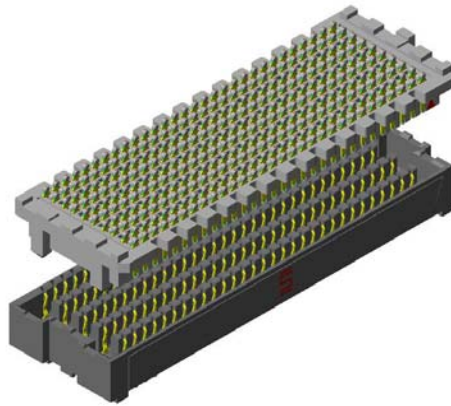




Project Number:		Tracking Code: TC0904--2189_ReportRev2			
Requested by: Matt Johnsen		Date: 3/16/2009		Product Rev: AH	
Part #: SEAM-40-02.0-S-10-2-A/SEAF-40-05.0-S-10-2-A		Lot #: 1		Tech: Tony Wagoner	Eng: Dave Scopelliti
Part description: SE ARRAY					Qty to test: 25
Test Start: 01/15/2009		Test Completed: 1/21/2009			



CCC TEST REPORT

PART DESCRIPTION

SEAM-40-02.0-S-10-2-A-K-TR

Mated with

SEAF-40-05.0-S-10-2-A

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

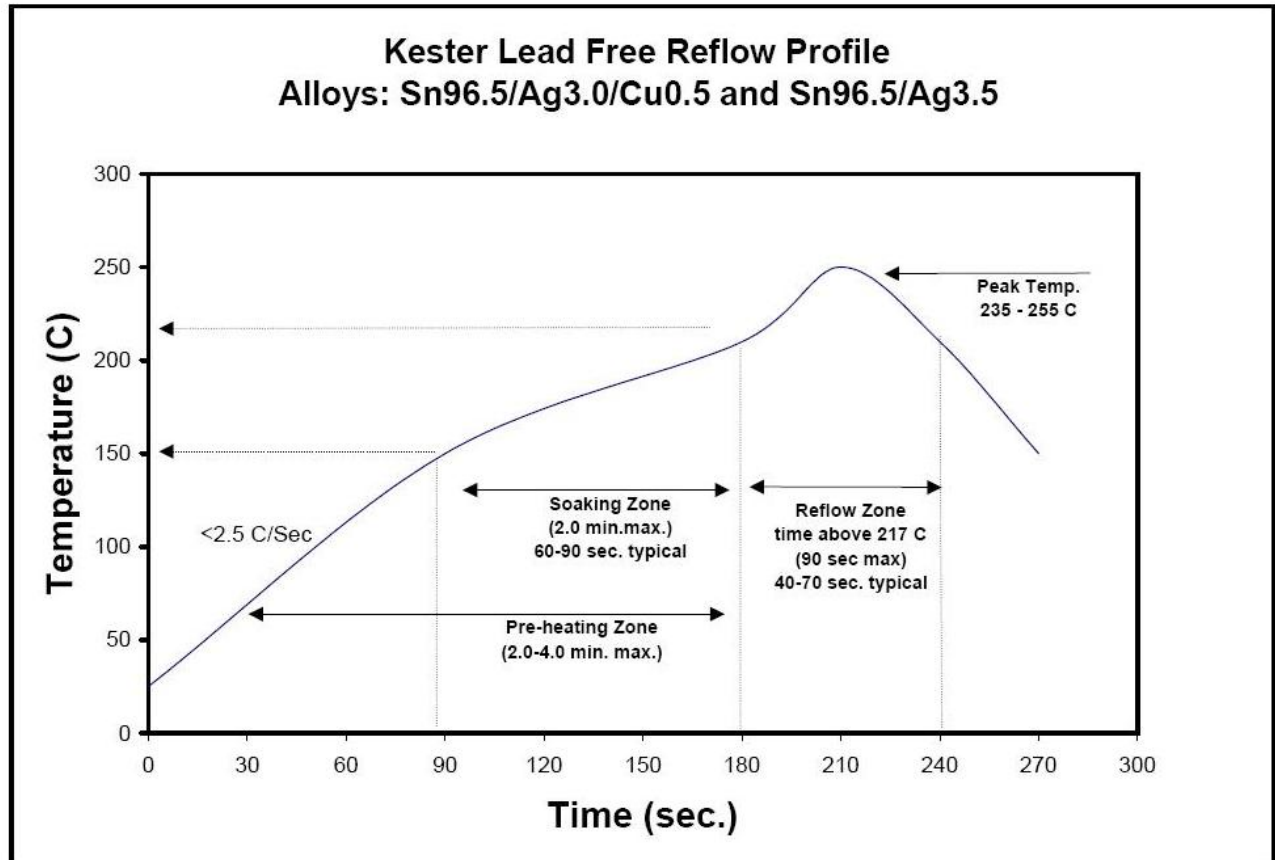
To perform the following tests: Standard CCC test per Cray Inc.

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-101653-TST-XX

TYPICAL OVEN PROFILE (Soldering Parts to Test Boards)

FLOWCHARTS

Current Carrying Capacity 3 Mated Assemblies Each

TEST STEP	GROUP A 3 Mated Assemblies 10 CONTACT POWERED	GROUP B 3 Mated Assemblies 20 CONTACTS POWERED	GROUP C 3 Mated Assemblies 30 CONTACTS POWERED	GROUP D 3 Mated Assemblies 40 CONTACTS POWERED	GROUP E 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

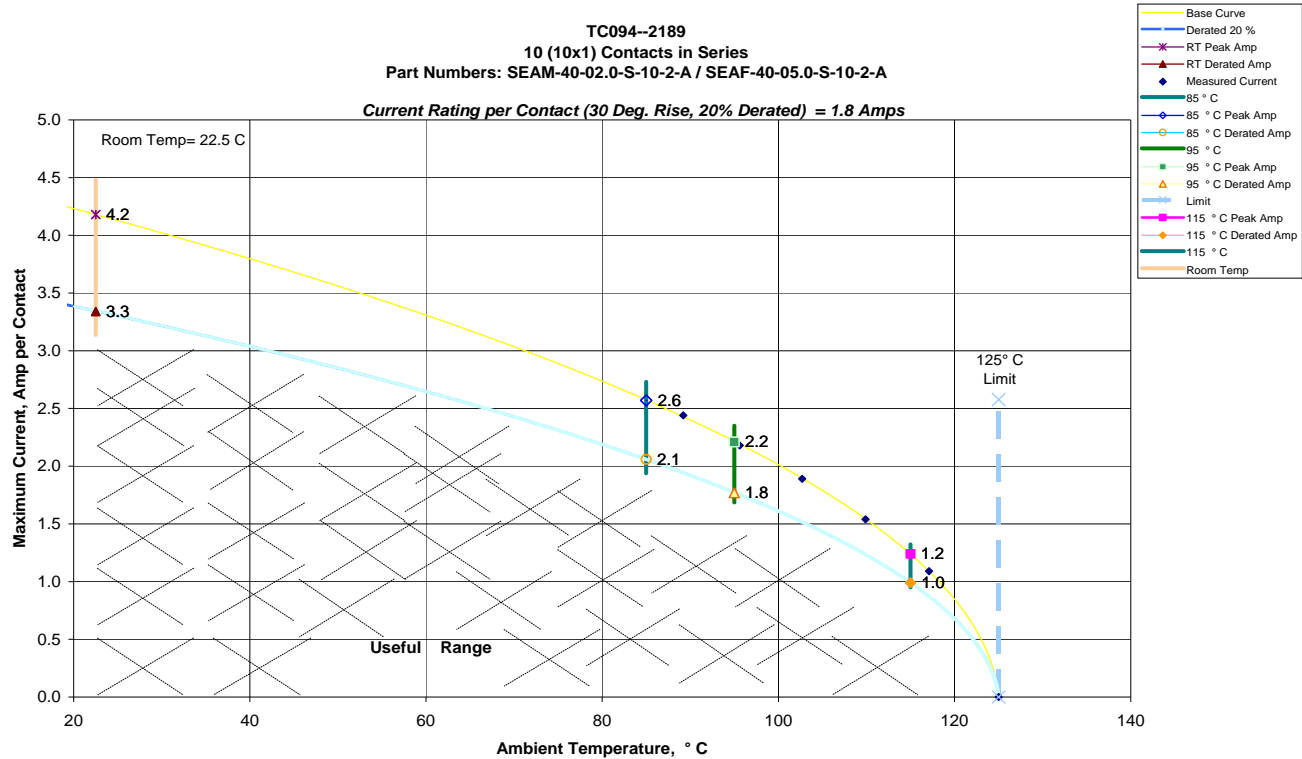
Temperature Rise, CCC at a 20% de-rating

- CCC for a 30°C Temperature Rise -----1.8A per contact with 10 adjacent contacts powered
- CCC for a 30°C Temperature Rise -----1.4A per contact with 20 adjacent contacts powered
- CCC for a 30°C Temperature Rise -----1.14A per contact with 30 adjacent contacts powered
- CCC for a 30°C Temperature Rise -----1.09A per contact with 40 adjacent contacts powered
- CCC for a 30°C Temperature Rise -----0.6A per contact with 400 adjacent contacts powered

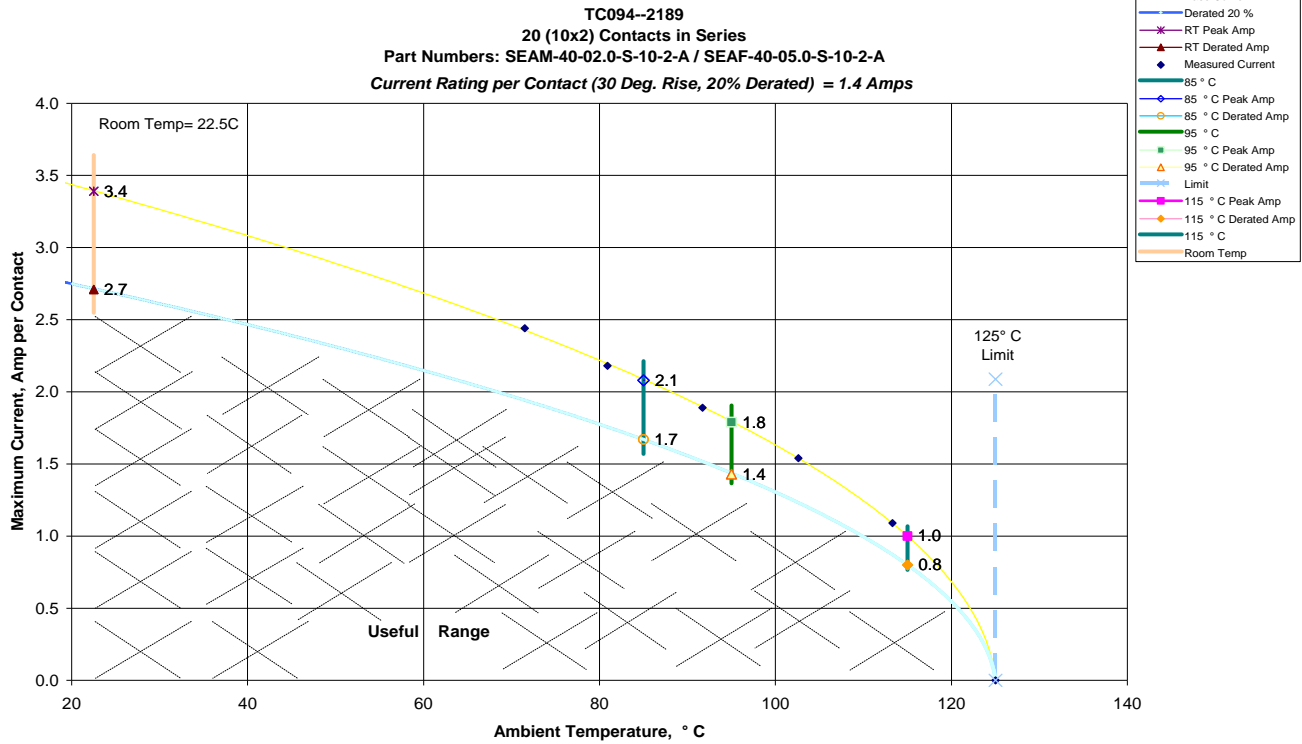
DATA SUMMARIES

TEMPERATURE RISE (Current Carrying Capacity, CCC):

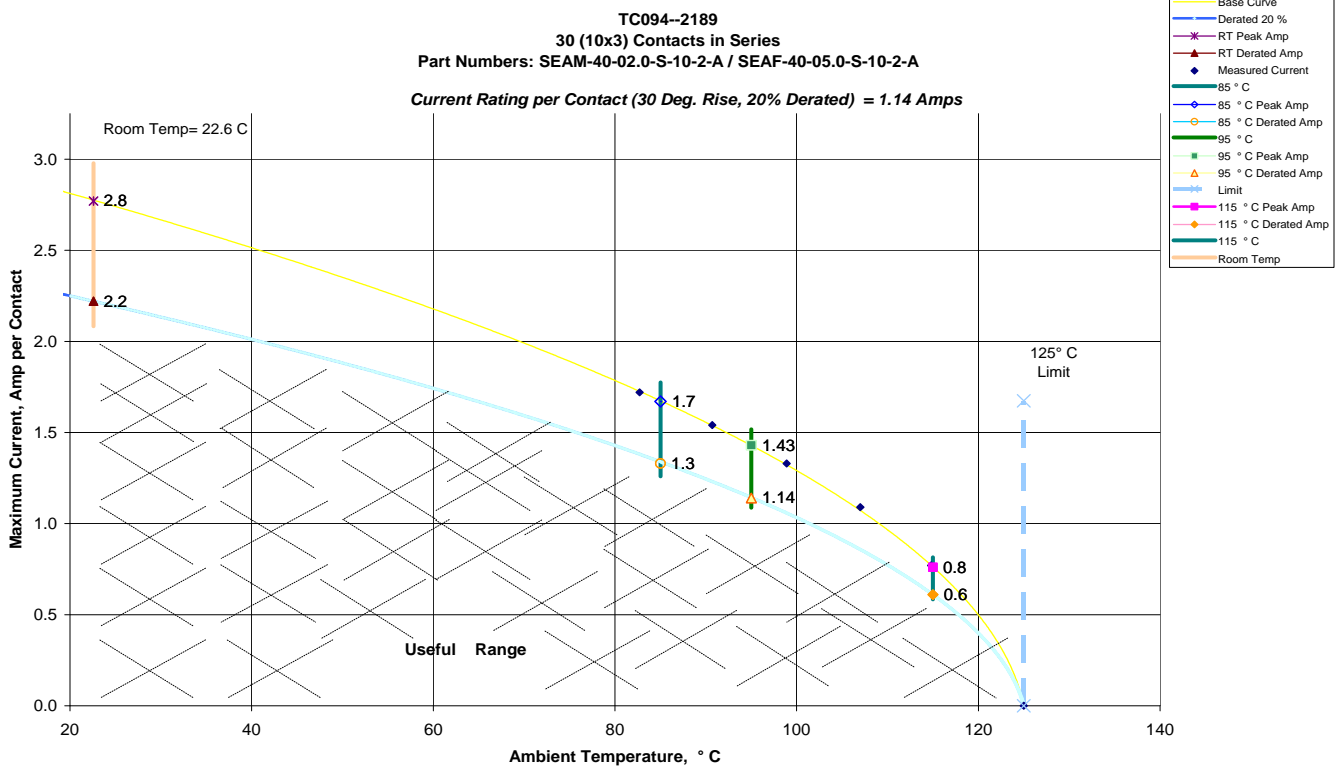
- 1) High quality thermocouples whose temperature slopes track one another were used for temperature monitoring.
- 2) The thermocouples were placed at a location to sense the maximum temperature generated during testing.
- 3) Temperature readings recorded are those for which three successive readings, 15 minutes apart, differ less than 1° C (computer controlled data acquisition).
- 4) Adjacent contacts were powered:
 - a. Linear configuration with 10 adjacent conductors/contacts powered



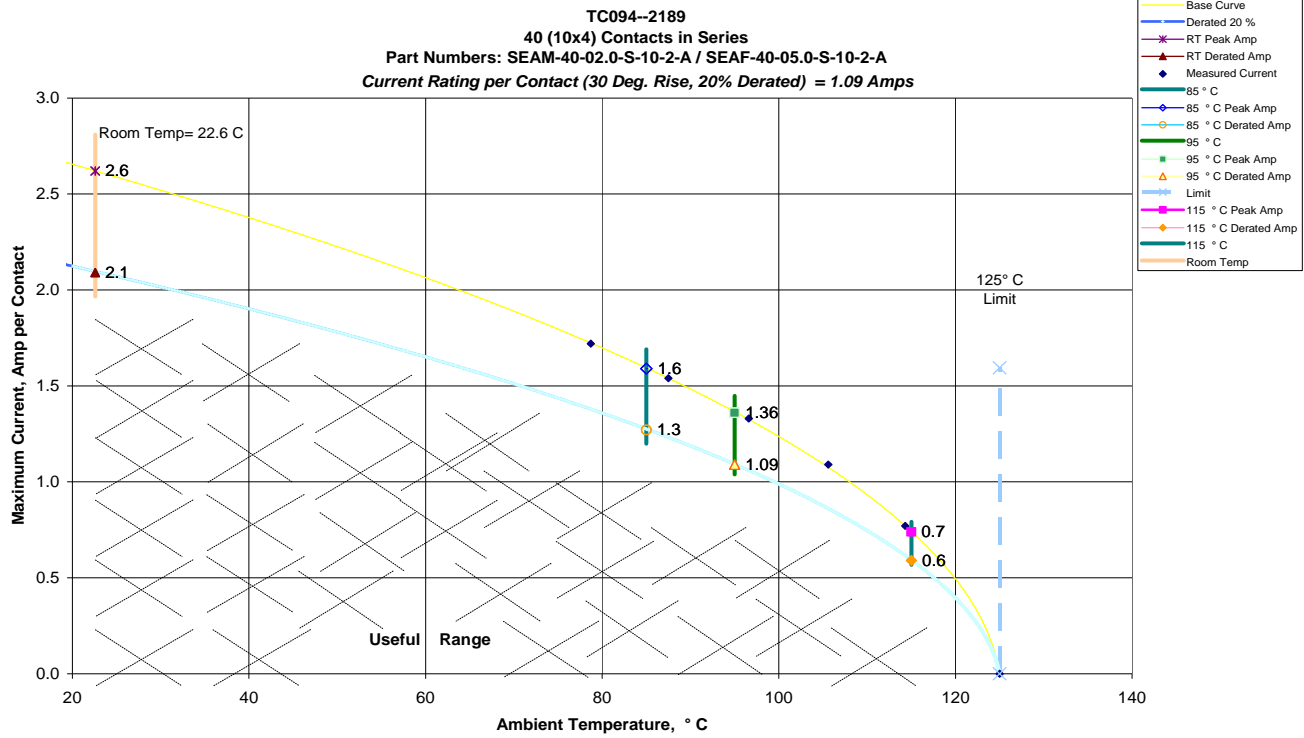
b. Linear configuration with 20 adjacent conductors/contacts powered



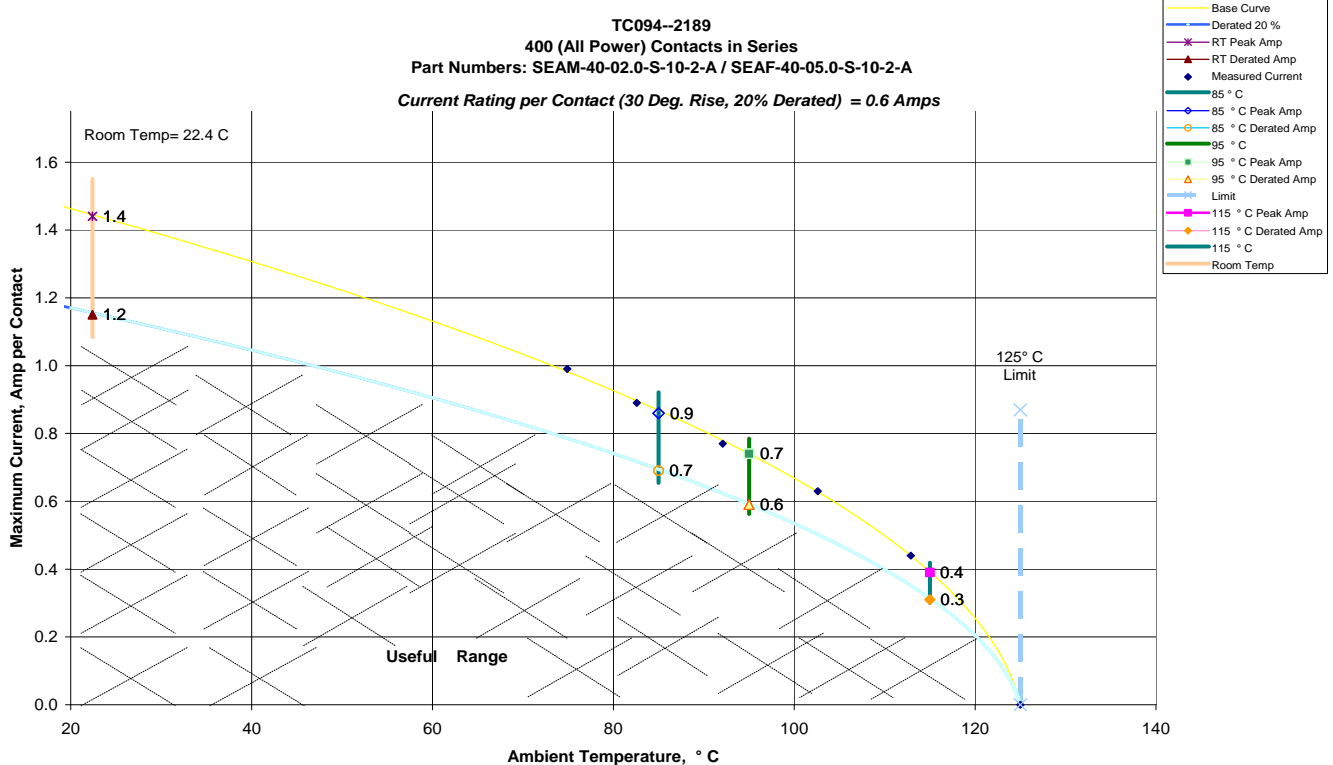
c. Linear configuration with 30 adjacent conductors/contacts powered



d. Linear configuration with 40 adjacent conductors/contacts powered



e. Linear configuration with all adjacent conductors/contacts powered



EQUIPMENT AND CALIBRATION SCHEDULES**Equipment #:** PS-07**Description:** 20 V, 120 A DC Power Supply - AutoRanging SO/HPIB**Manufacturer:** Hewlett Packard / Agilent**Model:** AT-6031A**Serial #:** 2721A00648**Accuracy:** See Manual Current Carrying Capacity (CCC) Chamber

... Last Cal: 06/16/2008, Next Cal: 06/16/2009

Equipment #: MO-04**Description:** Multimeter /Data Acquisition System**Manufacturer:** Keithley**Model:** 2700**Serial #:** 0798688**Accuracy:** See Manual - DO NOT USE UNTIL CALIBRATED.

... Last Cal: 03/10/08, Next Cal: 03/10/09

Equipment #: TC111307-(001 - 017)**Description:** CCC Chamber Thermocouples**Manufacturer:** Samtec**Model:****Serial #:** TC111307-(001 - 017)**Accuracy:** +/- 1 Deg.

... Last Cal: 11/30/2008, Next Cal: 11/30/2009