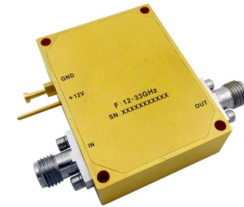




# Wide Band Low Noise Amplifier 12GHz~33GHz

## Features

- Gain: 32dB Typical
- Noise Figure: 2.5dB Typical
- P1dB Output Power: 21dBm Typical
- Supply Voltage: +12V



## 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	12		22	22		33	GHz
Gain	31	34	38	29	32	37	dB
Gain Flatness		±2.5			±2.5		dB
Gain Variation Over Temperature (-40°C~+85°C)		±0.8			±1.0		dB
Noise Figure		2.5	4.5		3.5	5.0	dB
Input VSWR		1.6	2.2		1.8	2.5	: 1
Output VSWR		1.5	2.2		1.8	2.5	: 1
Output 1dB Compression Point (P1dB)	20	23		19	23		dBm
Saturated Output Power (Psat)		25			24		dBm
Output Third Order Intercept (OIP3)		29			29		dBm
Supply Current (Vcc=+12V)		380	450		380	450	mA
Isolation S12		-60			-50		dB

Weight	1.5 ounces (Max.)	Impedance	50ohms
Input / Output Connectors	2.92mm-Female	Material	Aluminum
Finish	Gold Plated	Package Sealing	Epoxy Sealed (Standard)
			Hermetically Sealed (Optional)



### Absolute Maximum Ratings

Operating Voltage	+15V @25 °C
RF Input Power	-5dBm @25 °C

### 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

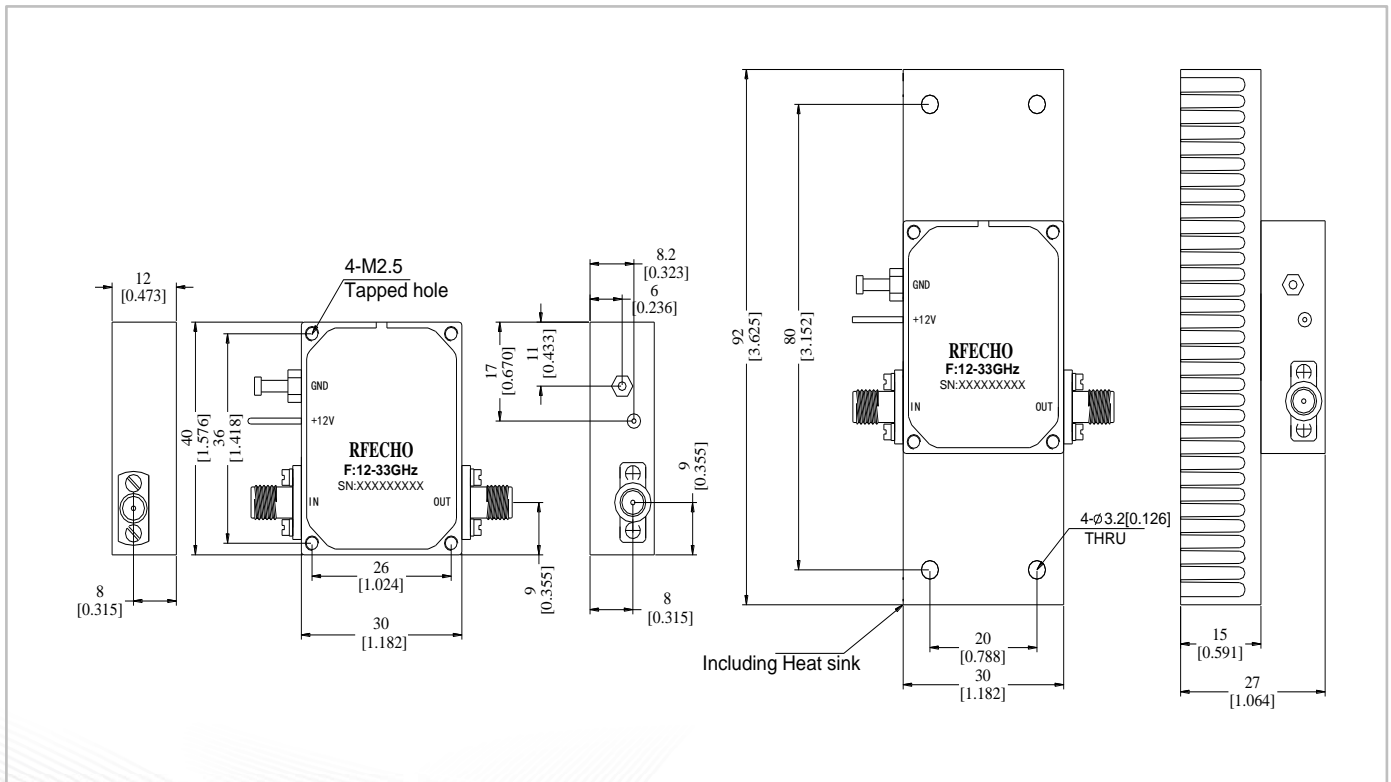
### Environmental Specifications

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:

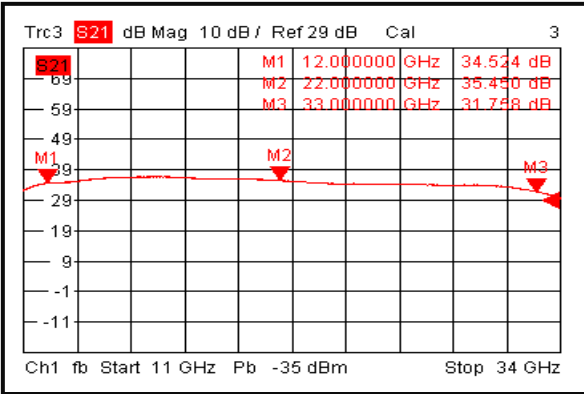
All Dimensions in mm (inches)

Heat Sink required during operation(Sold Separately)

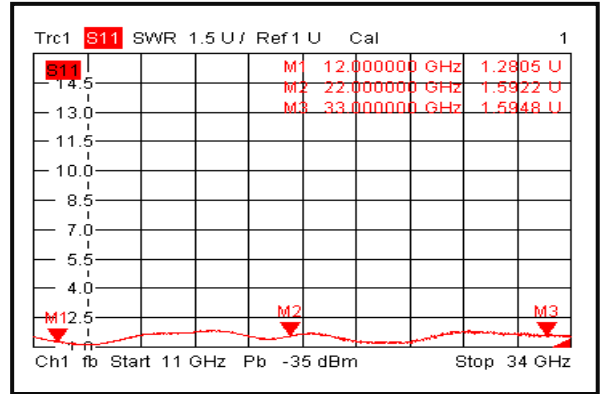




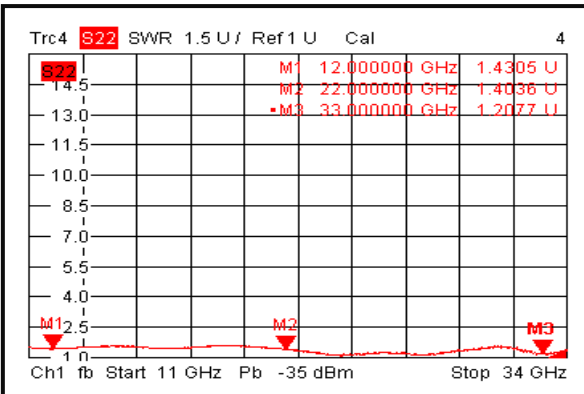
### Gain @+25°C



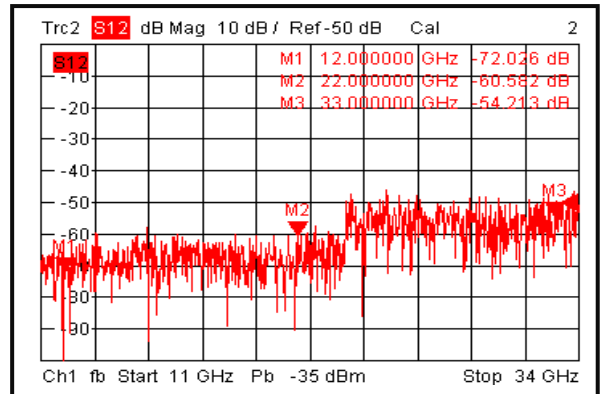
### Input VSWR @+25°C



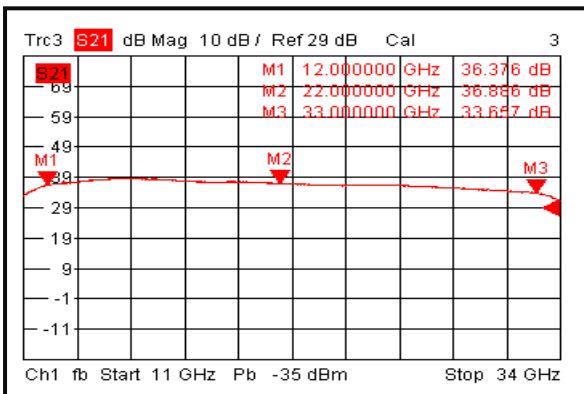
### Output VSWR @+25°C



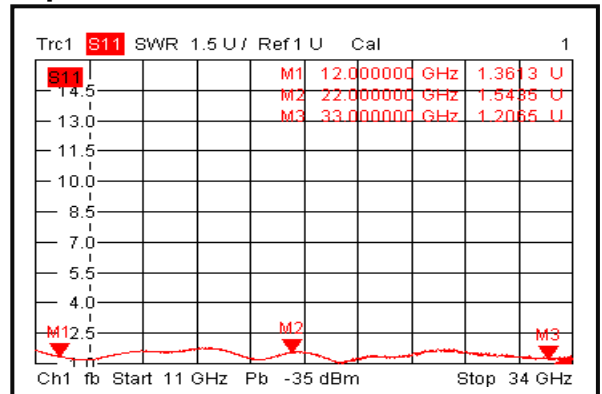
### Isolation @+25°C



### Gain @-40°C

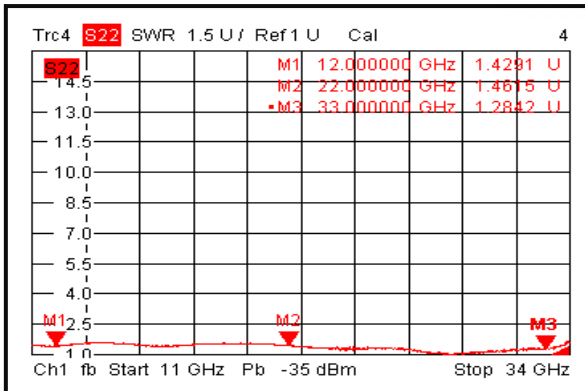


### Input VSWR @-40°C

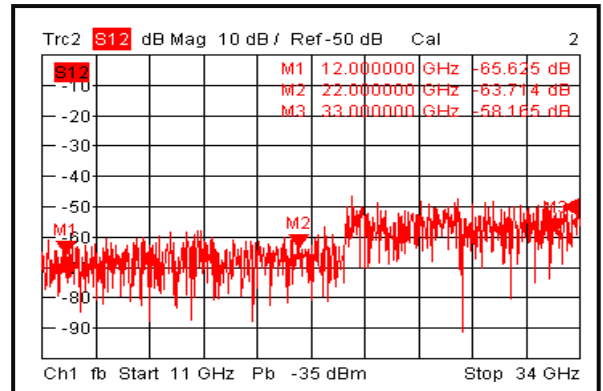




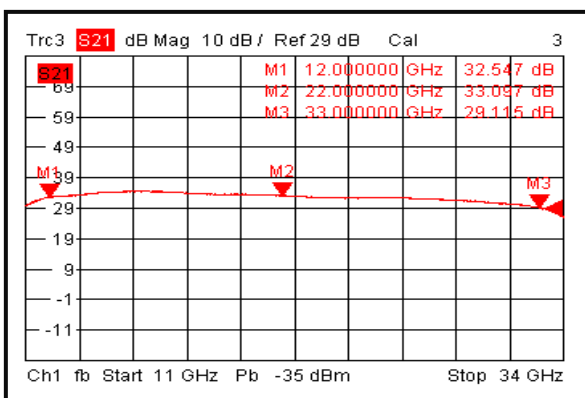
### Output VSWR @-40°C



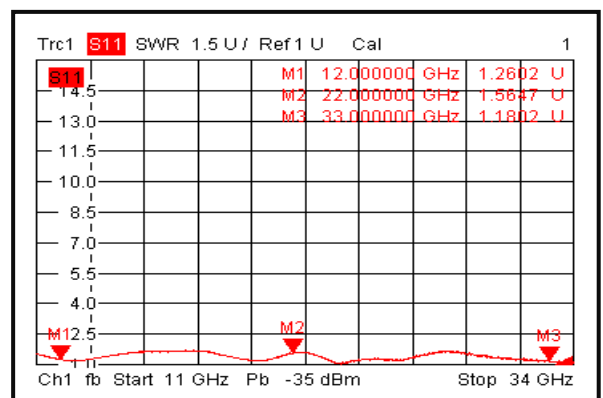
### Isolation @-40°C



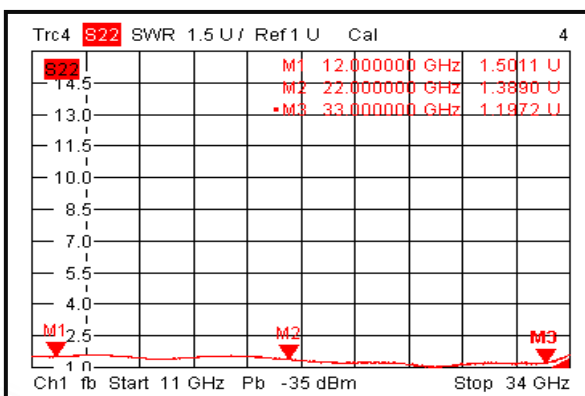
### Gain @+85°C



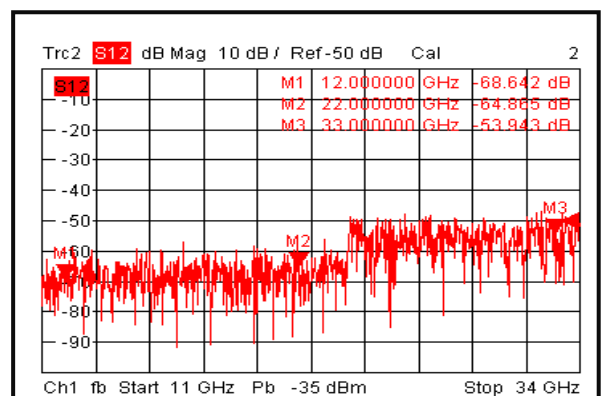
### Input VSWR @+85°C



### Output VSWR @+85°C

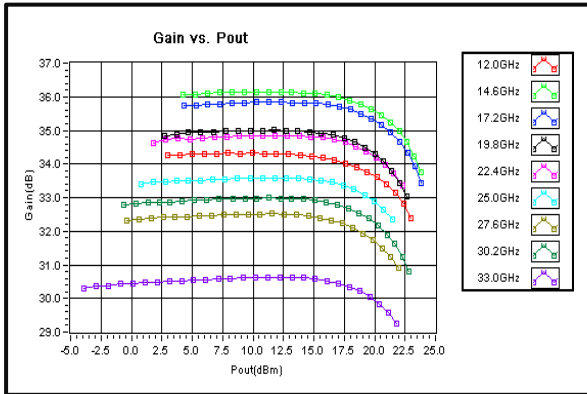


### Isolation @+85°C

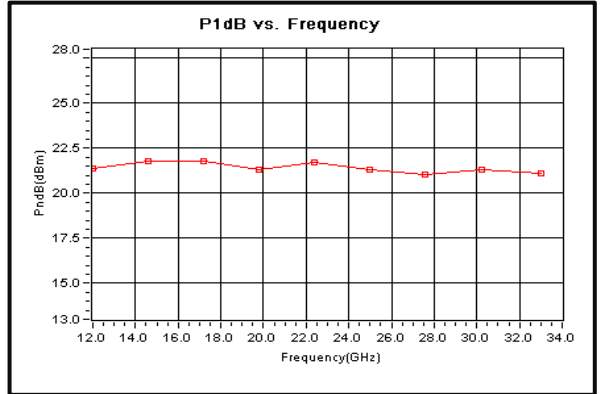




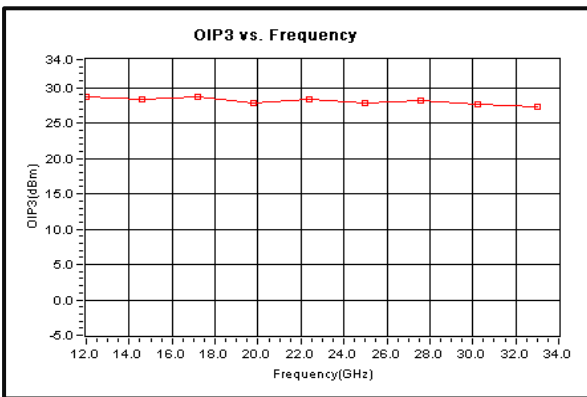
### Gain vs. Output Power



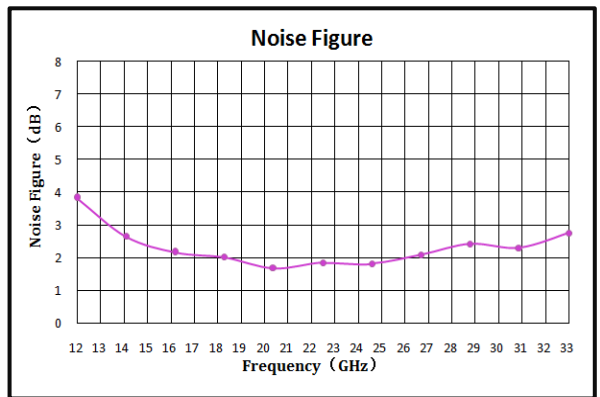
### P1dB vs. Frequency



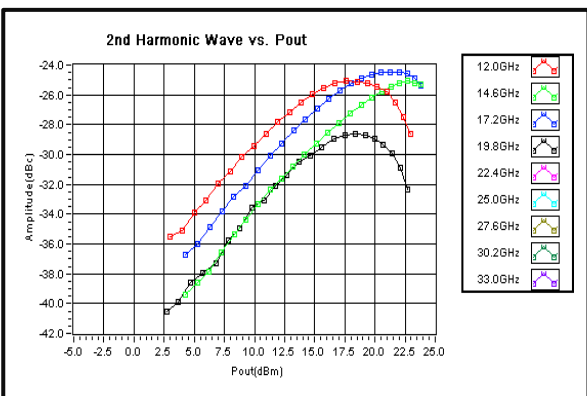
### Output Third Order Intercept (OIP3)



### Noise Figure



### 2nd Harmonic Wave Output Power



### 3rd Harmonic Wave Output Power

