Project Number: Design Qualification Test Report	Tracking Code: 1085673_Report_Rev_2
Requested by: Chad Humphres	Date: 4/9/2020
Part #: EBDM-6-12-2.0-S-RA-1/EBTF-6-12-S-RA-1	
Part description: EBDM/EBTF	Tech: Tony Wagoner
Test Start: 8/3/2017	Test Completed: 9/14/2017

(Actual part not depicted)

DESIGN QUALIFICATION TEST REPORT

EBDM/EBTF
EBDM-6-12-2.0-S-RA-1/EBTF-6-12-S-RA-1

REVISION HISTORY

DATE	REV.NUM.	DESCRIPTION	ENG
10/12/2017	**1**	**Initial Issue**	**KH**
4/9/2020	**2**	**Updated the CCC charts**	**PC**

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.

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SCOPE

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

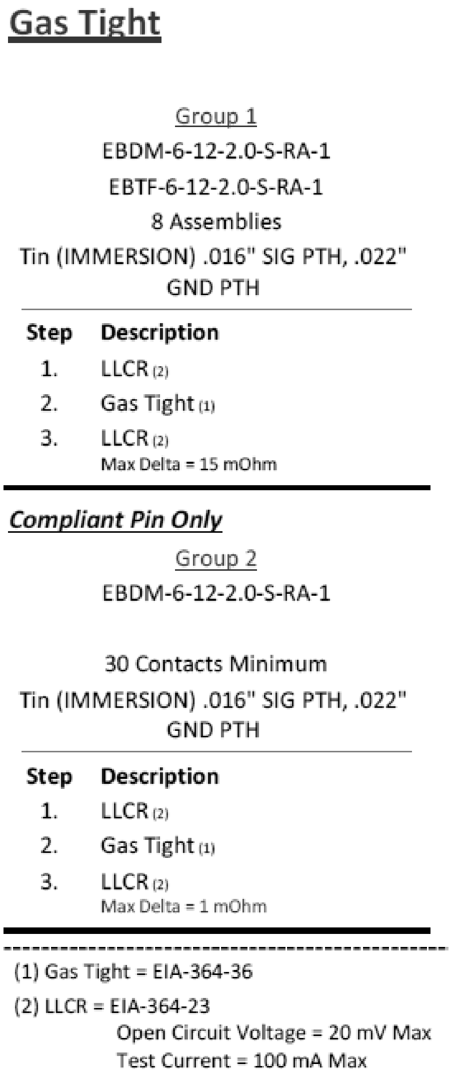
APPLICABLE DOCUMENTS

Standards: EIA Publication 364

TEST SAMPLES AND PREPARATION

1) All materials were manufactured in accordance with the applicable product specification.
2) All test samples were identified and encoded to maintain traceability throughout the test sequences.
3) After soldering, the parts to be used for LLCR and DWV/IR testing were cleaned according to TLWI-0001.
4) Either an automated cleaning procedure or an ultrasonic cleaning procedure may be used.
5) The automated procedure is used with aqueous compatible soldering materials.
6) Parts not intended for testing LLCR and DWV/IR are visually inspected and cleaned if necessary.
7) Any additional preparation will be noted in the individual test sequences.
8) Solder Information: Lead free
9) Samtec Test PCBs used: PCB-107967-TST/PCB-108051-TST/PCB-107965-TST.

FLOWCHARTS



Gas Tight

Group 1
EBDM-6-12-2.0-S-RA-1
EBTF-6-12-2.0-S-RA-1
8 Assemblies
Tin (IMMERSION) .016" SIG PTH, .022" GND PTH

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

Compliant Pin Only

Group 2
EBDM-6-12-2.0-S-RA-1

30 Contacts Minimum
Tin (IMMERSION) .016" SIG PTH, .022" GND PTH

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

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(1) Gas Tight = EIA-364-36

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

FLOWCHARTS Continued

Normal Force

Signal Without Thermals

Group 1
EBDM-6-12-2.0-S-RA-1

8 Contacts Minimum
Signal Without Thermals Row 1 Wafer

Step	Description
1.	Contact Gaps
2.	Normal Force (1) Deflection = 0.0112 " Expected Force at Max Deflection = 100 g

Group 2
EBDM-6-12-2.0-S-RA-1

8 Contacts Minimum
Signal Without Thermals Row 2 Wafer

Step	Description
1.	Contact Gaps
2.	Normal Force (1) Deflection = 0.0112 " Expected Force at Max Deflection = 100 g

Group 5
EBDM-6-12-2.0-S-RA-1

8 Contacts Minimum
Signal Without Thermals Row 11 Wafer

Step	Description
1.	Contact Gaps
2.	Normal Force (1) Deflection = 0.0112 " Expected Force at Max Deflection = 100 g

Group 6
EBDM-6-12-2.0-S-RA-1

8 Contacts Minimum
Signal Without Thermals Row 12 Wafer

Step	Description
1.	Contact Gaps
2.	Normal Force (1) Deflection = 0.0112 " Expected Force at Max Deflection = 100 g

Signal With Thermals

Group 3
EBDM-6-12-2.0-S-RA-1

8 Contacts Minimum
Signal With Thermals Row 1 Wafer

Step	Description
1.	Contact Gaps
2.	Thermal Age (2)
3.	Contact Gaps
4.	Normal Force (1) Deflection = 0.0112 " Expected Force at Max Deflection = 100 g

Group 4
EBDM-6-12-2.0-S-RA-1

8 Contacts Minimum
Signal With Thermals Row 2 Wafer

Step	Description
1.	Contact Gaps
2.	Thermal Age (2)
3.	Contact Gaps
4.	Normal Force (1) Deflection = 0.0112 " Expected Force at Max Deflection = 100 g

Group 7
EBDM-6-12-2.0-S-RA-1

8 Contacts Minimum
Signal With Thermals Row 11 Wafer

Step	Description
1.	Contact Gaps
2.	Thermal Age (2)
3.	Contact Gaps
4.	Normal Force (1) Deflection = 0.0112 " Expected Force at Max Deflection = 100 g

Group 8
EBDM-6-12-2.0-S-RA-1

8 Contacts Minimum
Signal With Thermals Row 12 Wafer

Step	Description
1.	Contact Gaps
2.	Thermal Age (2)
3.	Contact Gaps
4.	Normal Force (1) Deflection = 0.0112 " Expected Force at Max Deflection = 100 g

Ground Without Thermals

Group 9
EBDM-6-12-2.0-S-RA-1

8 Contacts Minimum
Ground Without Thermals Row 1 Wafer

Step	Description
1.	Contact Gaps
2.	Normal Force (1) Deflection = 0.0112 " Expected Force at Max Deflection = 100 g

Group 10
EBDM-6-12-2.0-S-RA-1

8 Contacts Minimum
Ground Without Thermals Row 2 Wafer

Step	Description
1.	Contact Gaps
2.	Normal Force (1) Deflection = 0.0112 " Expected Force at Max Deflection = 100 g

Group 13
EBDM-6-12-2.0-S-RA-1

8 Contacts Minimum
Ground Without Thermals Row 11 Wafer

Step	Description
1.	Contact Gaps
2.	Normal Force (1) Deflection = 0.0112 " Expected Force at Max Deflection = 100 g

Group 14
EBDM-6-12-2.0-S-RA-1

8 Contacts Minimum
Ground Without Thermals Row 12 Wafer

Step	Description
1.	Contact Gaps
2.	Normal Force (1) Deflection = 0.0112 " Expected Force at Max Deflection = 100 g

Ground With Thermals

Group 11
EBDM-6-12-2.0-S-RA-1

8 Contacts Minimum
Ground With Thermals Row 1 Wafer

Step	Description
1.	Contact Gaps
2.	Thermal Age (2)
3.	Contact Gaps
4.	Normal Force (1) Deflection = 0.0112 " Expected Force at Max Deflection = 100 g

Group 12
EBDM-6-12-2.0-S-RA-1

8 Contacts Minimum
Ground With Thermals Row 2 Wafer

Step	Description
1.	Contact Gaps
2.	Thermal Age (2)
3.	Contact Gaps
4.	Normal Force (1) Deflection = 0.0112 " Expected Force at Max Deflection = 100 g

Group 15
EBDM-6-12-2.0-S-RA-1

8 Contacts Minimum
Ground With Thermals Row 11 Wafer

Step	Description
1.	Contact Gaps
2.	Thermal Age (2)
3.	Contact Gaps
4.	Normal Force (1) Deflection = 0.0112 " Expected Force at Max Deflection = 100 g

Group 16
EBDM-6-12-2.0-S-RA-1

8 Contacts Minimum
Ground With Thermals Row 12 Wafer

Step	Description
1.	Contact Gaps
2.	Thermal Age (2)
3.	Contact Gaps
4.	Normal Force (1) Deflection = 0.0112 " Expected Force at Max Deflection = 100 g

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(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

Group 1
EBDM-6-12-2.0-S-RA-1
EBTF-6-12-2.0-S-RA-1
8 Assemblies
Tin (IMMERSION) .016" SIG PTH, .022" GND PTH

Step	Description
1.	Contact Gaps
2.	Mating/Unmating Force (2)
3.	LLCR (1)
4.	Thermal Age (3)
5.	LLCR (1) Max Delta = 15 mOhm
6.	Mating/Unmating Force (2)
7.	Contact Gaps

Compliant Pin Only

Group 2
EBDM-6-12-2.0-S-RA-1

30 Contacts Minimum
Tin (IMMERSION) .016" SIG PTH, .022" GND PTH

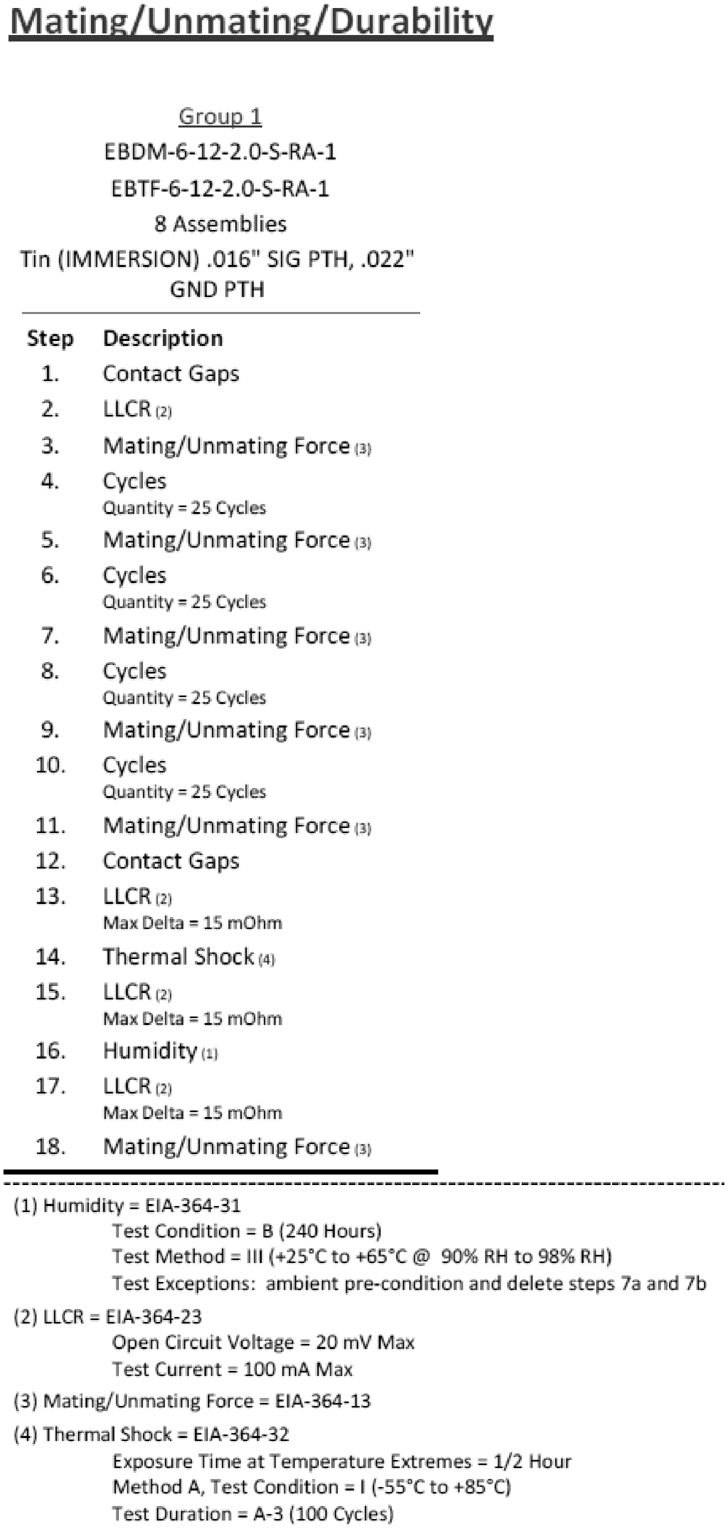
Step	Description
1.	LLCR (1)
2.	Thermal Age (3)
3.	LLCR (1) Max Delta = 1 mOhm

(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

Group 1
EBDM-6-12-2.0-S-RA-1
EBTF-6-12-2.0-S-RA-1
8 Assemblies
Tin (IMMERSION) .016" SIG PTH, .022" GND PTH

Step	Description
1.	Contact Gaps
2.	LLCR (2)
3.	Mating/Unmating Force (3)
4.	Cycles Quantity = 25 Cycles
5.	Mating/Unmating Force (3)
6.	Cycles Quantity = 25 Cycles
7.	Mating/Unmating Force (3)
8.	Cycles Quantity = 25 Cycles
9.	Mating/Unmating Force (3)
10.	Cycles Quantity = 25 Cycles
11.	Mating/Unmating Force (3)
12.	Contact Gaps
13.	LLCR (2) Max Delta = 15 mOhm
14.	Thermal Shock (4)
15.	LLCR (2) Max Delta = 15 mOhm
16.	Humidity (1)
17.	LLCR (2) Max Delta = 15 mOhm
18.	Mating/Unmating Force (3)

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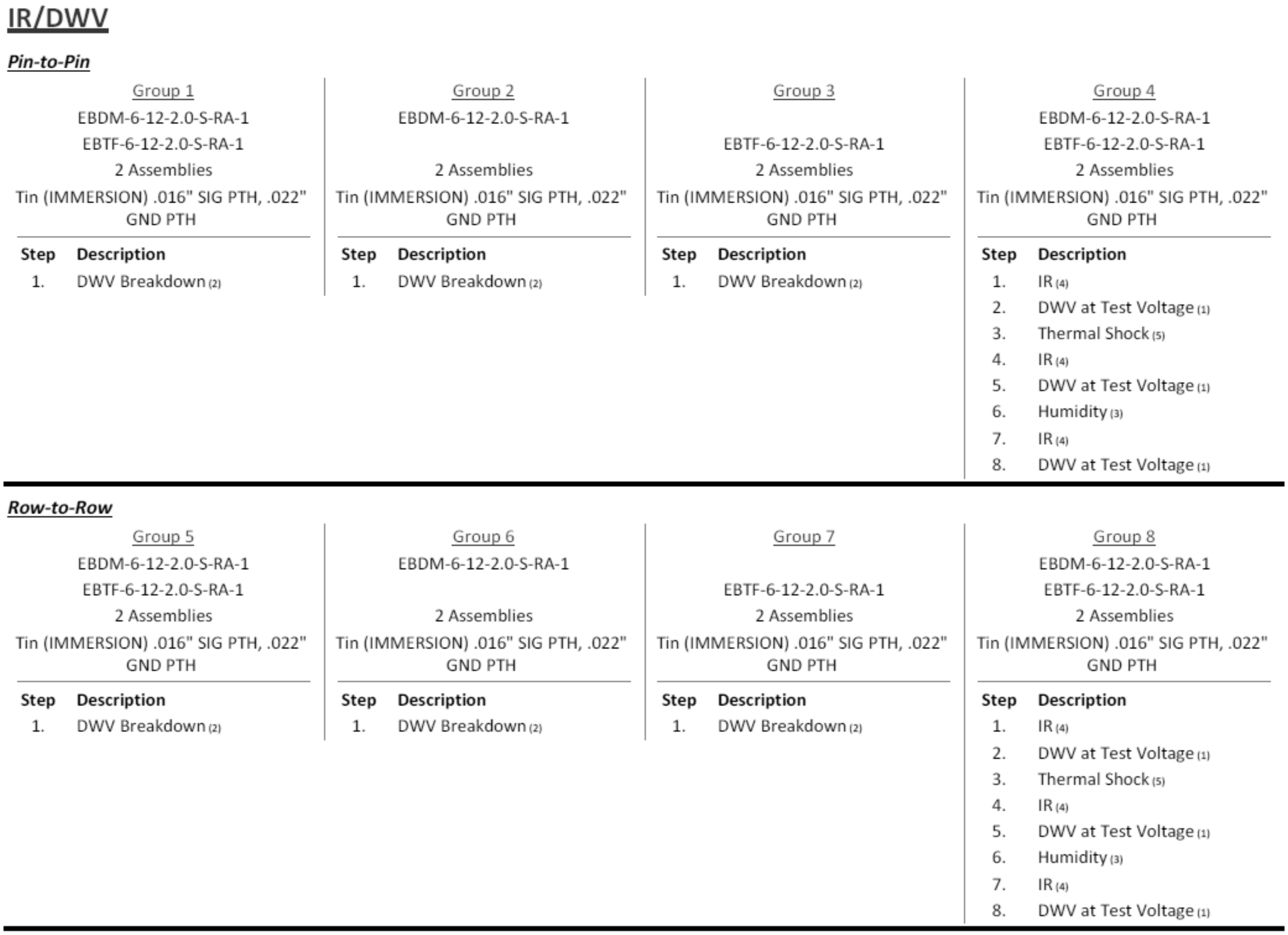
(1) Humidity = EIA-364-31
Test Condition = B (240 Hours)
Test Method = III (+25°C to +65°C @ 90% RH to 98% RH)
Test Exceptions: ambient pre-condition and delete steps 7a and 7b

(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
EBDM-6-12-2.0-S-RA-1
EBTF-6-12-2.0-S-RA-1
2 Assemblies
Tin (IMMERSION) .016" SIG PTH, .022" GND PTH

Step	Description
1.	DWV Breakdown (2)

Group 2
EBDM-6-12-2.0-S-RA-1
2 Assemblies
Tin (IMMERSION) .016" SIG PTH, .022" GND PTH

Step	Description
1.	DWV Breakdown (2)

Group 3
EBTF-6-12-2.0-S-RA-1
2 Assemblies
Tin (IMMERSION) .016" SIG PTH, .022" GND PTH

Step	Description
1.	DWV Breakdown (2)

Group 4
EBDM-6-12-2.0-S-RA-1
EBTF-6-12-2.0-S-RA-1
2 Assemblies
Tin (IMMERSION) .016" SIG PTH, .022" GND PTH

Step	Description
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 5
EBDM-6-12-2.0-S-RA-1
EBTF-6-12-2.0-S-RA-1
2 Assemblies
Tin (IMMERSION) .016" SIG PTH, .022" GND PTH

Step	Description
1.	DWV Breakdown (2)

Group 6
EBDM-6-12-2.0-S-RA-1
2 Assemblies
Tin (IMMERSION) .016" SIG PTH, .022" GND PTH

Step	Description
1.	DWV Breakdown (2)

Group 7
EBTF-6-12-2.0-S-RA-1
2 Assemblies
Tin (IMMERSION) .016" SIG PTH, .022" GND PTH

Step	Description
1.	DWV Breakdown (2)

Group 8
EBDM-6-12-2.0-S-RA-1
EBTF-6-12-2.0-S-RA-1
2 Assemblies
Tin (IMMERSION) .016" SIG PTH, .022" GND PTH

Step	Description
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)

Pin-to-Ground

Group 9
EBDM-6-12-2.0-S-RA-1
EBTF-6-12-2.0-S-RA-1
2 Assemblies
Tin (IMMERSION) .016" SIG PTH, .022" GND PTH

Step	Description
1.	DWV Breakdown (2)

Group 10
EBDM-6-12-2.0-S-RA-1
2 Assemblies
Tin (IMMERSION) .016" SIG PTH, .022" GND PTH

Step	Description
1.	DWV Breakdown (2)

Group 11
EBTF-6-12-2.0-S-RA-1
2 Assemblies
Tin (IMMERSION) .016" SIG PTH, .022" GND PTH

Step	Description
1.	DWV Breakdown (2)

Group 12
EBDM-6-12-2.0-S-RA-1
EBTF-6-12-2.0-S-RA-1
2 Assemblies
Tin (IMMERSION) .016" SIG PTH, .022" GND PTH

Step	Description
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)

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(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

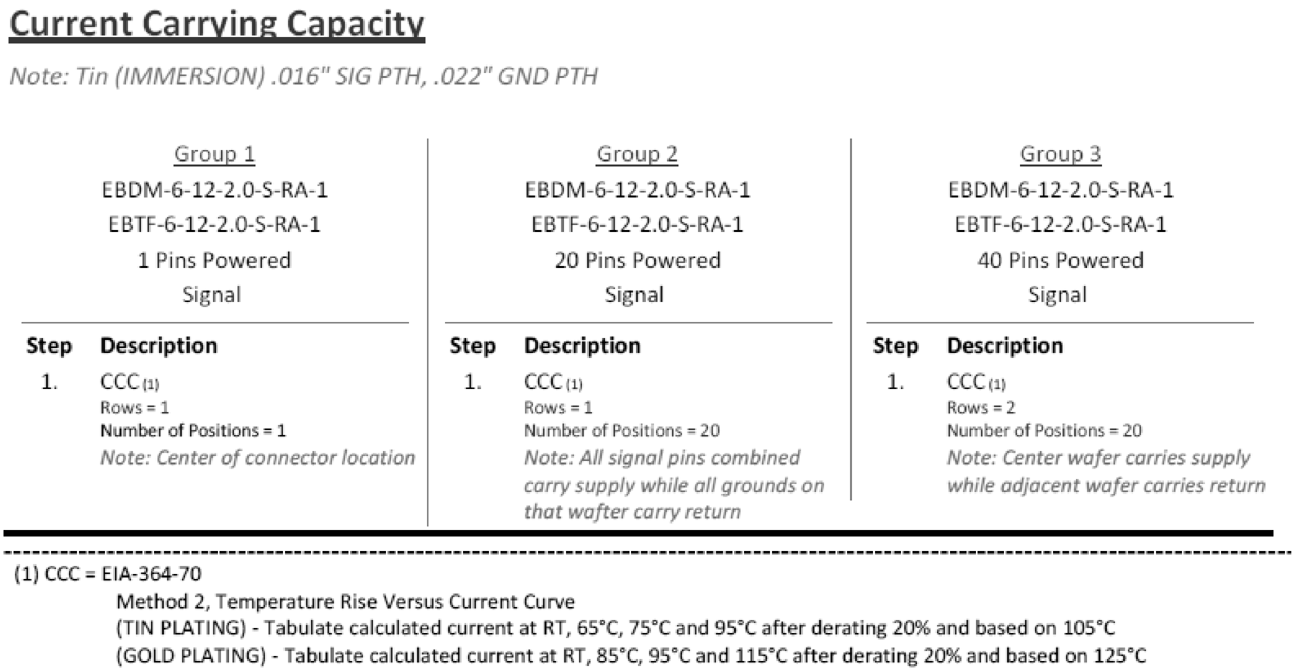
(2) DWV Breakdown = EIA-364-20
Test Condition = 1 (Sea Level)
DWV test voltage is equal to 75% of the lowest breakdown voltage
Test voltage applied for 60 seconds

(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

Note: Tin (IMMERSION) .016" SIG PTH, .022" GND PTH

Group 1
EBDM-6-12-2.0-S-RA-1
EBTF-6-12-2.0-S-RA-1
1 Pins Powered
Signal

Step	Description
1.	CCC (1) Rows = 1 Number of Positions = 1 *Note: Center of connector location*

Group 2
EBDM-6-12-2.0-S-RA-1
EBTF-6-12-2.0-S-RA-1
20 Pins Powered
Signal

Step	Description
1.	CCC (1) Rows = 1 Number of Positions = 20 *Note: All signal pins combined carry supply while all grounds on that wafter carry return*

Group 3
EBDM-6-12-2.0-S-RA-1
EBTF-6-12-2.0-S-RA-1
40 Pins Powered
Signal

Step	Description
1.	CCC (1) Rows = 2 Number of Positions = 20 *Note: Center wafer carries supply while adjacent wafer carries return*

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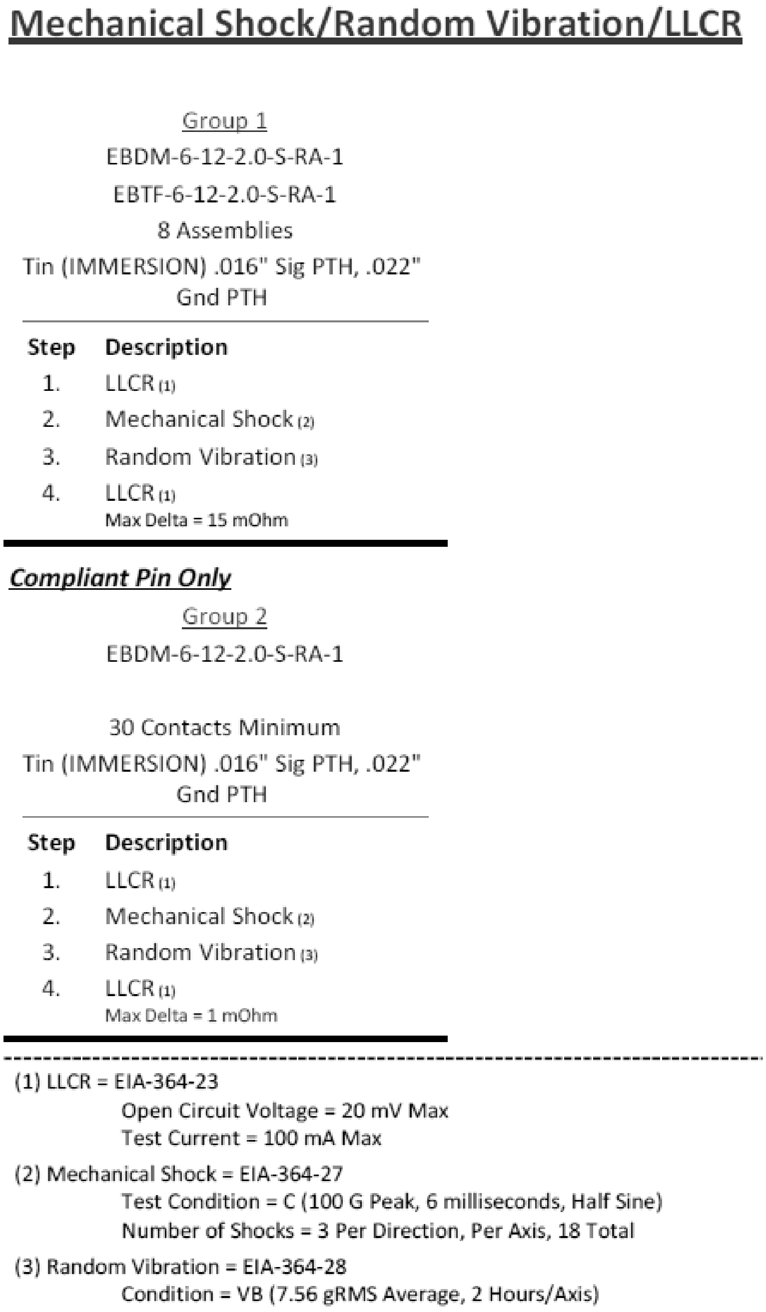
(1) CCC = EIA-364-70
Method 2, Temperature Rise Versus Current Curve
(TIN PLATING) - Tabulate calculated current at RT, 65°C, 75°C and 95°C after derating 20% and based on 105°C
(GOLD PLATING) - Tabulate calculated current at RT, 85°C, 95°C and 115°C after derating 20% and based on 125°C

FLOWCHARTS Continued



Mechanical Shock/Random Vibration/LLCR

Group 1
EBDM-6-12-2.0-S-RA-1
EBTF-6-12-2.0-S-RA-1
8 Assemblies
Tin (IMMERSION) .016" Sig PTH, .022" Gnd PTH

Step	Description
1.	LLCR (1)
2.	Mechanical Shock (2)
3.	Random Vibration (3)
4.	LLCR (1) Max Delta = 15 mOhm

Compliant Pin Only

Group 2
EBDM-6-12-2.0-S-RA-1

30 Contacts Minimum
Tin (IMMERSION) .016" Sig PTH, .022" Gnd PTH

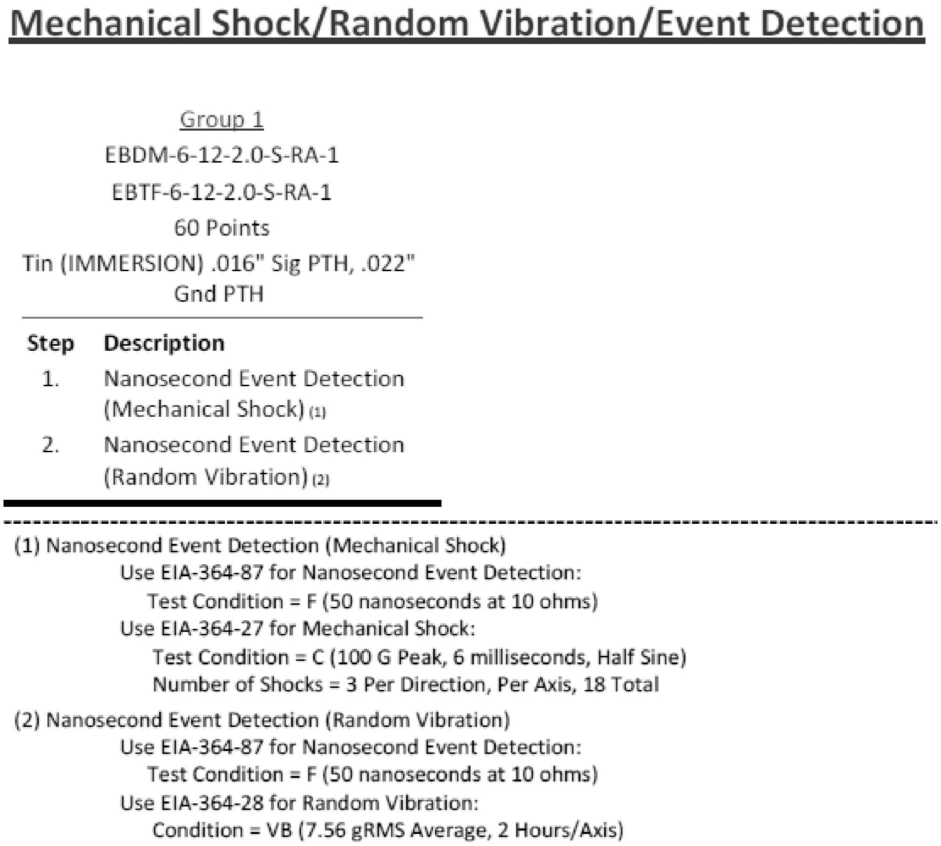
Step	Description
1.	LLCR (1)
2.	Mechanical Shock (2)
3.	Random Vibration (3)
4.	LLCR (1) Max Delta = 1 mOhm

(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)

FLOWCHARTS Continued



Mechanical Shock/Random Vibration/Event Detection

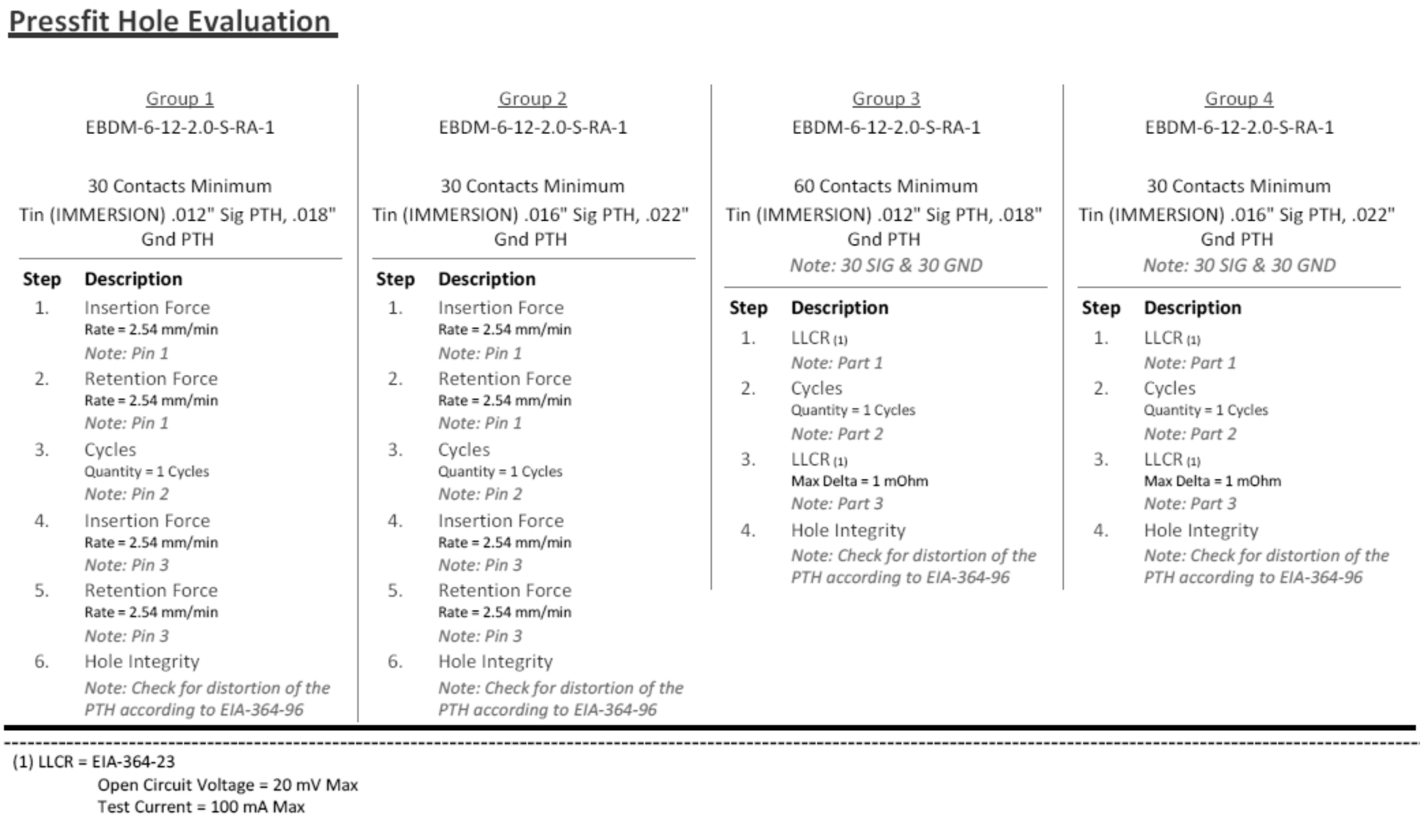
Group 1
EBDM-6-12-2.0-S-RA-1
EBTF-6-12-2.0-S-RA-1
60 Points
Tin (IMMERSION) .016" Sig PTH, .022" Gnd PTH

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)

FLOWCHARTS Continued



Pressfit Hole Evaluation

Group 1
EBDM-6-12-2.0-S-RA-1

30 Contacts Minimum
Tin (IMMERSION) .012" Sig PTH, .018" Gnd PTH

Step	Description
1.	Insertion Force Rate = 2.54 mm/min *Note: Pin 1*
2.	Retention Force Rate = 2.54 mm/min *Note: Pin 1*
3.	Cycles Quantity = 1 Cycles *Note: Pin 2*
4.	Insertion Force Rate = 2.54 mm/min *Note: Pin 3*
5.	Retention Force Rate = 2.54 mm/min *Note: Pin 3*
6.	Hole Integrity *Note: Check for distortion of the PTH according to EIA-364-96*

Group 2
EBDM-6-12-2.0-S-RA-1

30 Contacts Minimum
Tin (IMMERSION) .016" Sig PTH, .022" Gnd PTH

Step	Description
1.	Insertion Force Rate = 2.54 mm/min *Note: Pin 1*
2.	Retention Force Rate = 2.54 mm/min *Note: Pin 1*
3.	Cycles Quantity = 1 Cycles *Note: Pin 2*
4.	Insertion Force Rate = 2.54 mm/min *Note: Pin 3*
5.	Retention Force Rate = 2.54 mm/min *Note: Pin 3*
6.	Hole Integrity *Note: Check for distortion of the PTH according to EIA-364-96*

Group 3
EBDM-6-12-2.0-S-RA-1

60 Contacts Minimum
Tin (IMMERSION) .012" Sig PTH, .018" Gnd PTH
Note: 30 SIG & 30 GND

Step	Description
1.	LLCR (1) *Note: Part 1*
2.	Cycles Quantity = 1 Cycles *Note: Part 2*
3.	LLCR (1) Max Delta = 1 mOhm *Note: Part 3*
4.	Hole Integrity *Note: Check for distortion of the PTH according to EIA-364-96*

Group 4
EBDM-6-12-2.0-S-RA-1

30 Contacts Minimum
Tin (IMMERSION) .016" Sig PTH, .022" Gnd PTH
Note: 30 SIG & 30 GND

Step	Description
1.	LLCR (1) *Note: Part 1*
2.	Cycles Quantity = 1 Cycles *Note: Part 2*
3.	LLCR (1) Max Delta = 1 mOhm *Note: Part 3*
4.	Hole Integrity *Note: Check for distortion of the PTH according to EIA-364-96*

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

ATTRIBUTE DEFINITIONS

The following is a brief, simplified description of attributes.

THERMAL SHOCK:

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

THERMAL:

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

HUMIDITY:

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

MECHANICAL SHOCK (Specified Pulse):

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

VIBRATION:

1) Reference document: EIA-364-28, *Vibration Test Procedure for Electrical Connectors*
2) Test Condition V, Letter B
3) Power Spectral Density: 0.04 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.

ATTRIBUTE DEFINITIONS Continued

The following is a brief, simplified description of attributes

TEMPERATURE RISE (Current Carrying Capacity, CCC):

1) EIA-364-70, *Temperature Rise versus Current Test Procedure for Electrical Connectors and Sockets*.
2) When current passes through a contact, the temperature of the contact increases as a result of I^2R (resistive) heating.
3) The number of contacts being investigated plays a significant part in power dissipation and therefore temperature rise.
4) The size of the temperature probe can affect the measured temperature.
5) Copper traces on PC boards will contribute to temperature rise:
   a. Self heating (resistive)
   b. Reduction in heat sink capacity affecting the heated contacts
6) A de-rating curve, usually 20%, is calculated.
7) Calculated de-rated currents at four temperature points are reported:
   a. Ambient
   b. 65^o C
   c. 75^o C
   d. 95^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.

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 +2000 mOhms: ------------------- Unstable
   f. >+2000 mOhms: ---------------------------- Open Failure
4) The following guidelines are used to categorize the changes in LLCR for compliant pin only
   a. <= +0.33 mOhms: ------------------------- Stable
   b. > +0.33 to +0.66 mOhms: ----------------- Minor
   c. +0.67 to +1 mOhms: ----------------------- Acceptable
   d. >+1 mOhms: --------------------------------- Unstable

ATTRIBUTE DEFINITIONS Continued

The following is a brief, simplified description of attributes

GAS TIGHT:

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

1) EIA-364-23, *Low Level Contact Resistance Test Procedure for Electrical Connectors and Sockets*.
2) A computer program, *LLCR 221.exe*, ensures repeatability for data acquisition.
3) The following guidelines are used to categorize the changes in LLCR as a result from stressing
    a. <= +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.
5) The following guidelines are used to categorize the changes in LLCR for compliant pin only
    a. <= +0.33 mOhms:-------------------------- Stable
    b. > +0.33 to +0.66 mOhms: ----------------- Minor
    c. +0.67 to +1 mOhms: ---------------------- Acceptable
    d. >+1 mOhms: -------------------------------- Unstable

ATTRIBUTE DEFINITIONS Continued

The following is a brief, simplified description of attributes

INSULATION RESISTANCE (IR):

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

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

DIELECTRIC WITHSTANDING VOLTAGE (DWV):

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

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

RESULTS

Temperature Rise, CCC at a 20% de-rating

- **CCC for a 30°C Temperature Rise---------------4.4 A with 1 contacts (1 Row/1 Pin) powered**
- **CCC for a 30°C Temperature Rise---------------16.5 A with 20 contacts (1 Row/20 Pins) powered**
- **CCC for a 30°C Temperature Rise---------------26.1 A with 4 contacts (2 Rows/20 Positions) powered**

Mating/Unmating Forces:

Thermal Aging Group

- **Initial**
  - **Mating**
    - **Min-------------------------------------- 15.23 Lbs**
    - **Max ------------------------------------ 16.04 Lbs**
  - **Unmating**
    - **Min--8.79 Lbs**
    - **Max --------------------------------------9.25 Lbs**
- **After Thermal**
  - **Mating**
    - **Min--8.95 Lbs**
    - **Max --------------------------------------9.48 Lbs**
  - **Unmating**
    - **Min--6.17 Lbs**
    - **Max --------------------------------------6.77 Lbs**

RESULTS Continued

Mating/Unmating Durability Group

- **Initial**
  - **Mating**
    - **Min-------------------------------------- 14.98 Lbs**
    - **Max ------------------------------------ 16.74 Lbs**
  - **Unmating**
    - **Min-------------------------------------- 10.15 Lbs**
    - **Max ------------------------------------ 10.55 Lbs**
- **After 25 Cycles**
  - **Mating**
    - **Min-------------------------------------- 14.58 Lbs**
    - **Max ------------------------------------ 16.06 Lbs**
  - **Unmating**
    - **Min-------------------------------------- 10.77 Lbs**
    - **Max ------------------------------------ 11.07 Lbs**
- **After 50 Cycles**
  - **Mating**
    - **Min-------------------------------------- 14.61 Lbs**
    - **Max ------------------------------------ 15.86 Lbs**
  - **Unmating**
    - **Min-------------------------------------- 11.10 Lbs**
    - **Max ------------------------------------ 11.37 Lbs**
- **After 75 Cycles**
  - **Mating**
    - **Min-------------------------------------- 14.81 Lbs**
    - **Max ------------------------------------ 16.15 Lbs**
  - **Unmating**
    - **Min-------------------------------------- 11.25 Lbs**
    - **Max ------------------------------------ 11.50 Lbs**
- **After 100 Cycles**
  - **Mating**
    - **Min-------------------------------------- 14.79 Lbs**
    - **Max ------------------------------------ 16.11 Lbs**
  - **Unmating**
    - **Min-------------------------------------- 11.39 Lbs**
    - **Max ------------------------------------ 11.57 Lbs**
- **After Humidity**
  - **Mating**
    - **Min-------------------------------------- 11.50 Lbs**
    - **Max ------------------------------------ 12.35 Lbs**
  - **Unmating**
    - **Min--8.43 Lbs**
    - **Max --------------------------------------9.12 Lbs**

RESULTS Continued

Signal Pin Normal Force at 0.0112 inch deflection

Row1

- **Initial**
  - **Min -- 58.80 gf Set ------ 0.0000 in**
  - **Max-- 66.30 gf Set ------ 0.0004 in**
- **After Thermal**
  - **Min -- 21.20 gf Set ------ 0.0037 in**
  - **Max-- 39.80 gf Set ------ 0.0064 in**

Row2

- **Initial**
  - **Min -- 49.30 gf Set ------ 0.0000 in**
  - **Max-- 55.80 gf Set ------ 0.0001 in**
- **After Thermal**
  - **Min -- 17.50 gf Set ------ 0.0035 in**
  - **Max-- 27.40 gf Set ------ 0.0063 in**

Row11

- **Initial**
  - **Min -- 50.90 gf Set ------ 0.0001 in**
  - **Max-- 59.30 gf Set ------ 0.0019 in**
- **After Thermal**
  - **Min -- 22.80 gf Set ------ 0.0018 in**
  - **Max-- 42.20 gf Set ------ 0.0052 in**

Row12

- **Initial**
  - **Min -- 42.00 gf Set ------ 0.0000 in**
  - **Max-- 54.60 gf Set ------ 0.0001 in**
- **After Thermal**
  - **Min -- 26.00 gf Set ------ 0.0031 in**
  - **Max-- 34.80 gf Set ------ 0.0047 in**

RESULTS Continued

Ground Pin Normal Force at 0.0112 inch deflection

Row1

- **Initial**
  - **Min -- 49.60 gf Set------0.0000 in**
  - **Max-- 56.00 gf Set------0.0001 in**
- **After Thermal**
  - **Min -- 28.00 gf Set------0.0035 in**
  - **Max-- 36.20 gf Set------0.0040 in**

Row2

- **Initial**
  - **Min -- 54.20 gf Set------0.0000 in**
  - **Max-- 57.00 gf Set------0.0001 in**
- **After Thermal**
  - **Min -- 26.60 gf Set------0.0037 in**
  - **Max-- 32.70 gf Set------0.0046 in**

Row11

- **Initial**
  - **Min -- 51.40 gf Set------0.0001 in**
  - **Max-- 56.80 gf Set------0.0001 in**
- **After Thermal**
  - **Min -- 35.60 gf Set------0.0030 in**
  - **Max-- 39.80 gf Set------0.0036 in**

Row12

- **Initial**
  - **Min -- 44.10 gf Set------0.0000 in**
  - **Max-- 49.30 gf Set------0.0001 in**
- **After Thermal**
  - **Min -- 30.10 gf Set------0.0022 in**
  - **Max-- 34.60 gf Set------0.0028 in**

RESULTS Continued

Pressfit Hole Evaluation: Insertion/Withdrawal force

Group1 Tin (immersion) 0.012” Sig PTH, 0.018” Gnd PTH

Signal Pin---IM-C-429-6-11

- **Pin1**
  - **Mating**
    - **Min---------------------------------------2.54 Lbs**
    - **Max --------------------------------------2.97 Lbs**
  - **Unmating**
    - **Min---------------------------------------0.98 Lbs**
    - **Max --------------------------------------1.19 Lbs**
- **Pin2**
  - **Mating**
    - **Min---------------------------------------2.12 Lbs**
    - **Max --------------------------------------2.37 Lbs**
  - **Unmating**
    - **Min---------------------------------------0.87 Lbs**
    - **Max --------------------------------------1.16 Lbs**
- **Pin3**
  - **Mating**
    - **Min---------------------------------------2.00 Lbs**
    - **Max --------------------------------------2.46 Lbs**
  - **Unmating**
    - **Min---------------------------------------0.65 Lbs**
    - **Max --------------------------------------1.30 Lbs**

Signal Pin---IM-C-430-6-12

- **Pin1**
  - **Mating**
    - **Min---------------------------------------2.58 Lbs**
    - **Max --------------------------------------2.81 Lbs**
  - **Unmating**
    - **Min---------------------------------------1.22 Lbs**
    - **Max --------------------------------------1.43 Lbs**
- **Pin2**
  - **Mating**
    - **Min---------------------------------------1.97 Lbs**
    - **Max --------------------------------------2.58 Lbs**
  - **Unmating**
    - **Min---------------------------------------1.11 Lbs**
    - **Max --------------------------------------1.51 Lbs**
- **Pin3**
  - **Mating**
    - **Min---------------------------------------1.99 Lbs**
    - **Max --------------------------------------2.55 Lbs**
  - **Unmating**
    - **Min---------------------------------------1.03 Lbs**
    - **Max --------------------------------------1.45 Lbs**

Ground Pin---SH84-6-01-S

- **Pin1**
  - **Mating**
    - **Min--3.65 Lbs**
    - **Max ---------------------------------------4.32 Lbs**
  - **Unmating**
    - **Min--1.14 Lbs**
    - **Max ---------------------------------------1.69 Lbs**
- **Pin2**
  - **Mating**
    - **Min--2.90 Lbs**
    - **Max ---------------------------------------3.57 Lbs**
  - **Unmating**
    - **Min--1.11 Lbs**
    - **Max ---------------------------------------1.69 Lbs**
- **Pin3**
  - **Mating**
    - **Min--2.61 Lbs**
    - **Max ---------------------------------------3.35 Lbs**
  - **Unmating**
    - **Min--1.26 Lbs**
    - **Max ---------------------------------------1.71 Lbs**

Group2 Tin (immersion) 0.016” Sig PTH, 0.022” Gnd PTH

Signal Pin---IM-C-429-6-11

- **Pin1**
  - **Mating**
    - **Min---------------------------------------1.16 Lbs**
    - **Max --------------------------------------1.36 Lbs**
  - **Unmating**
    - **Min---------------------------------------0.94 Lbs**
    - **Max --------------------------------------1.33 Lbs**
- **Pin2**
  - **Mating**
    - **Min---------------------------------------1.22 Lbs**
    - **Max --------------------------------------1.86 Lbs**
  - **Unmating**
    - **Min---------------------------------------1.03 Lbs**
    - **Max --------------------------------------1.35 Lbs**
- **Pin3**
  - **Mating**
    - **Min---------------------------------------1.46 Lbs**
    - **Max --------------------------------------1.83 Lbs**
  - **Unmating**
    - **Min---------------------------------------0.10 Lbs**
    - **Max --------------------------------------1.24 Lbs**

Signal Pin---IM-C-430-6-12

- **Pin1**
  - **Mating**
    - **Min---------------------------------------1.27 Lbs**
    - **Max --------------------------------------1.68 Lbs**
  - **Unmating**
    - **Min---------------------------------------0.91 Lbs**
    - **Max --------------------------------------1.19 Lbs**
- **Pin2**
  - **Mating**
    - **Min---------------------------------------1.41 Lbs**
    - **Max --------------------------------------1.71 Lbs**
  - **Unmating**
    - **Min---------------------------------------0.93 Lbs**
    - **Max --------------------------------------1.23 Lbs**
- **Pin3**
  - **Mating**
    - **Min---------------------------------------1.34 Lbs**
    - **Max --------------------------------------1.77 Lbs**
  - **Unmating**
    - **Min---------------------------------------0.89 Lbs**
    - **Max --------------------------------------1.17 Lbs**

Ground Pin---SH84-6-01-S

- **Pin1**
  - **Mating**
    - **Min---------------------------------------1.66 Lbs**
    - **Max --------------------------------------2.67 Lbs**
  - **Unmating**
    - **Min---------------------------------------1.29 Lbs**
    - **Max --------------------------------------1.73 Lbs**
- **Pin2**
  - **Mating**
    - **Min---------------------------------------1.65 Lbs**
    - **Max --------------------------------------2.15 Lbs**
  - **Unmating**
    - **Min---------------------------------------1.16 Lbs**
    - **Max --------------------------------------1.82 Lbs**
- **Pin3**
  - **Mating**
    - **Min---------------------------------------1.61 Lbs**
    - **Max --------------------------------------2.20 Lbs**
  - **Unmating**
    - **Min---------------------------------------1.18 Lbs**
    - **Max --------------------------------------1.74 Lbs**

RESULTS Continued

Insulation Resistance minimums, IR

Pin to Pin

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

Row to Row

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

Pin to Ground

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

Dielectric Withstanding Voltage minimums, DWV

- **Minimums**
    - **Breakdown Voltage --------------------------------- 646 VAC**
    - **Test Voltage-- 485 VAC**
    - **Working Voltage------------------------------------ 160 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**

Pin to Ground

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

RESULTS Continued

LLCR Gas Tight (40 Signal Row1, 40 Signal Row2, 40 Signal Row3 and 72 Ground LLCR test points)

Signal Row1

- **Initial --56.46 mOhms Max**
- **Gas-Tight**
  - **<= +5.0 mOhms --------------------------------------40 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**

Signal Row2

- **Initial --51.17 mOhms Max**
- **Gas-Tight**
  - **<= +5.0 mOhms --------------------------------------39 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**

Signal Row3

- **Initial --35.03 mOhms Max**
- **Gas-Tight**
  - **<= +5.0 mOhms --------------------------------------40 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**

Ground

- **Initial --- 2.04 mOhms Max**
- **Gas-Tight**
  - **<= +5.0 mOhms --------------------------------------72 Points--------------------------Stable**
  - **+5.1 to +10.0 mOhms ---------------------------------- 0 Points--------------------------Minor**
  - **+10.1 to +15.0 mOhms --------------------------------- 0 Points--------------------------Acceptable**
  - **+15.1 to +50.0 mOhms --------------------------------- 0 Points--------------------------Marginal**
  - **+50.1 to +2000 mOhms -------------------------------- 0 Points--------------------------Unstable**
  - **>+2000 mOhms -- 0 Points--------------------------Open Failure**

LLCR Gas Tight Compliant pin (15 signal and 15 ground LLCR test points)

Tin (immersion) 0.016” Sig PTH, 0.022” Gnd PTH

Signal

- **Initial --- 0.25 mOhms Max**
- **Gas-Tight**
  - **<= +0.33 mOhms ------------------------------------15 Points--------------------------Stable**
  - **+0.34 to +0.66 mOhms --------------------------------- 0 Points--------------------------Minor**
  - **+0.67 to +1 mOhms------------------------------------- 0 Points--------------------------Acceptable**
  - **>+1 mOhms --- 0 Points--------------------------Unstable**

Ground

- **Initial --- 0.28 mOhms Max**
- **Gas-Tight**
  - **<= +0.33 mOhms ------------------------------------15 Points--------------------------Stable**
  - **+0.34 to +0.66 mOhms --------------------------------- 0 Points--------------------------Minor**
  - **+0.67 to +1 mOhms------------------------------------- 0 Points--------------------------Acceptable**
  - **>+1 mOhms --- 0 Points--------------------------Unstable**

RESULTS Continued

LLCR Thermal Aging (40 Signal Row1, 40 Signal Row2, 40 Signal Row3 and 72 Ground LLCR test points)

Signal Row1

- **Initial --64.03 mOhms Max**
- **Thermal Aging**
    - **<= +5.0 mOhms --------------------------------------39 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**

Signal Row2

- **Initial --53.39 mOhms Max**
- **Thermal Aging**
    - **<= +5.0 mOhms --------------------------------------40 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**

Signal Row3

- **Initial --35.09 mOhms Max**
- **Thermal Aging**
    - **<= +5.0 mOhms --------------------------------------40 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**

Ground

- **Initial --- 2.04 mOhms Max**
- **Thermal Aging**
    - **<= +5.0 mOhms --------------------------------------72 Points--------------------------Stable**
    - **+5.1 to +10.0 mOhms ---------------------------------- 0 Points--------------------------Minor**
    - **+10.1 to +15.0 mOhms --------------------------------- 0 Points--------------------------Acceptable**
    - **+15.1 to +50.0 mOhms --------------------------------- 0 Points--------------------------Marginal**
    - **+50.1 to +2000 mOhms -------------------------------- 0 Points--------------------------Unstable**
    - **>+2000 mOhms --- 0 Points--------------------------Open Failure**

LLCR Thermal Aging Compliant pin (15 signal and 15 Ground LLCR test points)

Tin (immersion) 0.016" Sig PTH, 0.022" Gnd PTH

Signal

- **Initial --- 0.24 mOhms Max**
- **Thermal Aging**
    - **<= +0.33 mOhms ------------------------------------15 Points--------------------------Stable**
    - **+0.34 to +0.66 mOhms --------------------------------- 0 Points--------------------------Minor**
    - **+0.67 to +1 mOhms-------------------------------------- 0 Points--------------------------Acceptable**
    - **>+1 mOhms -- 0 Points--------------------------Unstable**

Ground

- **Initial --- 0.31 mOhms Max**
- **Thermal Aging**
    - **<= +0.33 mOhms ------------------------------------15 Points--------------------------Stable**
    - **+0.34 to +0.66 mOhms --------------------------------- 0 Points--------------------------Minor**
    - **+0.67 to +1 mOhms-------------------------------------- 0 Points--------------------------Acceptable**
    - **>+1 mOhms -- 0 Points--------------------------Unstable**

RESULTS Continued

LLCR Durability (40 Signal Row1, 40 Signal Row2, 40 Signal Row3 and 72 Ground LLCR test points)

Signal Row1

- **Initial --60.46 mOhms Max**
- **Durability, 100 Cycles**
    - **<= +5.0 mOhms --------------------------------------40 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**
- **Thermal**
    - **<= +5.0 mOhms --------------------------------------39 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**
- **Humidity**
    - **<= +5.0 mOhms --------------------------------------40 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**

Signal Row2

- **Initial --45.24 mOhms Max**
- **Durability, 100 Cycles**
    - **<= +5.0 mOhms --------------------------------------40 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**
- **Thermal**
    - **<= +5.0 mOhms --------------------------------------40 Points-------------------------Stable**
    - **+5.1 to +10.0 mOhms ---------------------------------- 0 Points-------------------------Minor**
    - **+10.1 to +15.0 mOhms -------------------------------- 0 Points-------------------------Acceptable**
    - **+15.1 to +50.0 mOhms -------------------------------- 0 Points-------------------------Marginal**
    - **+50.1 to +2000 mOhms ------------------------------- 0 Points-------------------------Unstable**
    - **>+2000 mOhms --- 0 Points-------------------------Open Failure**
- **Humidity**
    - **<= +5.0 mOhms --------------------------------------40 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**

Signal Row3

- **Initial --34.66 mOhms Max**
- **Durability, 100 Cycles**
    - **<= +5.0 mOhms -------------------------------------40 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**
- **Thermal**
    - **<= +5.0 mOhms -------------------------------------40 Points-------------------------Stable**
    - **+5.1 to +10.0 mOhms -------------------------------- 0 Points-------------------------Minor**
    - **+10.1 to +15.0 mOhms-------------------------------- 0 Points-------------------------Acceptable**
    - **+15.1 to +50.0 mOhms-------------------------------- 0 Points-------------------------Marginal**
    - **+50.1 to +2000 mOhms ------------------------------- 0 Points-------------------------Unstable**
    - **>+2000 mOhms --------------------------------------- 0 Points-------------------------Open Failure**
- **Humidity**
    - **<= +5.0 mOhms -------------------------------------40 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**

Ground

- **Initial -- 2.11 mOhms Max**
- **Durability, 100 Cycles**
    - **<= +5.0 mOhms -------------------------------------72 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**
- **Thermal**
    - **<= +5.0 mOhms -------------------------------------71 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**
- **Humidity**
    - **<= +5.0 mOhms -------------------------------------72 Points-------------------------Stable**
    - **+5.1 to +10.0 mOhms -------------------------------- 0 Points-------------------------Minor**
    - **+10.1 to +15.0 mOhms-------------------------------- 0 Points-------------------------Acceptable**
    - **+15.1 to +50.0 mOhms-------------------------------- 0 Points-------------------------Marginal**
    - **+50.1 to +2000 mOhms ------------------------------- 0 Points-------------------------Unstable**
    - **>+2000 mOhms --------------------------------------- 0 Points-------------------------Open Failure**

RESULTS Continued

LLCR Shock & Vibration (40 Signal Row1, 40 Signal Row2, 40 Signal Row3 and 72 Ground LLCR test points)

Signal Row1

- **Initial --67.95 mOhms Max**
- **Shock &Vibration**
  - **<= +5.0 mOhms ------------------------------------35 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 +2000 mOhms ------------------------------- 0 Points-------------------------Unstable**
  - **>+2000 mOhms --------------------------------------- 0 Points-------------------------Open Failure**

Signal Row2

- **Initial --52.84 mOhms Max**
- **Shock &Vibration**
  - **<= +5.0 mOhms ------------------------------------38 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 +2000 mOhms ------------------------------- 0 Points-------------------------Unstable**
  - **>+2000 mOhms --------------------------------------- 0 Points-------------------------Open Failure**

Signal Row3

- **Initial --35.97 mOhms Max**
- **Shock &Vibration**
  - **<= +5.0 mOhms ------------------------------------40 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**

Ground

- **Initial -- 2.04 mOhms Max**
- **Shock &Vibration**
  - **<= +5.0 mOhms ------------------------------------72 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**

Mechanical Shock & Random Vibration:

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

RESULTS Continued

LLCR Shock & Vibration Compliant pin (15 Signal and 15 Ground LLCR test points)

Tin (immersion) 0.016” Sig PTH, 0.022” Gnd PTH

Signal

- **Initial -- 0.23 mOhms Max**
- **Shock &Vibration**
  - **<= +0.33 mOhms -----------------------------------15 Points-------------------------Stable**
  - **+0.34 to +0.66 mOhms -------------------------------- 0 Points-------------------------Minor**
  - **+0.67 to +1 mOhms------------------------------------ 0 Points-------------------------Acceptable**
  - **>+1 mOhms-- 0 Points-------------------------Unstable**

Ground

- **Initial -- 0.25 mOhms Max**
- **Shock &Vibration**
  - **<= +0.33 mOhms -----------------------------------15 Points-------------------------Stable**
  - **+0.34 to +0.66 mOhms -------------------------------- 0 Points-------------------------Minor**
  - **+0.67 to +1 mOhms------------------------------------ 0 Points-------------------------Acceptable**
  - **>+1 mOhms-- 0 Points-------------------------Unstable**

RESULTS Continued

Pressfit Hole Evaluation: LLCR (15 signal and 15 Ground LLCR test points)

Group3 Tin (immersion) 0.012” Sig PTH, 0.018” Gnd PTH

Signal Pin

- **Initial -- 0.18 mOhms Max**
- **After 3 cycle**
  - **<= +0.33 mOhms -----------------------------------15 Points-------------------------Stable**
  - **+0.34 to +0.66 mOhms -------------------------------- 0 Points-------------------------Minor**
  - **+0.67 to +1 mOhms------------------------------------ 0 Points-------------------------Acceptable**
  - **>+1 mOhms-- 0 Points-------------------------Unstable**

Ground Pin

- **Initial -- 0.26 mOhms Max**
- **After 3 cycle**
  - **<= +0.33 mOhms -----------------------------------15 Points-------------------------Stable**
  - **+0.34 to +0.66 mOhms -------------------------------- 0 Points-------------------------Minor**
  - **+0.67 to +1 mOhms------------------------------------ 0 Points-------------------------Acceptable**
  - **>+1 mOhms-- 0 Points-------------------------Unstable**

Group4 Tin (immersion) 0.016” Sig PTH, 0.022” Gnd PTH

Signal Pin

- **Initial -- 0.26 mOhms Max**
- **After 3 cycle**
  - **<= +0.33 mOhms -----------------------------------15 Points-------------------------Stable**
  - **+0.34 to +0.66 mOhms -------------------------------- 0 Points-------------------------Minor**
  - **+0.67 to +1 mOhms------------------------------------ 0 Points-------------------------Acceptable**
  - **>+1 mOhms-- 0 Points-------------------------Unstable**

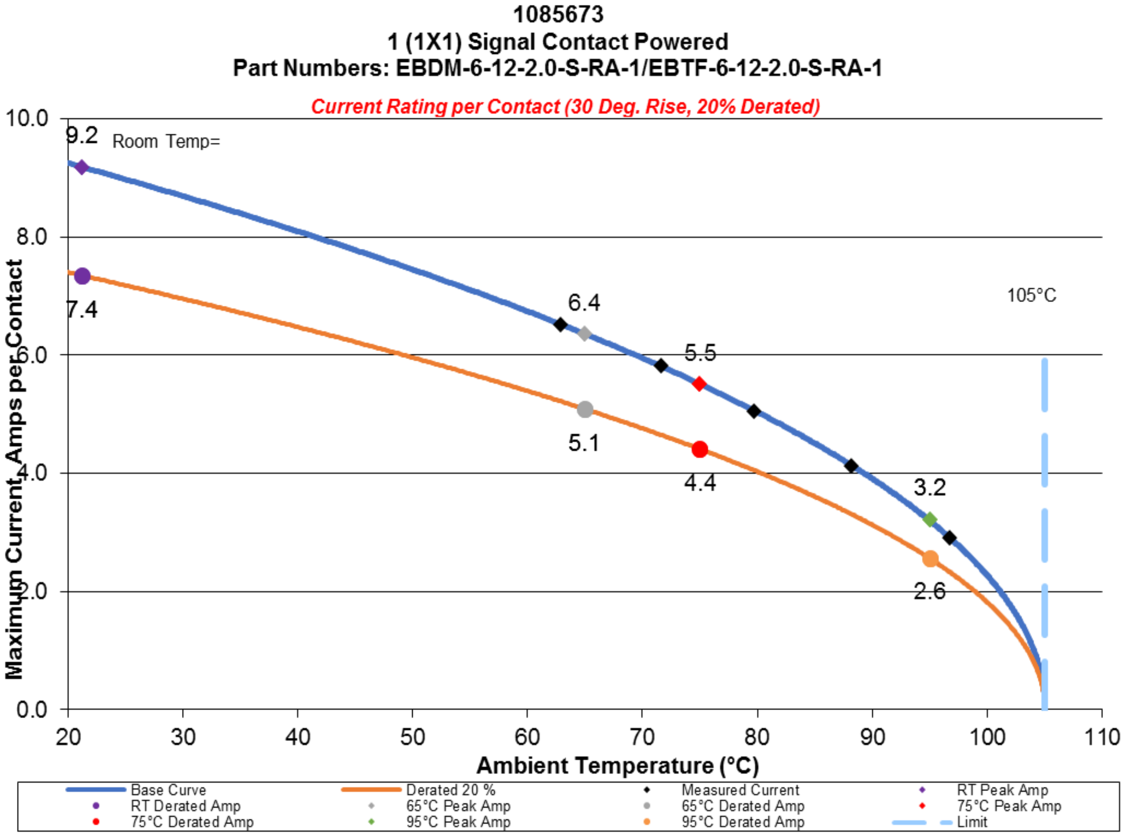
Ground Pin

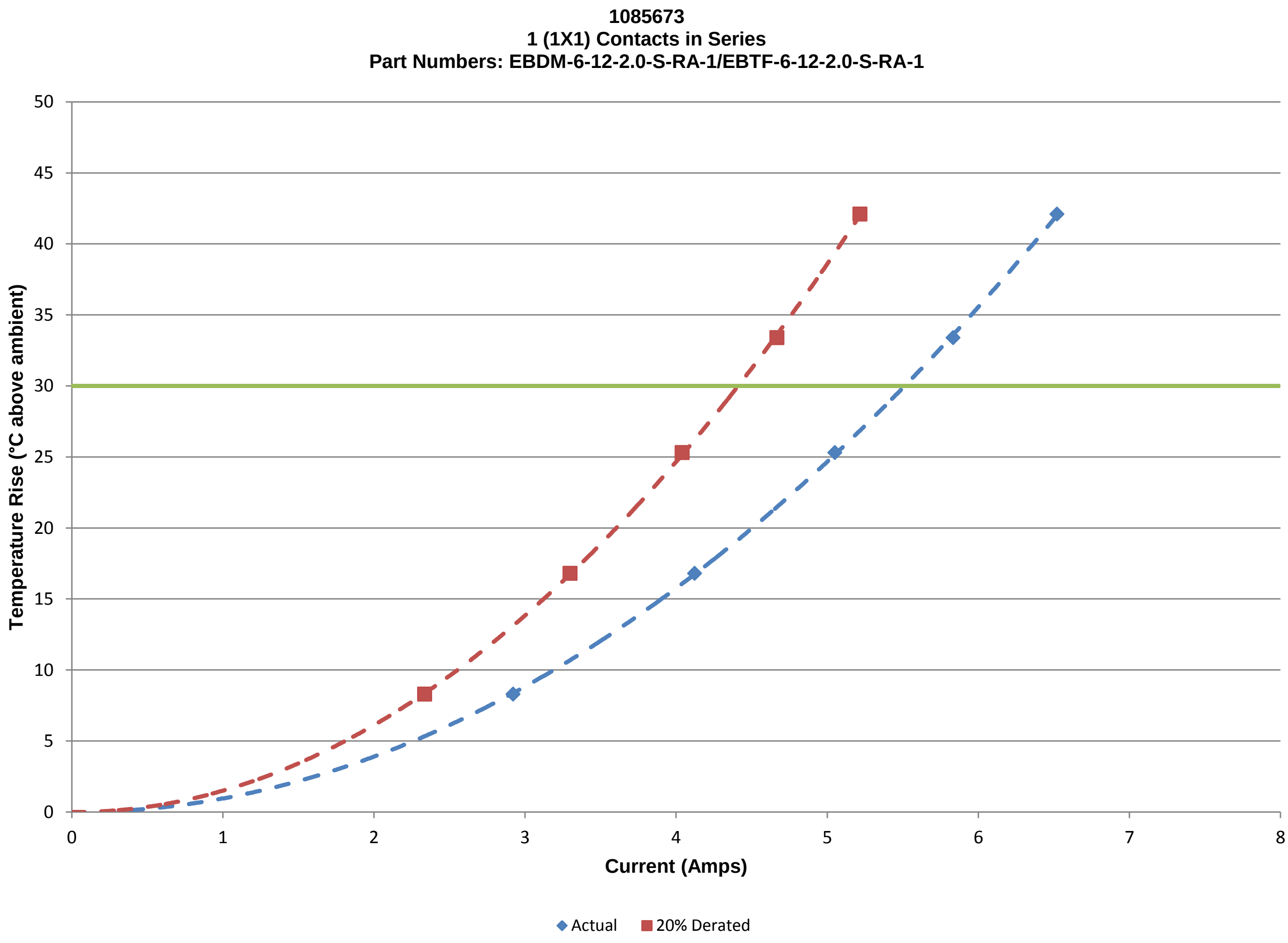
- **Initial -- 0.29 mOhms Max**
- **After 3 cycle**
  - **<= +0.33 mOhms -----------------------------------15 Points-------------------------Stable**
  - **+0.34 to +0.66 mOhms -------------------------------- 0 Points-------------------------Minor**
  - **+0.67 to +1 mOhms------------------------------------ 0 Points-------------------------Acceptable**
  - **>+1 mOhms-- 0 Points-------------------------Unstable**

DATA SUMMARIES

TEMPERATURE RISE (Current Carrying Capacity, CCC):

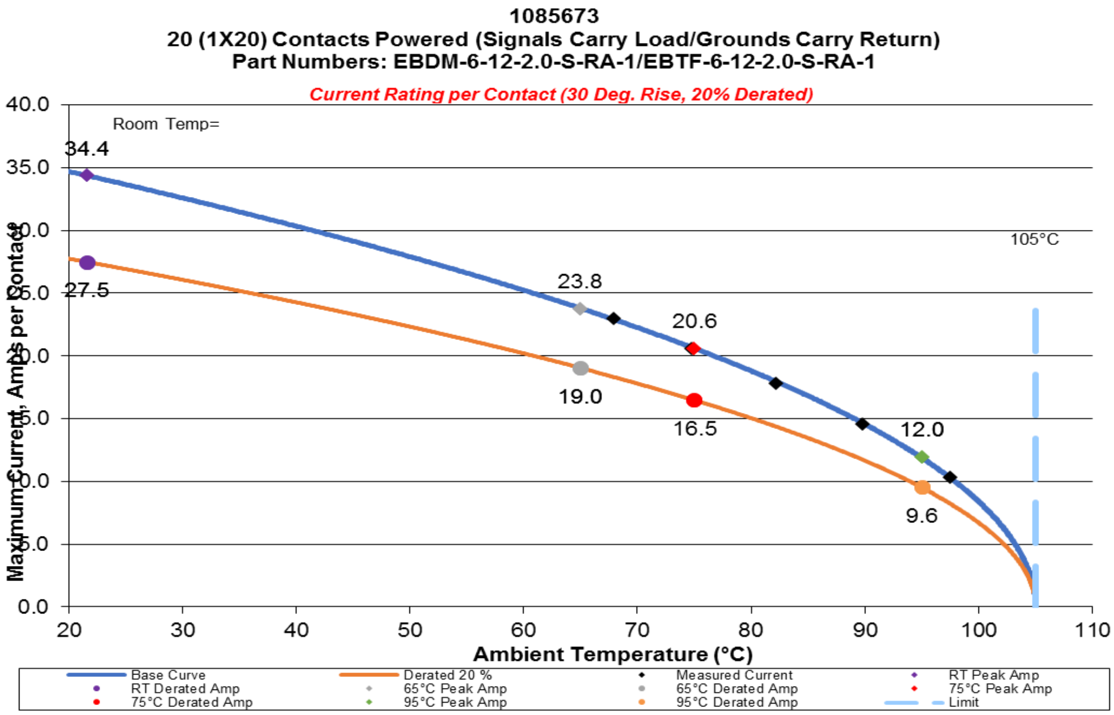
1) High quality thermocouples whose temperature slopes track one another were used for temperature monitoring.
2) The thermocouples were placed at a location to sense the maximum temperature generated during testing.
3) Temperature readings recorded are those for which three successive readings, 15 minutes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

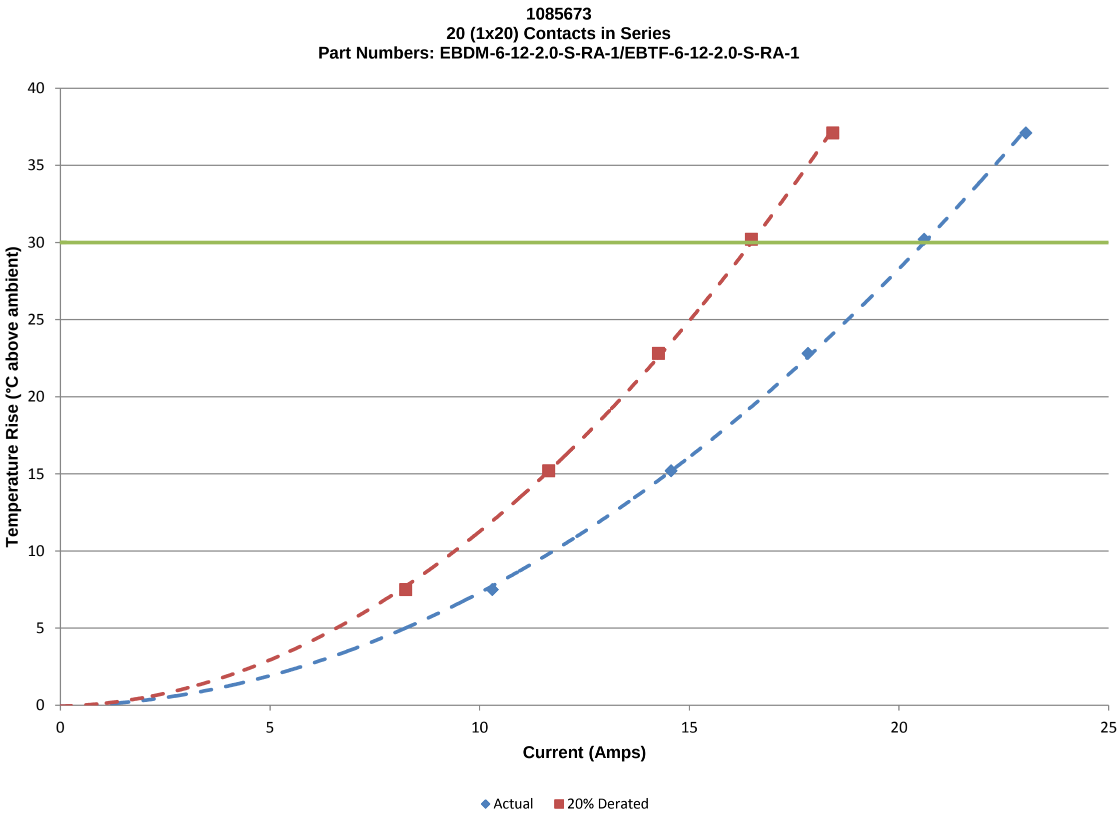



1085673
1 (1X1) Contacts in Series
Part Numbers: EBDM-6-12-2.0-S-RA-1/EBTF-6-12-2.0-S-RA-1
Temperature Rise (°C above ambient)
0
5
10
15
20
25
30
35
40
45
50
Current (Amps)
0
1
2
3
4
5
6
7
8
Actual
20% Derated

DATA SUMMARIES Continued

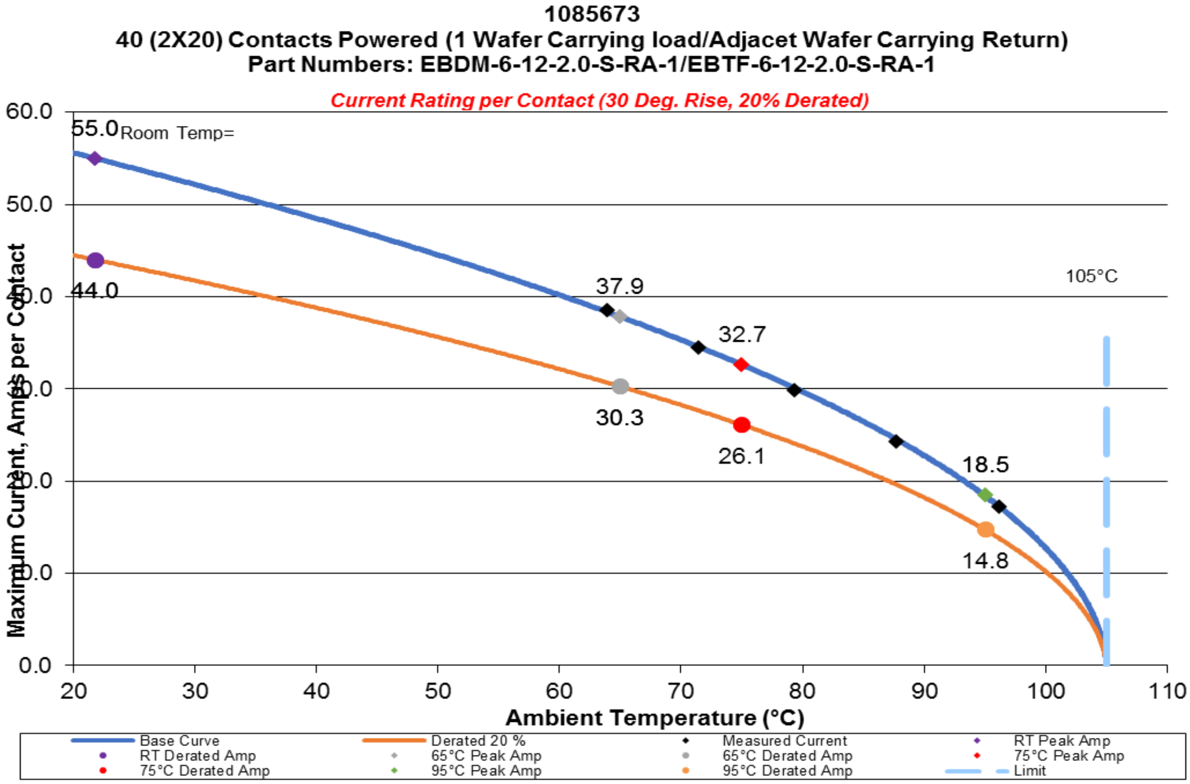
b. 20 Contacts powered (1 Row/20 Positions, Signals Carry Load/Grounds Carry Return)

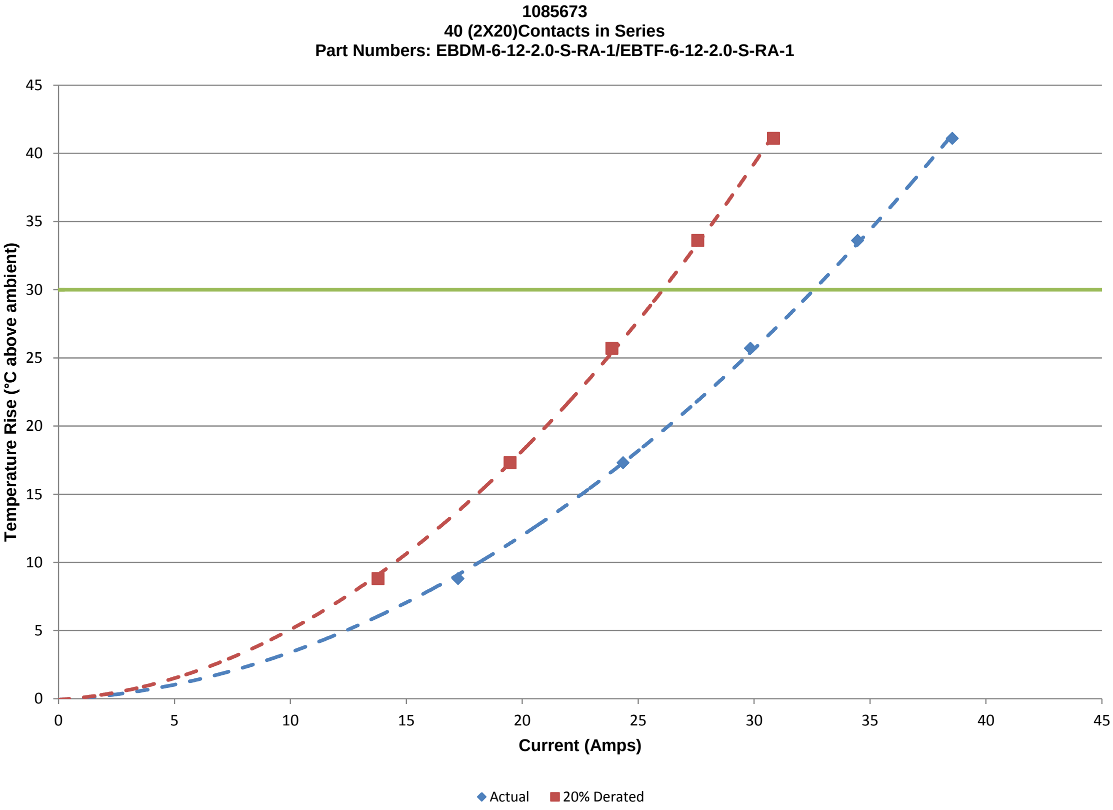




DATA SUMMARIES Continued

c. 40 Contacts powered (2 Rows/20 Positions, 1 Wafer Carrying load/Adjacent Wafer Carrying Return)


1085673
40 (2X20) Contacts Powered (1 Wafer Carrying load/Adjacet Wafer Carrying Return)
Part Numbers: EBDM-6-12-2.0-S-RA-1/EBTF-6-12-2.0-S-RA-1


1085673
40 (2X20)Contacts in Series
Part Numbers: EBDM-6-12-2.0-S-RA-1/EBTF-6-12-2.0-S-RA-1

DATA SUMMARIES Continued

Mating\Unmating Force:

Thermal Aging Group

	Initial				After Thermals			
	Mating		**Unmating**		**Mating**		**Unmating**	
	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)
Minimum	67.76	15.23	39.08	8.79	39.83	8.95	27.46	6.17
Maximum	71.35	16.04	41.14	9.25	42.18	9.48	30.10	6.77
Average	69.38	**15.60**	39.74	**8.94**	40.65	**9.14**	28.69	**6.45**
St Dev	1.01	0.23	0.64	0.14	0.99	0.22	1.02	0.23
Count	8	8	8	8	8	8	8	8

Mating\Unmating Durability Group

	Initial				25 Cycles			
	Mating		**Unmating**		**Mating**		**Unmating**	
	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)
Minimum	66.64	14.98	45.13	10.15	64.86	14.58	47.92	10.77
Maximum	74.44	16.74	46.90	10.55	71.44	16.06	49.23	11.07
Average	70.58	**15.87**	46.07	**10.36**	68.21	**15.34**	48.69	**10.95**
St Dev	2.53	0.57	0.65	0.15	2.34	0.53	0.52	0.12
Count	8	8	8	8	8	8	8	8

	50 Cycles				75 Cycles			
	Mating		**Unmating**		**Mating**		**Unmating**	
	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)
Minimum	64.98	14.61	49.36	11.10	65.89	14.81	50.02	11.25
Maximum	70.53	15.86	50.59	11.37	71.84	16.15	51.17	11.50
Average	68.79	**15.47**	50.01	**11.24**	69.86	**15.70**	50.65	**11.39**
St Dev	1.93	0.43	0.42	0.09	2.32	0.52	0.35	0.08
Count	8	8	8	8	8	8	8	8

	100 Cycles				After Humidity			
	Mating		**Unmating**		**Mating**		**Unmating**	
	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)
Minimum	65.80	14.79	50.65	11.39	51.17	11.50	37.51	8.43
Maximum	71.65	16.11	51.45	11.57	54.93	12.35	40.57	9.12
Average	69.91	**15.72**	51.19	**11.51**	52.77	**11.86**	38.39	**8.63**
St Dev	1.99	0.45	0.27	0.06	1.21	0.27	1.08	0.24
Count	8	8	8	8	8	8	8	8

DATA SUMMARIES Continued

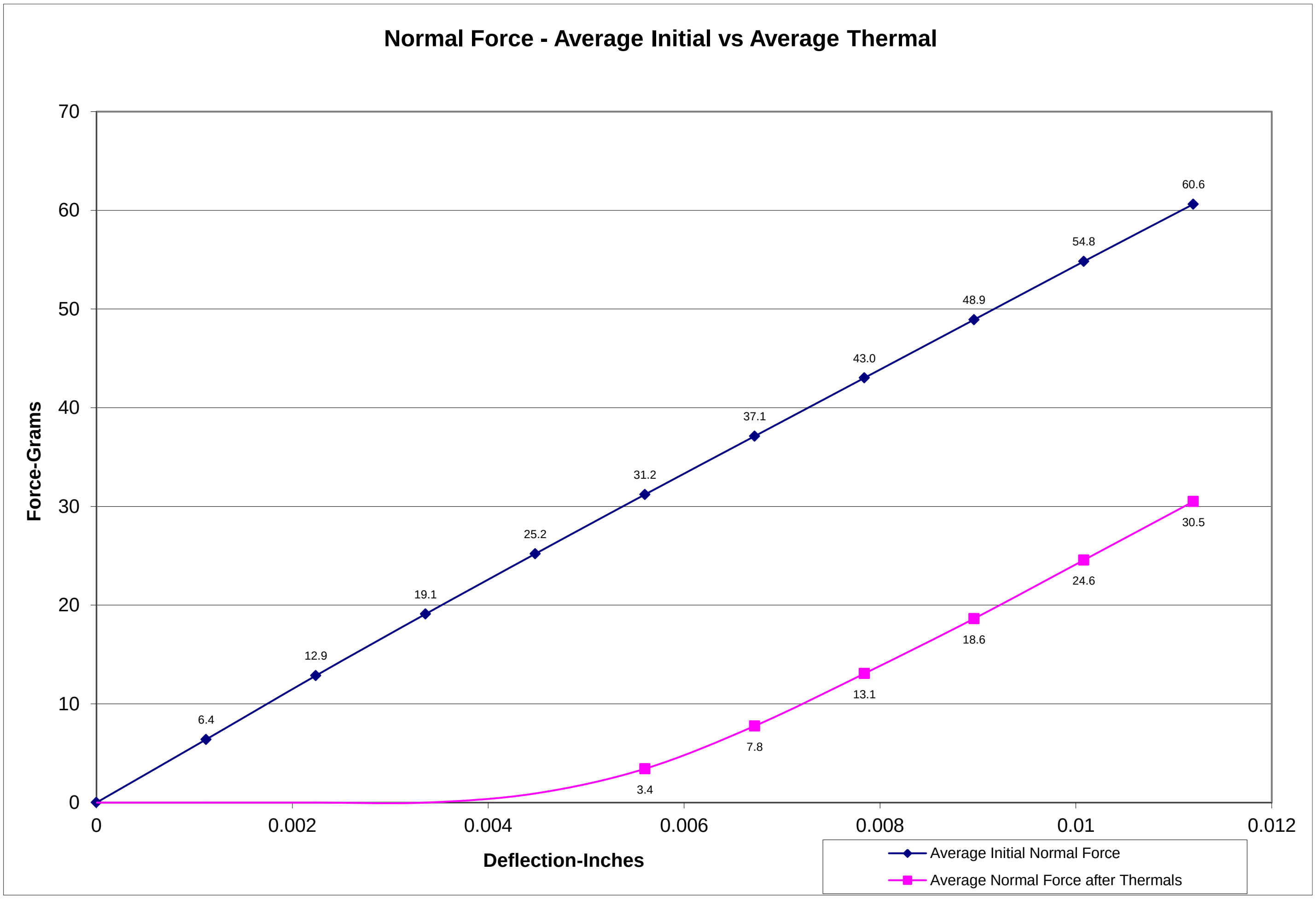
NORMAL FORCE (FOR CONTACTS TESTED IN THE HOUSING):

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---Row1 wafer

	Deflections in inches Forces in Grams										
Initial	**0.0011**	**0.0022**	**0.0034**	**0.0045**	**0.0056**	**0.0067**	**0.0078**	**0.0090**	**0.0101**	**0.0112**	***SET***
Averages	**6.40**	**12.86**	**19.10**	**25.20**	**31.21**	**37.12**	**43.02**	**48.92**	**54.82**	**60.63**	**0.0003**
Min	5.90	12.20	18.30	24.50	30.60	36.20	41.80	47.50	53.10	58.80	0.0000
Max	7.20	14.00	21.00	27.20	33.50	40.20	46.50	53.10	59.90	66.30	0.0004
St. Dev	0.330	0.505	0.790	0.808	0.874	1.101	1.242	1.538	1.887	2.064	0.0001
Count	12	12	12	12	12	12	12	12	12	12	12

	Deflections in inches Forces in Grams										
After Thermals	**0.0011**	**0.0022**	**0.0034**	**0.0045**	**0.0056**	**0.0067**	**0.0078**	**0.0090**	**0.0101**	**0.0112**	***SET***
Averages	**0.00**	**0.00**	**0.00**	**0.93**	**3.43**	**7.76**	**13.07**	**18.63**	**24.56**	**30.50**	**0.0050**
Min	0.00	0.00	0.00	0.00	0.00	1.30	6.00	10.80	16.20	21.20	0.0037
Max	0.00	0.00	0.00	3.10	8.50	14.30	20.60	26.60	32.90	39.80	0.0064
St. Dev	0.000	0.000	0.000	1.281	3.692	4.718	5.114	5.411	5.627	5.995	0.0010
Count	12	12	12	12	12	12	12	12	12	12	12

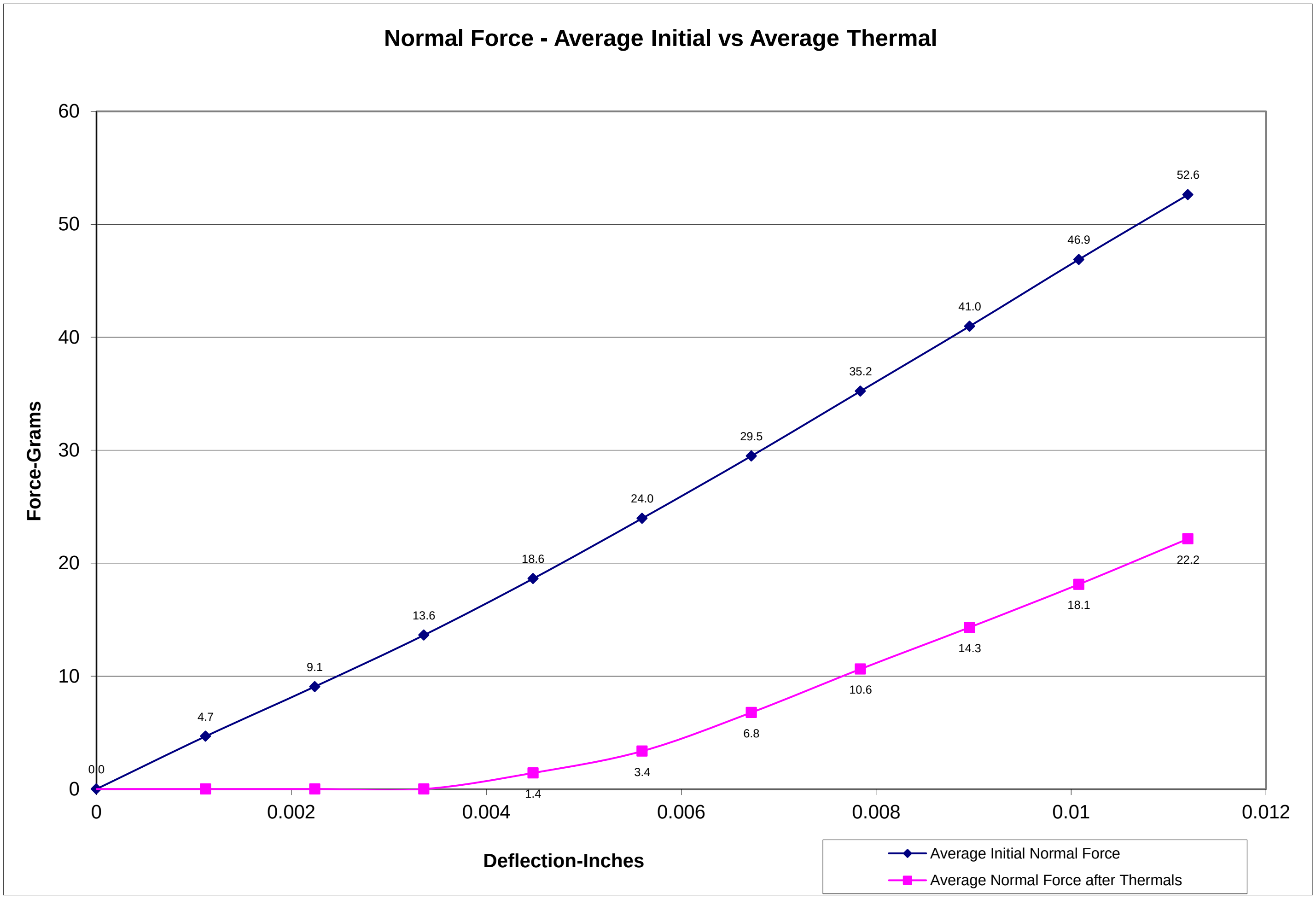


DATA SUMMARIES Continued

Signal---Row2 wafer

	Deflections in inches Forces in Grams										
Initial	**0.0011**	**0.0022**	**0.0034**	**0.0045**	**0.0056**	**0.0067**	**0.0078**	**0.0090**	**0.0101**	**0.0112**	***SET***
Averages	**4.67**	**9.07**	**13.63**	**18.63**	**23.97**	**29.48**	**35.23**	**40.98**	**46.88**	**52.62**	**0.0001**
Min	4.40	8.60	12.90	17.20	22.30	27.50	32.50	37.90	43.50	49.30	0.0000
Max	4.90	9.60	14.60	20.20	26.00	32.10	38.10	44.30	50.00	55.80	0.0001
St. Dev	0.156	0.320	0.603	1.018	1.427	1.727	1.853	2.061	2.074	2.101	0.0000
Count	12	12	12	12	12	12	12	12	12	12	12

	Deflections in inches Forces in Grams										
After Thermals	**0.0011**	**0.0022**	**0.0034**	**0.0045**	**0.0056**	**0.0067**	**0.0078**	**0.0090**	**0.0101**	**0.0112**	***SET***
Averages	**0.00**	**0.00**	**0.00**	**1.43**	**3.36**	**6.78**	**10.63**	**14.32**	**18.13**	**22.15**	**0.0048**
Min	0.00	0.00	0.00	0.00	0.00	1.60	6.10	10.10	13.80	17.50	0.0035
Max	0.00	0.00	0.00	3.80	7.70	11.40	14.90	18.40	22.40	27.40	0.0063
St. Dev	0.000	0.000	0.000	1.606	3.547	3.870	3.477	3.188	3.349	3.881	0.0011
Count	12	12	12	12	12	12	12	12	12	12	12

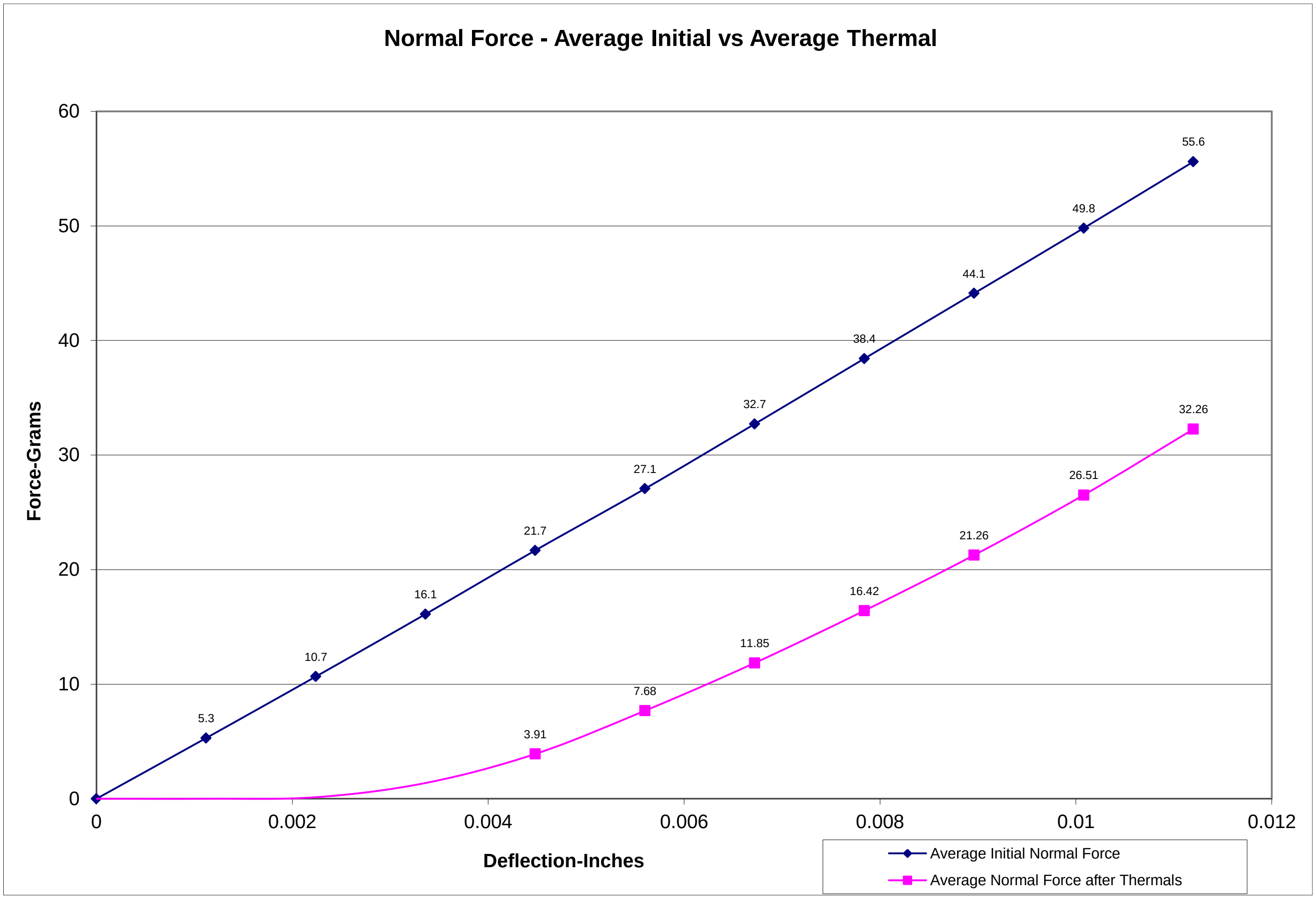


DATA SUMMARIES Continued

Signal---Row11 wafer

	Deflections in inches Forces in Grams										
Initial	**0.0011**	**0.0022**	**0.0034**	**0.0045**	**0.0056**	**0.0067**	**0.0078**	**0.0090**	**0.0101**	**0.0112**	***SET***
Averages	**5.30**	**10.67**	**16.12**	**21.68**	**27.06**	**32.71**	**38.42**	**44.11**	**49.81**	**55.61**	**0.0004**
Min	1.60	4.50	9.70	15.80	21.50	27.10	33.20	38.60	44.50	50.90	0.0001
Max	5.90	11.80	17.40	22.90	28.50	34.40	40.70	46.90	53.10	59.30	0.0019
St. Dev	1.178	1.977	2.082	1.989	1.912	1.931	1.866	2.099	2.286	2.416	0.0005
Count	12	12	12	12	12	12	12	12	12	12	12

	Deflections in inches Forces in Grams										
After Thermals	**0.0011**	**0.0022**	**0.0034**	**0.0045**	**0.0056**	**0.0067**	**0.0078**	**0.0090**	**0.0101**	**0.0112**	***SET***
Averages	**0.00**	**0.13**	**1.38**	**3.91**	**7.68**	**11.85**	**16.42**	**21.26**	**26.51**	**32.26**	**0.0035**
Min	0.00	0.00	0.00	0.00	0.90	5.10	9.40	13.40	17.30	22.80	0.0018
Max	0.00	1.60	5.80	9.60	13.10	18.00	23.40	29.50	36.00	42.20	0.0052
St. Dev	0.000	0.462	2.116	3.588	4.116	4.289	4.708	5.284	5.859	6.208	0.0011
Count	12	12	12	12	12	12	12	12	12	12	12

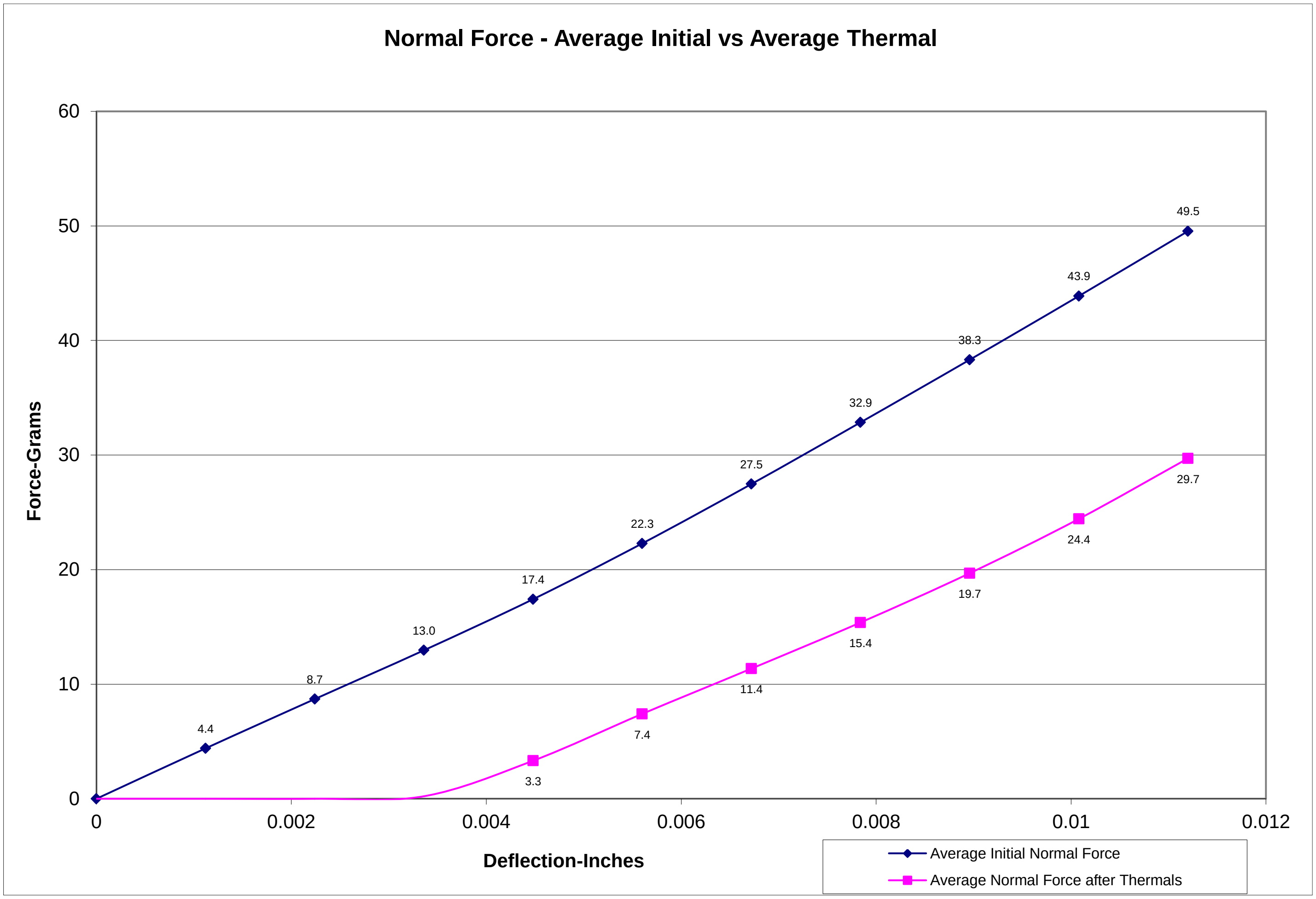


DATA SUMMARIES Continued

Signal---Row12 wafer

	Deflections in inches Forces in Grams										
Initial	**0.0011**	**0.0022**	**0.0034**	**0.0045**	**0.0056**	**0.0067**	**0.0078**	**0.0090**	**0.0101**	**0.0112**	***SET***
Averages	**4.40**	**8.70**	**12.96**	**17.42**	**22.28**	**27.47**	**32.85**	**38.32**	**43.88**	**49.54**	**0.0001**
Min	4.00	7.90	11.70	15.60	19.70	23.90	28.40	33.30	38.00	43.00	0.0000
Max	4.90	10.10	15.30	20.80	26.50	32.20	37.90	43.50	48.90	54.60	0.0001
St. Dev	0.276	0.608	0.953	1.442	2.028	2.540	2.951	3.326	3.551	3.714	0.0000
Count	12	12	12	12	12	12	12	12	12	12	12

	Deflections in inches Forces in Grams										
After Thermals	**0.0011**	**0.0022**	**0.0034**	**0.0045**	**0.0056**	**0.0067**	**0.0078**	**0.0090**	**0.0101**	**0.0112**	***SET***
Averages	**0.00**	**0.00**	**0.22**	**3.32**	**7.41**	**11.36**	**15.38**	**19.68**	**24.43**	**29.71**	**0.0037**
Min	0.00	0.00	0.00	-0.10	3.70	8.10	12.10	16.40	20.80	26.00	0.0031
Max	0.00	0.00	1.00	5.40	9.30	13.00	17.30	22.40	28.30	34.80	0.0047
St. Dev	0.000	0.000	0.404	1.687	1.616	1.442	1.494	1.720	2.305	2.954	0.0005
Count	12	12	12	12	12	12	12	12	12	12	12

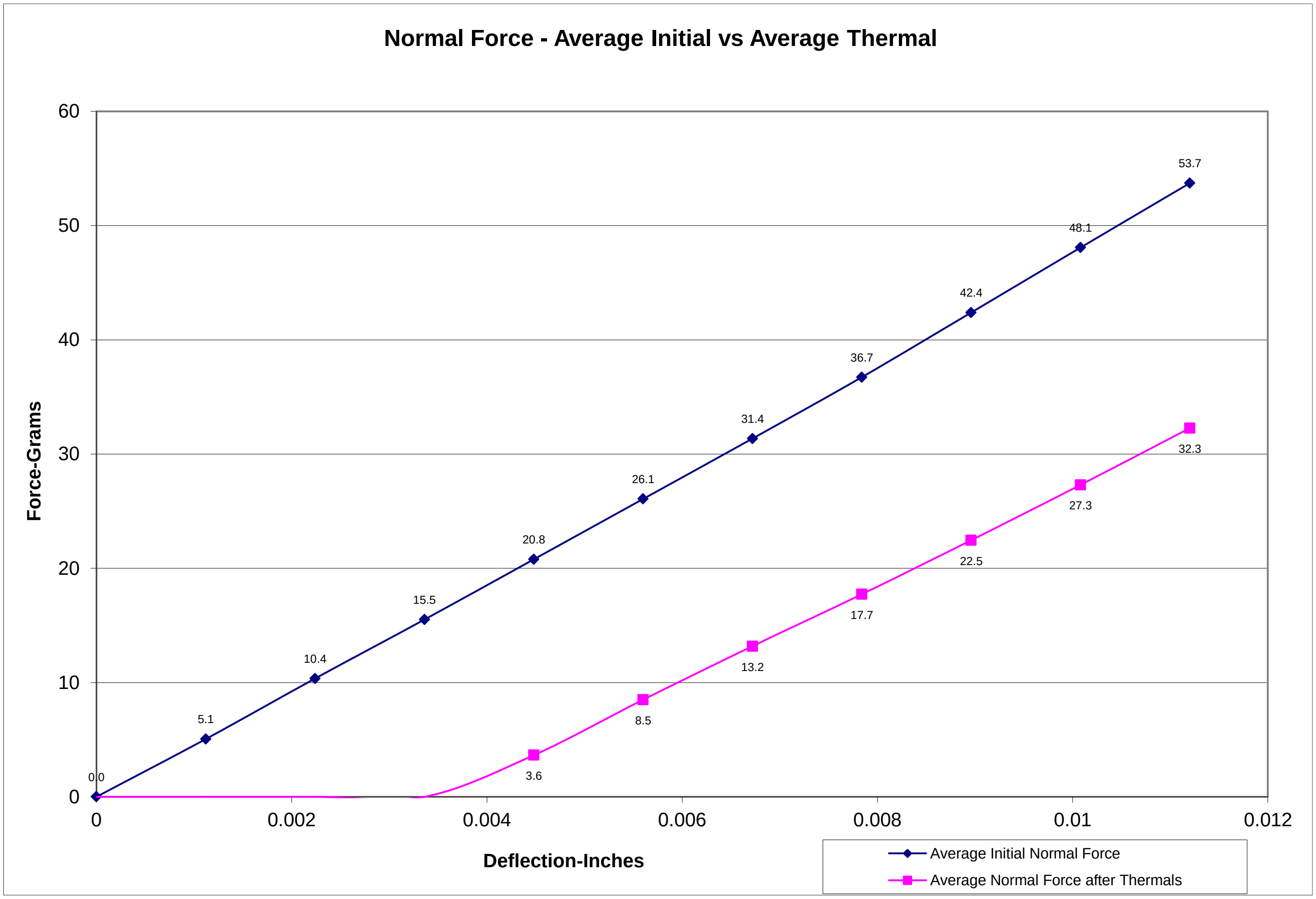


DATA SUMMARIES Continued

Ground---Row1 wafer

	Deflections in inches Forces in Grams										
Initial	**0.0011**	**0.0022**	**0.0034**	**0.0045**	**0.0056**	**0.0067**	**0.0078**	**0.0090**	**0.0101**	**0.0112**	***SET***
Averages	**5.06**	**10.36**	**15.51**	**20.79**	**26.07**	**31.36**	**36.73**	**42.39**	**48.07**	**53.71**	**0.0001**
Min	4.90	9.70	14.10	18.70	23.50	28.10	33.00	38.60	44.10	49.60	0.0000
Max	5.40	11.20	16.80	22.40	27.70	33.20	38.70	44.60	50.30	56.00	0.0001
St. Dev	0.172	0.450	0.790	1.114	1.338	1.627	1.838	1.999	2.088	2.181	0.0000
Count	7	7	7	7	7	7	7	7	7	7	7

	Deflections in inches Forces in Grams										
After Thermals	**0.0011**	**0.0022**	**0.0034**	**0.0045**	**0.0056**	**0.0067**	**0.0078**	**0.0090**	**0.0101**	**0.0112**	***SET***
Averages	**0.00**	**0.00**	**0.00**	**3.64**	**8.50**	**13.19**	**17.73**	**22.46**	**27.30**	**32.27**	**0.0038**
Min	0.00	0.00	0.00	2.20	7.10	10.80	14.60	19.10	23.40	28.00	0.0035
Max	0.00	0.00	0.00	4.90	10.20	15.40	20.60	26.00	30.80	36.20	0.0040
St. Dev	0.000	0.000	0.000	1.020	1.200	1.728	2.282	2.654	2.833	3.060	0.0002
Count	7	7	7	7	7	7	7	7	7	7	7

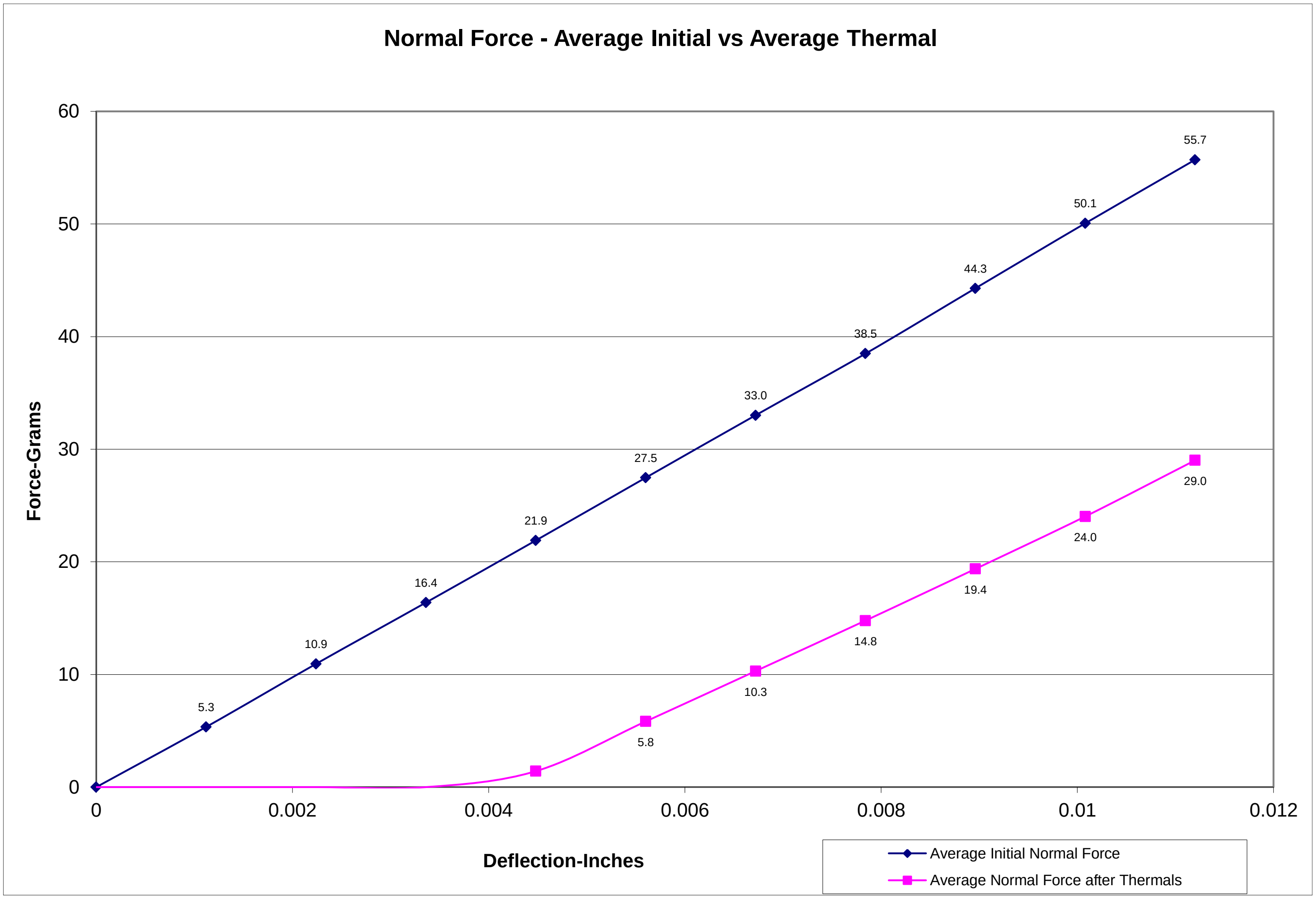


DATA SUMMARIES Continued

Ground---Row2 wafer

	Deflections in inches Forces in Grams										
Initial	**0.0011**	**0.0022**	**0.0034**	**0.0045**	**0.0056**	**0.0067**	**0.0078**	**0.0090**	**0.0101**	**0.0112**	***SET***
Averages	**5.34**	**10.94**	**16.39**	**21.90**	**27.47**	**33.01**	**38.49**	**44.29**	**50.06**	**55.70**	**0.0000**
Min	5.20	10.60	15.90	21.20	26.70	32.20	37.50	43.20	48.70	54.20	0.0000
Max	5.50	11.20	17.10	22.70	28.30	34.20	39.70	45.70	51.20	57.00	0.0001
St. Dev	0.098	0.223	0.460	0.600	0.665	0.817	0.819	0.882	0.889	1.069	0.0000
Count	7	7	7	7	7	7	7	7	7	7	7

	Deflections in inches Forces in Grams										
After Thermals	**0.0011**	**0.0022**	**0.0034**	**0.0045**	**0.0056**	**0.0067**	**0.0078**	**0.0090**	**0.0101**	**0.0112**	***SET***
Averages	**0.00**	**0.00**	**0.00**	**1.41**	**5.83**	**10.30**	**14.79**	**19.37**	**24.03**	**29.01**	**0.0042**
Min	0.00	0.00	0.00	0.00	4.10	8.60	13.00	17.40	22.10	26.60	0.0037
Max	0.00	0.00	0.00	3.10	8.00	12.90	17.40	22.50	27.40	32.70	0.0046
St. Dev	0.000	0.000	0.000	1.333	1.574	1.663	1.719	1.925	1.931	2.037	0.0004
Count	7	7	7	7	7	7	7	7	7	7	7

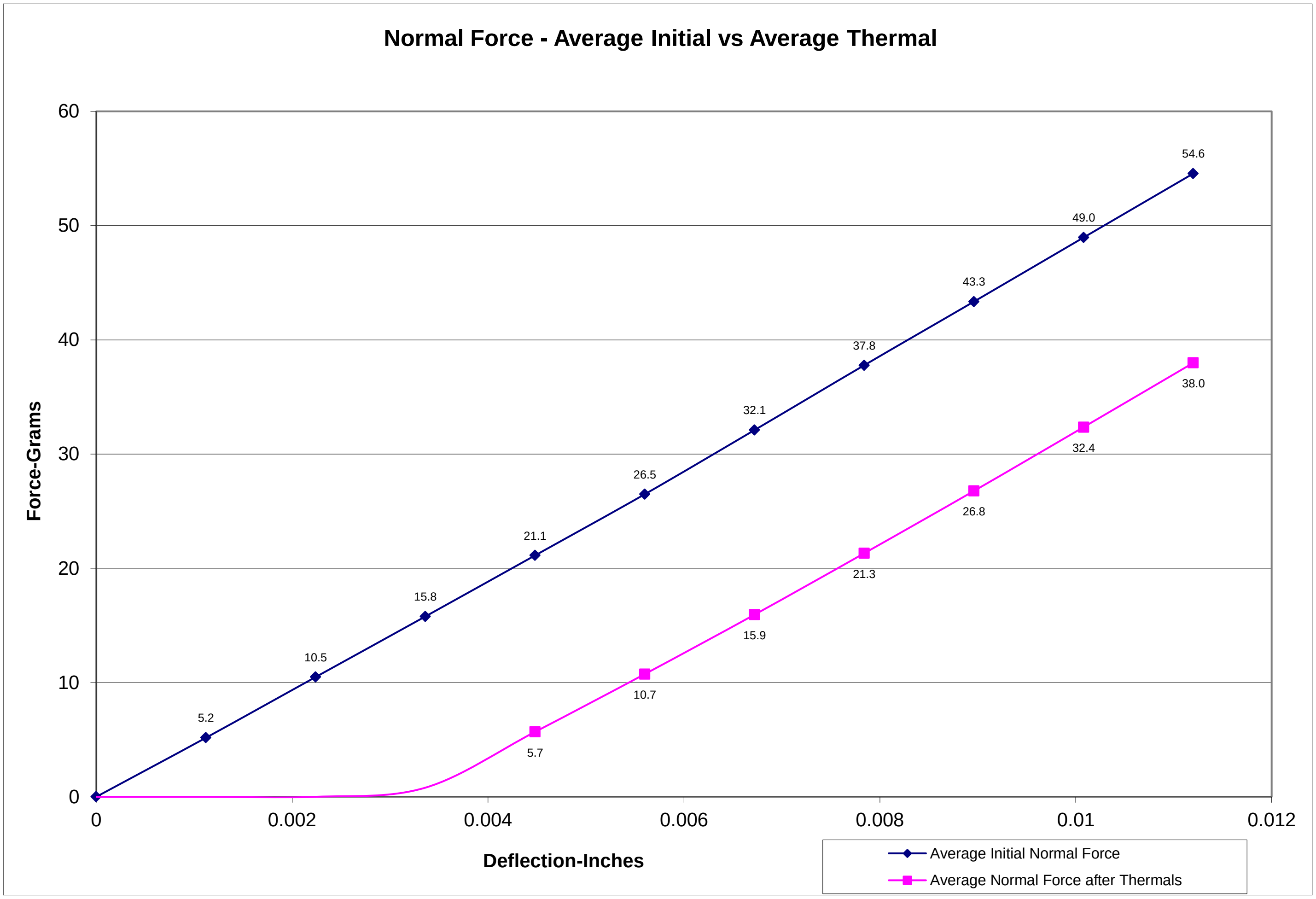


DATA SUMMARIES Continued

Ground---Row11 wafer

	Deflections in inches Forces in Grams										
Initial	**0.0011**	**0.0022**	**0.0034**	**0.0045**	**0.0056**	**0.0067**	**0.0078**	**0.0090**	**0.0101**	**0.0112**	***SET***
Averages	**5.17**	**10.49**	**15.79**	**21.13**	**26.49**	**32.10**	**37.77**	**43.34**	**48.96**	**54.56**	**0.0001**
Min	4.50	9.60	14.50	19.40	24.80	30.40	35.70	40.90	46.30	51.40	0.0001
Max	5.80	11.30	16.90	22.60	28.30	33.80	39.70	45.40	51.10	56.80	0.0001
St. Dev	0.439	0.590	0.803	1.003	1.157	1.283	1.476	1.618	1.726	1.954	0.0000
Count	7	7	7	7	7	7	7	7	7	7	7

	Deflections in inches Forces in Grams										
After Thermals	**0.0011**	**0.0022**	**0.0034**	**0.0045**	**0.0056**	**0.0067**	**0.0078**	**0.0090**	**0.0101**	**0.0112**	***SET***
Averages	**0.00**	**0.00**	**0.80**	**5.69**	**10.74**	**15.94**	**21.31**	**26.77**	**32.36**	**37.99**	**0.0032**
Min	0.00	0.00	0.00	3.50	8.00	13.20	18.90	24.50	29.70	35.60	0.0030
Max	0.00	0.00	1.50	6.60	12.10	17.60	23.10	28.10	33.90	39.80	0.0036
St. Dev	0.000	0.000	0.648	1.096	1.426	1.526	1.477	1.568	1.605	1.665	0.0002
Count	7	7	7	7	7	7	7	7	7	7	7

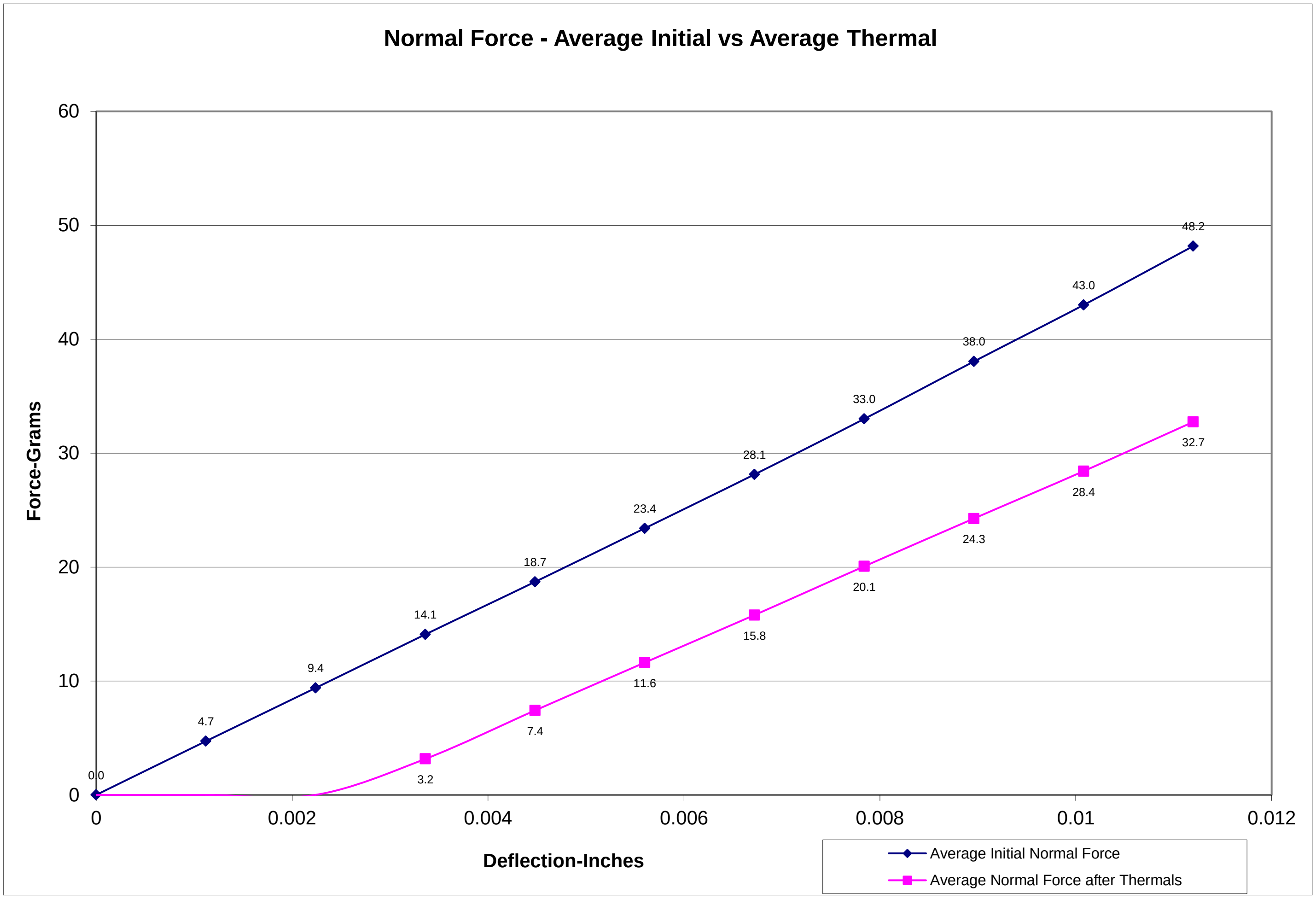


DATA SUMMARIES Continued

Ground---Row12 wafer

	Deflections in inches Forces in Grams										
Initial	**0.0011**	**0.0022**	**0.0034**	**0.0045**	**0.0056**	**0.0067**	**0.0078**	**0.0090**	**0.0101**	**0.0112**	***SET***
Averages	**4.71**	**9.39**	**14.09**	**18.70**	**23.40**	**28.13**	**33.00**	**38.04**	**43.00**	**48.17**	**0.0000**
Min	4.30	8.80	13.20	17.50	21.70	25.90	30.20	34.80	39.20	44.10	0.0000
Max	5.30	10.10	14.80	19.50	24.40	29.10	34.20	39.20	44.30	49.30	0.0001
St. Dev	0.334	0.498	0.639	0.781	1.017	1.118	1.330	1.511	1.753	1.873	0.0000
Count	7	7	7	7	7	7	7	7	7	7	7

	Deflections in inches Forces in Grams										
After Thermals	**0.0011**	**0.0022**	**0.0034**	**0.0045**	**0.0056**	**0.0067**	**0.0078**	**0.0090**	**0.0101**	**0.0112**	***SET***
Averages	**0.00**	**0.00**	**3.16**	**7.41**	**11.61**	**15.79**	**20.06**	**24.26**	**28.41**	**32.74**	**0.0025**
Min	0.00	0.00	2.30	6.30	10.30	14.40	18.50	22.60	26.30	30.10	0.0022
Max	0.00	0.00	3.90	8.10	12.30	16.60	21.20	25.50	29.90	34.60	0.0028
St. Dev	0.000	0.000	0.621	0.664	0.710	0.765	0.950	1.186	1.519	1.807	0.0002
Count	7	7	7	7	7	7	7	7	7	7	7



DATA SUMMARIES Continued

INSULATION RESISTANCE (IR):

	Pin to Pin		
	Mated	Unmated	Unmated
Minimum	**EBDM/EBTF**	**EBDM**	**EBTF**
Initial	45000	45000	45000
Thermal	45000	45000	45000
Humidity	45000	45000	45000

	Row to Row		
	Mated	Unmated	Unmated
Minimum	**EBDM/EBTF**	**EBDM**	**EBTF**
Initial	45000	45000	45000
Thermal	45000	45000	45000
Humidity	45000	45000	45000

	Pin to Ground		
	Mated	Unmated	Unmated
Minimum	**EBDM/EBTF**	**EBDM**	**EBTF**
Initial	45000	45000	45000
Thermal	45000	45000	45000
Humidity	45000	45000	45000

DIELECTRIC WITHSTANDING VOLTAGE (DWV):

Voltage Rating Summary	
Minimum	**EBDM/EBTF**
Break Down Voltage	646
Test Voltage	485
Working Voltage	160

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

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

DATA SUMMARIES Continued

Pressfit Hole Evaluation: Insertion/Retention force

Group1 Tin (immersion) 0.012" Sig PTH, 0.018" Gnd PTH

	Pin 1		Pin 2		Pin 3	
IM-C-429-6-11 Pin	Mating	Unmating	Mating	Unmating	Mating	Unmating
Min	2.54	0.98	2.12	0.87	2.00	0.65
Max	2.97	1.19	2.37	1.16	2.46	1.30
Avg	2.75	1.09	2.25	1.02	2.25	1.06

	Pin 1		Pin 2		Pin 3	
IM-C-430-6-12 Pin	Mating	Unmating	Mating	Unmating	Mating	Unmating
Min	2.58	1.22	1.97	1.11	1.99	1.03
Max	2.81	1.43	2.58	1.51	2.55	1.45
Avg	2.71	1.34	2.26	1.30	2.28	1.29

	Pin 1		Pin 2		Pin 3	
SH84-6-01-S	Mating	Unmating	Mating	Unmating	Mating	Unmating
Min	3.65	1.14	2.90	1.11	2.61	1.26
Max	4.32	1.69	3.57	1.69	3.35	1.71
Avg	3.94	1.39	3.23	1.41	3.10	1.48

Group 2 Tin (immersion) 0.016" Sig PTH, 0.022" Gnd PTH

	Pin 1		Pin 2		Pin 3	
IM-C-429-6-11 Pin	Mating	Unmating	Mating	Unmating	Mating	Unmating
Min	1.16	0.94	1.22	1.03	1.46	0.10
Max	1.36	1.33	1.86	1.35	1.83	1.24
Avg	1.29	1.10	1.58	1.15	1.67	0.98

	Pin 1		Pin 2		Pin 3	
T-1M129 Pin	Mating	Unmating	Mating	Unmating	Mating	Unmating
Min	1.27	0.91	1.41	0.93	1.34	0.89
Max	1.68	1.19	1.71	1.23	1.77	1.17
Avg	1.41	1.08	1.61	1.06	1.50	1.06

	Pin 1		Pin 2		Pin 3	
SH84-6-01-S	Mating	Unmating	Mating	Unmating	Mating	Unmating
Min	1.66	1.29	1.65	1.16	1.61	1.18
Max	2.67	1.73	2.15	1.82	2.20	1.74
Avg	1.85	1.49	1.83	1.44	1.85	1.36

DATA SUMMARIES Continued

Pressfit Hole Evaluation: LLCR

Group3 Tin (immersion) 0.012" Sig PTH, 0.018" Gnd PTH

1) A total of 15 signal and 15 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 for compliant pin only
    a. <= +0.33 mOhms:--------------------------- Stable
    b. > +0.33 to +0.66 mOhms:----------------- Minor
    c. +0.67 to +1 mOhms: ----------------------- Acceptable
    d. >+1 mOhms: --------------------------------- Unstable

	LLCR Measurement Summaries by Pin Type			
Date	3/27/2017	3/27/2017		
Room Temp (Deg C)	22	22		
Rel Humidity (%)	44	44		
Technician	Tony Wagoner	Tony Wagoner		
mOhm values	**Actual Initial**	**Delta 3 Cycles**	**Delta**	**Delta**
	Pin Type 1: Signal			
Average	0.11	0.02		
St. Dev.	0.04	0.02		
Min	0.07	0.01		
Max	0.18	0.07		
Summary Count	15	15		
Total Count	15	15		
	Pin Type 2: Ground			
Average	0.10	0.01		
St. Dev.	0.08	0.01		
Min	0.03	0.00		
Max	0.26	0.02		
Summary Count	15	15		
Total Count	15	15		

LLCR Delta Count by Category				
	Stable	**Minor**	**Acceptable**	**Unstable**
mOhms	**<=.33**	**>.33 & <=.66**	**>.66 & <=1**	**>1**
3 Cycles	**30**	**0**	**0**	**0**

DATA SUMMARIES Continued

Pressfit Hole Evaluation: LLCR

Group4 Tin (immersion) 0.016” Sig PTH, 0.022” Gnd PTH

1) A total of 15 signal and 15 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 for compliant pin only
    a. <= +0.33 mOhms:--------------------------- Stable
    b. > +0.33 to +0.66 mOhms:----------------- Minor
    c. +0.67 to +1 mOhms: ----------------------- Acceptable
    d. >+1 mOhms: --------------------------------- Unstable

	LLCR Measurement Summaries by Pin Type			
Date	3/27/2017	3/27/2017		
Room Temp (Deg C)	22	22		
Rel Humidity (%)	39	39		
Technician	Tony Wagoner	Tony Wagoner		
mOhm values	**Actual Initial**	**Delta 3 Cycles**	**Delta**	**Delta**
	Pin Type 1: Signal			
Average	0.15	0.03		
St. Dev.	0.04	0.01		
Min	0.10	0.01		
Max	0.26	0.06		
Summary Count	15	15		
Total Count	15	15		
	Pin Type 2: Ground			
Average	0.12	0.02		
St. Dev.	0.09	0.01		
Min	0.03	0.00		
Max	0.29	0.05		
Summary Count	15	15		
Total Count	15	15		

LLCR Delta Count by Category				
	Stable	**Minor**	**Acceptable**	**Unstable**
mOhms	**<=.33**	**>.33 & <=.66**	**>.66 & <=1**	**>1**
3 Cycles	**30**	**0**	**0**	**0**

DATA SUMMARIES Continued

LLCR Durability:

1) A total of 192 points were measured.
2) EIA-364-23, *Low Level Contact Resistance Test Procedure for Electrical Connectors and Sockets.*
3) A computer program, *LLCR 221.exe*, ensures repeatability for data acquisition.
4) The following guidelines are used to categorize the changes in LLCR as a result from stressing.
    a. <= +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

	LLCR Measurement Summaries by Pin Type			
Date	8/22/2017	8/23/2017	8/28/2017	9/7/2017
Room Temp (Deg C)	23	23	23	23
Rel Humidity (%)	46	43	43	38
Technician	Tony Wagoner	Tony Wagoner	Tony Wagoner	Tony Wagoner
mOhm values	**Actual Initial**	**Delta 100 Cycles**	**Delta Therm Shck**	**Delta Humidity**
	Pin Type 1: Row 1			
Average	53.21	0.59	0.92	0.76
St. Dev.	5.56	0.64	0.97	0.58
Min	43.56	0.01	0.06	0.03
Max	60.46	3.16	5.41	3.20
Summary Count	40	40	40	40
Total Count	40	40	40	40
	Pin Type 2: Row 2			
Average	39.94	0.36	0.45	0.56
St. Dev.	2.78	0.39	0.49	0.45
Min	36.75	0.01	0.00	0.04
Max	45.24	1.78	2.49	2.23
Summary Count	40	40	40	40
Total Count	40	40	40	40
	Pin Type 3: Row 3			
Average	29.28	0.40	0.54	0.61
St. Dev.	4.57	0.31	0.77	0.87
Min	20.39	0.02	0.03	0.03
Max	34.66	1.25	4.65	4.93
Summary Count	40	40	40	40
Total Count	40	40	40	40
	Pin Type 4: Ground			
Average	1.76	0.07	0.41	0.11
St. Dev.	0.24	0.06	1.00	0.09
Min	1.23	0.00	0.00	0.00
Max	2.11	0.35	5.12	0.52
Summary Count	72	72	72	72
Total Count	72	72	72	72

LLCR Delta Count by Category

mOhms	**Stable** **<=5**	**Minor** **>5 & <=10**	**Acceptable** **>10 & <=15**	**Marginal** **>15 & <=50**	**Unstable** **>50 & <=1000**	**Open** **>1000**
100 Cycles	**192**	**0**	**0**	**0**	**0**	**0**
Therm Shck	**190**	**2**	**0**	**0**	**0**	**0**
Humidity	**192**	**0**	**0**	**0**	**0**	**0**

DATA SUMMARIES Continued

LLCR Thermal Aging:

1) A total of 192 points were measured.
2) EIA-364-23, *Low Level Contact Resistance Test Procedure for Electrical Connectors and Sockets.*
3) A computer program, *LLCR 221.exe*, ensures repeatability for data acquisition.
4) The following guidelines are used to categorize the changes in LLCR as a result from stressing.
    a. <= +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
5) The following guidelines are used to categorize the changes in LLCR for compliant pin only
    a. <= +0.33 mOhms: -------------------------- Stable
    b. > +0.33 to +0.66 mOhms:----------------- Minor
    c. +0.67 to +1 mOhms: ----------------------- Acceptable
    d. >+1mOhms:---------------------------------- Unstable

LLCR Measurement Summaries by Pin Type

Date	3/2/2017	3/14/2017		
Room Temp (Deg C)	22	22		
Rel Humidity (%)	31	34		
Technician	Tony Wagoner	Tony Wagoner		
mOhm values	**Actual Initial**	**Delta Thermal**	**Delta**	**Delta**
	Pin Type 1: Row 1			
Average	55.93	1.20		
St. Dev.	4.71	1.18		
Min	47.44	0.06		
Max	64.03	5.12		
Summary Count	40	40		
Total Count	40	40		
	Pin Type 2: Row 2			
Average	42.59	0.73		
St. Dev.	4.55	0.69		
Min	37.01	0.00		
Max	53.39	3.24		
Summary Count	40	40		
Total Count	40	40		
	Pin Type 3: Row 3			
Average	30.34	0.66		
St. Dev.	3.71	0.51		
Min	22.62	0.03		
Max	35.09	2.22		
Summary Count	40	40		
Total Count	40	40		
	Pin Type 4: Ground			
Average	1.71	0.13		
St. Dev.	0.21	0.11		
Min	1.29	0.00		
Max	2.04	0.55		
Summary Count	72	72		
Total Count	72	72		

LLCR Delta Count by Category

	Stable	**Minor**	**Acceptable**	**Marginal**	**Unstable**	**Open**
mOhms	**<=5**	**>5 & <=10**	**>10 & <=15**	**>15 & <=50**	**>50 & <=1000**	**>1000**
Thermal	**191**	**1**	**0**	**0**	**0**	**0**

DATA SUMMARIES Continued

Compliant Pin LLCR:

	LLCR Measurement Summaries by Pin Type			
Date	3/2/2017	3/14/2017		
Room Temp (Deg C)	23	22		
Rel Humidity (%)	34	32		
Technician	Tony Wagoner	Tony Wagoner		
mOhm values	**Actual Initial**	**Delta Thermal**	**Delta**	**Delta**
	Pin Type 1: Signal			
Average	0.18	0.02		
St. Dev.	0.05	0.02		
Min	0.08	0.00		
Max	0.24	0.06		
Summary Count	15	15		
Total Count	15	15		
	Pin Type 2: Ground			
Average	0.10	0.03		
St. Dev.	0.11	0.01		
Min	0.02	0.01		
Max	0.31	0.05		
Summary Count	15	15		
Total Count	15	15		

LLCR Delta Count by Category				
	Stable	**Minor**	**Acceptable**	**Unstable**
mOhms	**<=.33**	**>.33 & <=.66**	**>.66 & <=1**	**>1**
Thermal	**30**	**0**	**0**	**0**

DATA SUMMARIES Continued

LLCR Gas Tight:

1) A total of 192 points were measured.
2) EIA-364-23, *Low Level Contact Resistance Test Procedure for Electrical Connectors and Sockets.*
3) A computer program, *LLCR 221.exe*, ensures repeatability for data acquisition.
4) The following guidelines are used to categorize the changes in LLCR as a result from stressing.
    a. <= +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
5) The following guidelines are used to categorize the changes in LLCR for compliant pin only
    a. <= +0.33 mOhms: --------------------------- Stable
    b. > +0.33 to +0.66 mOhms: ------------------ Minor
    c. +0.67 to +1 mOhms: ------------------------ Acceptable
    d. >+1 mOhms: ---------------------------------- Unstable

	LLCR Measurement Summaries by Pin Type			
Date	2/23/2017	2/24/2017		
Room Temp (Deg C)	22	22		
Rel Humidity (%)	39	41		
Technician	Tony Wagoner	Tony Wagoner		
mOhm values	**Actual Initial**	**Delta Acid Vapor**	**Delta**	**Delta**
	Pin Type 1: Row 1			
Average	56.46	1.04		
St. Dev.	4.38	0.91		
Min	47.81	0.00		
Max	64.34	3.38		
Summary Count	40	40		
Total Count	40	40		
	Pin Type 2: Row 2			
Average	42.83	0.66		
St. Dev.	4.58	0.99		
Min	36.90	0.00		
Max	51.17	5.82		
Summary Count	40	40		
Total Count	40	40		
	Pin Type 3: Row 3			
Average	30.61	0.64		
St. Dev.	3.36	0.80		
Min	23.10	0.02		
Max	35.03	4.55		
Summary Count	40	40		
Total Count	40	40		
	Pin Type 4: Ground			
Average	1.72	0.19		
St. Dev.	0.25	0.20		
Min	1.23	0.00		
Max	2.30	1.04		
Summary Count	72	72		
Total Count	72	72		

LLCR Delta Count by Category						
	Stable	**Minor**	**Acceptable**	**Marginal**	**Unstable**	**Open**
mOhms	**<=5**	**>5 & <=10**	**>10 & <=15**	**>15 & <=50**	**>50 & <=1000**	**>1000**
Acid Vapor	**191**	**1**	**0**	**0**	**0**	**0**

DATA SUMMARIES Continued

Compliant Pin LLCR:

	LLCR Measurement Summaries by Pin Type			
Date	2/23/2017	2/24/2017		
Room Temp (Deg C)	22	22		
Rel Humidity (%)	40	40		
Technician	Tony Wagoner	Tony Wagoner		
mOhm values	**Actual Initial**	**Delta Acid Vapor**	**Delta**	**Delta**
	Pin Type 1: Signal			
Average	0.19	0.02		
St. Dev.	0.06	0.01		
Min	0.08	0.00		
Max	0.25	0.04		
Summary Count	15	15		
Total Count	15	15		
	Pin Type 2: Ground			
Average	0.08	0.01		
St. Dev.	0.09	0.01		
Min	0.02	0.00		
Max	0.28	0.03		
Summary Count	15	15		
Total Count	15	15		

LLCR Delta Count by Category				
	Stable	**Minor**	**Acceptable**	**Unstable**
mOhms	**<=.33**	**>.33 & <=.66**	**>.67 & <=1**	**>1**
Acid Vapor	**30**	**0**	**0**	**0**

DATA SUMMARIES Continued

LLCR Shock &Vibration:

1). A total of 192 points were measured.
2). EIA-364-23, *Low Level Contact Resistance Test Procedure for Electrical Connectors and Sockets.*
3). 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). The following guidelines are used to categorize the changes in LLCR for compliant pin only
  e. <= +0.33 mOhms: -------------------------- Stable
  f. > +0.33 to +0.66 mOhms:------------------ Minor
  g. +0.67 to +1 mOhms: ----------------------- Acceptable
  h. >+1 mOhms:---------------------------------- Unstable

LLCR Measurement Summaries by Pin Type

Date	5/10/2017	5/17/2017		
Room Temp (Deg C)	21	22		
Rel Humidity (%)	40	44		
Technician	Tony Wagoner	Tony Wagoner		
mOhm values	**Actual Initial**	**Delta Shock-Vib**	**Delta**	**Delta**
	Pin Type 1: Row 1			
Average	56.39	2.63		
St. Dev.	4.91	2.64		
Min	46.92	0.22		
Max	67.95	11.55		
Summary Count	40	40		
Total Count	40	40		
	Pin Type 2: Row 2			
Average	43.10	1.59		
St. Dev.	4.69	1.77		
Min	37.10	0.00		
Max	52.84	7.74		
Summary Count	40	40		
Total Count	40	40		
	Pin Type 3: Row 3			
Average	30.56	0.94		
St. Dev.	3.81	0.98		
Min	21.84	0.02		
Max	35.97	4.29		
Summary Count	40	40		
Total Count	40	40		
	Pin Type 4: Ground			
Average	1.71	0.11		
St. Dev.	0.20	0.08		
Min	1.26	0.00		
Max	2.04	0.41		
Summary Count	72	72		
Total Count	72	72		

LLCR Delta Count by Category

	Stable	**Minor**	**Acceptable**	**Marginal**	**Unstable**	**Open**
mOhms	**<=5**	**>5 & <=10**	**>10 & <=15**	**>15 & <=50**	**>50 & <=1000**	**>1000**
Shock-Vib	**185**	**6**	**1**	**0**	**0**	**0**

Nanosecond Event Detection:

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

DATA SUMMARIES Continued

Compliant Pin LLCR:

	LLCR Measurement Summaries by Pin Type			
Date	2/24/2017	3/4/2017		
Room Temp (Deg C)	22	22		
Rel Humidity (%)	41	30		
Technician	Tony Wagoner	Tony Wagoner		
mOhm values	**Actual Initial**	**Delta Shock-Vib**	**Delta**	**Delta**
	Pin Type 1: Signal			
Average	0.18	0.02		
St. Dev.	0.05	0.01		
Min	0.08	0.00		
Max	0.23	0.04		
Summary Count	15	15		
Total Count	15	15		
	Pin Type 2: Ground			
Average	0.08	0.02		
St. Dev.	0.08	0.02		
Min	0.01	0.00		
Max	0.25	0.07		
Summary Count	15	15		
Total Count	15	15		

LLCR Delta Count by Category				
	Stable	**Minor**	**Acceptable**	**Unstable**
mOhms	**<=.33**	**>.33 & <=.66**	**>.67 & <=1**	**>1**
Shock-Vib	**30**	**0**	**0**	**0**

EQUIPMENT AND CALIBRATION SCHEDULES

Equipment #: TCT-07
Description: Automated Test Stand
Manufacturer: Chatillon/Lloyd
Model: LF Plus
Serial #: LF1310
Accuracy: See Manual
… Last Cal: 11/14/2016, Next Cal: 11/14/2017

Equipment #: HPT-01
Description: Hipot Safety Tester
Manufacturer: Vitrek
Model: V73
Serial #: 019808
Accuracy:
… Last Cal: 05/15/2017, Next Cal: 05/15/2018

Equipment #: MO-04
Description: Multimeter /Data Acquisition System
Manufacturer: Keithley
Model: 2700
Serial #: 0798688
Accuracy: See Manual
… Last Cal: 09/11/2017, Next Cal: 09/11/2018

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

Equipment #: MO-10
Description: Model 2750 Multimeter/Switch System (Integra Series)
Manufacturer: Keithley
Model: 2750
Serial #: 1215161
Accuracy: See Manual
… Last Cal: 09/11/2017, Next Cal: 09/11/2018

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: 11/14/2016, Next Cal: 11/14/2017

EQUIPMENT AND CALIBRATION SCHEDULES

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: 06/30/2017, Next Cal: 06/30/2018

Equipment #: OV-05
Description: Forced Air Oven, 5 Cu. Ft., 120 V (Chamber Room)
Manufacturer: Sheldon Mfg.
Model: CE5F
Serial #: 02008008
Accuracy: +/- 5 deg. C
… Last Cal: 02/18/2017, Next Cal: 02/18/2018

Equipment #: SVC-01
Description: Shock & Vibration Table
Manufacturer: Data Physics
Model: LE-DSA-10-20K
Serial #: 10037
Accuracy: See Manual
… Last Cal: 04/22/2017, Next Cal: 04/22/2018

Equipment #: ACLM-01
Description: Accelerometer
Manufacturer: PCB Piezotronics
Model: 352C03
Serial #: 115819
Accuracy: See Manual
… Last Cal: 07/18/2017, Next Cal: 07/18/2018

Equipment #: ED-03
Description: Event Detector
Manufacturer: Analysis Tech
Model: 32EHD
Serial #: 1100604
Accuracy: See Manual
… Last Cal: 10/31/2016, Next Cal: 10/31/2017