



Ultra Wide Band Low Noise Amplifier 2GHz~22GHz

Features

- Gain: 29dB Typical
- Noise Figure: 3.0dB Typical
- P1dB Output Power: +22dBm Typical
- Supply Voltage: +12V @ 260mA
- 50 Ohm Matched Input / Output
- Size: 1.02" x 0.79" x0.47"



Typical Applications

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

RF Microwave & VSAT
Fiber Optics

Parameter	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Frequency Range	2		13	13		17	17		22	GHz
Gain	25	28	31	25	29	31	25	29	31	dB
Gain Flatness		±0.8	±1.0		±0.6	±1.0		±1.25	±1.5	dB
Gain Variation Over Temperature (-40°C~+85°C)		±1.0			±1.2			±1.5		dB
Noise Figure		3.0	5.0		3.0	5.0		3.0	5.0	dB
Input VSWR		1.5	2.0		1.5	2.0		1.5	2.0	: 1
Output VSWR		1.5	2.0		1.5	2.0		1.5	2.0	: 1
Output Power for 1 dB Compression (P1dB)	20	22		18	20		18	22		dBm
Saturated Output Power (Psat)		25			23			24		dBm
Output Third Order Intercept (OIP3)		33			31			32		dBm
Supply Current (Idd) (Vcc=+12V)		260	300		260	300		260	300	mA
Isolation S12		-70			-60			-60		dB

Weight	0.7ounces (Max.)	Impedance	50 ohms
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	+15V
RF Input Power (RFIN)	+3dBm

Biasing Up Procedure

Step 1	Connect Ground Pin
Step 2	Connect input and output
Step 3	Connect +12V biasing

Power OFF Procedure

Step 1	Turn off +12V biasing
Step 2	Remove RF connection
Step 3	Remove Ground

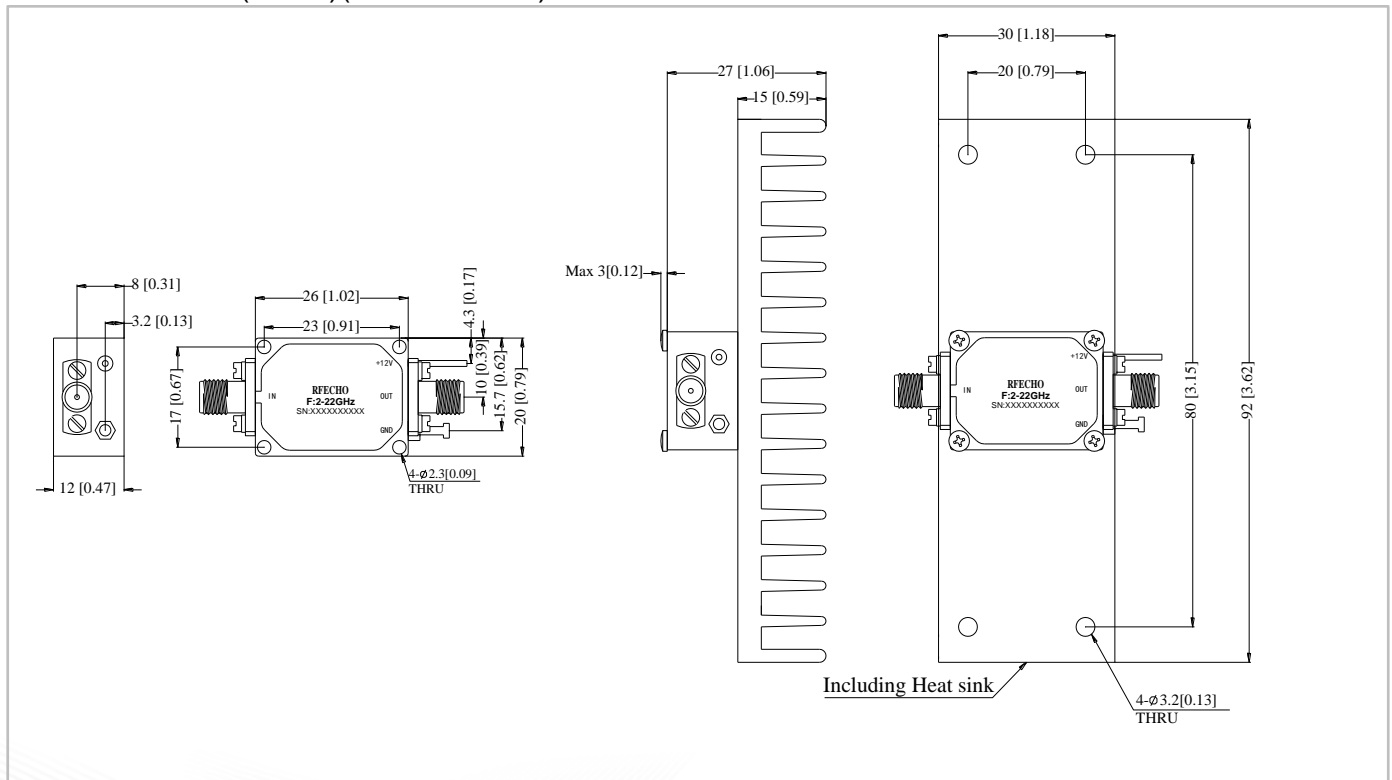
Environmental Specifications

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:

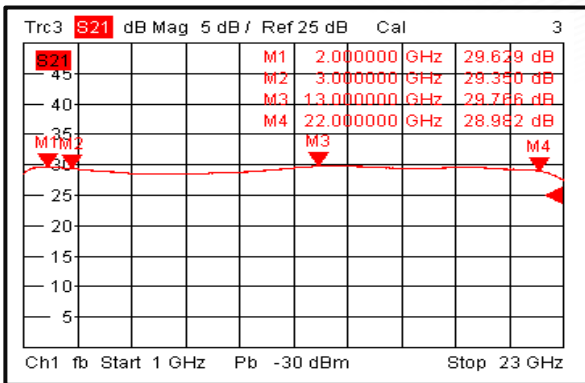
All Dimensions in mm (inches)
Tolerances $\pm 0.1(0.004)$ (Excl heatsink)

Heat Sink required during operation(Sold Separately)

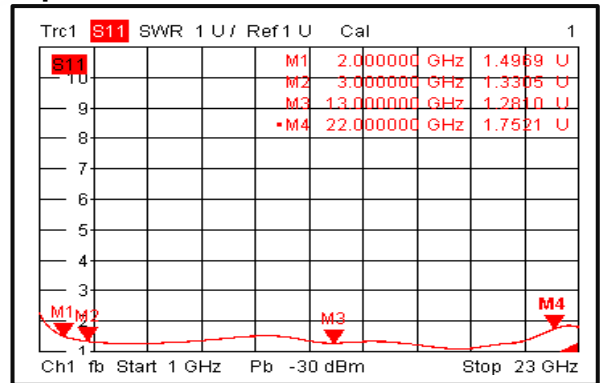




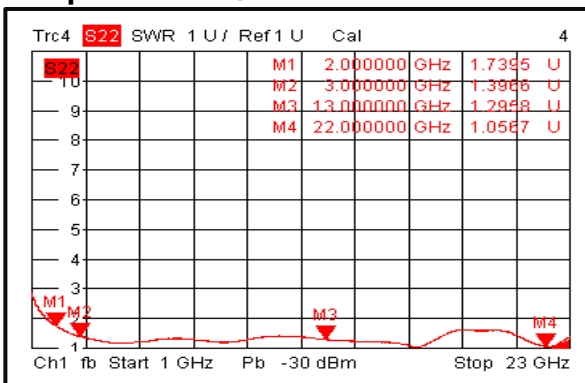
Gain@+25°C



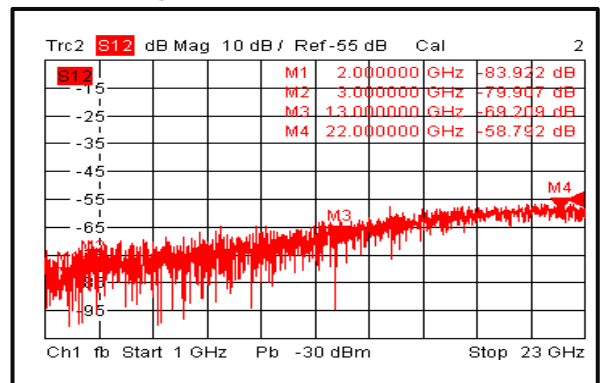
Input VSWR@+25°C



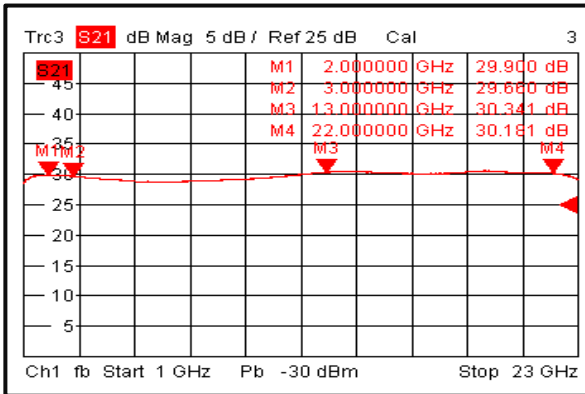
Output VSWR@+25°C



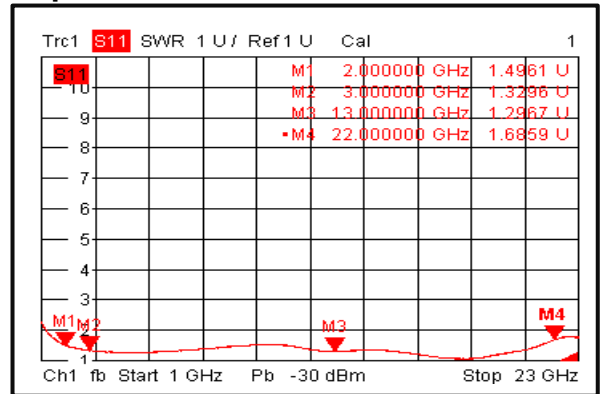
Isolation@+25°C



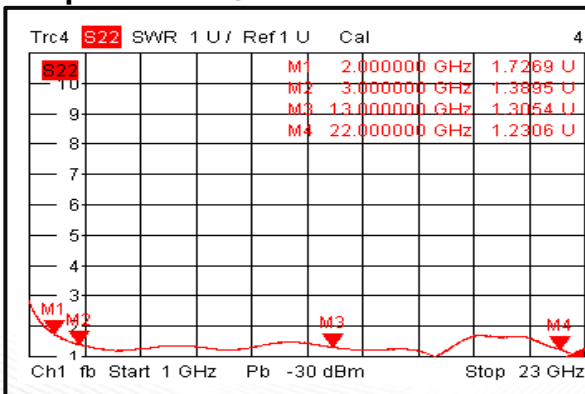
Gain@-40°C



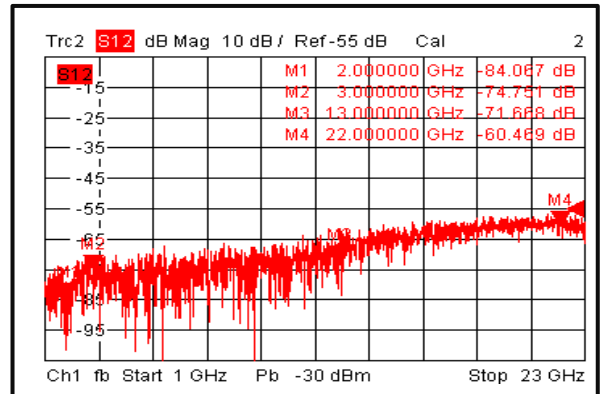
Input VSWR@-40°C



Output VSWR@-40°C

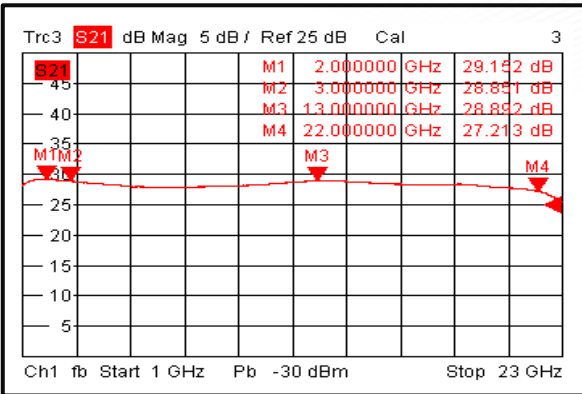


Isolation@-40°C

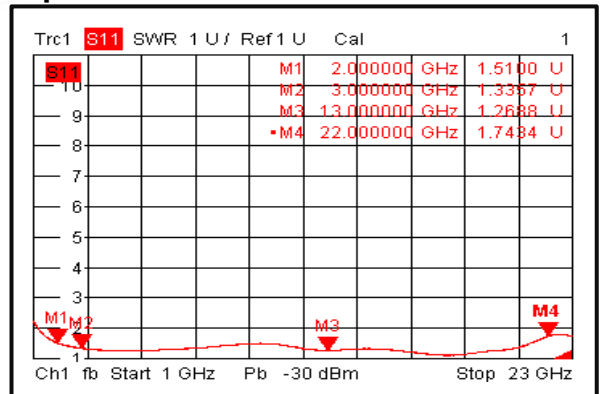




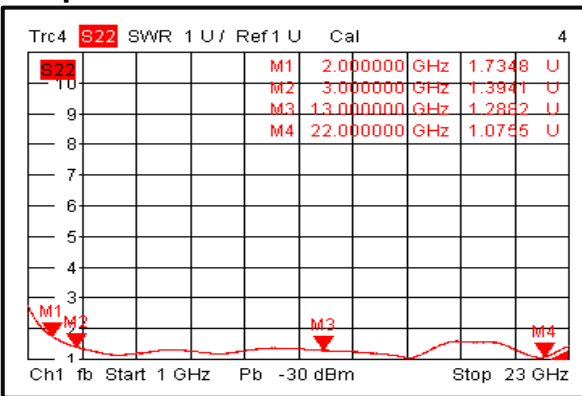
Gain @+85°C



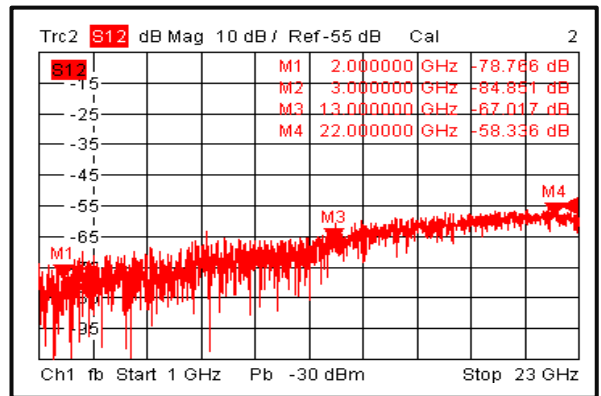
Input VSWR @+85°C



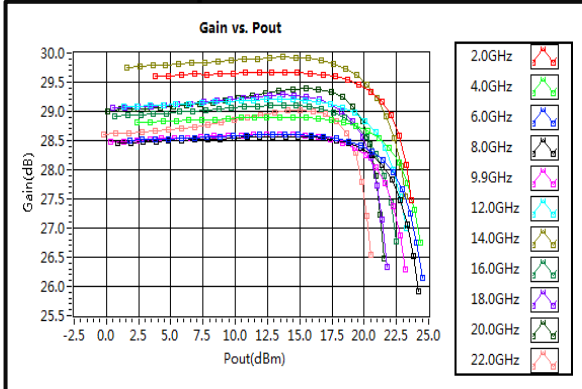
Output VSWR @+85°C



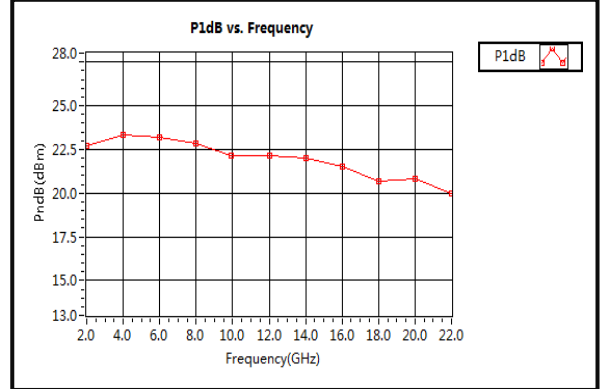
Isolation @+85°C



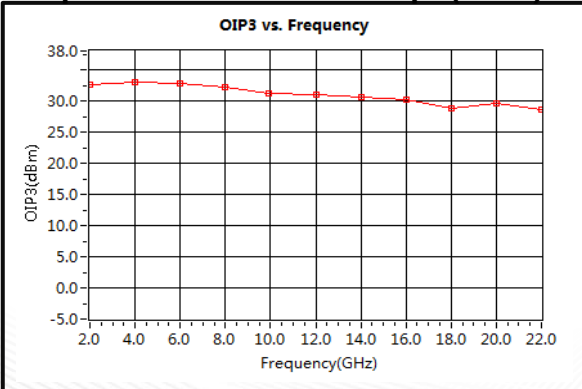
Gain vs. Output Power



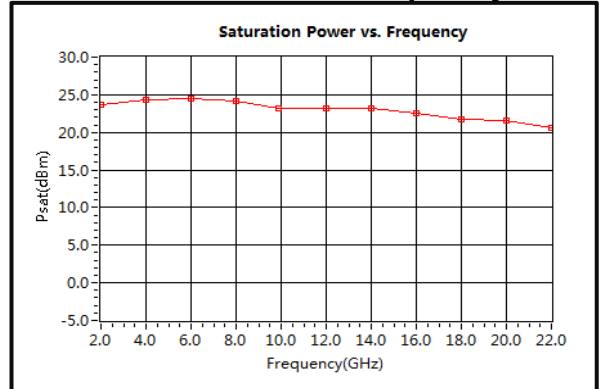
P1dB vs. Frequency



Output Third Order Intercept (OIP3)

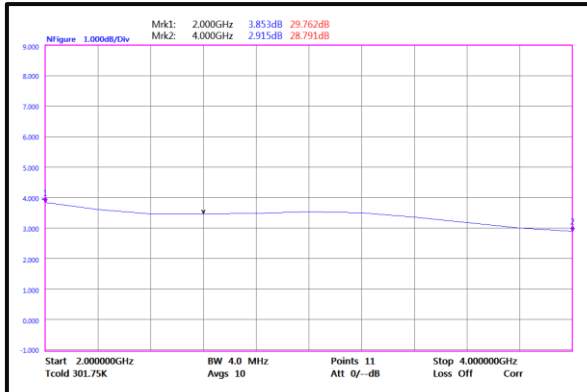


Saturation Power vs. Frequency





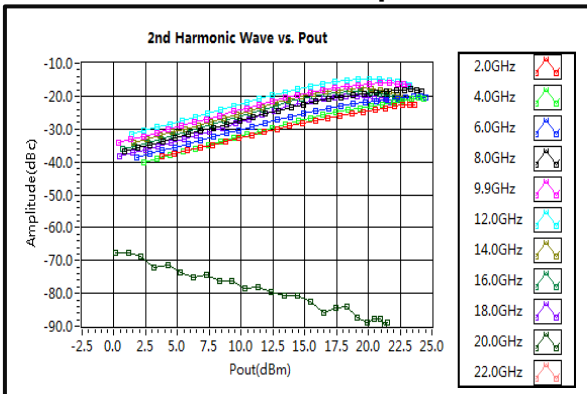
Noise Figure(2-4GHz)



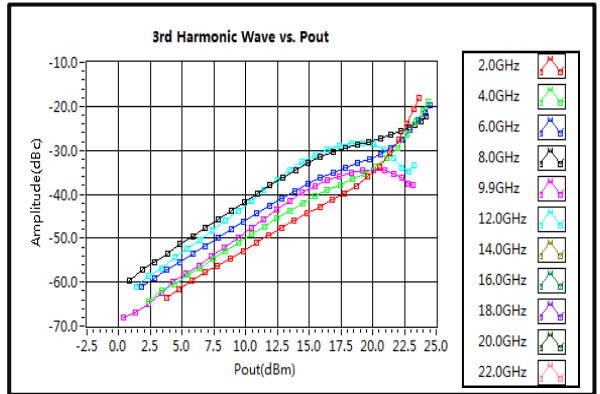
Noise Figure(4-22GHz)



2nd Harmonic Wave Output Power



3rd Harmonic Wave Output Power



4th Harmonic Wave Output Power

