



### Ultra Wide Band Low Noise Amplifier 0.03GHz~65GHz



#### Features

- Output power +23dBm typical
- Low Noise Figure 5.0dB typical.
- No External Matching Required
- Applicable for base stations and repeaters.
- Aerospace and military applications
- LMDS multi-carrier operation
- High peak to average handling capability
- All specifications can be modified upon request

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

Parameter	Min	Typ	Max	Min	Typ	Max	Units
Frequency Range	0.03~40			40~65			GHz
Gain	26	28	35	16	20	29	dB
Gain Variation Over Temperature		0.5	0.8		0.5	0.8	dB
Noise Figure	3.9	5.0	6.9				dB
Input VSWR	1.0	1.6	2.3	1.0	1.4	2.1	: 1
Output VSWR	1.0	1.4	1.8	1.0	1.5	2.3	: 1
Output 1dB Compression Point (P1dB)	14	16	24				dBm
Saturated Output Power (Psat)	21	22	24				dBm
Supply Current ( $V_{CC} = +12\text{V}$ )	400	410		400	410		mA
Maximum Input Power	P1dB - Gain			P1dB - Gain			dBm
Weight	145						g
Impedance	50						Ohms
Input / Output Connectors	1.85-Female						
Finishing	Gold plating						
Material	Aluminum / Copper						

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# RF-LAMBDA

The power beyond expectations

RLNA00M65GC

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Absolute Maximum Ratings	
Supply Voltage	+12 VDC
RF Input Power (RFIN)	P1dB - Gain
Storage Temperature (C°)	-50 to +125

Note: Maximum RF input power is set to assure safety of amplifier. Input power may be increased at own risk to achieve full power of amplifier. Please reference gain and power curves

Biasing Up Procedure	
Step 1	Connect input and output with 50 Ohm source and load with in band return loss better than 10dB.
Step 2	Connect Ground Pin
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	
Operational Temperature (C°)	-45 ~ +85(Case Temperature must be less than 85C all time)
Altitude	30,000 ft. (Epoxy Seal Controlled environment)
	60,000 ft 1.0psi min (Hermetically Seal Un-controlled environment) ( Optional )
Vibration	25g rms (15 degree 2KHz) endurance, 1 hour per axis
Humidity	100% RH at 35c, 95%RH at 40°c
Shock	20G for 11msec half sine wave,3 axis both directions

Ordering Information	
Part No.	Description
RLNA00M65GC	0.03GHz~65GHz Low Noise Amplifier

## Amplifier Use

Ensure that the amplifier input and output ports are safely terminated into a proper 50 ohm load before turning on the power. Never operate the amplifier without a load. A proper 50 ohm load is defined as a load with impedance less than 1.9:1 or return loss larger than 10dB relative to 50 Ohm within the specified operating band width.

### Power Supply Requirements

Power supply must be able to provide adequate current for the amplifier. Power supply should be able to provide 1.5 times the typical current or 1.2 times the maximum current (whichever is greater).

In most cases, RF - Lambda amplifiers will withstand severe mismatches without damage. However, operation with poor loads is discouraged. If prolonged operation with poor or unknown loads is expected, an external device such as an isolator or circulator should be used to protect the amplifier.

Ensure that the power is off when connecting or disconnecting the input or output of the amp.

Prevent overdriving the amplifier. Do not exceed the recommended input power level.

Adequate heat-sinking required for RF amplifier modules. Please inquire.

Amplifiers do not contain Thermal protection, Reverse DC polarity or Over voltage protection with the exception of a few models. Please inquire.

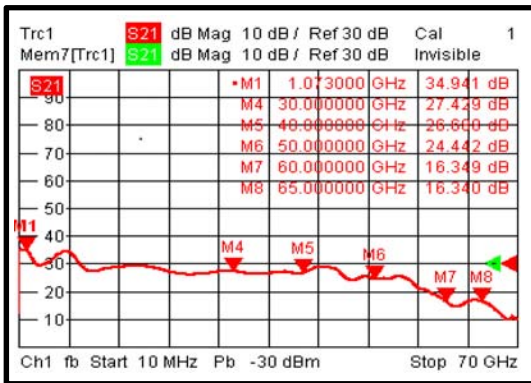
Proper electrostatic discharge (ESD) precautions are recommended to avoid performance degradation or loss of functionality.

What is not covered with warranty?

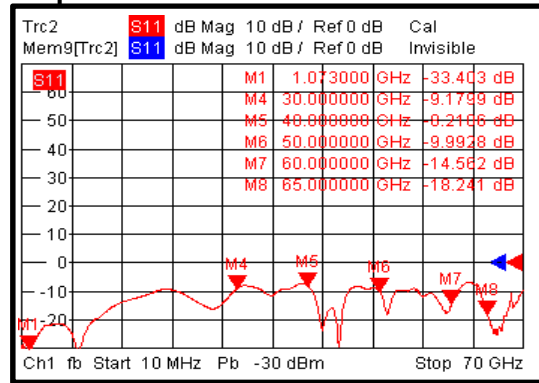
Each RF - Lambda amplifier will go through power and temperature stress testing. Since the die, ICs or MMICs are fragile, these are not covered by warranty. Any damage to these will NOT be free to repair.



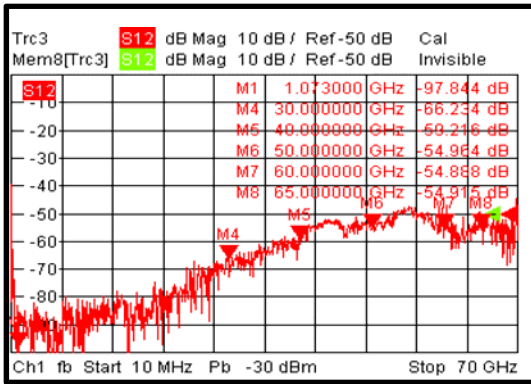
### Gain



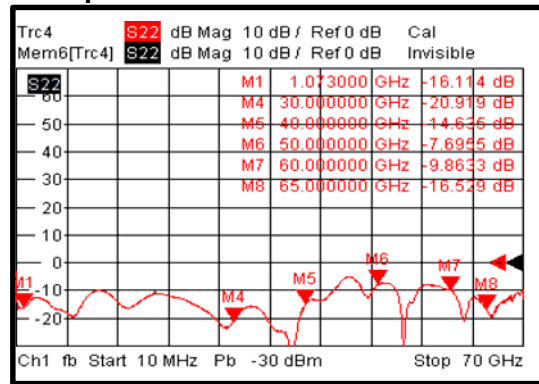
### Input Return Loss



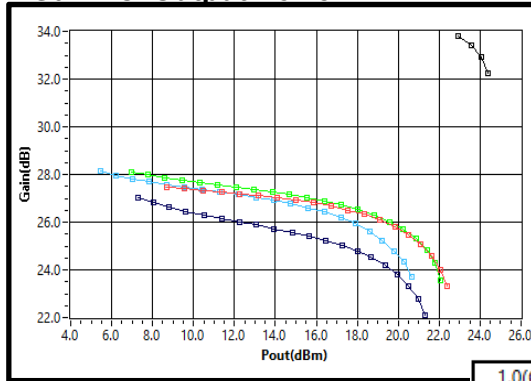
### Isolation



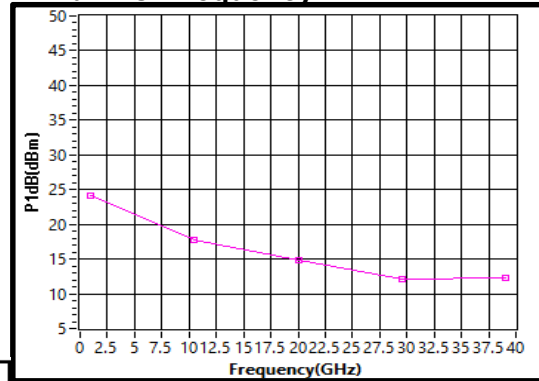
### Output Return Loss



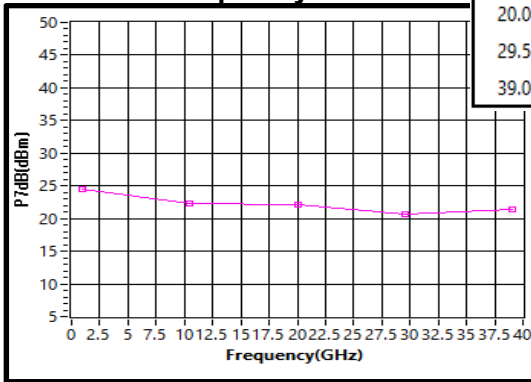
### Gain vs. Output Power



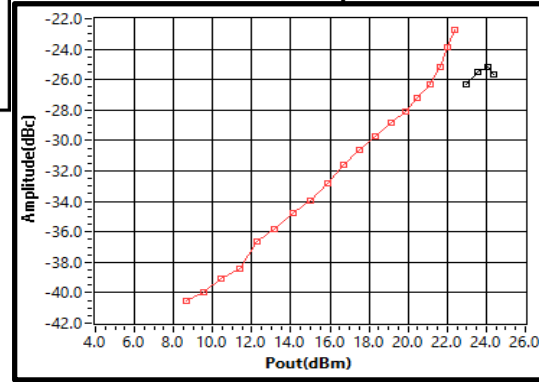
### P1dB vs. Frequency



### P7dB vs. Frequency



### 2nd Harmonic Wave output Power

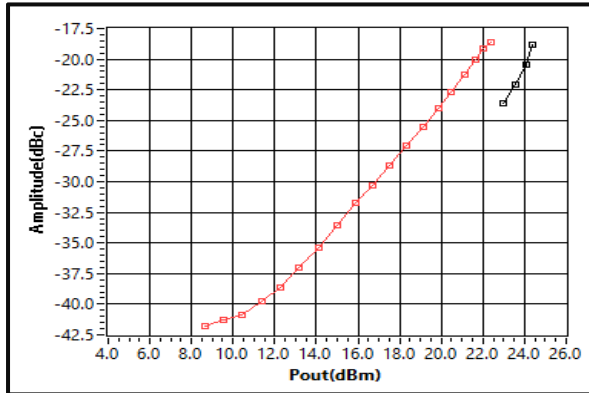


- 1.0(GHz)
- 10.5(GHz)
- 20.0(GHz)
- 29.5(GHz)
- 39.0(GHz)

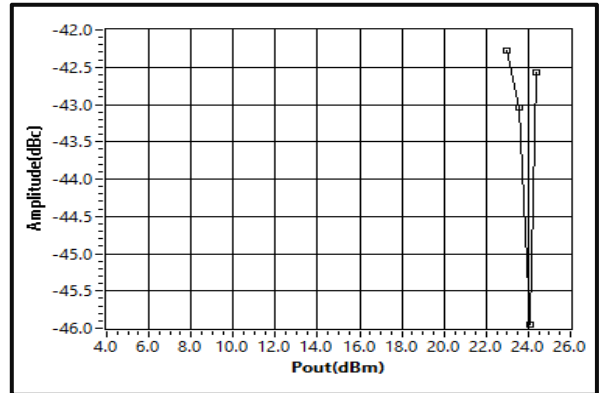
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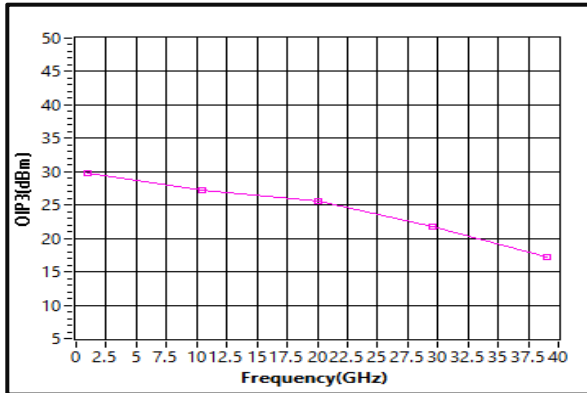
### 3rd Harmonic Wave output Power



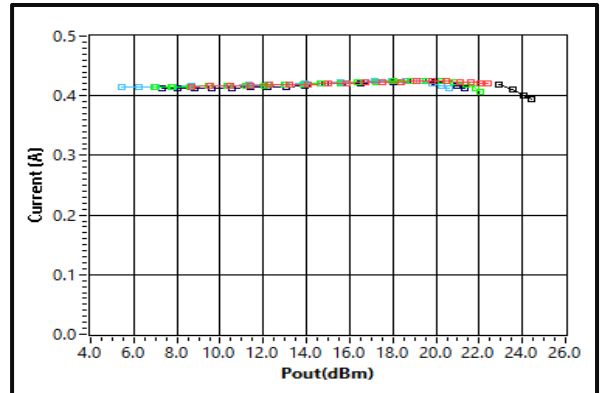
### 4th Harmonic Wave output Power



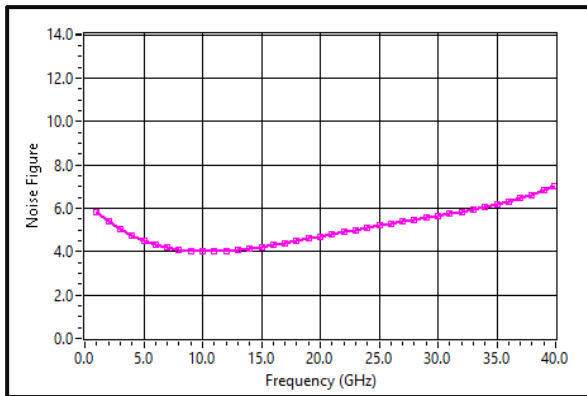
### Output Third Order Intercept (IP3)



### Current vs. Pout



### Noise Figure vs. Frequency



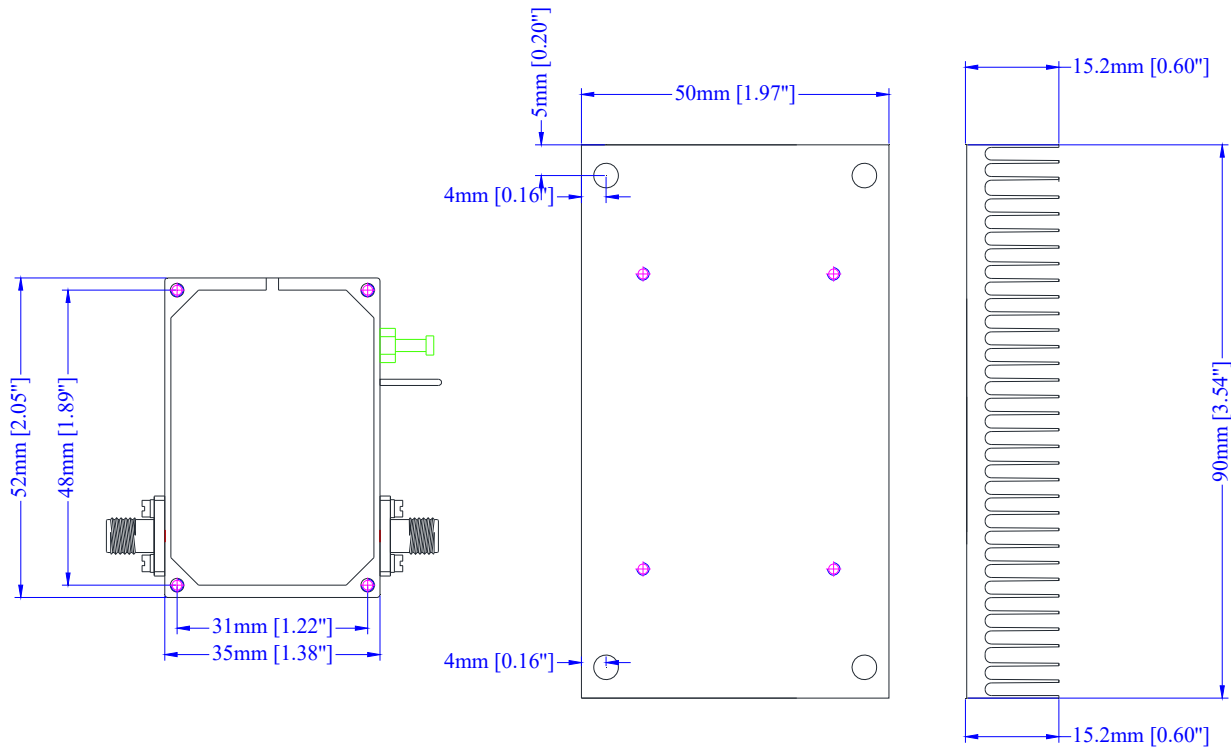
1.0(GHz)	
10.5(GHz)	
20.0(GHz)	
29.5(GHz)	
39.0(GHz)	



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**Heat Sink required during operation.**



## Important Notice

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