



RF-LAMBDA

LEADER OF RF BROADBAND SOLUTIONS

R01G12GSA

Ultra Wide Band Low Noise Amplifier 1GHz~12GHz



Features

- Gain: 17dB Typical
- Noise Figure: 2.0dB Typical
- P1dB Output Power: +18dBm Typical
- Supply Voltage: +5V

Typical Applications

- Wireless Infrastructure
- RF Microwave & VSAT
- Military & Aerospace
- Test Instrument

Electrical Specifications, TA = +25°C, Vdd = +5V, Vgg = -5V

Parameter	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Frequency Range	1		6	6		12	GHz
Gain	15	17		14	16		dB
Gain Flatness		±0.8			±0.8		dB
Gain Variation Over Temperature (-45°C~+85°C)		±0.6			±0.6		dB
Noise Figure		1.6	2.2		2.0	2.5	dB
Input VSWR		1.5			1.6		: 1
Output VSWR		1.4			1.4		: 1
Output 1dB Compression Point (P1dB)	15	18		12	16		dBm
Saturated Output Power (Psat)		19			15		dBm
Output Third Order Intercept (IP3)		23			27		dBm
Supply Current (Vdd=+5V)		70	85		70	85	mA
Isolation S12		-25			-27		dB
Weight	0.35						Ounces
Impedance	50						Ohms
Input / Output Connectors	SMA-Female						
Finish	Standard: Gold 40 micron; Nickel 220 micron thickness						
	Option: Gold 80 micron; Nickel 180 micron thickness						
Material	Aluminum						
Package Sealing	Epoxy Sealing (Standard)						
	Hermetically Sealed (Optional)						

Ultra Wide Band Low Noise Amplifier 1GHz ~ 12GHz



Absolute Maximum Ratings

Operating Voltage	+5.5V
RF Input Power	+12dBm

Biasing Up Procedure

Step 1	Connect Ground Pin
Step 2	Connect input and output
step3	Connect -5V biasing
Step 4	Connect +5V biasing
Power OFF Procedure	
Step 1	Turn off +5V biasing
Step 2	Turn off -5V biasing
Step 3	Remove RF connection
Step 4	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)



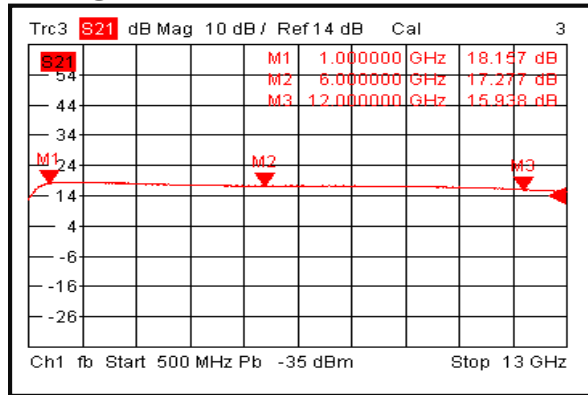
RF-LAMBDA

LEADER OF RF BROADBAND SOLUTIONS

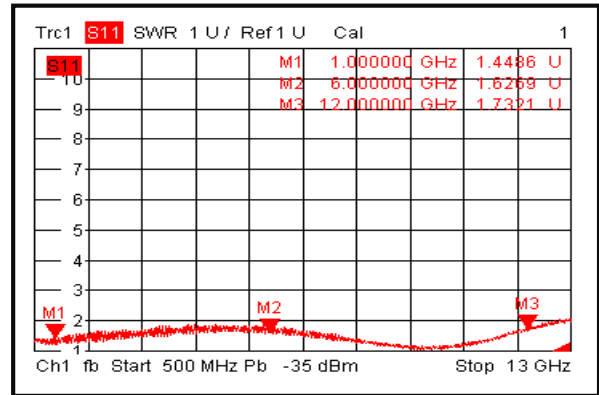
R01G12GSA

Typical Performance Plots

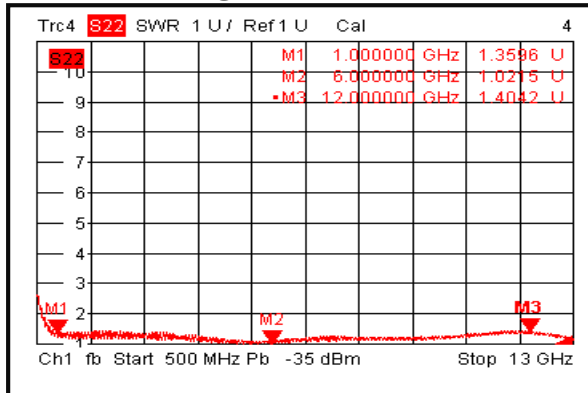
Gain @+25°C



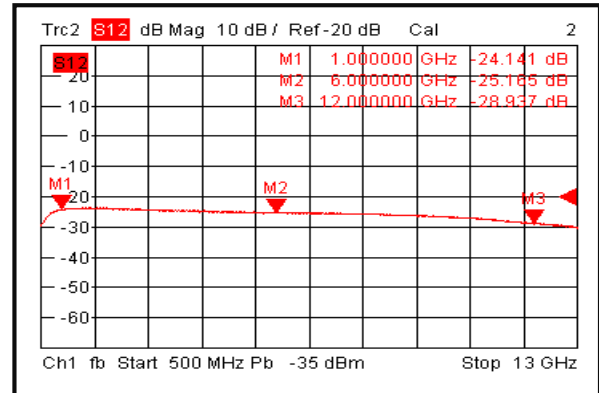
Input VSWR @+25°C



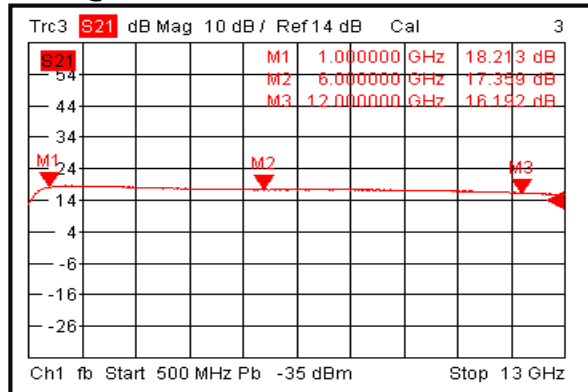
Output VSWR @+25°C



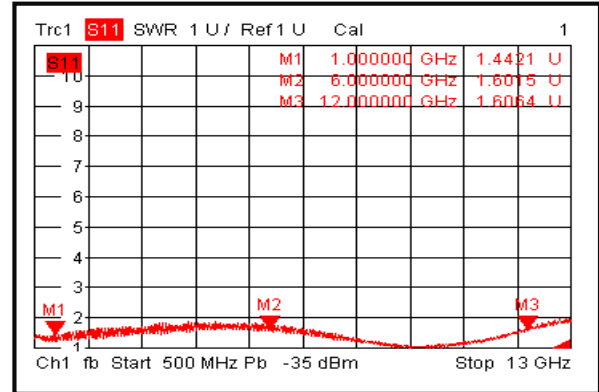
Isolation @+25°C



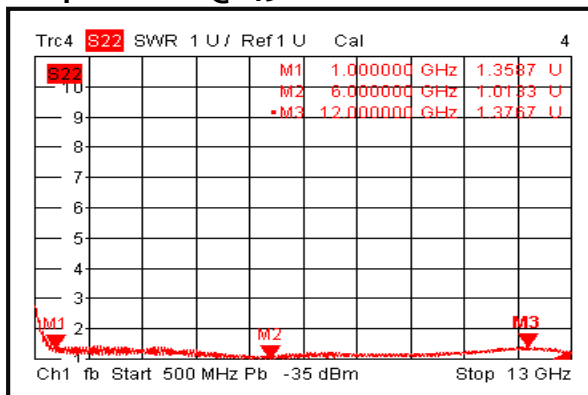
Gain @-45°C



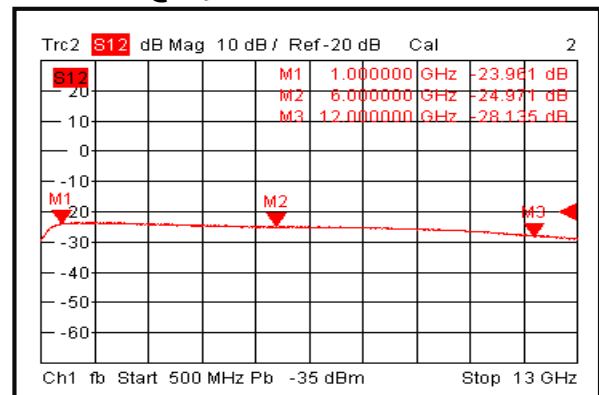
Input VSWR @-45°C



Output VSWR @-45°C



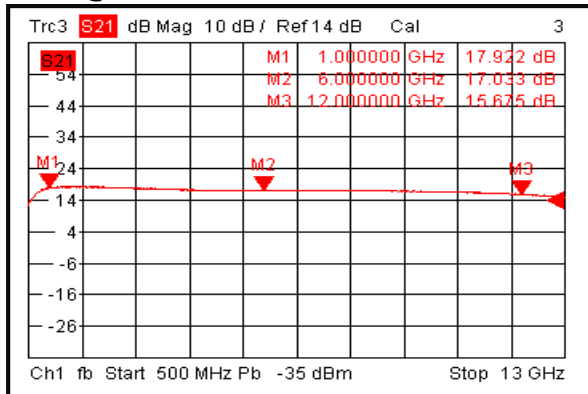
Isolation @-45°C



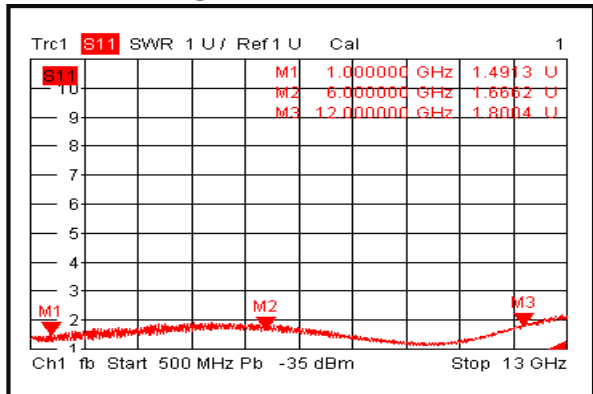
Ultra Wide Band Low Noise Amplifier 1GHz ~ 12GHz



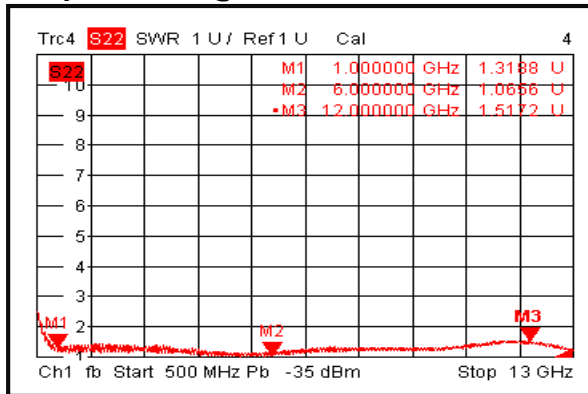
Gain @+85°C



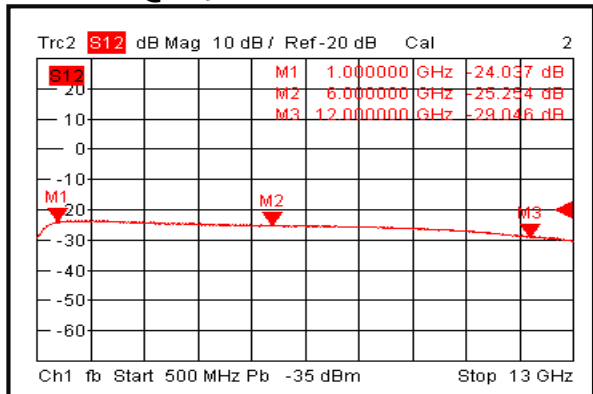
Input VSWR @+85°C



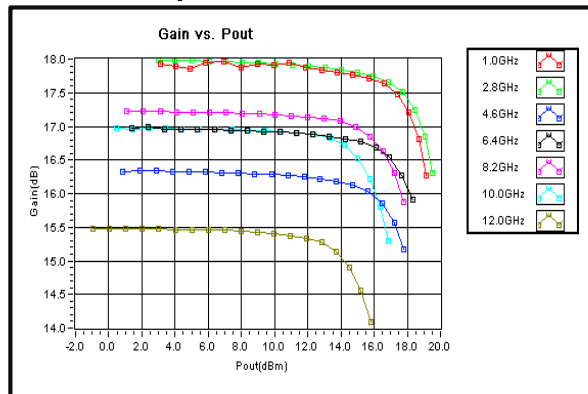
Output VSWR @+85°C



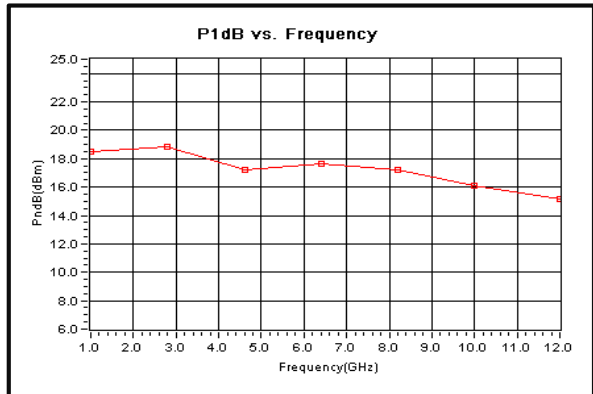
Isolation @+85°C



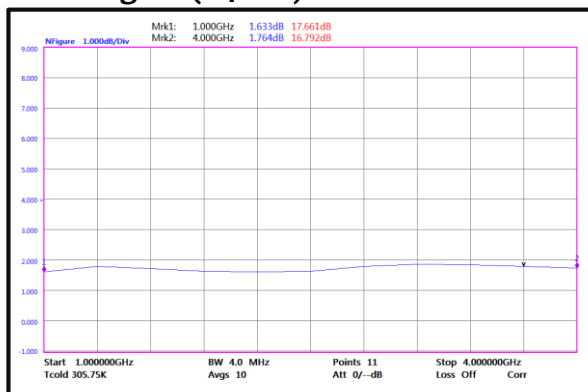
Gain vs. Output Power



P1dB vs. Frequency



Noise Figure (1-4GHz)

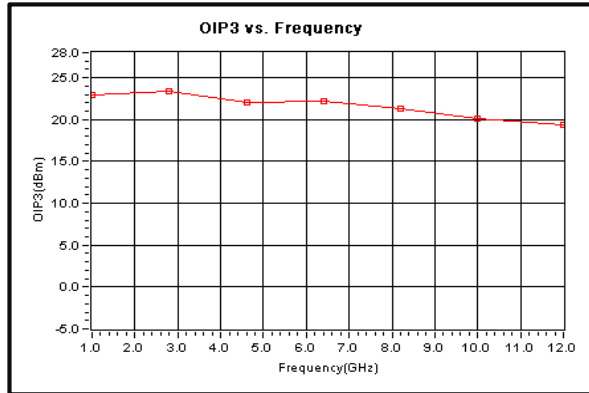


Noise Figure (4-12GHz)

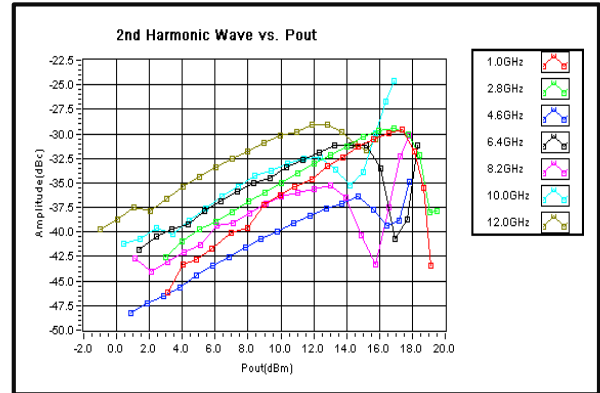




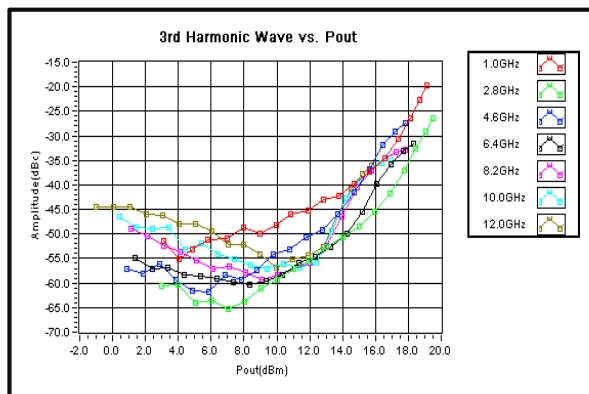
Output Third Order Intercept (IP₃)



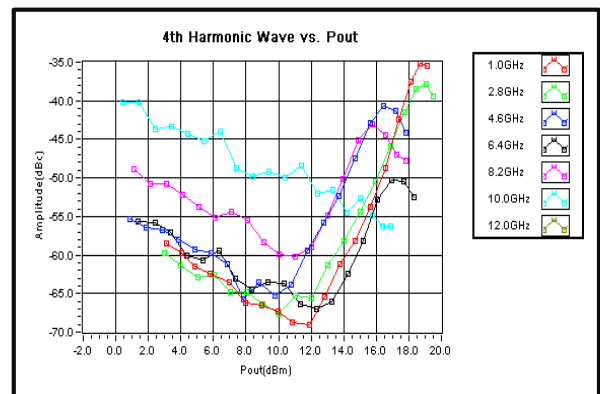
2nd Harmonic Wave Output Power



3rd Harmonic Wave Output Power



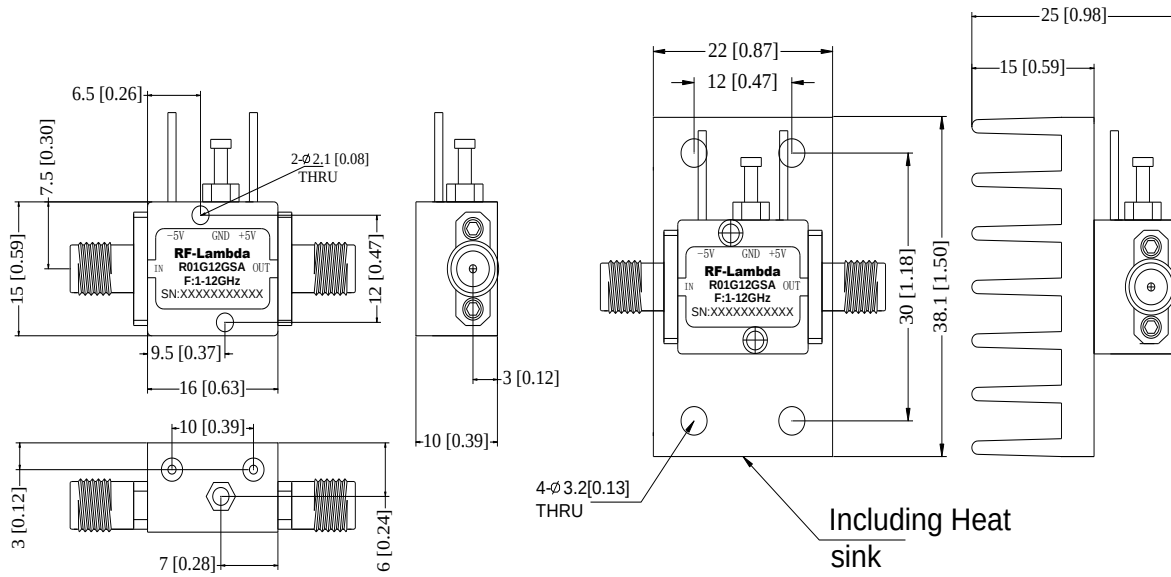
4th Harmonic Wave Output Power





Outline Drawing:

All Dimensions in mm [inches]



Heat Sink required during operation (Sold Separately)



Ordering Information

Part No.	ECCN	Description
R01G12GSA	EAR99	1-12GHz Low Noise Amplifier

Important Notice

The information contained herein is believed to be reliable. RF-Lambda makes no warranties regarding the information contained herein. RF-Lambda assumes no responsibility or liability whatsoever for any of the information contained herein. RF-Lambda assumes no responsibility or liability whatsoever for the use of the information contained herein. The information contained herein is provided "AS IS, WHERE IS" and with all faults, and the entire risk associated with such information is entirely with the user. All information contained herein is subject to change without notice. Customers should obtain and verify the latest relevant information before placing orders for RF-Lambda products. The information contained herein or any use of such information does not grant, explicitly or implicitly, to any party any patent rights, licenses, or any other intellectual property rights, whether with regard to such information itself or anything described by such information. RF-Lambda products are not warranted or authorized for use as critical components in medical, life-saving, or life sustaining applications, or other applications where a failure would reasonably be expected to cause severe personal injury or death.