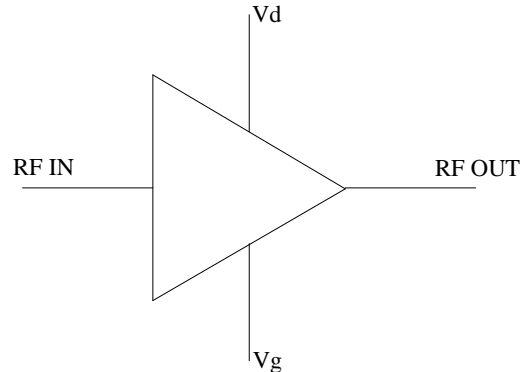


2.2–2.35 GHz Low Noise Amplifier Module

Features

- ◆ Frequency Range 2.2-2.35 GHz
- ◆ 0.70 dB typ. NF
- ◆ 20 dB Gain
- ◆ 14dBm Nominal P1dB
- ◆ 10-70mA Tunable Bias current
- ◆ 0.15-um InGaAs pHEMT Technology
- ◆ Connectorised module.



Typical Applications

- ◆ Receiver Front End
- ◆ Base stations
- ◆ RADAR

Description

AMT2122102M is an Ultra Low Noise single stage GaAs MMIC Amplifier combining high gain and state of the art noise figure for Base Station applications. The LNA features Excellent 0.7dB Noise Figure and 20dB gain with good I/O VSWR in the 2.2-2.3 GHz band. Biasing flexibility to provide control over current consumption and dynamic range. The device can operate over 10-70mA Drain current and 3-7V VDD as per specific requirements with minor variation in RF Performance. The die is fabricated using reliable Low noise 0.15um InGaAs pHEMT process. This is available in connectorised module.

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 ⁽¹⁾ @ T_A = 25 °C, Z_o =50 Ω*V_{dd} = +5V, V_g = -0.28V*

Parameter	Unit	Specifications
Operating Frequency band	GHz	2.2-2.35
Gain	dB	20
Gain Flatness	dB	+/-0.1
Noise Figure	dB	0.7
Input Return Loss	dB	-12
Out put Return Loss	dB	-12
P1dB @ 2.3GHZ	dBm	14
Bias Current	mA	50

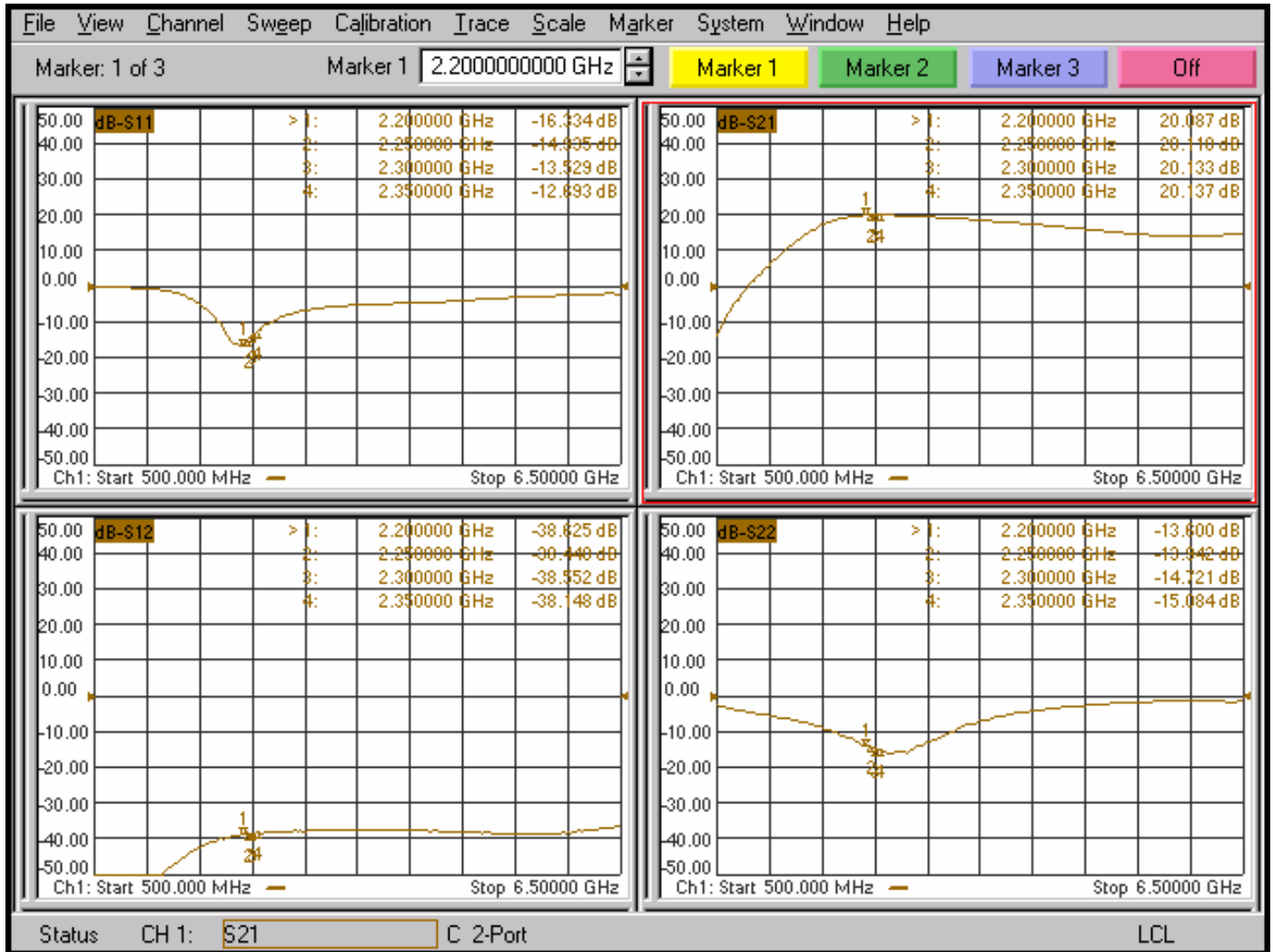
Note:

1. Sequence in power supply to be followed:
 - A. First, -0.28V to be applied and then +5V.
+5V supply should not go to the device without -0.28V supply.
 - B. Power off sequence to be followed.
First +5V to be removed and then -0.28V.
2. VG may be tuned to operate the device at 50mA.

Test fixture data

$V_d = 5\text{ V}$, $V_g = -0.28\text{ V}$ Total Current = 50 mA, $T_A = 25\text{ }^\circ\text{C}$

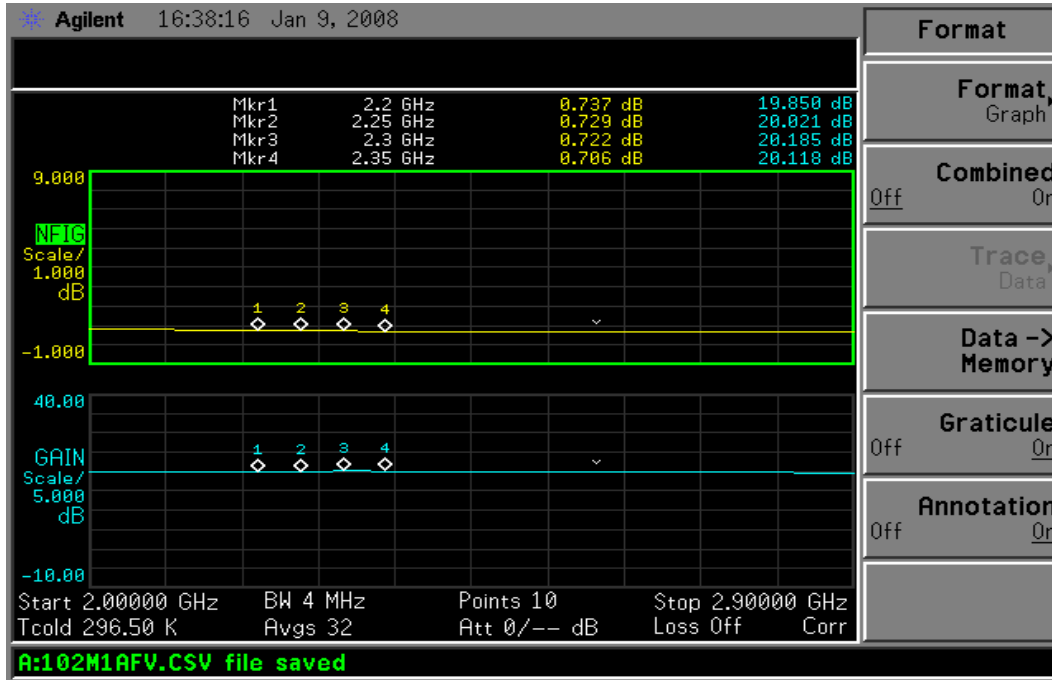
Wide Band RF Performance



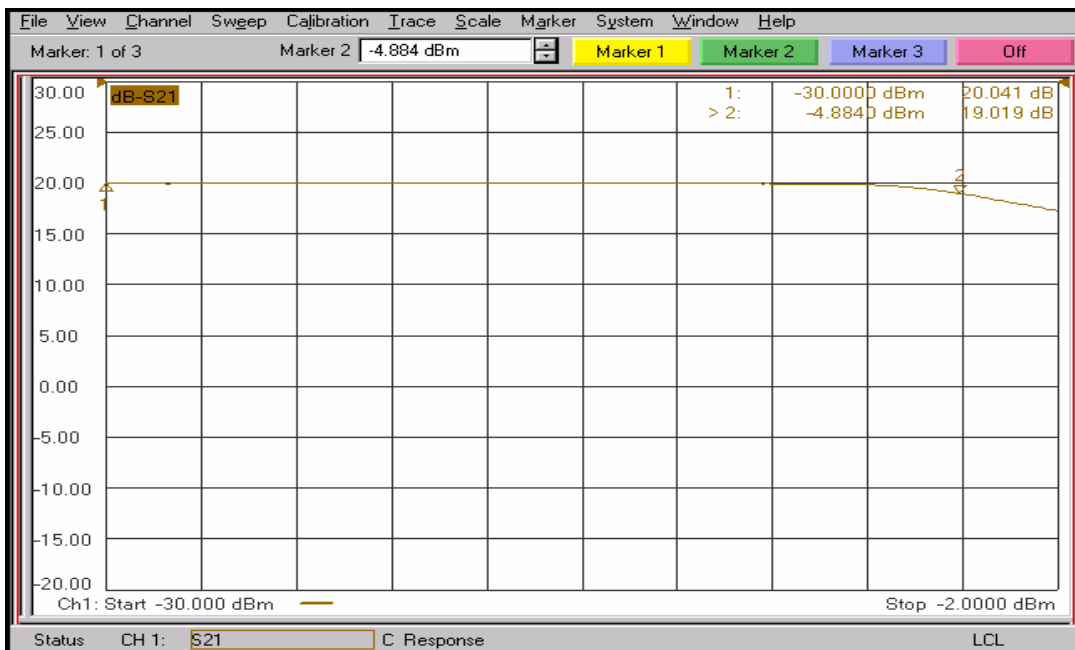
Test fixture data

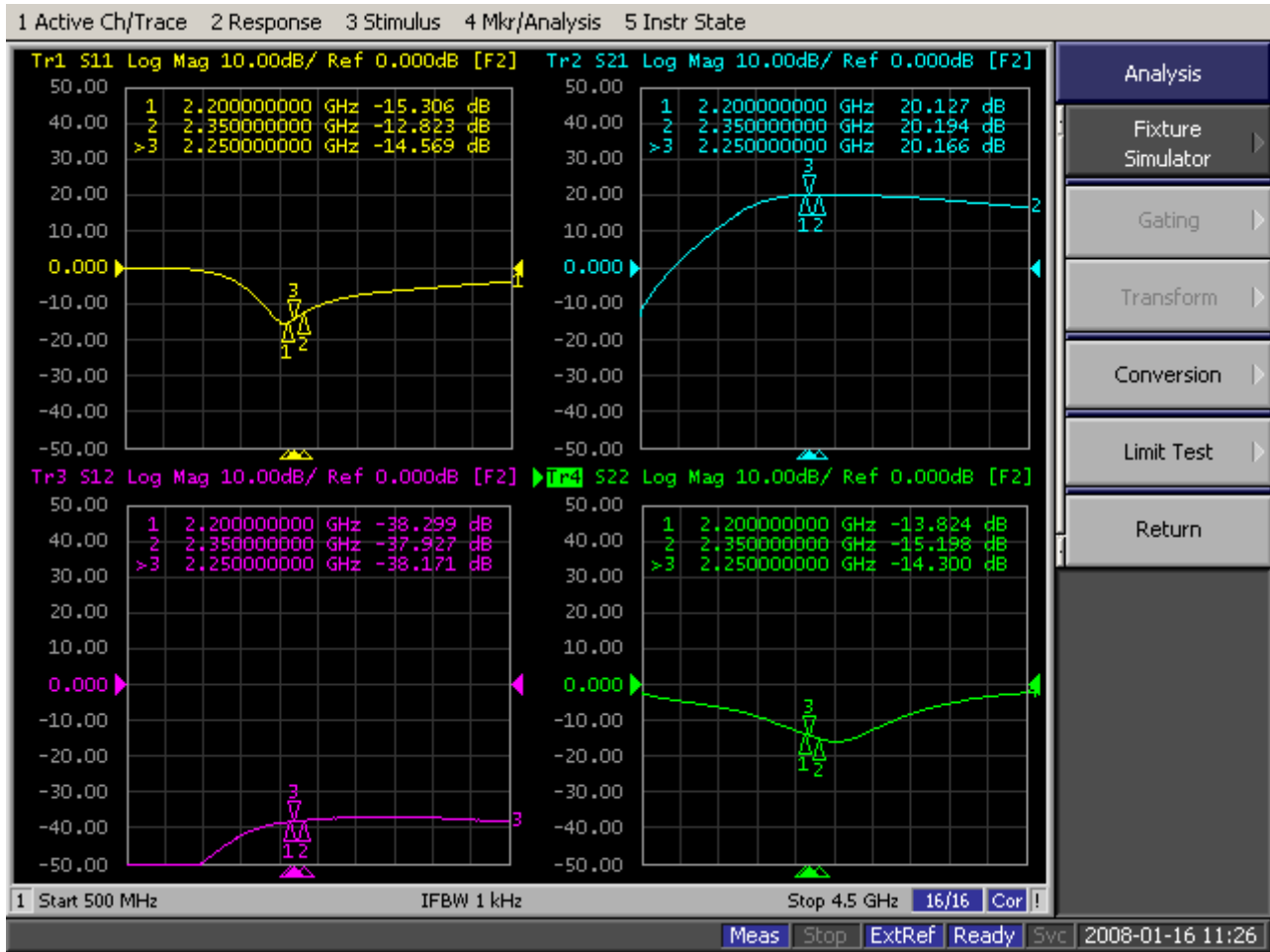
Vd = 5 V, Vg = -0.28 V Total Current = 50 mA

Noise Figure



P1dB @ 2.3GHz: 14dBm

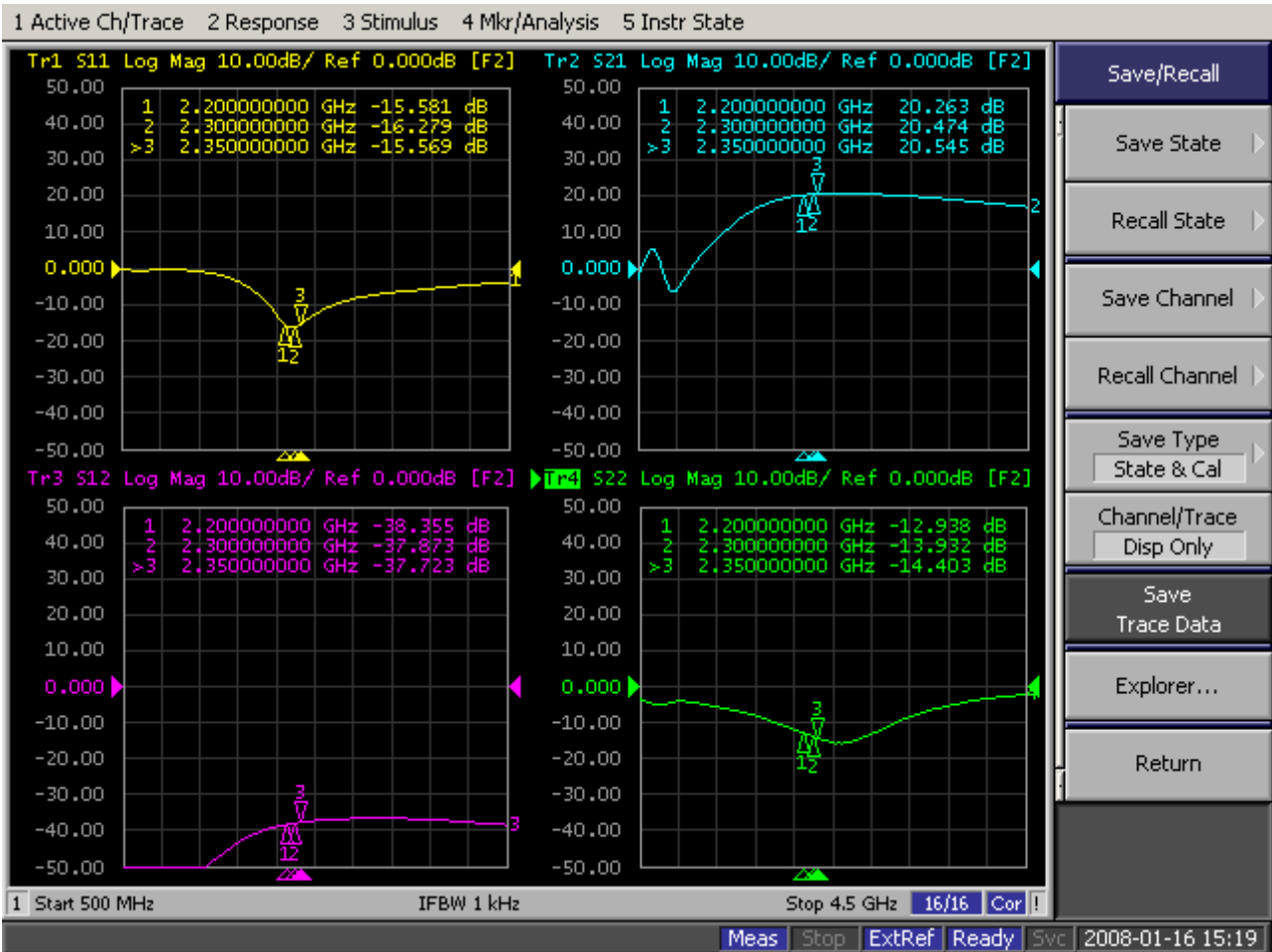


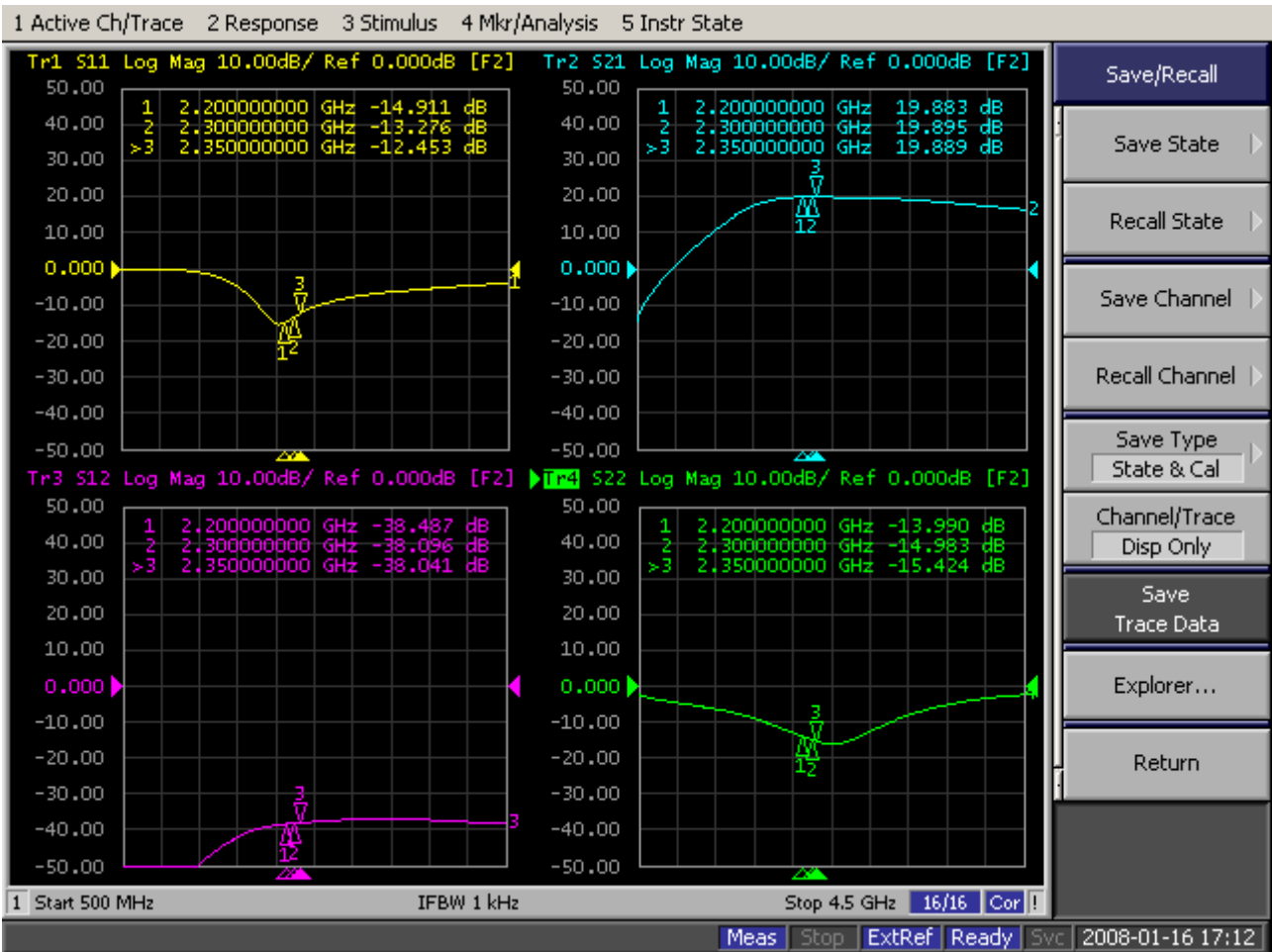
Test fixture data over Temperature
Vd = +5 V, Vg = -0.28 V Total Current = 50 mA
RF Performance @ 25 °C


Test fixture data over Temperature

$V_d = +5\text{ V}$, $V_g = -0.28\text{ V}$ Total Current = 50 mA

RF Performance @ -40 °C



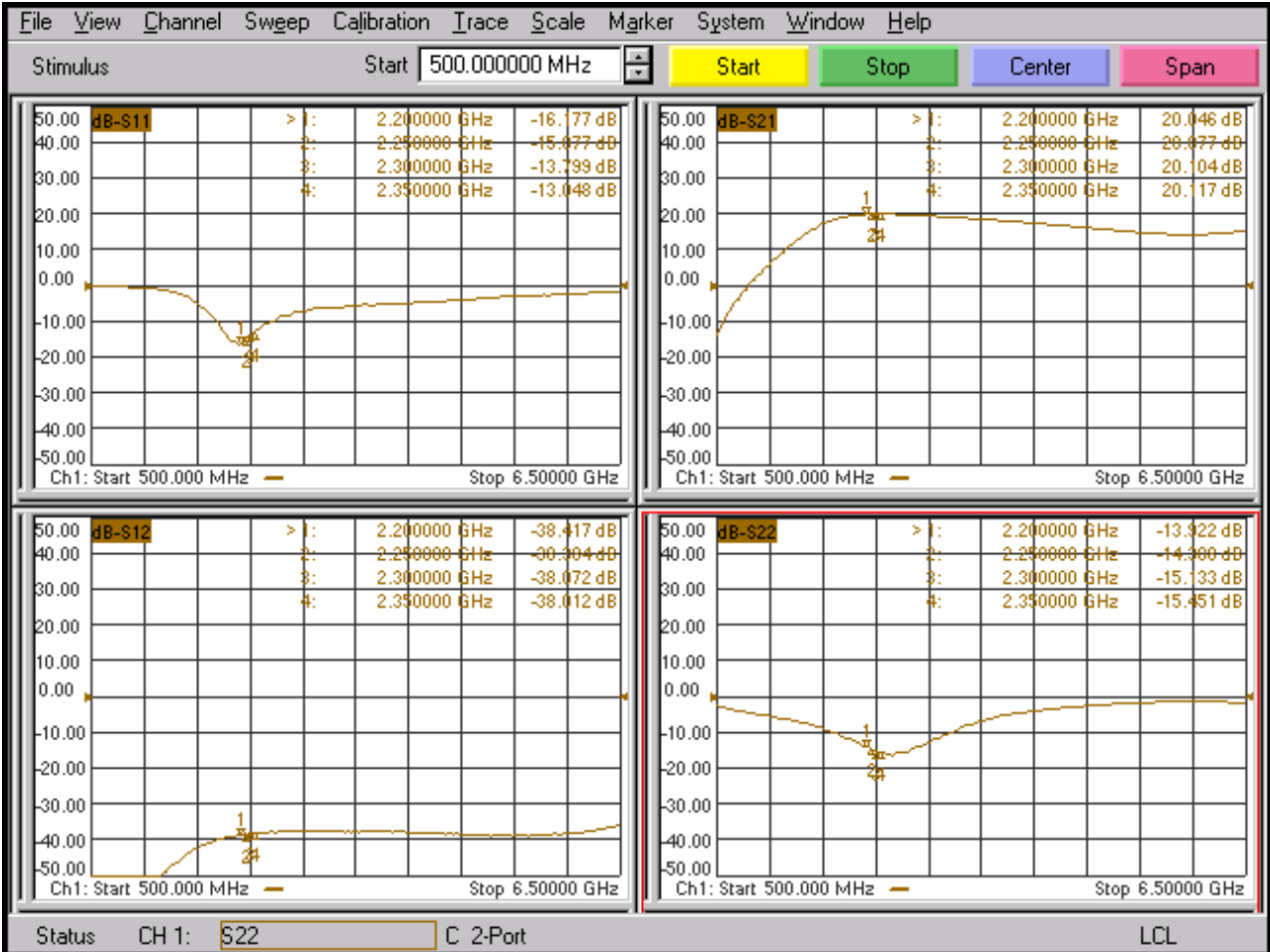
Test fixture data
Vd = 5 V, Vg = -0.28 V Total Current = 50 mA
RF Performance @ +70 °C


Test fixture data for Vibration Test

$V_d = 5\text{ V}$, $V_g = -0.28\text{ V}$ Total Current = 50 mA

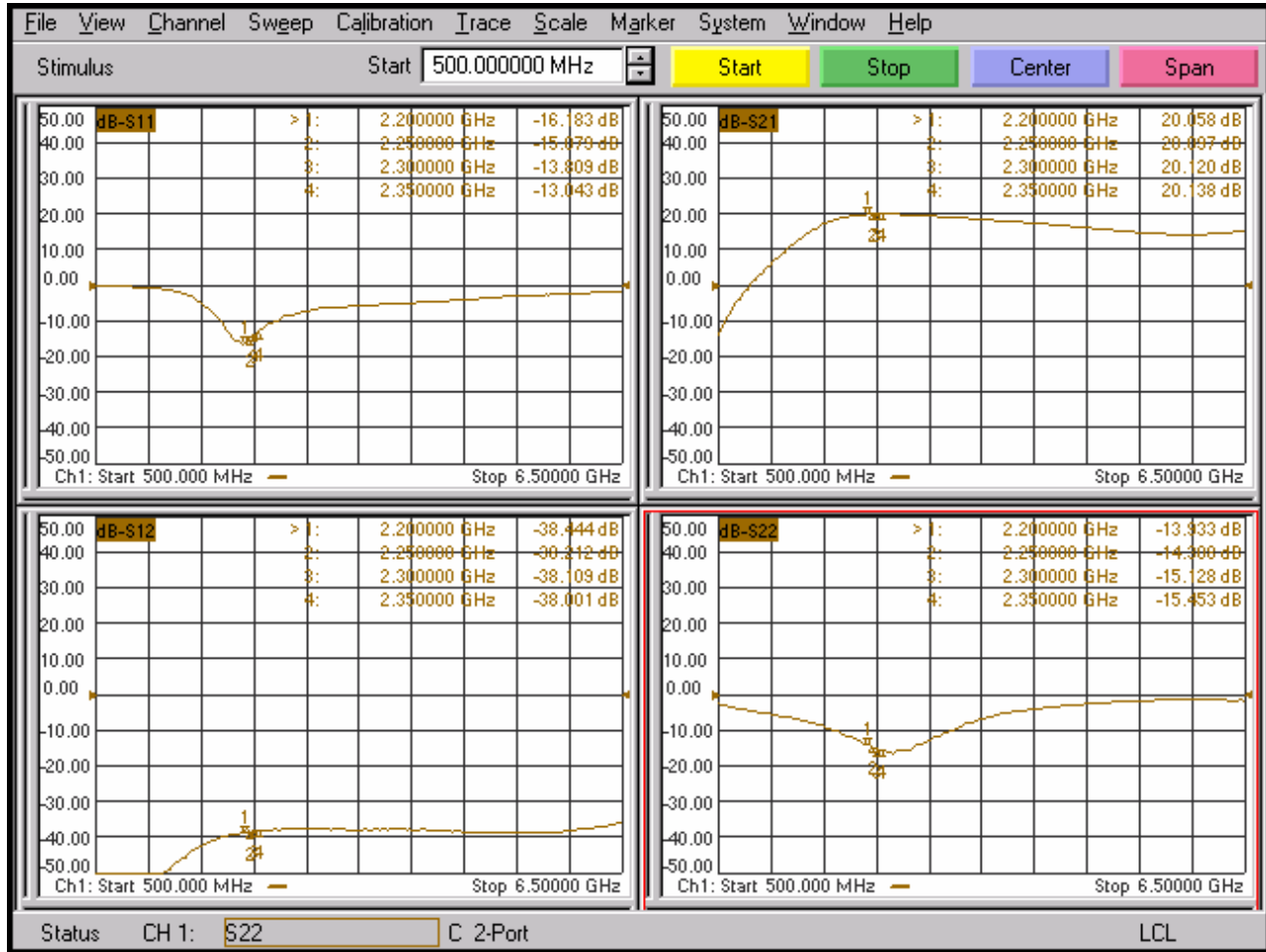
Vibration Measurements Condition: 0.04 PSD (g^2/Hz) for 5 minutes duration in each of the 3 axes.

RF Performance Before Vibration

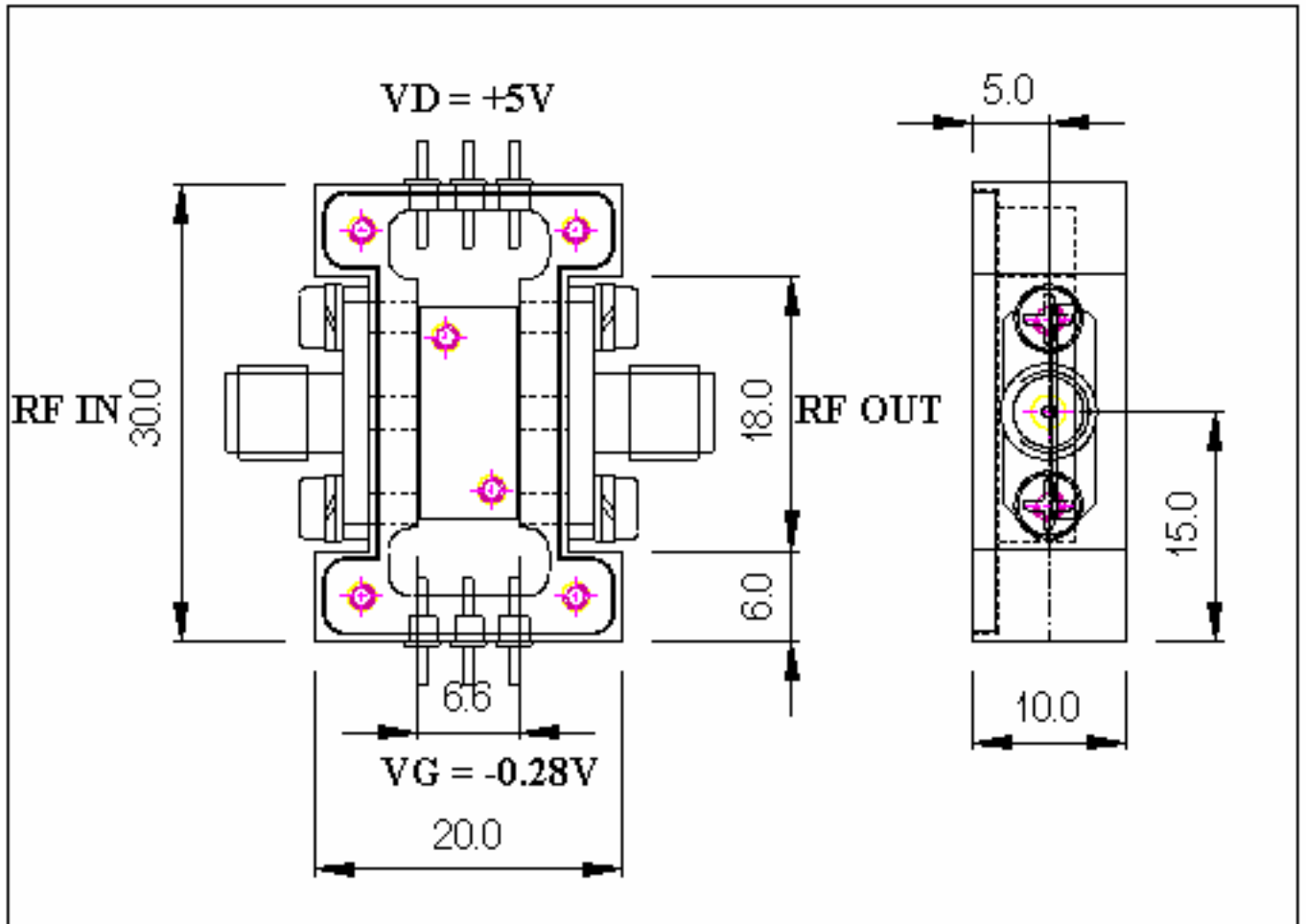


Test fixture data

Vd =5 V, Vg=-0.28 V Total Current = 50 mA

RF Performance After Vibration


Mechanical Characteristics



Units: Millimeters



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