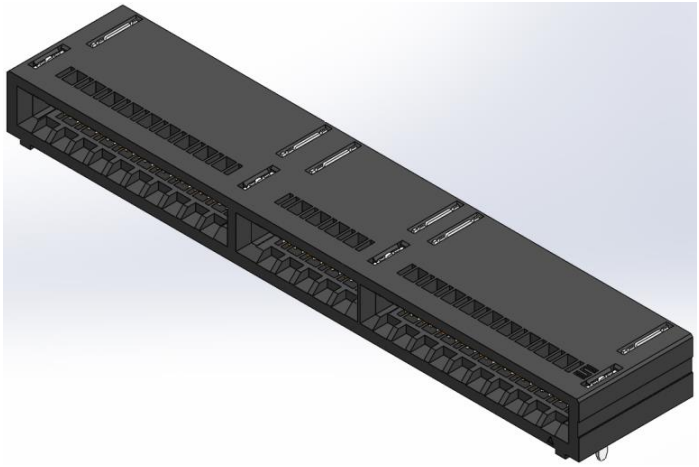
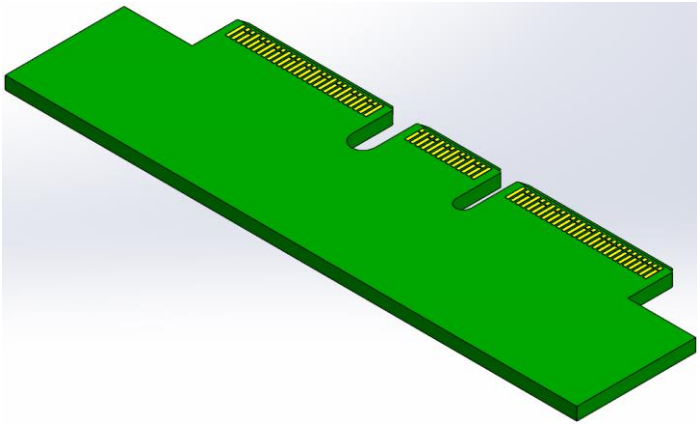
Project Number: Design Qualification Test Report	Tracking Code: CR-1140401_Report_Rev_1
Requested by: Josh Ketron	Date: 5/22/2025
Part #: HSEC6-070-01-S-RA-WT/EDGE CARD	
Part description: HSEC6/CARD	Tech: Richard Ison, Tony Wagoner
Test Start: 8/9/2024	Test Completed: 10/25/2024





DESIGN QUALIFICATION TEST REPORT

HSEC6/CARD
HSEC6-070-01-S-RA-WT/EDGE CARD

REVISION HISTORY

DATA	REV.NUM.	DESCRIPTION	ENG
5/22/2025	**1**	**Initial test**	**KH**

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 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 CO-SC-WI-3029.
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) Samtec Test PCBs used: PCB-114068-TST-XX, PCB-114093-TST-XX, PCB-114097-TST-XX, PCB-114099-TST-XX, PCB-114103-TST-XX, PCB-114104-TST-XX, PCB-114105-TST-XX.

FLOWCHARTS

Gas Tight

Group 1
HSEC6-070-01-S-RA-WT
0.057" EDGE CARD
8 Assemblies
Min Card
*Note: ***Please verify edge card thickness before starting sequence.*

Step	Description
1.	LLCR (2)
2.	Gas Tight (1)
3.	LLCR (2) Max Delta = 15 mOhm

(1) Gas Tight = EIA-364-36

(2) LLCR = EIA-364-23
Open Circuit Voltage = 20 mV Max
Test Current = 100 mA Max

Normal Force

Group 1
HSEC6-070-01-S-RA-WT
8 Contacts Minimum
Signal Without Thermals

Step	Description
1.	Contact Gaps
2.	Normal Force (1) Deflection = 0.020 " Expected Force at Max Deflection = 54 g

Group 2
HSEC6-070-01-S-RA-WT
0.067" EDGE CARD
8 Contacts Minimum
Signal With Thermals

Step	Description
1.	Contact Gaps
2.	Thermal Age (2)
3.	Contact Gaps
4.	Normal Force (1) Deflection = 0.020 " Expected Force at Max Deflection = 54 g

Group 3
HSEC6-070-01-S-RA-WT
8 Contacts Minimum
Ground Without Thermals

Step	Description
1.	Contact Gaps
2.	Normal Force (1) Deflection = 0.020 " Expected Force at Max Deflection = 54 g

Group 4
HSEC6-070-01-S-RA-WT
0.067" EDGE CARD
8 Contacts Minimum
Ground With Thermals

Step	Description
1.	Contact Gaps
2.	Thermal Age (2)
3.	Contact Gaps
4.	Normal Force (1) Deflection = 0.020 " Expected Force at Max Deflection = 54 g

(1) Normal Force = EIA-364-04

(2) Thermal Age = EIA-364-17
Test Condition = 4 (105°C)
Time Condition = B (250 Hours)

FLOWCHARTS Continued

Thermal Aging

*Note: ***Please verify edge card thickness before starting sequence.*

Group 1 HSEC6-070-01-S-RA-WT 0.067" EDGE CARD 8 Assemblies Max Card		Group 2 HSEC6-070-01-S-RA-WT 0.057" EDGE CARD 8 Assemblies Min Card	
Step	**Description**	**Step**	**Description**
1.	Contact Gaps	1.	Contact Gaps
2.	Mating/Unmating Force (2)	2.	Mating/Unmating Force (2)
3.	LLCR (1)	3.	LLCR (1)
4.	Thermal Age (3)	4.	Thermal Age (3)
5.	LLCR (1) Max Delta = 15 mOhm	5.	LLCR (1) Max Delta = 15 mOhm
6.	Mating/Unmating Force (2)	6.	Mating/Unmating Force (2)
7.	Contact Gaps	7.	Contact Gaps

(1) LLCR = EIA-364-23
Open Circuit Voltage = 20 mV Max
Test Current = 100 mA Max

(2) Mating/Unmating Force = EIA-364-13

(3) Thermal Age = EIA-364-17
Test Condition = 4 (105°C)
Time Condition = B (250 Hours)

FLOWCHARTS Continued

Mating/Unmating/Durability

*Note: ***Please verify edge card thickness before starting sequence.*

Group 1 HSEC6-070-01-S-RA-WT 0.067" EDGE CARD 8 Assemblies Max Card	
Step	**Description**
1.	Contact Gaps
2.	LLCR (2)
3.	Mating/Unmating Force (3)
4.	Cycles Quantity = 25 Cycles
5.	Mating/Unmating Force (3)
6.	Contact Gaps
7.	LLCR (2) Max Delta = 15 mOhm
8.	Thermal Shock (4)
9.	LLCR (2) Max Delta = 15 mOhm
10.	Humidity (1)
11.	LLCR (2) Max Delta = 15 mOhm
12.	Mating/Unmating Force (3)

Group 2 HSEC6-070-01-S-RA-WT 0.057" EDGE CARD 8 Assemblies Min Card	
Step	**Description**
1.	Contact Gaps
2.	LLCR (2)
3.	Mating/Unmating Force (3)
4.	Cycles Quantity = 25 Cycles
5.	Mating/Unmating Force (3)
6.	Contact Gaps
7.	LLCR (2) Max Delta = 15 mOhm
8.	Thermal Shock (4)
9.	LLCR (2) Max Delta = 15 mOhm
10.	Humidity (1)
11.	LLCR (2) Max Delta = 15 mOhm
12.	Mating/Unmating Force (3)

Group 3 HSEC6-028-01-S-RA-WT 0.067" EDGE CARD 8 Assemblies Max Card	
Step	**Description**
1.	Contact Gaps
2.	Mating/Unmating Force (3)
3.	Cycles Quantity = 25 Cycles
4.	Mating/Unmating Force (3)

(1) Humidity = EIA-364-31
Test Condition = B (240 Hours)
Test Method = III (+25°C to +65°C @ 90% RH to 98% RH)
Test Exceptions: ambient pre-condition and delete steps 7a and 7b

(2) LLCR = EIA-364-23
Open Circuit Voltage = 20 mV Max
Test Current = 100 mA Max

(3) Mating/Unmating Force = EIA-364-13

(4) Thermal Shock = EIA-364-32
Exposure Time at Temperature Extremes = 1/2 Hour
Method A, Test Condition = I (-55°C to +85°C)
Test Duration = A-3 (100 Cycles)

FLOWCHARTS Continued

IR/DWV

Pin-to-Pin

Group 1 HSEC6-070-01-S-RA-WT 0.057" EDGE CARD 2 Assemblies		Group 2 HSEC6-070-01-S-RA-WT 2 Assemblies		Group 3 HSEC6-070-01-S-RA-WT 0.057" EDGE CARD 2 Assemblies	
Step	**Description**	**Step**	**Description**	**Step**	**Description**
1.	DWV Breakdown (2)	1.	DWV Breakdown (2)	1.	IR (4)
				2.	DWV at Test Voltage (1)
				3.	Thermal Shock (5)
				4.	IR (4)
				5.	DWV at Test Voltage (1)
				6.	Humidity (3)
				7.	IR (4)
				8.	DWV at Test Voltage (1)

Row-to-Row

Group 4 HSEC6-070-01-S-RA-WT 0.057" EDGE CARD 2 Assemblies		Group 5 HSEC6-070-01-S-RA-WT 2 Assemblies		Group 6 HSEC6-070-01-S-RA-WT 0.057" EDGE CARD 2 Assemblies	
Step	**Description**	**Step**	**Description**	**Step**	**Description**
1.	DWV Breakdown (2)	1.	DWV Breakdown (2)	1.	IR (4)
				2.	DWV at Test Voltage (1)
				3.	Thermal Shock (5)
				4.	IR (4)
				5.	DWV at Test Voltage (1)
				6.	Humidity (3)
				7.	IR (4)
				8.	DWV at Test Voltage (1)

(1) DWV at Test Voltage = EIA-364-20
Test Condition = 1 (Sea Level)
DWV test voltage is equal to 75% of the lowest breakdown voltage
Test voltage applied for 60 seconds

(2) DWV Breakdown = EIA-364-20
Test Condition = 1 (Sea Level)
DWV test voltage is equal to 75% of the lowest breakdown voltage
Test voltage applied for 60 seconds

(3) Humidity = EIA-364-31
Test Condition = B (240 Hours)
Test Method = III (+25°C to +65°C @ 90% RH to 98% RH)
Test Exceptions: ambient pre-condition and delete steps 7a and 7b

(4) IR = EIA-364-21
Test Condition = 500 Vdc, 2 Minutes Max

(5) Thermal Shock = EIA-364-32
Exposure Time at Temperature Extremes =1/2 Hour
Method A, Test Condition = I (-55°C to +85°C)
Test Duration = A-3 (100 Cycles)

FLOWCHARTS Continued

Current Carrying Capacity

Group 1
HSEC6-070-01-S-RA-WT
0.067" EDGE CARD
2 Pins Powered
Signal

Step	Description
1.	CCC (1) Rows = 2 Number of Positions = 1

Group 2
HSEC6-070-01-S-RA-WT
0.067" EDGE CARD
4 Pins Powered
Signal

Step	Description
1.	CCC (1) Rows = 2 Number of Positions = 2

Group 3
HSEC6-070-01-S-RA-WT
0.067" EDGE CARD
6 Pins Powered
Signal

Step	Description
1.	CCC (1) Rows = 2 Number of Positions = 3

Group 4
HSEC6-070-01-S-RA-WT
0.067" EDGE CARD
8 Pins Powered
Signal

Step	Description
1.	CCC (1) Rows = 2 Number of Positions = 4

Group 5
HSEC6-070-01-S-RA-WT
0.067" EDGE CARD
88 Pins Powered
Signal Only

Step	Description
1.	CCC (1) Rows = 2 Number of Positions = 44

Group 6
HSEC6-070-01-S-RA-WT
0.067" EDGE CARD
52 Pins Powered
Ground Only

Step	Description
1.	CCC (1) Rows = 2 Number of Positions = 26

Group 7
HSEC6-070-01-S-RA-WT
0.067" EDGE CARD
140 Pins Powered
Signal & Ground

Step	Description
1.	CCC (1) Rows = 2 Number of Positions = 70

(1) CCC = EIA-364-70
Method 2, Temperature Rise Versus Current Curve
(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

FLOWCHARTS Continued

Mechanical Shock/Random Vibration/LLCR

*Note: ***Please verify edge card thickness before starting sequence.*

Group 1 HSEC6-070-01-S-RA-WT 0.057" EDGE CARD 8 Assemblies Min Card		Group 2 HSEC6-070-01-S-RA-WT 0.067" EDGE CARD 8 Assemblies Max Card	
Step	**Description**	**Step**	**Description**
1.	LLCR (1)	1.	LLCR (1)
2.	Mechanical Shock (2)	2.	Mechanical Shock (2)
3.	Random Vibration (3)	3.	Random Vibration (3)
4.	LLCR (1) Max Delta = 15 mOhm	4.	LLCR (1) Max Delta = 15 mOhm

(1) LLCR = EIA-364-23
Open Circuit Voltage = 20 mV Max
Test Current = 100 mA Max

(2) Mechanical Shock = EIA-364-27
Test Condition = C (100 G Peak, 6 milliseconds, Half Sine)
Number of Shocks = 3 Per Direction, Per Axis, 18 Total

(3) Random Vibration = EIA-364-28
Condition = VB (7.56 gRMS Average, 2 Hours/Axis)

Mechanical Shock/Random Vibration/Event Detection

*Note: ***Please verify edge card thickness before starting sequence.*

Group 1 HSEC6-070-01-S-RA-WT 0.057" EDGE CARD 60 Points Min Card	
Step	**Description**
1.	Nanosecond Event Detection (Mechanical Shock) (1)
2.	Nanosecond Event Detection (Random Vibration) (2)

(1) Nanosecond Event Detection (Mechanical Shock)
Use EIA-364-87 for Nanosecond Event Detection:
Test Condition = F (50 nanoseconds at 10 ohms)
Use EIA-364-27 for Mechanical Shock:
Test Condition = C (100 G Peak, 6 milliseconds, Half Sine)
Number of Shocks = 3 Per Direction, Per Axis, 18 Total

(2) Nanosecond Event Detection (Random Vibration)
Use EIA-364-87 for Nanosecond Event Detection:
Test Condition = F (50 nanoseconds at 10 ohms)
Use EIA-364-28 for Random Vibration:
Condition = VB (7.56 gRMS Average, 2 Hours/Axis)

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 I: -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 G^2 / 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

MATING/UNMATING:

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

ATTRIBUTE DEFINITIONS Continued

The following is a brief, simplified description of attributes.

NORMAL FORCE (FOR CONTACTS TESTED 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.

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 four temperature points are reported:
    a. Ambient
    b. 85^{o} C
    c. 95^{o} C
    d. 115^{o} C
8) Typically, neighboring contacts (in close proximity to maximize heat buildup) 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 Continued

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. <= +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 +1000 mOhms: ----------Unstable
    f. >+1000 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. <= +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 +1000 mOhms:----------Unstable
    f. >+1000 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 inch 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.

ATTRIBUTE DEFINITIONS Continued

The following is a brief, simplified description of attributes.

INSULATION RESISTANCE (IR):

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

1) PROCEDURE:
    a. Reference document: EIA-364-21, *Insulation Resistance Test Procedure for Electrical Connectors*.
    b. Test Conditions:
        i. Between Adjacent Contacts or Signal-to-Ground
        ii. Electrification Time 2.0 minutes
        iii. Test Voltage (500 VDC) corresponds to calibration settings for measuring resistances.
2) MEASUREMENTS:
3) When the specified test voltage is applied (VDC), the insulation resistance shall not be less than 1000 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).

RESULTS

Temperature Rise, CCC at a 20% de-rating

Ground Pin

- **CCC for a 30°C Temperature Rise----------0.65 A per contact with 52 contacts (2x26) powered.**

Signal Pin

- **CCC for a 30°C Temperature Rise----------1.50 A per contact with 2 contacts (2x1) powered.**
- **CCC for a 30°C Temperature Rise----------1.21 A per contact with 4 contacts (2x2) powered.**
- **CCC for a 30°C Temperature Rise----------1.02 A per contact with 6 contacts (2x3) powered.**
- **CCC for a 30°C Temperature Rise----------0.94 A per contact with 8 contacts (2x4) powered.**
- **CCC for a 30°C Temperature Rise----------0.50 A per contact with 88 contacts (2x44) powered.**

ALL GROUND POSITIONS with SIGNAL@1/2 rated current

- **CCC for a 30°C Temperature Rise----------0.54 A per contact (2) with signal powered @ ½ rated current (0.3 A).**

Mating – Unmating Forces

Thermal Aging Group

Group1 mate 0.067" EDGE CARD

- **Initial**
  - **Mating**
    - **Min ----------15.11 lbs**
    - **Max----------20.37 lbs**
  - **Unmating**
    - **Min ---------- 4.15 lbs**
    - **Max---------- 5.68 lbs**
- **After Thermal**
  - **Mating**
    - **Min ---------- 7.60 lbs**
    - **Max----------11.89 lbs**
  - **Unmating**
    - **Min ---------- 3.01 lbs**
    - **Max---------- 3.98 lbs**

Group2 mate 0.057" EDGE CARD

- **Initial**
  - **Mating**
    - **Min ----------14.28 lbs**
    - **Max----------21.80 lbs**
  - **Unmating**
    - **Min ---------- 4.00 lbs**
    - **Max---------- 4.92 lbs**
- **After Thermal**
  - **Mating**
    - **Min ---------- 7.24 lbs**
    - **Max----------11.60 lbs**
  - **Unmating**
    - **Min ---------- 2.45 lbs**
    - **Max---------- 3.34 lbs**

RESULTS Continued

Mating/Unmating Durability Group

Group1 mate 0.067" EDGE CARD

- **Initial**
  - **Mating**
    - **Min ----------15.16 lbs**
    - **Max----------25.18 lbs**
  - **Unmating**
    - **Min ---------- 4.29 lbs**
    - **Max---------- 6.82 lbs**
- **After 25 Cycles**
  - **Mating**
    - **Min ----------15.09 lbs**
    - **Max----------22.89 lbs**
  - **Unmating**
    - **Min ---------- 5.86 lbs**
    - **Max---------- 8.06 lbs**
- **After Humidity**
  - **Mating**
    - **Min ---------- 9.34 lbs**
    - **Max----------14.92 lbs**
  - **Unmating**
    - **Min ---------- 3.48 lbs**
    - **Max---------- 4.69 lbs**

Group2 mate 0.057" EDGE CARD

- **Initial**
  - **Mating**
    - **Min ----------12.83 lbs**
    - **Max----------16.83 lbs**
  - **Unmating**
    - **Min ---------- 3.69 lbs**
    - **Max---------- 4.69 lbs**
- **After 25 Cycles**
  - **Mating**
    - **Min ----------11.38 lbs**
    - **Max----------13.70 lbs**
  - **Unmating**
    - **Min ---------- 3.80 lbs**
    - **Max---------- 5.54 lbs**
- **After Humidity**
  - **Mating**
    - **Min ---------- 7.81 lbs**
    - **Max---------- 9.61 lbs**
  - **Unmating**
    - **Min ---------- 2.64 lbs**
    - **Max---------- 3.71 lbs**

RESULTS Continued

Mating/Unmating Durability Group

Group3 mate 0.067" EDGE CARD

- **Initial**
  - **Mating**
    - **Min ---------- 5.41 lbs**
    - **Max---------- 7.67 lbs**
  - **Unmating**
    - **Min ---------- 2.03 lbs**
    - **Max---------- 4.31 lbs**
- **After 25 Cycles**
  - **Mating**
    - **Min ---------- 5.31 lbs**
    - **Max---------- 7.28 lbs**
  - **Unmating**
    - **Min ---------- 3.96 lbs**
    - **Max---------- 5.08 lbs**

Normal Force at 0.0152-inch deflection

Signal Pin C-499

- **Initial**
  - **Min----------81.50 gf Set ----- 0.0000 in**
  - **Max ----------85.20 gf Set ----- 0.0001 in**
- **Thermal**
  - **Min----------52.60 gf Set----- 0.0037 in**
  - **Max ----------69.50 gf Set----- 0.0048 in**

Signal Pin C-500

- **Initial**
  - **Min----------68.70 gf Set ----- 0.0000 in**
  - **Max ----------74.30 gf Set ----- 0.0000 in**
- **Thermal**
  - **Min----------48.10 gf Set----- 0.0038 in**
  - **Max ----------54.70 gf Set----- 0.0049 in**

Grounds Pin C-499

- **Initial**
  - **Min---------- 107.10 gf Set ----- 0.0000 in**
  - **Max ---------- 120.50 gf Set ----- 0.0002 in**
- **Thermal**
  - **Min----------78.50 gf Set----- 0.0033 in**
  - **Max ----------99.20 gf Set----- 0.0043 in**

Grounds Pin C-500

- **Initial**
  - **Min----------75.80 gf Set ----- 0.0001 in**
  - **Max ----------82.30 gf Set ----- 0.0003 in**
- **Thermal**
  - **Min----------56.30 gf Set----- 0.0034 in**
  - **Max ----------62.80 gf Set----- 0.0042 in**

RESULTS Continued

Insulation Resistance minimums, IR

Pin to Pin

- **Initial**
  - **Mated ---------- 45000 Meg Ω ---------- Passed**
  - **Unmated ---------- 45000 Meg Ω ---------- Passed**
- **Thermal Shock**
  - **Mated ---------- 45000 Meg Ω ---------- Passed**
  - **Unmated ---------- 45000 Meg Ω ---------- Passed**
- **Humidity**
  - **Mated ---------- 6400 Meg Ω ---------- Passed**
  - **Unmated ---------- 5600 Meg Ω ---------- Passed**

Row to Row

- **Initial**
  - **Mated ---------- 45000 Meg Ω ---------- Passed**
  - **Unmated ---------- 45000 Meg Ω ---------- Passed**
- **Thermal Shock**
  - **Mated ---------- 45000 Meg Ω ---------- Passed**
  - **Unmated ---------- 45000 Meg Ω ---------- Passed**
- **Humidity**
  - **Mated ---------- 45000 Meg Ω ---------- Passed**
  - **Unmated ---------- 45000 Meg Ω ---------- Passed**

Dielectric Withstanding Voltage minimums, DWV

- **Minimums**
  - **Breakdown Voltage ---------- 740 VAC**
  - **Test Voltage ---------- 555 VAC**
  - **Working Voltage ---------- 185 VAC**

Pin to Pin

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

Row to Row

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

RESULTS Continued

LLCR Gas Tight (304 signal and 176 ground LLCR test points)

Signal Pin C-499

- **Initial ---------- 27.10 mOhms Max**
- **Gas-Tight**
  - **<= +5.0 mOhms ---------- 152 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 +1000 mOhms----------0 Points ---------- Unstable**
  - **>+1000 mOhms----------0 Points ---------- Open Failure**

Signal Pin C-500

- **Initial ---------- 35.00 mOhms Max**
- **Gas-Tight**
  - **<= +5.0 mOhms ---------- 142 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ----------8 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ----------2 Points ---------- Acceptable**
  - **+15.1 to +50.0 mOhms ----------0 Points ---------- Marginal**
  - **+50.1 to +1000 mOhms----------0 Points ---------- Unstable**
  - **>+1000 mOhms----------0 Points ---------- Open Failure**

Ground Pin C-499

- **Initial ---------- 22.41 mOhms Max**
- **Gas-Tight**
  - **<= +5.0 mOhms ----------88 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 +1000 mOhms----------0 Points ---------- Unstable**
  - **>+1000 mOhms----------0 Points ---------- Open Failure**

Ground Pin C-500

- **Initial ---------- 35.80 mOhms Max**
- **Gas-Tight**
  - **<= +5.0 mOhms ----------85 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ----------2 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ----------1 Points ---------- Acceptable**
  - **+15.1 to +50.0 mOhms ----------0 Points ---------- Marginal**
  - **+50.1 to +1000 mOhms----------0 Points ---------- Unstable**
  - **>+1000 mOhms----------0 Points ---------- Open Failure**

RESULTS Continued

LLCR Thermal Aging Group (304 signal and 176 ground LLCR test points)

Group1 mate 0.067" EDGE CARD

Signal Pin C-499

- **Initial ---------- 25.07 mOhms Max**
- **Thermal**
  - **<= +5.0 mOhms ---------- 151 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 0 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ---------- 1 Points ---------- Acceptable**
  - **+15.1 to +50.0 mOhms ---------- 0 Points ---------- Marginal**
  - **+50.1 to +1000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+1000 mOhms ---------- 0 Points ---------- Open Failure**

Signal Pin C-500

- **Initial ---------- 33.93 mOhms Max**
- **Thermal**
  - **<= +5.0 mOhms ---------- 152 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 +1000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+1000 mOhms ---------- 0 Points ---------- Open Failure**

Ground Pin C-499

- **Initial ---------- 20.68 mOhms Max**
- **Thermal**
  - **<= +5.0 mOhms ---------- 88 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 +1000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+1000 mOhms ---------- 0 Points ---------- Open Failure**

Ground Pin C-500

- **Initial ---------- 34.68 mOhms Max**
- **Thermal**
  - **<= +5.0 mOhms ---------- 85 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 3 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ---------- 0 Points ---------- Acceptable**
  - **+15.1 to +50.0 mOhms ---------- 0 Points ---------- Marginal**
  - **+50.1 to +1000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+1000 mOhms ---------- 0 Points ---------- Open Failure**

RESULTS Continued

LLCR Thermal Aging Group (304 signal and 176 ground LLCR test points)

Group2 mate 0.057" EDGE CARD

Signal Pin C-499

- **Initial ---------- 25.30 mOhms Max**
- **Thermal**
  - **<= +5.0 mOhms ---------- 138 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 14 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ---------- 0 Points ---------- Acceptable**
  - **+15.1 to +50.0 mOhms ---------- 0 Points ---------- Marginal**
  - **+50.1 to +1000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+1000 mOhms ---------- 0 Points ---------- Open Failure**

Signal Pin C-500

- **Initial ---------- 35.19 mOhms Max**
- **Thermal**
  - **<= +5.0 mOhms ---------- 147 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 4 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ---------- 1 Points ---------- Acceptable**
  - **+15.1 to +50.0 mOhms ---------- 0 Points ---------- Marginal**
  - **+50.1 to +1000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+1000 mOhms ---------- 0 Points ---------- Open Failure**

Ground Pin C-499

- **Initial ---------- 21.37 mOhms Max**
- **Thermal**
  - **<= +5.0 mOhms ---------- 85 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 3 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ---------- 0 Points ---------- Acceptable**
  - **+15.1 to +50.0 mOhms ---------- 0 Points ---------- Marginal**
  - **+50.1 to +1000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+1000 mOhms ---------- 0 Points ---------- Open Failure**

Ground Pin C-500

- **Initial ---------- 35.24 mOhms Max**
- **Thermal**
  - **<= +5.0 mOhms ---------- 86 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 2 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ---------- 0 Points ---------- Acceptable**
  - **+15.1 to +50.0 mOhms ---------- 0 Points ---------- Marginal**
  - **+50.1 to +1000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+1000 mOhms ---------- 0 Points ---------- Open Failure**

RESULTS Continued

LLCR Durability (304 signal and 176 ground LLCR test points)

Group1 mate 0.067" EDGE CARD

Signal Pin C-499

- **Initial ---------- 24.45 mOhms Max**
- **Durability, 25 Cycles**
  - **<= +5.0 mOhms ---------- 151 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 +1000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+1000 mOhms ---------- 0 Points ---------- Open Failure**
- **Thermal Shock**
  - **<= +5.0 mOhms ---------- 148 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 4 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ---------- 0 Points ---------- Acceptable**
  - **+15.1 to +50.0 mOhms ---------- 0 Points ---------- Marginal**
  - **+50.1 to +1000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+1000 mOhms ---------- 0 Points ---------- Open Failure**
- **Humidity**
  - **<= +5.0 mOhms ---------- 150 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 2 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ---------- 0 Points ---------- Acceptable**
  - **+15.1 to +50.0 mOhms ---------- 0 Points ---------- Marginal**
  - **+50.1 to +1000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+1000 mOhms ---------- 0 Points ---------- Open Failure**

Signal Pin C-500

- **Initial ---------- 35.37 mOhms Max**
- **Durability, 25 Cycles**
  - **<= +5.0 mOhms ---------- 151 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 +1000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+1000 mOhms ---------- 0 Points ---------- Open Failure**
- **Thermal Shock**
  - **<= +5.0 mOhms ---------- 151 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 +1000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+1000 mOhms ---------- 0 Points ---------- Open Failure**
- **Humidity**
  - **<= +5.0 mOhms ---------- 140 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 11 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ---------- 1 Points ---------- Acceptable**
  - **+15.1 to +50.0 mOhms ---------- 0 Points ---------- Marginal**
  - **+50.1 to +1000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+1000 mOhms ---------- 0 Points ---------- Open Failure**

RESULTS Continued

Ground Pin C-499

- **Initial ---------- 21.10 mOhms Max**
- **Durability, 25 Cycles**
  - **<= +5.0 mOhms ---------- 87 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 +1000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+1000 mOhms ---------- 0 Points ---------- Open Failure**
- **Thermal Shock**
  - **<= +5.0 mOhms ---------- 85 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 3 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ---------- 0 Points ---------- Acceptable**
  - **+15.1 to +50.0 mOhms ---------- 0 Points ---------- Marginal**
  - **+50.1 to +1000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+1000 mOhms ---------- 0 Points ---------- Open Failure**
- **Humidity**
  - **<= +5.0 mOhms ---------- 88 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 +1000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+1000 mOhms ---------- 0 Points ---------- Open Failure**

Ground Pin C-500

- **Initial ---------- 34.64 mOhms Max**
- **Durability, 25 Cycles**
  - **<= +5.0 mOhms ---------- 88 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 +1000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+1000 mOhms ---------- 0 Points ---------- Open Failure**
- **Thermal Shock**
  - **<= +5.0 mOhms ---------- 88 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 +1000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+1000 mOhms ---------- 0 Points ---------- Open Failure**
- **Humidity**
  - **<= +5.0 mOhms ---------- 85 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 3 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ---------- 0 Points ---------- Acceptable**
  - **+15.1 to +50.0 mOhms ---------- 0 Points ---------- Marginal**
  - **+50.1 to +1000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+1000 mOhms ---------- 0 Points ---------- Open Failure**

RESULTS Continued

Group2 mate 0.057" EDGE CARD

Signal Pin C-499

- **Initial ---------- 26.95 mOhms Max**
- **Durability, 25 Cycles**
  - **<= +5.0 mOhms ---------- 150 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ----------2 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ----------0 Points ---------- Acceptable**
  - **+15.1 to +50.0 mOhms ----------0 Points ---------- Marginal**
  - **+50.1 to +1000 mOhms----------0 Points ---------- Unstable**
  - **>+1000 mOhms----------0 Points ---------- Open Failure**
- **Thermal Shock**
  - **<= +5.0 mOhms ---------- 149 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ----------3 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ----------0 Points ---------- Acceptable**
  - **+15.1 to +50.0 mOhms ----------0 Points ---------- Marginal**
  - **+50.1 to +1000 mOhms----------0 Points ---------- Unstable**
  - **>+1000 mOhms----------0 Points ---------- Open Failure**
- **Humidity**
  - **<= +5.0 mOhms ---------- 147 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ----------5 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ----------0 Points ---------- Acceptable**
  - **+15.1 to +50.0 mOhms ----------0 Points ---------- Marginal**
  - **+50.1 to +1000 mOhms----------0 Points ---------- Unstable**
  - **>+1000 mOhms----------0 Points ---------- Open Failure**

Signal Pin C-500

- **Initial ---------- 36.49 mOhms Max**
- **Durability, 25 Cycles**
  - **<= +5.0 mOhms ---------- 152 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 +1000 mOhms----------0 Points ---------- Unstable**
  - **>+1000 mOhms----------0 Points ---------- Open Failure**
- **Thermal Shock**
  - **<= +5.0 mOhms ---------- 151 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 +1000 mOhms----------0 Points ---------- Unstable**
  - **>+1000 mOhms----------0 Points ---------- Open Failure**
- **Humidity**
  - **<= +5.0 mOhms ---------- 150 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ----------2 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ----------0 Points ---------- Acceptable**
  - **+15.1 to +50.0 mOhms ----------0 Points ---------- Marginal**
  - **+50.1 to +1000 mOhms----------0 Points ---------- Unstable**
  - **>+1000 mOhms----------0 Points ---------- Open Failure**

RESULTS Continued

Ground Pin C-499

- **Initial ---------- 26.64 mOhms Max**
- **Durability, 25 Cycles**
  - **<= +5.0 mOhms ---------- 86 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 2 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ---------- 0 Points ---------- Acceptable**
  - **+15.1 to +50.0 mOhms ---------- 0 Points ---------- Marginal**
  - **+50.1 to +1000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+1000 mOhms ---------- 0 Points ---------- Open Failure**
- **Thermal Shock**
  - **<= +5.0 mOhms ---------- 86 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 2 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ---------- 0 Points ---------- Acceptable**
  - **+15.1 to +50.0 mOhms ---------- 0 Points ---------- Marginal**
  - **+50.1 to +1000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+1000 mOhms ---------- 0 Points ---------- Open Failure**
- **Humidity**
  - **<= +5.0 mOhms ---------- 84 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 4 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ---------- 0 Points ---------- Acceptable**
  - **+15.1 to +50.0 mOhms ---------- 0 Points ---------- Marginal**
  - **+50.1 to +1000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+1000 mOhms ---------- 0 Points ---------- Open Failure**

Ground Pin C-500

- **Initial ---------- 37.03 mOhms Max**
- **Durability, 25 Cycles**
  - **<= +5.0 mOhms ---------- 87 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 +1000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+1000 mOhms ---------- 0 Points ---------- Open Failure**
- **Thermal Shock**
  - **<= +5.0 mOhms ---------- 88 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 +1000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+1000 mOhms ---------- 0 Points ---------- Open Failure**
- **Humidity**
  - **<= +5.0 mOhms ---------- 88 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 +1000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+1000 mOhms ---------- 0 Points ---------- Open Failure**

RESULTS Continued

LLCR Shock & Vibration (304 signal and 176 ground LLCR test points)

Group1 mate 0.067" EDGE CARD

Signal Pin C-499

- **Initial ---------- 24.32 mOhms Max**
- **Shock &Vibration**
  - **<= +5.0 mOhms ---------- 152 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 +1000 mOhms----------0 Points ---------- Unstable**
  - **>+1000 mOhms----------0 Points ---------- Open Failure**

Signal Pin C-500

- **Initial ---------- 34.56 mOhms Max**
- **Shock &Vibration**
  - **<= +5.0 mOhms ---------- 151 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 +1000 mOhms----------0 Points ---------- Unstable**
  - **>+1000 mOhms----------0 Points ---------- Open Failure**

Ground Pin C-499

- **Initial ---------- 21.20 mOhms Max**
- **Shock &Vibration**
  - **<= +5.0 mOhms ----------88 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 +1000 mOhms----------0 Points ---------- Unstable**
  - **>+1000 mOhms----------0 Points ---------- Open Failure**

Ground Pin C-500

- **Initial ---------- 34.87 mOhms Max**
- **Shock &Vibration**
  - **<= +5.0 mOhms ----------88 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 +1000 mOhms----------0 Points ---------- Unstable**
  - **>+1000 mOhms----------0 Points ---------- Open Failure**

RESULTS Continued

Group2 mate 0.057" EDGE CARD

Signal Pin C-499

- **Initial ---------- 27.72 mOhms Max**
- **Shock &Vibration**
  - **<= +5.0 mOhms ---------- 152 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 +1000 mOhms----------0 Points ---------- Unstable**
  - **>+1000 mOhms----------0 Points ---------- Open Failure**

Signal Pin C-500

- **Initial ---------- 35.12 mOhms Max**
- **Shock &Vibration**
  - **<= +5.0 mOhms ---------- 152 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 +1000 mOhms----------0 Points ---------- Unstable**
  - **>+1000 mOhms----------0 Points ---------- Open Failure**

Ground Pin C-499

- **Initial ---------- 22.42 mOhms Max**
- **Shock &Vibration**
  - **<= +5.0 mOhms ----------88 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 +1000 mOhms----------0 Points ---------- Unstable**
  - **>+1000 mOhms----------0 Points ---------- Open Failure**

Ground Pin C-500

- **Initial ---------- 35.30 mOhms Max**
- **Shock &Vibration**
  - **<= +5.0 mOhms ----------88 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 +1000 mOhms----------0 Points ---------- Unstable**
  - **>+1000 mOhms----------0 Points ---------- Open Failure**

Mechanical Shock & Random Vibration:

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

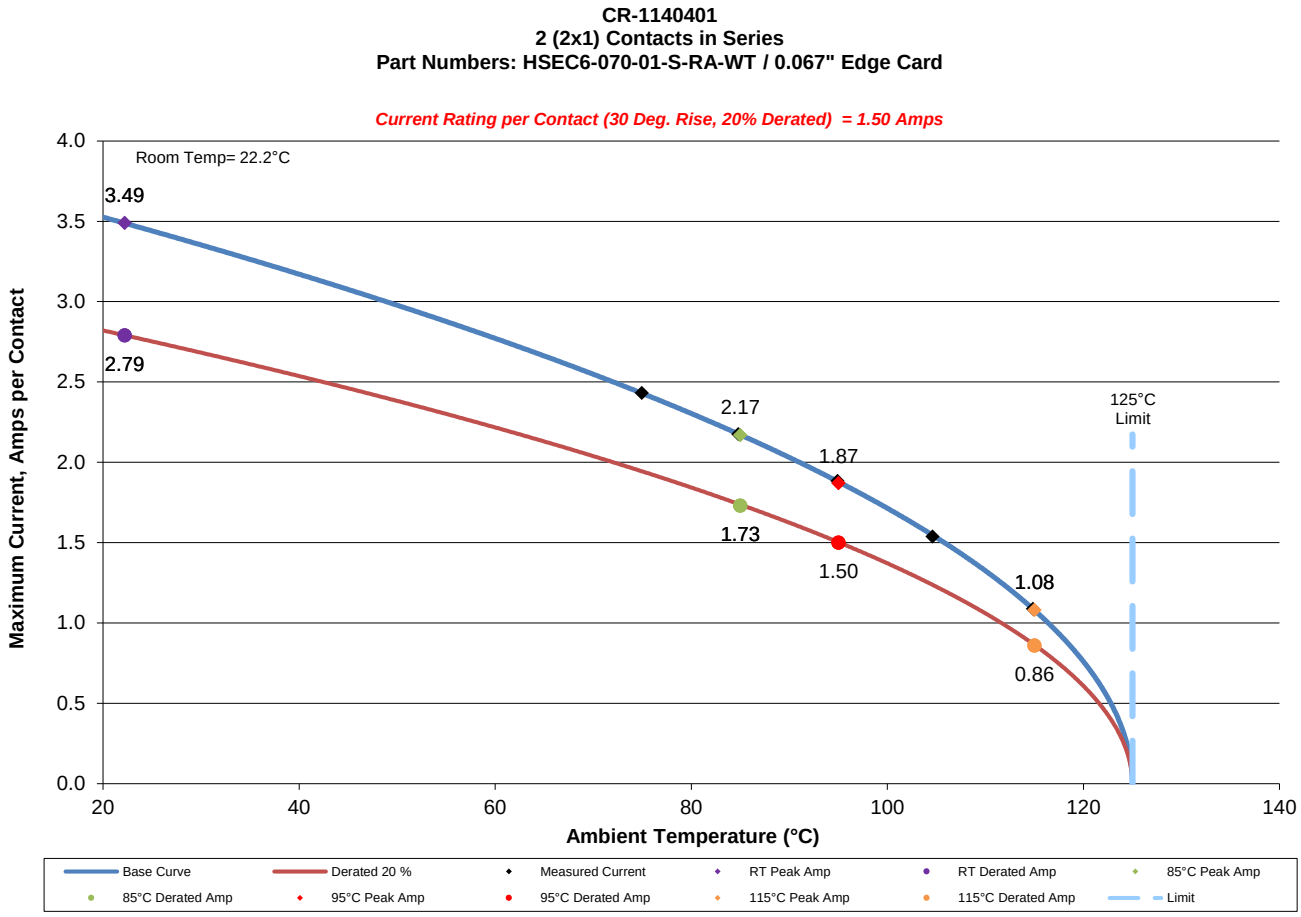
DATA SUMMARIES

TEMPERATURE RISE (Current Carrying Capacity, CCC):

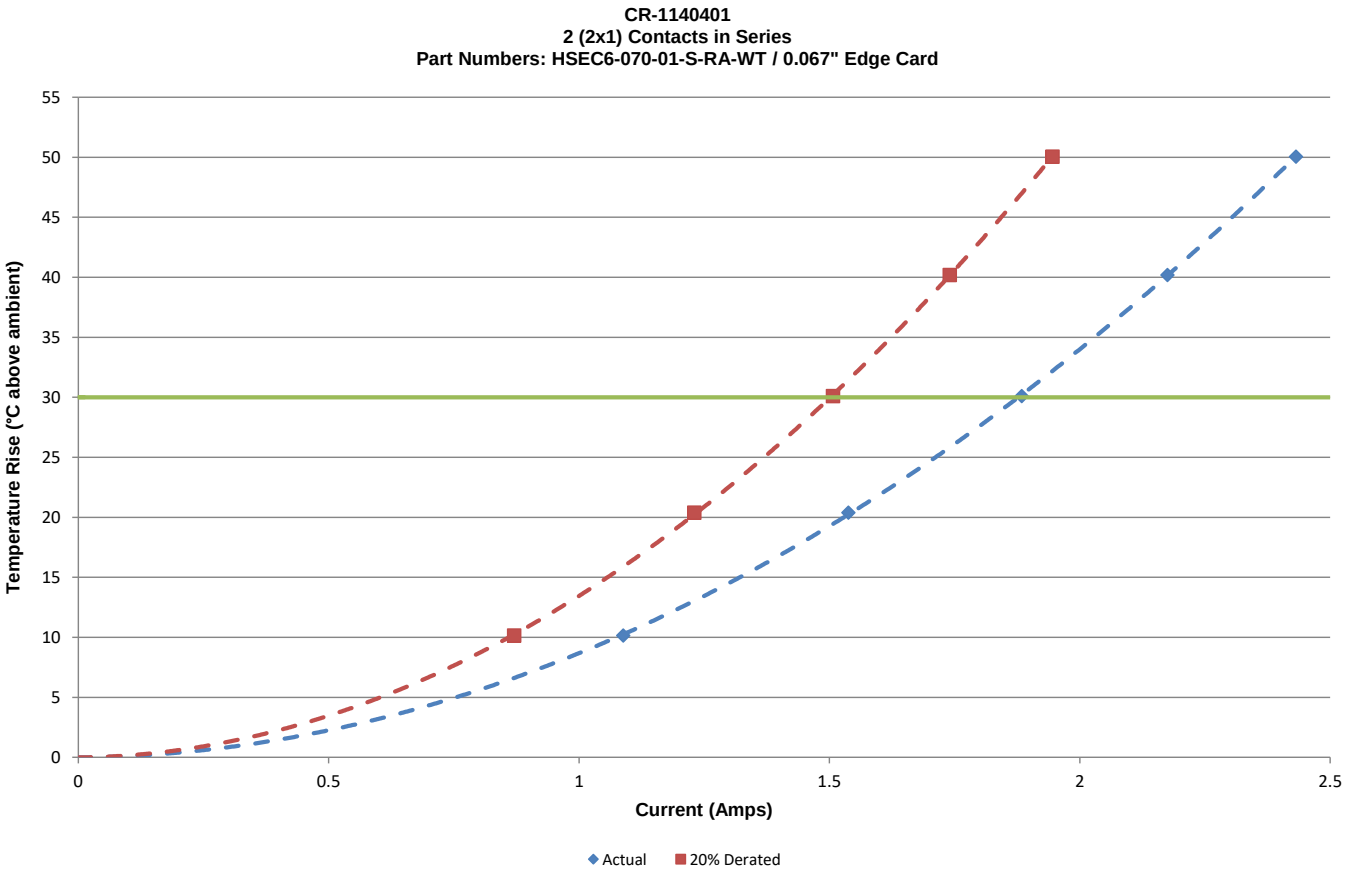
1) High quality thermocouples whose temperature slopes track one another were used for temperature monitoring.
2) The thermocouples were placed at a location to sense the maximum temperature generated during testing.
3) Temperature readings recorded are those for which three successive readings, 15 minutes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

Signal Pin

a. Linear configuration with 2 adjacent conductors/contacts powered.

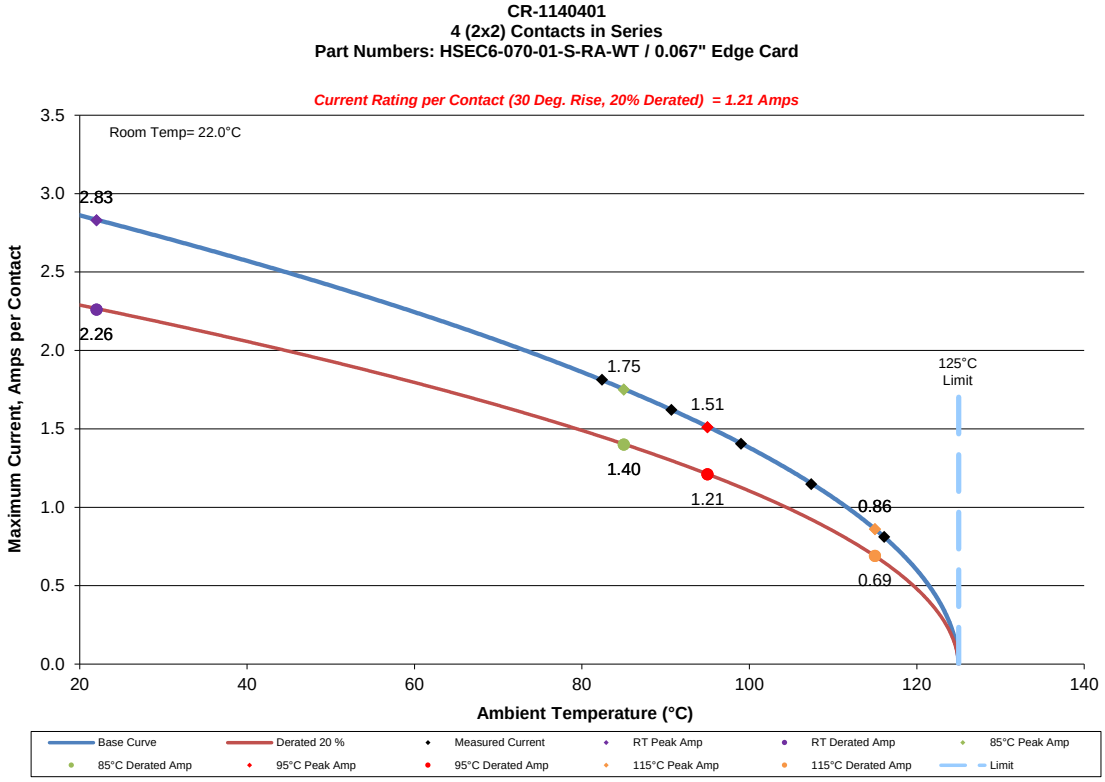


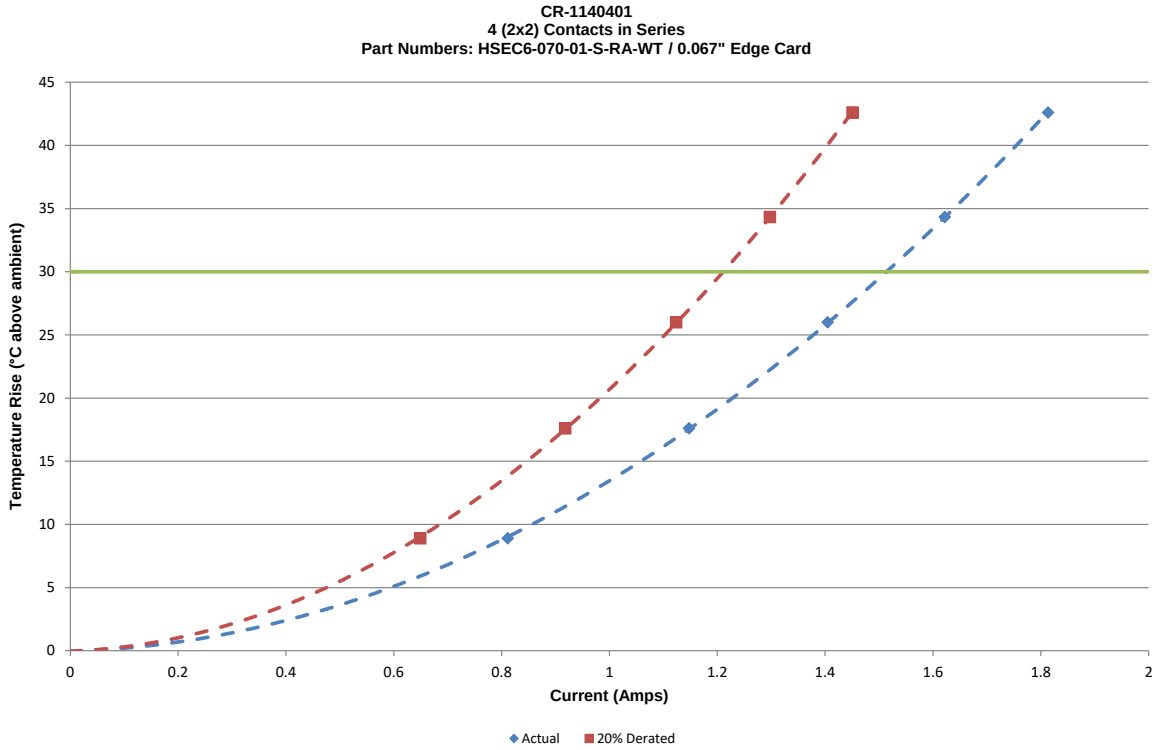
DATA SUMMARIES Continued



DATA SUMMARIES Continued

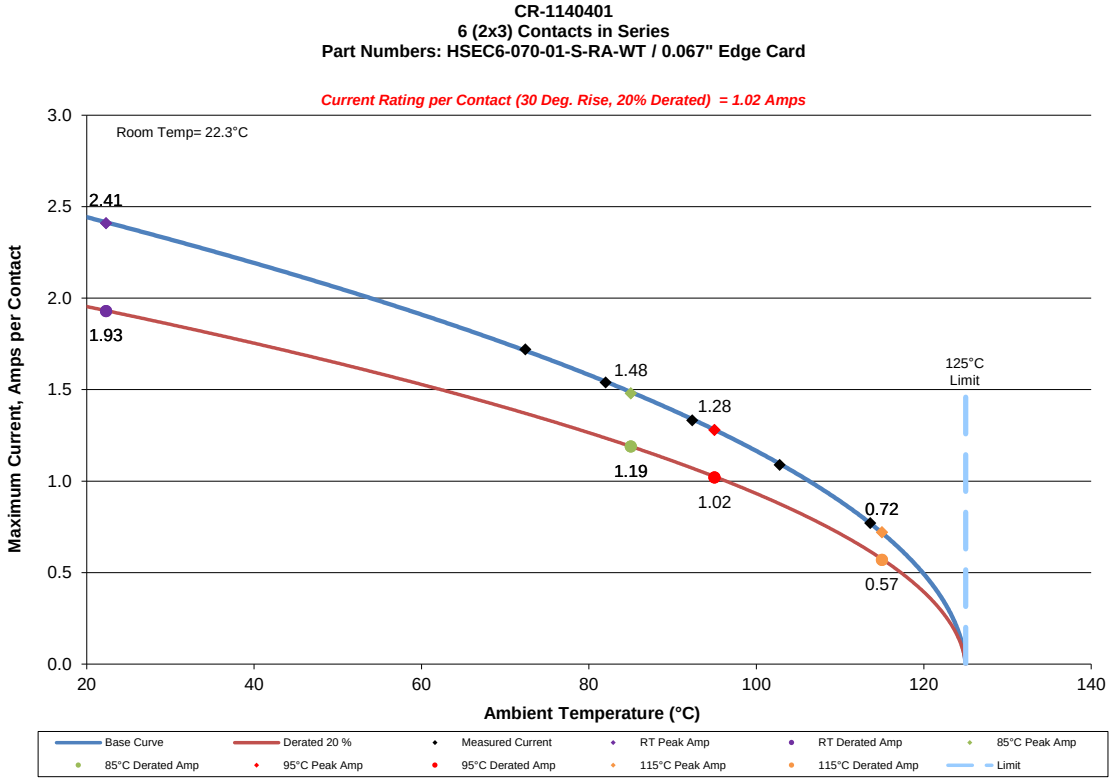
b. Linear configuration with 4 adjacent conductors/contacts powered.

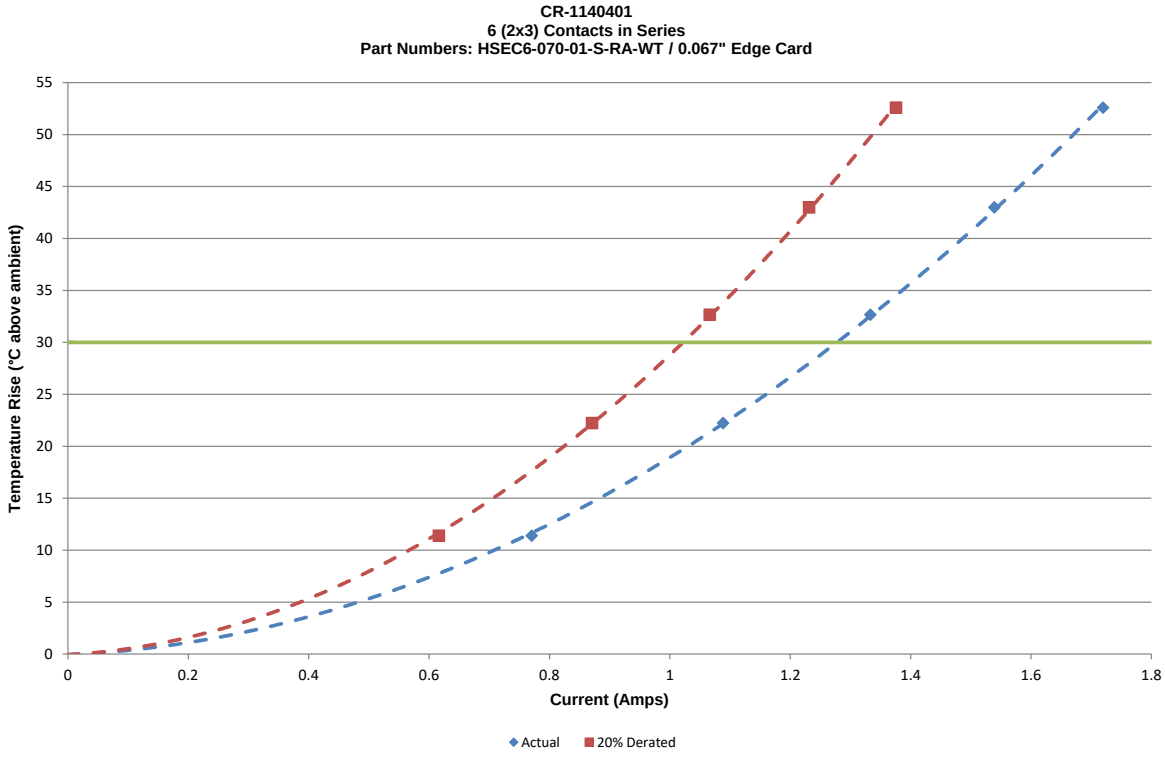




DATA SUMMARIES Continued

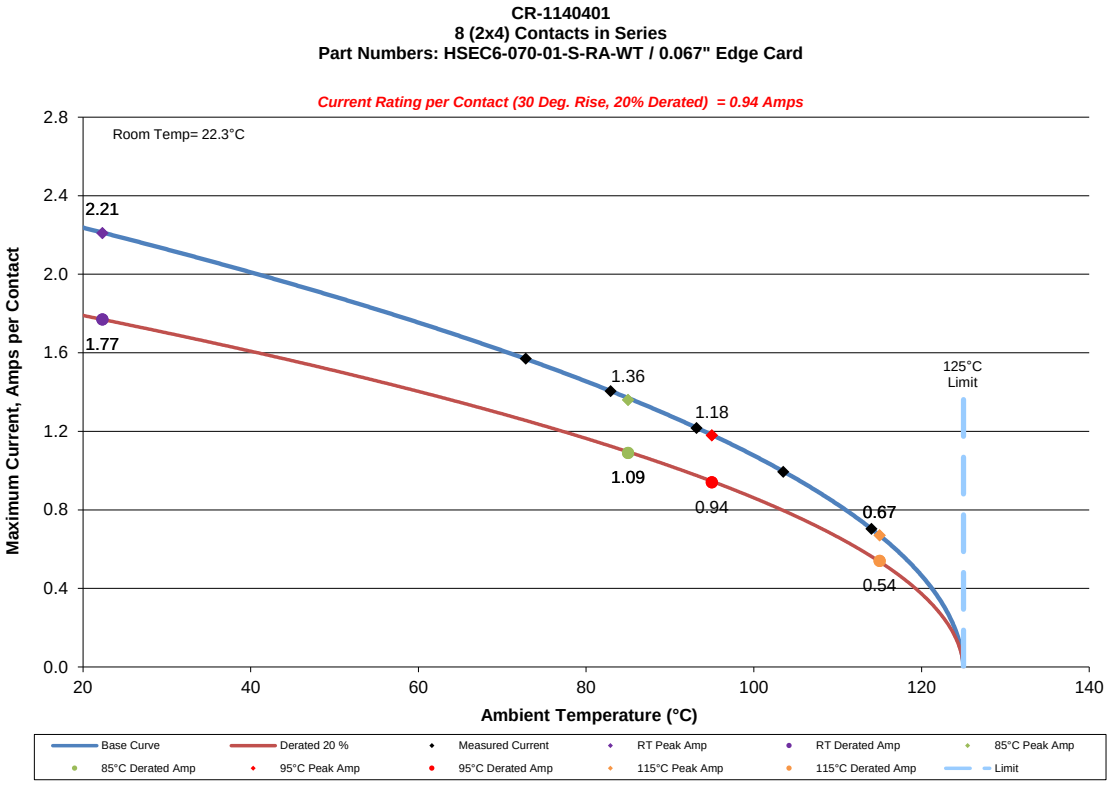
c. Linear configuration with 6 adjacent conductors/contacts powered.

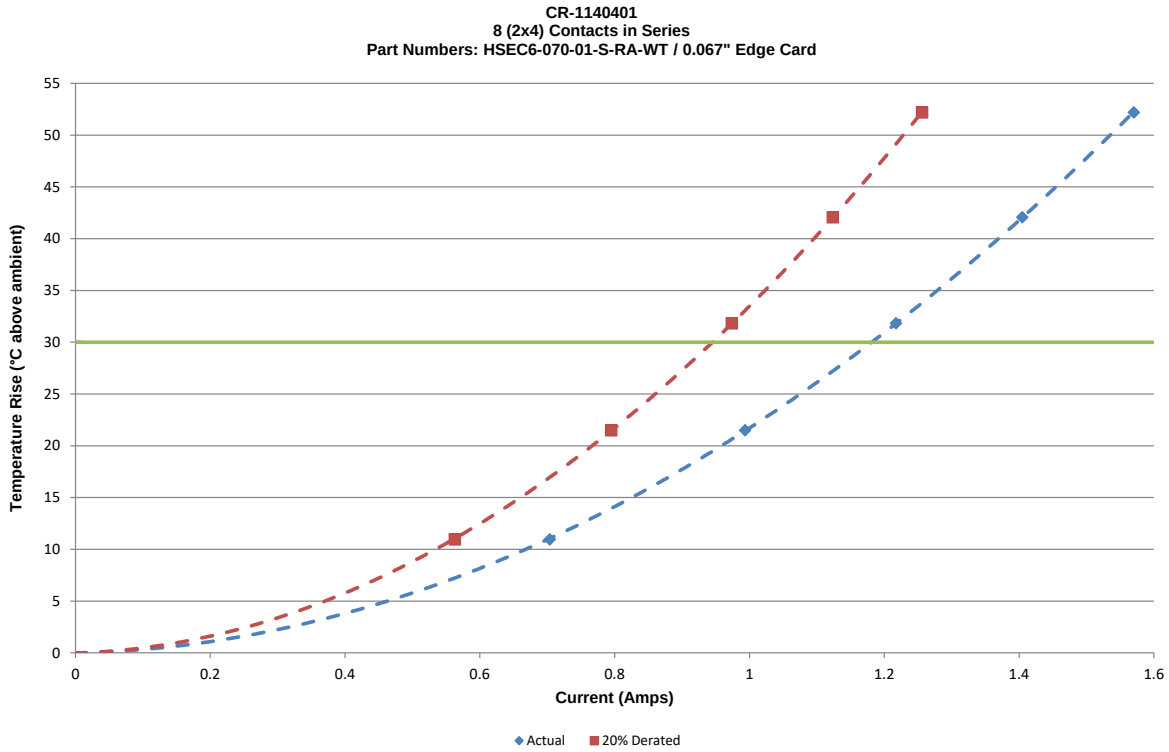




DATA SUMMARIES Continued

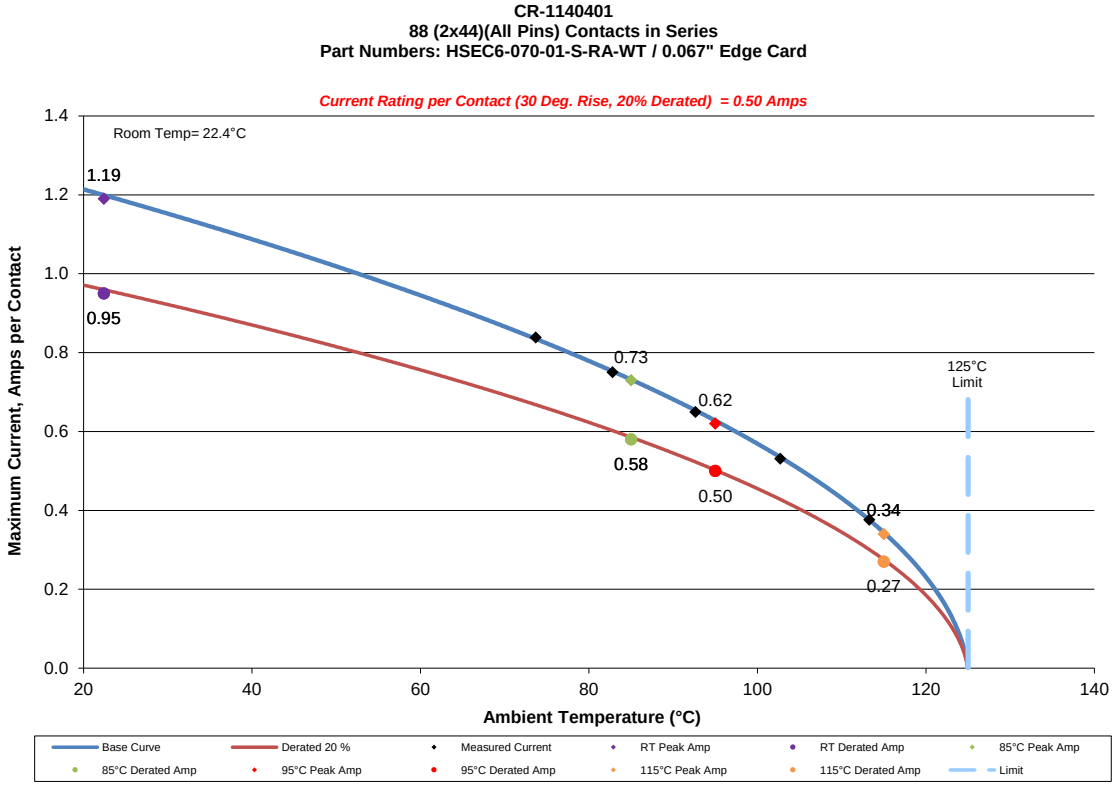
d. Linear configuration with 8 adjacent conductors/contacts powered.

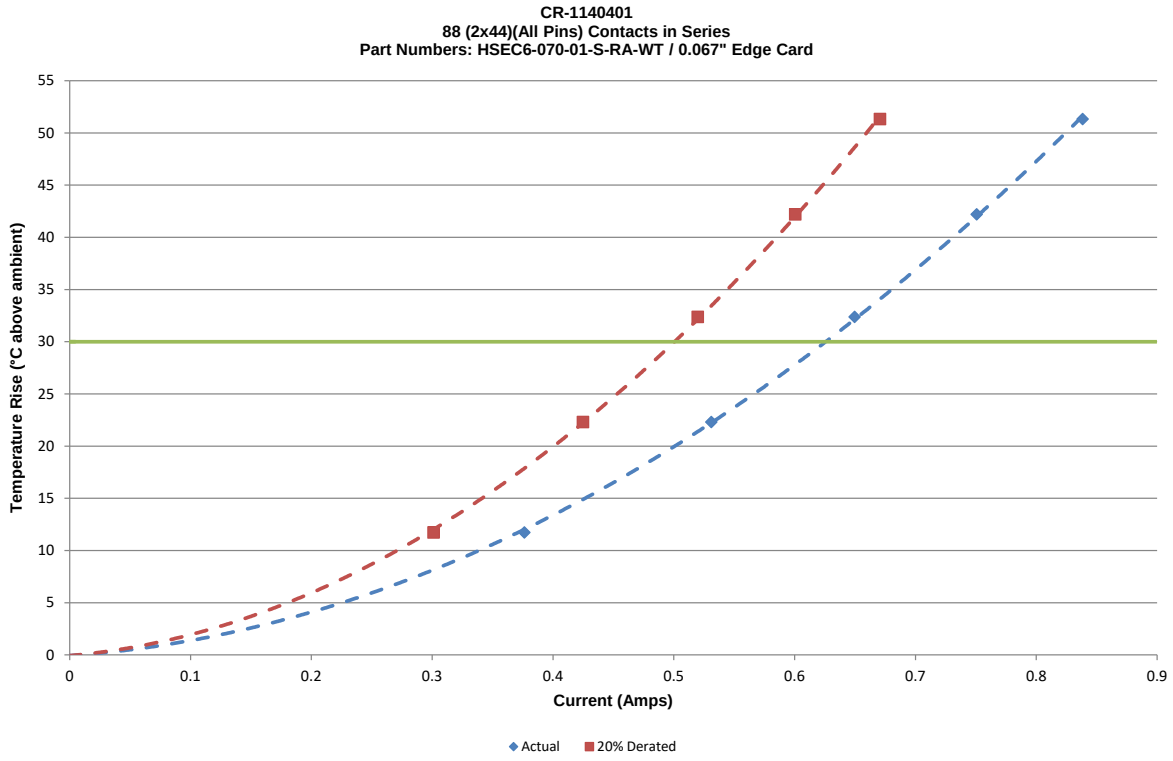




DATA SUMMARIES Continued

e. Linear configuration with All adjacent conductors/contacts powered.

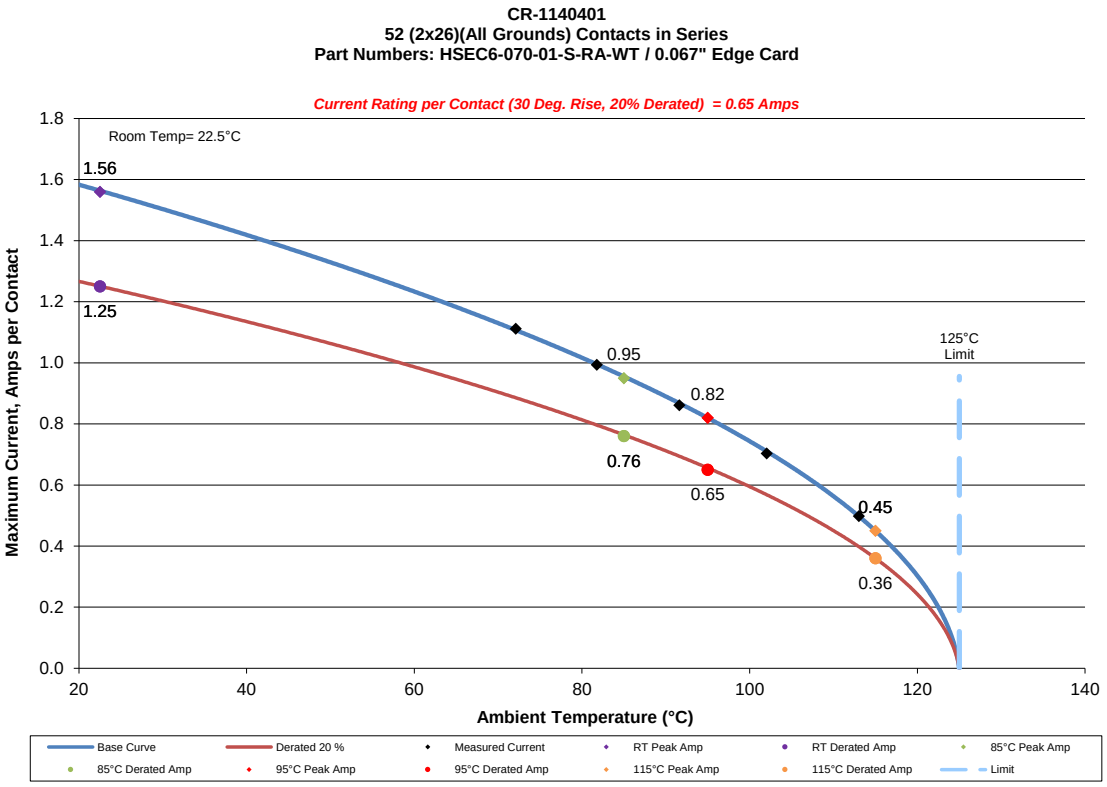


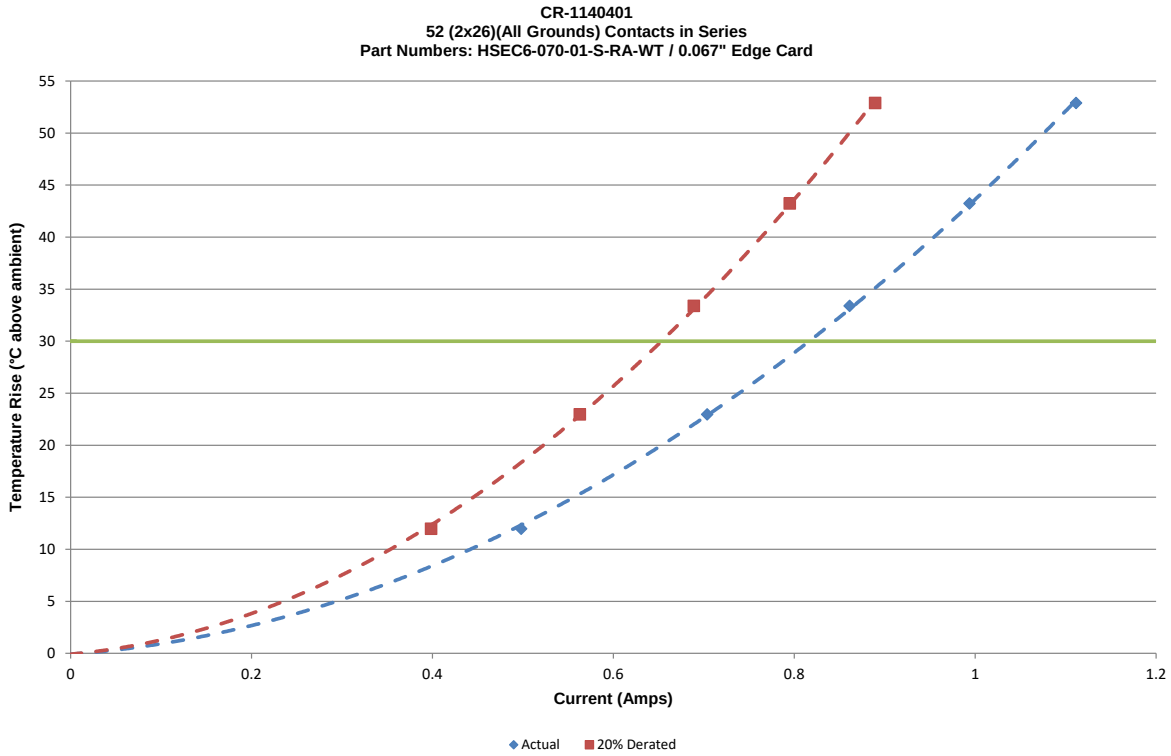


DATA SUMMARIES Continued

Ground Pin

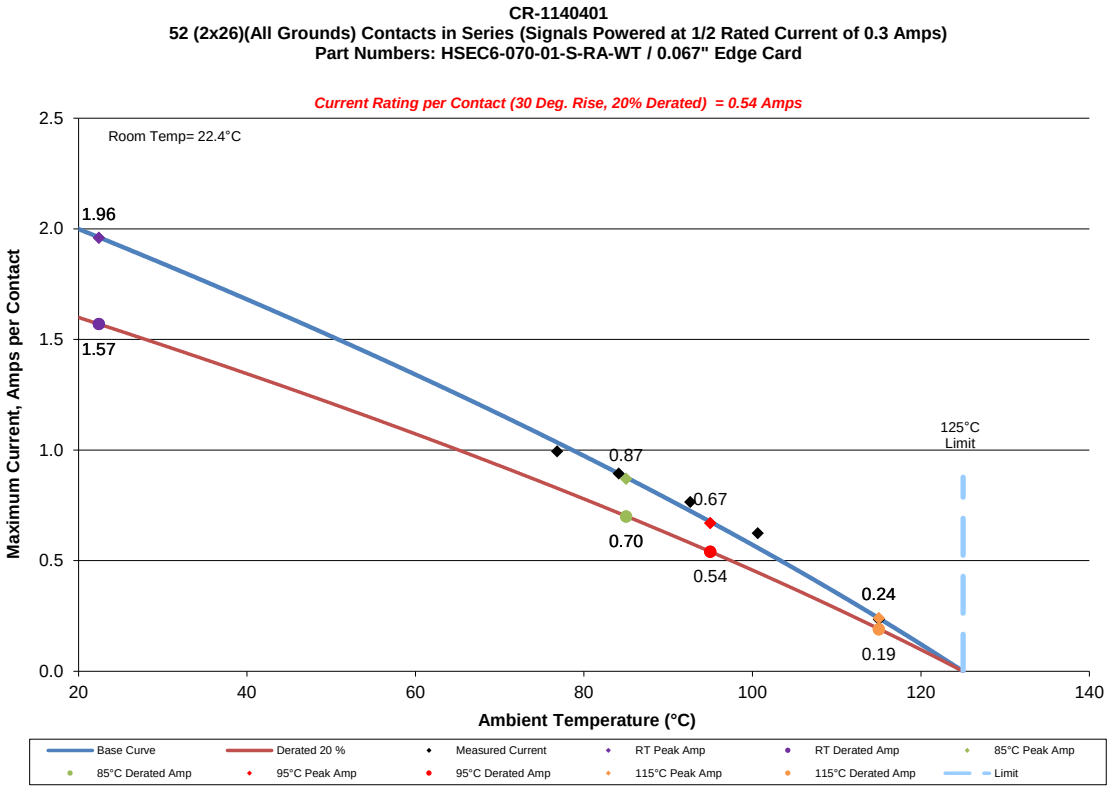
f. Linear configuration with 52 adjacent conductors/contacts powered.

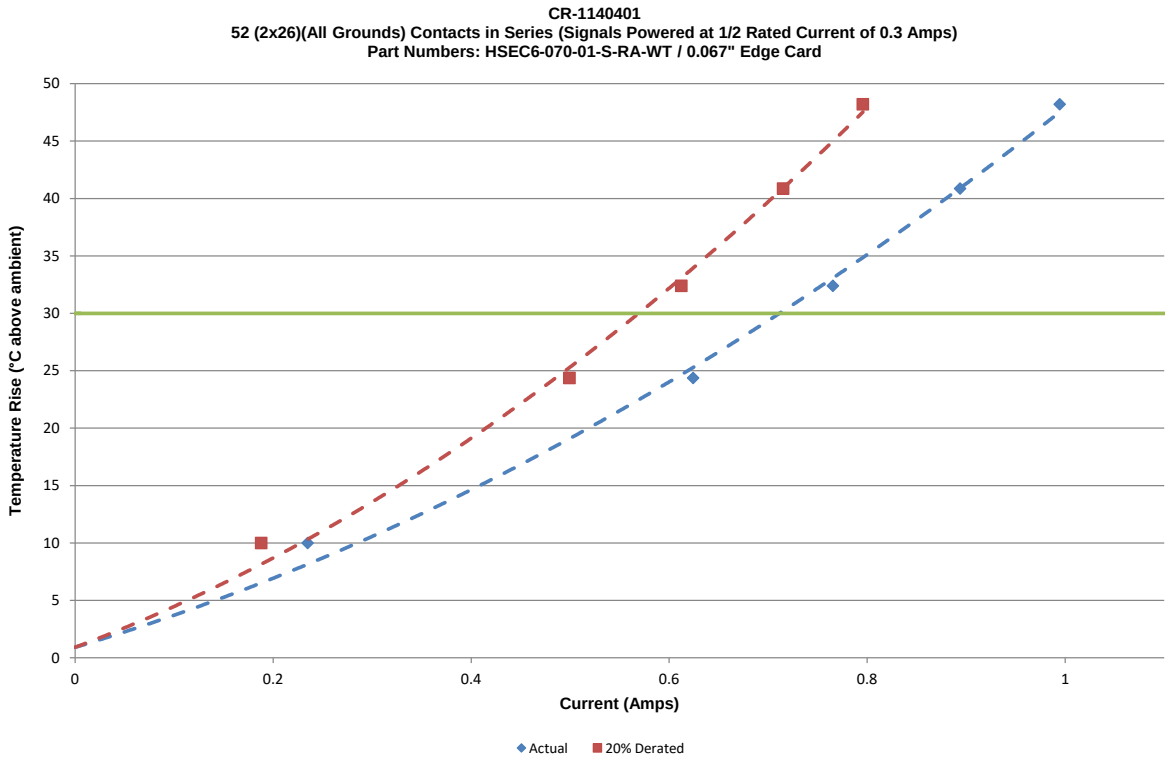




DATA SUMMARIES Continued

g. All power positions with signal@1/2 rated current.





DATA SUMMARIES Continued

MATING/UNMATING:

Thermal Aging Group

Group1 mate 0.067" EDGE CARD

	Initial				After Thermals			
	Mating		**Unmating**		**Mating**		**Unmating**	
	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)
Minimum	67.21	15.11	18.46	4.15	33.80	7.60	13.39	3.01
Maximum	90.61	20.37	25.26	5.68	52.89	11.89	17.70	3.98
Average	78.24	**17.59**	22.02	**4.95**	40.99	**9.22**	15.26	**3.43**
St Dev	8.53	1.92	2.68	0.60	6.26	1.41	1.52	0.34
Count	8	8	8	8	8	8	8	8

Group2 mate 0.057" EDGE CARD

	Initial				After Thermals			
	Mating		**Unmating**		**Mating**		**Unmating**	
	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)
Minimum	63.52	14.28	17.79	4.00	32.20	7.24	10.90	2.45
Maximum	96.97	21.80	21.88	4.92	51.60	11.60	14.86	3.34
Average	84.29	**18.95**	20.10	**4.52**	46.79	**10.52**	13.34	**3.00**
St Dev	11.09	2.49	1.41	0.32	6.38	1.43	1.25	0.28
Count	8	8	8	8	8	8	8	8

DATA SUMMARIES Continued

Mating/Unmating Durability Group

Group1 mate 0.067" EDGE CARD

	Initial				25 Cycles			
	Mating		**Unmating**		**Mating**		**Unmating**	
	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)
Minimum	67.43	15.16	19.08	4.29	67.12	15.09	26.07	5.86
Maximum	112.00	25.18	30.34	6.82	101.81	22.89	35.85	8.06
Average	92.00	**20.68**	24.64	**5.54**	82.28	**18.50**	30.77	**6.92**
St Dev	15.35	3.45	3.55	0.80	10.21	2.30	3.52	0.79
Count	8	8	8	8	8	8	8	8

	After Humidity			
	Mating		**Unmating**	
	Newtons	Force (Lbs)	Newtons	Force (Lbs)
Minimum	41.54	9.34	15.48	3.48
Maximum	66.36	14.92	20.86	4.69
Average	48.63	**10.93**	18.47	**4.15**
St Dev	7.77	1.75	1.67	0.38
Count	8	8	8	8

Group2 mate 0.057" EDGE CARD

	Initial				25 Cycles			
	Mating		**Unmating**		**Mating**		**Unmating**	
	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)
Minimum	57.07	12.83	16.41	3.69	50.62	11.38	16.90	3.80
Maximum	74.86	16.83	21.80	4.90	60.94	13.70	24.64	5.54
Average	66.44	**14.94**	18.43	**4.14**	54.74	**12.31**	20.43	**4.59**
St Dev	6.15	1.38	1.99	0.45	3.30	0.74	2.44	0.55
Count	8	8	8	8	8	8	8	8

	After Humidity			
	Mating		**Unmating**	
	Newtons	Force (Lbs)	Newtons	Force (Lbs)
Minimum	34.74	7.81	11.74	2.64
Maximum	42.75	9.61	16.50	3.71
Average	38.77	**8.72**	14.48	**3.26**
St Dev	2.68	0.60	1.85	0.42
Count	8	8	8	8

Group3 mate 0.067" EDGE CARD

	Initial				25 Cycles			
	Mating		**Unmating**		**Mating**		**Unmating**	
	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)
Minimum	24.06	5.41	9.03	2.03	23.62	5.31	17.61	3.96
Maximum	34.12	7.67	19.17	4.31	32.38	7.28	22.60	5.08
Average	29.79	**6.70**	15.49	**3.48**	28.54	**6.42**	19.98	**4.49**
St Dev	2.97	0.67	3.59	0.81	2.68	0.60	1.86	0.42
Count	8	8	8	8	8	8	8	8

DATA SUMMARIES Continued

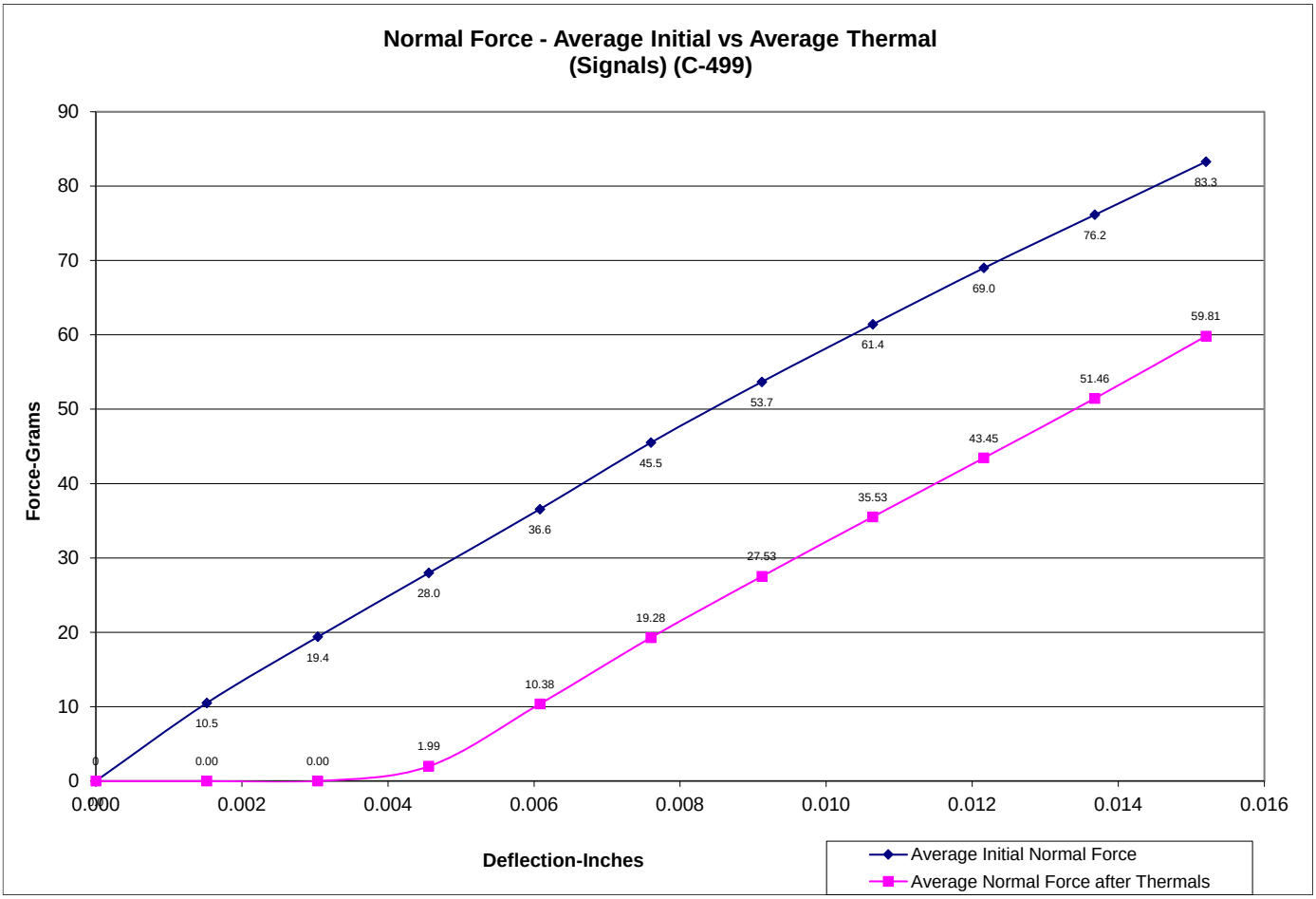
NORMAL FORCE (FOR CONTACTS TESTED IN THE HOUSING):

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

Signal Pin C-499:

Initial	Deflections in inches Forces in Grams										
	0.0015	**0.0030**	**0.0046**	**0.0061**	**0.0076**	**0.0091**	**0.0106**	**0.0122**	**0.0137**	**0.0152**	***SET***
Averages	10.50	19.39	27.98	36.56	45.51	53.68	61.43	68.99	76.15	83.28	0.0000
Min	9.30	18.10	26.40	34.70	43.70	52.30	60.00	67.30	74.40	81.50	0.0000
Max	12.20	20.80	29.40	38.00	46.70	54.90	63.30	71.00	78.40	85.20	0.0001
St. Dev	0.716	0.823	0.949	0.975	0.922	0.790	1.032	1.110	1.263	1.385	0.0000
Count	12	12	12	12	12	12	12	12	12	12	12

After Thermals	Deflections in inches Forces in Grams										
	0.0015	**0.0030**	**0.0046**	**0.0061**	**0.0076**	**0.0091**	**0.0106**	**0.0122**	**0.0137**	**0.0152**	***SET***
Averages	0.00	0.00	1.99	10.38	19.28	27.53	35.53	43.45	51.46	59.81	0.0043
Min	0.00	0.00	0.00	6.60	15.10	22.50	29.70	37.10	44.90	52.60	0.0037
Max	0.00	0.00	4.20	13.40	24.00	33.20	41.40	50.60	60.10	69.50	0.0048
St. Dev	0.000	0.000	1.417	2.216	2.445	3.042	3.478	3.929	4.481	5.001	0.0003
Count	12	12	12	12	12	12	12	12	12	12	12

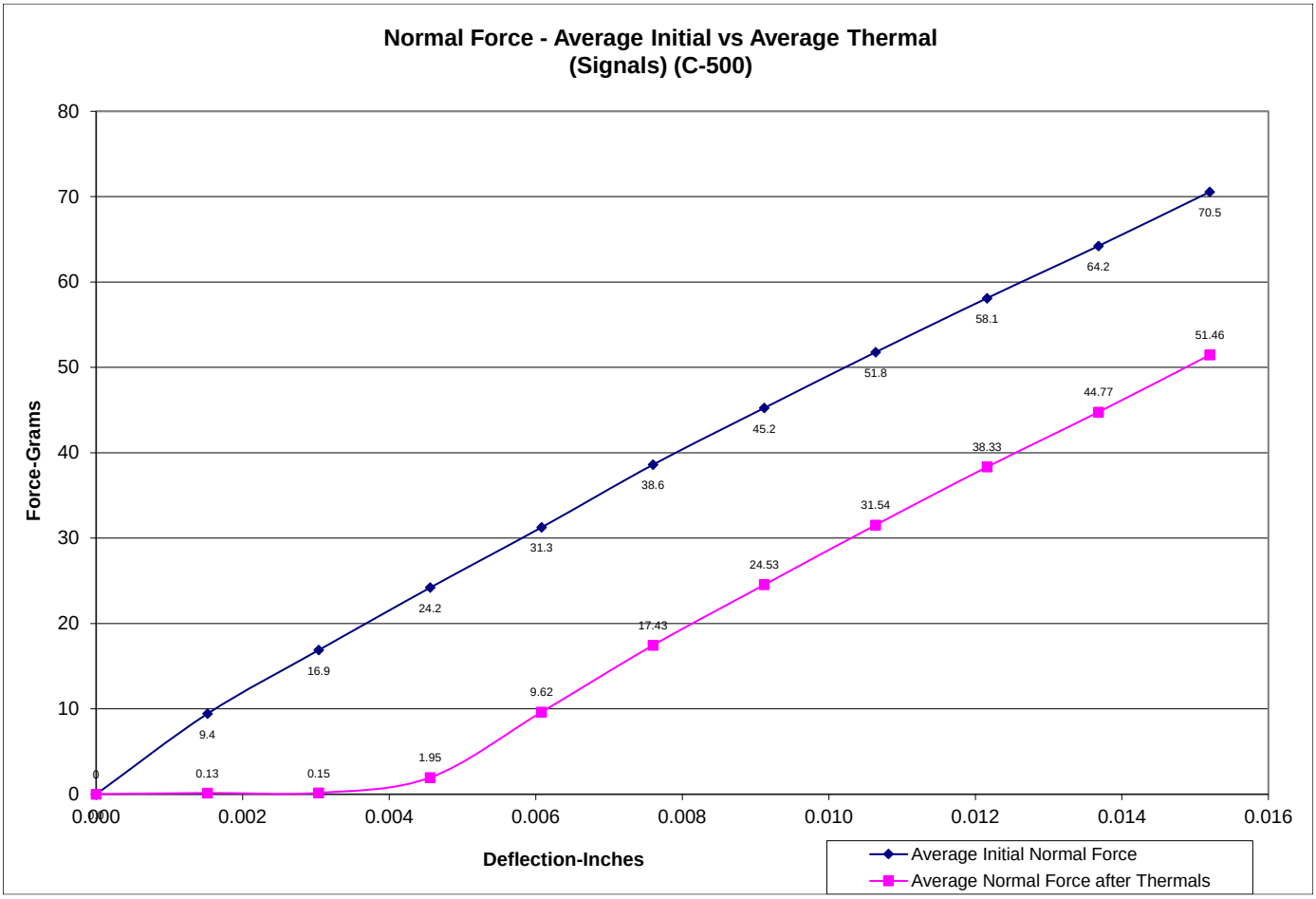


DATA SUMMARIES Continued

Signal Pin C-500:

Initial	Deflections in inches Forces in Grams										
	0.0015	**0.0030**	**0.0046**	**0.0061**	**0.0076**	**0.0091**	**0.0106**	**0.0122**	**0.0137**	**0.0152**	***SET***
Averages	9.43	16.89	24.20	31.26	38.59	45.24	51.78	58.10	64.21	70.54	0.0000
Min	9.00	15.80	22.80	29.50	36.70	43.00	49.70	56.20	62.10	68.70	0.0000
Max	10.70	19.60	27.70	35.50	43.50	50.40	56.90	63.00	68.70	74.30	0.0000
St. Dev	0.662	1.252	1.695	2.034	2.264	2.432	2.401	2.338	2.156	1.850	0.0000
Count	12	12	12	12	12	12	12	12	12	12	12

After Thermals	Deflections in inches Forces in Grams										
	0.0015	**0.0030**	**0.0046**	**0.0061**	**0.0076**	**0.0091**	**0.0106**	**0.0122**	**0.0137**	**0.0152**	***SET***
Averages	0.13	0.15	1.95	9.62	17.43	24.53	31.54	38.33	44.77	51.46	0.0043
Min	0.00	0.00	0.00	6.80	14.80	22.00	28.80	35.20	41.40	48.10	0.0038
Max	0.90	1.00	4.20	12.20	19.40	26.40	33.60	41.20	48.40	54.70	0.0049
St. Dev	0.314	0.353	1.425	1.685	1.558	1.451	1.437	1.732	2.016	1.943	0.0003
Count	12	12	12	12	12	12	12	12	12	12	12

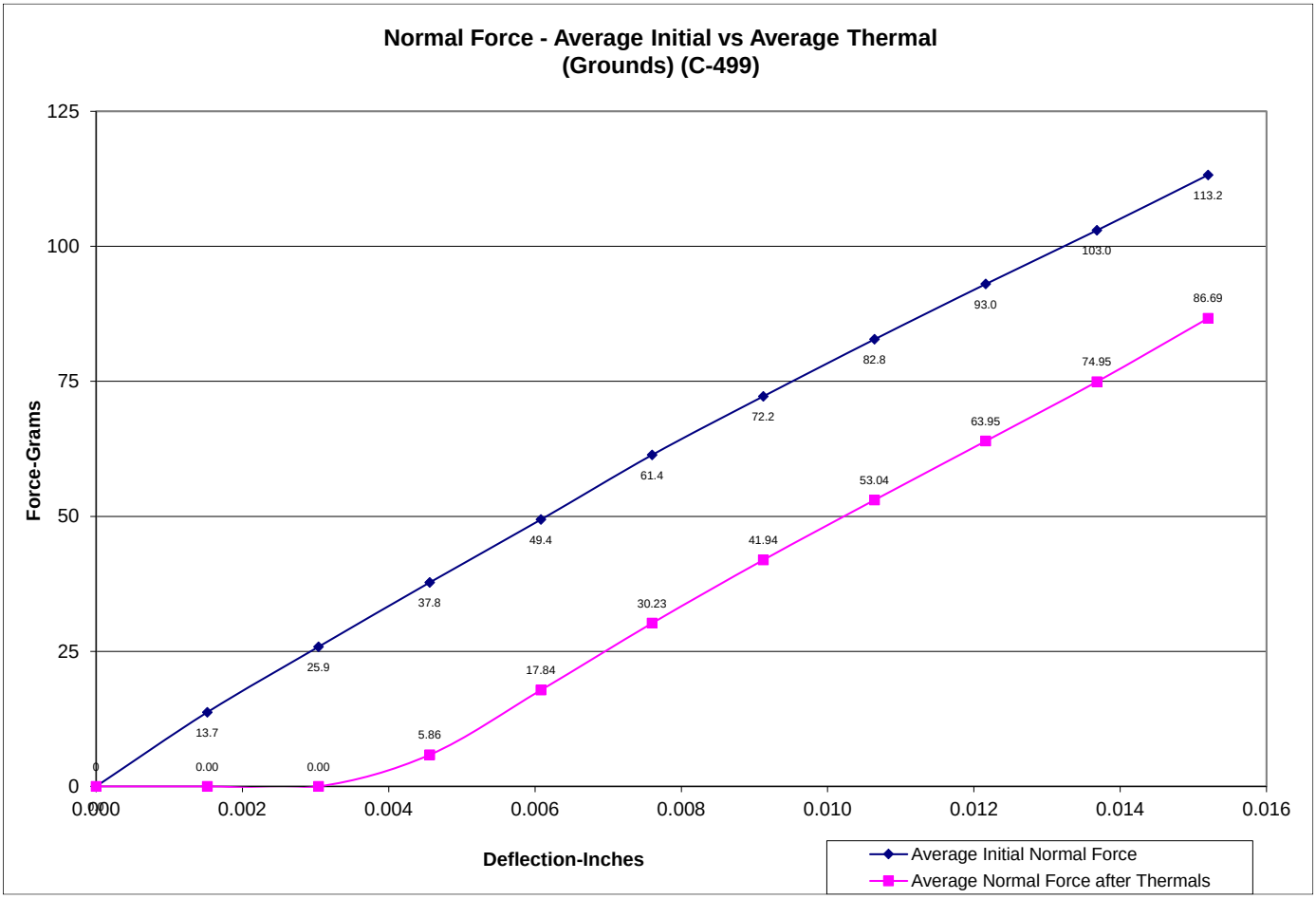


DATA SUMMARIES Continued

Grounds Pin C-499:

Initial	Deflections in inches Forces in Grams										
	0.0015	**0.0030**	**0.0046**	**0.0061**	**0.0076**	**0.0091**	**0.0106**	**0.0122**	**0.0137**	**0.0152**	***SET***
Averages	13.73	25.85	37.76	49.41	61.38	72.23	82.79	93.02	102.97	113.23	0.0000
Min	12.60	24.00	35.40	47.00	57.70	68.50	78.50	88.50	97.90	107.10	0.0000
Max	14.20	27.10	39.30	52.20	65.00	76.80	88.30	99.10	109.60	120.50	0.0002
St. Dev	0.464	0.826	1.079	1.455	2.049	2.590	3.142	3.608	4.133	4.803	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**	**0.0046**	**0.0061**	**0.0076**	**0.0091**	**0.0106**	**0.0122**	**0.0137**	**0.0152**	***SET***
Averages	0.00	0.00	5.86	17.84	30.23	41.94	53.04	63.95	74.95	86.69	0.0039
Min	0.00	0.00	2.00	13.20	25.30	37.30	46.80	57.60	67.90	78.50	0.0033
Max	0.00	0.00	10.30	21.50	36.00	49.40	62.20	74.60	86.90	99.20	0.0043
St. Dev	0.000	0.000	2.582	2.825	3.481	4.178	4.850	5.347	5.966	6.638	0.0003
Count	10	10	10	10	10	10	10	10	10	10	10

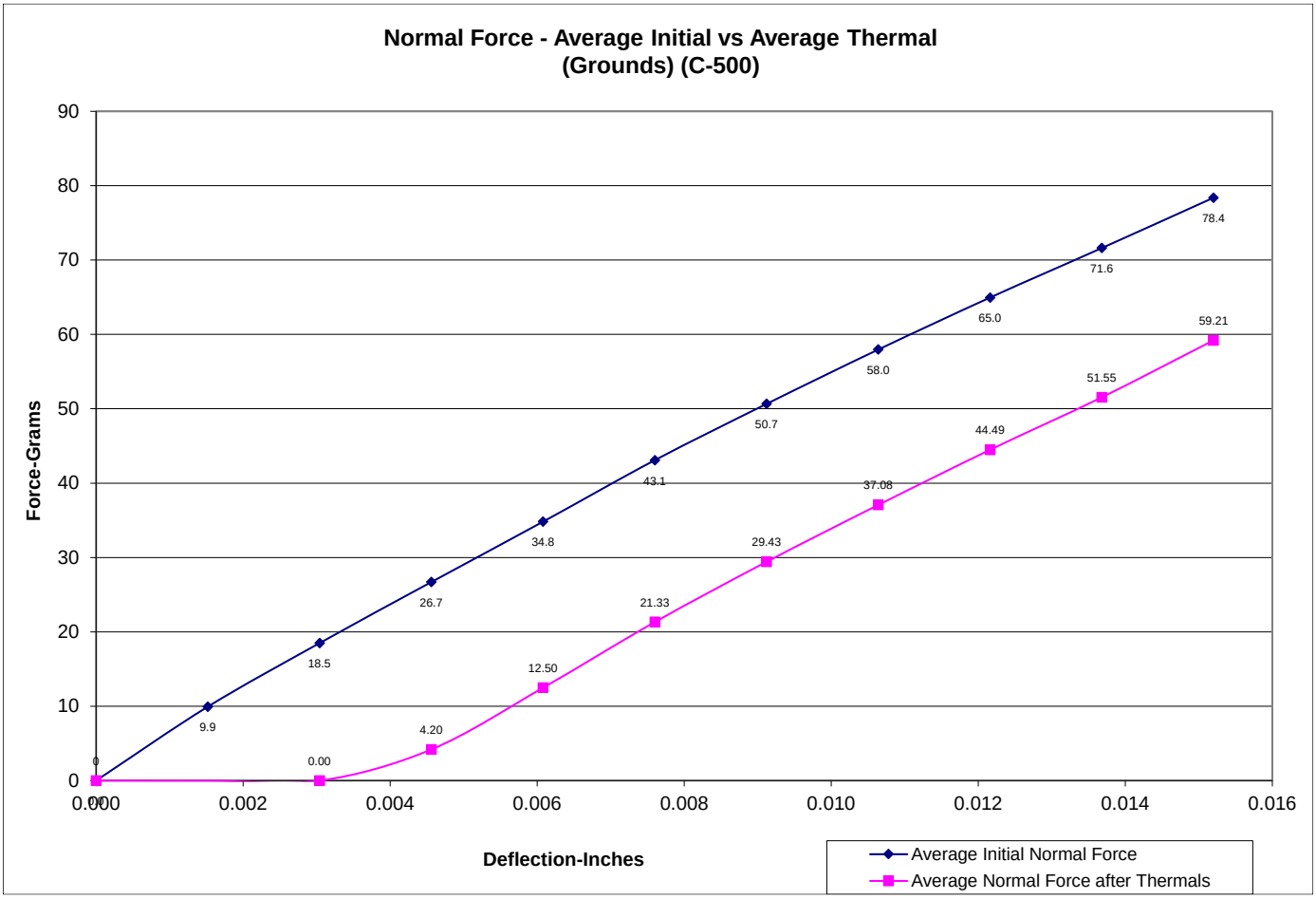


DATA SUMMARIES Continued

Grounds Pin C-500:

Initial	Deflections in inches Forces in Grams										
	0.0015	**0.0030**	**0.0046**	**0.0061**	**0.0076**	**0.0091**	**0.0106**	**0.0122**	**0.0137**	**0.0152**	***SET***
Averages	9.94	18.49	26.70	34.82	43.09	50.66	57.97	64.96	71.62	78.39	0.0002
Min	9.10	17.20	24.80	32.40	40.30	48.00	55.30	62.50	69.10	75.80	0.0001
Max	10.90	20.60	29.40	38.00	47.00	54.70	62.50	69.50	75.70	82.30	0.0003
St. Dev	0.652	1.208	1.533	1.899	2.164	2.146	2.157	2.069	1.987	1.967	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**	**0.0046**	**0.0061**	**0.0076**	**0.0091**	**0.0106**	**0.0122**	**0.0137**	**0.0152**	***SET***
Averages	-0.01	0.00	4.20	12.50	21.33	29.43	37.08	44.49	51.55	59.21	0.0039
Min	-0.10	0.00	1.40	9.40	18.40	25.70	32.80	40.80	48.20	56.30	0.0034
Max	0.00	0.00	7.30	15.60	24.10	32.10	40.00	47.40	55.20	62.80	0.0042
St. Dev	0.032	0.000	1.852	2.019	1.995	2.227	2.418	2.146	2.196	2.124	0.0003
Count	10	10	10	10	10	10	10	10	10	10	10



DATA SUMMARIES Continued

INSULATION RESISTANCE (IR):

	Pin to Pin		
	Mated	Unmated	Unmated
Minimum	**HSEC6/.057 EC**	**HSEC6**	**.057 EC**
Initial	45000	45000	Not Tested
Thermal	45000	45000	Not Tested
Humidity	6400	5600	Not Tested

	Row to Row		
	Mated	Unmated	Unmated
Minimum	**HSEC6/.057 EC**	**HSEC6**	**.057 EC**
Initial	45000	45000	Not Tested
Thermal	45000	45000	Not Tested
Humidity	45000	45000	Not Tested

DIELECTRIC WITHSTANDING VOLTAGE (DWV):

Voltage Rating Summary	
Minimum	**HSEC6/.057 EC**
Break Down Voltage	740
Test Voltage	555
Working Voltage	185

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

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

DATA SUMMARIES Continued

LLCR Gas Tight:

1) A total of 304 signals and 176 ground 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 +1000 mOhms: ----------Unstable
    f. >+1000 mOhms:----------Open Failure

DATA SUMMARIES Continued

	LLCR Measurement Summaries by Pin Type	
Date	2024/8/9	2024/8/9
Room Temp (Deg C)	22	22
Rel Humidity (%)	52	54
Technician	Tony Wagoner	Tony Wagoner
mOhm values	Actual **Initial**	**Delta** **Acid Vapor**
	Pin Type: Signal 1	
Average	23.02	0.81
St. Dev.	1.34	0.76
Min	20.57	0.01
Max	27.1	4.42
Summary Count	152	152
Total Count	152	152
	Pin Type: Signal 2	
Average	31.68	1.36
St. Dev.	1.84	2.1
Min	18.15	0
Max	35	12.39
Summary Count	152	152
Total Count	152	152
	Pin Type: GND 1	
Average	17.65	0.79
St. Dev.	1.46	0.79
Min	15.52	0.04
Max	22.41	3.78
Summary Count	88	88
Total Count	88	88
	Pin Type: GND 2	
Average	32.61	1.11
St. Dev.	1.39	1.73
Min	30.06	0.03
Max	35.8	13.58
Summary Count	88	88
Total Count	88	88

LLCR Delta Count by Category						
	Stable	**Minor**	**Acceptable**	**Marginal**	**Unstable**	**Open**
mOhms	**<=5**	**>5 & <=10**	**>10 & <=15**	**>15 & <=50**	**>50 & <=1000**	**>1000**
Acid Vapor	**467**	**10**	**3**	**0**	**0**	**0**

DATA SUMMARIES Continued

LLCR Thermal Aging Group

1) A total of 304 signals and 176 ground 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 +1000 mOhms----------Unstable
    f. >+1000 mOhms:----------Open Failure

DATA SUMMARIES Continued

Group1 mate 0.067" EDGE CARD

	LLCR Measurement Summaries by Pin Type	
Date	2024/8/12	2024/8/26
Room Temp (Deg C)	22	22
Rel Humidity (%)	49	56
Technician	Tony Wagoner	Tony Wagner
mOhm values	Actual **Initial**	**Delta Thermal**
	Pin Type: Signal 1	
Average	22.03	0.98
St. Dev.	1.16	1.13
Min	20.01	0
Max	25.07	10.47
Summary Count	152	152
Total Count	152	152
	Pin Type: Signal 2	
Average	30.87	0.88
St. Dev.	1.38	0.94
Min	28.42	0.01
Max	33.93	4.17
Summary Count	152	152
Total Count	152	152
	Pin Type: GND 1	
Average	16.79	0.71
St. Dev.	1.42	0.73
Min	15.05	0.02
Max	20.68	4.82
Summary Count	88	88
Total Count	88	88
	Pin Type: GND 2	
Average	31.61	0.88
St. Dev.	1.26	1.53
Min	29.02	0
Max	34.68	9.33
Summary Count	88	88
Total Count	88	88

LLCR Delta Count by Category						
	Stable	**Minor**	**Acceptable**	**Marginal**	**Unstable**	**Open**
mOhms	**<=5**	**>5 & <=10**	**>10 & <=15**	**>15 & <=50**	**>50 & <=1000**	**>1000**
Thermal	**476**	**3**	**1**	**0**	**0**	**0**

DATA SUMMARIES Continued

Group2 mate 0.057" EDGE CARD

LLCR Measurement Summaries by Pin Type		
Date	2024/8/12	2024/8/26
Room Temp (Deg C)	22	22
Rel Humidity (%)	48	54
Technician	Tony Wagoner	Tony Wagoner
mOhm values	Actual **Initial**	**Delta Thermal**
Pin Type: Signal 1		
Average	22.78	2.25
St. Dev.	1.09	1.75
Min	20.62	0
Max	25.3	7.96
Summary Count	152	152
Total Count	152	152
Pin Type: Signal 2		
Average	31.13	1.82
St. Dev.	1.54	1.58
Min	28.13	0.03
Max	35.19	10.83
Summary Count	152	152
Total Count	152	152
Pin Type: GND 1		
Average	17.46	1.67
St. Dev.	1.4	1.33
Min	15.42	0.05
Max	21.37	6.07
Summary Count	88	88
Total Count	88	88
Pin Type: GND 2		
Average	31.95	1.51
St. Dev.	1.41	1.42
Min	28.79	0.02
Max	35.24	8
Summary Count	88	88
Total Count	88	88

LLCR Delta Count by Category						
	Stable	**Minor**	**Acceptable**	**Marginal**	**Unstable**	**Open**
mOhms	**<=5**	**>5 & <=10**	**>10 & <=15**	**>15 & <=50**	**>50 & <=1000**	**>1000**
Thermal	**455**	**24**	**1**	**0**	**0**	**0**

DATA SUMMARIES Continued

LLCR Durability:

1) A total of 304 signals and 176 ground 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 +1000 mOhms----------Unstable
    f. >+1000 mOhms:----------Open Failure

DATA SUMMARIES Continued

Group1 mate 0.067" EDGE CARD

	LLCR Measurement Summaries by Pin Type			
Date	2024/8/12	2024/8/22	2024/8/27	2024/9/10
Room Temp (Deg C)	22	22	22	22
Rel Humidity (%)	53	45	50	42
Technician	Matthew Gramlin	Tony Wagoner	Richard Ison	Michael Brown
mOhm values	Actual **Initial**	**Delta 25 Cycles**	**Delta Therm Shck**	**Delta Humidity**
	Pin Type: Signal 1			
Average	21.89	0.81	0.99	1.14
St. Dev.	1.12	0.87	1.07	1.23
Min	16.07	0	0.01	0
Max	24.45	5.95	6.15	6.79
Summary Count	152	152	152	152
Total Count	152	152	152	152
	Pin Type: Signal 2			
Average	31.1	0.99	1.06	1.69
St. Dev.	1.4	0.85	0.95	1.94
Min	28.55	0	0.02	0.01
Max	35.37	5.44	5.69	10.44
Summary Count	152	152	152	152
Total Count	152	152	152	152
	Pin Type: GND 1			
Average	16.74	0.52	0.76	0.86
St. Dev.	1.39	0.73	1.01	0.96
Min	14.98	0	0	0.01
Max	21.1	6.14	5.7	4.68
Summary Count	88	88	88	88
Total Count	88	88	88	88
	Pin Type: GND 2			
Average	31.66	0.78	0.95	1.32
St. Dev.	1.2	0.79	0.74	1.24
Min	28.78	0	0.01	0
Max	34.64	3.95	3.56	5.29
Summary Count	88	88	88	88
Total Count	88	88	88	88

LLCR Delta Count by Category						
	Stable	**Minor**	**Acceptable**	**Marginal**	**Unstable**	**Open**
mOhms	**<=5**	**>5 & <=10**	**>10 & <=15**	**>15 & <=50**	**>50 & <=1000**	**>1000**
25 Cycles	**477**	**3**	**0**	**0**	**0**	**0**
Therm Shck	**472**	**8**	**0**	**0**	**0**	**0**
Humidity	**463**	**16**	**1**	**0**	**0**	**0**

DATA SUMMARIES Continued

Group2 mate 0.057" EDGE CARD

	LLCR Measurement Summaries by Pin Type			
Date	2024/8/12	2024/8/22	2024/8/27	2024/9/10
Room Temp (Deg C)	22	22	22	22
Rel Humidity (%)	51	45	51	43
Technician	Matthew Gramlin	Tony Wagoner	Richard Ison	Michael brown
mOhm values	Actual **Initial**	**Delta Cycles**	**Delta Therm Shck**	**Delta Humidity**
	Pin Type: Signal 1			
Average	23.43	1.04	1.06	1.31
St. Dev.	1.24	1	1.38	1.47
Min	20.68	0.02	0	0
Max	26.95	6.38	9.02	8.75
Summary Count	152	152	152	152
Total Count	152	152	152	152
	Pin Type: Signal 2			
Average	32.06	1.14	1.02	1.07
St. Dev.	1.63	0.91	0.92	1.15
Min	28.72	0	0.02	0.02
Max	36.49	4.33	5.01	6.7
Summary Count	152	152	152	152
Total Count	152	152	152	152
	Pin Type: GND 1			
Average	18.22	0.96	0.87	1.31
St. Dev.	1.76	1.15	1.37	1.68
Min	15.93	0.01	0.01	0.05
Max	26.64	8.07	9.55	9.08
Summary Count	88	88	88	88
Total Count	88	88	88	88
	Pin Type: GND 2			
Average	32.67	1.16	1.01	1.25
St. Dev.	1.62	1.02	0.96	1.12
Min	28.46	0.02	0.01	0
Max	37.03	5.72	4.08	4.59
Summary Count	88	88	88	88
Total Count	88	88	88	88

LLCR Delta Count by Category						
	Stable	**Minor**	**Acceptable**	**Marginal**	**Unstable**	**Open**
mOhms	**<=5**	**>5 & <=10**	**>10 & <=15**	**>15 & <=50**	**>50 & <=1000**	**>1000**
25 Cycles	**475**	**5**	**0**	**0**	**0**	**0**
Therm Shck	**474**	**6**	**0**	**0**	**0**	**0**
Humidity	**469**	**11**	**0**	**0**	**0**	**0**

DATA SUMMARIES Continued

LLCR Shock & Vibration:

1). A total of 304 signal and 176 ground points were measured.
2). EIA-364-23, *Low Level Contact Resistance Test Procedure for Electrical Connectors and Sockets.*
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 +1000 mOhms ----------Unstable
   f. >+1000 mOhms: ----------Open Failure

DATA SUMMARIES Continued

Group1 mate 0.067" EDGE CARD

LLCR Measurement Summaries by Pin Type		
Date	2024/10/3	2024/10/25
Room Temp (Deg C)	22	22
Rel Humidity (%)	45	42
Technician	Nicola Ansell	Brian Stemle
mOhm values	Actual **Initial**	**Delta Shock-Vib**
Pin Type: Signal 1		
Average	21.93	0.48
St. Dev.	1	0.34
Min	20.06	0
Max	24.32	1.53
Summary Count	152	152
Total Count	152	152
Pin Type: Signal 2		
Average	31.04	0.76
St. Dev.	1.33	0.63
Min	28.19	0.02
Max	34.56	5.11
Summary Count	152	152
Total Count	152	152
Pin Type: GND 1		
Average	16.83	0.44
St. Dev.	1.4	0.35
Min	15.09	0.01
Max	21.2	1.63
Summary Count	88	88
Total Count	88	88
Pin Type: GND 2		
Average	31.75	0.71
St. Dev.	1.2	0.53
Min	29.46	0.01
Max	34.87	2.23
Summary Count	88	88
Total Count	88	88

LLCR Delta Count by Category						
	Stable	**Minor**	**Acceptable**	**Marginal**	**Unstable**	**Open**
mOhms	**<=5**	**>5 & <=10**	**>10 & <=15**	**>15 & <=50**	**>50 & <=1000**	**>1000**
Shock-Vib	**479**	**1**	**0**	**0**	**0**	**0**

DATA SUMMARIES Continued

Group1 mate 0.057" EDGE CARD

	LLCR Measurement Summaries by Pin Type	
Date	2024/10/3	2024/10/25
Room Temp (Deg C)	22	22
Rel Humidity (%)	45	40
Technician	Nicola Ansell	Brian Stemle
mOhm values	Actual **Initial**	**Delta** **Shock-Vib**
	Pin Type: Signal 1	
Average	22.41	0.62
St. Dev.	1.2	0.52
Min	19.85	0.01
Max	27.72	2.93
Summary Count	152	152
Total Count	152	152
	Pin Type: Signal 2	
Average	31.21	0.65
St. Dev.	1.46	0.56
Min	28.34	0.01
Max	35.12	3.3
Summary Count	152	152
Total Count	152	152
	Pin Type: GND 1	
Average	17.34	0.65
St. Dev.	1.55	0.54
Min	15.19	0.02
Max	22.42	3.34
Summary Count	88	88
Total Count	88	88
	Pin Type: GND 2	
Average	31.93	0.58
St. Dev.	1.31	0.47
Min	29.02	0.02
Max	35.3	2.33
Summary Count	88	88
Total Count	88	88

LLCR Delta Count by Category						
	Stable	**Minor**	**Acceptable**	**Marginal**	**Unstable**	**Open**
mOhms	**<=5**	**>5 & <=10**	**>10 & <=15**	**>15 & <=50**	**>50 & <=1000**	**>1000**
Shock-Vib	**480**	**0**	**0**	**0**	**0**	**0**

DATA SUMMARIES Continued

Nanosecond Event Detection:

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

EQUIPMENT AND CALIBRATION SCHEDULES

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: 05/29/2024, Next Cal: 05/29/2025

Equipment #: MO-11
Description: Switch/Multimeter
Manufacturer: Keithley
Model: 3706
Serial #: 120169
Accuracy: See Manual
… Last Cal: 09/11/2024, Next Cal: 09/11/2025

Equipment #: TSC-01
Description: Vertical Thermal Shock Chamber
Manufacturer: Cincinnati Sub Zero
Model: VTS-3-6-6-SC/AC
Serial #: 10-VT14993
Accuracy: See Manual
… Last Cal: 06/30/2024, Next Cal: 06/30/2025

Equipment #: THC-05
Description: Temperature/Humidity Chamber (Chamber Room)
Manufacturer: Thermotron
Model: SM-8-3800
Serial #: 05 23 00 02
Accuracy: See Manual
… Last Cal: 11/14/2024, Next Cal: 11/14/2025

Equipment #: HPT-01
Description: Hipot Safety Tester
Manufacturer: Vitrek
Model: V73
Serial #: 019808
Accuracy:
… Last Cal: 05/15/2024, Next Cal: 05/15/2025

Equipment #: PS-02
Description: Power Supply
Manufacturer: Hewlett-Packer
Model: 6033A
Serial #: N/A
Accuracy: See Manual
… Last Cal: NOT CALIBRATED

EQUIPMENT AND CALIBRATION SCHEDULES

Equipment #: MO-04
Description: Multimeter /Data Acquisition System
Manufacturer: Keithley
Model: 2700
Serial #: 0798688
Accuracy: See Manual
… Last Cal: 09/11/2024, Next Cal: 09/11/2025

Equipment #: SVC-01
Description: Shock & Vibration Table
Manufacturer: Data Physics
Model: LE-DSA-10-20K
Serial #: 10037
Accuracy: See Manual
… Last Cal: 04/22/2024, Next Cal: 04/22/2025

Equipment #: ACLM-01
Description: Accelerometer
Manufacturer: PCB Piezotronics
Model: 352C03
Serial #: 115819
Accuracy: See Manual
… Last Cal: 07/18/2024, Next Cal: 07/18/2025

Equipment #: ED-03
Description: Event Detector
Manufacturer: Analysis Tech
Model: 32EHD
Serial #: 1100604
Accuracy: See Manual
… Last Cal: 10/31/2024, Next Cal: 10/31/2025