.78 Lbs
 - **Unmating**
 - **Min** ----- 10.39 Lbs
 - **Max** ----- 12.03 Lbs
- **After 50 Cycles**
 - **Mating**
 - **Min** ----- 12.98 Lbs
 - **Max** ----- 15.25 Lbs
 - **Unmating**
 - **Min** ----- 9.20 Lbs
 - **Max** ----- 11.70 Lbs
- **After 75 Cycles**
 - **Mating**
 - **Min** ----- 12.80 Lbs
 - **Max** ----- 15.19 Lbs
 - **Unmating**
 - **Min** ----- 9.23 Lbs
 - **Max** ----- 11.50 Lbs
- **After 100 Cycles**
 - **Mating**
 - **Min** ----- 12.82 Lbs
 - **Max** ----- 15.20 Lbs
 - **Unmating**
 - **Min** ----- 9.15 Lbs
 - **Max** ----- 11.30 Lb
- **After Humidity**
 - **Mating**
 - **Min** ----- 9.83 Lbs
 - **Max** ----- 11.37 Lbs
 - **Unmating**
 - **Min** ----- 7.46 Lbs
 - **Max** ----- 8.56 Lbs

RESULTS Continued

Mating/Unmating basic (middle position submitted: MNT-110-BK-G\ TSM-110-01-S-DV):

- **Initial**
 - **Mating**
 - **Min -----8.08 Lbs**
 - **Max -----9.61 Lbs**
 - **Unmating**
 - **Min -----4.51 Lbs**
 - **Max -----5.82 Lbs**
- **After 25 Cycles**
 - **Mating**
 - **Min -----7.54 Lbs**
 - **Max -----7.89 Lbs**
 - **Unmating**
 - **Min -----4.60 Lbs**
 - **Max -----5.48 Lbs**
- **After 50 Cycles**
 - **Mating**
 - **Min -----7.09 Lbs**
 - **Max -----7.90 Lbs**
 - **Unmating**
 - **Min -----4.57 Lbs**
 - **Max -----5.43 Lbs**
- **After 75 Cycles**
 - **Mating**
 - **Min -----7.10 Lbs**
 - **Max -----7.68 Lbs**
 - **Unmating**
 - **Min -----4.62 Lbs**
 - **Max -----5.45 Lbs**
- **After 100 Cycles**
 - **Mating**
 - **Min -----7.03 Lbs**
 - **Max -----7.56 Lbs**
 - **Unmating**
 - **Min -----4.50 Lbs**
 - **Max -----5.40 Lb**

RESULTS Continued**Mating/Unmating basic (smallest position submitted: MNT-102-BK-G\ TSM-102-01-S-DV):**

- **Initial**
 - **Mating**
 - **Min ----- 1.23 Lbs**
 - **Max ----- 1.94 Lbs**
 - **Unmating**
 - **Min ----- 0.73 Lbs**
 - **Max ----- 0.94 Lbs**
- **After 25 Cycles**
 - **Mating**
 - **Min ----- 1.04 Lbs**
 - **Max ----- 1.85 Lbs**
 - **Unmating**
 - **Min ----- 0.75 Lbs**
 - **Max ----- 0.90 Lbs**
- **After 50 Cycles**
 - **Mating**
 - **Min ----- 1.05 Lbs**
 - **Max ----- 1.85 Lbs**
 - **Unmating**
 - **Min ----- 0.75 Lbs**
 - **Max ----- 0.90 Lbs**
- **After 75 Cycles**
 - **Mating**
 - **Min ----- 0.99 Lbs**
 - **Max ----- 1.80 Lbs**
 - **Unmating**
 - **Min ----- 0.75 Lbs**
 - **Max ----- 0.90 Lbs**
- **After 100 Cycles**
 - **Mating**
 - **Min ----- 1.00 Lbs**
 - **Max ----- 1.77 Lbs**
 - **Unmating**
 - **Min ----- 0.72 Lbs**
 - **Max ----- 0.93 Lb**

Thermal aging

- **Initial**
 - **Mating**
 - **Min ----- 15.33 Lbs**
 - **Max ----- 17.56 Lbs**
 - **Unmating**
 - **Min ----- 11.45 Lbs**
 - **Max ----- 12.25 Lbs**
- **After thermal aging**
 - **Mating**
 - **Min ----- 11.32 Lbs**
 - **Max ----- 12.78 Lbs**
 - **Unmating**
 - **Min ----- 7.86 Lbs**
 - **Max ----- 8.95 Lbs**

RESULTS Continued**Normal Force at 0.30 mm deflection**

- **Initial**
 - Min ----- 108.30 gf Set ----- 0.025 mm
 - Max ----- 144.00 gf Set ----- 0.050 mm
- **Thermal**
 - Min ----- 114.50 gf Set ----- 0.02 mm
 - Max ----- 152.60 gf Set ----- 0.06 mm

LLCR Durability (128 pin LLCR test points)

- **Initial** ----- 12.1 mOhms Max
- **After 100 Cycles**
 - <= +5.0 mOhms ----- 128 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
- **After thermal shock**
 - <= +5.0 mOhms ----- 128 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
- **After humidity**
 - <= +5.0 mOhms ----- 128 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 (128 pin LLCR test points)

- **Initial** ----- 12.5mOhms Max
- **Thermal Aging**
 - <= +5.0 mOhms ----- 128 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 Gas Tight (128 pin LLCR test points)

- **Initial** ----- 13.1 mOhms Max
- **Gas-Tight**
 - <= +5.0 mOhms ----- 128 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 LLCR Mechanical Shock & Random Vibration (128 pin LLCR test points)

- **Initial** ----- 12.1 mOhms Max
- **Shock&Vibration**
 - **<= +5.0 mOhms**-----128 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

Insulation Resistance minimums, IR

Pin-Pin

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

Dielectric Withstanding Voltage minimums, DWV

- **Minimums**
 - **Breakdown Voltage** ----- 1800VAC
 - **Test Voltage** ----- 1350VAC
 - **Working Voltage** ----- 450VAC

Pin - pin

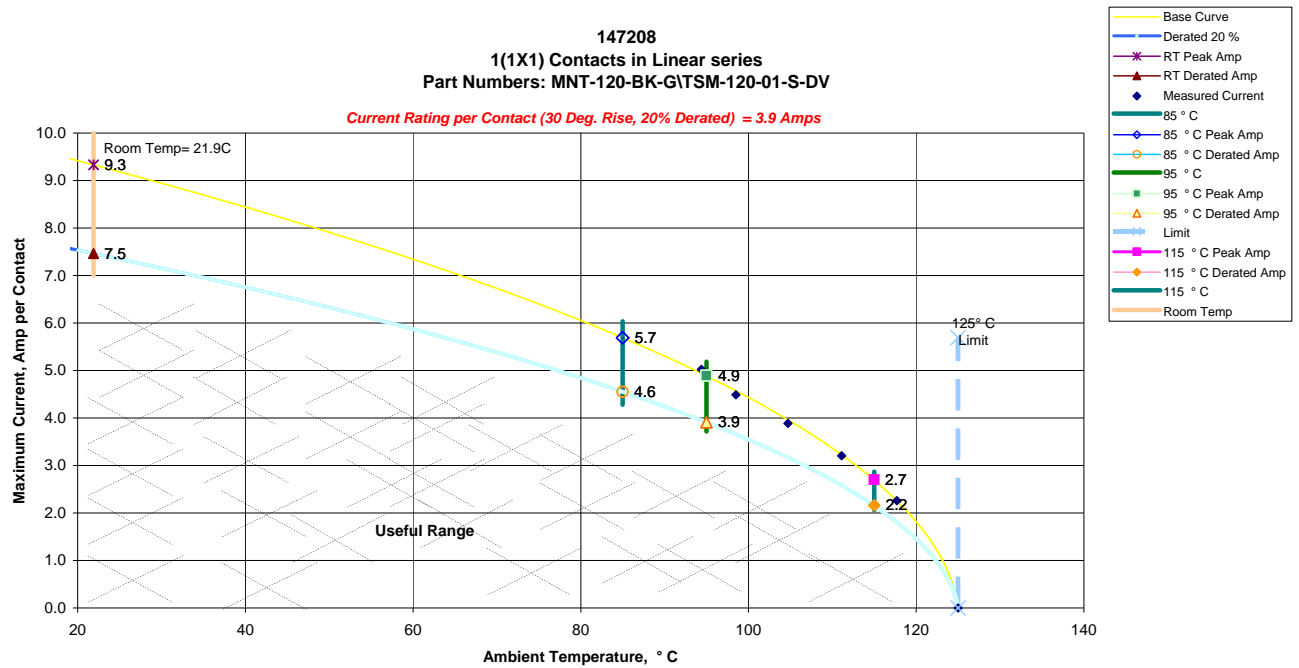
- **Initial DWV** ----- Passed
- **Thermal DWV** ----- Passed
- **Humidity DWV** ----- Passed

Mechanical Shock & Random Vibration:

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

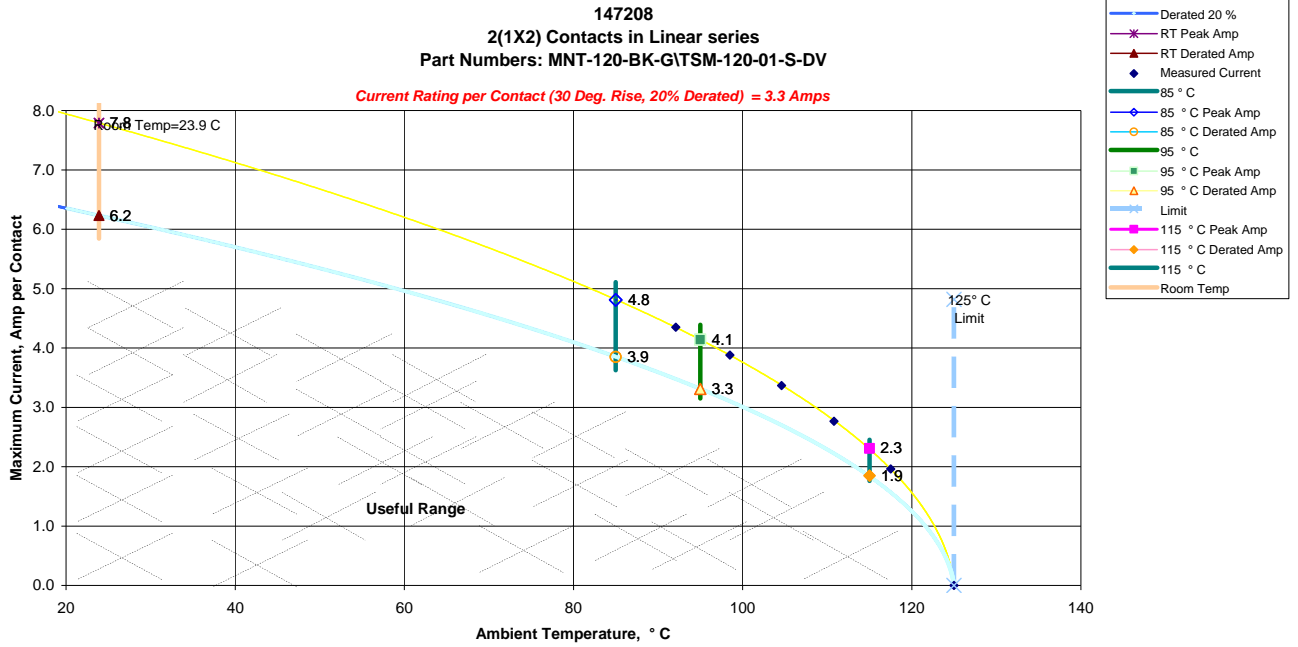
DATA SUMMARIES**TEMPERATURE RISE (Current Carrying Capacity, CCC):**

- 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 1 adjacent conductors/contacts powered

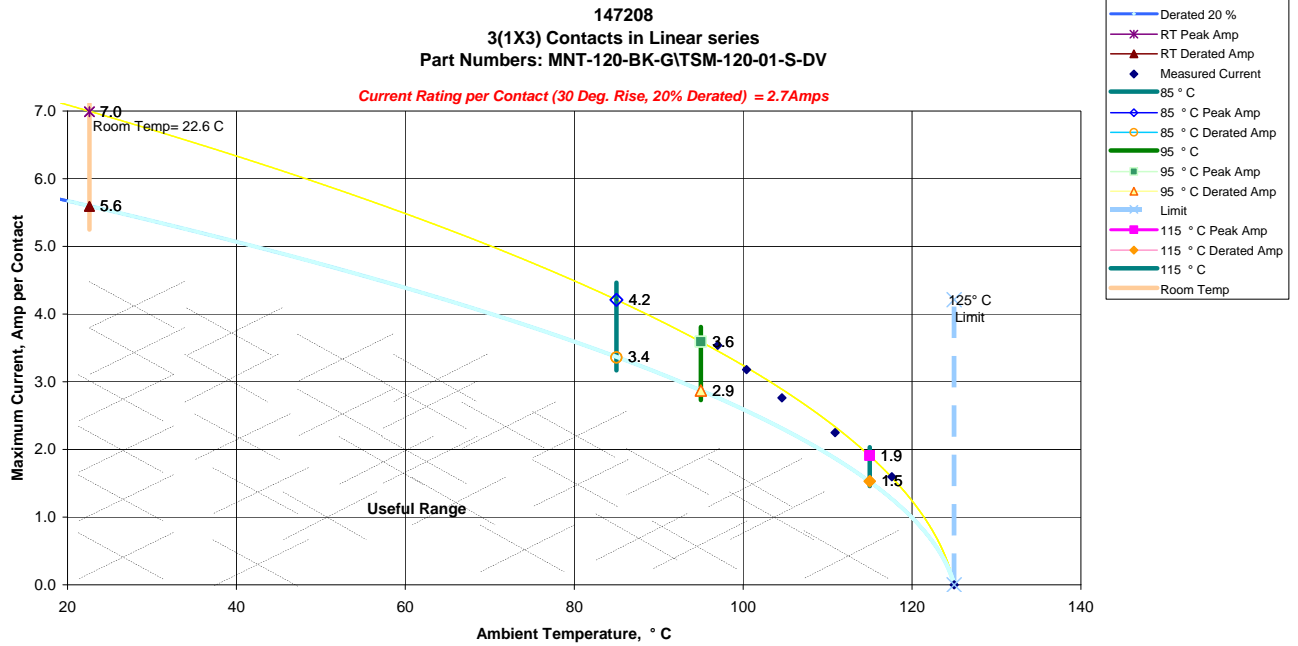


DATA SUMMARIES Continued

b. Linear configuration with 2 adjacent conductors/contacts powered

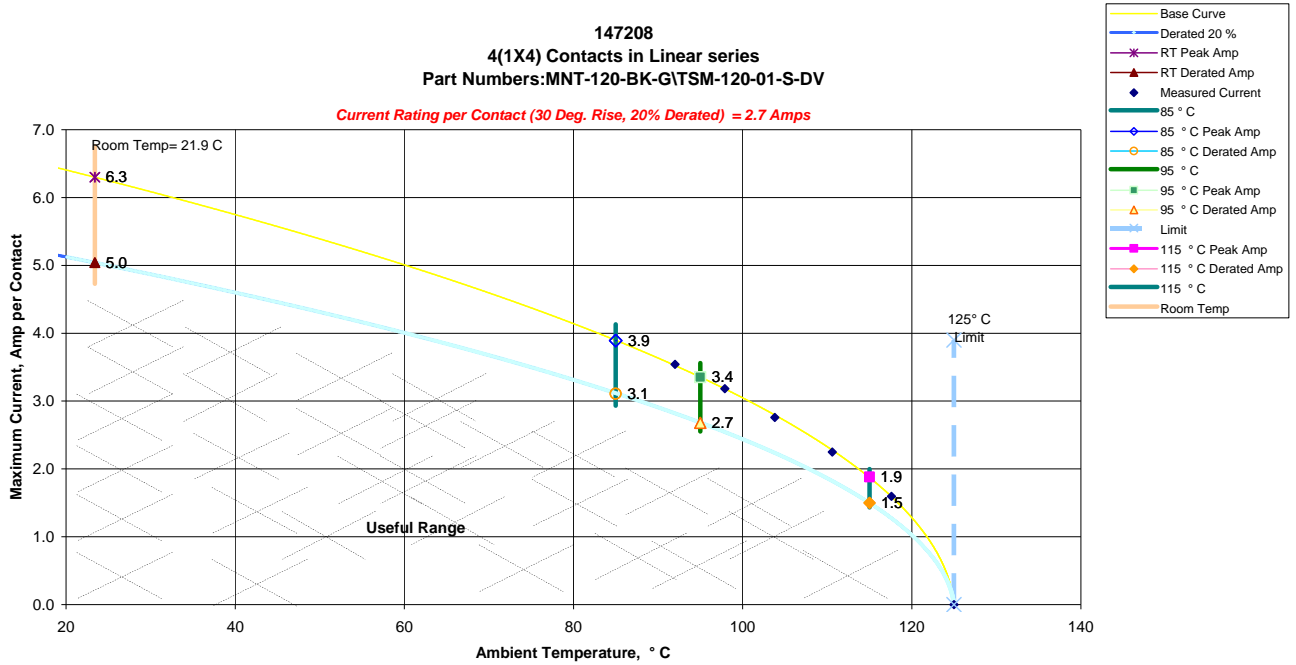


c. Linear configuration with 3 adjacent conductors/contacts powered

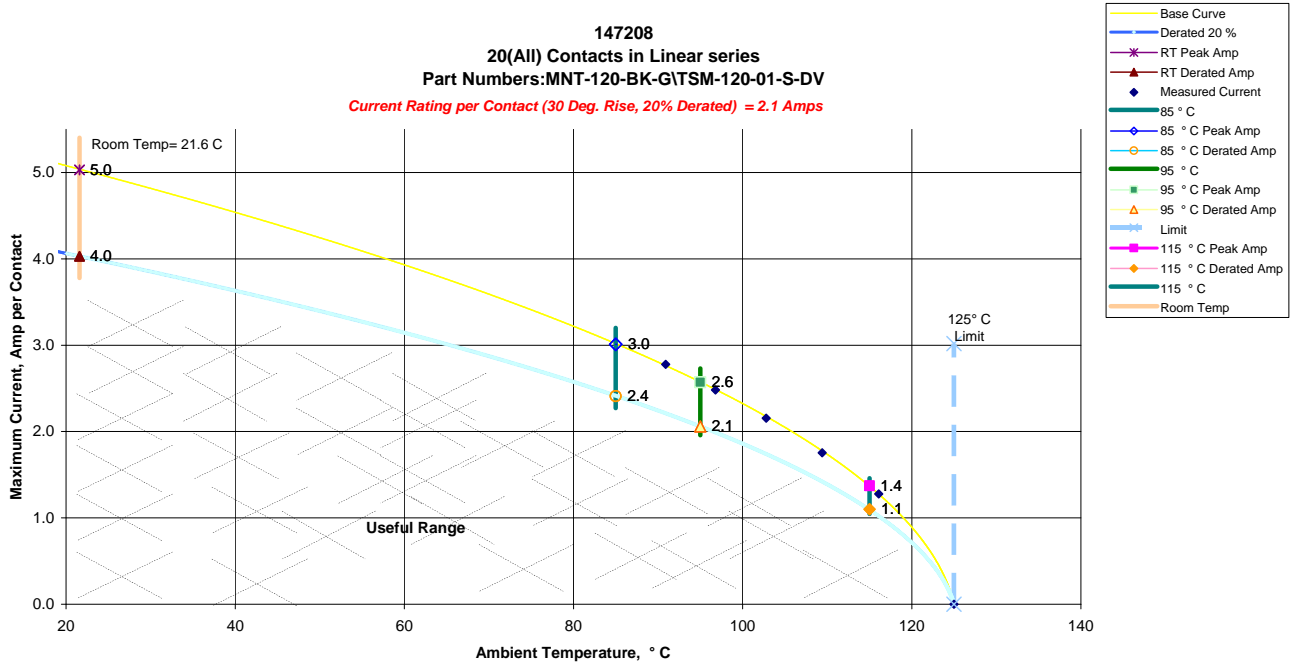


DATA SUMMARIES Continued

d. Linear configuration with 4 adjacent conductors/contacts powered



e. Linear configuration with all adjacent conductors/contacts powered



DATA SUMMARIES Continued**CONTACT GAPS:****Mating&Unmating durability:**

Initial		After 100 Cycles	
Units:	inches	Units:	inches
<i>Minimum</i>	0.0080	<i>Minimum</i>	0.0102
<i>Maximum</i>	0.0095	<i>Maximum</i>	0.0123
<i>Average</i>	0.0086	<i>Average</i>	0.0108
<i>St. Dev.</i>	0.0004	<i>St. Dev.</i>	0.0004
<i>Count</i>	64	<i>Count</i>	64

Thermal aging:

Initial		After Thermal	
Units:	inches	Units:	inches
<i>Minimum</i>	0.0072	<i>Minimum</i>	0.0097
<i>Maximum</i>	0.0091	<i>Maximum</i>	0.0118
<i>Average</i>	0.0084	<i>Average</i>	0.0109
<i>St. Dev.</i>	0.0004	<i>St. Dev.</i>	0.0004
<i>Count</i>	64	<i>Count</i>	64

Normal force initial:

Initial	
Units:	inches
<i>Minimum</i>	0.0087
<i>Maximum</i>	0.0096
<i>Average</i>	0.0091
<i>St. Dev.</i>	0.0003
<i>Count</i>	8

Normal force after thermal:

Initial		After Thermal	
Units:	inches	Units:	inches
<i>Minimum</i>	0.0079	<i>Minimum</i>	0.0081
<i>Maximum</i>	0.0086	<i>Maximum</i>	0.0090
<i>Average</i>	0.0083	<i>Average</i>	0.0085
<i>St. Dev.</i>	0.0003	<i>St. Dev.</i>	0.0003
<i>Count</i>	8	<i>Count</i>	8

DATA SUMMARIES Continued**MATING/UNMATING FORCE:****Mating/Unmating durability (Largest position submitted: MNT-120-BK-G/TSM-120-01-S-DV):**

	Initial				After 25 Cycles			
	Mating		Unmating		Mating		Unmating	
	Newton	Force (Lbs)	Newton	Force (Lbs)	Newton	Force (Lbs)	Newton	Force (Lbs)
Minimum	68.05	15.30	48.97	11.01	64.14	14.42	46.21	10.39
Maximum	81.44	18.31	55.33	12.44	70.19	15.78	53.51	12.03
Average	73.73	16.58	52.32	11.76	66.14	14.87	50.61	11.38
St Dev	4.52	1.02	2.15	0.48	1.93	0.43	2.41	0.54
Count	8	8	8	8	8	8	8	8
	After 50 Cycles				After 75 Cycles			
	Mating		Unmating		Mating		Unmating	
	Newton	Force (Lbs)	Newton	Force (Lbs)	Newton	Force (Lbs)	Newton	Force (Lbs)
Minimum	57.74	12.98	40.92	9.20	56.93	12.80	41.06	9.23
Maximum	67.83	15.25	52.04	11.70	67.57	15.19	51.15	11.50
Average	64.49	14.50	48.92	11.00	64.10	14.41	47.79	10.74
St Dev	3.28	0.74	3.77	0.85	3.51	0.79	3.75	0.84
Count	8	8	8	8	8	8	8	8
	After 100 Cycles				After Humidity			
	Mating		Unmating		Mating		Unmating	
	Newton	Force (Lbs)	Newton	Force (Lbs)	Newton	Force (Lbs)	Newton	Force (Lbs)
Minimum	57.02	12.82	40.70	9.15	43.72	9.83	33.18	7.46
Maximum	67.61	15.20	50.26	11.30	50.57	11.37	38.07	8.56
Average	63.42	14.26	47.48	10.68	47.73	10.73	35.93	8.08
St Dev	3.62	0.81	3.55	0.80	2.56	0.57	2.20	0.50
Count	8	8	8	8	8	8	8	8

DATA SUMMARIES Continued**Mating/Unmating basic (middle position submitted: MNT-110-BK-G\ TSM-110-01-S-DV):**

	Initial				After 25 Cycles			
	Mating		Unmating		Mating		Unmating	
	Newton	Force (Lbs)	Newton	Force (Lbs)	Newton	Force (Lbs)	Newton	Force (Lbs)
Minimum	35.94	8.08	20.06	4.51	33.54	7.54	20.46	4.60
Maximum	42.75	9.61	25.89	5.82	35.09	7.89	24.38	5.48
Average	39.21	8.82	23.44	5.27	34.51	7.76	22.78	5.12
St Dev	2.70	0.61	2.25	0.51	0.51	0.12	1.65	0.37
Count	8	8	8	8	8	8	8	8
	After 50 Cycles				After 75 Cycles			
	Mating		Unmating		Mating		Unmating	
	Newton	Force (Lbs)	Newton	Force (Lbs)	Newton	Force (Lbs)	Newton	Force (Lbs)
Minimum	31.54	7.09	20.33	4.57	31.58	7.10	20.55	4.62
Maximum	35.14	7.90	24.15	5.43	34.16	7.68	24.24	5.45
Average	33.62	7.56	22.57	5.08	33.24	7.47	22.60	5.08
St Dev	1.11	0.25	1.69	0.38	0.87	0.20	1.56	0.35
Count	8	8	8	8	8	8	8	8
	After 100 Cycles							
	Mating		Unmating					
	Newton	Force (Lbs)	Newton	Force (Lbs)				
Minimum	31.27	7.03	20.02	4.50				
Maximum	33.63	7.56	24.02	5.40				
Average	32.70	7.35	22.28	5.01				
St Dev	0.77	0.17	1.76	0.40				
Count	8	8	8	8				

DATA SUMMARIES Continued**Mating/Unmating basic (smallest position submitted: MNT-102-BK-G\ TSM-102-01-S-DV):**

	Initial				After 25 Cycles			
	Mating		Unmating		Mating		Unmating	
	Newton	Force (Lbs)	Newton	Force (Lbs)	Newton	Force (Lbs)	Newton	Force (Lbs)
Minimum	5.47	1.23	3.25	0.73	4.63	1.04	3.34	0.75
Maximum	8.63	1.94	4.18	0.94	8.23	1.85	4.00	0.90
Average	6.28	1.41	3.70	0.83	5.79	1.30	3.67	0.83
St Dev	1.10	0.25	0.31	0.07	1.10	0.25	0.25	0.06
Count	8	8	8	8	8	8	8	8
	After 50 Cycles				After 75 Cycles			
	Mating		Unmating		Mating		Unmating	
	Newton	Force (Lbs)	Newton	Force (Lbs)	Newton	Force (Lbs)	Newton	Force (Lbs)
Minimum	4.67	1.05	3.34	0.75	4.40	0.99	3.34	0.75
Maximum	8.23	1.85	4.00	0.90	8.01	1.80	4.09	0.92
Average	5.65	1.27	3.64	0.82	5.53	1.24	3.61	0.81
St Dev	1.11	0.25	0.20	0.04	1.09	0.24	0.26	0.06
Count	8	8	8	8	8	8	8	8
	After 100 Cycles							
	Mating		Unmating					
	Newton	Force (Lbs)	Newton	Force (Lbs)				
Minimum	4.45	1.00	3.20	0.72				
Maximum	7.87	1.77	4.14	0.93				
Average	5.37	1.21	3.53	0.79				
St Dev	1.07	0.24	0.30	0.07				
Count	8	8	8	8				

Thermal aging:

	Initial				After Thermals			
	Mating		Unmating		Mating		Unmating	
	Newton	Force (Lbs)	Newton	Force (Lbs)	Newton	Force (Lbs)	Newton	Force (Lbs)
Minimum	68.19	15.33	50.93	11.45	50.35	11.32	34.96	7.86
Maximum	78.11	17.56	54.49	12.25	56.85	12.78	39.81	8.95
Average	72.95	16.40	52.81	11.87	54.25	12.20	37.63	8.46
St Dev	3.51	0.79	1.32	0.30	2.05	0.46	1.70	0.38
Count	8	8	8	8	8	8	8	8

DATA SUMMARIES Continued**NORMAL FORCE**

Initial	Deflections in mm Forces in Grams					
	<u>0.1000</u>	<u>0.1500</u>	<u>0.2000</u>	<u>0.2500</u>	<u>0.3000</u>	<i>SET</i>
Averages	128.12	187.60	242.50	286.38	309.98	0.0388
Min	108.30	161.20	210.50	254.80	281.90	0.0250
Max	144.00	210.50	269.60	306.50	332.30	0.0500
St. Dev	12.704	14.411	17.132	16.084	15.275	0.0098
Count	12	12	12	12	12	12

After Thermals	Deflections in mm Forces in Grams					
	<u>0.1000</u>	<u>0.1500</u>	<u>0.2000</u>	<u>0.2500</u>	<u>0.3000</u>	<i>SET</i>
Averages	129.25	187.40	240.52	281.56	305.88	0.0413
Min	114.50	168.60	224.00	264.60	288.00	0.0200
Max	152.60	206.80	260.90	300.30	322.50	0.0600
St. Dev	10.905	11.567	11.965	11.683	12.128	0.0103
Count	12	12	12	12	12	12

INSULATION RESISTANCE (IR):

Minimum	Pin to Pin		
	Mated	Unmated	Unmated
	MNT/TSM	MNT	TSM
Initial	10000	10000	10000
Thermal	10000	10000	10000
Humidity	10000	10000	10000

DIELECTRIC WITHSTANDING VOLTAGE (DWV):

Voltage Rating Summary	
Minimum	MNT/TSM
Break Down Voltage	1800
Test Voltage	1350
Working Voltage	450

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

DATA SUMMARIES Continued**LLCR Durability:**

- 1) A total of 128 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	7/28/2011	7/30/2011	8/8/2011	8/20/2011
Room Temp C	21	22	20	22
RH	42%	43%	40%	50%
Name	Peter Chen	Peter Chen	Peter Chen	Peter Chen
mOhm values	Actual Initial	Delta 100 Cycles	Delta Thermal	Delta Humidity
Average	10.6	0.0	-0.2	-0.2
St. Dev.	0.9	0.8	0.8	0.8
Min	8.7	-1.8	-1.7	-1.9
Max	12.1	2.4	1.7	1.7
Count	128	128	128	128

How many samples are being tested?	<u>8</u>
How many contacts are on each board?	<u>16</u>

	Stable	Minor	Acceptable	Marginal	Unstable	Open
100 Cycles	128	0	0	0	0	0
Thermal	128	0	0	0	0	0
Humidity	128	0	0	0	0	0

DATA SUMMARIES Continued

LLCR thermal aging

- 5) A total of 128 points were measured
- 6) EIA-364-23, *Low Level Contact Resistance Test Procedure for Electrical Connectors and Sockets*.
- 7) A computer program, *LLCR 221.exe*, ensures repeatability for data acquisition.
- 8) The following guidelines are used to categorize the changes in LLCR as a result from stressing.
 - a. <= +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	8/10/2011	8/21/2011
Room Temp C	23	23
RH	45%	45%
Name	Peter Chen	Peter Chen
mOhm values	Actual Initial	Delta Thermal Age
Average	10.3	-0.3
St. Dev.	1.0	0.4
Min	8.4	-1.6
Max	12.5	0.6
Count	128	128

How many samples are being tested?	<u>8</u>
How many contacts are on each board?	<u>16</u>

	Stable	Minor	Acceptable	Marginal	Unstable	Open
Thermal Age	128	0	0	0	0	0

DATA SUMMARIES Continued

GAS TIGHT:

- 1) A total of 128 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	8/20/2011	8/21/2011
Room Temp C	23	23
RH	45%	45%
Name	Peter Chen	Peter Chen
mOhm values	Actual Initial	Delta Gas Tight
Average	10.9	0.1
St. Dev.	0.9	0.6
Min	8.6	-1.3
Max	13.1	2.8
Count	128	128

How many samples are being tested?	<u>8</u>
How many contacts are on each board?	<u>16</u>

	Stable	Minor	Acceptable	Marginal	Unstable	Open
Gas Tight	128	0	0	0	0	0

DATA SUMMARIES Continued

Mechanical Shock & Random Vibration:

- 5) A total of 128 points were measured
- 6) EIA-364-23, *Low Level Contact Resistance Test Procedure for Electrical Connectors and Sockets*.
- 7) A computer program, *LLCR 221.exe*, ensures repeatability for data acquisition.
- 8) The following guidelines are used to categorize the changes in LLCR as a result from stressing.
 - a. <= +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	9/7/2011	9/8/2011
Room Temp C	22	22
RH	42%	47%
Name	Tony Wagoner	Tony Wagoner
mOhm values	Actual	Delta
	Initial	Shock / Vibe
Average	10.5	0.1
St. Dev.	0.9	0.1
Min	8.5	0.0
Max	12.1	1.0
Count	128	128

How many samples are being tested?	<u>8</u>
How many contacts are on each board?	<u>16</u>

	Stable	Minor	Acceptable	Marginal	Unstable	Open
Shock / Vibe	128	0	0	0	0	0

DATA**CONTACT GAPS****Mating&Unmating durability**

Initial								
Units: inches								
Pos.#	B1	B2	B3	B4	B5	B6	B7	B8
1	0.0084	0.0091	0.0087	0.0087	0.0091	0.0084	0.0087	0.0087
2	0.0089	0.0087	0.0085	0.0080	0.0088	0.0087	0.0083	0.0083
3	0.0084	0.0084	0.0086	0.0085	0.0084	0.0082	0.0087	0.0084
4	0.0083	0.0087	0.0086	0.0084	0.0090	0.0093	0.0086	0.0083
5	0.0086	0.0084	0.0084	0.0081	0.0087	0.0091	0.0080	0.0084
6	0.0081	0.0084	0.0088	0.0085	0.0086	0.0081	0.0089	0.0084
7	0.0087	0.0080	0.0091	0.0086	0.0087	0.0094	0.0089	0.0085
8	0.0095	0.0084	0.0090	0.0091	0.0093	0.0092	0.0089	0.0083
After 100 cycles								
Units: inches								
Pos.#	B1	B2	B3	B4	B5	B6	B7	B8
1	0.0106	0.0114	0.0123	0.0109	0.0110	0.0110	0.0104	0.0116
2	0.0107	0.0112	0.0111	0.0107	0.0110	0.0107	0.0110	0.0110
3	0.0105	0.0113	0.0113	0.0110	0.0110	0.0106	0.0105	0.0110
4	0.0110	0.0108	0.0114	0.0103	0.0109	0.0110	0.0104	0.0110
5	0.0105	0.0106	0.0105	0.0102	0.0107	0.0106	0.0105	0.0106
6	0.0102	0.0110	0.0112	0.0109	0.0106	0.0106	0.0107	0.0103
7	0.0108	0.0113	0.0111	0.0102	0.0108	0.0102	0.0106	0.0106
8	0.0114	0.0109	0.0110	0.0110	0.0109	0.0104	0.0114	0.0110

Thermal aging

Initial								
Units: inches								
Pos.#	B1	B2	B3	B4	B5	B6	B7	B8
1	0.0084	0.0090	0.0081	0.0084	0.0087	0.0087	0.0085	0.0082
2	0.0087	0.0087	0.0090	0.0080	0.0076	0.0089	0.0081	0.0084
3	0.0087	0.0080	0.0085	0.0083	0.0086	0.0083	0.0081	0.0080
4	0.0084	0.0087	0.0081	0.0081	0.0087	0.0085	0.0085	0.0086
5	0.0087	0.0084	0.0083	0.0082	0.0091	0.0083	0.0084	0.0086
6	0.0084	0.0087	0.0088	0.0084	0.0084	0.0075	0.0082	0.0085
7	0.0089	0.0084	0.0084	0.0072	0.0087	0.0080	0.0082	0.0077
8	0.0088	0.0091	0.0087	0.0087	0.0084	0.0085	0.0080	0.0091
After Thermal								
Units: inches								
Pos.#	B1	B2	B3	B4	B5	B6	B7	B8
1	0.0118	0.0112	0.0106	0.0108	0.0114	0.0106	0.0112	0.0109
2	0.0111	0.0114	0.0103	0.0097	0.0108	0.0112	0.0113	0.0114
3	0.0113	0.0110	0.0108	0.0102	0.0108	0.0112	0.0115	0.0113
4	0.0107	0.0109	0.0114	0.0111	0.0105	0.0105	0.0108	0.0114
5	0.0112	0.0118	0.0106	0.0108	0.0108	0.0113	0.0116	0.0108
6	0.0111	0.0111	0.0102	0.0101	0.0104	0.0105	0.0106	0.0109
7	0.0115	0.0109	0.0101	0.0110	0.0107	0.0102	0.0111	0.0105
8	0.0109	0.0112	0.0106	0.0107	0.0109	0.0109	0.0117	0.0107

DATA continued**Normal force initial:**

Initial	
Units:	inches
Pos.#	B1
1	0.0091
2	0.0090
3	0.0092
4	0.0093
5	0.0087
6	0.0091
7	0.0096
8	0.0089

Normal force after thermal aging:

Pos.#	Initial		after thermal	
	Unit: inches	Unit: inches	Unit: inches	Unit: inches
Pos.#	B1	B2	B1	B2
1	0.00835	0.0086	0.00835	0.0086
2	0.0085	0.0086	0.0085	0.0086
3	0.00858	0.0087	0.00858	0.0087
4	0.0085	0.0081	0.0085	0.0081
5	0.00843	0.0090	0.00843	0.0090
6	0.00787	0.0081	0.00787	0.0081
7	0.00795	0.0084	0.00795	0.0084
8	0.00835	0.0087	0.00835	0.0087

DATA continued**MATING/UNMATING FORCE****Mating/Unmating durability(Largest position submitted: MNT-120-BK-G/TSM-120-01-S-DV):**

Sample#	Initial		After 25 Cycles		After 50 Cycles		After 100 Cycles		After Humidity	
	Mating	Unmating	Mating	Unmating	Mating	Unmating	Mating	Unmating	Mating	Unmating
1	18.31	12.44	14.83	12.03	14.32	11.70	14.30	11.50	13.75	11.05
2	16.67	11.01	14.62	10.39	12.98	9.20	12.80	9.23	12.82	9.15
3	16.67	12.01	14.42	11.85	14.40	11.58	14.25	11.27	13.82	11.30
4	16.68	11.62	15.03	10.87	14.76	10.25	14.28	10.12	14.25	10.10
5	16.17	11.62	14.86	11.40	15.08	11.29	15.19	9.98	15.02	10.10
6	15.30	12.31	14.98	11.62	15.08	11.35	15.10	11.32	15.05	11.25
7	17.48	11.31	15.78	11.20	15.25	11.25	15.17	11.28	15.20	11.20
8	15.32	11.78	14.44	11.67	14.12	11.37	14.20	11.25	14.15	11.25

Mating/Unmating basic (middle position submitted: MNT-110-BK-G\ TSM-110-01-S-DV):

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	9.61	5.49	7.65	5.40	7.50	5.25	7.42	5.28	7.40	5.20
2	9.28	5.80	7.76	5.38	7.09	5.40	7.10	5.35	7.03	5.20
3	8.95	5.60	7.86	5.48	7.62	5.43	7.50	5.45	7.25	5.40
4	9.39	5.27	7.54	5.27	7.35	5.30	7.31	5.32	7.30	5.35
5	8.86	5.05	7.80	4.78	7.58	4.57	7.50	4.62	7.56	4.60
6	8.08	4.62	7.89	4.67	7.90	4.65	7.67	4.72	7.40	4.52
7	8.25	5.82	7.75	5.40	7.70	5.35	7.68	5.25	7.32	5.30
8	8.10	4.51	7.82	4.60	7.73	4.65	7.60	4.65	7.56	4.50

Mating/Unmating basic (smallest position submitted: MNT-102-BK-G\ TSM-102-01-S-DV):

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	1.23	0.76	1.16	0.84	1.11	0.80	1.15	0.80	1.05	0.80
2	1.29	0.84	1.04	0.90	1.05	0.83	0.99	0.92	1.00	0.93
3	1.30	0.80	1.18	0.82	1.20	0.82	1.15	0.80	1.10	0.76
4	1.62	0.82	1.40	0.75	1.28	0.80	1.30	0.75	1.25	0.72
5	1.40	0.94	1.33	0.90	1.30	0.90	1.25	0.87	1.20	0.85
6	1.94	0.87	1.85	0.83	1.85	0.85	1.80	0.80	1.77	0.78
7	1.26	0.73	1.25	0.76	1.22	0.75	1.20	0.80	1.15	0.76
8	1.26	0.89	1.20	0.80	1.15	0.79	1.10	0.75	1.13	0.75

DATA continued**Thermal aging:**

<u>Sample#</u>	<u>Initial</u>		<u>After Thermals</u>	
	<u>Mating</u>	<u>Unmating</u>	<u>Mating</u>	<u>Unmating</u>
1	16.35	11.69	12.30	8.95
2	17.22	12.02	12.78	8.77
3	15.69	12.22	11.97	8.65
4	15.33	12.04	12.12	8.23
5	16.69	11.45	12.45	8.66
6	16.69	11.64	11.98	8.02
7	17.56	12.25	11.32	7.86
8	15.67	11.68	12.65	8.54

NORMAL FORCE

<u>Initial</u>	<u>Deflections in mm, Forces in Grams</u>					
<u>Sample #</u>	<u>0.1000</u>	<u>0.1500</u>	<u>0.2000</u>	<u>0.2500</u>	<u>0.3000</u>	<u>SET</u>
1	128.0	188.3	241.3	284.3	311.4	0.0400
2	141.6	200.6	253.6	288.0	304.0	0.0300
3	121.9	180.9	237.6	296.6	322.5	0.0250
4	128.0	187.1	240.0	292.9	316.3	0.0300
5	132.9	195.7	257.3	302.8	332.3	0.0500
6	141.6	198.2	248.6	284.3	304.0	0.0500
7	144.0	210.5	269.6	306.5	326.2	0.0450
8	113.2	171.1	224.0	267.1	294.2	0.0300
9	108.3	169.9	221.6	269.6	295.4	0.0350
10	135.4	192.0	247.4	284.3	305.3	0.0500
11	108.3	161.2	210.5	254.8	281.9	0.0300
12	134.2	195.7	258.5	305.3	326.2	0.0500

<u>After Thermals</u>	<u>Deflections in mm, Forces in Grams</u>					
<u>Sample #</u>	<u>0.1000</u>	<u>0.1500</u>	<u>0.2000</u>	<u>0.2500</u>	<u>0.3000</u>	<u>SET</u>
1	129.2	196.9	256.0	297.9	322.5	0.0500
2	131.7	189.6	240.0	278.2	302.8	0.0400
3	114.5	168.6	226.5	273.3	299.1	0.0350
4	135.4	192.0	236.2	269.6	289.3	0.0400
5	126.8	184.6	236.3	275.7	297.9	0.0500
6	152.6	206.8	260.9	300.3	321.3	0.0400
7	134.2	199.4	254.8	297.9	322.5	0.0600
8	137.9	194.5	248.6	286.8	307.7	0.0500
9	118.2	176.0	230.2	276.9	313.9	0.0200
10	134.2	189.6	237.6	276.9	299.1	0.0350
11	119.4	174.8	224.0	264.6	288.0	0.0400
12	116.9	176.0	235.1	280.6	306.5	0.0350

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

Initial Insulation Resistance			
Measured In Meg Ohms			
Pin to Pin			
Mated		A	Unmated B
X		X	X
Sample#	MNT/TSM	MNT	TSM
147208-049	10000	10000	10000
147208-050	10000	10000	10000

Thermal Insulation Resistance			
Measured In Meg Ohms			
Pin to Pin			
Mated		A	Unmated B
X		X	X
Sample#	MNT/TSM	MNT	TSM
147208-049	10000	10000	10000
147208-050	10000	10000	10000

Humidity Insulation Resistance			
Measured In Meg Ohms			
Pin to Pin			
Mated		A	Unmated B
X		X	X
Sample#	MNT/TSM	MNT	TSM
147208-049	10000	10000	10000
147208-050	10000	10000	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				
Sample#	MNT/TSM	MNT	TSM	
147208-001	1950	1900	1800	
147208-002	1800	1875	1850	

Initial DWV	
Test Voltage= 1350	

Pin to Pin				
Mated		A	Unmated	B
Sample#	MNT/TSM	MNT	TSM	
147208-049	1350	1350	1350	
147208-050	1350	1350	1350	

Thermal Test Voltage	
Test Voltage= 1350	

Pin to Pin				
Mated		A	Unmated	B
Sample#	MNT/TSM	MNT	TSM	
147208-049	1350	1350	1350	
147208-050	1350	1350	1350	

Humidity Test Voltage	
Test Voltage= 1350	

Pin to Pin				
Mated		A	Unmated	B
Sample#	MNT/TSM	MNT	TSM	
147208-049	1350	1350	1350	
147208-050	1350	1350	1350	

DATA Continued**LLCR Durability:**

	mOhm values	Actual	Delta	Delta	Delta
Board	Position	Initial	100 Cycles	Thermal	Humidity
1	P1	10.1	-1.4	-0.9	-1.4
1	P2	10.5	-1.2	-1.2	-1.3
1	P3	10.6	-1.8	-1.6	-1.8
1	P4	10.0	0.3	-0.8	-0.2
1	P5	9.8	-1.1	-0.8	-1.1
1	P6	8.7	0.6	0.2	0.3
1	P7	9.0	0.2	-0.1	0.6
1	P8	8.8	1.9	1.7	1.7
1	P9	9.2	1.3	1.1	1.1
1	P10	8.7	1.8	1.6	1.6
1	P11	10.8	-0.3	-0.9	-0.9
1	P12	8.9	0.5	0.4	0.5
1	P13	9.1	0.9	0.7	0.6
1	P14	9.0	0.5	0.9	0.8
1	P15	10.5	-1.3	-1.3	-1.6
1	P16	9.2	-0.2	-0.2	-0.5
2	P1	11.6	-1.0	-0.9	-1.7
2	P2	11.5	-1.3	-1.4	-1.8
2	P3	11.6	0.1	-0.1	-0.2
2	P4	11.1	-0.7	-1.2	-1.3
2	P5	11.0	0.8	-0.2	-0.1
2	P6	10.6	1.1	0.8	0.8
2	P7	10.1	1.5	0.8	0.8
2	P8	9.6	2.4	1.7	1.6
2	P9	11.1	-1.3	-1.7	-1.4
2	P10	10.2	1.4	1.4	1.3
2	P11	10.2	0.1	-0.4	-0.5
2	P12	10.0	1.3	0.8	0.7
2	P13	9.9	-0.3	-0.6	-0.6
2	P14	11.1	-0.4	-0.9	-1.1
2	P15	11.4	-1.2	-1.7	-1.9
2	P16	10.8	-0.3	-0.8	-0.6
3	P1	10.8	-0.3	-0.1	-0.2
3	P2	10.4	0.3	0.2	0.0
3	P3	10.1	-0.1	0.5	0.3
3	P4	10.7	0.1	-0.1	-0.3
3	P5	10.7	-0.3	0.0	-0.2
3	P6	9.3	1.1	0.5	0.3
3	P7	10.0	0.3	-0.3	0.0
3	P8	10.2	0.1	-0.4	-0.5
3	P9	10.7	-0.5	-0.8	-0.8
3	P10	9.1	0.1	-0.2	-0.3
3	P11	10.6	-1.2	-1.6	-1.7
3	P12	10.8	-0.2	-1.0	-1.1
3	P13	8.9	0.7	0.5	0.3

3	P14	8.9	0.7	0.2	0.1
3	P15	9.2	1.3	0.4	0.7
3	P16	10.2	0.5	-0.2	-0.3
4	P1	11.9	-1.3	-1.2	-1.3
4	P2	11.2	-0.2	-0.9	-0.9
4	P3	10.9	0.2	-1.3	-1.4
4	P4	11.3	-1.2	-1.3	-1.4
4	P5	10.2	0.6	0.5	0.4
4	P6	10.7	-0.5	-0.3	-0.3
4	P7	10.5	-0.2	-0.5	-0.1
4	P8	10.7	-0.7	-1.1	-1.0
4	P9	11.6	-0.1	0.0	0.0
4	P10	11.4	-0.1	-0.2	-0.2
4	P11	9.9	0.2	0.3	0.2
4	P12	11.7	-0.2	-0.2	-0.3
4	P13	11.4	-1.4	-1.5	-1.3
4	P14	10.1	1.0	1.4	1.3
4	P15	9.5	0.7	1.2	1.4
4	P16	10.2	0.9	1.4	1.3
5	P1	12.0	0.1	0.0	-0.1
5	P2	11.4	0.0	0.1	-0.1
5	P3	11.5	-0.7	-0.1	-0.3
5	P4	11.5	-0.3	-0.2	-0.2
5	P5	10.8	-0.2	-0.3	-0.3
5	P6	11.7	-0.1	-0.3	-0.3
5	P7	11.1	-0.4	-0.1	-0.5
5	P8	10.9	-0.5	-0.9	-0.9
5	P9	11.5	-0.1	-0.1	-0.1
5	P10	11.6	0.0	-0.2	-0.2
5	P11	11.2	-0.1	-0.2	-0.2
5	P12	10.7	0.2	-0.4	0.7
5	P13	11.3	0.1	-0.7	-0.1
5	P14	9.9	0.4	0.0	0.5
5	P15	10.5	0.1	-0.2	-0.1
5	P16	9.6	0.2	0.2	0.1
6	P1	11.8	0.1	0.1	-0.1
6	P2	11.3	0.2	0.3	0.0
6	P3	11.0	-0.2	0.3	-0.1
6	P4	11.2	0.2	0.3	0.0
6	P5	9.6	0.4	0.5	0.7
6	P6	10.8	-0.4	0.2	-0.5
6	P7	10.3	0.1	0.1	0.5
6	P8	11.3	-1.1	-1.1	-1.0
6	P9	10.6	0.5	0.4	0.6
6	P10	11.5	-0.1	-0.2	-0.2
6	P11	11.4	0.0	-0.3	-0.2
6	P12	11.4	0.1	-0.1	-0.1
6	P13	11.4	0.0	-0.2	-0.1
6	P14	9.7	0.3	0.1	0.3
6	P15	9.9	0.3	-0.4	0.0

6	P16	9.6	0.7	0.2	0.0
7	P1	12.1	-1.4	-1.2	-1.4
7	P2	11.5	-1.5	-1.3	-1.5
7	P3	10.9	-0.7	-0.8	-1.0
7	P4	11.8	-1.2	-1.6	-1.7
7	P5	10.4	0.0	-0.2	-0.3
7	P6	10.4	-0.2	-0.4	-0.3
7	P7	11.1	-0.3	-0.6	-0.6
7	P8	10.4	1.5	1.3	1.3
7	P9	11.7	0.2	0.1	0.0
7	P10	11.6	-1.3	-1.6	-1.6
7	P11	11.6	0.1	0.0	-0.1
7	P12	11.2	0.6	0.5	0.4
7	P13	11.3	-1.0	-0.7	-0.8
7	P14	9.9	0.3	0.1	0.8
7	P15	9.8	0.1	0.1	0.2
7	P16	10.2	0.1	0.1	0.2
8	P1	12.0	0.0	-0.4	-0.6
8	P2	11.7	-0.1	-0.3	-0.4
8	P3	11.7	0.0	-0.4	-0.6
8	P4	11.7	0.0	-0.3	-0.5
8	P5	11.8	-0.2	-0.4	-0.5
8	P6	11.6	-0.5	-0.9	-1.0
8	P7	11.1	0.2	-0.6	-0.8
8	P8	11.1	-0.1	-1.3	-1.3
8	P9	11.6	-0.2	-0.4	-0.4
8	P10	9.9	-0.2	-0.3	0.4
8	P11	10.1	0.2	-0.2	-0.2
8	P12	11.1	-0.1	-0.5	-0.1
8	P13	11.6	-0.1	-0.9	-1.0
8	P14	10.1	0.9	0.6	0.9
8	P15	10.9	0.6	-0.5	-0.4
8	P16	11.6	0.0	-1.6	-0.7

DATA Continued**LLCR thermal aging**

	mOhm values	Actual	Delta
Board	Position	Initial	Thermal age
1	P1	10.5	-0.2
1	P2	10.3	-0.3
1	P3	11.5	-1.0
1	P4	10.1	-0.1
1	P5	11.6	-1.2
1	P6	9.9	-0.1
1	P7	10.8	-0.2
1	P8	10.4	0.0
1	P9	11.5	-0.1
1	P10	11.4	0.0
1	P11	9.9	0.0
1	P12	10.2	0.1
1	P13	9.6	-0.2
1	P14	9.7	-0.1
1	P15	10.3	-0.2
1	P16	11.6	-0.7
2	P1	11.7	-0.1
2	P2	11.4	0.0
2	P3	11.5	0.0
2	P4	11.4	-0.4
2	P5	11.4	-0.6
2	P6	11.4	-0.3
2	P7	11.4	0.0
2	P8	10.1	-0.4
2	P9	11.5	-1.6
2	P10	10.2	-0.6
2	P11	11.3	-0.6
2	P12	9.8	-0.3
2	P13	11.1	-0.6
2	P14	11.3	-1.0
2	P15	11.1	0.0
2	P16	11.3	0.0
3	P1	9.0	0.6
3	P2	10.6	-0.1
3	P3	8.8	0.1
3	P4	9.1	0.0
3	P5	9.7	-0.1
3	P6	9.1	-0.1
3	P7	8.9	0.0
3	P8	8.4	0.3
3	P9	8.9	0.0
3	P10	8.9	0.0
3	P11	8.8	-0.1
3	P12	9.0	0.0
3	P13	9.2	0.0

3	P14	8.7	0.0
3	P15	10.1	-0.8
3	P16	9.0	-0.1
4	P1	10.7	-0.1
4	P2	10.6	0.0
4	P3	10.4	0.0
4	P4	10.6	-0.4
4	P5	10.2	-0.3
4	P6	10.7	-1.3
4	P7	10.5	-0.1
4	P8	8.8	-0.2
4	P9	8.7	-0.2
4	P10	8.9	-0.4
4	P11	8.6	0.0
4	P12	9.1	-0.1
4	P13	9.5	-0.3
4	P14	9.5	-0.3
4	P15	9.4	-0.5
4	P16	10.6	-0.6
5	P1	8.6	0.0
5	P2	8.8	0.0
5	P3	9.3	-0.1
5	P4	9.4	-0.2
5	P5	8.8	-0.1
5	P6	9.0	-0.1
5	P7	8.9	0.0
5	P8	9.2	-0.4
5	P9	10.4	-0.8
5	P10	9.4	-0.1
5	P11	10.4	0.0
5	P12	10.2	-0.3
5	P13	9.9	-0.1
5	P14	9.6	-0.8
5	P15	8.9	-0.3
5	P16	9.2	-0.3
6	P1	11.6	-0.3
6	P2	11.6	-0.1
6	P3	11.3	-0.7
6	P4	11.2	-0.3
6	P5	10.3	-0.3
6	P6	10.4	-0.5
6	P7	10.1	-0.4
6	P8	9.8	-0.2
6	P9	11.2	-0.4
6	P10	11.6	-0.2
6	P11	11.5	-0.2
6	P12	11.4	-0.2
6	P13	11.3	-0.2
6	P14	10.2	-0.3
6	P15	9.6	0.0

6	P16	9.6	-0.1
7	P1	12.5	-0.2
7	P2	11.9	-0.1
7	P3	12.0	-0.5
7	P4	11.5	-0.7
7	P5	11.2	-0.8
7	P6	11.7	-1.4
7	P7	11.7	-0.9
7	P8	10.5	-0.2
7	P9	12.0	-0.1
7	P10	11.8	-0.2
7	P11	11.8	-1.3
7	P12	11.7	-0.8
7	P13	11.9	-1.3
7	P14	11.3	-0.9
7	P15	10.3	-0.2
7	P16	10.4	-0.1
8	P1	10.8	-0.2
8	P2	10.0	-0.1
8	P3	10.0	0.0
8	P4	10.1	-0.2
8	P5	11.3	-0.4
8	P6	9.9	-0.1
8	P7	10.3	-0.2
8	P8	9.8	0.1
8	P9	11.7	0.0
8	P10	9.9	-0.1
8	P11	9.7	0.0
8	P12	9.8	0.0
8	P13	9.8	-0.1
8	P14	9.9	-0.2
8	P15	10.0	-0.3
8	P16	11.5	-0.1

DATA Continued**LLCR Gas Tight**

	mOhm values	Actual	Delta
Board	Position	Initial	Gas Tight
1	P1	12.1	0.0
1	P2	11.6	0.1
1	P3	11.8	0.0
1	P4	11.6	0.0
1	P5	10.5	0.2
1	P6	9.7	0.3
1	P7	10.1	0.2
1	P8	9.8	0.2
1	P9	11.2	0.6
1	P10	11.4	0.1
1	P11	11.1	0.5
1	P12	10.6	0.1
1	P13	9.8	0.2
1	P14	10.2	0.3
1	P15	10.3	0.1
1	P16	10.0	0.2
2	P1	11.8	0.2
2	P2	11.5	0.0
2	P3	11.5	0.0
2	P4	11.8	-0.7
2	P5	11.1	-0.1
2	P6	10.8	-0.2
2	P7	10.7	-0.1
2	P8	10.4	-0.1
2	P9	11.7	0.0
2	P10	11.4	0.0
2	P11	11.3	0.0
2	P12	11.7	0.0
2	P13	11.6	0.1
2	P14	10.5	-0.4
2	P15	10.6	-0.1
2	P16	10.4	-0.1
3	P1	12.1	-0.1
3	P2	11.6	0.0
3	P3	11.7	-1.0
3	P4	11.9	0.0
3	P5	11.4	-0.7
3	P6	11.4	0.0
3	P7	11.3	0.0
3	P8	11.8	0.0
3	P9	11.7	0.0
3	P10	11.1	0.0
3	P11	11.3	-0.1
3	P12	11.7	0.0
3	P13	11.8	0.0

3	P14	11.5	-0.1
3	P15	11.5	-0.3
3	P16	10.5	0.1
4	P1	12.3	0.5
4	P2	11.7	0.3
4	P3	11.7	0.2
4	P4	11.6	0.2
4	P5	11.0	0.5
4	P6	11.0	0.4
4	P7	11.6	0.3
4	P8	9.8	0.3
4	P9	10.6	0.6
4	P10	11.1	0.5
4	P11	10.2	0.4
4	P12	10.1	-0.1
4	P13	10.9	0.1
4	P14	10.0	-0.1
4	P15	11.7	0.0
4	P16	9.6	0.1
5	P1	12.3	0.1
5	P2	11.7	0.1
5	P3	11.8	0.1
5	P4	13.1	-1.2
5	P5	10.4	0.1
5	P6	10.9	0.0
5	P7	10.4	0.1
5	P8	10.1	0.0
5	P9	11.7	0.1
5	P10	11.6	0.0
5	P11	10.9	0.3
5	P12	11.5	0.1
5	P13	9.8	0.1
5	P14	10.3	0.4
5	P15	10.3	0.1
5	P16	10.5	-0.1
6	P1	11.5	0.0
6	P2	11.2	0.1
6	P3	11.7	0.0
6	P4	11.6	-0.4
6	P5	10.8	-0.7
6	P6	10.2	-0.4
6	P7	11.6	0.0
6	P8	11.6	0.0
6	P9	11.0	-0.3
6	P10	11.2	0.0
6	P11	11.5	-0.3
6	P12	10.9	0.0
6	P13	9.9	0.0
6	P14	9.7	0.0
6	P15	10.5	-0.2

6	P16	9.9	-0.2
7	P1	12.3	-0.1
7	P2	11.8	-0.1
7	P3	11.9	0.0
7	P4	11.7	0.0
7	P5	11.3	-0.6
7	P6	11.5	-0.7
7	P7	11.5	0.0
7	P8	11.3	-0.1
7	P9	11.6	0.0
7	P10	12.0	0.0
7	P11	12.0	0.0
7	P12	11.9	-0.4
7	P13	11.5	-0.2
7	P14	10.4	-0.1
7	P15	11.1	-0.1
7	P16	10.7	-0.2
8	P1	10.6	0.0
8	P2	10.4	0.9
8	P3	10.7	-0.4
8	P4	10.5	-1.3
8	P5	9.9	0.4
8	P6	9.1	2.2
8	P7	9.2	2.8
8	P8	8.7	0.5
8	P9	8.6	1.8
8	P10	9.2	1.9
8	P11	10.1	0.4
8	P12	8.6	2.0
8	P13	8.8	1.6
8	P14	8.7	2.0
8	P15	10.0	0.7
8	P16	9.7	1.2

Data Continued**LLCR mechanical & Random vibration:**

	mOhm values		Actual	Delta
Board	Position		Initial	Shock / Vibe
1	P1		11.74	0.04
1	P2		11.49	0.04
1	P3		11.79	0.01
1	P4		11.7	0.03
1	P5		11.08	0.12
1	P6		10.76	0.06
1	P7		10.09	0.02
1	P8		10.2	0.03
1	P9		10.39	0.01
1	P10		9.91	0.05
1	P11		11.55	0.05
1	P12		11.32	0.04
1	P13		11.17	0
1	P14		10.99	0.02
1	P15		10.95	0.02
1	P16		11.01	0.08
2	P1		10.67	0.18
2	P2		10.49	0.04
2	P3		10.39	0.01
2	P4		11.13	0.43
2	P5		11.19	0.07
2	P6		10.07	0.12
2	P7		10.12	0.18
2	P8		10.36	0.05
2	P9		11.79	0.03
2	P10		11.51	0.03
2	P11		10.14	0
2	P12		10.83	0.03
2	P13		10.18	0.03
2	P14		10.43	0.04
2	P15		11.8	0
2	P16		12.13	0.03
3	P1		8.72	0
3	P2		8.5	0.09
3	P3		9.35	0.02
3	P4		8.92	0.03
3	P5		8.81	0.01
3	P6		9.24	0.08
3	P7		10.18	0.12
3	P8		10.24	0.03
3	P9		10.52	0.01
3	P10		9.76	0.01
3	P11		10.87	0.02
3	P12		10.21	0.02

3	P13	8.87	0.02
3	P14	8.97	0.08
3	P15	9.05	0.03
3	P16	9.14	0.01
4	P1	11.64	0.01
4	P2	10.2	0.08
4	P3	10.85	0.02
4	P4	10.78	0.01
4	P5	11.36	0.02
4	P6	11.17	0.08
4	P7	10.64	0.03
4	P8	10.9	0.02
4	P9	9.72	0.01
4	P10	9.81	0
4	P11	9.75	0.04
4	P12	11.54	0.02
4	P13	9.78	0.08
4	P14	10.15	0.04
4	P15	10.85	0.29
4	P16	10.91	0.27
5	P1	8.93	0.18
5	P2	9.06	0.06
5	P3	9.06	0.03
5	P4	10.39	0
5	P5	9.02	0.04
5	P6	9.44	0.08
5	P7	10.29	0.04
5	P8	10.48	0.05
5	P9	10.69	0.05
5	P10	10.7	0.01
5	P11	10.56	0.02
5	P12	10.5	0.01
5	P13	9.02	0.03
5	P14	9.05	0.03
5	P15	9.16	0.03
5	P16	9.25	0.02
6	P1	10.8	0.04
6	P2	10.57	0.05
6	P3	11.56	0.11
6	P4	10.67	0.07
6	P5	12.03	0
6	P6	11.47	0.07
6	P7	11.07	0.08
6	P8	10.87	0.04
6	P9	10.42	0.04
6	P10	10.75	0.23
6	P11	10.63	0.03
6	P12	12.02	0.01
6	P13	10.88	0.05
6	P14	10.75	0.02

6	P15	11.18	0.02
6	P16	11.7	0.26
7	P1	11.99	0.02
7	P2	11.41	0.03
7	P3	11.45	0.07
7	P4	11.61	0.06
7	P5	10.31	0.03
7	P6	9.81	0.18
7	P7	9.84	0.05
7	P8	10.39	0.09
7	P9	11.51	0.03
7	P10	11.3	0.07
7	P11	10.72	0.06
7	P12	11.57	0.01
7	P13	11.54	0.06
7	P14	10.73	0.18
7	P15	10.21	0.05
7	P16	10.16	0.03
8	P1	11.77	0.01
8	P2	11.31	0.11
8	P3	11.58	0.05
8	P4	10.3	1.03
8	P5	11.32	0.04
8	P6	10.65	0.03
8	P7	10.07	0.09
8	P8	9.74	0.01
8	P9	9.99	0.03
8	P10	9.21	0
8	P11	10.27	0.02
8	P12	9.55	0.02
8	P13	10.28	0.13
8	P14	9.6	0
8	P15	10.2	0.11
8	P16	10.2	0.47

EQUIPMENT AND CALIBRATION SCHEDULES**Equipment #:** HZ-MO-03**Description:** Micro-ohmmeter**Manufacturer:** Keithley**Model:** 580**Serial #:** 297288**Accuracy:** Last Cal: 2011-8-06, Next Cal: 2012-8-05**Equipment #:** HZ-TCT-01**Description:** Normal force analyzer**Manufacturer:** Mecmesin Multitester**Model:** Mecmesin Multitester 2.5-i**Serial #:** 08-1049-04**Accuracy:** Last Cal: 2011-4-28, Next Cal: 2012-4-27**Equipment #:** HZ-OV-01**Description:** Oven**Manufacturer:** Huida**Model:** CS101-1E**Serial #:** CS101-1E-B**Accuracy:** Last Cal: 2010-12-14, Next Cal: 2011-12-13**Equipment #:** HZ-THC-01**Description:** Humidity transmitter**Manufacturer:** Thermtron**Model:** HMM30C**Serial #:** D0240037**Accuracy:** Last Cal: 2011-3-3, Next Cal: 2012-3-2**Equipment #:** HZ-OGP-01**Description:** Video measurement system**Manufacturer:** OGP**Model:** SMARTSCOPE FLASH 200**Serial #:** SVW2003632**Accuracy:** Last Cal: 2011-6-10, Next Cal: 2012-6-9**Equipment #:** HZ-MO-01**Description:** Micro-ohmmeter**Manufacturer:** Keithley**Model:** 2700**Serial #:** 1199807**Accuracy:** Last Cal: 2011-4-28, Next Cal: 2012-4-27

EQUIPMENT AND CALIBRATION SCHEDULES Continued**Equipment #:** HZ-PS-01**Description:** Power Supply**Manufacturer:** Agilent**Model:** 6031A**Serial #:** MY41000982**Accuracy:** Last Cal: 2011-4-28, Next Cal: 2012-4-27**Equipment #:** HZ-TSC-01**Description:** Thermal Shock transmitter**Manufacturer:** Keithley**Model:** 10-VT14994**Serial #:** VTS-3-6-6-SC/AC**Accuracy:** Last Cal: 2010-11-1, Next Cal: 2011-11-1**Equipment #:** ED-03**Description:** Event Detector**Manufacturer:** Analysis Tech**Model:** 32EHD**Serial #:** 1100604**Accuracy:** See Manual

... Last Cal: 2011-06-4, Next Cal: 2012-06-4

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

... Last Cal: 2011-07-9, Next Cal: 2012-7-9

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