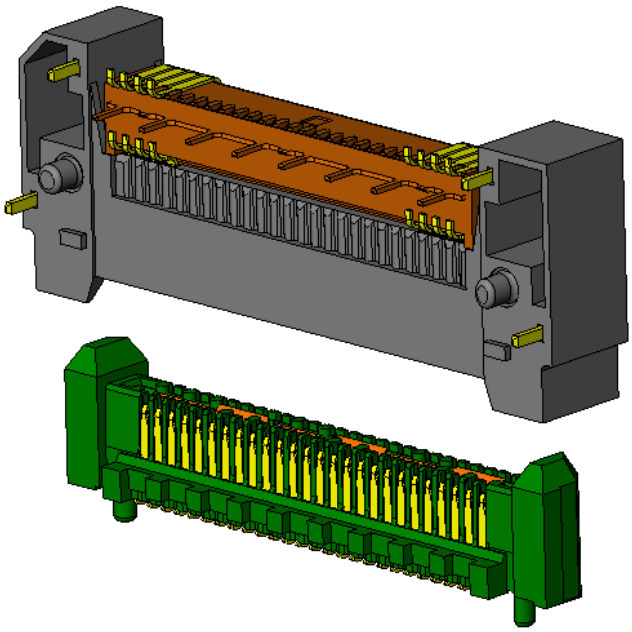
Project Number: Design Verification Test	Tracking Code: TC0931—2646_Report_Rev_1		
Requested by: Neal Patterson	Date: 3/23/2010	Product Rev: 1	
Part #: QRF8-052-01-L-RA-GP QRM8-052-05.0-L-D-A-GP	Lot #: na	Tech: Troy Cook Rodney Riley Tony Wagoner	Eng: Eric Mings Mark Shireman
Part description: 0.8mm Q-Rate Right Angle Socket Assembly			Qty to test: 55
Test Start: 07/28/2009	Test Completed: 11/2/2009		



DESIGN VERIFICATION TEST REPORT

PART DESCRIPTION

QRF8-052-01-L-RA-GP / QRM8-052-05.0-L-D-A-GP

CERTIFICATION

All instruments and measuring equipment were calibrated to National Institute for Standards and Technology (NIST) traceable standards according to IS0 10012-l and ANSI/NCSL 2540-1, as applicable.

SCOPE

To perform the following tests: Design verification test. See test plan.

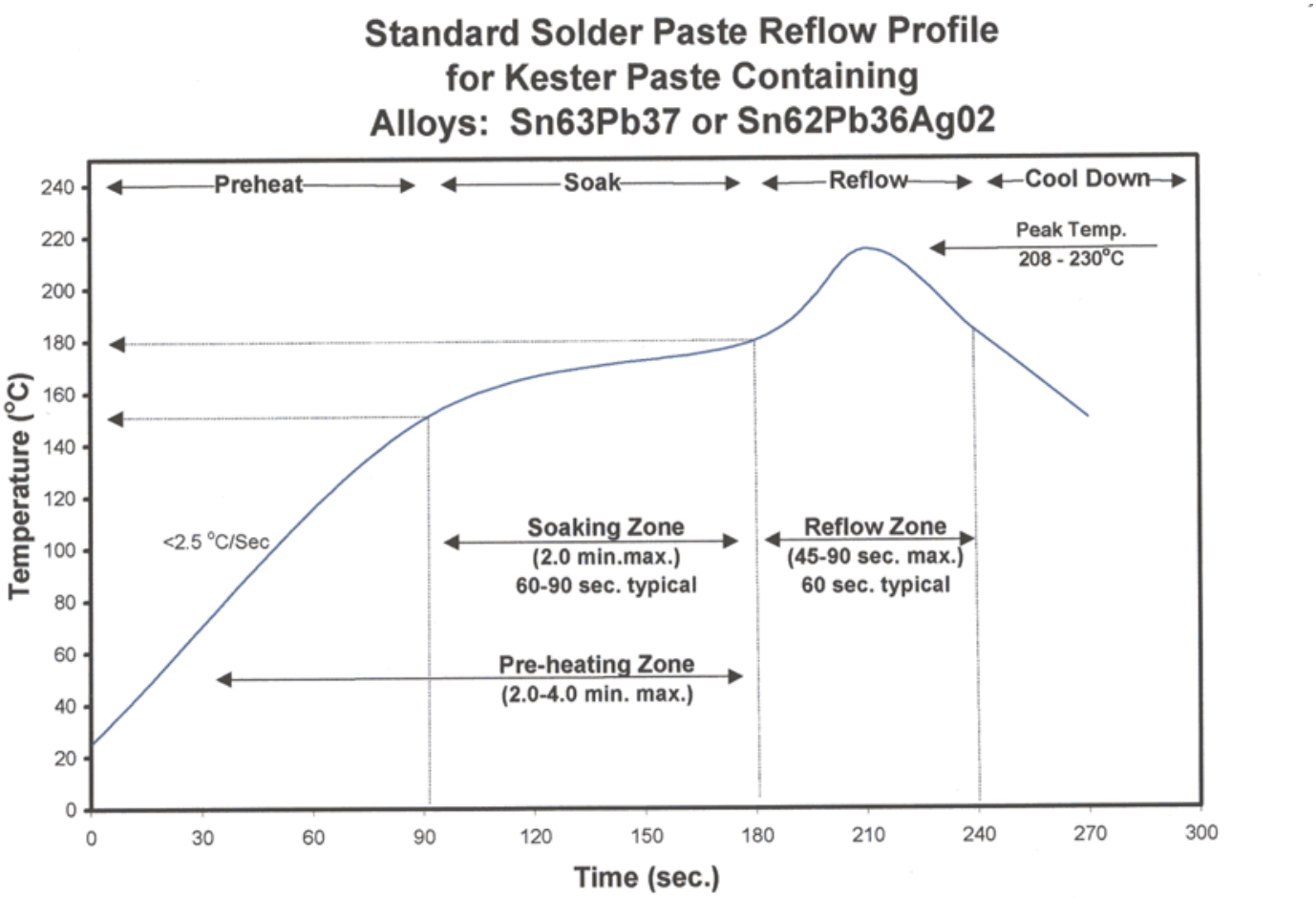
APPLICABLE DOCUMENTS

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: Leaded Paste
9) Re-Flow Time/Temp: See accompanying profile.
10) Samtec Test PCBs used: PCB-101731-TST-XX / PCB-101737-TST-XX

TYPICAL OVEN PROFILE (Soldering Parts to Test Boards)



FLOWCHARTS

Gas Tight

TEST STEP	GROUP A 216 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

Mating/Unmating/Gaps/Normal Force/Deflection Force

TEST STEP	GROUP A 10 Boards	GROUP B1 Individual Contacts (8-10 min)	GROUP B2 Individual Contacts (8-10 min)
01	Contact Gaps	Setup Approve	Setup Approve
02	Mating / Unmating	Normal Force (in the body unless otherwise specified)	Thermal Aging (Mated)
03	25 Cycles		Normal Force
04	Clean w/Compressed Air		
05	Mating / Unmating		
06	25 Cycles (50 Total)		
07	Clean w/Compressed Air		
08	Mating / Unmating		
09	25 Cycles (75 Total)		
10	Clean w/Compressed Air		
11	Mating / Unmating		
12	25 Cycles (100 Total)		
13	Clean w/Compressed Air		
14	Mating / Unmating		
15	Contact Gaps		
16	Thermal Aging (Mated)		
17	Mating / Unmating		
18	Contact Gaps		
19	Cyclic Humidity (Mated)		
20	Mating / Unmating		
21	Contact Gaps		

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

Time Condition 'B' (250 hours)

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/Un-Mating Forces = EIA-364-13

Normal Force = EIA-364-04

(Perpendicular) displacement Force = 12.7 mm/min +/- 6 mm/min

Spec is 50 N @ 1 mm displacement

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

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 B 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 Aging (both sets unmated)
03				IR & DWV at test voltage (on both mated sets and on each connector unmated)
04				Cyclic Humidity (both sets unmated)
05				IR & DWV at test voltage (on both mated sets and on each connector unmated)

*** - DWV on group B to be performed at Test Voltage**
DWV test voltage is equal to 75% of the lowest break down voltage from group A1, A2 or A3
Thermal Aging = EIA-364-17, Test Condition 4 (105 °C)
Time Condition 'B' (250 hours)
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

Current Carrying Capacity

TEST STEP	GROUP A 3 Mated Assemblies 2 CONTACTS POWERED	GROUP B 3 Mated Assemblies 4 CONTACTS POWERED	GROUP C 3 Mated Assemblies 6 CONTACTS POWERED	GROUP D 3 Mated Assemblies 8 CONTACTS POWERED	GROUP E 3 Mated Assemblies ALL CONTACTS POWERED
01	CCC	CCC	CCC	CCC	CCC

TEST STEP	GROUP F 3 Mated Assemblies 1 GROUND PLANE POWERED	GROUP G 3 Mated Assemblies 2 GROUND PLANES POWERED	GROUP H 3 Mated Assemblies ALL PINS POWERED (SIGNALS & GROUNDS)
01	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

ATTRIBUTE DEFINITIONS

The following is a brief, simplified description of attributes.

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.

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^{o} C
    c. 95^{o} C
    d. 115^{o} 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.

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 TC^2, 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 TC^2 software in order to acquire and record the test data.
10) The permanent set of each contact shall be measured within the TC^2 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.

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).

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. <= +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^{o} 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 ---------- 2.2A per contact with 2 adjacent contacts powered**
- **CCC for a 30°C Temperature Rise ---------- 1.8A per contact with 4 adjacent contacts powered**
- **CCC for a 30°C Temperature Rise ---------- 1.5A per contact with 6 adjacent contacts powered**
- **CCC for a 30°C Temperature Rise ---------- 1.4A per contact with 8 adjacent contacts powered**
- **CCC for a 30°C Temperature Rise ---------- 0.6A per contact with all (104) adjacent contacts powered**
- **CCC for a 30°C Temperature Rise ---------- 8.6A per ground plane with 1 ground plane powered**
- **CCC for a 30°C Temperature Rise ---------- 7.2A per ground plane with all (2) ground planes powered**
- **CCC for a 30°C Temperature Rise ---------- 6.6A per ground plane with all (2) ground planes powered and 0.3A through all contacts**

Contact Gaps

- **Initial**
  - **Min ---------- 1.438 mm**
  - **Max ---------- 1.646 mm**
- **After 100 Cycles**
  - **Min ---------- 1.470 mm**
  - **Max ---------- 1.654 mm**
- **Thermal**
  - **Min ---------- 1.642 mm**
  - **Max ---------- 1.870 mm**
- **Humidity**
  - **Min ---------- 1.652 mm**
  - **Max ---------- 1.902 mm**

Mating – Unmating Forces

- **Initial**
  - **Mating**
    - **Min ---------- 2.95 Lbs**
    - **Max---------- 4.06 Lbs**
  - **Unmating**
    - **Min ---------- 2.20 Lbs**
    - **Max---------- 3.30 Lbs**
- **After 25 Cycles**
  - **Mating**
    - **Min ---------- 2.78 Lbs**
    - **Max---------- 4.41 Lbs**
  - **Unmating**
    - **Min ---------- 2.18 Lbs**
    - **Max---------- 3.37 Lbs**
- **After 50 Cycles**
  - **Mating**
    - **Min ---------- 3.09 Lbs**
    - **Max---------- 4.14 Lbs**
  - **Unmating**
    - **Min ---------- 2.28 Lbs**
    - **Max---------- 3.77 Lbs**
- **After 75 Cycles**
  - **Mating**
    - **Min ---------- 3.04 Lbs**
    - **Max---------- 4.00 Lbs**
  - **Unmating**
    - **Min ---------- 2.37 Lbs**
    - **Max---------- 3.42 Lbs**
- **After 100 Cycles**
  - **Mating**
    - **Min ---------- 3.00 Lbs**
    - **Max---------- 3.98 Lbs**
  - **Unmating**
    - **Min ---------- 2.52 Lbs**
    - **Max---------- 3.37 Lbs**
- **Thermal**
  - **Mating**
    - **Min ---------- 1.75 Lbs**
    - **Max---------- 3.84 Lbs**
  - **Unmating**
    - **Min ---------- 1.46 Lbs**
    - **Max---------- 2.84 Lbs**
- **Humidity**
  - **Mating**
    - **Min ---------- 2.12 Lbs**
    - **Max---------- 3.05 Lbs**
  - **Unmating**
    - **Min ---------- 1.47 Lbs**
    - **Max---------- 2.04 Lbs**

Normal Force at .015" deflection

- **Initial**
  - **Min----------50.70 g Set ----- 0.0027"**
  - **Max ----------55.20 g Set ----- 0.0031"**
- **Thermal**
  - **Min----------48.80 g**
  - **Max ----------58.10 g**

Insulation Resistance minimums, IR

- **Initial**
  - **Mated----------100,000 Meg Ω ---------- Pass**
  - **Unmated ----------100,000 Meg Ω ---------- Pass**
- **Thermal**
  - **Mated----------100,000 Meg Ω ---------- Pass**
  - **Unmated ----------100,000 Meg Ω ---------- Pass**
- **Humidity**
  - **Mated----------100,000 Meg Ω ---------- Pass**
  - **Unmated ----------100,000 Meg Ω ---------- Pass**

Dielectric Withstanding Voltage minimums, DWV

- **Minimums**
  - **Breakdown Voltage----------920 VAC**
  - **Test Voltage ----------690 VAC**
  - **Working Voltage ----------230 VAC**
- **Initial DWV ----------Passed**
- **Thermal DWV----------Passed**
- **Humidity DWV----------Passed**

LLCR Gas Tight (108 LLCR test points) – Inside Row Signals

- **Initial ---------- 26.5 mOhms Max**
- **Gas-Tight**
  - **<= +5.0 mOhms ---------- 107 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 1 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 (90 LLCR test points) – Outside Row Signals

- **Initial ---------- 28.1 mOhms Max**
- **Gas-Tight**
  - **<= +5.0 mOhms ---------- 89 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 1 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 (18 LLCR test points) – Grounds

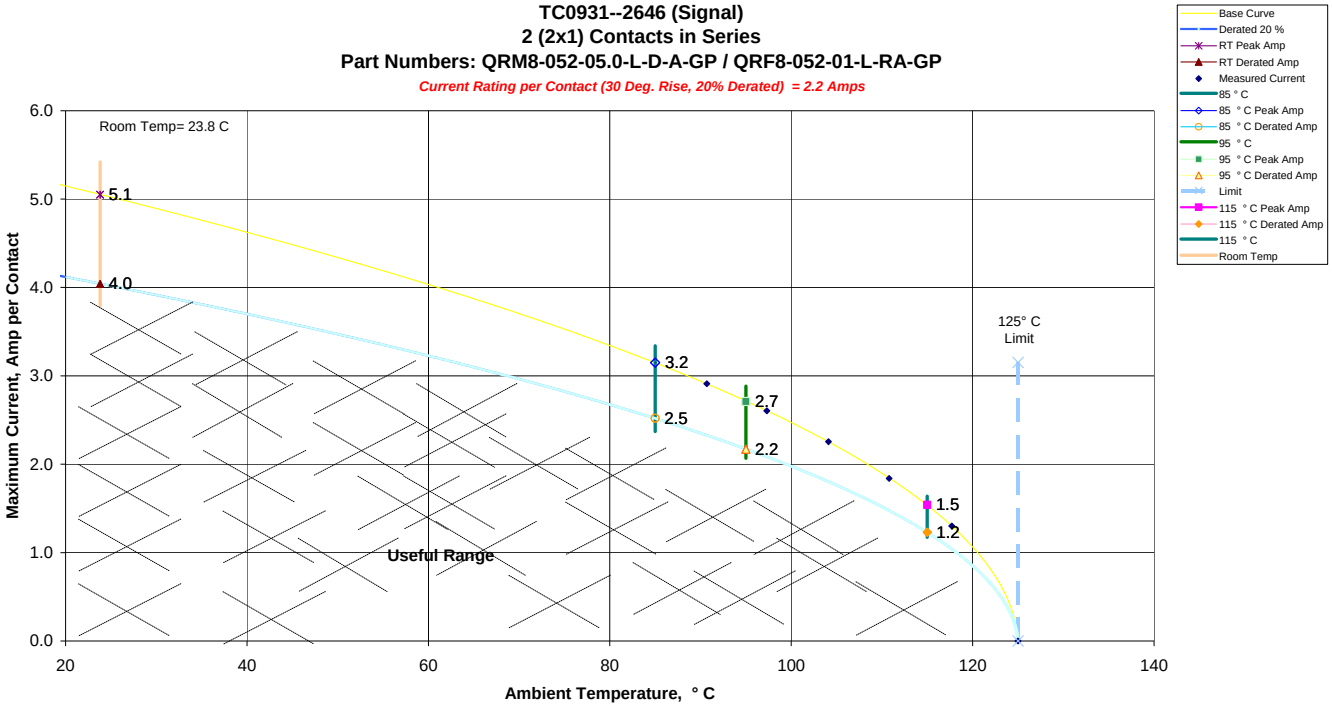
- **Initial ---------- 5.8 mOhms Max**
- **Gas-Tight**
  - **<= +5.0 mOhms ---------- 18 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 0 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ---------- 0 Points ---------- Acceptable**
  - **+15.1 to +50.0 mOhms ---------- 0 Points ---------- Marginal**
  - **+50.1 to +2000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+2000 mOhms ---------- 0 Points ---------- Open Failure**

DATA SUMMARIES

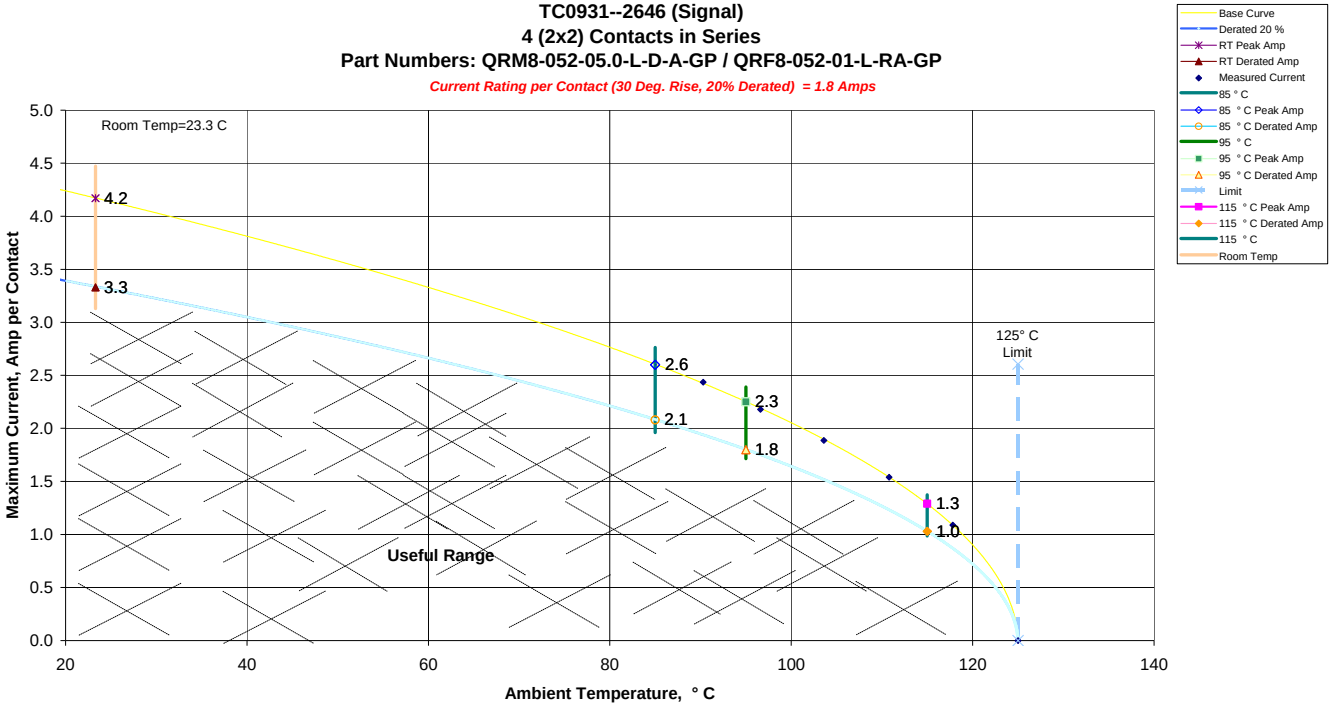
TEMPERATURE RISE (Current Carrying Capacity, CCC):

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:

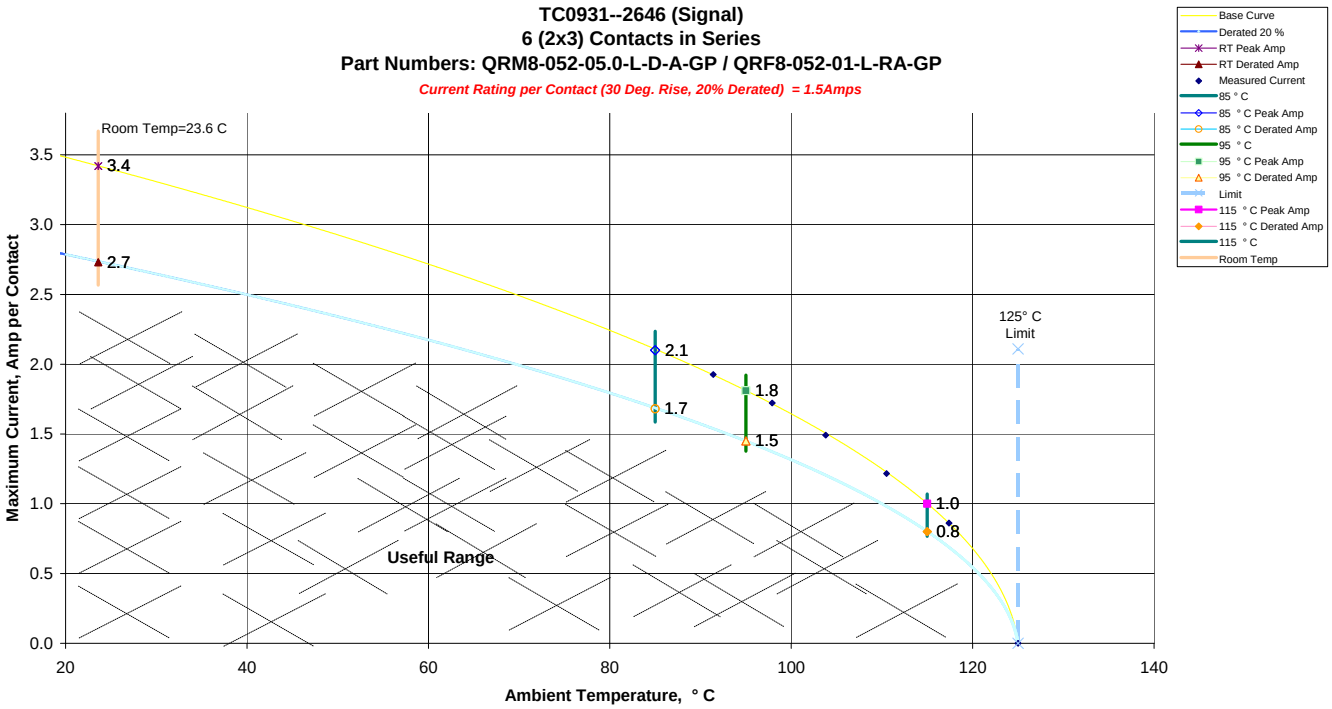
    a. Linear configuration with 2 adjacent conductors/contacts powered



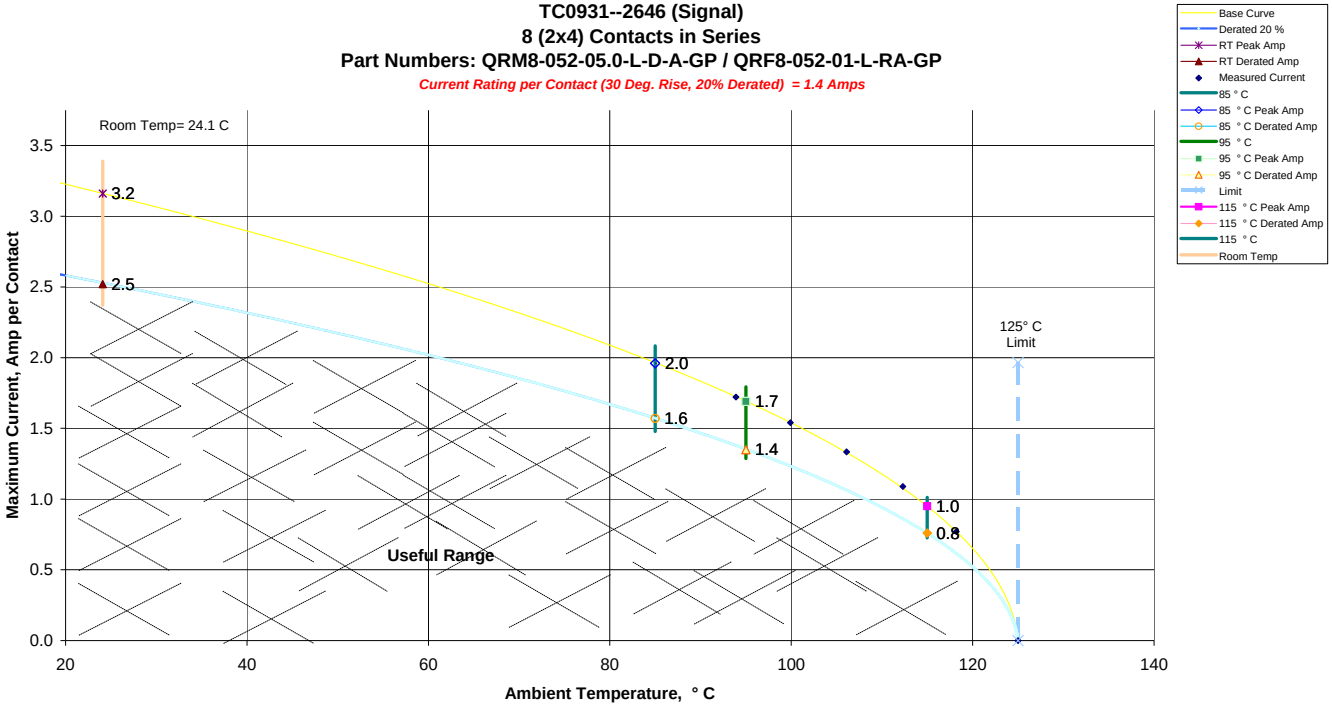
b. Linear configuration with 4 adjacent conductors/contacts powered



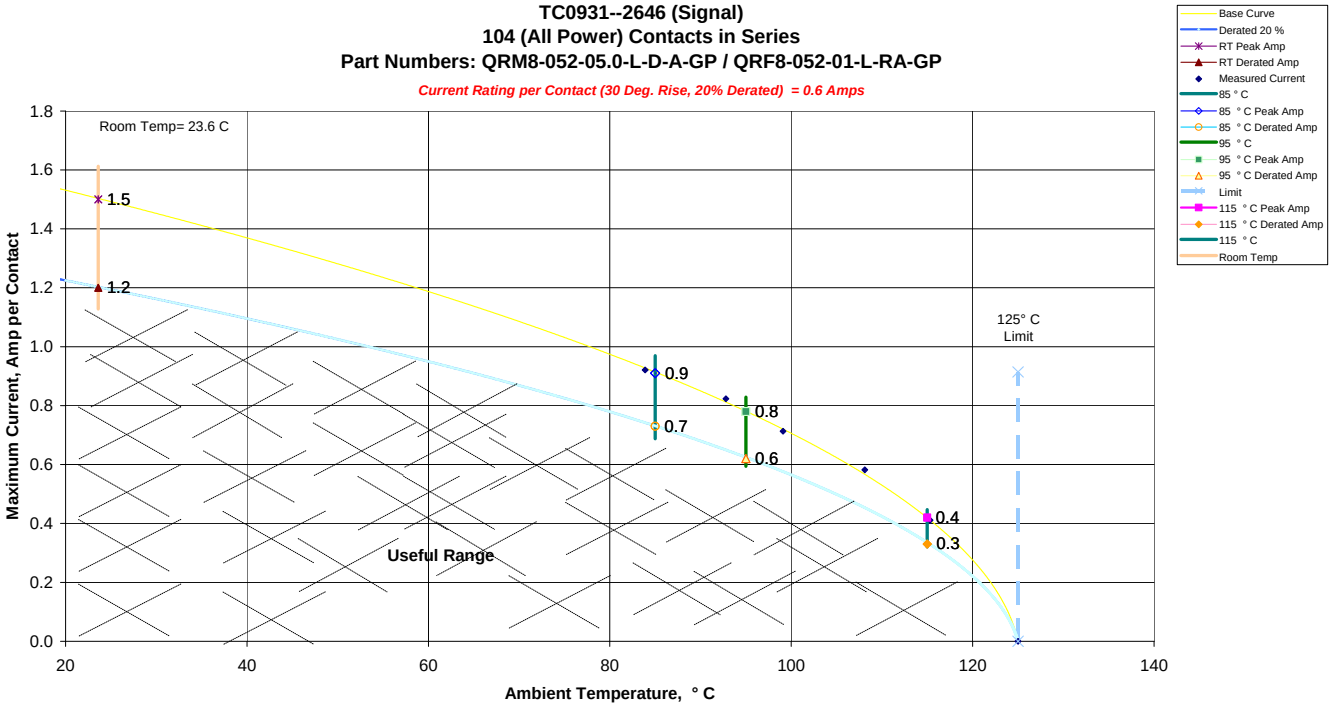
c. Linear configuration with 6 adjacent conductors/contacts powered



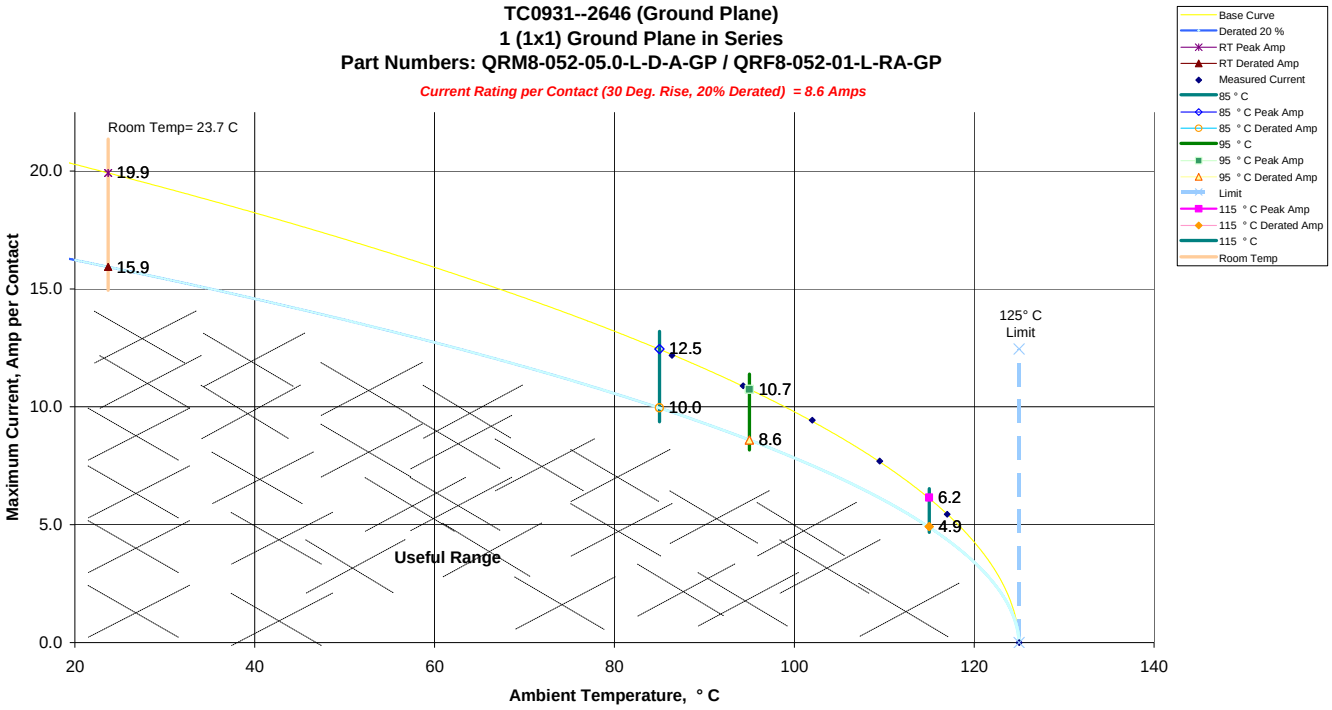
d. Linear configuration with 8 adjacent conductors/contacts powered



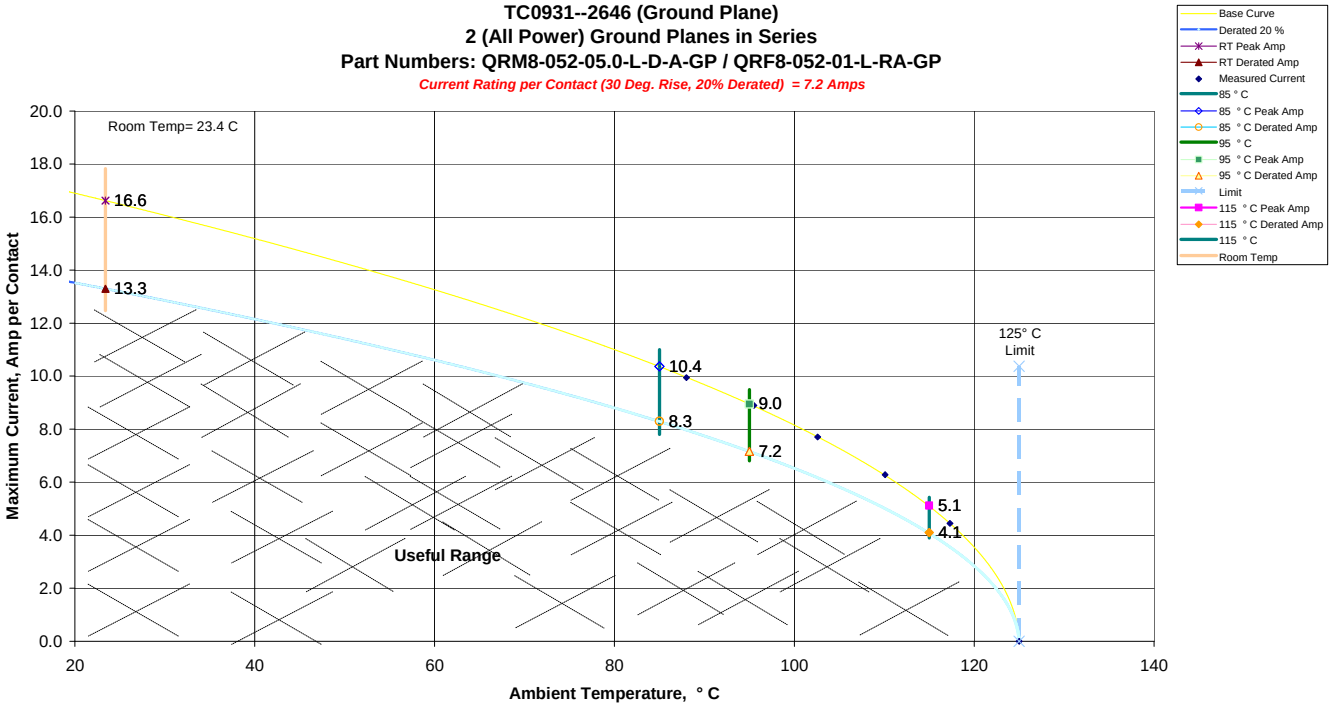
e. Linear configuration with all adjacent conductors/contacts powered



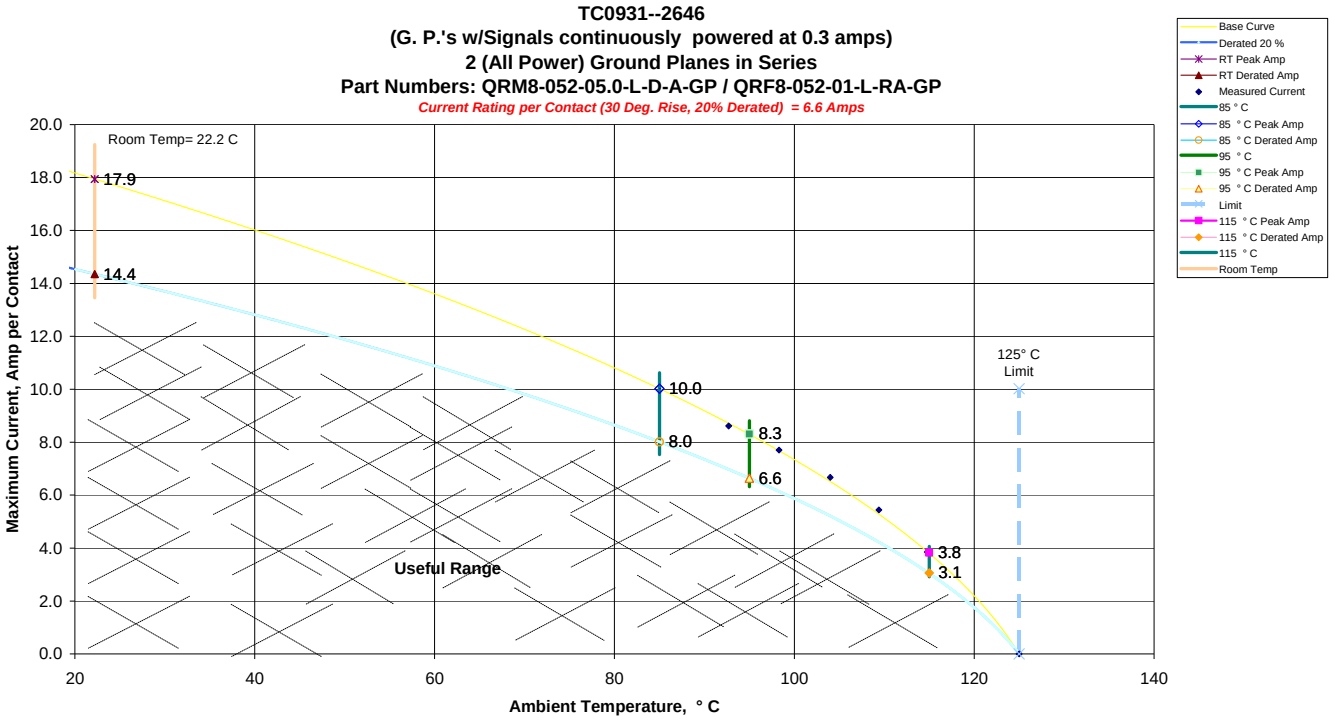
f. Linear configuration with 1 ground plane powered



g. Linear configuration with all (2) ground planes powered



h. Linear configuration with all (2) ground planes powered and 0.3A through all contacts



CONTACT GAPS:

Initial		After 100 Cycles		After Thermal		After Humidity	
Units:	mm	Units:	mm	Units:	mm	Units:	mm
Minimum	1.438	***Minimum***	1.470	***Minimum***	1.642	***Minimum***	1.652
Maximum	1.646	***Maximum***	1.654	***Maximum***	1.870	***Maximum***	1.902
Average	1.515	***Average***	1.546	***Average***	1.740	***Average***	1.771
St. Dev.	0.0418	***St. Dev.***	0.0300	***St. Dev.***	0.0572	***St. Dev.***	0.0670
Count	260	***Count***	260	***Count***	260	***Count***	260

MATING/UNMATING:

	Initial				After 25 Cycles			
	Mating		**Unmating**		**Mating**		**Unmating**	
	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)
Minimum	13.12	2.95	9.79	2.20	12.37	2.78	9.70	2.18
Maximum	18.06	4.06	14.68	3.30	19.62	4.41	14.99	3.37
Average	15.50	**3.49**	12.07	**2.71**	16.49	**3.71**	11.64	**2.62**
St Dev	1.52	0.34	1.52	0.34	2.16	0.49	1.47	0.33
Count	10	10	10	10	10	10	10	10

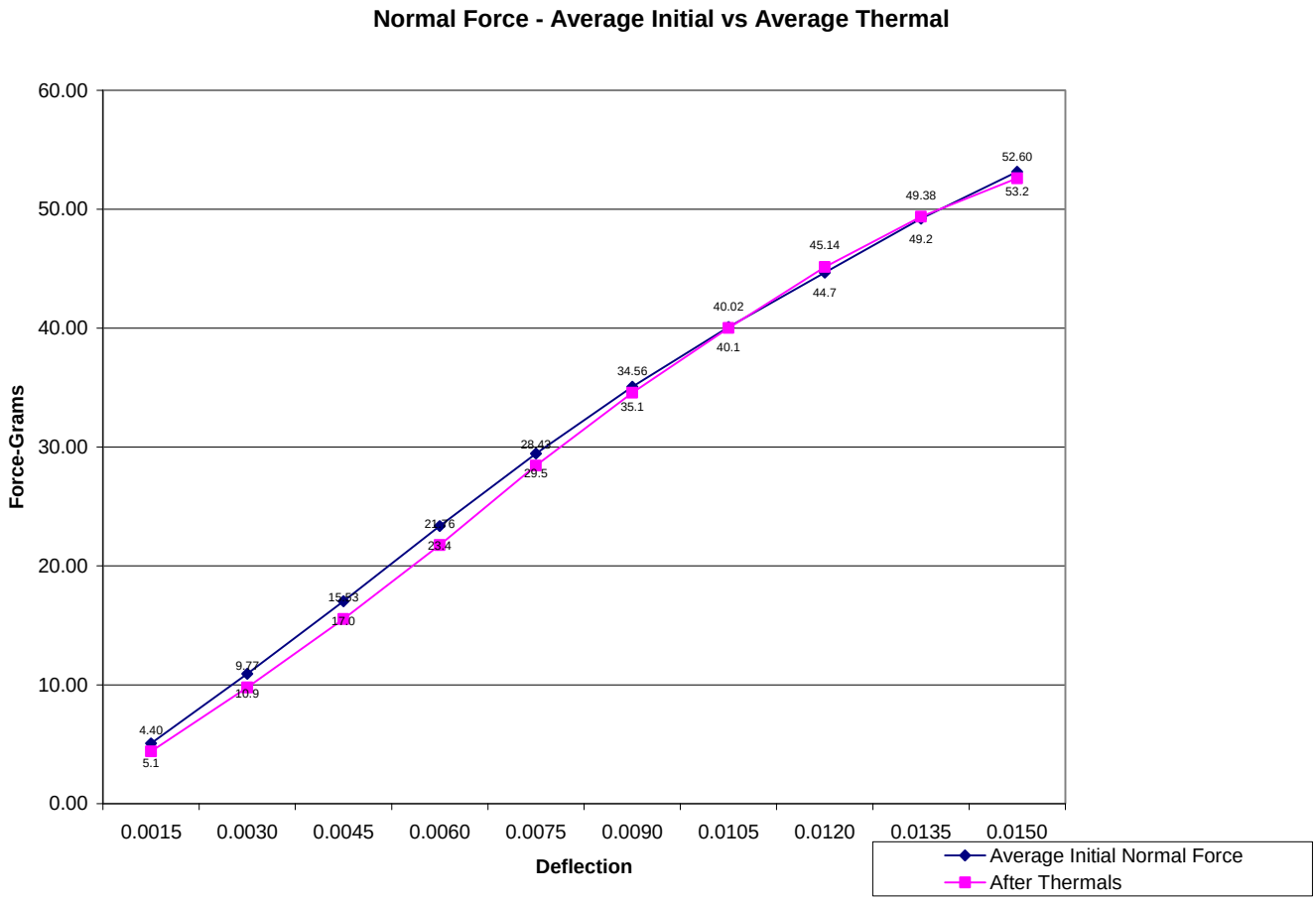
	After 50 Cycles				After 75 Cycles			
	Mating		**Unmating**		**Mating**		**Unmating**	
	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)
Minimum	13.74	3.09	10.14	2.28	13.52	3.04	10.54	2.37
Maximum	18.41	4.14	16.77	3.77	17.79	4.00	15.21	3.42
Average	15.82	**3.56**	12.09	**2.72**	15.32	**3.45**	12.21	**2.74**
St Dev	1.44	0.32	1.84	0.41	1.32	0.30	1.34	0.30
Count	10	10	10	10	10	10	10	10

	After 100 Cycles				After Thermals			
	Mating		**Unmating**		**Mating**		**Unmating**	
	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)
Minimum	13.34	3.00	11.21	2.52	7.78	1.75	6.49	1.46
Maximum	17.70	3.98	14.99	3.37	17.08	3.84	12.63	2.84
Average	15.21	**3.42**	12.23	**2.75**	11.38	**2.56**	7.60	**1.71**
St Dev	1.36	0.31	1.20	0.27	3.01	0.68	1.83	0.41
Count	10	10	10	10	10	10	10	10

	After Humidity			
	Mating		**Unmating**	
	Newtons	Force (Lbs)	Newtons	Force (Lbs)
Minimum	9.45	2.12	6.56	1.47
Maximum	13.56	3.05	9.09	2.04
Average	10.85	**2.44**	7.84	**1.76**
St Dev	1.13	0.25	0.75	0.17
Count	10	10	10	10

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 inches Forces in Grams										
	0.0015	0.0030	0.0045	0.0060	0.0075	0.0090	0.0105	0.0120	0.0135	0.0150	SET
Averages	5.07	10.93	17.03	23.36	29.46	35.06	40.10	44.68	49.21	53.15	0.0029
Min	4.40	9.60	15.40	21.20	27.10	32.80	38.30	42.90	46.70	50.70	0.0027
Max	5.80	12.30	19.00	25.50	31.40	37.00	42.10	46.80	51.50	55.20	0.0031
St. Dev	0.450	0.815	1.083	1.309	1.354	1.247	1.150	1.184	1.296	1.293	0.0001
Count	10	10	10	10	10	10	10	10	10	10	10

After Thermals	Deflections in inches Forces in Grams										
	0.0015	0.0030	0.0045	0.0060	0.0075	0.0090	0.0105	0.0120	0.0135	0.0150	SET
Averages	4.40	9.77	15.53	21.76	28.43	34.56	40.02	45.14	49.38	52.60	0.0022
Min	3.90	8.80	14.30	20.50	27.20	32.50	37.30	41.70	45.50	48.80	0.0014
Max	5.10	11.20	17.30	23.90	30.30	36.20	41.70	49.00	54.80	58.10	0.0027
St. Dev	0.380	0.704	0.980	1.116	1.106	1.068	1.527	2.576	3.162	3.191	0.0004
Count	10	10	10	10	10	10	10	10	10	10	10

INSULATION RESISTANCE (IR):

	Pin to Pin		
	Mated	Unmated	Unmated
Minimum	QRF8/QRM8	QRF8	QRM8
Initial	100000	100000	100000
Thermal	100000	100000	100000
Humidity	100000	100000	100000

DIELECTRIC WITHSTANDING VOLTAGE (DWV):

Voltage Rating Summary	
Minimum	QRF8/QRM8
Break Down Voltage	920
Test Voltage	690
Working Voltage	230

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

GAS TIGHT:

1) A total of 216 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. <= +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

	SIGNALS INSIDE	
Date	Sep. 08 2009	Sep. 08 2009
Room Temp C	23	24
RH	50%	39%
Name	Lomax	Lomax
mOhm values	**Actual Initial**	**Delta Gas Tight**
Average	18.8	0.0
St. Dev.	1.7	1.5
Min	16.6	-7.8
Max	26.5	3.7
Count	108	108

	SIGNALS OUTSIDE	
Date	Sep. 08 2009	Sep. 08 2009
Room Temp C	23	24
RH	50%	39%
Name	Lomax	Lomax
mOhm values	**Actual Initial**	**Delta Gas Tight**
Average	21.2	0.3
St. Dev.	2.1	1.3
Min	16.3	-5.6
Max	28.1	2.9
Count	90	90

	GROUNDS	
Date	Sep. 08 2009	Sep. 08 2009
Room Temp C	23	24
RH	50%	39%
Name	Lomax	Lomax
mOhm values	**Actual Initial**	**Delta Gas Tight**
Average	5.3	0.0
St. Dev.	0.3	0.1
Min	4.6	-0.1
Max	5.8	0.2
Count	18	18

DATA

CONTACT GAPS:

Initial					
Units:	mm				
Pos.#	**B1**	**B2**	**B3**	**B4**	**B5**
1	1.480	1.486	1.486	1.474	1.494
2	1.476	1.490	1.474	1.456	1.480
3	1.472	1.474	1.476	1.442	1.468
4	1.484	1.474	1.476	1.462	1.480
5	1.494	1.474	1.498	1.474	1.490
6	1.526	1.498	1.508	1.484	1.510
7	1.542	1.504	1.516	1.500	1.524
8	1.550	1.512	1.518	1.504	1.526
9	1.558	1.514	1.522	1.506	1.516
10	1.574	1.568	1.536	1.514	1.532
11	1.598	1.526	1.542	1.520	1.554
12	1.610	1.532	1.556	1.530	1.554
13	1.588	1.506	1.528	1.500	1.524
14	1.614	1.526	1.542	1.526	1.536
15	1.646	1.536	1.556	1.548	1.560
16	1.636	1.560	1.564	1.564	1.568
17	1.626	1.552	1.564	1.556	1.560
18	1.598	1.530	1.596	1.526	1.558
19	1.590	1.512	1.566	1.528	1.546
20	1.624	1.558	1.594	1.560	1.566
21	1.594	1.530	1.550	1.518	1.568
22	1.550	1.508	1.516	1.482	1.522
23	1.522	1.498	1.520	1.480	1.508
24	1.500	1.470	1.510	1.450	1.484
25	1.510	1.484	1.504	1.462	1.490
26	1.518	1.500	1.508	1.480	1.520
27	1.464	1.474	1.478	1.466	1.462
28	1.464	1.464	1.462	1.456	1.466
29	1.472	1.476	1.478	1.446	1.476
30	1.496	1.502	1.492	1.448	1.488
31	1.494	1.516	1.508	1.446	1.488
32	1.502	1.520	1.514	1.458	1.504
33	1.528	1.524	1.524	1.452	1.542
34	1.512	1.520	1.518	1.440	1.506
35	1.538	1.538	1.516	1.450	1.504
36	1.550	1.546	1.544	1.464	1.526
37	1.546	1.558	1.544	1.466	1.528
38	1.552	1.560	1.550	1.454	1.526
39	1.558	1.566	1.560	1.472	1.542
40	1.584	1.584	1.568	1.484	1.540
41	1.566	1.570	1.560	1.464	1.522

42	1.566	1.574	1.560	1.474	1.542
43	1.562	1.560	1.556	1.480	1.544
44	1.566	1.550	1.554	1.484	1.540
45	1.560	1.556	1.566	1.486	1.538
46	1.542	1.532	1.536	1.470	1.520
47	1.528	1.520	1.522	1.462	1.496
48	1.492	1.502	1.488	1.446	1.474
49	1.490	1.494	1.484	1.452	1.476
50	1.460	1.476	1.456	1.438	1.456
51	1.470	1.474	1.466	1.438	1.460
52	1.484	1.482	1.484	1.464	1.476

After 100 Cycles					
Units:	mm				
Pos.#	**B1**	**B2**	**B3**	**B4**	**B5**
1	1.564	1.582	1.566	1.552	1.590
2	1.558	1.556	1.536	1.538	1.550
3	1.532	1.524	1.522	1.496	1.526
4	1.534	1.516	1.506	1.496	1.520
5	1.540	1.520	1.526	1.504	1.518
6	1.562	1.518	1.522	1.516	1.536
7	1.556	1.528	1.540	1.516	1.544
8	1.570	1.536	1.538	1.518	1.544
9	1.568	1.538	1.536	1.516	1.548
10	1.588	1.576	1.542	1.522	1.548
11	1.600	1.540	1.554	1.520	1.554
12	1.616	1.556	1.572	1.534	1.574
13	1.604	1.528	1.530	1.502	1.528
14	1.620	1.548	1.556	1.542	1.562
15	1.648	1.552	1.568	1.558	1.560
16	1.654	1.566	1.578	1.562	1.586
17	1.634	1.560	1.574	1.570	1.552
18	1.610	1.542	1.604	1.550	1.560
19	1.606	1.538	1.576	1.536	1.566
20	1.636	1.574	1.596	1.564	1.578
21	1.612	1.548	1.564	1.544	1.584
22	1.564	1.528	1.528	1.516	1.554
23	1.562	1.532	1.532	1.508	1.548
24	1.554	1.532	1.526	1.504	1.542
25	1.560	1.532	1.554	1.536	1.548
26	1.574	1.578	1.566	1.562	1.582
27	1.544	1.554	1.560	1.552	1.562
28	1.540	1.544	1.534	1.538	1.548
29	1.516	1.528	1.518	1.492	1.514
30	1.528	1.520	1.514	1.486	1.508
31	1.528	1.540	1.520	1.470	1.516
32	1.526	1.540	1.526	1.488	1.518
33	1.540	1.546	1.534	1.474	1.546
34	1.532	1.548	1.536	1.476	1.524
35	1.564	1.548	1.526	1.490	1.518

36	1.572	1.566	1.560	1.474	1.540
37	1.564	1.562	1.548	1.484	1.542
38	1.560	1.564	1.556	1.480	1.538
39	1.566	1.576	1.568	1.498	1.550
40	1.592	1.576	1.568	1.490	1.552
41	1.574	1.588	1.568	1.502	1.546
42	1.578	1.574	1.574	1.500	1.544
43	1.576	1.576	1.570	1.504	1.560
44	1.572	1.568	1.566	1.502	1.550
45	1.582	1.580	1.570	1.512	1.558
46	1.566	1.562	1.564	1.520	1.546
47	1.554	1.552	1.548	1.500	1.536
48	1.546	1.540	1.540	1.504	1.518
49	1.542	1.546	1.546	1.518	1.526
50	1.536	1.532	1.526	1.514	1.514
51	1.538	1.554	1.552	1.526	1.532
52	1.568	1.570	1.572	1.556	1.570

After Thermal					
Units:	mm				
Pos.#	**B1**	**B2**	**B3**	**B4**	**B5**
1	1.654	1.656	1.656	1.648	1.668
2	1.684	1.672	1.680	1.664	1.690
3	1.700	1.686	1.700	1.694	1.702
4	1.734	1.708	1.724	1.712	1.738
5	1.756	1.730	1.748	1.734	1.746
6	1.760	1.748	1.756	1.754	1.770
7	1.786	1.754	1.768	1.752	1.770
8	1.802	1.810	1.780	1.776	1.788
9	1.818	1.782	1.786	1.780	1.800
10	1.834	1.790	1.812	1.798	1.822
11	1.828	1.774	1.790	1.774	1.798
12	1.844	1.790	1.808	1.794	1.802
13	1.870	1.788	1.804	1.804	1.820
14	1.860	1.810	1.816	1.814	1.822
15	1.846	1.792	1.818	1.806	1.812
16	1.812	1.772	1.834	1.782	1.798
17	1.806	1.750	1.796	1.778	1.786
18	1.814	1.776	1.810	1.778	1.778
19	1.782	1.756	1.754	1.740	1.766
20	1.742	1.718	1.718	1.714	1.734
21	1.712	1.700	1.698	1.680	1.716
22	1.684	1.666	1.670	1.658	1.684
23	1.668	1.660	1.676	1.652	1.686
24	1.670	1.678	1.672	1.652	1.686
25	1.654	1.658	1.660	1.650	1.660
26	1.666	1.664	1.662	1.660	1.662
27	1.662	1.668	1.668	1.650	1.656
28	1.698	1.698	1.692	1.668	1.678
29	1.702	1.726	1.716	1.686	1.688

30	1.714	1.728	1.724	1.690	1.716
31	1.738	1.738	1.734	1.698	1.752
32	1.752	1.752	1.758	1.714	1.742
33	1.772	1.776	1.758	1.716	1.752
34	1.792	1.794	1.792	1.746	1.782
35	1.800	1.798	1.802	1.742	1.780
36	1.802	1.810	1.792	1.752	1.778
37	1.800	1.808	1.824	1.760	1.800
38	1.826	1.822	1.810	1.762	1.798
39	1.810	1.812	1.814	1.746	1.776
40	1.816	1.814	1.812	1.758	1.796
41	1.812	1.800	1.804	1.758	1.792
42	1.800	1.790	1.798	1.756	1.786
43	1.780	1.788	1.788	1.744	1.778
44	1.758	1.760	1.768	1.738	1.754
45	1.750	1.740	1.748	1.698	1.730
46	1.718	1.716	1.714	1.688	1.706
47	1.700	1.698	1.708	1.674	1.696
48	1.674	1.678	1.680	1.654	1.668
49	1.658	1.656	1.674	1.642	1.660
50	1.668	1.658	1.666	1.652	1.664
51	1.660	1.654	1.662	1.684	1.665
52	1.662	1.664	1.662	1.674	1.679

After Humidity					
Units: mm					
Pos.#	**B1**	**B2**	**B3**	**B4**	**B5**
1	1.678	1.672	1.666	1.664	1.686
2	1.682	1.672	1.670	1.674	1.684
3	1.686	1.680	1.684	1.664	1.682
4	1.704	1.702	1.708	1.696	1.708
5	1.726	1.718	1.724	1.718	1.736
6	1.756	1.746	1.754	1.738	1.762
7	1.788	1.762	1.784	1.778	1.788
8	1.790	1.776	1.788	1.794	1.796
9	1.816	1.790	1.790	1.794	1.806
10	1.836	1.844	1.816	1.810	1.830
11	1.858	1.822	1.828	1.820	1.850
12	1.880	1.828	1.848	1.838	1.864
13	1.862	1.812	1.828	1.816	1.842
14	1.880	1.824	1.842	1.832	1.848
15	1.902	1.832	1.854	1.842	1.862
16	1.896	1.846	1.848	1.858	1.864
17	1.880	1.826	1.860	1.848	1.854
18	1.844	1.804	1.870	1.828	1.836
19	1.830	1.780	1.838	1.808	1.812
20	1.840	1.804	1.846	1.814	1.830
21	1.800	1.772	1.786	1.768	1.800
22	1.764	1.738	1.746	1.742	1.766
23	1.730	1.710	1.726	1.698	1.726

24	1.692	1.684	1.692	1.676	1.706
25	1.682	1.664	1.684	1.654	1.710
26	1.682	1.678	1.676	1.662	1.704
27	1.652	1.666	1.672	1.662	1.666
28	1.678	1.682	1.680	1.672	1.682
29	1.672	1.688	1.690	1.668	1.672
30	1.718	1.720	1.714	1.692	1.708
31	1.734	1.750	1.744	1.706	1.728
32	1.756	1.756	1.760	1.728	1.760
33	1.778	1.776	1.776	1.732	1.788
34	1.790	1.788	1.800	1.752	1.782
35	1.814	1.808	1.802	1.764	1.794
36	1.834	1.830	1.834	1.788	1.816
37	1.840	1.832	1.842	1.782	1.826
38	1.846	1.854	1.842	1.796	1.824
39	1.850	1.844	1.872	1.810	1.846
40	1.876	1.858	1.864	1.808	1.842
41	1.864	1.848	1.858	1.796	1.816
42	1.862	1.858	1.868	1.804	1.850
43	1.856	1.848	1.844	1.796	1.834
44	1.848	1.832	1.840	1.788	1.818
45	1.822	1.812	1.824	1.782	1.810
46	1.808	1.792	1.808	1.768	1.802
47	1.786	1.772	1.794	1.736	1.770
48	1.752	1.750	1.744	1.726	1.738
49	1.728	1.724	1.742	1.698	1.720
50	1.698	1.690	1.714	1.676	1.688
51	1.676	1.668	1.684	1.662	1.676
52	1.686	1.672	1.682	1.664	1.676

MATING/UNMATING:

	Initial		After 25 Cycles		After 50 Cycles		After 75 Cycles		After 100 Cycles		After Thermals		After Humidity	
Sample #	Mating	Unmating	Mating	Unmating	Mating	Unmating	Mating	Unmating	Mating	Unmating	Mating	Unmating	Mating	Unmating
1	2.95	2.24	3.42	2.31	3.16	2.40	3.13	2.53	3.08	2.53	1.75	1.46	2.21	1.64
2	3.75	2.84	4.10	2.77	3.78	2.80	3.61	2.92	3.63	2.86	3.31	1.77	2.38	1.68
3	3.38	2.20	2.78	2.18	3.59	2.28	3.51	2.37	3.55	2.53	3.12	1.74	2.46	1.47
4	4.06	3.30	4.41	3.37	4.14	3.77	4.00	3.42	3.98	3.37	3.84	2.84	3.05	1.67
5	3.27	2.58	3.89	2.54	3.69	2.48	3.49	2.56	3.48	2.58	2.46	1.51	2.64	1.92
6	3.09	2.78	3.42	2.68	3.30	2.71	3.08	2.70	3.04	2.57	2.38	1.50	2.40	1.65
7	3.32	2.93	3.50	2.40	3.09	2.46	3.04	2.48	3.00	2.52	2.67	1.58	2.37	1.87
8	3.79	2.93	3.43	2.50	3.39	2.78	3.42	2.87	3.39	2.90	2.04	1.63	2.42	1.81
9	3.60	2.87	3.92	2.81	3.61	2.81	3.51	2.87	3.47	2.90	2.01	1.53	2.35	2.04
10	3.64	2.46	4.21	2.60	3.81	2.68	3.66	2.72	3.57	2.73	2.00	1.52	2.12	1.86

NORMAL FORCE (FOR CONTACTS TESTED IN THE HOUSING):

Initial — **Deflections in inches, Forces in Grams**

Sample #	**0.0015**	**0.0030**	**0.0045**	**0.0060**	**0.0075**	**0.0090**	**0.0105**	**0.0120**	**0.0135**	**0.0150**	***SET***
1	4.6	10.4	16.5	22.8	28.5	34.0	39.2	43.7	48.6	52.9	0.0029
2	4.9	10.0	15.6	21.2	27.1	32.8	38.3	42.9	46.7	50.7	0.0027
3	4.4	9.6	15.4	21.6	27.9	34.0	39.1	43.8	48.8	53.2	0.0027
4	5.2	11.1	17.0	23.3	29.3	35.1	40.0	44.4	48.7	52.3	0.0029
5	4.8	10.8	16.9	23.2	29.4	35.0	40.0	44.5	49.5	53.6	0.0028
6	5.5	11.6	17.9	24.3	30.4	35.8	40.8	45.3	49.4	53.0	0.0030
7	5.8	12.3	19.0	25.5	31.4	37.0	42.1	46.8	51.5	55.2	0.0031
8	5.6	11.6	17.8	24.4	30.8	36.0	40.9	45.4	49.9	53.6	0.0028
9	5.0	11.3	17.5	24.2	30.5	36.2	41.2	46.0	50.5	54.8	0.0029
10	4.9	10.6	16.7	23.1	29.3	34.7	39.4	44.0	48.5	52.2	0.0028

After Thermals — **Deflections in inches, Forces in Grams**

Sample #	**0.0015**	**0.0030**	**0.0045**	**0.0060**	**0.0075**	**0.0090**	**0.0105**	**0.0120**	**0.0135**	**0.0150**	***SET***
1	4.2	9.0	14.3	20.5	27.3	34.0	41.0	48.5	53.6	56.9	0.0017
2	3.9	8.8	14.3	20.5	27.3	34.5	41.7	49.0	54.8	58.1	0.0014
3	4.1	9.4	14.7	20.7	27.6	34.6	41.3	47.5	51.9	55.1	0.0020
4	4.6	10.0	15.8	21.6	28.7	35.8	41.4	46.1	50.0	53.3	0.0022
5	4.6	10.2	16.3	22.7	29.9	36.2	41.1	45.4	49.2	52.4	0.0027
6	3.9	9.3	15.4	21.9	28.8	34.8	39.8	44.1	48.1	51.0	0.0025
7	4.4	9.8	15.8	21.8	28.2	33.7	38.5	42.9	46.8	50.1	0.0024
8	5.1	11.2	17.3	23.9	30.3	35.3	39.7	43.7	47.6	50.8	0.0026
9	4.7	10.3	16.4	22.8	29.0	34.2	38.4	42.5	46.3	49.5	0.0025
10	4.5	9.7	15.0	21.2	27.2	32.5	37.3	41.7	45.5	48.8	0.0023

INSULATION RESISTANCE (IR):

Initial Insulation Resistance
Measured In Meg Ohms

	Pin to Pin		
	Mated	Unmated	
	x	x	x
Sample#	QRF8/QRM8	QRF8	QRM8
1	100,000	100,000	100,000
2	100,000	100,000	100,000

Thermal Insulation Resistance
Measured In Meg Ohms

	Pin to Pin		
	Mated	Unmated	
	x	x	x
Sample#	QRF8/QRM8	QRF8	QRM8
1	100,000	100,000	100,000
2	100,000	100,000	100,000

Humidity Insulation Resistance
Measured In Meg Ohms

	Pin to Pin		
	Mated	Unmated	
	x	x	x
Sample#	QRF8/QRM8	QRF8	QRM8
1	100,000	100,000	100,000
2	100,000	100,000	100,000

DIELECTRIC WITHSTANDING VOLTAGE (DWV):

Initial DWV
Test Voltage= 690

	Pin to Pin		
	Mated	Unmated	
Sample#	QRF8/QRM8	QRF8	QRM8
1	690	690	690
2	690	690	690

Thermal Test Voltage
Test Voltage= 690

	Pin to Pin		
	Mated	Unmated	
Sample#	QRF8/QRM8	QRF8	QRM8
1	690	690	690
2	690	690	690

Humidity Test Voltage
Test Voltage= 690

	Pin to Pin		
	Mated	Unmated	
Sample#	QRF8/QRM8	QRF8	QRM8
1	690	690	690
2	690	690	690

GAS TIGHT:

Inside Row Signals

	mOhm values	Actual	Delta
Board	Position	Initial	Gas Tight
1	P7	21.7	-3.8
1	P8	18.8	-0.4
1	P9	19.0	-0.6
1	P10	23.5	2.8
1	P11	19.3	1.6
1	P12	19.0	0.5
1	P13	19.2	0.5
1	P16	18.1	0.4
1	P17	17.5	0.4
1	P18	20.7	-2.4
1	P19	18.8	-1.7
1	P20	19.3	0.2
2	P7	20.3	-1.7
2	P8	26.5	-7.8
2	P9	19.2	0.6
2	P10	18.7	1.0
2	P11	19.7	1.0
2	P12	18.9	-0.4
2	P13	18.5	0.5
2	P16	18.4	0.2
2	P17	18.1	3.7
2	P18	17.5	0.8
2	P19	19.2	0.1
2	P20	20.0	0.3
3	P7	18.3	0.1
3	P8	22.6	-2.8
3	P9	18.2	1.3
3	P10	22.9	0.1
3	P11	20.0	0.4
3	P12	23.0	-4.8
3	P13	25.7	-4.1
3	P16	20.9	-2.2
3	P17	17.7	0.5
3	P18	17.4	0.4
3	P19	17.1	0.5
3	P20	19.7	0.3
4	P7	17.0	1.2
4	P8	18.0	-0.2
4	P9	17.7	0.5
4	P10	19.0	-0.6
4	P11	19.5	-0.5

4	P12	18.5	-0.8
4	P13	17.8	-0.2
4	P16	18.8	-0.2
4	P17	18.1	0.6
4	P18	17.5	0.1
4	P19	16.6	0.5
4	P20	21.0	-1.6
5	P7	18.0	0.4
5	P8	18.3	0.7
5	P9	17.8	0.8
5	P10	18.6	-0.5
5	P11	20.0	-0.8
5	P12	19.5	-1.1
5	P13	19.3	-0.5
5	P16	18.1	0.7
5	P17	18.2	0.5
5	P18	17.7	0.3
5	P19	17.8	-0.2
5	P20	19.8	0.6
6	P7	17.0	1.2
6	P8	17.8	1.7
6	P9	17.9	1.2
6	P10	17.4	0.9
6	P11	20.5	0.4
6	P12	20.1	-1.9
6	P13	17.6	0.7
6	P16	18.6	0.1
6	P17	19.0	2.2
6	P18	16.8	0.2
6	P19	18.0	-0.2
6	P20	19.1	0.8
7	P7	19.1	-1.0
7	P8	18.8	0.3
7	P9	18.9	-0.7
7	P10	22.0	-3.7
7	P11	19.2	1.0
7	P12	20.5	-1.9
7	P13	19.0	-0.6
7	P16	17.4	1.4
7	P17	17.8	0.0
7	P18	17.5	0.3
7	P19	17.4	-0.4
7	P20	19.5	0.4
8	P7	17.0	1.7
8	P8	17.4	0.5
8	P9	18.5	-0.6
8	P10	18.9	0.2
8	P11	18.2	1.2
8	P12	18.1	-0.2

8	P13	17.6	0.6
8	P16	17.4	2.4
8	P17	17.7	1.0
8	P18	17.5	0.8
8	P19	16.6	1.8
8	P20	19.1	0.6
9	P7	17.1	0.4
9	P8	17.8	0.2
9	P9	18.1	0.3
9	P10	18.2	0.3
9	P11	18.4	1.0
9	P12	18.7	-1.6
9	P13	17.5	0.1
9	P16	18.8	-0.6
9	P17	17.8	0.2
9	P18	17.6	-0.3
9	P19	16.9	0.8
9	P20	19.4	0.4

Outside Row Signals

	mOhm values	Actual	Delta
Board	**Position**	**Initial**	**Gas Tight**
1	P1	22.0	0.4
1	P2	21.6	0.3
1	P3	20.3	2.9
1	P4	20.4	0.6
1	P5	19.5	0.5
1	P6	17.3	0.0
1	P21	20.4	0.5
1	P22	24.8	-2.5
1	P23	21.7	1.6
1	P24	21.9	0.1
2	P1	28.1	-1.5
2	P2	27.9	-5.6
2	P3	24.3	1.4
2	P4	22.4	-0.4
2	P5	20.5	1.8
2	P6	17.1	0.8
2	P21	20.7	-0.1
2	P22	20.9	1.7
2	P23	21.6	-0.3
2	P24	22.2	0.1
3	P1	21.2	2.8
3	P2	21.0	0.9
3	P3	21.1	0.8
3	P4	21.1	0.0

3	P5	20.0	0.9
3	P6	18.3	-0.2
3	P21	21.1	1.9
3	P22	21.3	1.4
3	P23	20.8	0.5
3	P24	22.2	-0.7
4	P1	25.4	-3.6
4	P2	20.3	0.9
4	P3	21.0	-0.4
4	P4	20.3	0.9
4	P5	19.8	0.8
4	P6	16.3	1.0
4	P21	20.7	0.6
4	P22	20.5	1.0
4	P23	21.0	1.6
4	P24	21.9	-0.8
5	P1	21.3	1.2
5	P2	21.5	-0.2
5	P3	20.9	1.1
5	P4	20.8	0.7
5	P5	20.5	0.3
5	P6	17.3	0.5
5	P21	23.5	-0.9
5	P22	21.5	0.1
5	P23	21.8	1.9
5	P24	21.9	0.3
6	P1	21.6	2.4
6	P2	21.3	-0.3
6	P3	20.8	2.1
6	P4	19.5	1.6
6	P5	20.0	0.3
6	P6	16.4	0.7
6	P21	23.7	-2.1
6	P22	21.2	0.2
6	P23	21.3	0.6
6	P24	22.1	0.6
7	P1	21.3	1.1
7	P2	23.9	1.4
7	P3	22.2	0.7
7	P4	20.8	0.3
7	P5	20.6	1.0
7	P6	17.5	-0.4
7	P21	21.3	-1.1
7	P22	23.9	-0.2
7	P23	21.5	0.7
7	P24	22.8	0.0
8	P1	24.4	-3.3
8	P2	20.8	-0.3
8	P3	20.8	0.5

8	P4	20.2	-0.5
8	P5	20.5	-0.8
8	P6	17.0	0.3
8	P21	21.5	0.5
8	P22	21.2	0.5
8	P23	22.5	1.5
8	P24	25.4	-3.4
9	P1	21.8	-0.1
9	P2	21.2	1.2
9	P3	23.0	-1.5
9	P4	21.3	-0.5
9	P5	19.5	0.7
9	P6	16.9	-0.1
9	P21	21.6	-0.1
9	P22	21.3	0.5
9	P23	22.6	0.0
9	P24	21.3	1.6

Grounds

	mOhm values	Actual	Delta
Board	**Position**	**Initial**	**Gas Tight**
1	P14	5.0	0.1
1	P15	5.2	0.1
2	P14	4.6	0.0
2	P15	5.7	0.1
3	P14	5.6	0.0
3	P15	5.5	-0.1
4	P14	5.3	0.0
4	P15	5.3	0.0
5	P14	5.6	0.0
5	P15	5.8	0.0
6	P14	5.0	0.1
6	P15	5.2	0.2
7	P14	5.6	0.0
7	P15	5.6	0.0
8	P14	5.3	0.0
8	P15	5.3	0.0
9	P14	5.2	0.0
9	P15	5.3	0.0

EQUIPMENT AND CALIBRATION SCHEDULES

Equipment #: MO-01
Description: Micro-Ohmeter
Manufacturer: Keithley
Model: 580
Serial #: 0772740
Accuracy: See Manual
… Last Cal: 06/16/09, Next Cal: 06/16/2010

Equipment #: MO-03
Description: Multimeter /Data Acquisition System
Manufacturer: Keithley
Model: 2700
Serial #: 0791975
Accuracy: See Manual
… Last Cal: 06/16/09, Next Cal: 06/16/2010

Equipment #: TCT-03
Description: Dillon Quantrol TC2 Test Stand
Manufacturer: Dillon Quantrol
Model: TC2
Serial #: 02-1033-03
Accuracy: Speed Accuracy: +/- 5% of indicated speed; Displacement: +/- 5 micrometers.
… Last Cal: 5/12/2009, Next Cal: 5/6/2010

Equipment #: TCT-04
Description: Dillon Quantrol TC21 25-1000 mm/min series test stand
Manufacturer: Dillon Quantrol
Model: TC2 I series test stand
Serial #: 04-1041-04
Accuracy: Speed Accuracy: +/- 5% of indicated speed; Speed Accuracy: +/- 5% of indicated speed;
… Last Cal: 5/12/2009, Next Cal: 5/12/2010

Equipment #: TCT-06
Description: Test Resources test stand
Manufacturer: Test Resources
Model:
Serial #:
Accuracy: Speed Accuracy: +/- 5% of indicated speed; Displacement: +/- 5 micrometers.
… Last Cal: 05/07/2009, Next Cal: 05/07/2010

Equipment #: THC-01
Description: Temperature/Humidity Chamber
Manufacturer: Thermotron
Model: SM-8-7800
Serial #: 30676
Accuracy: See Manual
… Last Cal: 04/07/2009, Next Cal: 04/07/2010

Equipment #: THC-04
Description: Temperature/Humidity Chamber
Manufacturer: Thermotron
Model: SM-8-3800
Serial #: 37782
Accuracy: See Manual See Manual
… Last Cal: 04/07/2009, Next Cal: 04/07/2010

Equipment #: OV-03
Description: Cascade Tek Forced Air Oven
Manufacturer: Cascade Tek
Model: TFO-5
Serial #: 0500100
Accuracy: Temp. Stability: +/-.1C/C change in ambient
… Last Cal: 06/17/2009, Next Cal: 06/17/2010

Equipment #: OV-5
Description: Forced Air Oven, 5 Cu. Ft., 120 V
Manufacturer: Sheldon Mfg.
Model: CE5F
Serial #: 02008008
Accuracy: +/- 5 deg. C
… Last Cal: 02/19/2009, Next Cal: 02/19/2010

Equipment #: HPM-01
Description: Hipot Megommeter
Manufacturer: Hipotronics
Model: H306B-A
Serial #: M9905004
Accuracy: 2 % Full Scale Accuracy
… Last Cal: 11/24/08, Next Cal: 11/24/09

Equipment #: MV-05
Description: 6" x 6" Video Measuring Machine
Manufacturer: Micro-Vu
Model: M3010838
Serial #: 0772740
Accuracy: See Manual
… Last Cal: 02/10/2009, Next Cal: 02/10/2010

Equipment #: MV-08
Description: 6" x 6" Video Measuring Machine
Manufacturer: Micro-Vu
Model: M3010898
Serial #: V9472
Accuracy: See Manual
… Last Cal: 02/10/2009, Next Cal: 02/10/2010