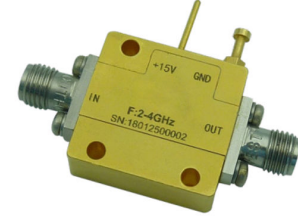




# Wide Band Ultra Low Noise Amplifier 2GHz~4GHz

## Features

- Gain: 52dB Typical
- Noise Figure: 0.75dB Typical
- P1dB Output Power: +15dBm Typical
- Supply Voltage: +15V



## Typical Applications

- Wireless Infrastructure
- 5G communication
- Test and measurement Instrument

RF Microwave & VSAT  
Fiber Optics

Parameter	Min.	Typ.	Max.	Units
Frequency Range	2		4	GHz
Gain	48	52		dB
Gain Flatness		±3.0	±4.0	dB
Gain Variation Over Temperature(-40°C~+85°C)		±1.5		dB
Noise Figure	0.6	0.75	1.0	dB
Input VSWR		1.6	2.0	: 1
Output VSWR		1.6	2.0	: 1
Output 1dB Compression Point (P1dB)	13	15		dBm
Saturated Output Power (Psat)		17		dBm
Output Third Order Intercept (OIP3)		26		dBm
Supply Current (Vcc=+15V)		165	200	mA
Isolation S12		-60		dB

Weight	1.8 ounces Max. (Including Heat sink)	Impedance	50ohms
Input / Output Connectors	SMA-Female	Material	Aluminum
Finish	Gold Plated	Package Sealing	Epoxy Sealed (Standard)
			Hermetically Sealed (Option with extra charge)



### Absolute Maximum Ratings

Operating Voltage	+15.5V
RF Input Power	-40dBm

### Biassing Up Procedure

Step 1	Connect Ground Pin
Step 2	Connect input and output
Step 3	Connect +15V biasing

### Power OFF Procedure

Step 1	Turn off +15V biasing
Step 2	Remove RF connection
Step 3	Remove Ground

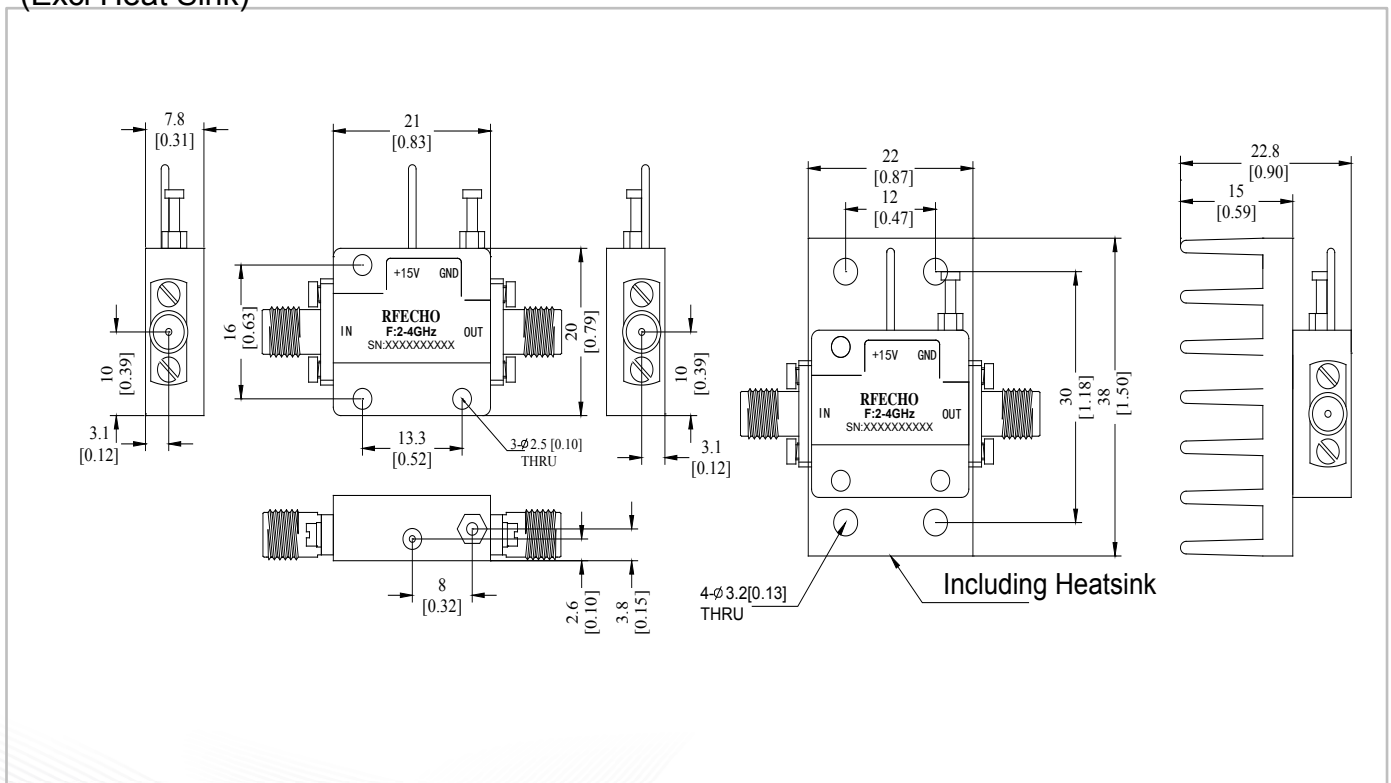
### Environmental Specifications

Operational Temperature	-40°C~+85°C
Storage Temperature	-50°C~+105°C
Altitude	30,000 ft. (Epoxy Sealed Controlled environment)
	60,000 ft. 1.0psi min (Hermetically Sealed Un-controlled environment) (Optional)
Vibration	25g RMS (15 degrees 2KHz) endurance, 1 hour per axis
Humidity	100% RH at 35°C, 95%RH at 40°C
Shock	20G for 11msec half sine wave, 3 axis both directions

### Outline Drawing:

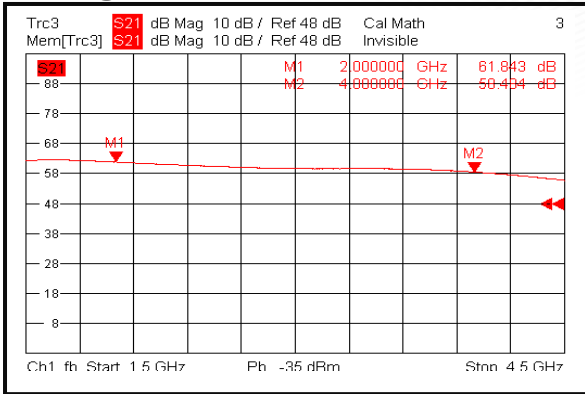
All Dimensions in mm (inches)  
Housing Tolerances  $\pm 0.1$  (0.004)  
(Excl Heat Sink)

Heat Sink required during operation (Sold Separately)

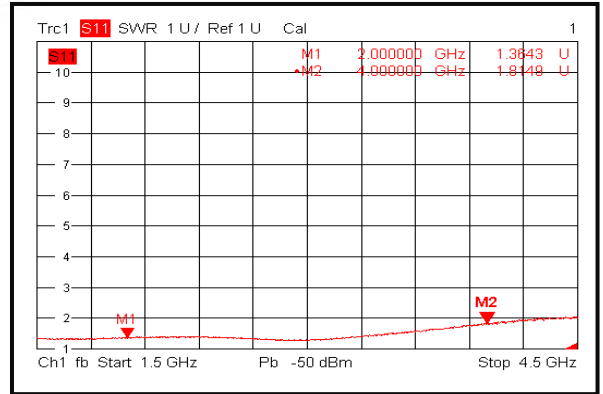




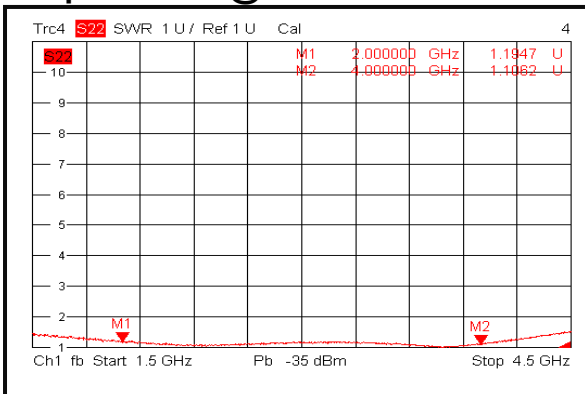
### Gain @+25°C



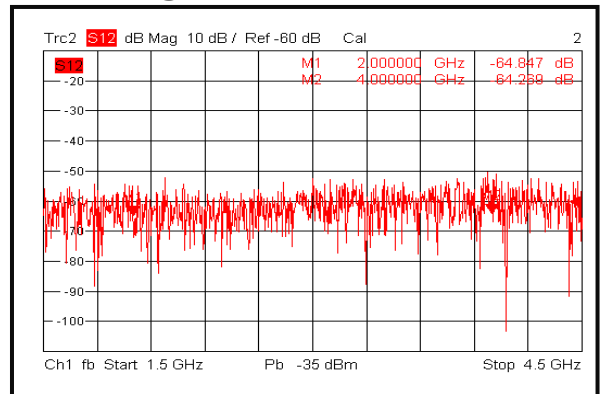
### Input VSWR @+25°C



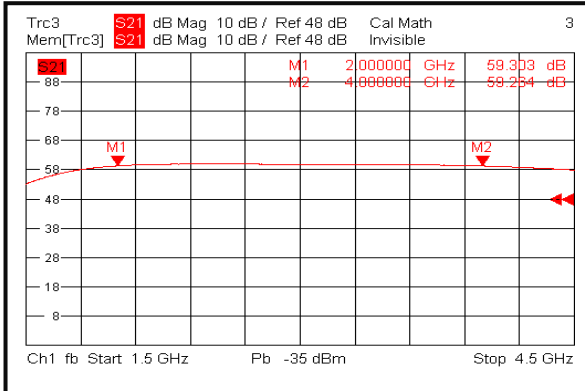
### Output VSWR @+25°C



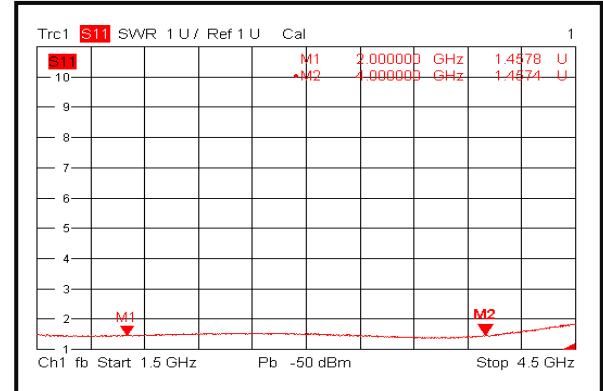
### Isolation @+25°C



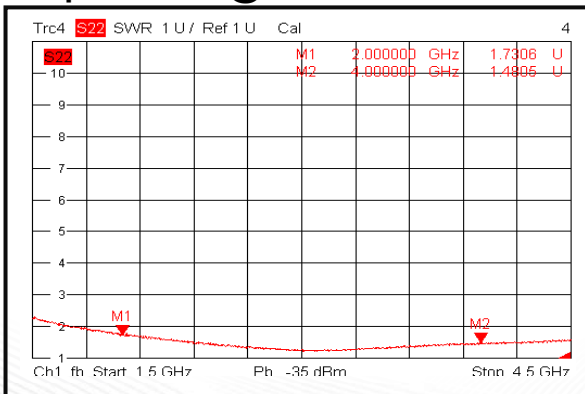
### Gain @-40°C



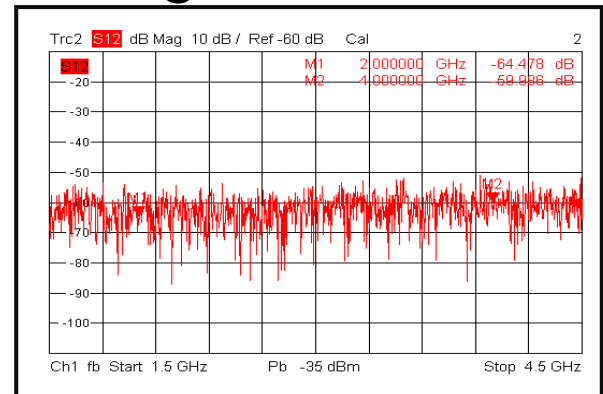
### Input VSWR @-40°C



### Output VSWR @+40°C

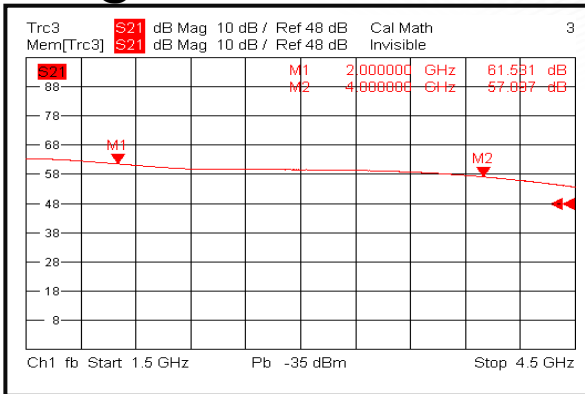


### Isolation @+40°C

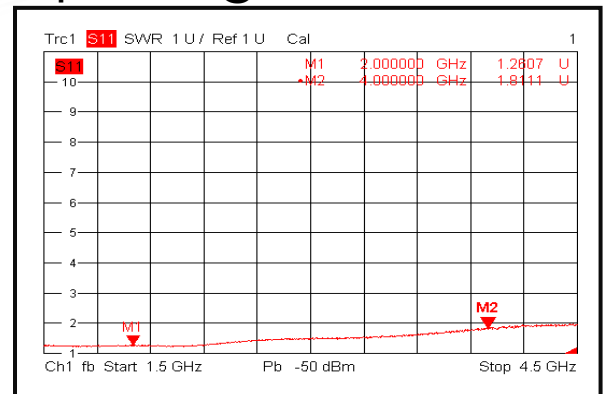




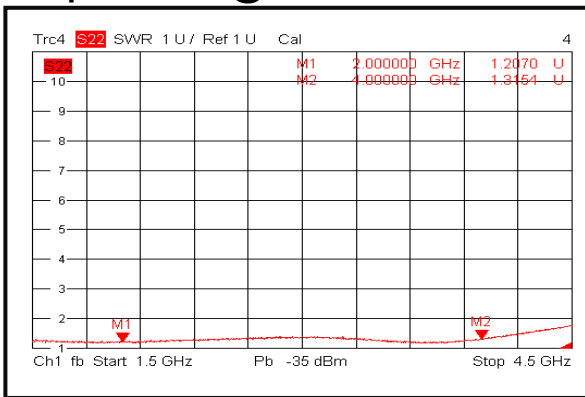
### Gain @+85°C



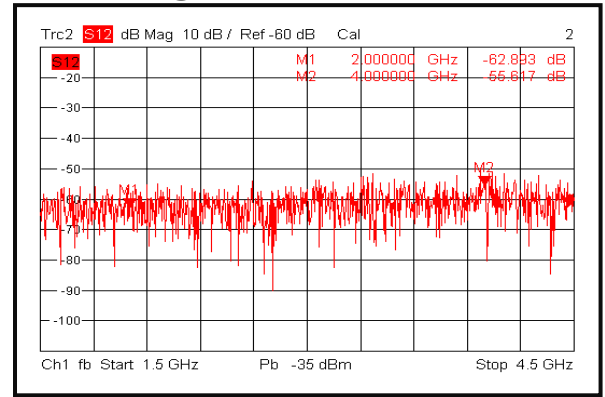
### Input VSWR @+85°C



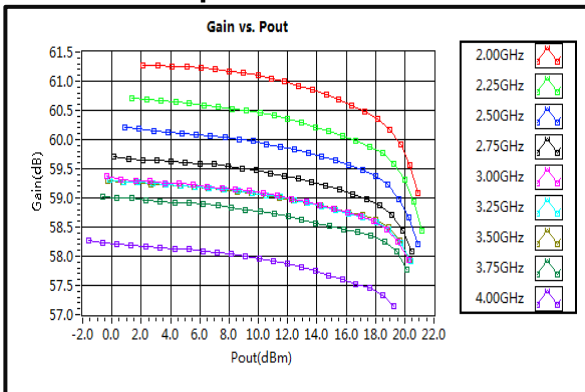
### Output VSWR @+85°C



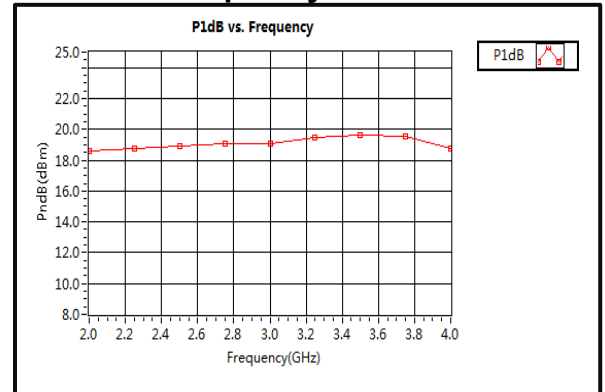
### Isolation @+85°C



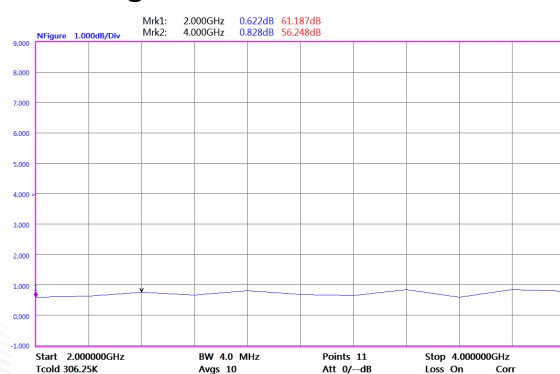
### Gain vs. Output Power



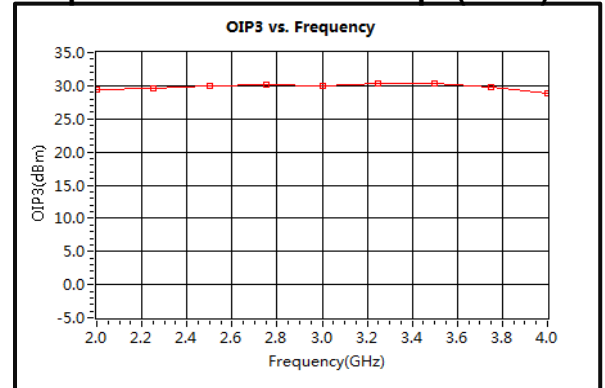
### P1dB vs. Frequency



### Noise Figure

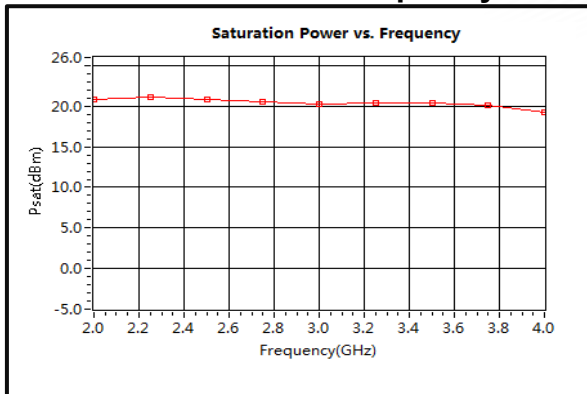


### Output Third Order Intercept (OIP3)

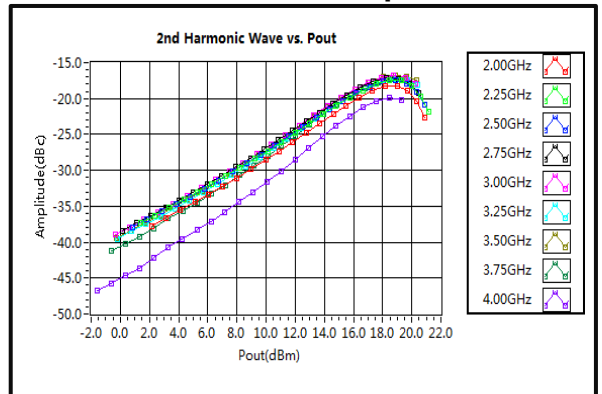




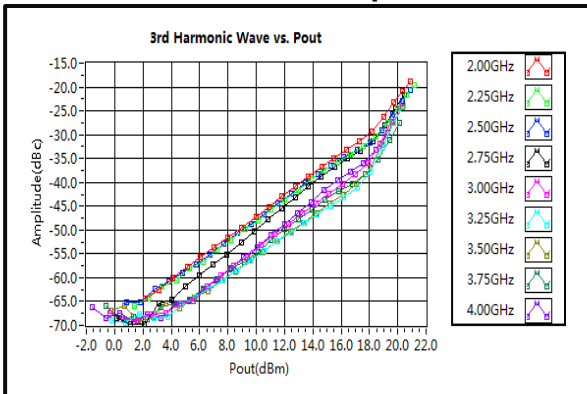
### Saturation Power vs. Frequency



### 2nd Harmonic Wave Output Power



### 3rd Harmonic Wave Output Power



### 4th Harmonic Wave Output Power

