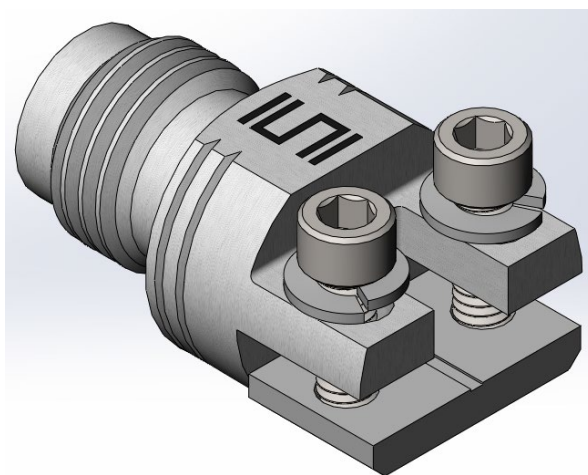




RF Characterization Report

240-J-P-EP-ST-EL-01



Test Date: Apr 2023

Description

50 Ohm 2.40 mm Jack, Compression Mount, Edge Launch

Series: 240

Description: 50 Ohm 2.40 mm Jack, Compression Mount, Edge Launch

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Series: 240

Description: 50 Ohm 2.40 mm Jack, Compression Mount, Edge Launch

Test Setup Information

Scope:

Provide standing wave ratio, return loss and insertion loss performance parameters for the Samtec 50 Ohm 2.40 mm Jack, Compression Mount, Edge Launch connector.

Instrument Setup & Test Accessories:

Network Analyzer	Keysight PNA N5227B
Averaging Factor	1
Smoothing	Off
IF Bandwidth	1 KHz
Sweep Start	10 MHz
Sweep End	50 GHz
Points	5000
Test Cables	1m Junkosha 2.4mm male to female cables

Calibration Type:

A Keysight mechanical calibration is performed using the Keysight 85056D Standard Mechanical Calibration kit.

Calibration Kit	Keysight 85056D 2.4mm Mechanical Calibration Kit
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Adapter Use:

PCB-240MM-112613-SIG-0 RF board was used for the measurements of 240-J-P-EP-ST-EL-01.

Test System Description

The test fixture is composed of a four-layer MT40 material with 50 Ω signal trace and varying launch designs to reflect performance on different routing layers. Optimization of the RF launch was performed using full wave simulation tools to minimize reflections. These launch designs were implemented on PCB-240MM-112613-SIG-0.

Series: 240

Description: 50 Ohm 2.40 mm Jack, Compression Mount, Edge Launch

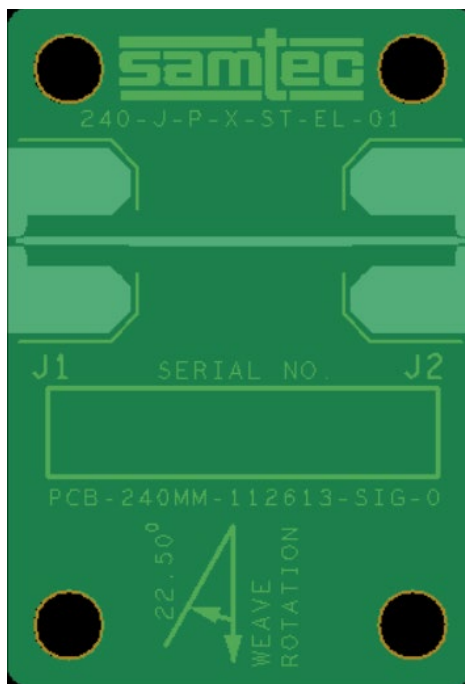
PCB-240MM-112613-SIG-0 Test Fixtures

Shown below is a photograph of the test board.



PCB-240MM-112613-SIG-0 PCB Layout

Artwork of the PCB design is shown below.



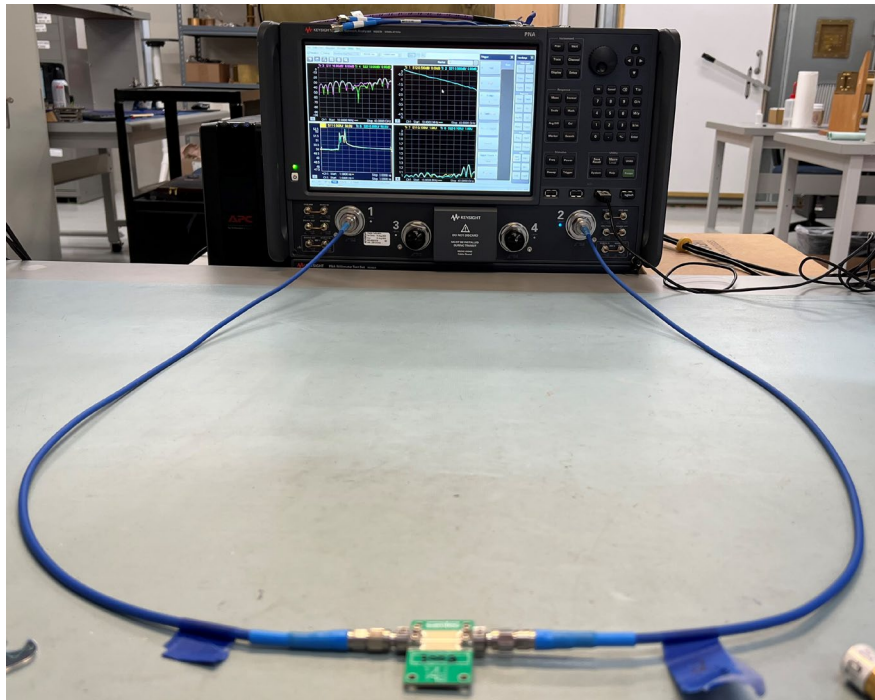
Series: 240

Description: 50 Ohm 2.40 mm Jack, Compression Mount, Edge Launch

240-J-P-EP-ST-EL-01 Test Definition

Part Number	End 1
240-J-P-EP-ST-EL-01	2.40 mm

Connector Under Test:



Series: 240

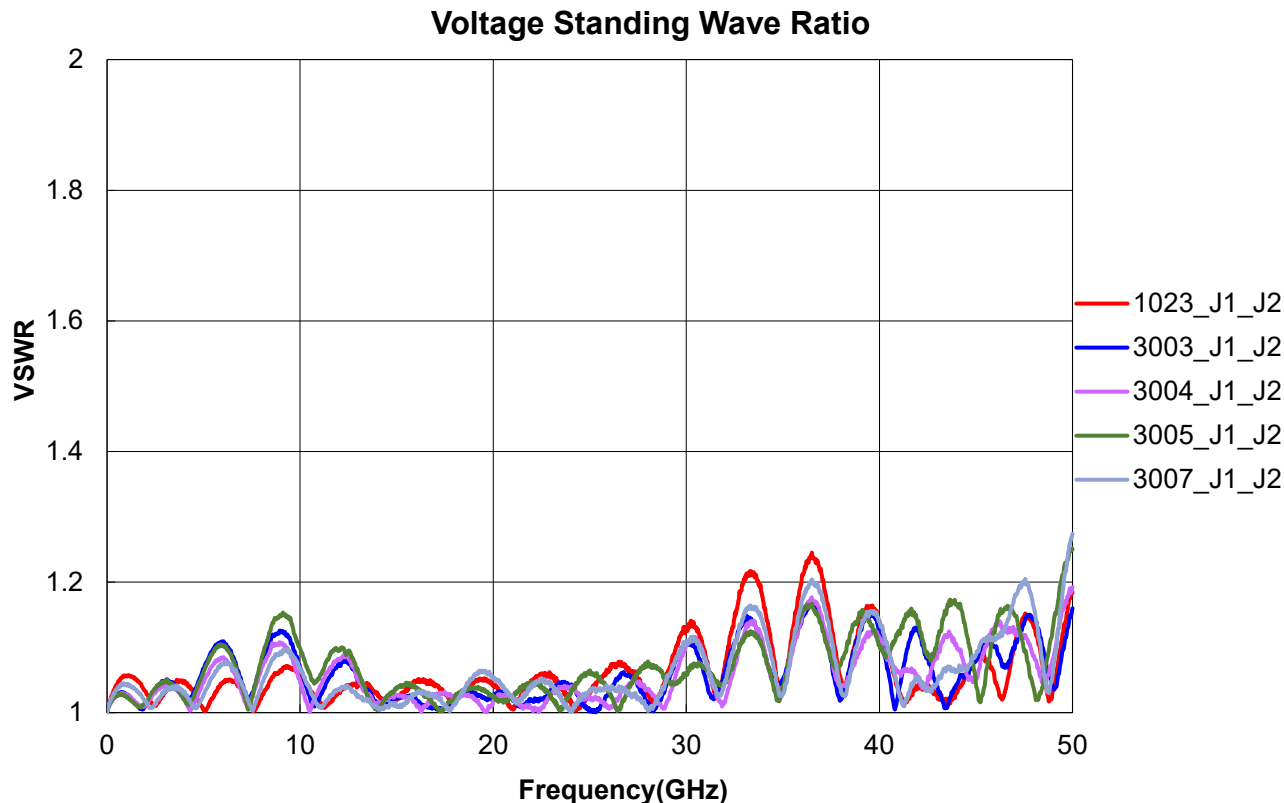
Description: 50 Ohm 2.40 mm Jack, Compression Mount, Edge Launch

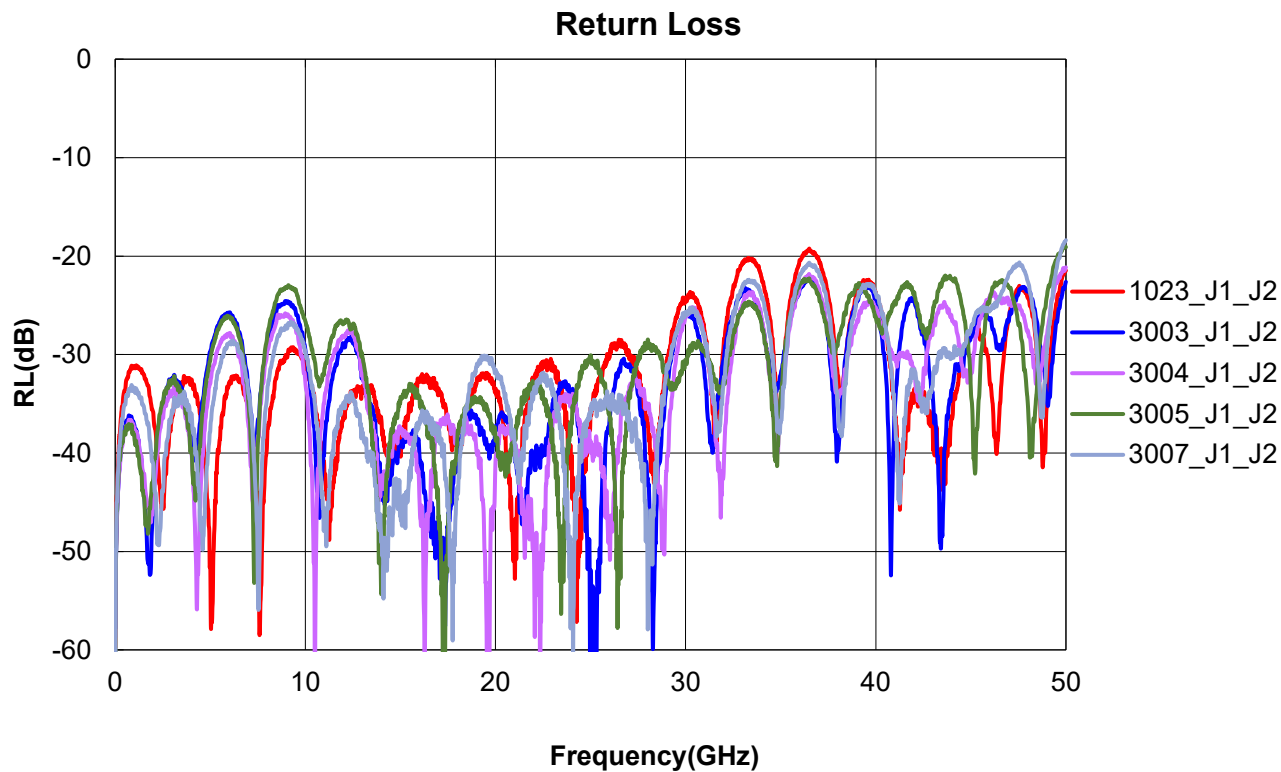
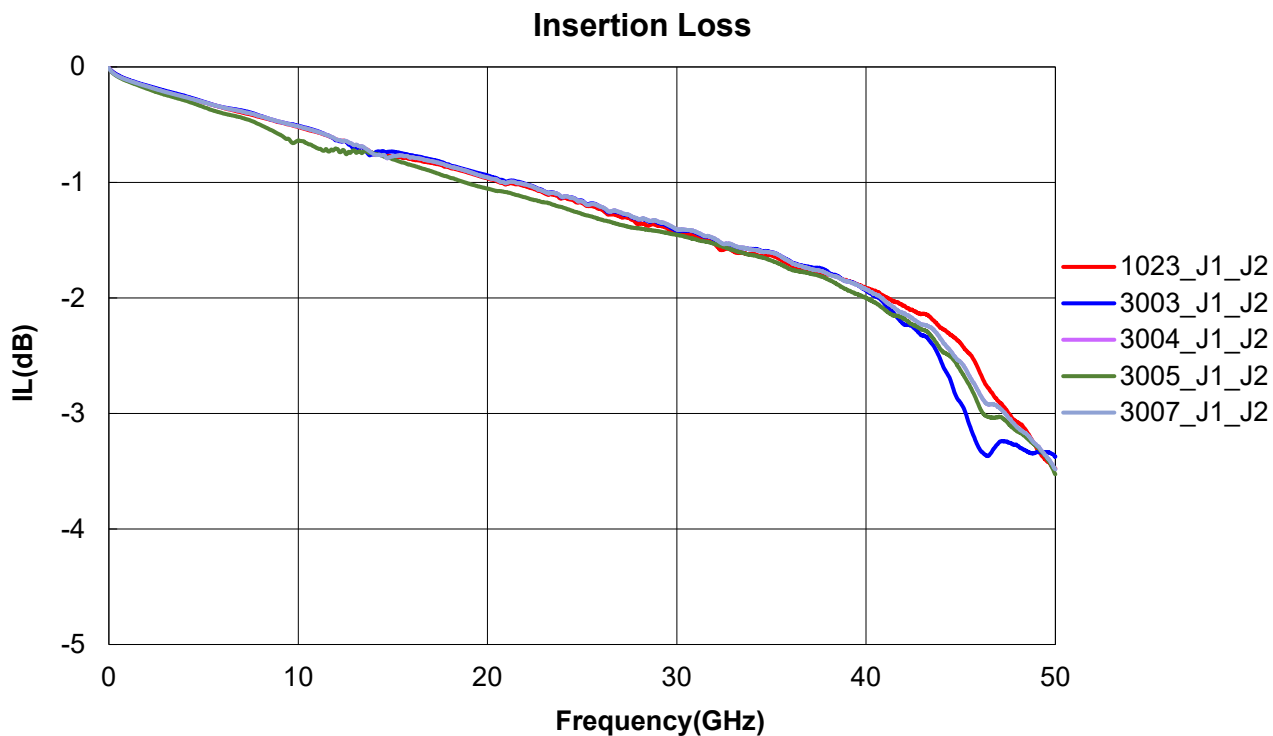
Results: 240-J-P-EP-ST-EL-01(2 connectors + 1 inch trace)

The following results include two 240-J-P-EP-ST-EL-01 connectors and 1 inch of PCB trace. A straight microstrip topology identified 46 GHz was sensitive to any gap between the connector and PCB which can be suppressed by minimizing and eliminating any gap when mounting to the PCB. No in-band suck outs exist in the connectors as verified by single ended connector measurements.

Description: 50 Ohm 2.40 mm Jack, Edge Launch			
Sample	VSWR(max)	RL(max)	IL(min)
1023_J1_J2	1.25@36.50GHz	-19.24@36.50GHz	-3.48@50.00GHz
3003_J1_J2	1.17@36.49GHz	-22.21@36.49GHz	-3.37@50.00GHz
3004_J1_J2	1.19@50.00GHz	-21.14@50.00GHz	-3.40@49.97GHz
3005_J1_J2	1.25@49.97GHz	-19.04@49.97GHz	-3.53@50.00GHz
3007_J1_J2	1.27@50.00GHz	-18.39@50.00GHz	-3.48@49.99GHz

VSWR



Series: 240**Description:** 50 Ohm 2.40 mm Jack, Compression Mount, Edge LaunchReturn LossInsertion Loss

Series: 240

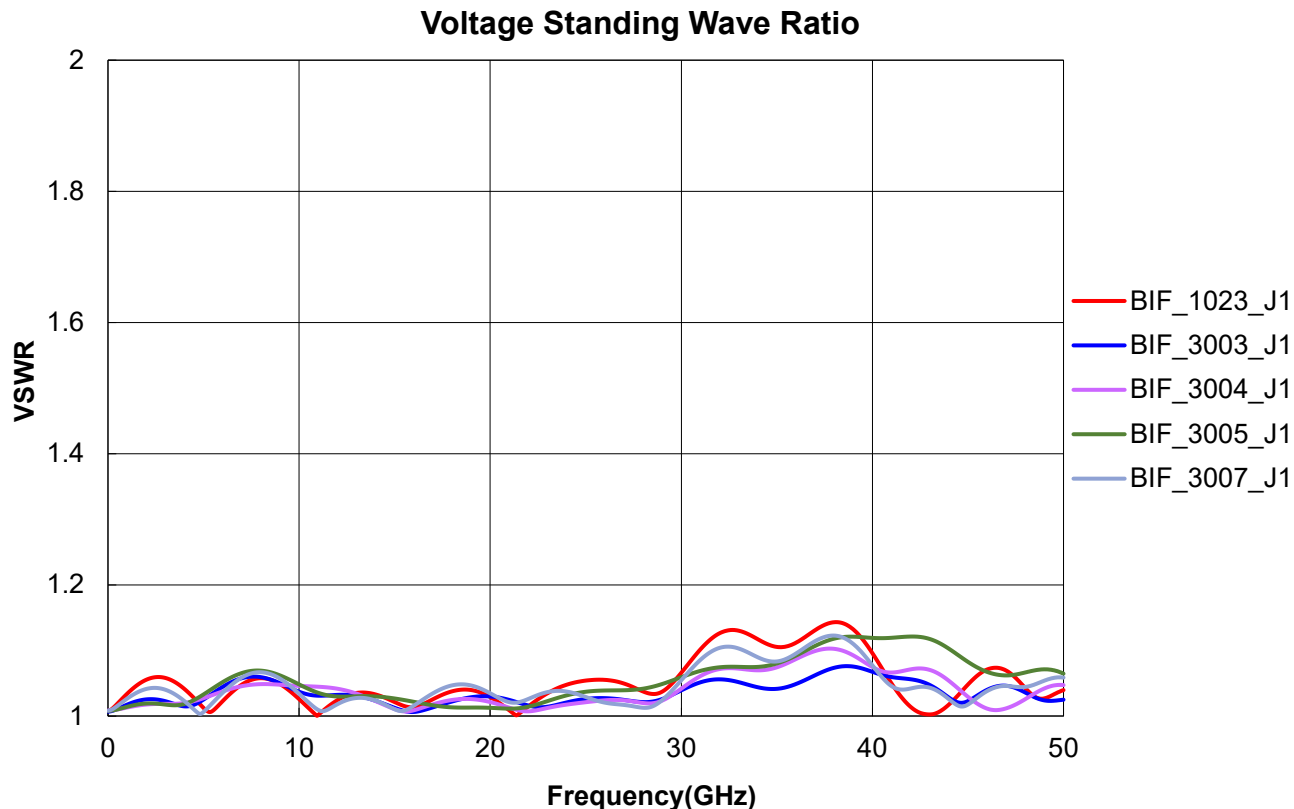
Description: 50 Ohm 2.40 mm Jack, Compression Mount, Edge Launch

Results: 240-J-P-EP-ST-EL-01(1 connector + 500 mils trace)

The following results include one 240-J-P-EP-ST-EL-01 connector and 500 mils of PCB trace. A straight microstrip topology identified 46 GHz was sensitive to any gap between the connector and PCB which can be suppressed by minimizing and eliminating any gap when mounting to the PCB. No in-band suck outs exist in the connectors as verified by single ended connector measurements.

Description: 50 Ohm 2.40 mm Jack, Edge Launch			
Sample	VSWR(max)	RL(max)	IL(min)
BIF_1023_J1	1.14@38.09GHz	-23.50@38.09GHz	-1.69@49.59GHz
BIF_3003_J1	1.08@38.64GHz	-28.72@38.64GHz	-1.71@46.44GHz
BIF_3004_J1	1.10@37.75GHz	-26.22@37.75GHz	-1.68@49.96GHz
BIF_3005_J1	1.12@42.11GHz	-24.86@42.11GHz	-1.74@49.99GHz
BIF_3007_J1	1.12@37.95GHz	-24.76@37.95GHz	-1.70@49.99GHz

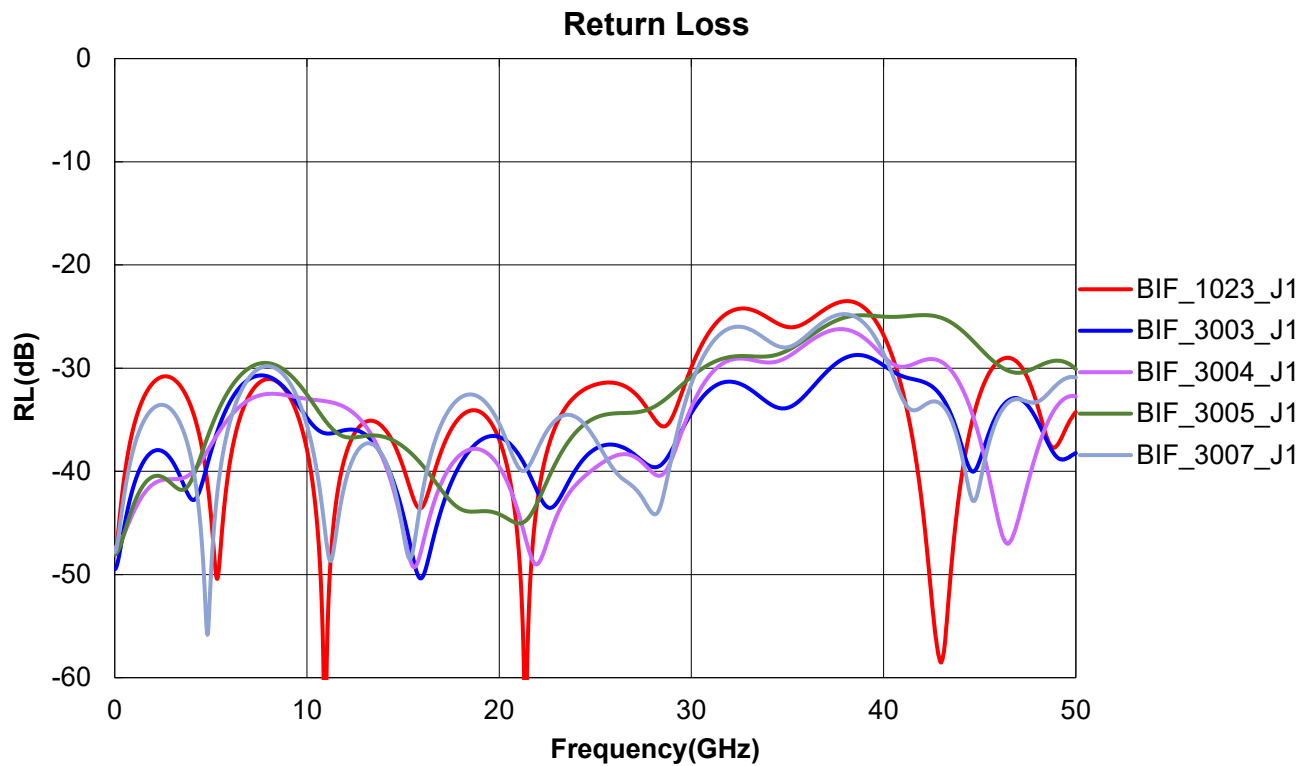
VSWR



Series: 240

Description: 50 Ohm 2.40 mm Jack, Compression Mount, Edge Launch

Return Loss



Insertion Loss

