



RF-LAMBDA

LEADER OF RF BROADBAND SOLUTIONS

RLNA08G12G51

Wide Band Ultra Low Noise Amplifier 8GHz~12GHz



Features

- Gain: 55dB Typical
- Noise Figure: 1.1dB Typical
- P1dB Output Power: +17dBm Typical
- Supply Voltage: +15V

Typical Applications

- Wireless Infrastructure
- Military & Aerospace
- Test and Measurement

Electrical Specifications, $T_A = +25^{\circ}\text{C}$, $V_{CC} = +15\text{V}$

Parameter	Min.	Typ.	Max.	Units
Frequency Range	8		12	GHz
Gain	50	55		dB
Gain Flatness		± 1.0	± 2.0	dB
Gain Variation Over Temperature (-45 ~ +85)		± 1.0		dB
Noise Figure	1.0	1.2	1.4	dB
Input VSWR		1.5	2.0	: 1
Output VSWR		1.6	2.0	: 1
Output 1dB Compression Point (P1dB)	15	17		dBm
Saturated Output Power (Psat)		18		dBm
Output Third Order Intercept (IP3)		20		dBm
Supply Current ($V_{CC}=+15\text{V}$)		165	200	mA
Isolation S12		-65		dB
Weight	1.76			ounces
Impedance	50			Ohms
Input / Output Connectors	SMA or 2.92-Female			
Finish	Gold Plated			
Material	Aluminum			
Package Sealing	Epoxy Sealed (Standard)			
	Hermetically Sealed (Optional)			

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Absolute Maximum Ratings

Operating Voltage	+12V~+15V
RF Input Power	-15dBm

Biasing Up Procedure

Step 1	Connect Ground Pin
Step 2	Connect input and output
Step 3	Connect +15V biasing
Power OFF Procedure	
Step 1	Turn off +15V 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		Standard: 30,000 Ft (Epoxy Sealed Controlled Environment) Optional: Hermetically Sealed (60,000 ft. 1.0 PSI min)
Hermetically Sealed (Optional)	MIL-STD-883	MIL-STD-883 (For Hermetically Sealed Units)



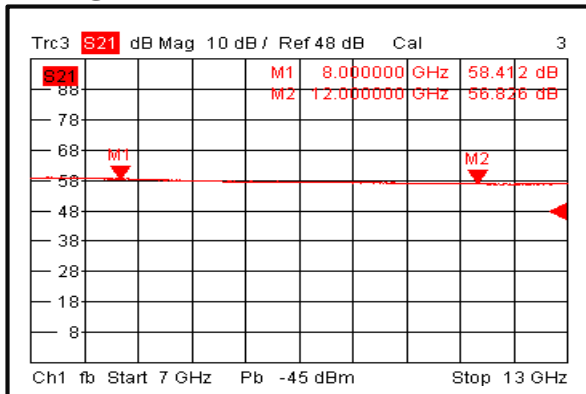
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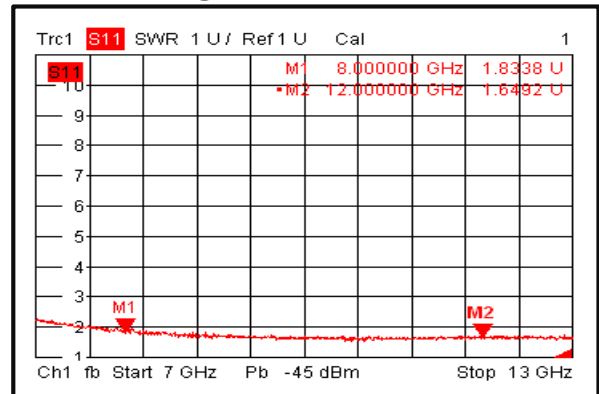
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Typical Performance Plots

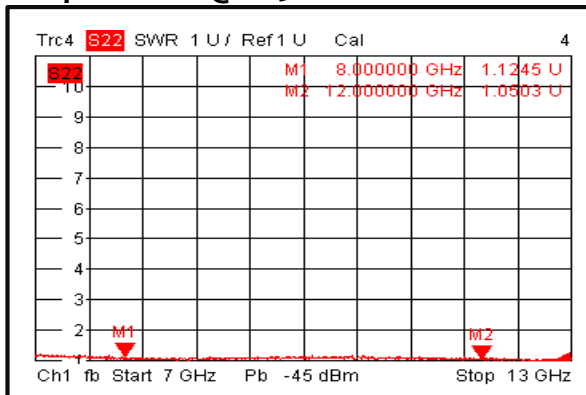
Gain @ +25°C



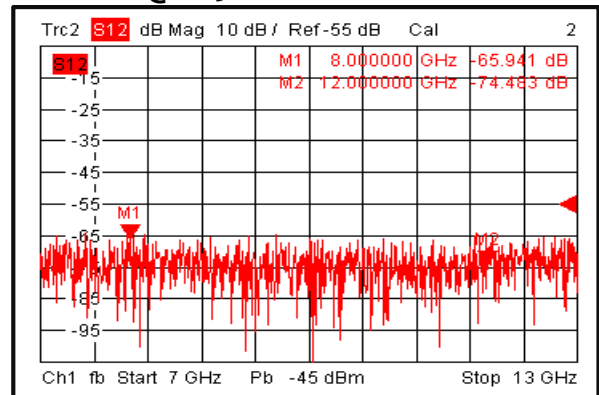
Input VSWR @ +25°C



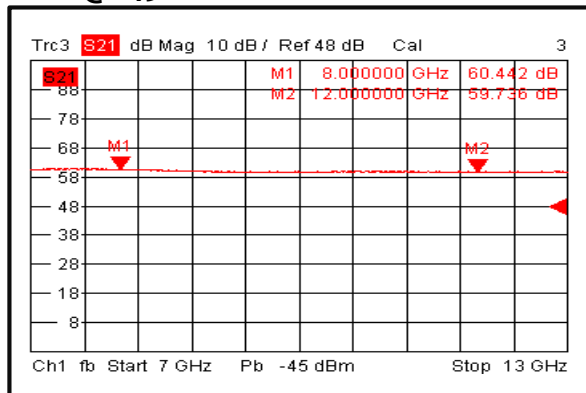
Output VSWR @ +25°C



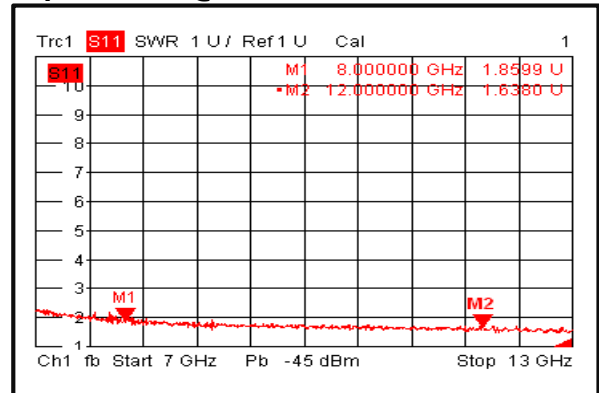
Isolation @ +25°C



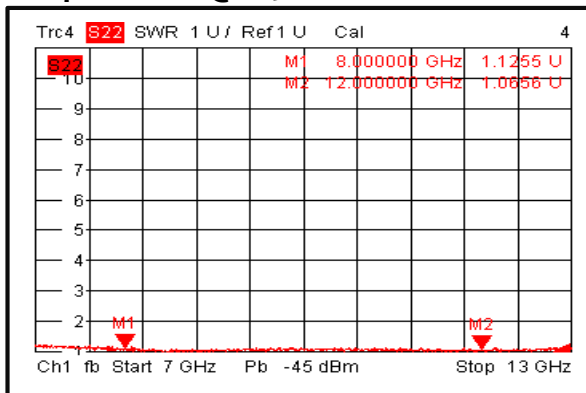
Gain @ -45°C



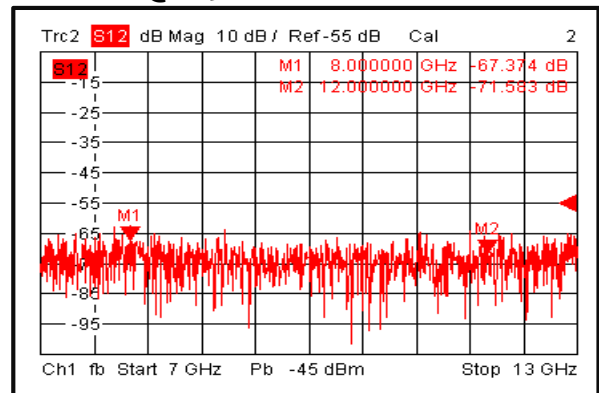
Input VSWR @ -45°C



Output VSWR @ -45°C



Isolation @ -45°C



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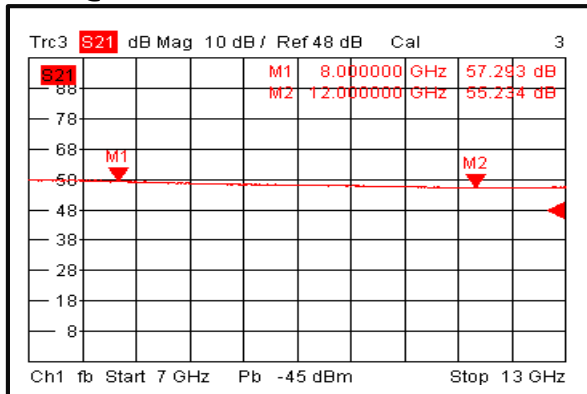
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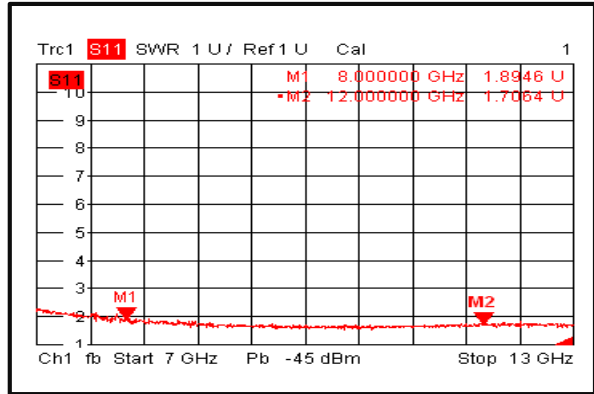
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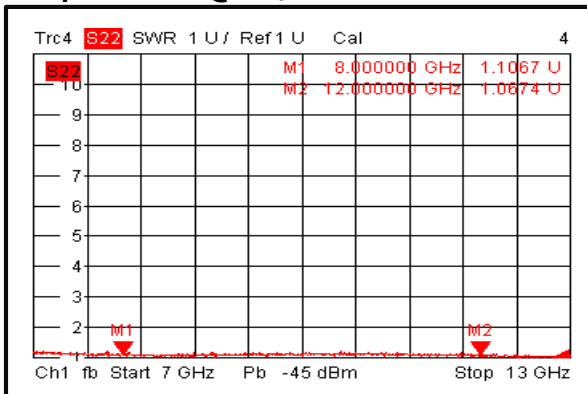
Gain @ +85°C



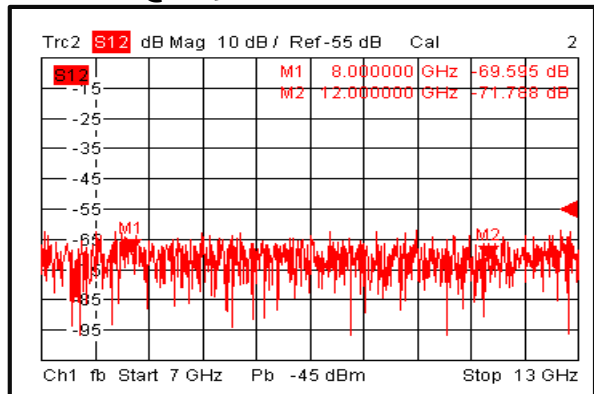
Input VSWR @ +85°C



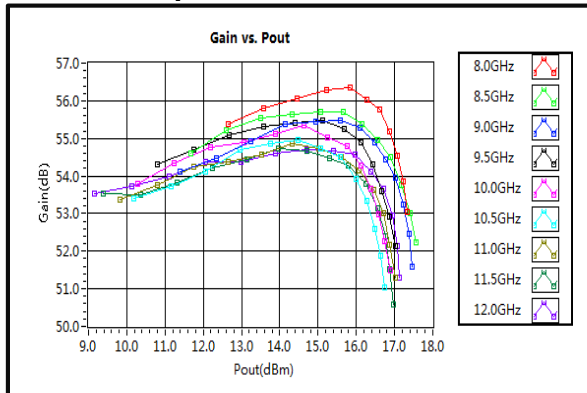
Output VSWR @ +85°C



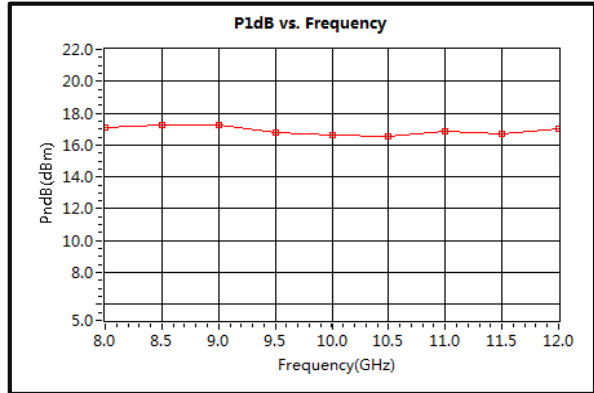
Isolation @ +85°C



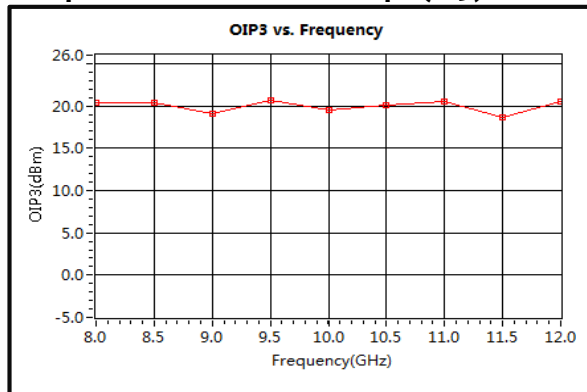
Gain vs. Output Power



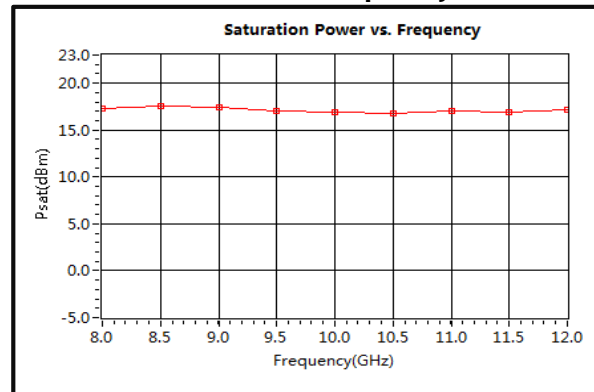
P1dB vs. Frequency



Output Third Order Intercept (IP3)

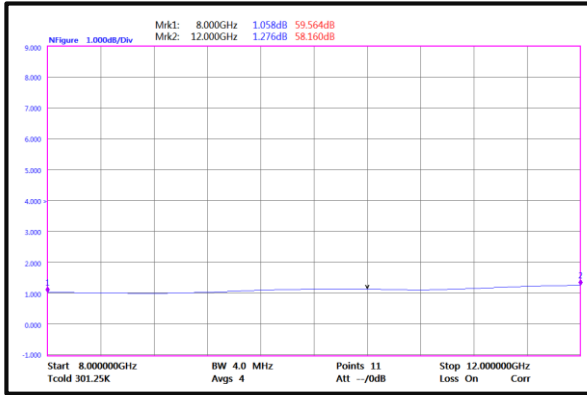


Saturation Power vs. Frequency

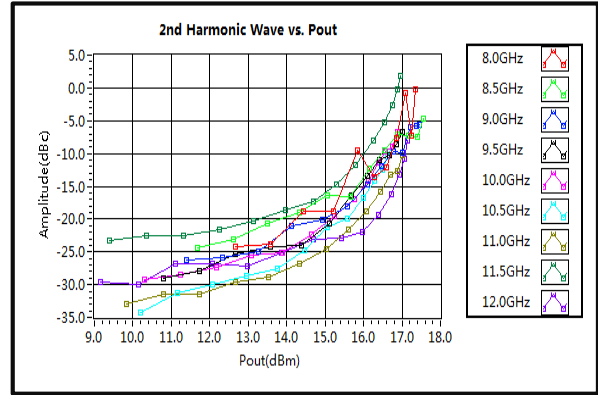




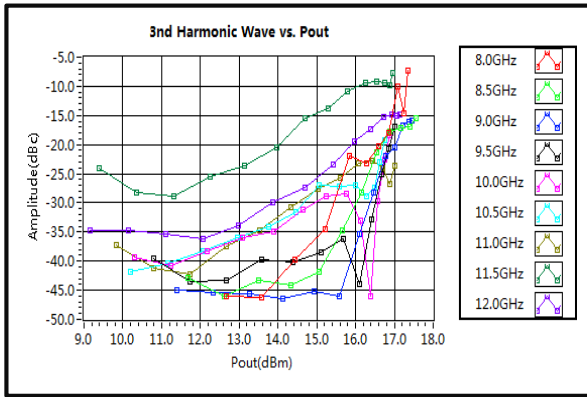
Noise Figure



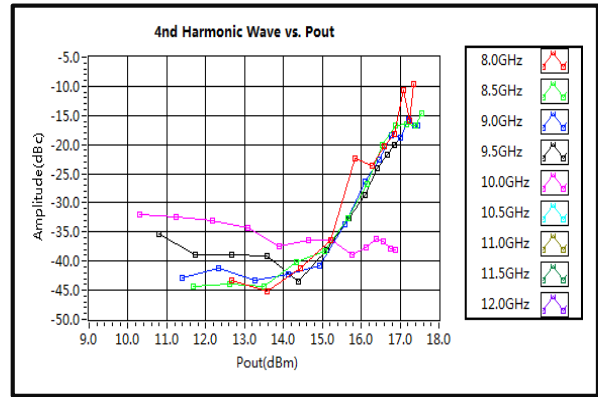
2nd Harmonic Wave Output Power



3rd Harmonic Wave Output Power



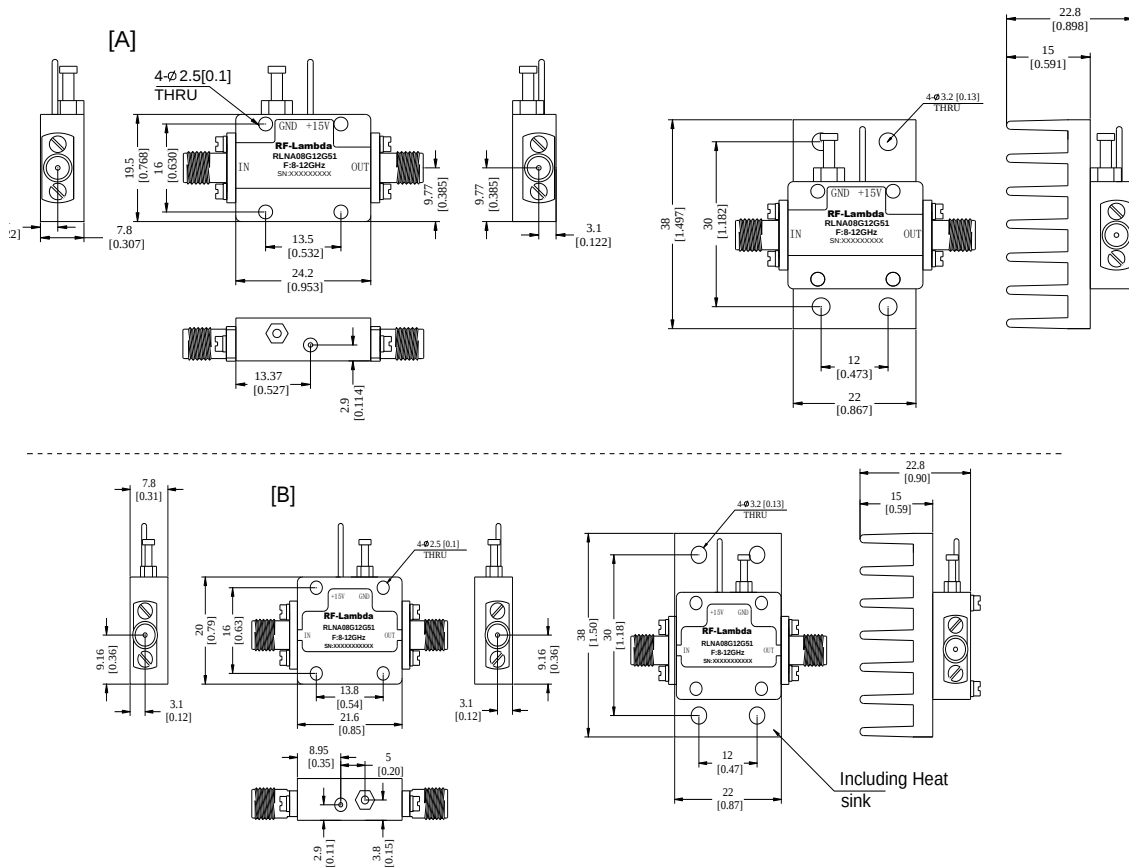
4th Harmonic Wave Output Power





Outline Drawing:

All Dimensions in mm [inches]



Heat Sink required during operation (Sold Separately)



Ordering Information

Part No.	ECCN	Description
RLNA08G12G51	EAR99	8-12GHz Wide Band Ultra Low Noise Amplifier

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