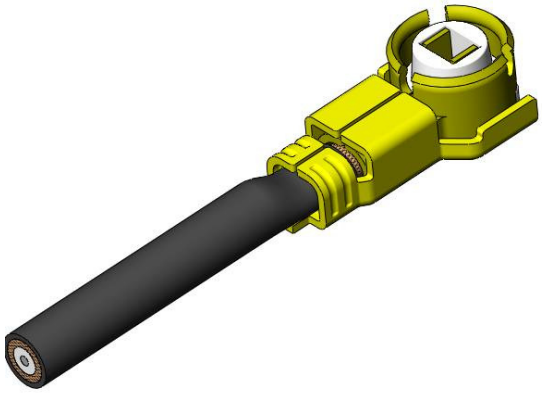
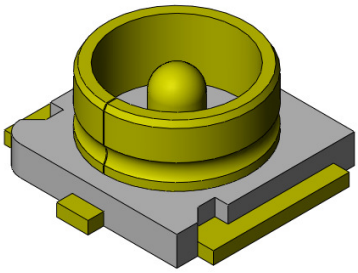
Project Number: Design Qualification Test Report	Tracking Code: 312144_Report_Rev_1
Requested by: Tori Meek	Date: 03/4/2014
Part #: MH081-MH3RP-MH3RP-0305/RSP-122811-02	
Part description: MH081/RSP	Tech: Kason He
Test Start: 02/17/2014	Test Completed: 02/24/2014





DESIGN QUALIFICATION TEST REPORT

MH081/RSP
MH081-MH3RP-MH3RP-0305/RSP-122811-02

REVISION HISTORY

DATA	REV.NUM.	DESCRIPTION	ENG
03/04/2014	**1**	**Initial Issue**	**KH**

CERTIFICATION

All instruments and measuring equipment were calibrated to National Institute for Standards and Technology (NIST) traceable standards according to IS0 10012-l and ANSI/NCSL 2540-1, as applicable.

SCOPE

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

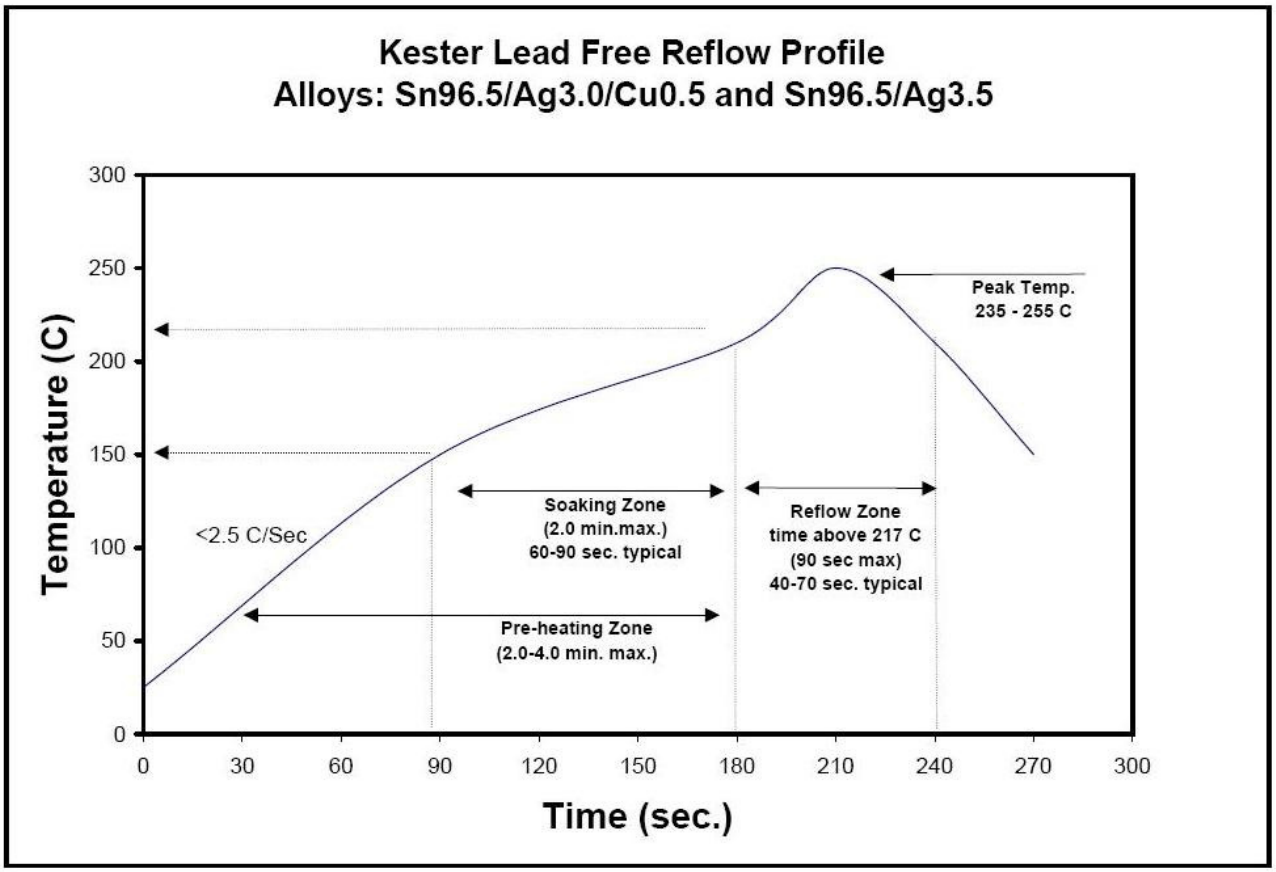
APPLICABLE DOCUMENTS

Standards: EIA Publication 364

TEST SAMPLES AND PREPARATION

1) All materials were manufactured in accordance with the applicable product specification.
2) All test samples were identified and encoded to maintain traceability throughout the test sequences.
3) 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.
8) Samtec Test PCBs used: PCB-106147-TST

TYPICAL OVEN PROFILE (Soldering Parts to Test Boards)



FLOWCHARTS

Current Carrying Capacity

Group 1

MH081-MH3RP-MH3RP-0305
RSP-122811-02
1 Pins Powered
Cable-35 AWG

Note: power center conductor only, monitor center conductor in cable
Note: Cable only, CCA-081. No connectors.

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

Group 2

MH081-MH3RP-MH3RP-0305
RSP-122811-02
1 Pins Powered
Signal

Note: Full transmission line, test signal contact CCC only.
Note: Monitor contact interface, cable center conductor, and crimp

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

Group 3

MH081-MH3RP-MH3RP-0305
RSP-122811-02
1 Pins Powered
Signal & Ground

Note: Power both signal and shield together on one power source
Note: monitor cable shield and contact interface and crimp

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

(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

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. 85^{o} C
    c. 95^{o} C
    d. 115^{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.

RESULTS

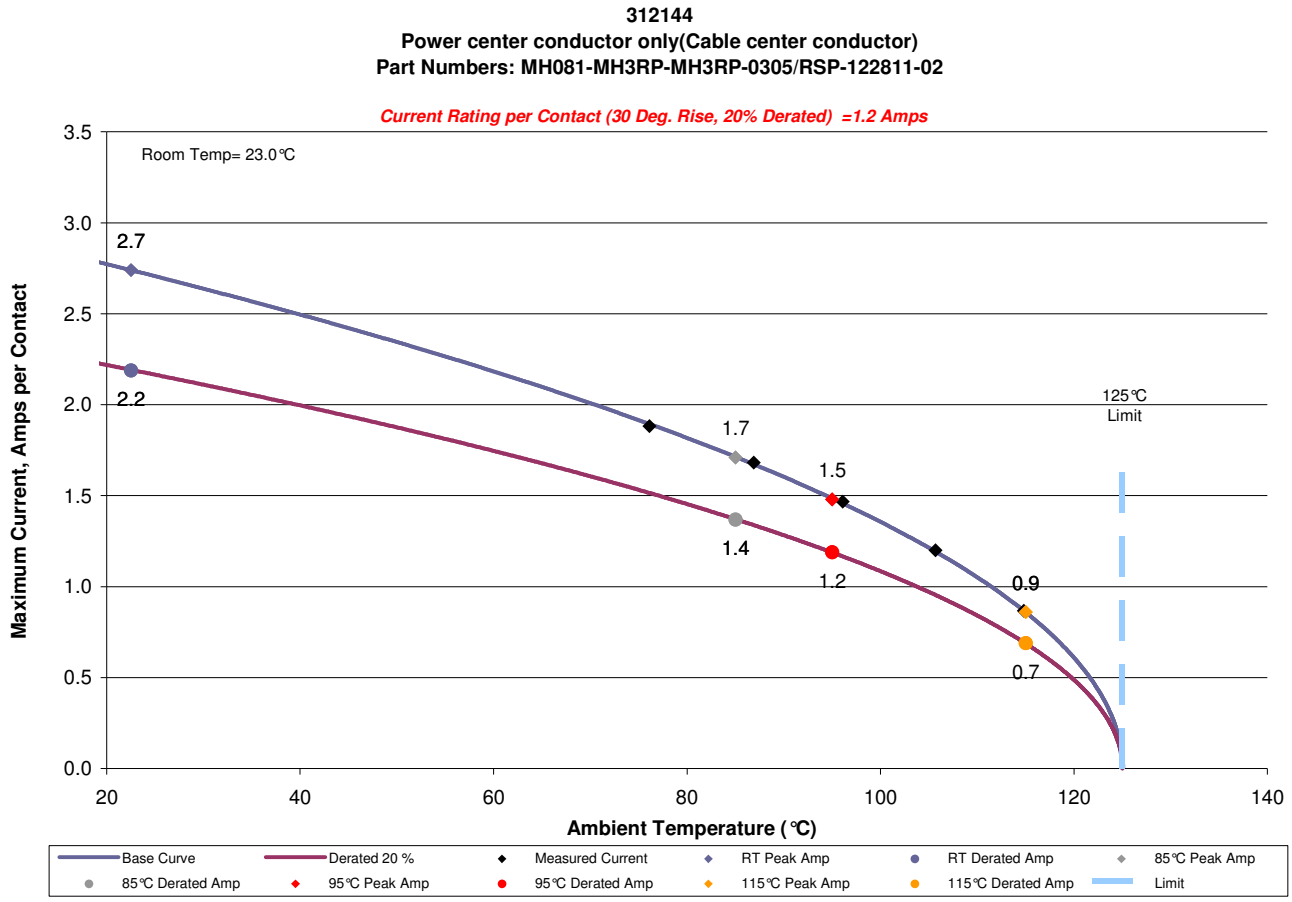
Temperature Rise, CCC at a 20% de-rating

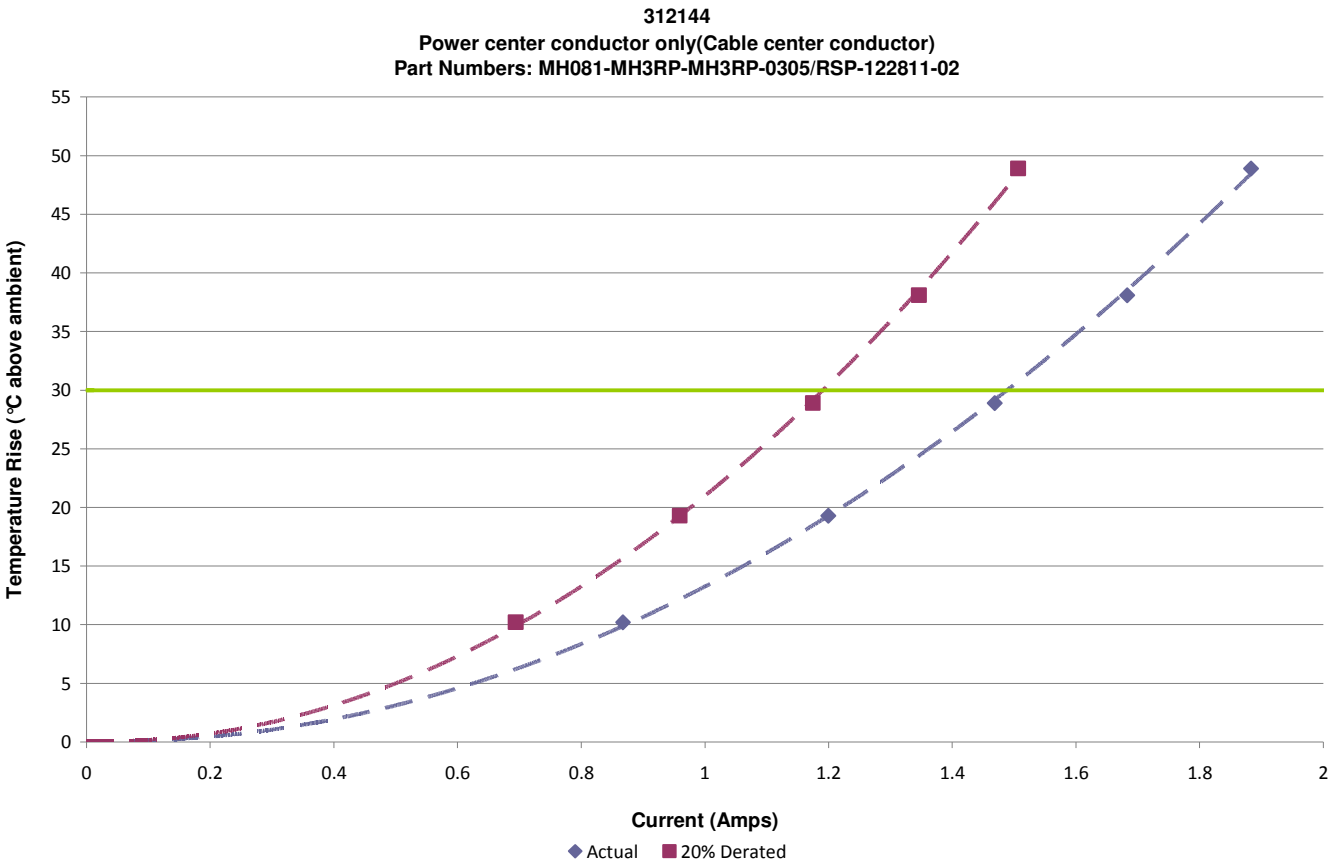
- **CCC for a 30°C Temperature Rise----------1.2 A power center conductor only(no connectors), monitor center Conductor in cable**
- **CCC for a 30°C Temperature Rise----------1.1 A full transmission line, monitor cable center conductor**
- **CCC for a 30°C Temperature Rise----------3.9 A power both signal and shield together on one power source, Monitor cable shield**

DATA SUMMARIES

TEMPERATURE RISE (Current Carrying Capacity, CCC):

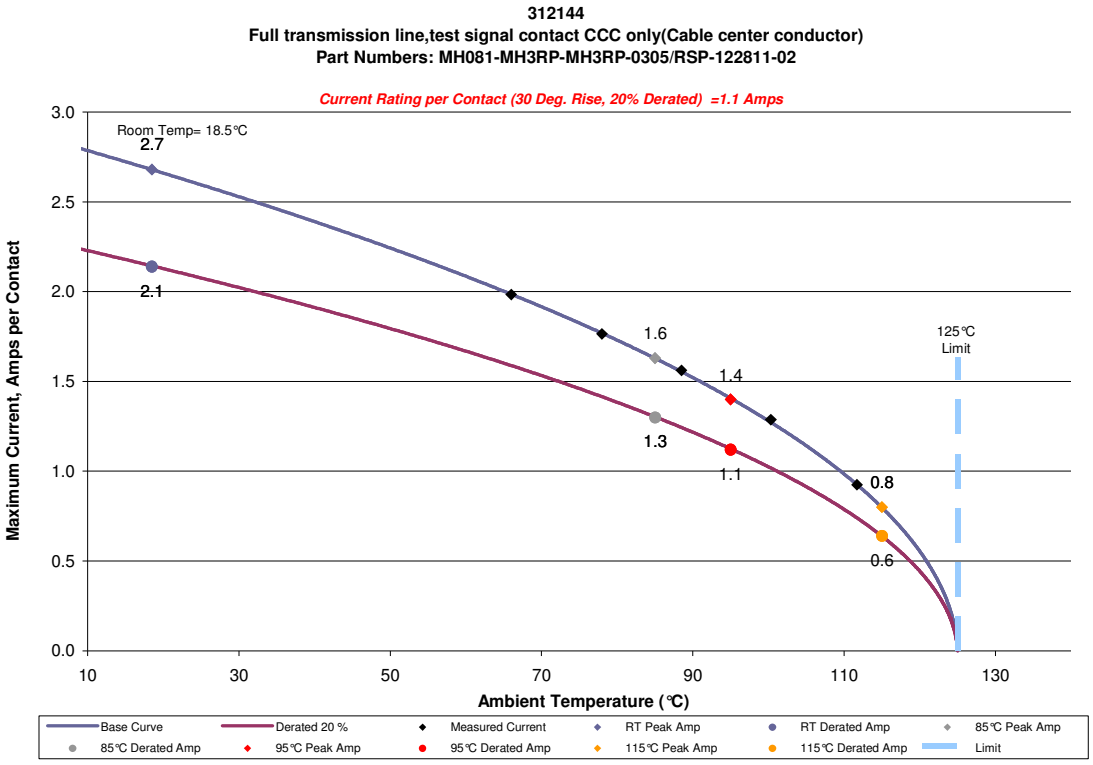
1) High quality thermocouples whose temperature slopes track one another were used for temperature monitoring.
2) The thermocouples were placed at a location to sense the maximum temperature generated during testing.
3) Temperature readings recorded are those for which three successive readings, 15 minutes apart, differ less than 1° C (computer controlled data acquisition).
4) Adjacent contacts were powered:
    a. Power center conductor only(no connectors), monitor center conductor in cable

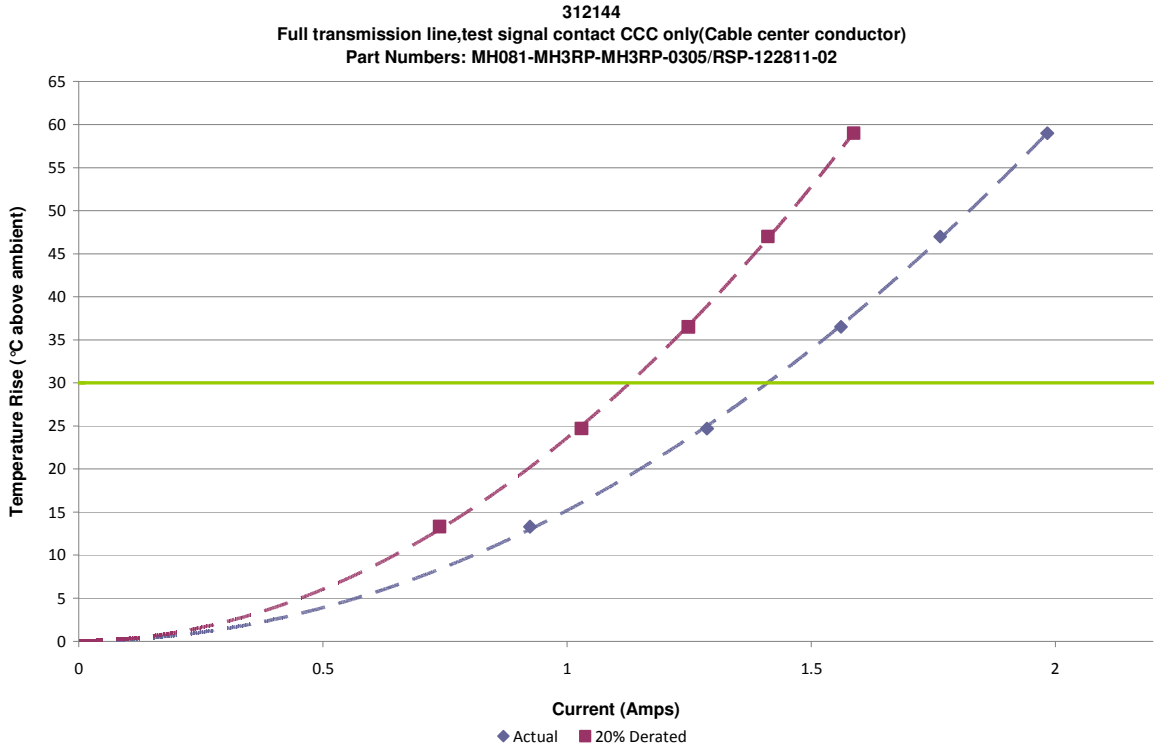



312144
Power center conductor only(Cable center conductor)
Part Numbers: MH081-MH3RP-MH3RP-0305/RSP-122811-02
Temperature Rise (°C above ambient)
55
50
45
40
35
30
25
20
15
10
5
0
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
1.8
2
Current (Amps)
Actual
20% Derated

DATA SUMMARIES Continued

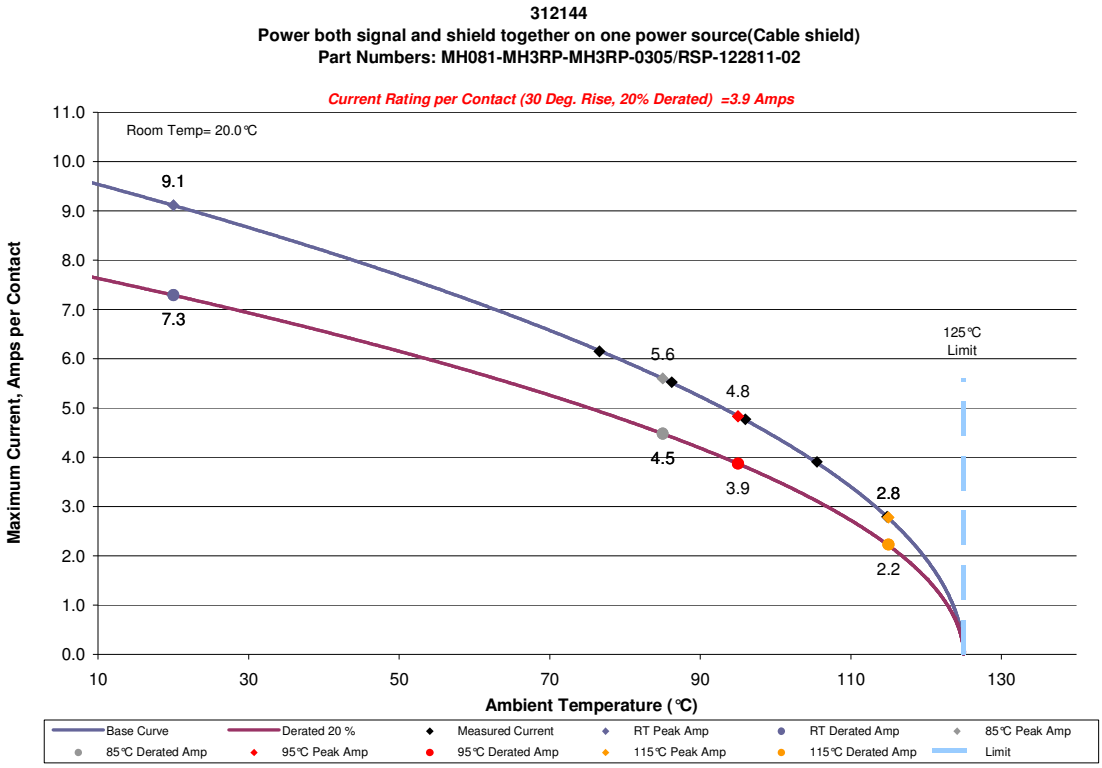
b. Full transmission line, test signal contact CCC only(cable center conductor)

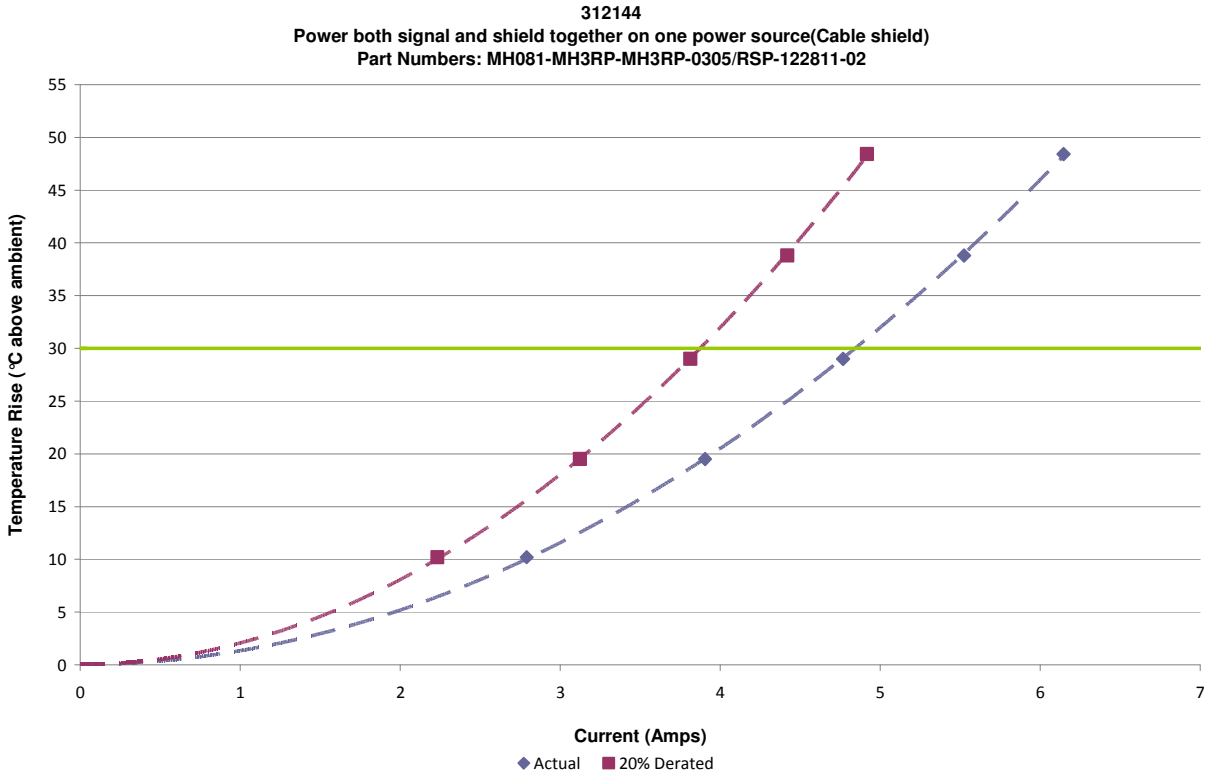




SUMMARIES Continued

c. Power both signal and shield together on one power source(cable shield)





EQUIPMENT AND CALIBRATION SCHEDULES

Equipment #: HZ-PS-01
Description: 120 Amp Power Supply
Manufacturer: Agilent
Model: 6031
Serial #: MY41000982
Accuracy: See Manual
… Last Cal: 06/29/2013, Next Cal: 06/28/2014

Equipment #: HZ-MO-01
Description: Multimeter /Data Acquisition System
Manufacturer: Keithley
Model: 2700
Serial #: 1199807
Accuracy: See Manual
… Last Cal: 06/29/2013, Next Cal: 06/28/2014