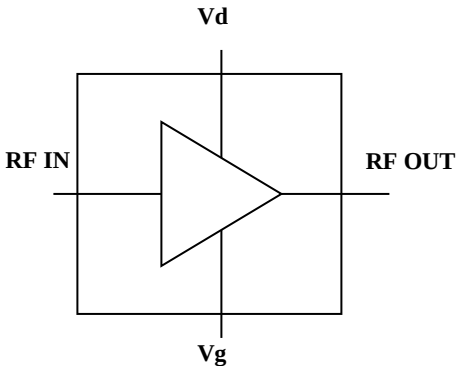
2.5 – 2.7 GHz Ultra Low Noise Amplifier Module

Features

- **Frequency Range 2.5 - 2.7 GHz**
- **0.70 dB typ. NF**
- **20 dB Gain**
- **13 dBm Nominal P1dB**
- **+5V, -5V, 50mA Bias**
- **0.15-um InGaAs pHEMT Technology**
- **Small form factor – 16mm x 12mm x 5mm**



Typical Applications

- **Receiver Front End**
- **Military & Space**
- **RADAR**

Description

ASL10001M2 is an Ultra Low Noise single stage GaAs MMIC Amplifier combining high gain and state of the art noise figure for Base Station applications. It features excellent 0.7dB Noise Figure (RF connector loss included) in 2.5 – 2.7 GHz band along with 20dB gain and good I/O VSWR. The die is fabricated using reliable Low noise 0.15um InGaAs pHEMT process.

The LNA features a small form factor of 16mm x 12mm x 5mm with field replaceable SMA connectors. The module can be used as drop-in if required. It operates from +5V and -5V supply.

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Absolute Maximum Ratings (1)

Parameter	Absolute Maximum	Units
Positive DC Supply	12	V
RF Input Power	23	dBm
Supply current	100	mA
Operating Temperature	-55 to +85	°C
Storage Temperature	-65 to +150	°C

1. Operation beyond these limits may cause permanent damage to the component

Electrical Specifications @ T_A = 25 °C, Z_o =50 Ω

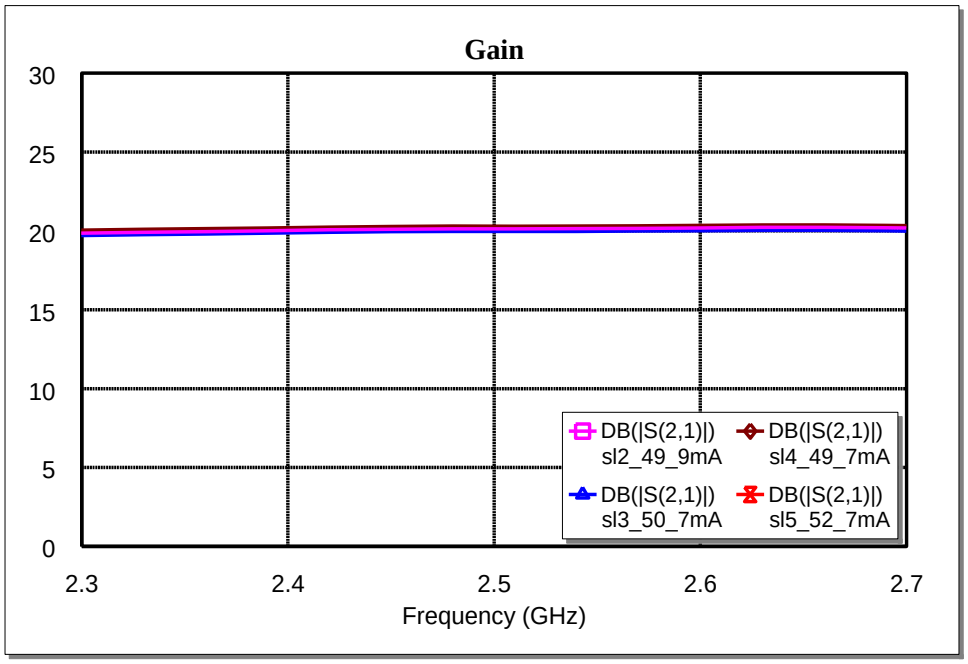
Parameter	Unit	Specifications
Operating Frequency band	GHz	2.5-2.7
Gain	dB	20
Gain Flatness	dB	+/-0.1
Noise Figure	dB	0.7
Input Return Loss (min)	dB	-12
Out put Return Loss (min)	dB	-13
P1dB @ 2.3GHz	dBm	13
Bias Voltage	V	VD=+5 , VG= -5
Bias Current	mA	50

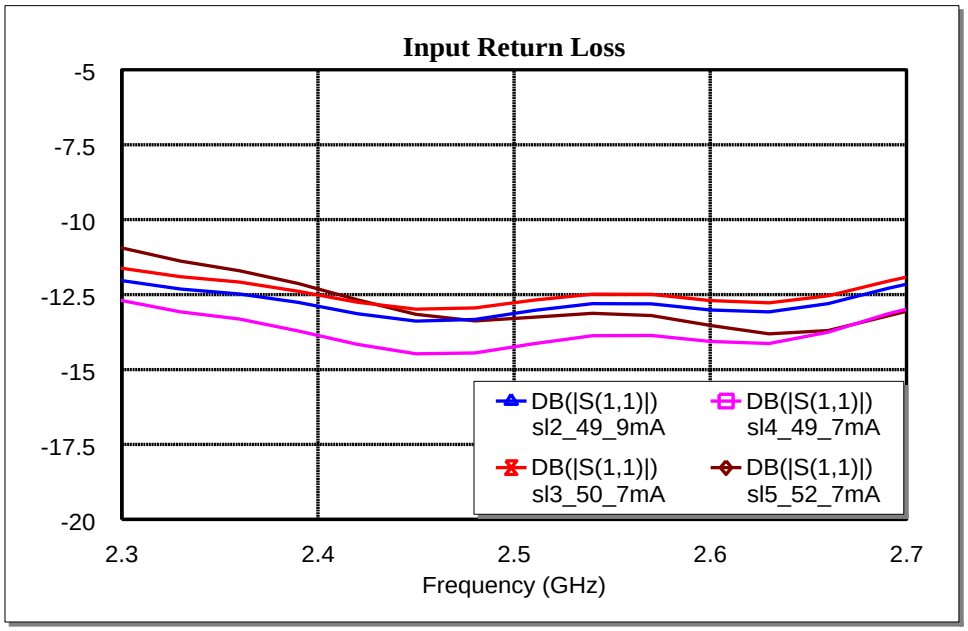
Note:

1. Sequence in power supply to be followed:
   A. First, -5V to be applied and then +5V.
      +5V supply should not go to the device without -5V supply.
   B. Power off sequence to be followed.
      First +5V to be removed and then -5V.

Test Fixture data

Vd =5 V,Vg=-5 V Total Current = 50 mA , T_A = 25 °C

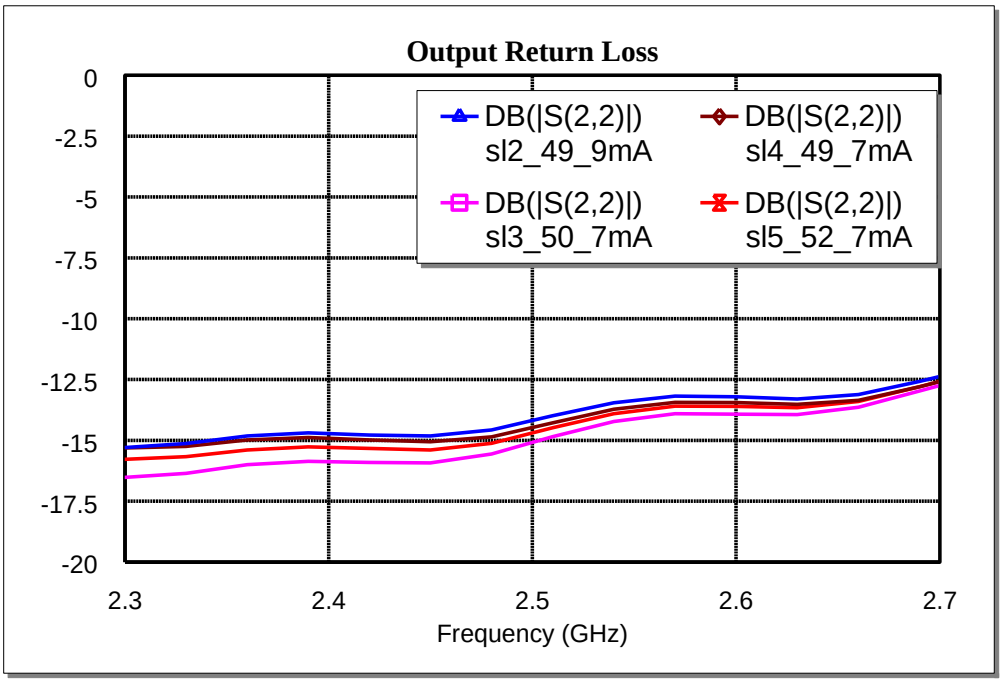


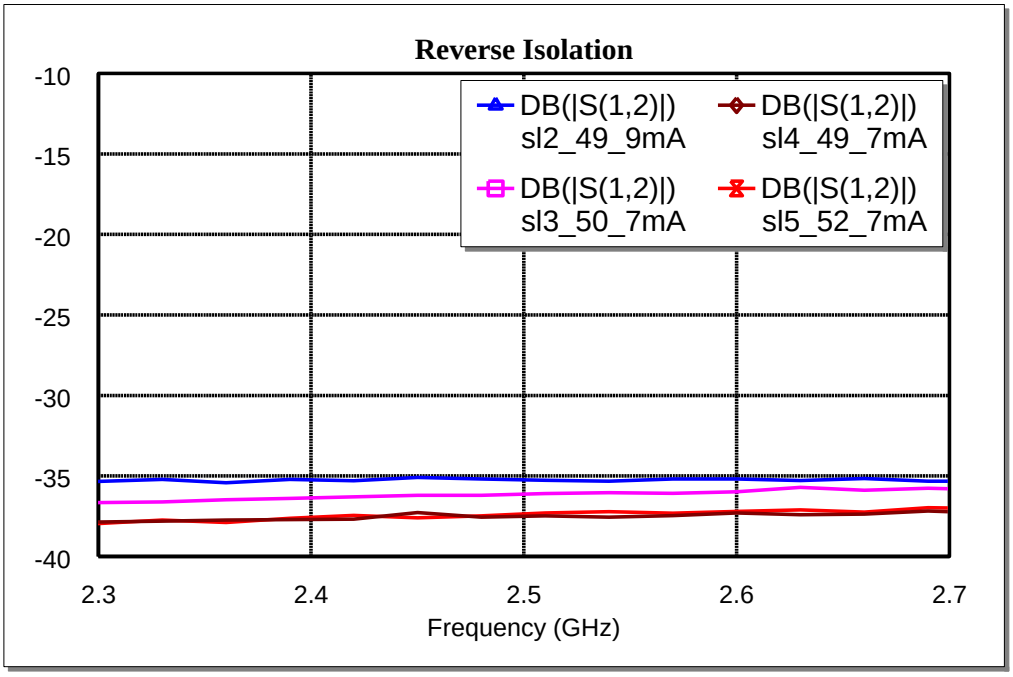


Note:
Measured data on 4 samples

Test Fixture data

Vd =5 V,Vg=-5 V Total Current = 50 mA , T_A = 25 °C



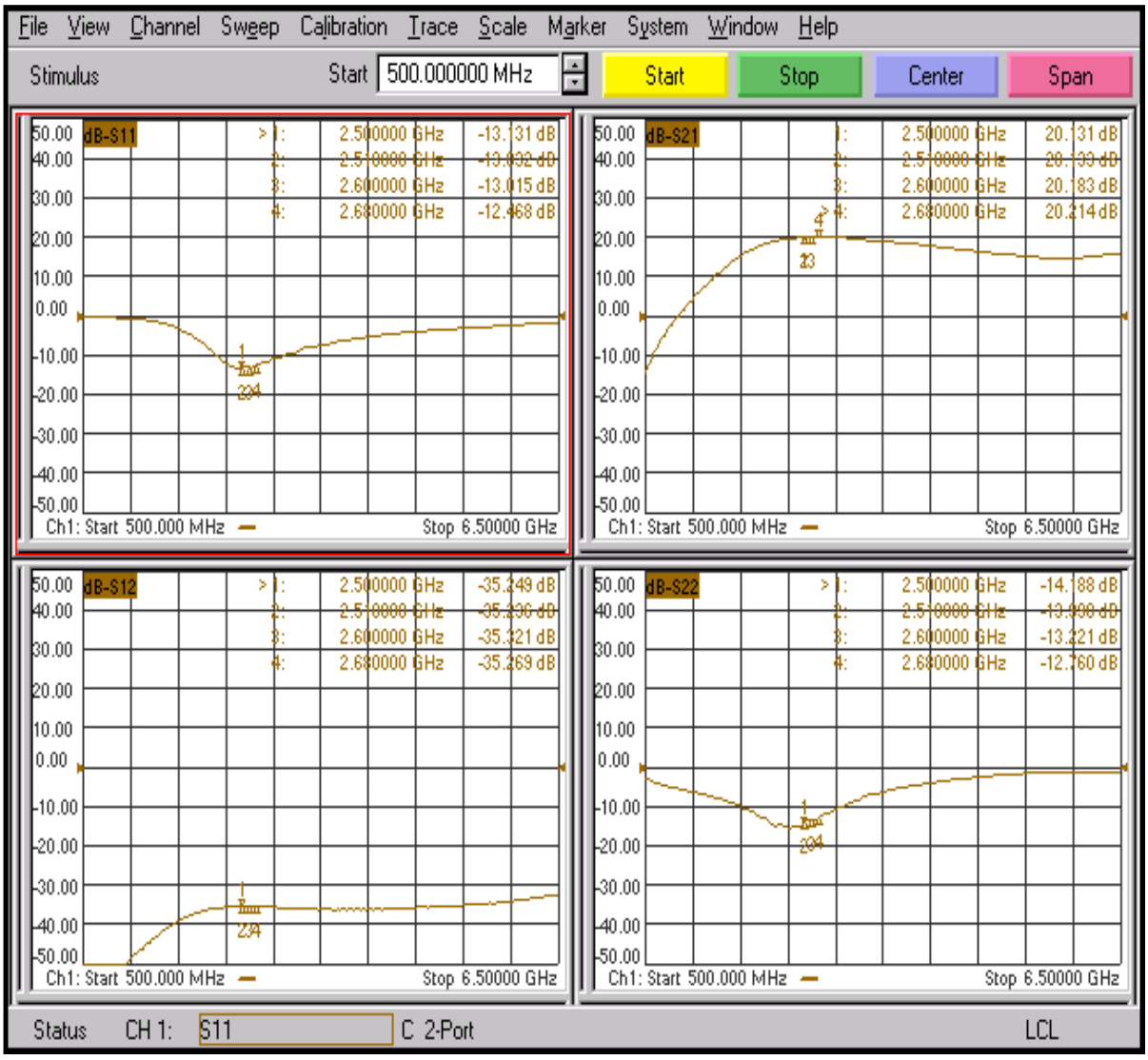


Note:
Measured data on 4 samples

Test Fixture data

Vd =5 V,Vg=-5 V Total Current = 50 mA , T_A = 25 °C

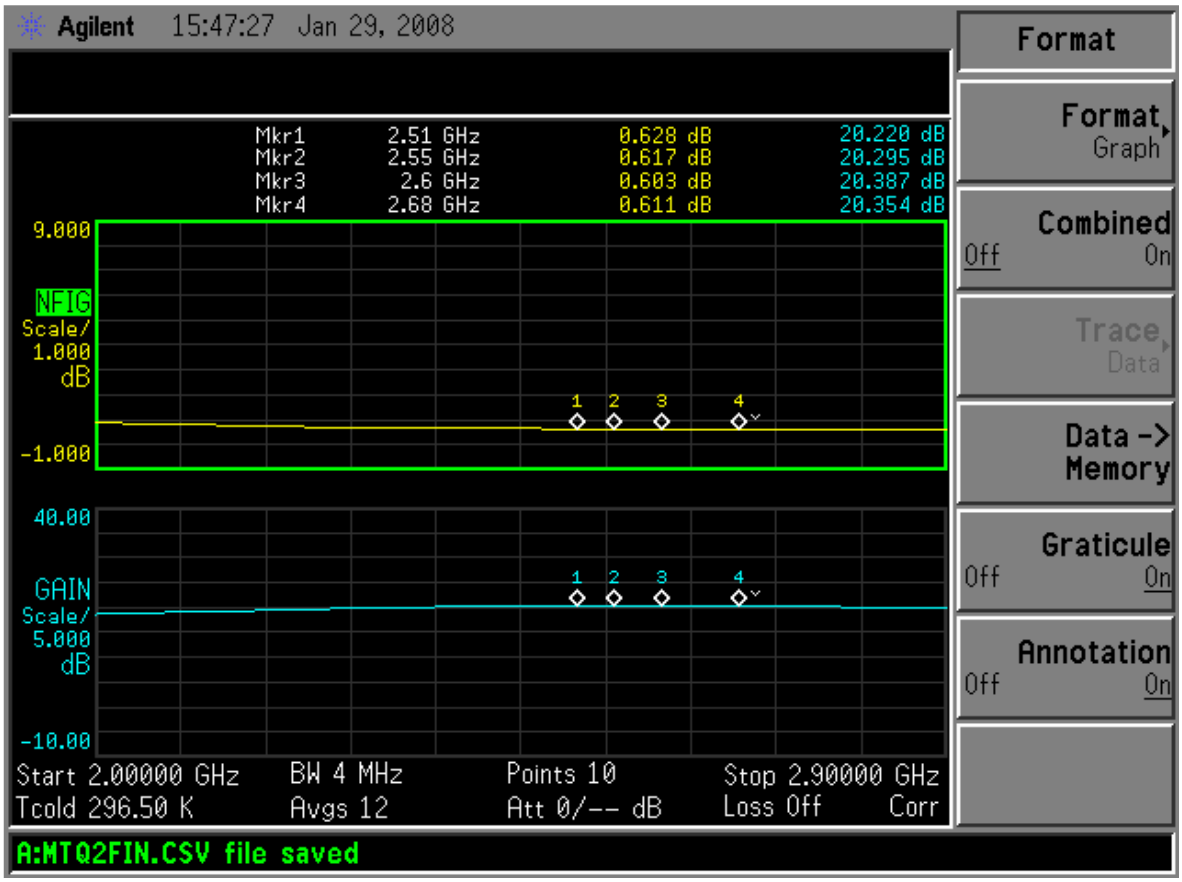
Broad Band RF Performance



Test Fixture data

Vd =5 V,Vg=-5 V Total Current = 50 mA , T_A = 25 °C

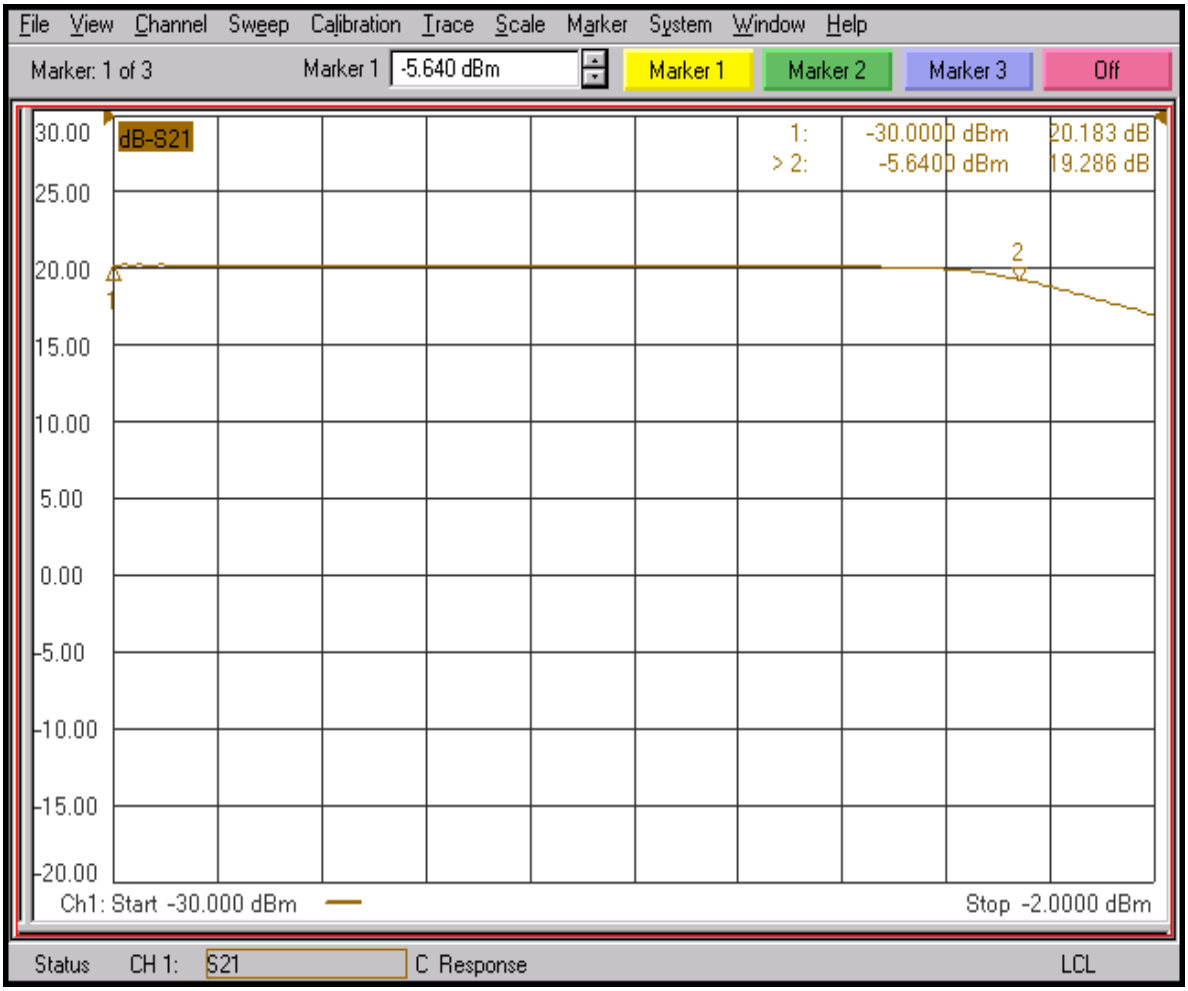
Noise Figure



Test Fixture data

Vd =5 V,Vg=-5 V Total Current = 50 mA , T_A = 25 °C

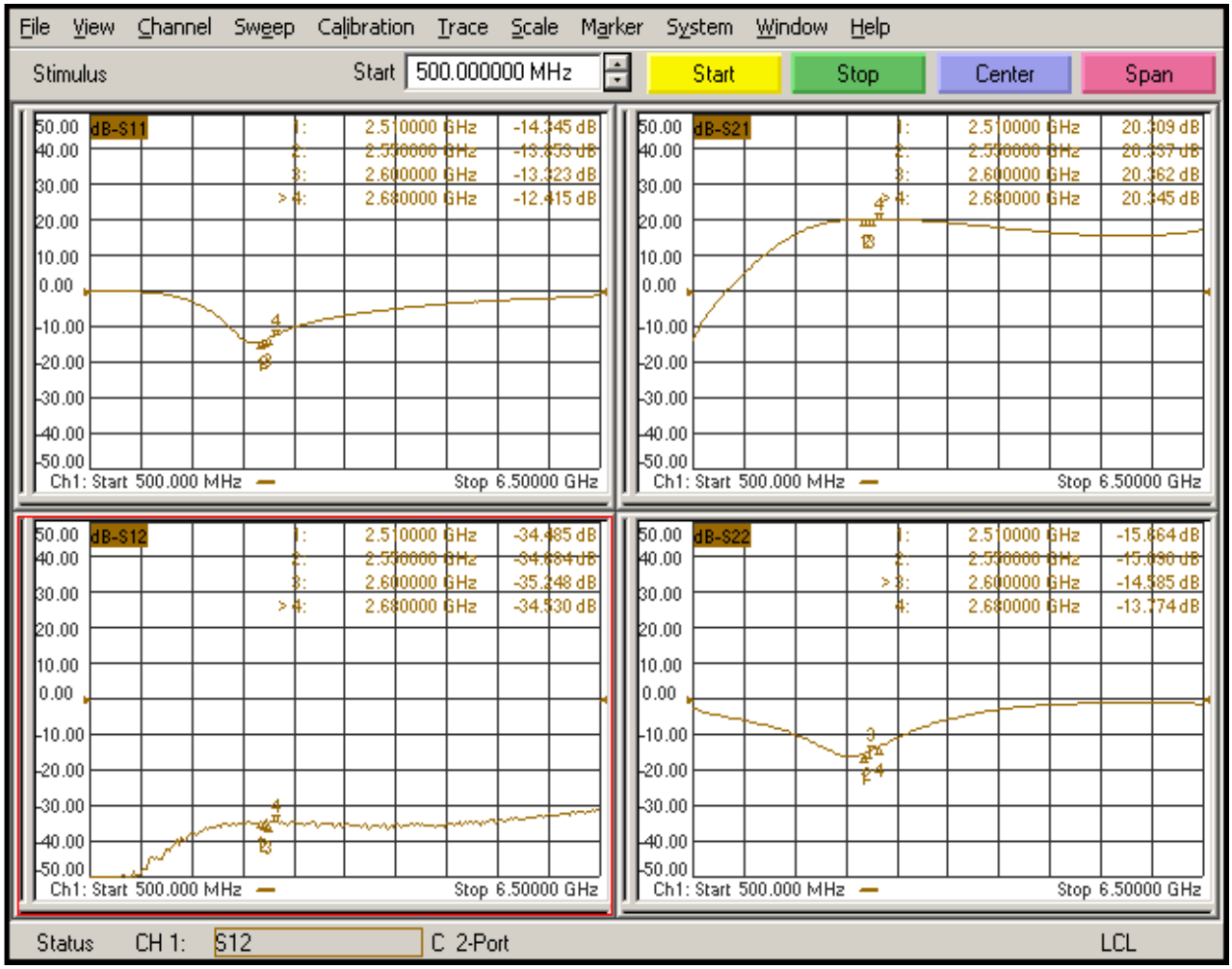
P1dB @ 2.6GHz =13.6dBm



Test Fixture data Over Temperature

Vd =+5V, Vg=-5V, Total Current = 50mA @ 25 °C

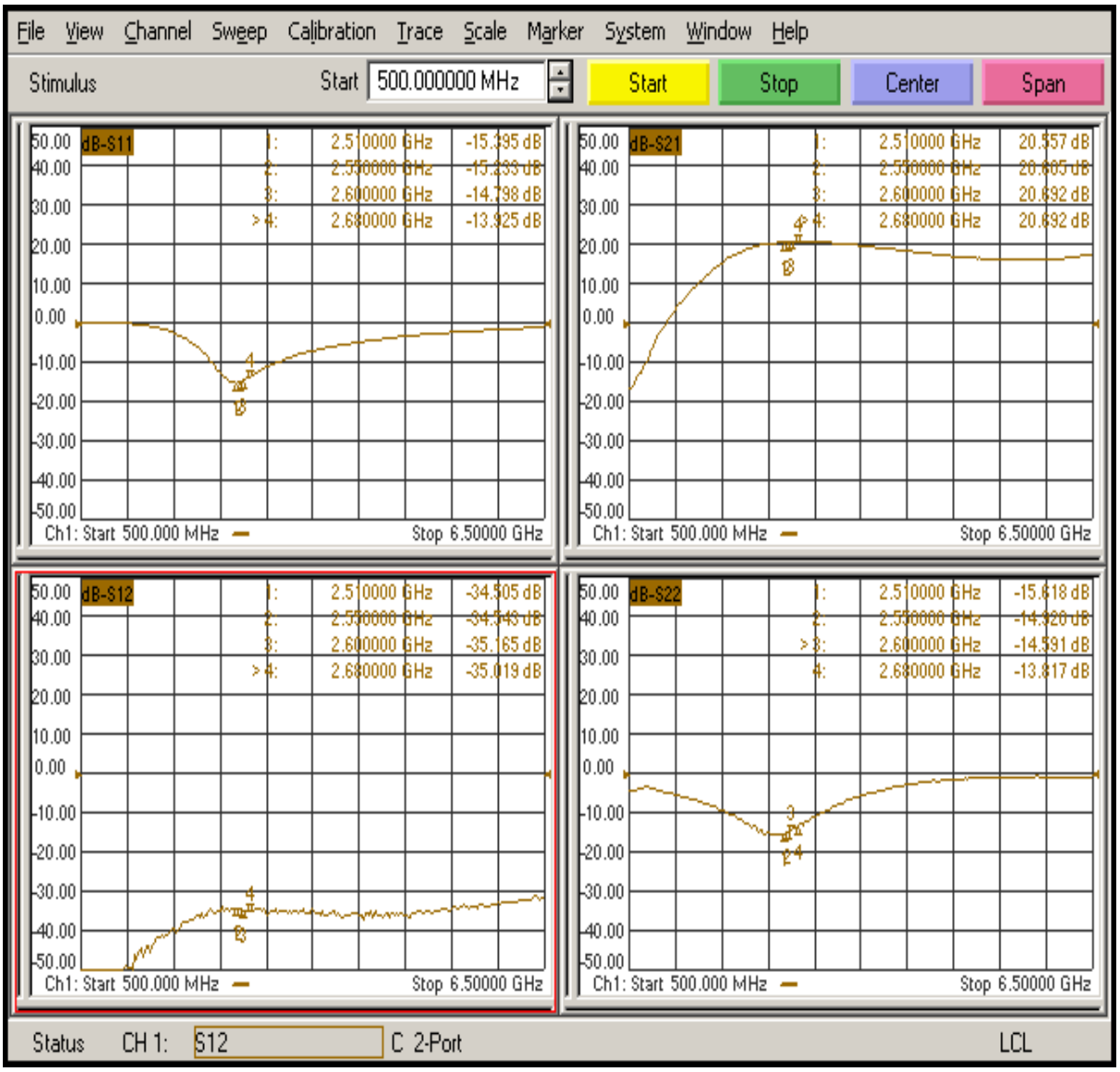
RF Performance @ 25°C



Test Fixture data Over Temperature

Vd =5 V,Vg=-5 V Total Current = 50 mA

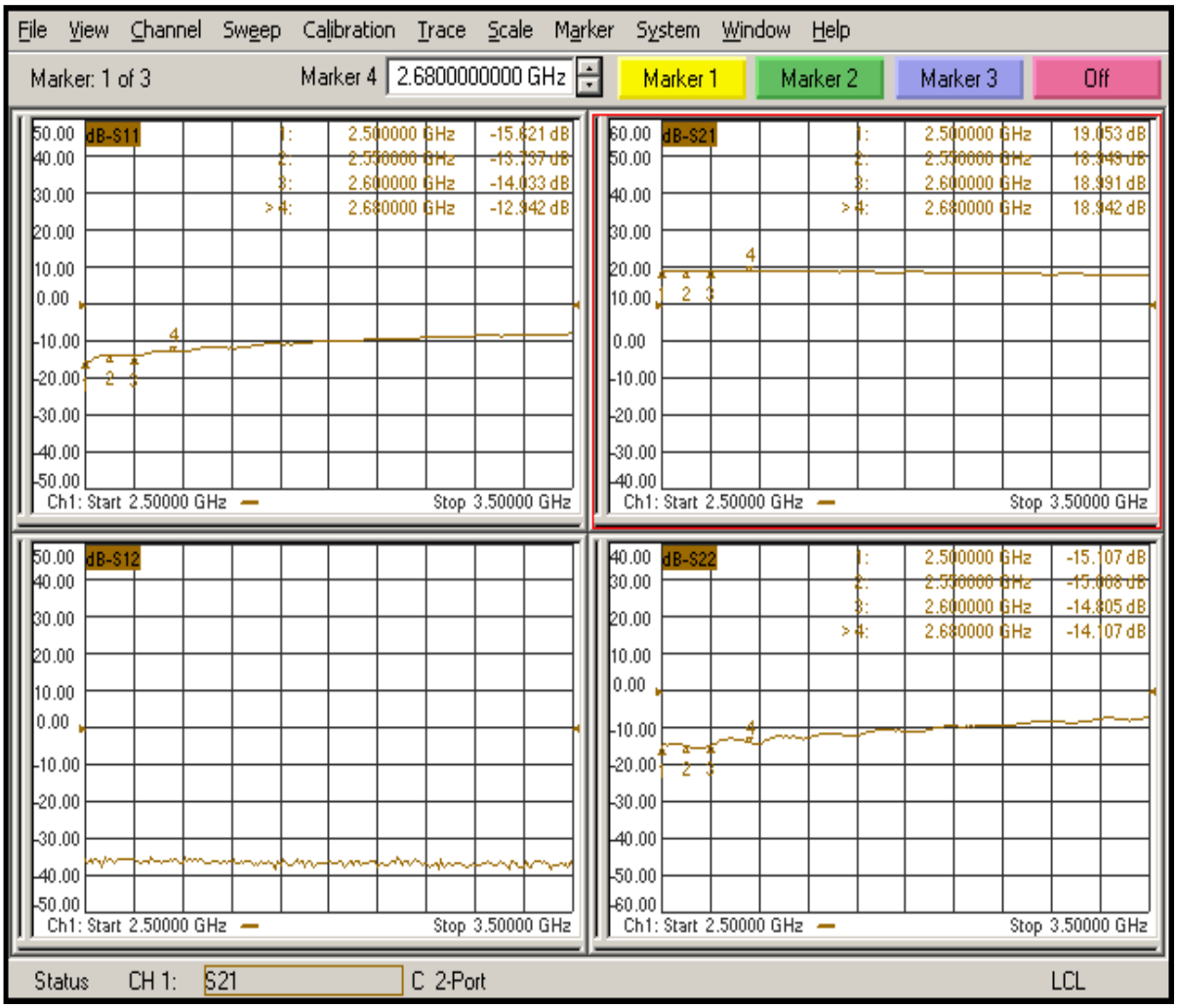
RF Performance @ -45 ºC



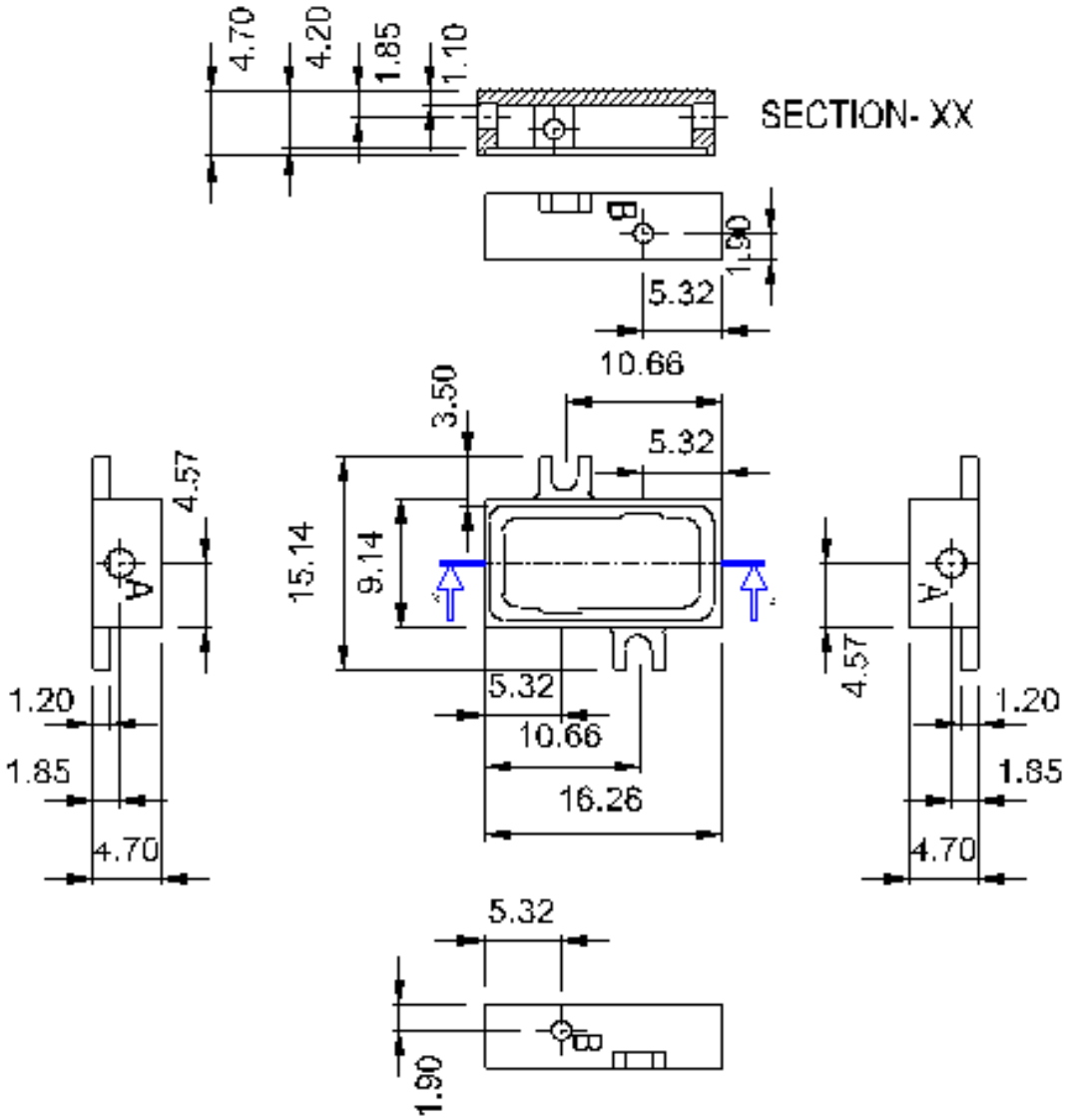
Test Fixture data Over Temperature

Vd =+5V, Vg=-5V, Total Current = 50mA

RF Performance @ +60 ºC



Mechanical Characteristics



Holes Data:
A: φ2 x 1.4 Deep Open Holes-2 Nos.
B: φ1.35 Thru Holes-2 Nos.

Units: Millimeters

ATTENTION
OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES

GaAs MMIC devices are susceptible to Electrostatic discharge. Proper precautions should be observed during handling, assembly & testing

All information and Specifications are subject to change without prior notice