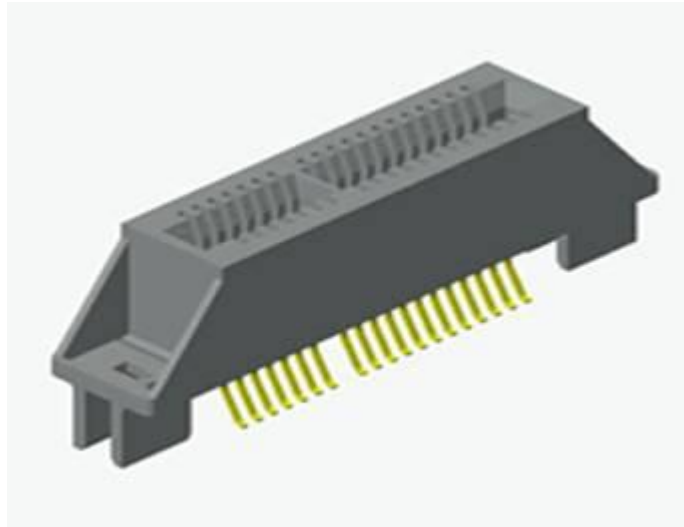




Project Number: Design Qualification Test Report		Tracking Code: 183059_Report_Rev_1		
Requested by: Mark Shireman		Date: 3/15/2012	Product Rev: N/A	
Part #: ASP-149559-01(MEC1-EM) \Edge card		Lot #: N/A	Tech: Tony Wagoner	Eng: Eric Mings
Part description: ASP/MEC1-EM				Qty to test: 9
Test Start: 03/08/2012	Test Completed: 03/12/2012			



DESIGN QUALIFICATION TEST REPORT

MEC1-170-02-S-D-EM3 (.093" thick PCB)

ASP

ASP-149559-01 (MEC1-EM) \ Edge Card

CERTIFICATION

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

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SCOPE

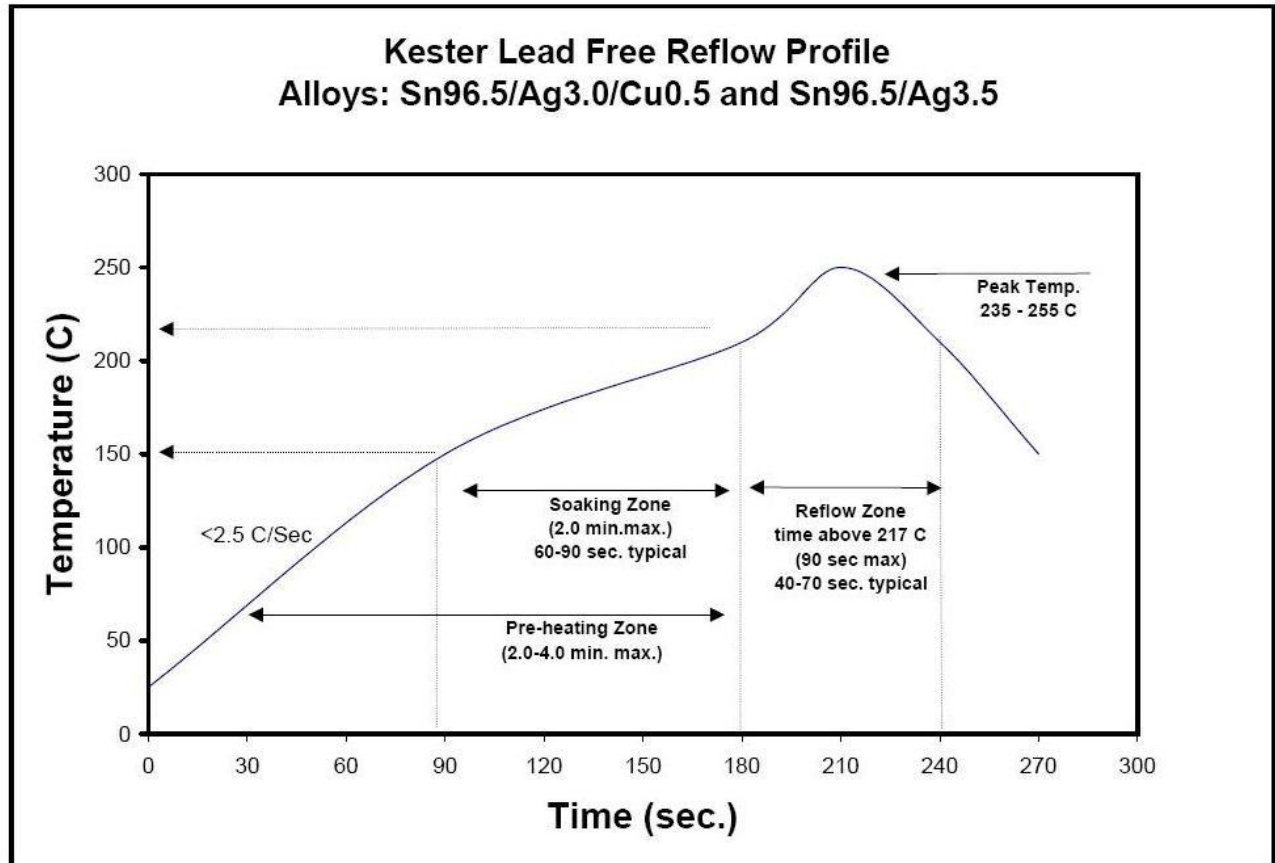
To perform the following tests: Design Qualification test. Please see test plan.

APPLICABLE DOCUMENTS

Standards: EIA Publication 364

TEST SAMPLES AND PREPARATION

- 1) All materials were manufactured in accordance with the applicable product specification.
- 2) All test samples were identified and encoded to maintain traceability throughout the test sequences.
- 3) Either an automated cleaning procedure or an ultrasonic cleaning procedure may be used.
- 4) The automated procedure is used with aqueous compatible soldering materials.
- 5) Any additional preparation will be noted in the individual test sequences.
- 6) Solder Information: Lead Free
- 7) Re-Flow Time/Temp: See accompanying profile.

TYPICAL OVEN PROFILE (Soldering Parts to Test Boards)

Tracking Code: 183059_Report_Rev_1

Part #: ASP-149559-01 (MEC1-EM)
| Edge card

Part description: ASP/MEC1-EM

FLOWCHARTS

Current Carrying Capacity - Double Row

TEST STEP	GROUP B1 3 Mated Assemblies 2 Contacts Powered	GROUP B2 3 Mated Assemblies 4 Contacts Powered	GROUP B3 3 Mated Assemblies 6 Contacts Powered	GROUP B4 3 Mated Assemblies 8 Contacts Powered	GROUP B5 3 Mated Assemblies All Contacts Powered
01	CCC	CCC	CCC	CCC	CCC

(TIN PLATING) - Tabulate calculated current at RT, 65°C, 75°C and 95°C
after derating 20% and based on 105°C

(GOLD PLATING) - Tabulate calculated current at RT, 85°C, 95°C and 115°C
after derating 20% and based on 125°C

CCC, Temp rise = EIA-364-70

ATTRIBUTE DEFINITIONS

The following is a brief, simplified description of attributes.

TEMPERATURE RISE (Current Carrying Capacity, CCC):

- 1) EIA-364-70, *Temperature Rise versus Current Test Procedure for Electrical Connectors and Sockets*.
- 2) When current passes through a contact, the temperature of the contact increases as a result of I^2R (resistive) heating.
- 3) The number of contacts being investigated plays a significant part in power dissipation and therefore temperature rise.
- 4) The size of the temperature probe can affect the measured temperature.
- 5) Copper traces on PC boards will contribute to temperature rise:
 - a. Self heating (resistive)
 - b. Reduction in heat sink capacity affecting the heated contacts
- 6) A de-rating curve, usually 20%, is calculated.
- 7) Calculated de-rated currents at three temperature points are reported:
 - a. Ambient
 - b. 80° C
 - c. 95° C
 - d. 115° C
- 8) Typically, neighboring contacts (in close proximity to maximize heat build up) are energized.
- 9) The thermocouple (or temperature measuring probe) will be positioned at a location to sense the maximum temperature in the vicinity of the heat generation area.
- 10) A computer program, *TR 803.exe*, ensures accurate stability for data acquisition.
- 11) Hook-up wire cross section is larger than the cross section of any connector leads/PC board traces, jumpers, etc.
- 12) Hook-up wire length is longer than the minimum specified in the referencing standard.

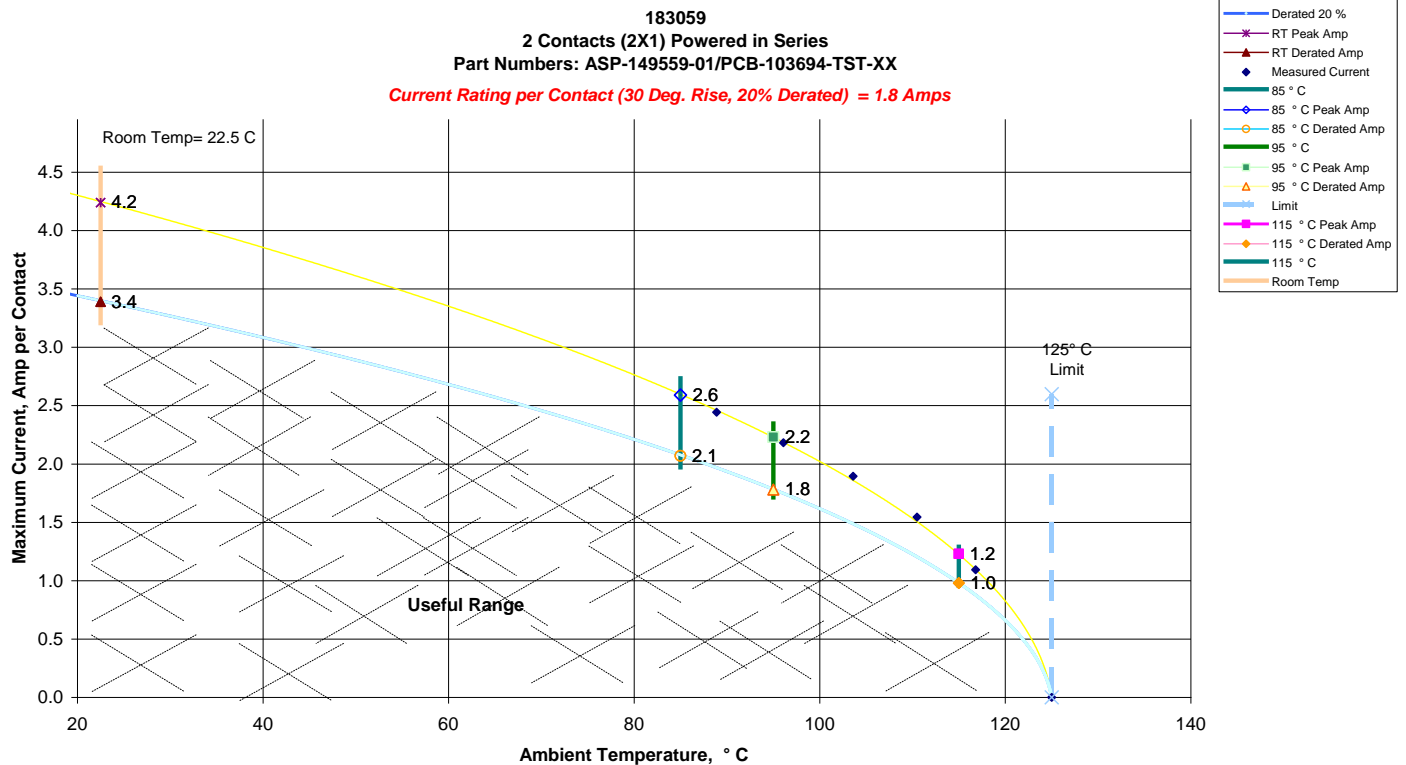
RESULTS

Temperature Rise, CCC at a 20% de-rating

- CCC for a 30°C Temperature Rise -----1.8A per contact with 2 adjacent contacts powered
- CCC for a 30°C Temperature Rise -----1.4A per contact with 4 adjacent contacts powered
- CCC for a 30°C Temperature Rise -----1.2A per contact with 6 adjacent contacts powered
- CCC for a 30°C Temperature Rise -----1.1A per contact with 8 adjacent contacts powered
- CCC for a 30°C Temperature Rise -----0.5A per contact with all adjacent contacts powered

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

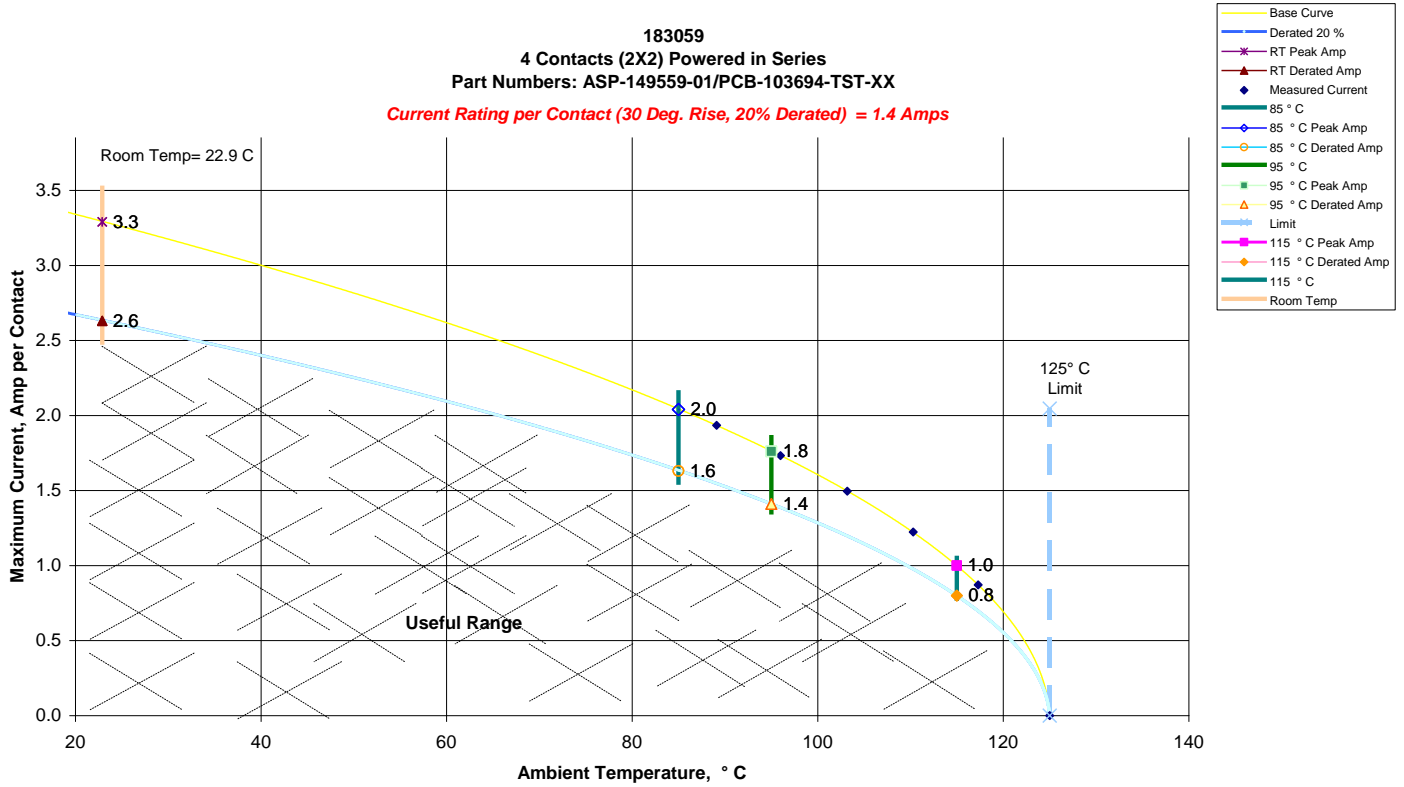
- 1) High quality thermocouples whose temperature slopes track one another were used for temperature monitoring.
- 2) The thermocouples were placed at a location to sense the maximum temperature generated during testing.
- 3) Temperature readings recorded are those for which three successive readings,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



DATA SUMMARIES Continued

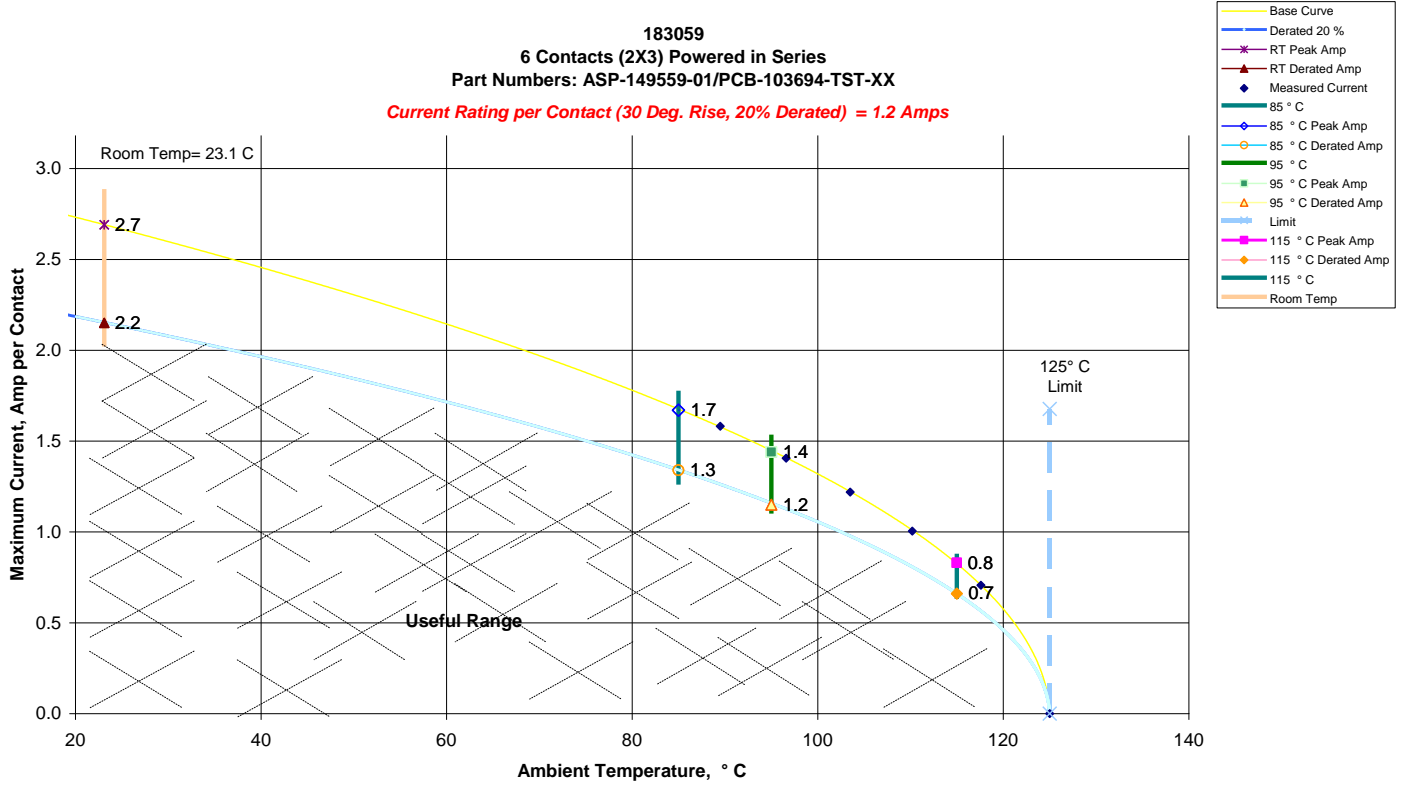
b. Linear configuration with 4 adjacent conductors/contacts powered

183059
4 Contacts (2X2) Powered in Series
Part Numbers: ASP-149559-01/PCB-103694-TST-XX
Current Rating per Contact (30 Deg. Rise, 20% Derated) = 1.4 Amps



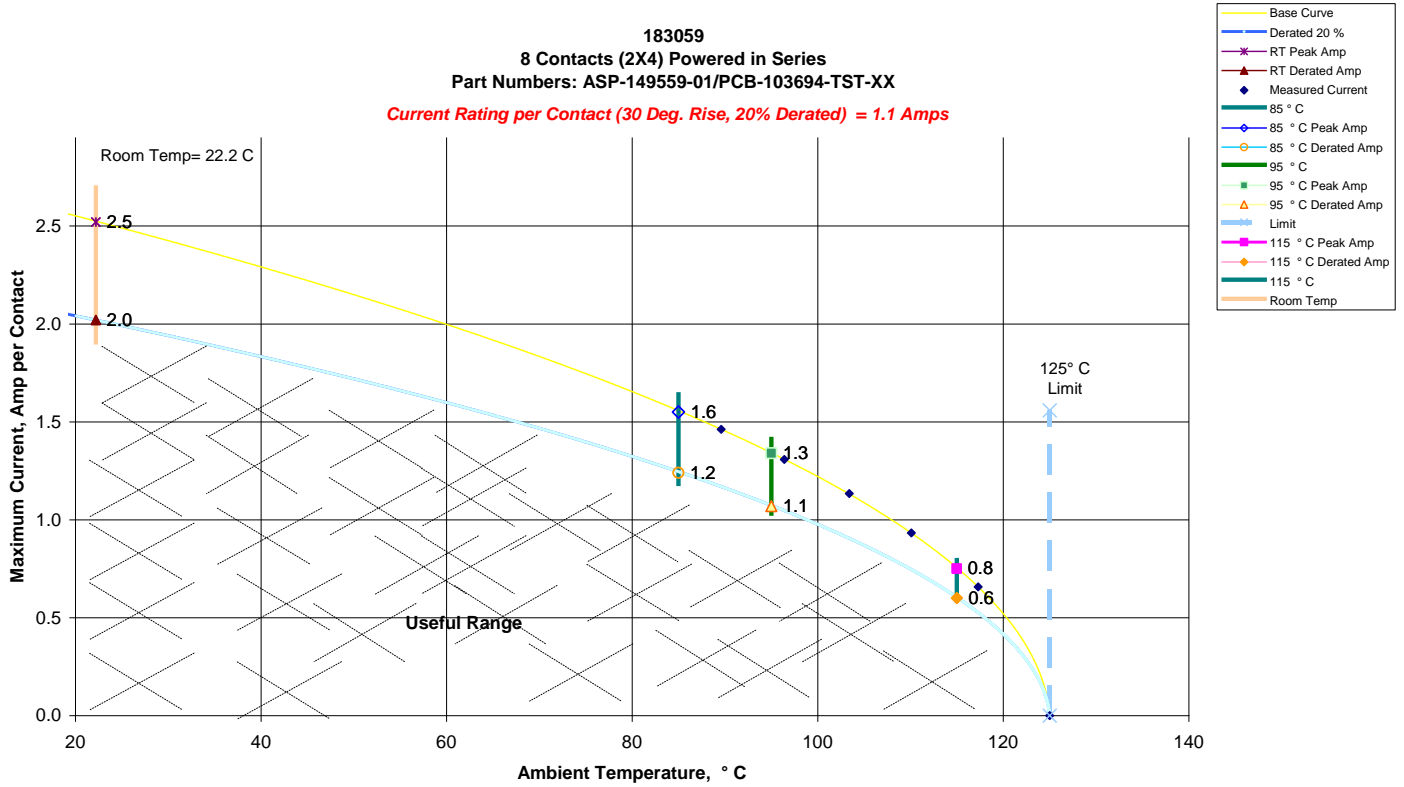
DATA SUMMARIES Continued

c. Linear configuration with 6 adjacent conductors/contacts powered



DATA SUMMARIES Continued

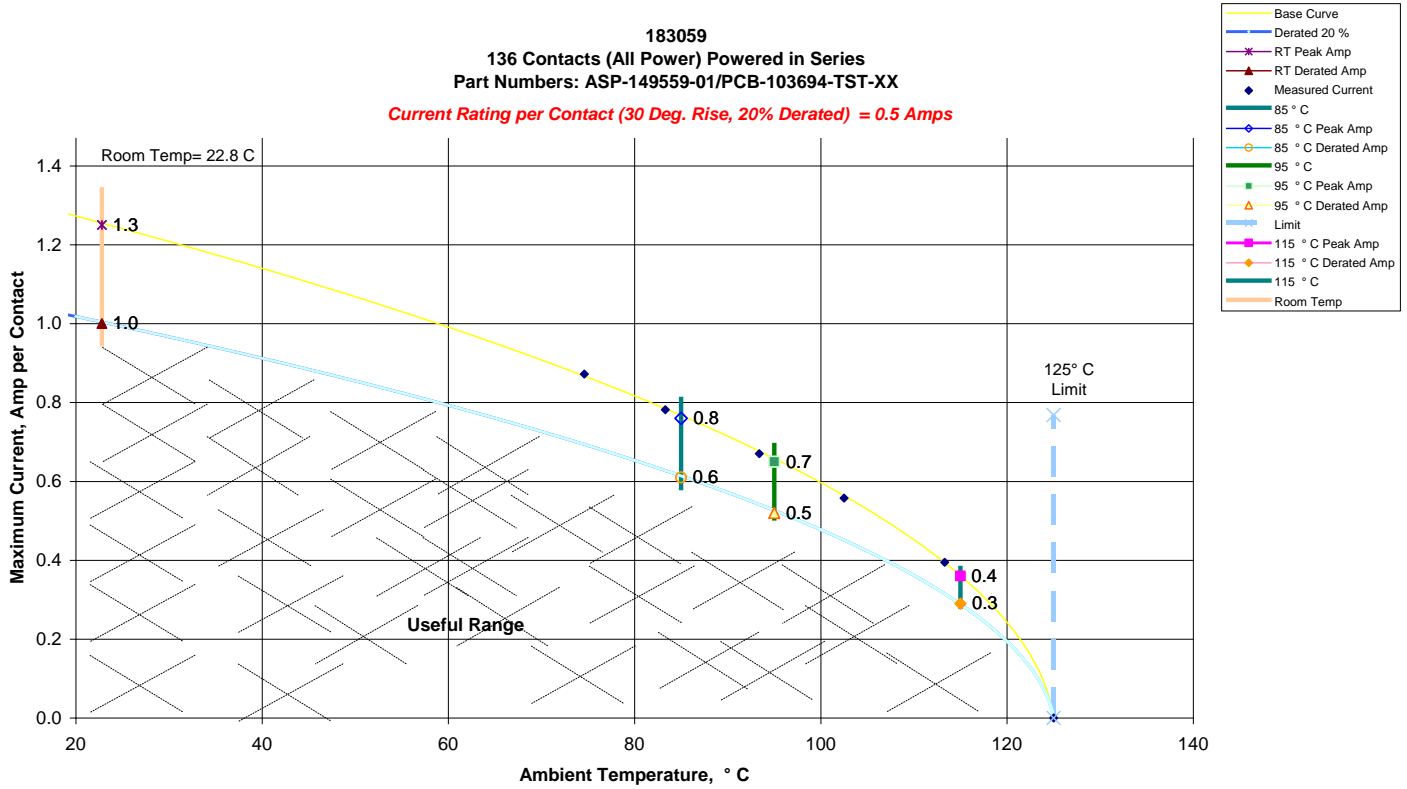
d. Linear configuration with 8 adjacent conductors/contacts powered



DATA SUMMARIES Continued

e. Linear configuration with all adjacent conductors/contacts powered

183059
136 Contacts (All Power) Powered in Series
Part Numbers: ASP-149559-01/PCB-103694-TST-XX
Current Rating per Contact (30 Deg. Rise, 20% Derated) = 0.5 Amps



EQUIPMENT AND CALIBRATION SCHEDULES**Equipment #:** MO-04**Description:** Multimeter /Data Acquisition System**Manufacturer:** Keithley**Model:** 2700**Serial #:** 0798688**Accuracy:** See Manual

... Last Cal: 04/30/2011, Next Cal: 04/30/2012

Equipment #: PS-07**Description:** Power Supply**Manufacturer:** Agilent**Model:** AT-6031A**Serial #:** 2721A00648**Accuracy:** See Manual See Manual

... Last Cal: 08/21/2011, Next Cal: 08/21/2012