



RF-LAMBDA

LEADER OF RF BROADBAND SOLUTIONS

RLNA01G20GA

Ultra Wide Band Low Noise Amplifier 0.05GHz ~ 20GHz



Features

- Gain: 28dB Typical
- Functional Bandwidth : 0.05GHz to 22GHz
- Noise Figure: 1.8dB Typical
- P_{1dB} Output Power: 16dBm Typical
- Supply Voltage: +12V

Typical Applications

- Wireless Infrastructure
- Military & Aerospace
- Test and Measurement

Electrical Specifications, $T_A = +25^\circ\text{C}$, $V_{CC} = +12\text{V}$

Parameter	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Frequency Range	0.05		0.2	0.2		10	10		20	GHz
Gain	26	29		25	29		22	25		dB
Gain Flatness		± 1.0	± 2.0		± 1.0	± 1.5		± 1.0	± 1.5	dB
Gain Variation Over Temperature (-45 ~ +85)		± 0.5			± 0.8			± 1.0		dB
Noise Figure		3.0			1.8	3.5		2.5	4.0	dB
Input VSWR		2.5			1.8	2		1.8	2	: 1
Output VSWR		1.8	2		1.5	1.8		1.5	1.8	: 1
Output 1dB Compression Point (P _{1dB})	16	18		15	17		13	14		dBm
Saturated Output Power (P _{sat})		19			18			16		dBm
Output Third Order Intercept (IP ₃)		26			27			25		dBm
Supply Current (V _{CC} =+12V)		130	180		130	180		130	180	mA
Isolation S ₁₂		-65			-60			-55		dB
Weight	3.17									ounces
Impedance	50									Ohms
Input / Output Connectors	SMA-Female									
Finish	Gold Plated									
Material	Aluminum									
Package Sealing	Epoxy Sealed (Standard)									
	Hermetically Sealed (Optional)									

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Absolute Maximum Ratings

Operating Voltage	+15V
RF Input Power	+2dBm

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 and Test Standards

Parameter	Standard	Description
Operational Temperature	MIL-STD-39016	-45°C~+85°C
Storage Temperature		-55°C~+125°C
Thermal Shock		1 Hour@ -45°C → 1 Hour @ +85°C (5 Cycles)
Random Vibration		Acceleration Spectral Density 6 (m/s) Total 92.6 RMS
Electrical & 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	MIL-STD-883	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)



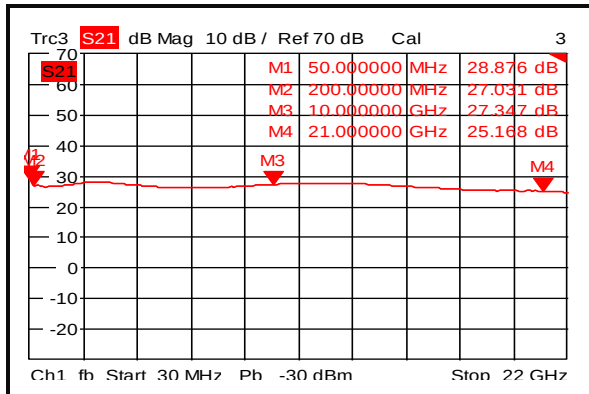
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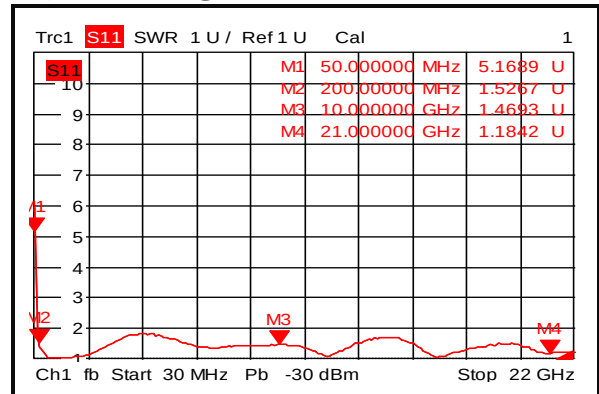
RLNA01G20GA

Typical Performance Plots

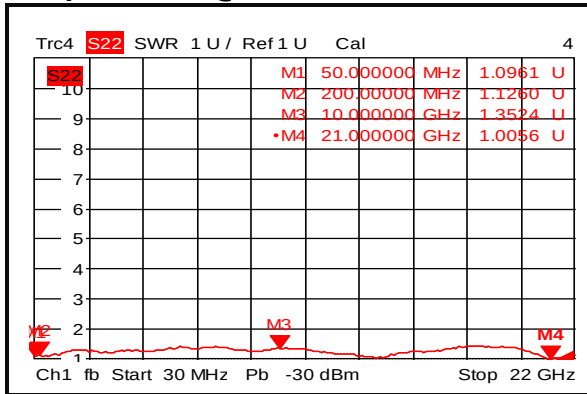
Gain @+25°C



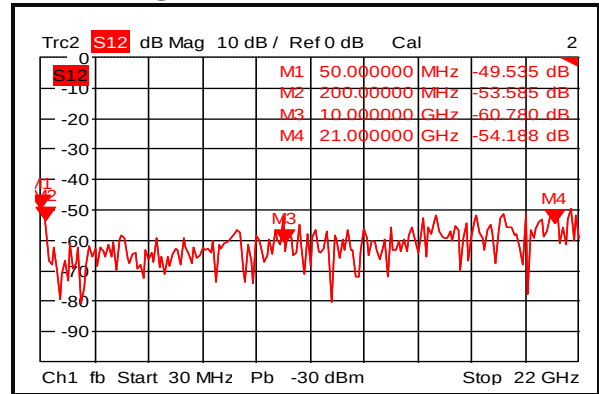
Input VSWR @+25°C



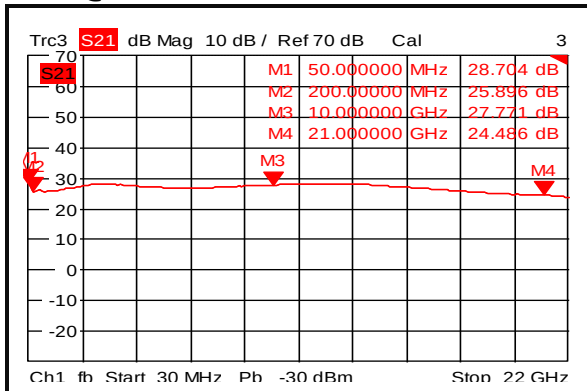
Output VSWR @+25°C



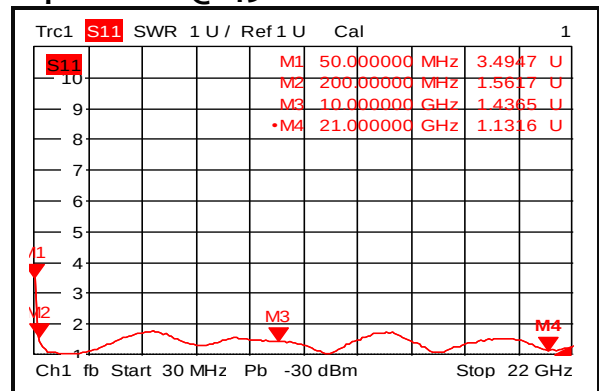
Isolation @+25°C



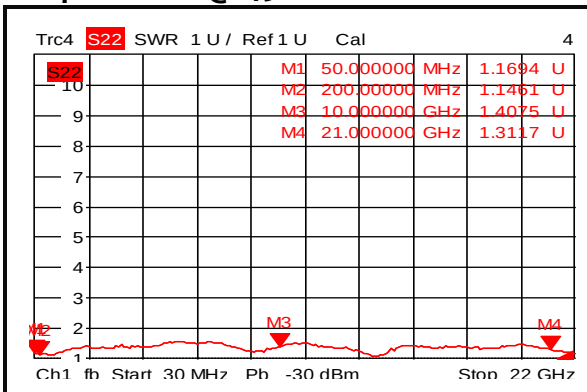
Gain @-45°C



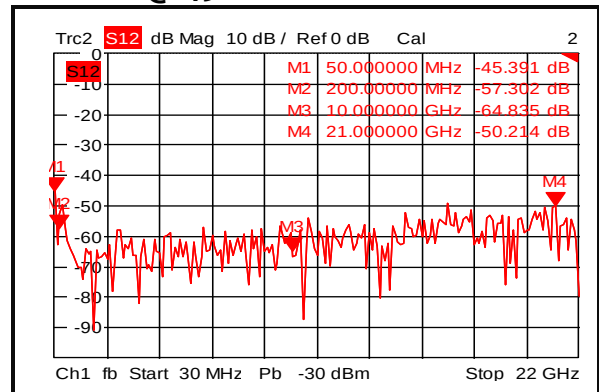
Input VSWR @-45°C



Output VSWR @-45°C



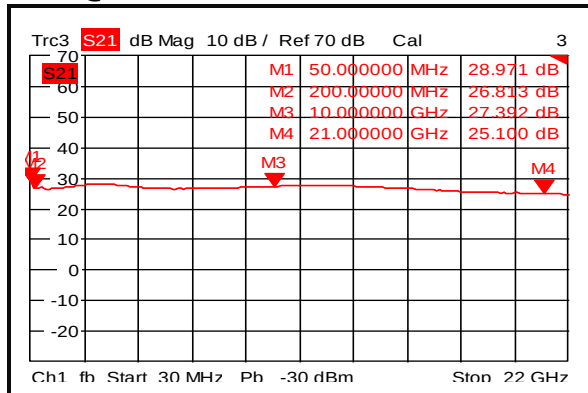
Isolation @-45°C



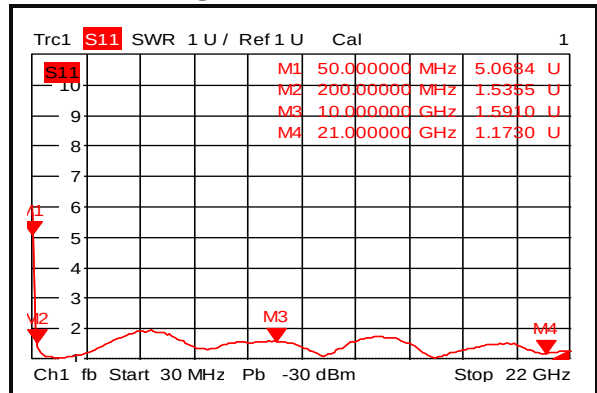
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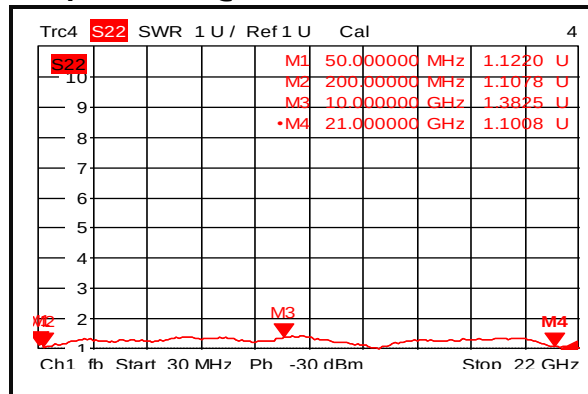
Gain @+85°C



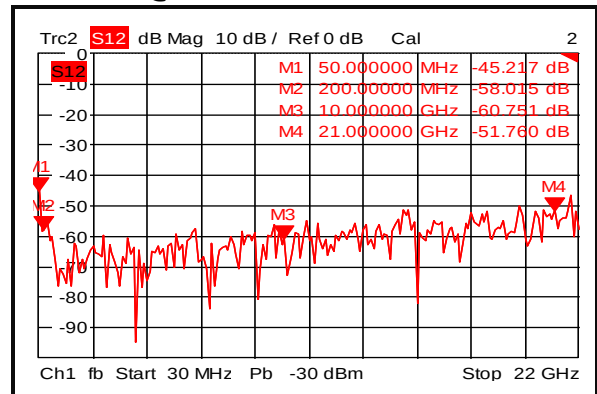
Input VSWR @+85°C



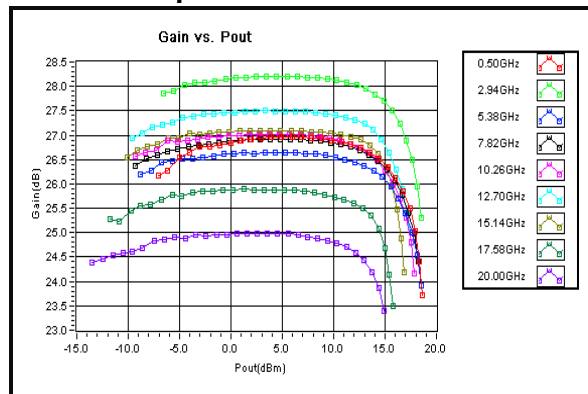
Output VSWR @+85°C



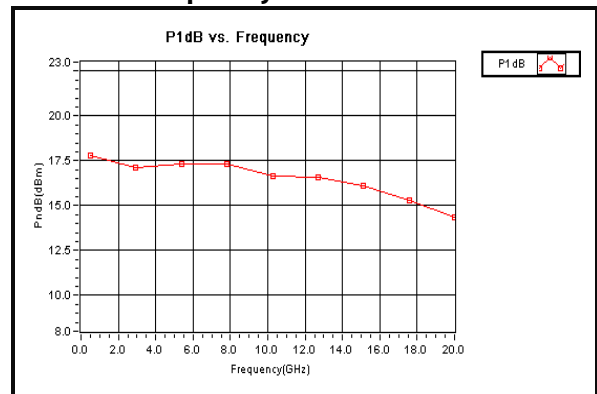
Isolation @+85°C



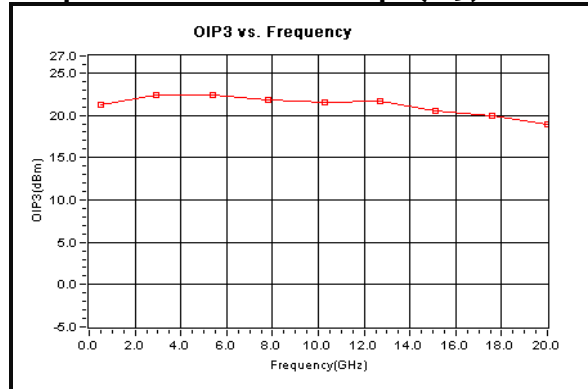
Gain vs. Output Power



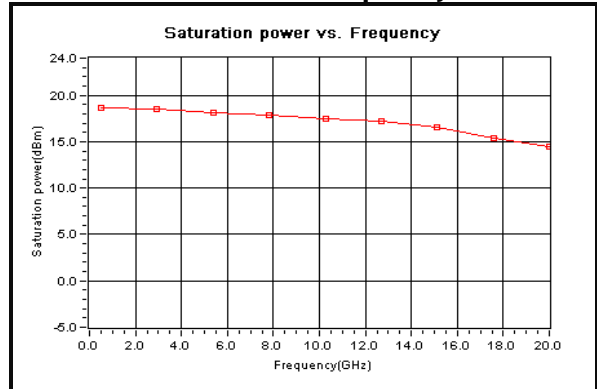
P1dB vs. Frequency



Output Third Order Intercept (IP3)

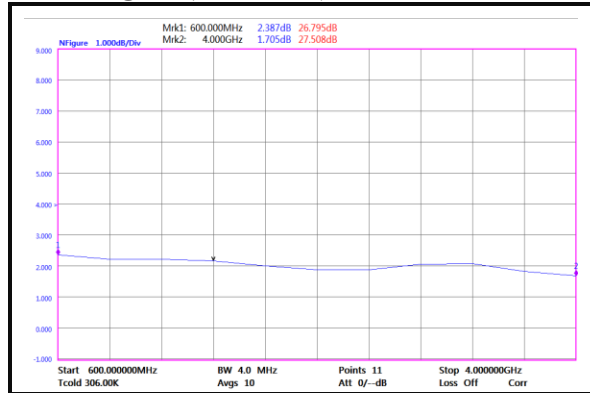


Saturation Power vs. Frequency

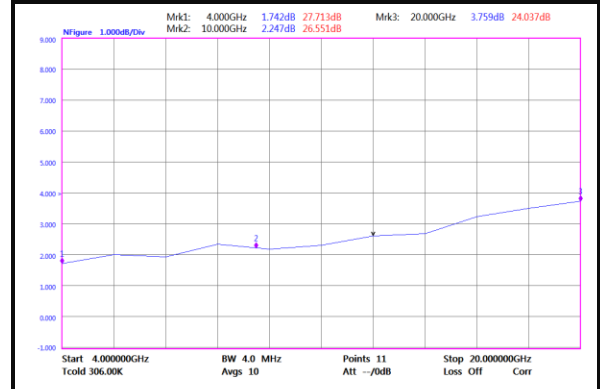




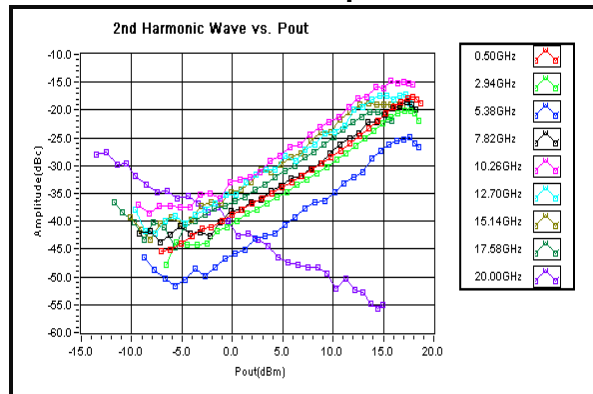
Noise Figure(0.6-4GHz)



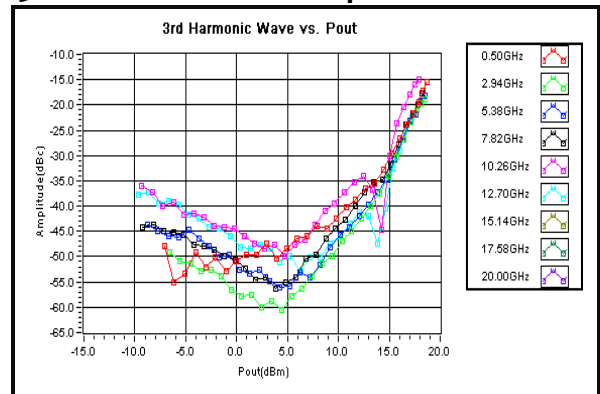
Noise Figure(4-20GHz)



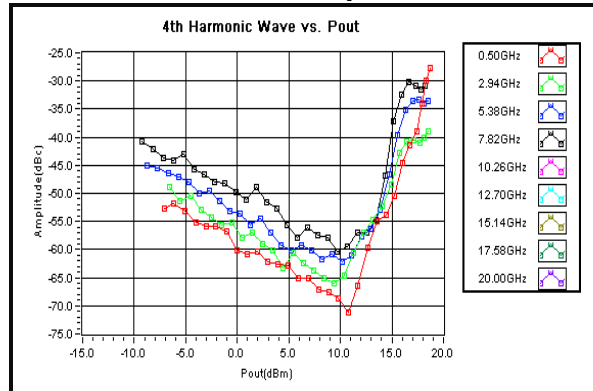
2nd Harmonic Wave Output Power



3rd Harmonic Wave Output Power



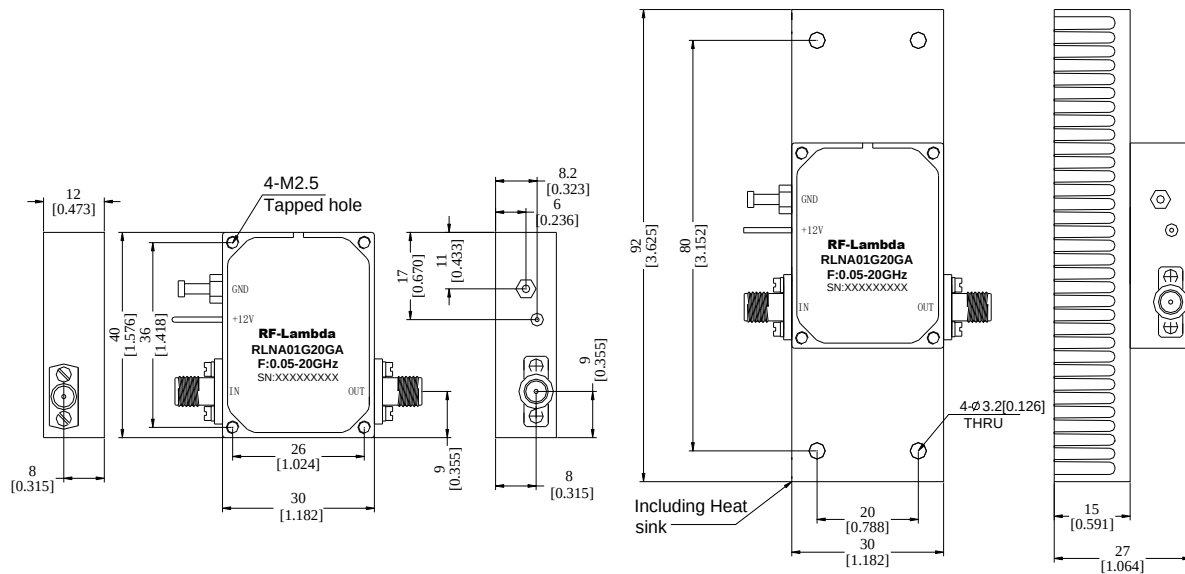
4th Harmonic Wave Output Power





Outline Drawing:

All Dimensions in mm [inches]



Heat Sink required during operation (Sold Separately)



Ordering Information

Part No.	ECCN	Description
RLNA01G20GA	EAR99	0.05-20GHz Low Noise Amplifier

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