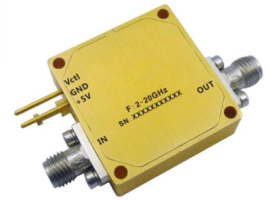




Wide Band Variable Gain Low Noise Amplifier 2GHz~20GHz

Features

- Gain: 18dB Typical
- Noise Figure: 3.0dB Typical
- Output P1dB : +21dBm Typical
- PSAT Output Power: 22dBm
- Supply Voltage: +5V



Typical Applications

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

RF Microwave & VSAT
Fiber Optics

Parameter	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Frequency Range	2		10	10		20	GHz
Gain	17	18.5	19.5	16.5	17.5	19	dB
Gain Adjustable Range		30			30		dB
Gain Flatness		±0.5	±1.0		±0.5	±1.0	dB
Gain Variation Over Temperature (-40°C~+85°C)		±0.5			±1.0		dB
Noise Figure		2.0	3.5		3.0	5.0	dB
Input VSWR		1.8			1.4	2.0	: 1
Output VSWR		1.5	2.0		1.5	2.0	: 1
Output 1dB Compression Point (P1dB)	20	21		18	20		dBm
Saturated Output Power (Psat)		22			21		dBm
Output Third Order Intercept (OIP3)		32			30		dBm
Isolation S12		-45			-40		dB
Supply Current (Vcc=+5V, Vctl=-2 to +3V)	10	100	180	10	100	180	mA

weight	0.8(Max) .ounces	Impedance	50ohms
Input / Output Connectors	SMA-Female	Material	Aluminum
Finish	Gold Plated	Package Sealing	Epoxy Sealed (Standard)
			Hermetically Sealed (Optional)



Absolute Maximum Ratings

Operating Voltage	+7V
Vg Control Voltage	-2V to +3V
RF Input Power (@25°C, 50Ω)	+36dBm

Biasing Up Procedure

Step 1	Connect Ground Pin
Step 2	Connect input and output
Step 3	Connect +5V biasing
Step 4	Connect Vctl Control
Step 5	Turn on +5V biasing
Step 6	Turn on Vctl Control

Power OFF Procedure

Step 1	Turn off Vctl Control
Step 2	Turn off +5V biasing
Step 3	Remove RF connection
Step 4	Remove Ground.

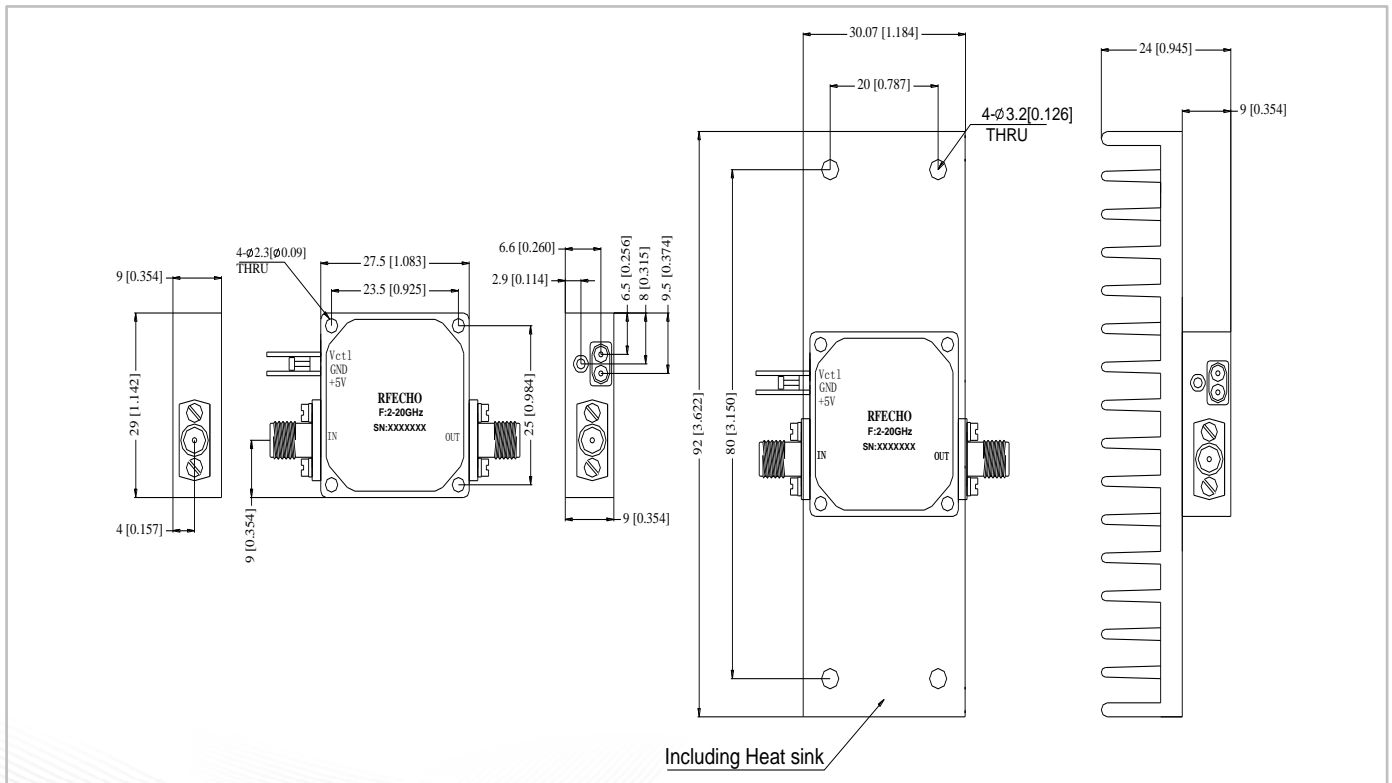
Environmental Specifications

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:

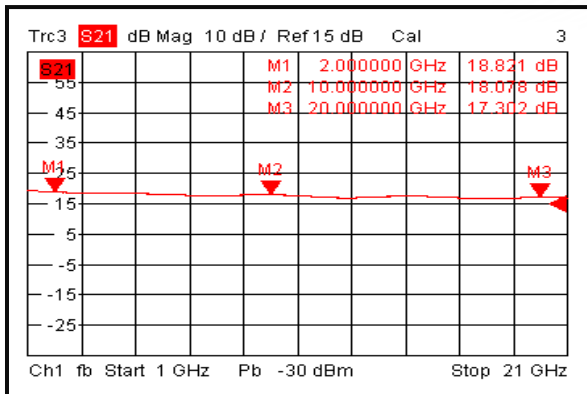
All Dimensions in mm (inches)

Heat Sink required during operation(Sold Separately)

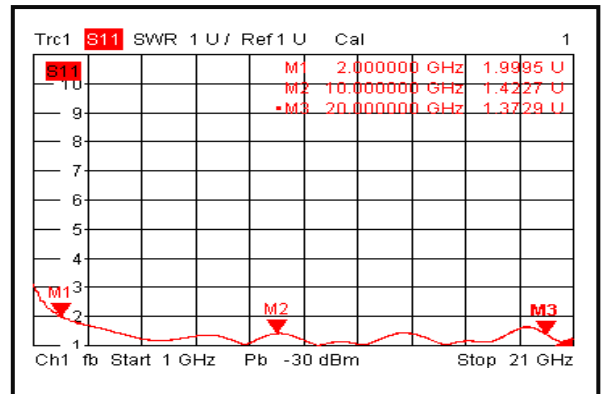




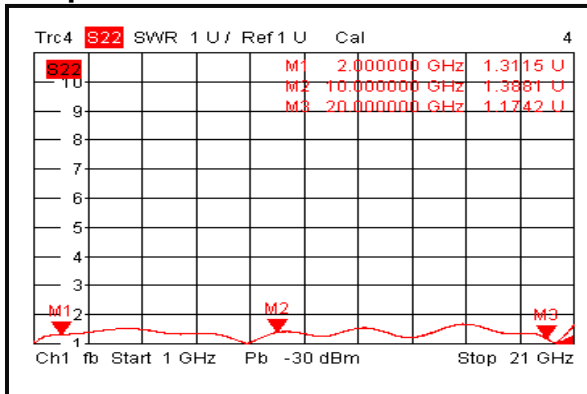
Gain @+25°C



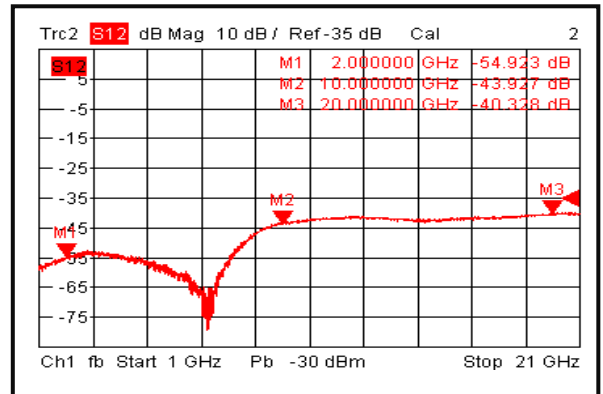
Input VSWR @+25°C



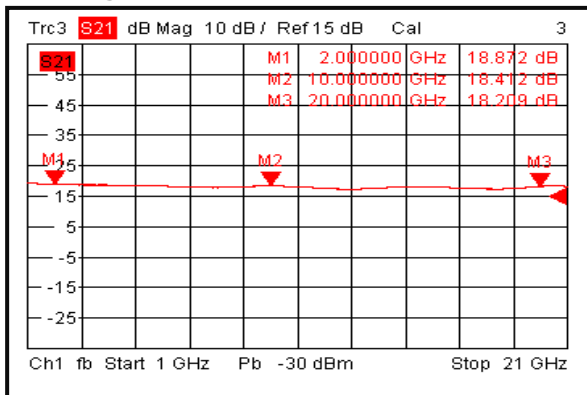
Output VSWR @+25°C



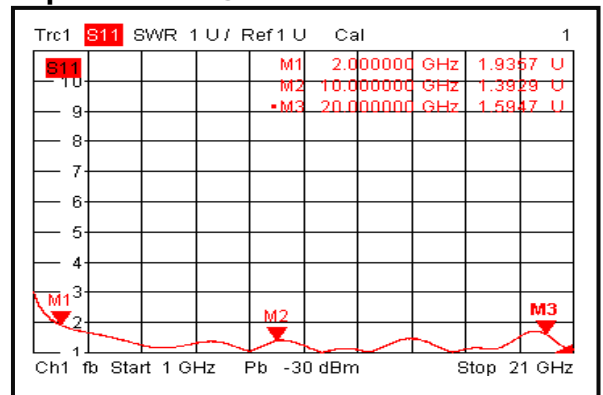
Isolation @+25°C



Gain @-40°C

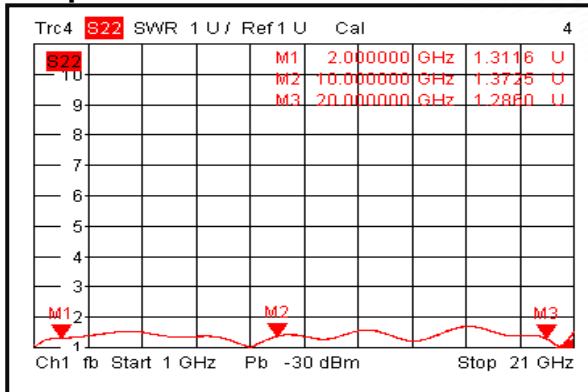


Input VSWR @-40°C

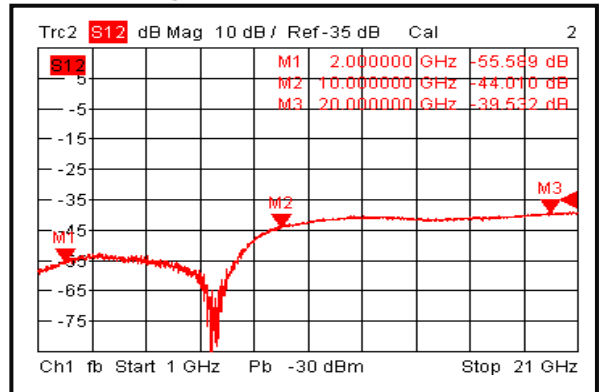




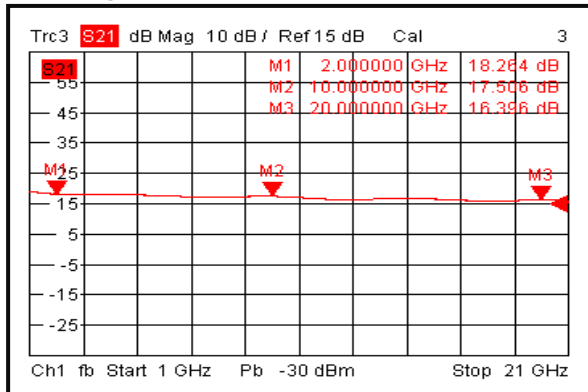
Output VSWR @-40°C



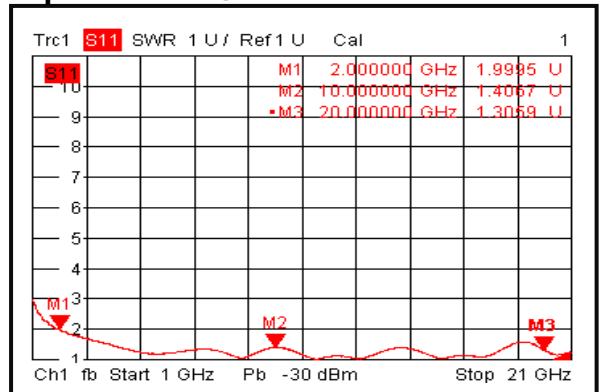
Isolation @-40°C



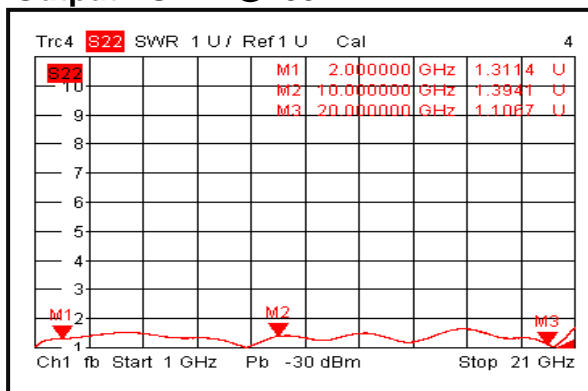
Gain @+85°C



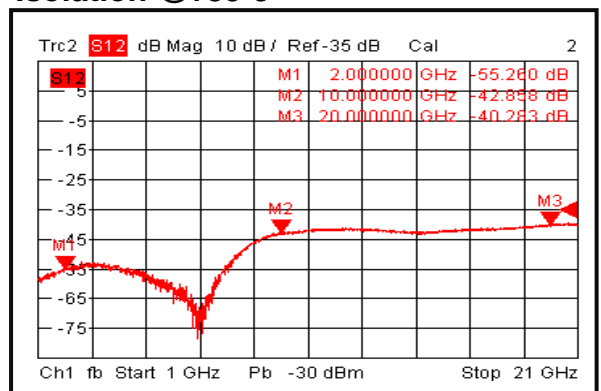
Input VSWR @+85°C



Output VSWR @+85°C

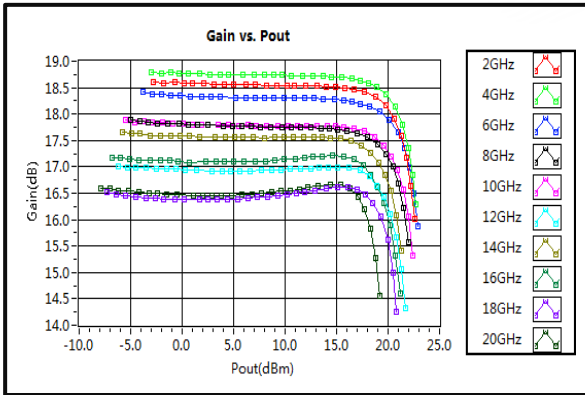


Isolation @+85°C

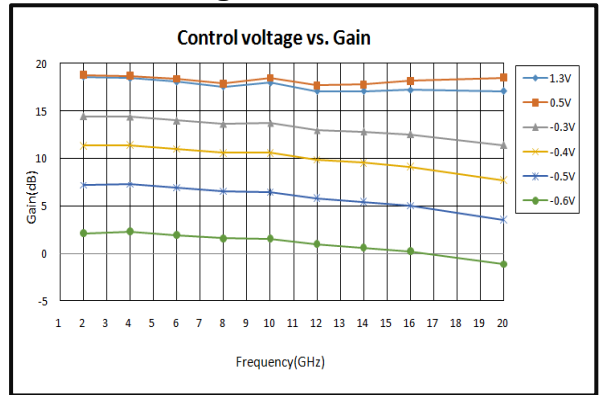




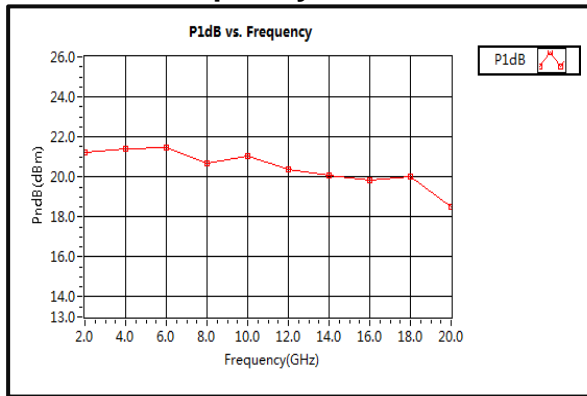
Gain vs. Output Power



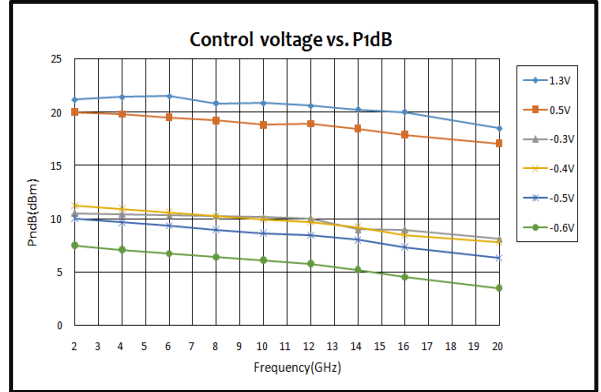
Control Voltage vs. Gain



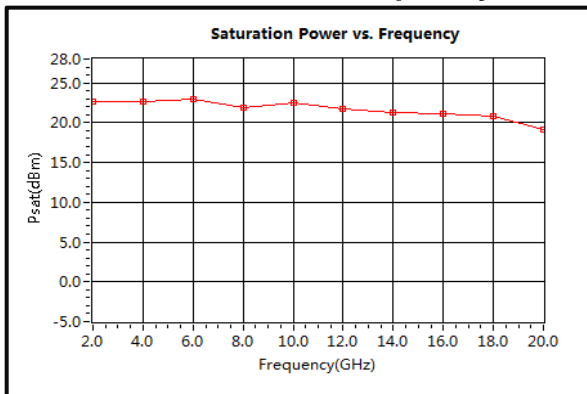
P1dB vs. Frequency



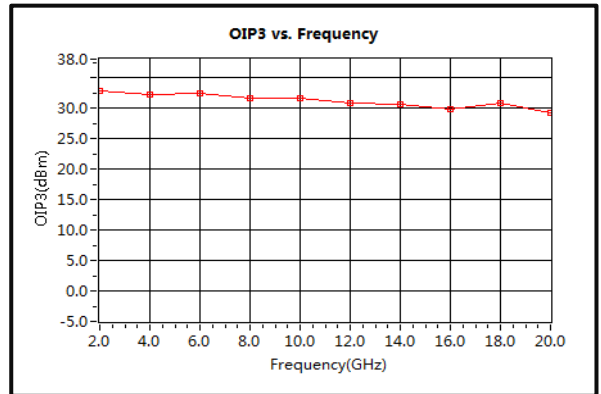
Control Voltage vs. P1dB



Saturation Power vs. Frequency

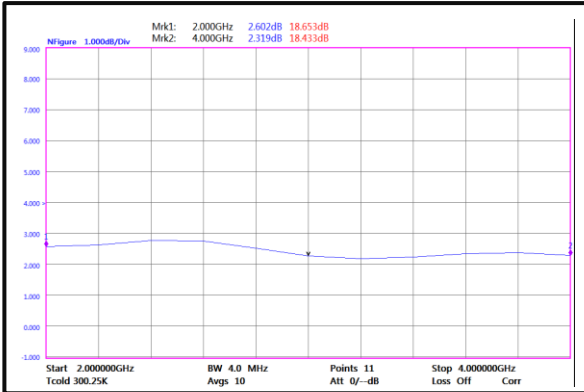


Output Third Order Intercept (OIP3)

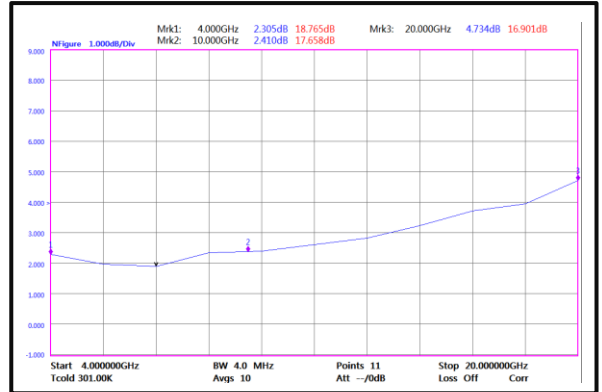




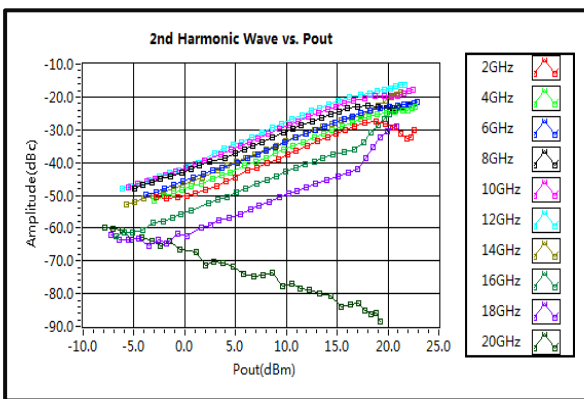
Noise Figure(2-4GHz)



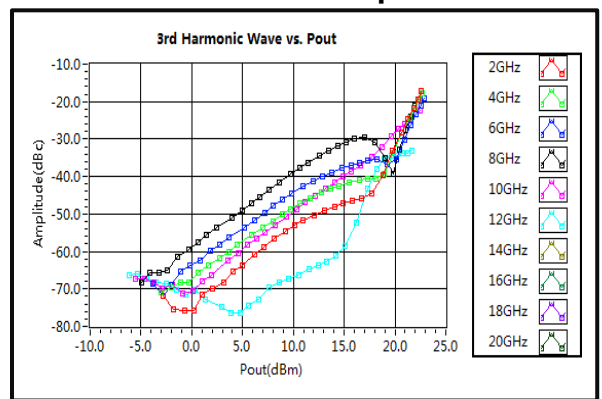
Noise Figure(4-20GHz)



2nd Harmonic Wave Output Power



3rd Harmonic Wave Output Power



4th Harmonic Wave Output Power

