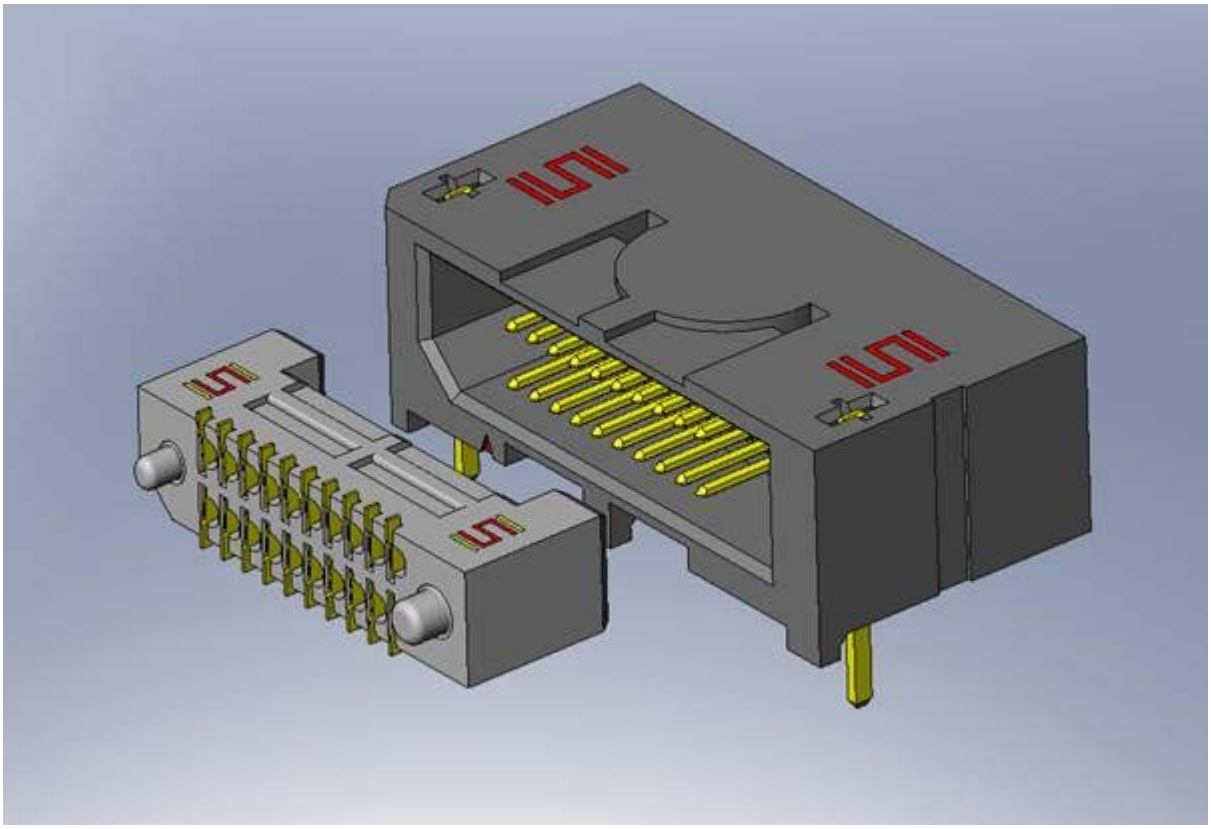
Project Number:	Tracking Code: TC0839-TEM-DH-1979		
Requested by: Brandon Harpenau	Date: 9/22/2008	Product Rev: 1	
Part #: TEM-1XX-02-DH1-S-D/SEM-1XX-03.0-S-D-WT	Lot #: 1	Tech: Rodney Riley	Eng: Troy Cook
Part description: TEM/SEM			Qty to test: 100
Test Start: 9/22/2008	Test Completed: 10/29/2008		



MATING/UNMATING COMPARISON REPORT

PART DESCRIPTION

TEM-1XX-02-DH1-S-D/SEM-1XX-03.0-S-D-WT

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: Complete DVT (see flowchart). In-house testing.

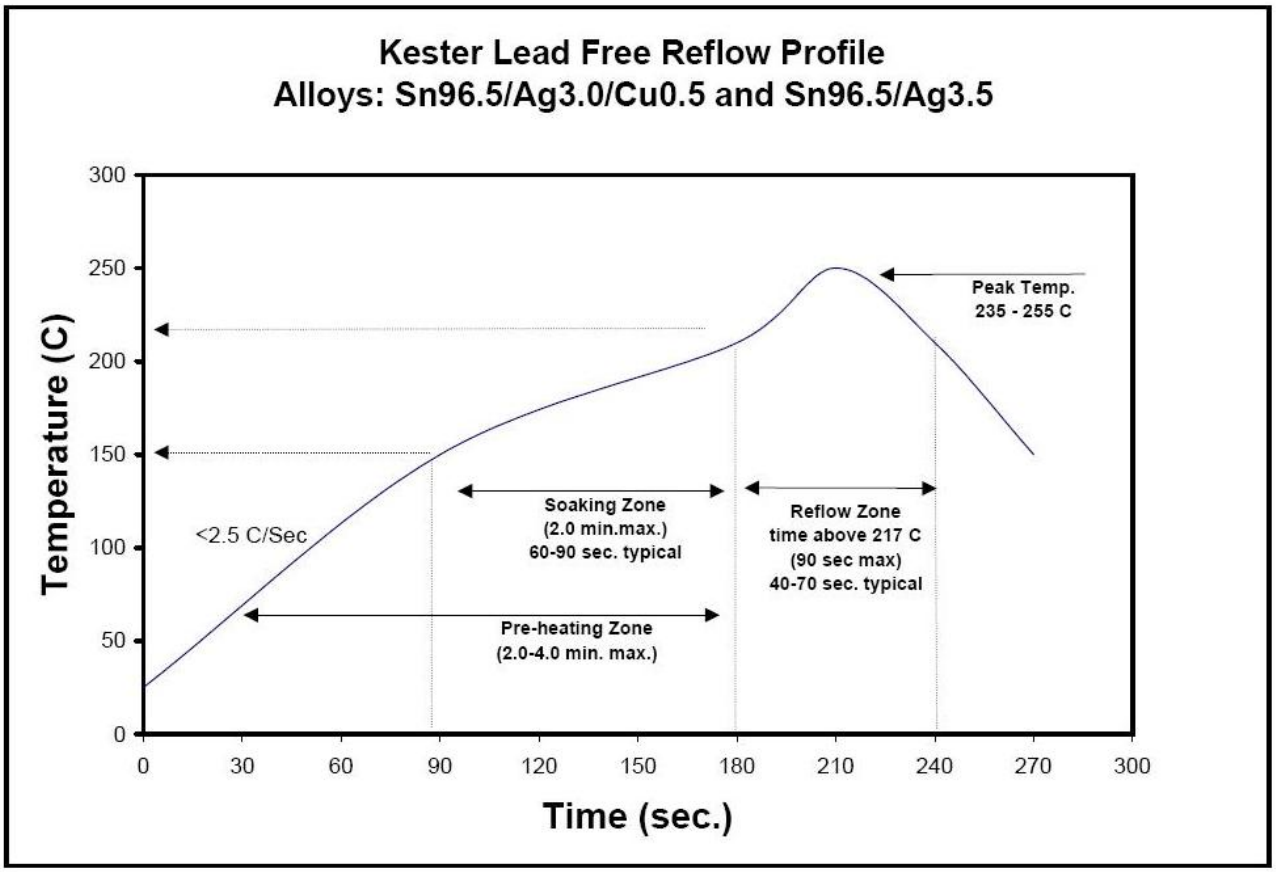
APPLICABLE DOCUMENTS

Standards: EIA Publication 364

TEST SAMPLES AND PREPARATION

1) All materials were manufactured in accordance with the applicable product specification.
2) All test samples were identified and encoded to maintain traceability throughout the test sequences.
3) After soldering, the parts to be used for LLCR and DWV/IR testing were cleaned according to TLWI-0001.
4) Either an automated cleaning procedure or an ultrasonic cleaning procedure may be used.
5) The automated procedure is used with aqueous compatible soldering materials.
6) Parts not intended for testing LLCR and DWV/IR are visually inspected and cleaned if necessary.
7) Any additional preparation will be noted in the individual test sequences.
8) Solder Information: Lead Free
9) Re-Flow Time/Temp: See accompanying profile.
10) Samtec Test PCBs used: PCB-101404-TST-XX

TYPICAL OVEN PROFILE (Soldering Parts to Test Boards)



FLOWCHARTS

Mating/Unmating/Gaps/Normal Force/Deflection Force

TEST STEP	GROUP A 10 Boards 5 Position	GROUP A 10 Boards 25 Position	GROUP A 10 Boards 50 Position
01	Mating / Unmating	Mating / Unmating	Mating / Unmating
02	Data Review	Data Review	Data Review
03	100 Cycles	100 Cycles	100 Cycles
04	Mating / Unmating	Mating / Unmating	Mating / Unmating
05	Data Review	Data Review	Data Review

Thermal Aging = EIA-364-17, Test Condition 4, 105 deg C;
Time Condition 'B' (250 hours)
Humidity =EIA-364-31, Test Condition B (240 Hours)
and Method III (+25 ° C to +65 ° C @ 90%RH to 98% RH)
ambient pre-condition and delete steps 7a and 7b
Mating/Un-Mating Forces = EIA-364-13

ATTRIBUTE DEFINITIONS

The following is a brief, simplified description of attributes.

THERMAL:

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

HUMIDITY:

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

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.

RESULTS

5 Position

Mating – Unmating Forces

- **Initial**
  - **Mating**
    - **Min ---------- 0.7 Lbs**
    - **Max---------- 1.1 Lbs**
  - **Unmating**
    - **Min ---------- 0.5 Lbs**
    - **Max---------- 1.0 Lbs**
- **After 100 Cycles**
  - **Mating**
    - **Min ---------- 0.6 Lbs**
    - **Max---------- 1.0 Lbs**
  - **Unmating**
    - **Min ---------- 0.5 Lbs**
    - **Max---------- 0.7 Lbs**

25 Position

Mating – Unmating Forces

- **Initial**
  - **Mating**
    - **Min ---------- 4.1 Lbs**
    - **Max---------- 6.7 Lbs**
  - **Unmating**
    - **Min ---------- 2.5 Lbs**
    - **Max---------- 4.2 Lbs**
- **After 100 Cycles**
  - **Mating**
    - **Min ---------- 3.9 Lbs**
    - **Max---------- 5.6 Lbs**
  - **Unmating**
    - **Min ---------- 2.8 Lbs**
    - **Max---------- 3.9 Lbs**

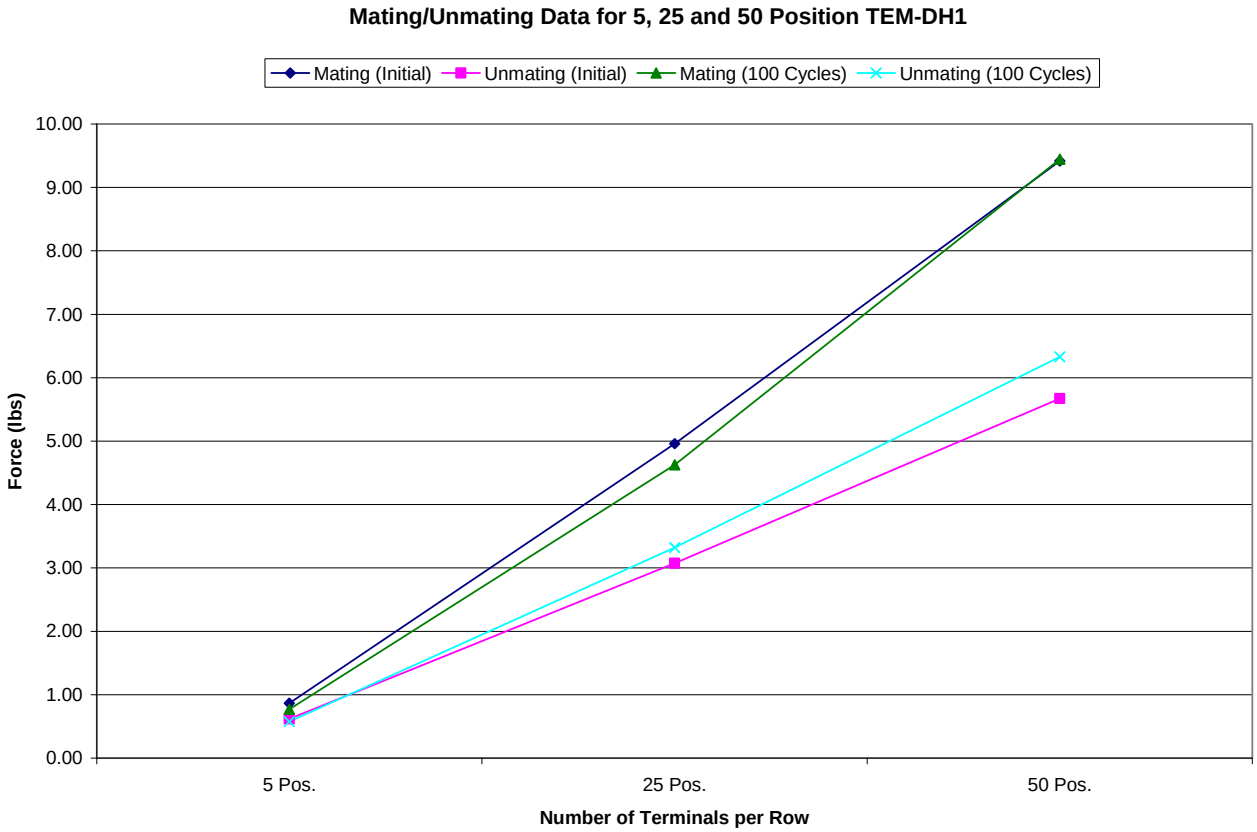
50 Position

Mating – Unmating Forces

- **Initial**
  - **Mating**
    - **Min ---------- 8.3 Lbs**
    - **Max----------10.5 Lbs**
  - **Unmating**
    - **Min ---------- 5.0 Lbs**
    - **Max---------- 6.4 Lbs**
- **After 100 Cycles**
  - **Mating**
    - **Min ---------- 8.9 Lbs**
    - **Max----------10.2 Lbs**
  - **Unmating**
    - **Min ---------- 6.0 Lbs**
    - **Max---------- 6.9 Lbs**

DATA SUMMARIES

MATING/UNMATING:



	Initial				After 100 Cycles			
	Mating		**Unmating**		**Mating**		**Unmating**	
5 Pos.	Force (Oz)	Force (Lbs)	Force (Oz	Force (Lbs)	Force (Oz)	Force (Lbs)	Force (Oz)	Force (Lbs)
Minimum	11.5	0.7	7.7	0.5	10.1	0.6	7.8	0.5
Maximum	17.6	1.1	16.5	1.0	15.2	1.0	11.8	0.7
Average	13.9	**0.9**	9.9	**0.6**	12.3	**0.8**	9.2	**0.6**

	Initial				After 100 Cycles			
	Mating		**Unmating**		**Mating**		**Unmating**	
25 Pos.	Force (Oz)	Force (Lbs)	Force (Oz	Force (Lbs)	Force (Oz)	Force (Lbs)	Force (Oz)	Force (Lbs)
Minimum	65.8	4.1	39.5	2.5	62.9	3.9	45.1	2.8
Maximum	107.2	6.7	66.9	4.2	88.8	5.6	63.0	3.9
Average	79.3	**5.0**	49.2	**3.1**	74.0	**4.6**	53.2	**3.3**

	Initial				After 100 Cycles			
	Mating		**Unmating**		**Mating**		**Unmating**	
50 Pos.	Force (Oz)	Force (Lbs)	Force (Oz	Force (Lbs)	Force (Oz)	Force (Lbs)	Force (Oz)	Force (Lbs)
Minimum	133.0	8.3	80.6	5.0	141.6	8.9	96.0	6.0
Maximum	167.8	10.5	103.0	6.4	163.7	10.2	109.8	6.9
Average	150.7	**9.4**	90.7	**5.7**	151.2	**9.4**	101.3	**6.3**

DATA

MATING/UNMATING:

5 Pos.	Initial		After 100 Cycles	
Sample#	Mating	Unmating	Mating	Unmating
1	0.72	0.54	0.72	0.56
2	0.82	0.48	0.72	0.53
3	0.78	0.52	0.63	0.49
4	0.83	0.60	0.80	0.66
5	0.86	0.64	0.76	0.53
6	0.88	0.61	0.67	0.55
7	0.88	0.62	0.76	0.60
8	0.80	0.52	0.81	0.54
9	1.01	0.63	0.86	0.54
10	1.10	1.03	0.95	0.74

25 Pos.	Initial		After 100 Cycles	
Sample#	Mating	Unmating	Mating	Unmating
1	4.90	3.00	3.93	2.82
2	4.86	2.79	4.44	3.38
3	5.12	3.17	4.80	3.44
4	4.11	2.47	4.12	2.82
5	5.38	3.86	4.57	2.98
6	4.32	2.69	4.68	3.40
7	6.70	4.18	5.55	3.94
8	4.98	2.96	4.69	3.14
9	4.29	2.58	4.57	3.54
10	4.93	3.02	4.91	3.76

50 Pos.	Initial		After 100 Cycles	
Sample#	Mating	Unmating	Mating	Unmating
1	9.33	5.70	9.69	6.46
2	9.17	5.40	9.34	6.23
3	8.31	5.10	8.85	6.19
4	8.90	5.30	9.01	6.00
5	10.13	6.14	9.96	6.86
6	10.29	6.25	9.56	6.10
7	10.49	6.44	10.23	6.55
8	8.73	5.04	8.94	6.25

EQUIPMENT AND CALIBRATION SCHEDULES

Equipment #: LC-100N-2
Description: 100 N icell load cell for Dillon Test Stand
Manufacturer: Mecmesin (Dillon/Quantrol)
Model: ILC
Serial #: 07-0217-10
Accuracy: .10% of Capacity
… Last Cal: 02/15/2008, Next Cal: 02/15/2009

Equipment #: TCT-03
Description: Dillon Quantrol TC2 Test Stand
Manufacturer: Dillon Quantrol
Model: TC2
Serial #: 02-1033-03
Accuracy: Speed Accuracy: +/- 5% of indicated speed; Displacement: +/- 5 micrometers.
… Last Cal: 5/18/07, Next Cal: 5/18/08

Equipment #: Null
Description:
Manufacturer:
Model:
Serial #:
Accuracy:
… Last Cal: , Next Cal: