

Hermetically Sealed Ultra Wide Band Low Noise Amplifier 0.1GHz~1GHz



Key Features

- Gain: 15dB Typical
- Functional Bandwidth : 100MHz to 4GHz
- Noise Figure: 1.0dB Typical
- P1dB Output Power: +20dBm Typical
- Supply Voltage: +5V

Typical Applications

- Wireless Infrastructure
- Military and Aerospace
- Test and Measurement
- Radar and Satellite
- 5G LTE Communications

Electrical Specifications, TA = +25°C, Vcc = +5V

Parameter	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Frequency Range	0.1		1	1		2	2		4	GHz
Gain	13	15	17		13			11		dB
Gain Flatness		±0.6	±1.0		±1.0			±1.5		dB
Gain Variation Over Temperature (-45 ~ +85)		±0.5	±0.75		±0.5			±0.8		dB
Noise Figure		1.5	2.0		2.0			2.5		dB
Input VSWR		1.5	1.8		2.0			1.8		: 1
Output VSWR		1.5	1.8		2.2			1.8		: 1
Output 1dB Compression Point (P1dB)	19	20			19			17		dBm
Saturated Output Power (Psat)		23			21			19		dBm
Output Third Order Intercept (IP3)		31			27			23		dBm
Supply Current (Vcc=+5V)		70	100		70	100		70	100	mA
Isolation S12		-20			-21			-21		dB
Weight	1.0 Max.									OZ
Impedance	50									Ohms
Input / Output Connectors	SMA - Female									
Finish	Gold Plated									
Material	Aluminum									
Sealing	Hermetically Sealed (Laser Welded)									

Absolute Maximum Ratings

Parameter	Value
Operating Voltage	+5.5V
RF Input Power	+33dBm

Biasing Up Procedure

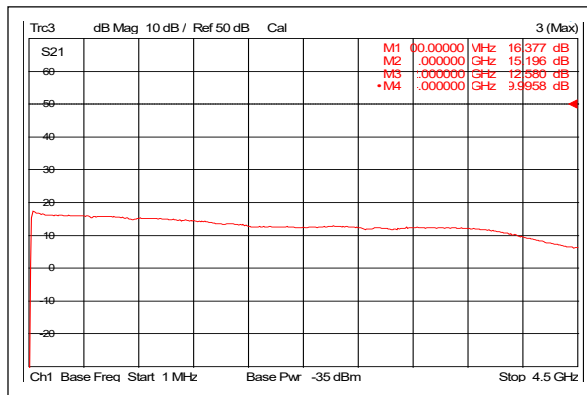
Step 1	Connect Ground Pin
Step 2	Connect input and output
Step 3	Connect +5V biasing
Power OFF Procedure	
Step 1	Turn off +5V biasing
Step 2	Remove RF connection
Step 3	Remove Ground.

Environmental Specifications and Test Standards

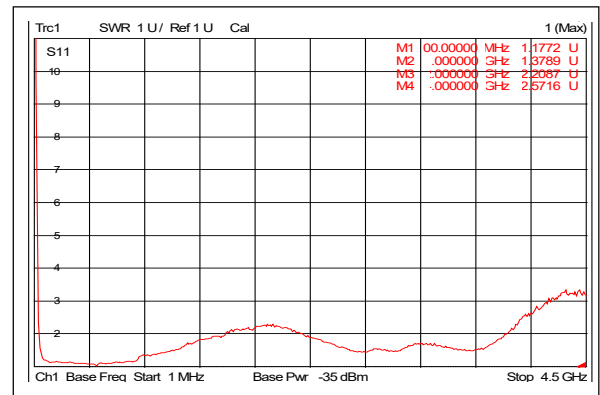
Parameter	Description
Operational Temperature	-40°C to +85°C (Case Temperature)
Storage Temperature	-50°C to +105°C
Thermal Shock	-40°C → +85°C (5 Cycles / 10 hours)
Random Vibration	MIL-STD-202G Table 214-I, Test Condition Letter C 1.5 Hours Per Axis
High Temperature Burn In	Temperature +85°C for 72 Hours
Shock	1. Weight >20g, 50g half sine wave for 11ms, Speed variation 3.44m/s 2. Weight <=20g, 100g Half sine wave for 6ms, Speed variation 3.75m/s 3. Total 18 times (6 directions, 3 repetitions per direction).
Altitude	Standard: 30,000 Ft (Epoxy Sealed Controlled Environment) Optional: Hermetically Sealed (60,000 ft. 1.0 PSI min)
Hermetically Sealed (Optional)	MIL-STD-883 (For Hermetically Sealed Units)

Typical Performance Plots

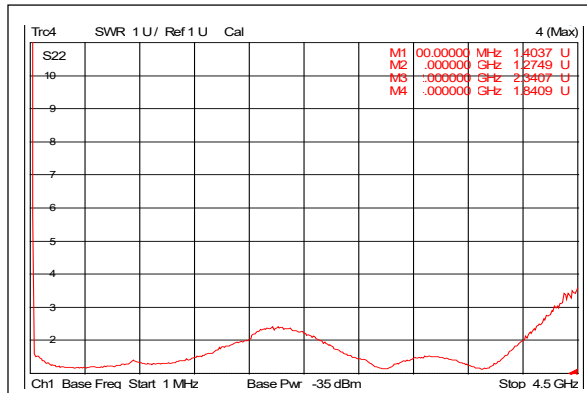
Gain @+25°C



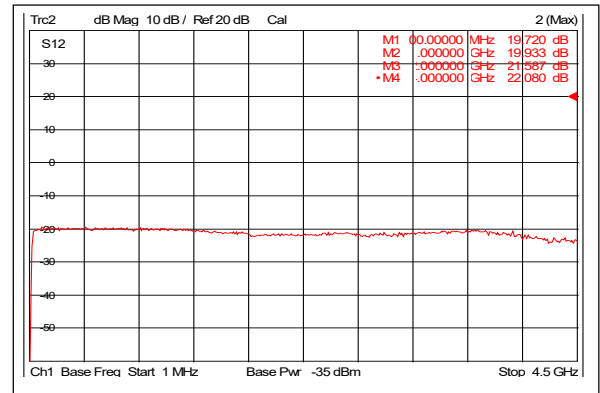
Input VSWR @+25°C



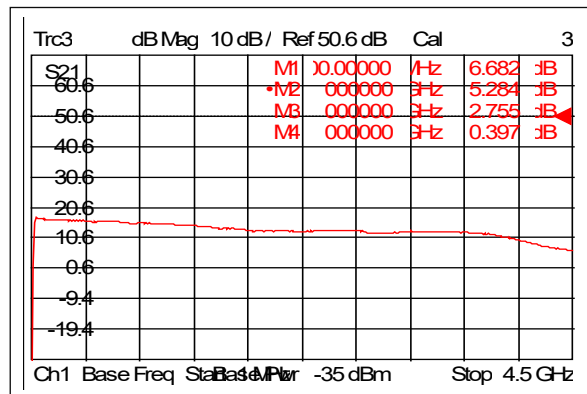
Output VSWR @+25°C



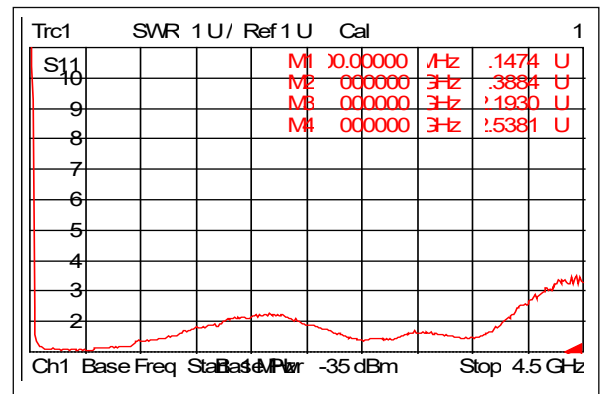
Isolation @+25°C



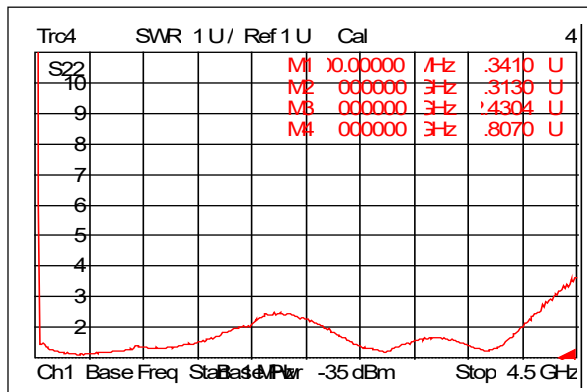
Gain @-40°C



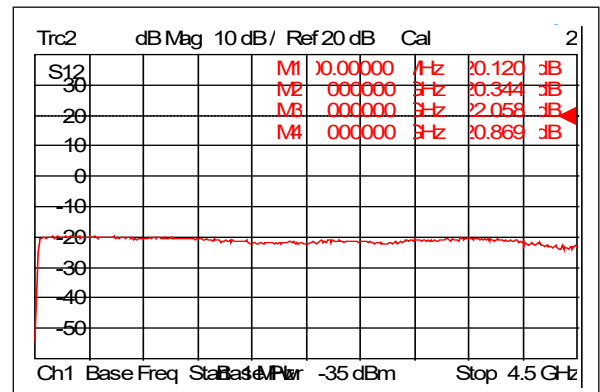
Input VSWR @-40°C



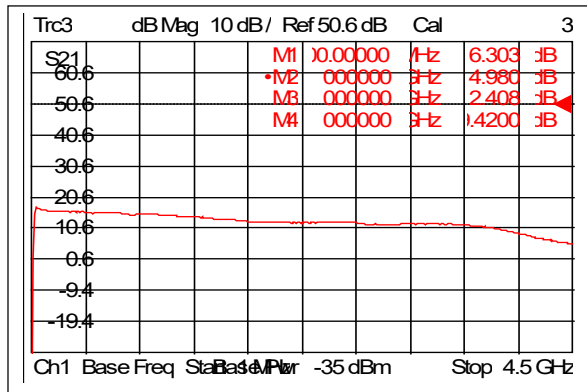
Output VSWR @-40°C



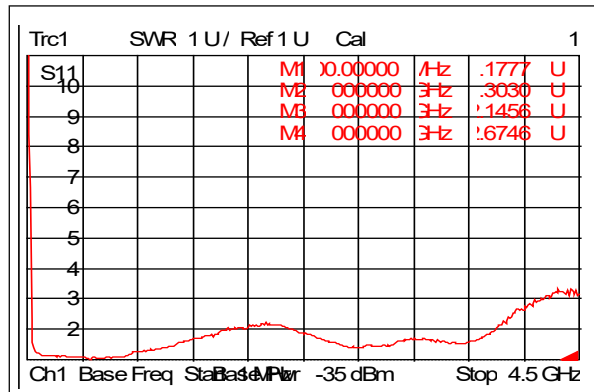
Isolation @-40°C



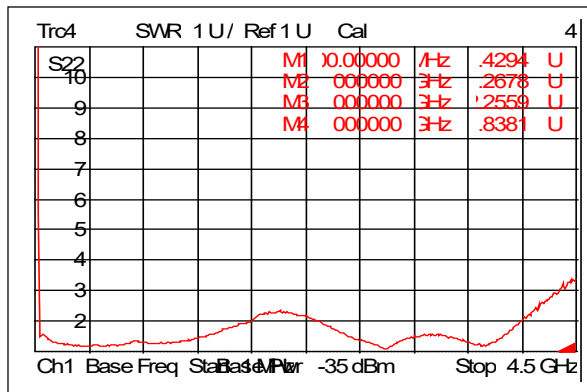
Gain @+85°C



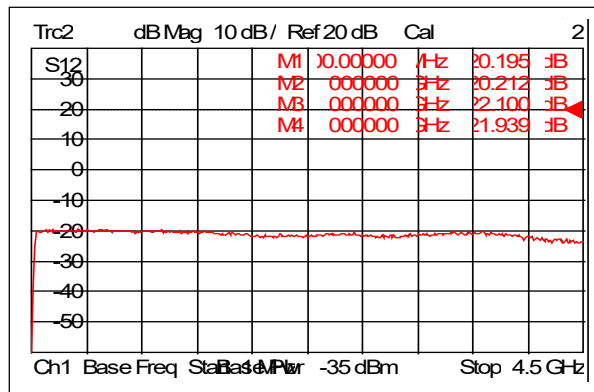
Input VSWR @+85°C



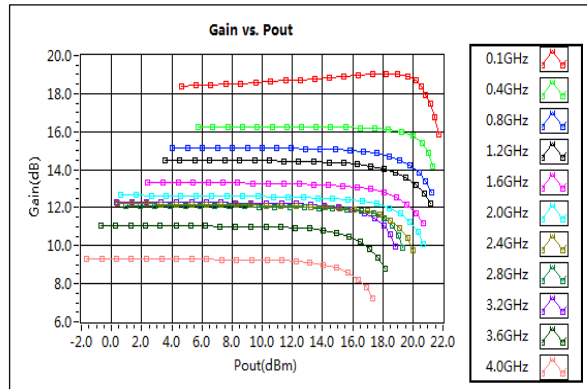
Output VSWR @+85°C



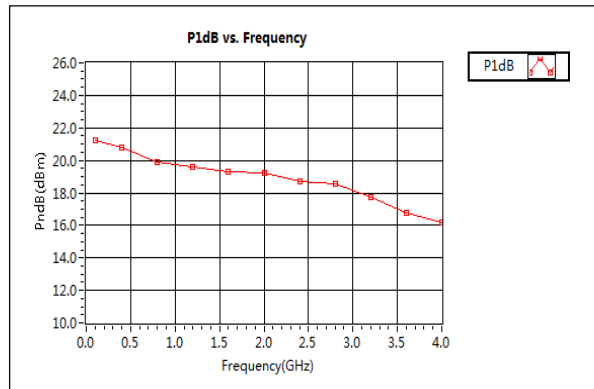
Isolation @+85°C



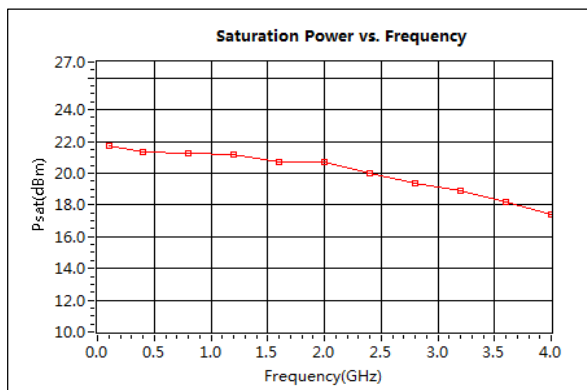
Gain vs. Output Power



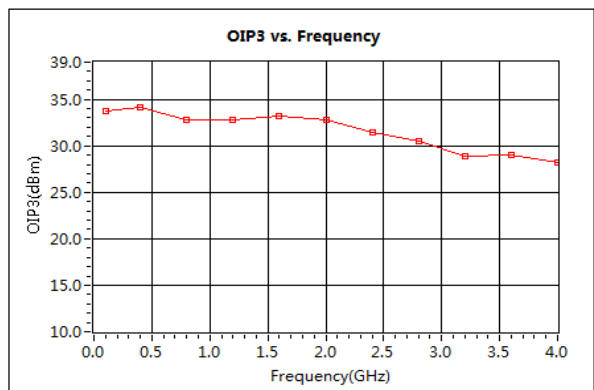
P1dB vs. Frequency



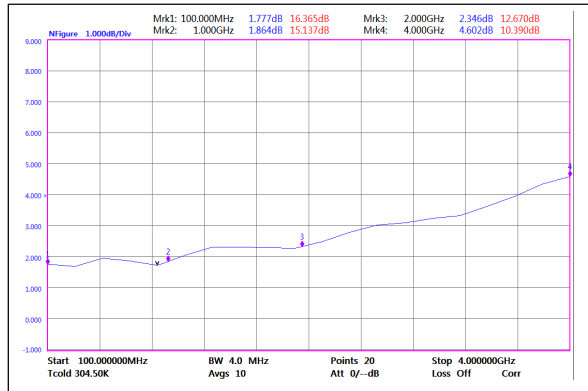
Saturation Power vs. Frequency



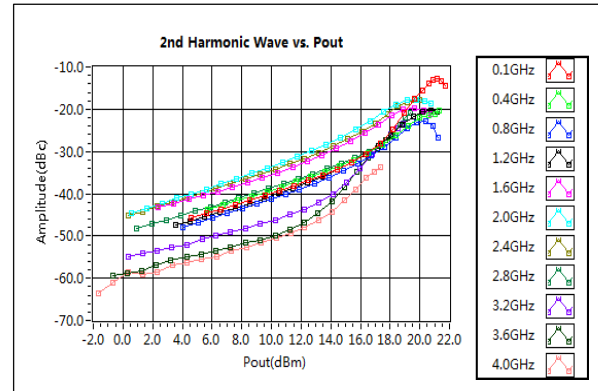
Output Third Order Intercept (IP3)



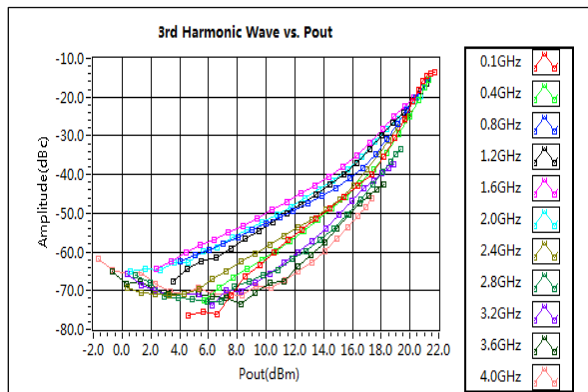
Noise Figure



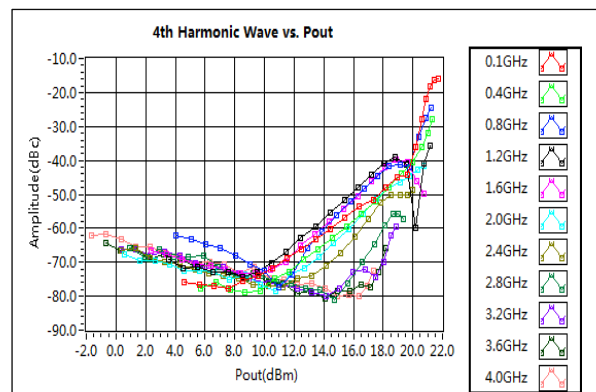
2nd Harmonic Wave Output Power



3rd Harmonic Wave Output Power

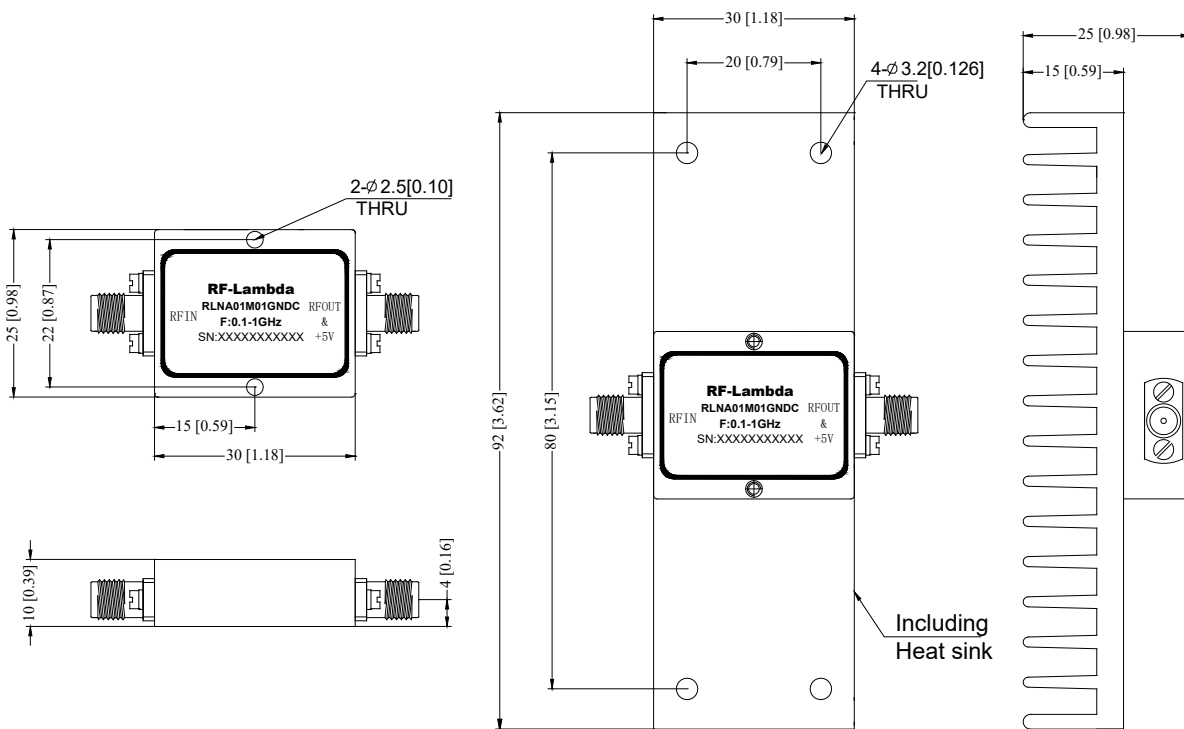


4th Harmonic Wave Output Power



Outline Drawing

All Dimensions in mm [inches]
Housing Tolerances ± 0.1 [0.004]



Notes:

- . Heat Sink required during operation (Sold Separately)
- . Standard torque wrench must be used to secure RF connectors.



Ordering Information

Part Number	Description
RLNA01M01GNDC	0.1-1GHz Low Noise Amplifier

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