



WR229 Low Noise Amplifier 3.3GHz ~ 4.9GHz

Features

- Gain: 60dB Typical
- Noise Figure: 2.2dB Typical
- P1dB Output Power: +18dBm Typical
- 50 Ohm Matched

Typical Applications

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

RF Microwave & VSAT
Fiber Optics

Parameter	Min.	Typ.	Max.	Units
Frequency Range	3.3		4.9	GHz
Gain	55	60		dB
Gain Flatness		±1.5		dB
Gain Variation Over Temperature (-40°C ~ +85°C)		±1.0		dB
Noise Figure		1.6	2.8	dB
Input VSWR		1.5		: 1
Output VSWR		1.5		: 1
Output 1dB Compression Point (P1dB)	15	19		dBm
Saturated Output Power (Psat)		23		dBm
Output Third Order Intercept (OIP3)		30		dBm
Isolation S12		-60		dB
Supply Current (Vcc=+12V)		250		mA

Weight	14.81ounces	Impedance	50ohms
Input / Output Connectors	WR229/N-Female	Material	Aluminum
power connector	SMA-Female	Package Sealing	Epoxy Sealed



Absolute Maximum Ratings

Operating Voltage	+15V
RF Input Power (RFIN)	-20dBm

Biasing Up Procedure

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

Power OFF Procedure

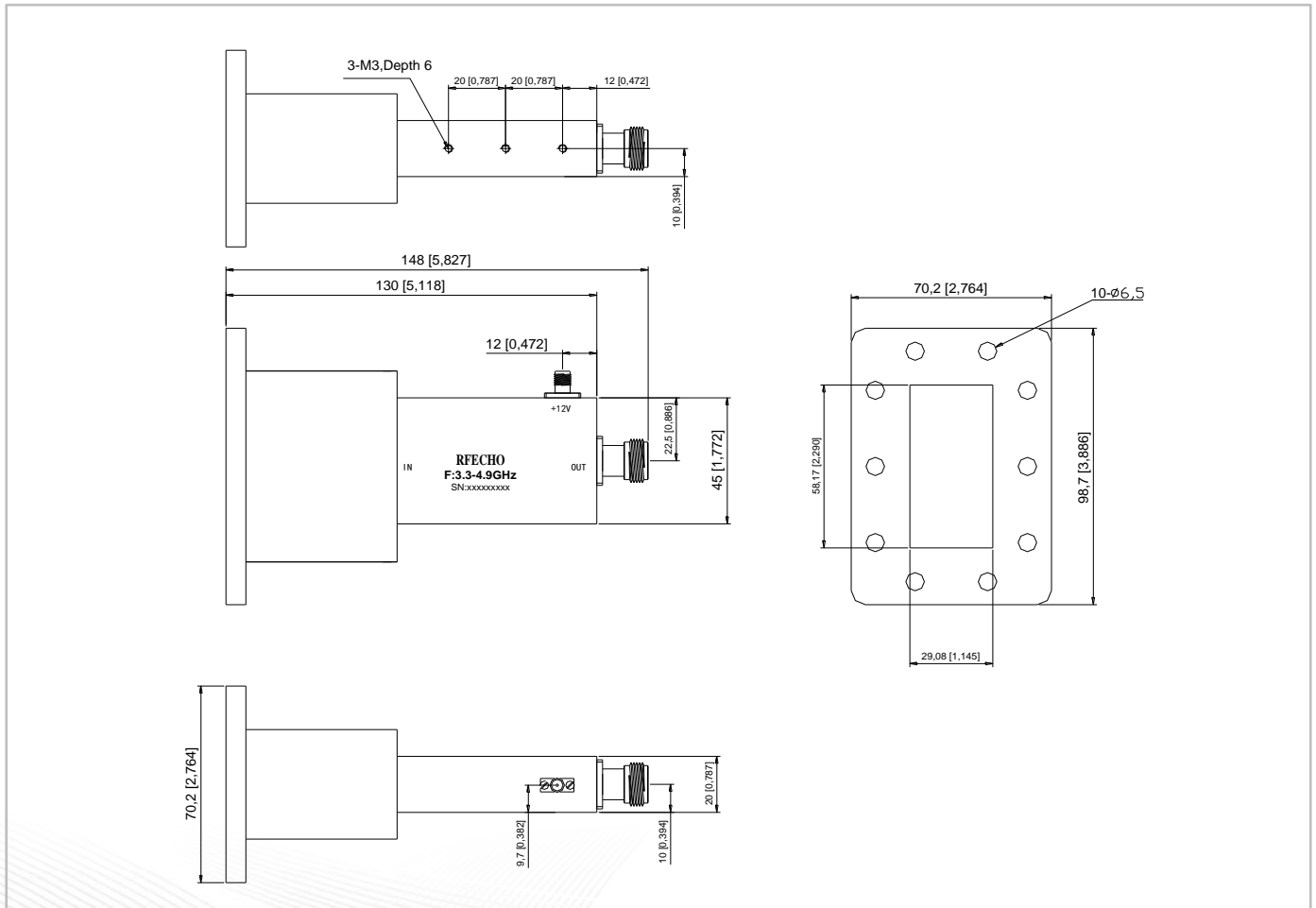
Step 1	Turn off +12V biasing
Step 2	Remove RF connection
Step 3	Remove Ground

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:

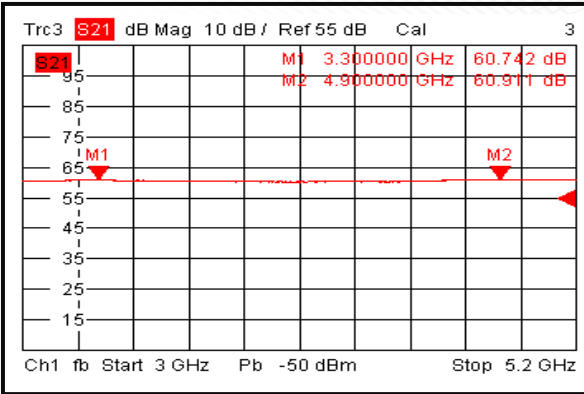
All Dimensions in mm (inches)

Heat Sink required during operation(Sold Separately)

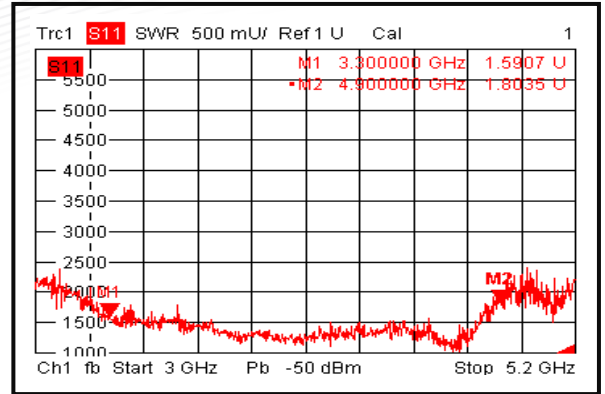




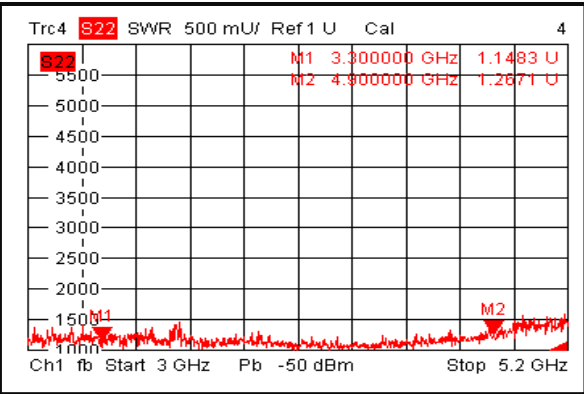
Gain @+25°C



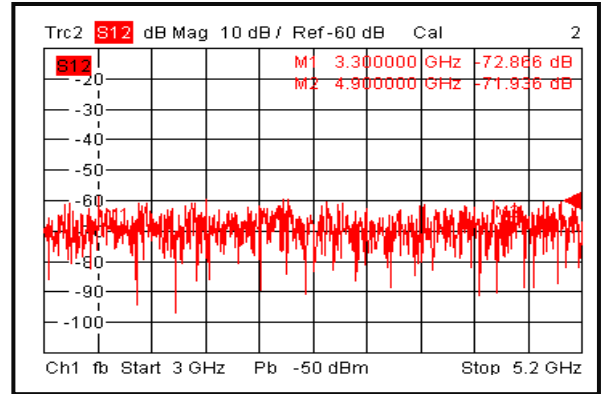
Input VSWR @+25°C



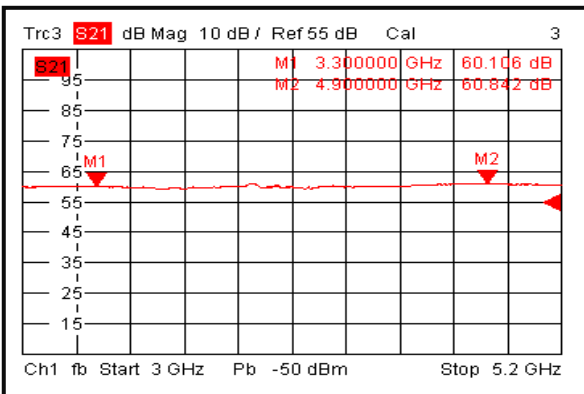
Output VSWR @+25°C



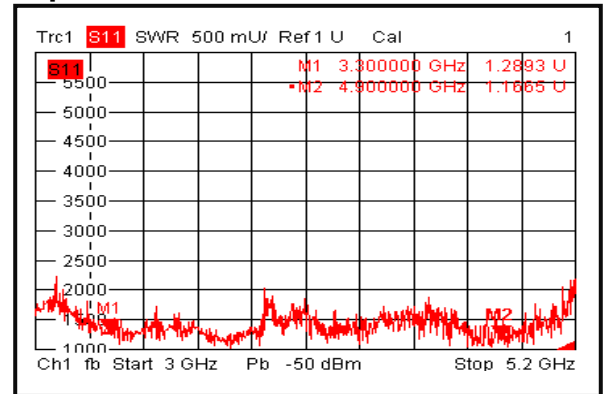
Isolation @+25°C



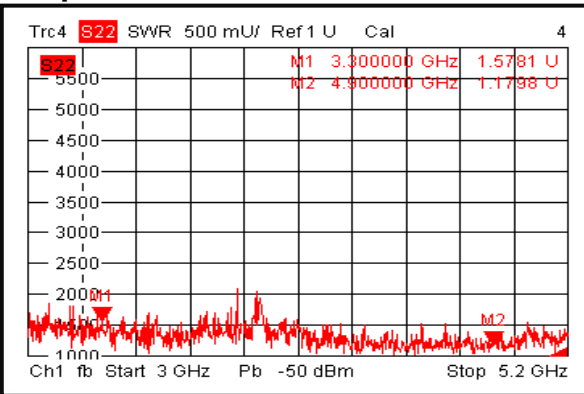
Gain @-40°C



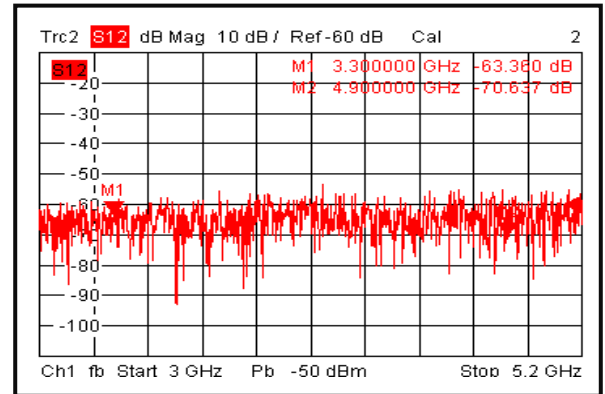
Input VSWR @-40°C



Output VSWR @-40°C

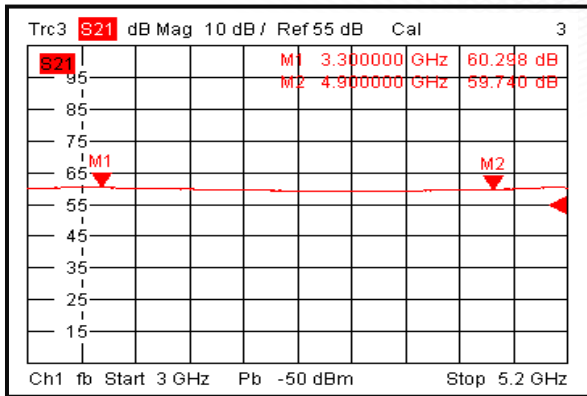


Isolation @-40°C

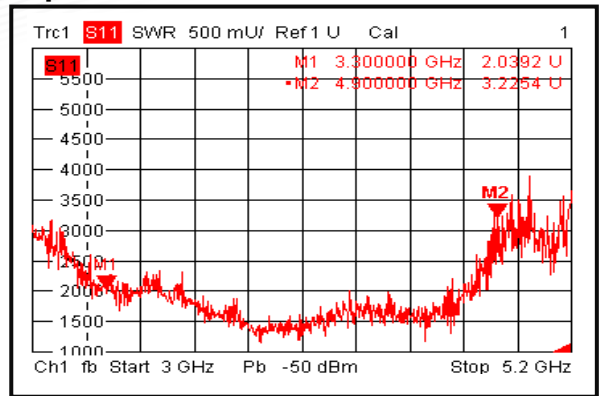




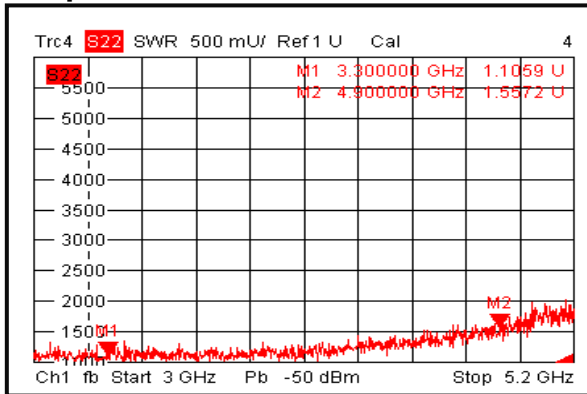
Gain @+85°C



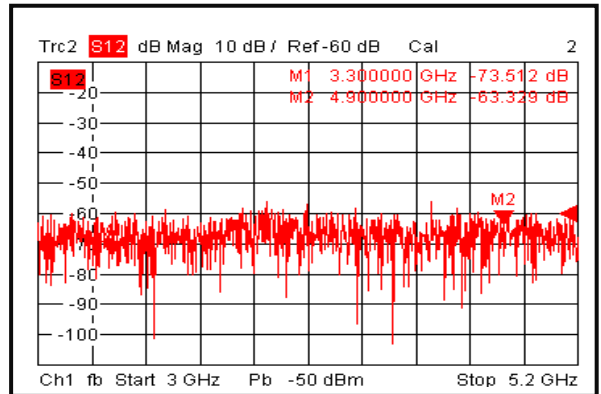
Input VSWR @+85°C



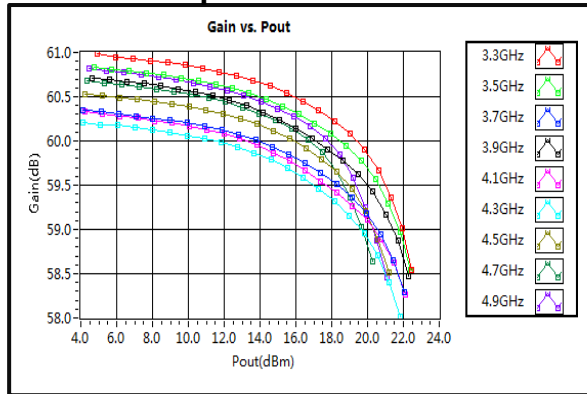
Output VSWR @+85°C



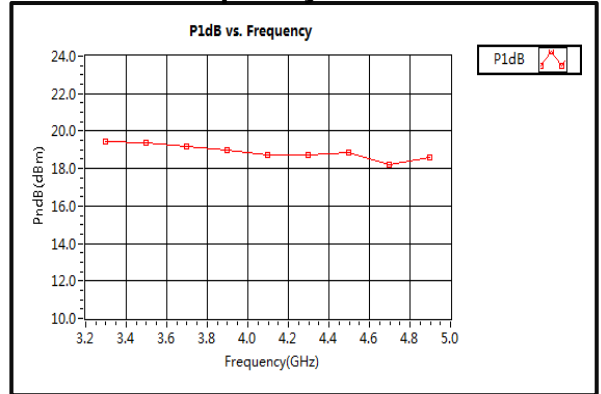
Isolation @+85°C



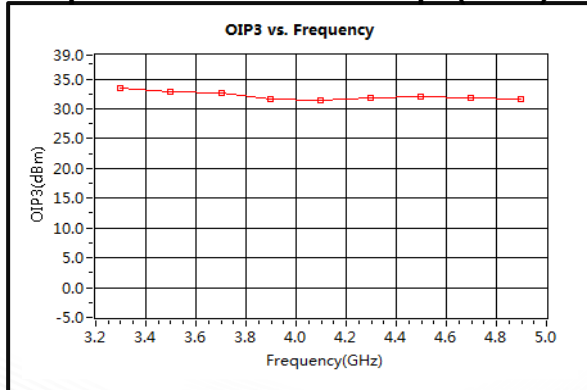
Gain vs. Output Power



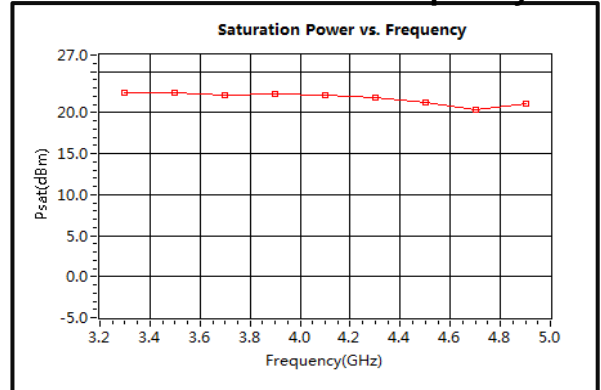
P1dB vs. Frequency



Output Third Order Intercept (OIP3)

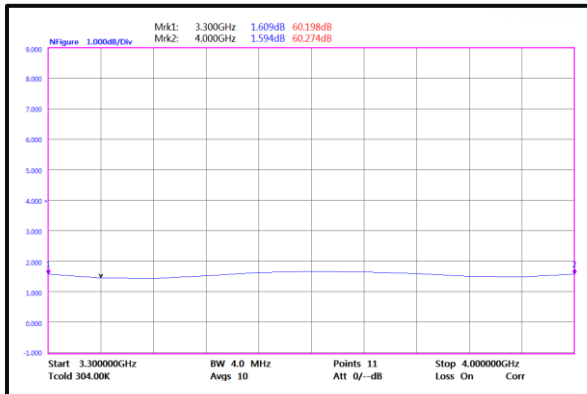


Saturation Power vs. Frequency

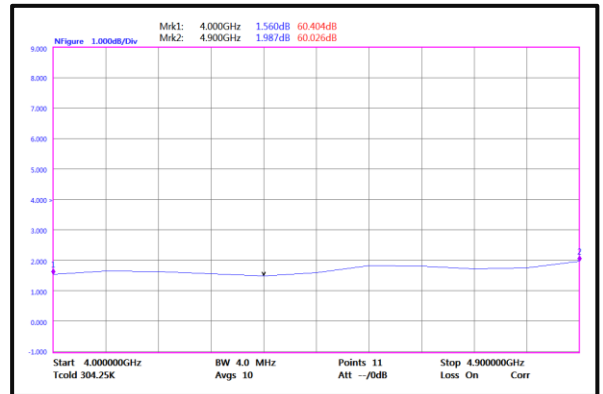




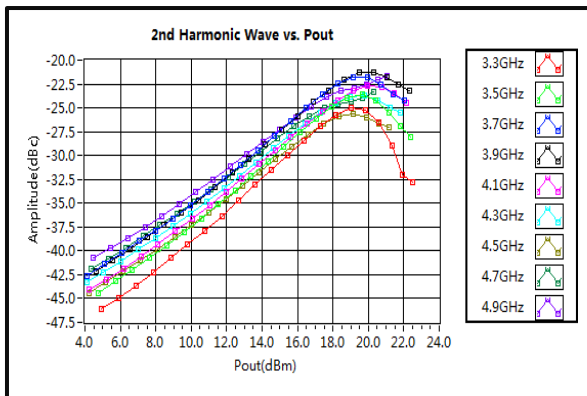
Noise Figure(3.3GHz-4GHz)



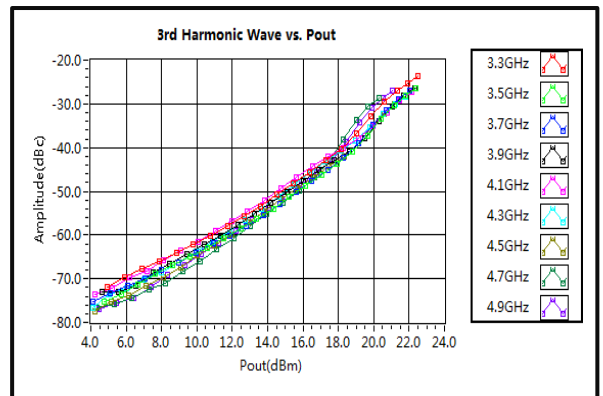
Noise Figure(4GHz-4.9GHz)



2nd Harmonic Wave Output Power



3rd Harmonic Wave Output Power



4th Harmonic Wave Output Power

