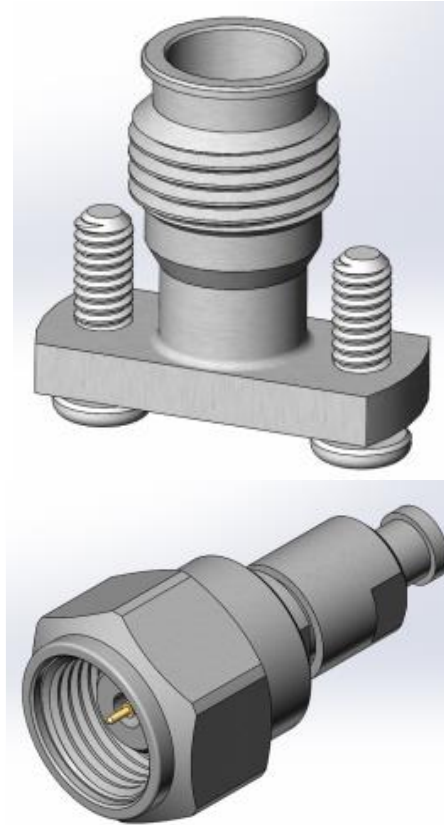




Project Number: Design Qualification Test Report	Tracking Code: 2765024_Report_Rev_1
Requested by: Tommy Kuhn	Date: 6/3/2021
Part #: 135-J-P-VP-ST-CMM-2/PRF13-P-C-VP-047A-SS-5050	
Part description: 135-J-P/PRF13	Tech: Tony Wagoner
Test Start: 5/13/2021	Test Completed: 5/18/2021



**DESIGN QUALIFICATION TEST REPORT**  
**135-J-P/PRF13**  
**135-J-P-VP-ST-CMM-2/PRF13-P-C-VP-047A-SS-5050**

Tracking Code: 2765024_Report_Rev_1	Part #: 135-J-P-VP-ST-CMM-2/PRF13-P-C-VP-047A-SS-5050
Part description: 135-J-P/PRF13	

### REVISION HISTORY

DATA	REV.NUM.	DESCRIPTION	ENG
6/3/2021	1	Initial Issue	KH

## 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.

All contents contained herein are the property of Samtec. No portion of this report, in part or in full shall be reproduced without prior written approval of Samtec.

### 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 were cleaned according to CO-SC-WI-3029.
- 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 are visually inspected and cleaned if necessary.
- 7) Any additional preparation will be noted in the individual test sequences.

**FLOWCHARTS****IR/DWV****Pin-to-Closest Metallic Hardware****Group 1**

135-J-P-VP-ST-CMM-2  
PRF13-P-C-VP-047A-SS-5050  
2 Assemblies

**Group 2**

135-J-P-VP-ST-CMM-2  
  
2 Assemblies

**Group 3**

PRF13-P-C-VP-047A-SS-5050  
2 Assemblies

**Group 4**

135-J-P-VP-ST-CMM-2  
PRF13-P-C-VP-047A-SS-5050  
2 Assemblies

Step	Description
1.	DWV Breakdown (2)

Step	Description
1.	DWV Breakdown (2)

Step	Description
1.	DWV Breakdown (2)

Step	Description
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) EIA-364-32, *Thermal Shock (Temperature Cycling) Test Procedure for Electrical Connectors*.
- 2) Test Condition: -55°C to +85°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 5000 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 Closest Metallic Hardware

- **Initial**
  - Mated -----45000 Meg  $\Omega$  ----- Passed
  - Unmated -----45000 Meg  $\Omega$  ----- Passed
- **Thermal Shock**
  - Mated -----45000 Meg  $\Omega$  ----- Passed
  - Unmated -----45000 Meg  $\Omega$  ----- Passed

### Dielectric Withstanding Voltage minimums, DWV

- **Minimums**
  - Breakdown Voltage -----756 VAC
  - Test Voltage -----570 VAC
  - Working Voltage -----185 VAC

#### Pin to Closest Metallic Hardware

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

**DATA SUMMARIES****INSULATION RESISTANCE (IR):**

	<b>Pin to Closest Metallic Hardware</b>		
	Mated	Unmated	Unmated
Minimum	<b>135-J-P/PRF13</b>	<b>135-J-P</b>	<b>PRF13</b>
<b>Initial</b>	45000	45000	45000
<b>Thermal</b>	45000	45000	45000

**DIELECTRIC WITHSTANDING VOLTAGE (DWV):**

<b>Voltage Rating Summary</b>	
Minimum	<b>135-J-P/PRF13</b>
<b>Break Down Voltage</b>	756
<b>Test Voltage</b>	570
<b>Working Voltage</b>	185

<b>Pin to Closest Metallic Hardware</b>	
<b>Initial Test Voltage</b>	Passed
<b>After Thermal Test Voltage</b>	Passed

**EQUIPMENT AND CALIBRATION SCHEDULES****Equipment #:** TSC-01**Description:** Vertical Thermal Shock Chamber**Manufacturer:** Cincinnati Sub Zero**Model:** VTS-3-6-6-SC/AC**Serial #:** 10-VT14993**Accuracy:** See Manual

... Last Cal: 06/30/2020, Next Cal: 06/30/2021

**Equipment #:** HPT-01**Description:** Hipot Safety Tester**Manufacturer:** Vitrek**Model:** V73**Serial #:** 019808**Accuracy:**

... Last Cal: 05/15/2021, Next Cal: 05/15/2022