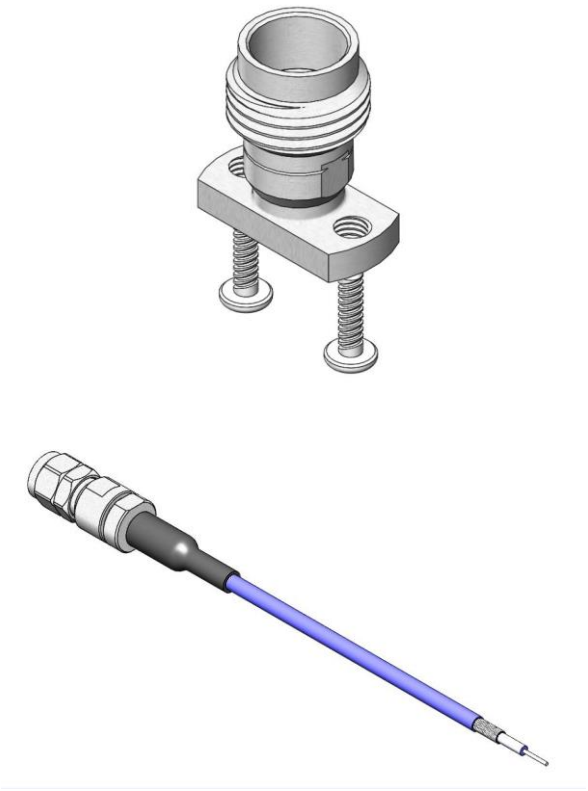
Project Number: Design Qualification Test Report	Tracking Code: 2493874_Report_Rev_1
Requested by: Tim Clare	Date: 8/20/2020
Part #: 185-J-P-EP-ST-CMM-X/RF086-18SP-505050-0304	Tech: Tony Wagoner
Part description: 185-J-P/ RF086	Qty to test: 6
Test Start: 8/11/2020	Test Completed: 8/17/2020



DESIGN QUALIFICATION TEST REPORT

185-J-P/ RF086
185-J-P-EP-ST-CMM-X/RF086-18SP-505050-0304

REVISION HISTORY

DATA	REV.NUM.	DESCRIPTION	ENG
8/20/2020	**1**	**Initial Issue**	**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.

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 DWV/IR testing was 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 DWV/IR is 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-110991-TST.

FLOWCHARTS

IR/DWV

Pin-to-Closest Metallic Hardware

Group 1 185-J-P-EP-ST-CMM-X RF086-18SP-505050-0304 2 Assemblies		Group 2 185-J-P-EP-ST-CMM-X 2 Assemblies		Group 3 RF086-18SP-505050-0304 2 Assemblies		Group 4 185-J-P-EP-ST-CMM-X RF086-18SP-505050-0304 2 Assemblies	
Step	**Description**	**Step**	**Description**	**Step**	**Description**	**Step**	**Description**
1.	DWV Breakdown (2)	1.	DWV Breakdown (2)	1.	DWV Breakdown (2)	1.	IR (3)
						2.	DWV at Test Voltage(1)
						3.	Thermal Shock (4)
						4.	IR (3)
						5.	DWV at Test Voltage(1)

(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) IR = EIA-364-21
Test Condition = 500 Vdc, 2 Minutes Max

(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)

ATTRIBUTE DEFINITIONS

The following is a brief, simplified description of attributes.

THERMAL SHOCK:

1) Other request, *Thermal Shock (Temperature Cycling) Test Procedure for Electrical Connectors.*
2) Test Condition 1: -55°C to +125°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.

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 1000 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

Insulation Resistance minimums, IR

Pin to Ground

- **Initial**
  - **Mated ---------- 45000 Meg Ω ---------- Passed**
  - **Unmated ---------- 45000 Meg Ω ---------- Passed**
- **Thermal Shock**
  - **Mated ---------- 45000 Meg Ω ---------- Passed**
  - **Unmated ---------- 45000 Meg Ω ---------- Passed**

Dielectric Withstanding Voltage minimums, DWV

- **Minimums**
  - **Breakdown Voltage ---------- 1146 VAC**
  - **Test Voltage ---------- 860 VAC**
  - **Working Voltage ---------- 285 VAC**

Pin to Ground

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

DATA SUMMARIES

INSULATION RESISTANCE (IR):

	Pin to Ground		
	Mated	Unmated	Unmated
Minimum	**185/RF086**	**185**	**RF086**
Initial	45000	45000	45000
Thermal	45000	45000	45000

DIELECTRIC WITHSTANDING VOLTAGE (DWV):

Voltage Rating Summary	
Minimum	**185/RF086**
Break Down Voltage	1146
Test Voltage	860
Working Voltage	285

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

EQUIPMENT AND CALIBRATION SCHEDULES

Equipment #: HPT-01
Description: Hipot Safety Tester
Manufacturer: Vitrek
Model: V73
Serial #: 019808
Accuracy:
… Last Cal: 05/15/2020, Next Cal: 05/15/2021