



Ultra Wide Band Low Noise Amplifier 18 - 40GHz



Features

- Low Noise Figure 4dB Typical.
- Output power > 15dBm.
- High Output P1dB > 10dBm.
- No External Matching Required.
- Telecom Infrastructure Applications.
- Aerospace and Military Applications.
- LMDS multi-carrier operation.
- High peak to average handling capability.
- All specifications can be modified upon request.

Electrical Specifications, $T_A=25\text{ }^\circ\text{C}$, $V_{CC}=+5\text{V}$

Parameter	Min	Typ	Max	Min	Typ	Max	Units
Frequency Range	18 ~ 30		30 ~ 40				GHz
Gain		8			8.5		dB
Gain Variation Over Temperature		3			3		dB
Noise Figure		3.5			4.5		dB
Input Return Loss		20			15		dB
Output Return Loss		20			15		dB
Output 1dB Compression Point (P1dB)		11			12		dBm
Saturated Output Power (Psat)		15			14.5		dBm
Output Third Order Intercept (IP3)		17			16		dBm
Supply Current ($V_{CC} = +5\text{V}$)		60			60		mA
DC Voltage		5			5		V
Isolation S12		60			60		dB
Maximum Input Power	Psat - Gain		Psat - Gain				dBm
Weight	75						g
Impedance	50						Ohms
Input / Output Connectors	2.9mm – Female						
Finishing	Gold Plating						
Material	Aluminum / Copper						

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RF-LAMBDA

The power beyond expectations

R18G40GSA

Absolute Maximum Ratings	
Supply Voltage	+5 VDC
Maximum Input Power	Psat - Gain
Storage Temperature (°C)	-50 to +125

Note: Maximum RF input power is defined to protect the amplifier from damage. Input power may be increased at the users own risk to achieve the full power of the amplifier. Please reference gain and power curves and monitor the temperature.

Biasing Up Procedure	
Step 1	Connect Ground Pin
Step 2	Connect input and output to 50 Ohm source and load with in band return loss better than 10dB.
Step 3	Turn On +5V DC voltage
Power OFF Procedure	
Step 1	Turn off +5V DC voltage
Step 2	Remove RF connections
Step 3	Remove ground connection

Environmental Specifications	
Operational Temperature (°C)	-45 ~ +85 (Case Temperature below 85°C)
Altitude	30,000 ft. (Epoxy Sealed Controlled environment)
	60,000 ft. 1.0psi min (Hermetically Sealed Un-controlled environment) (Optional)
Vibration	25g RMS (15 degrees 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 Number	Description
R18G40GSA	Ultra Wide Band Low Noise Amplifier 18 - 40GHz

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.

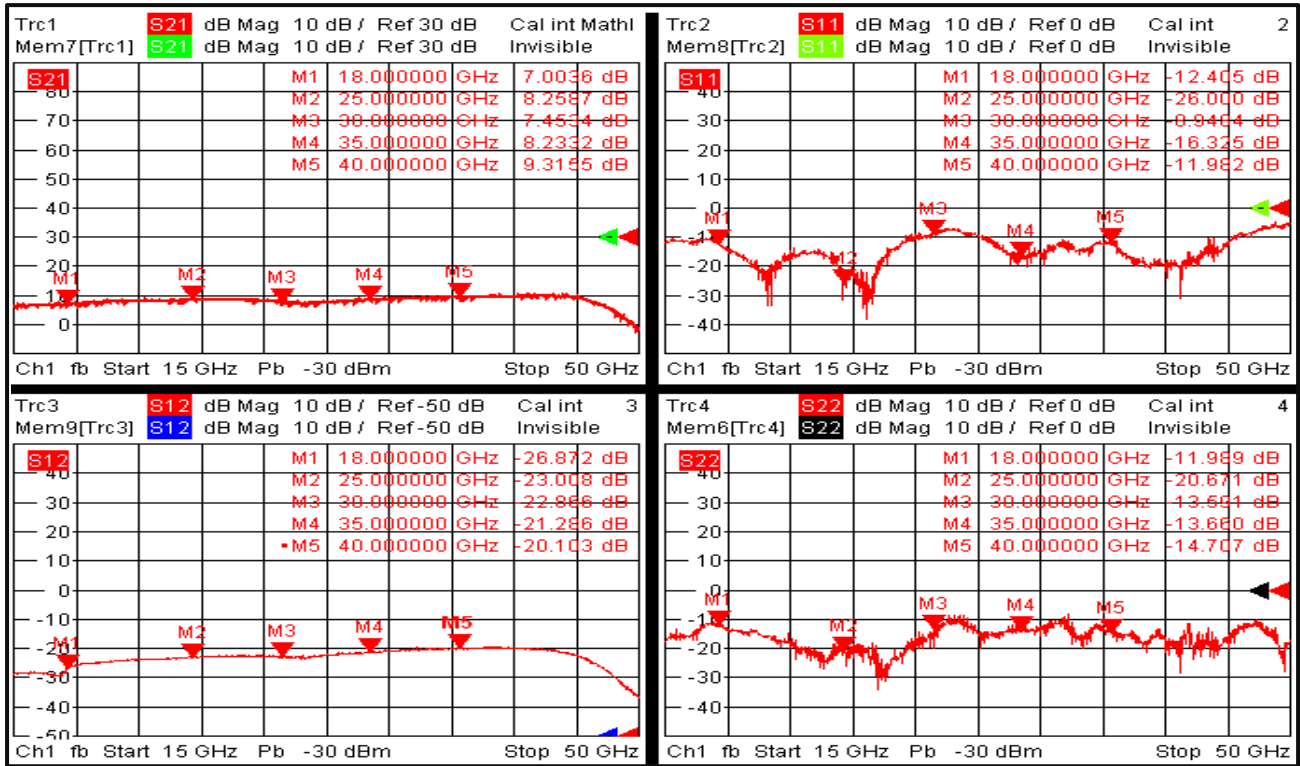
What is not covered with warranty?

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.

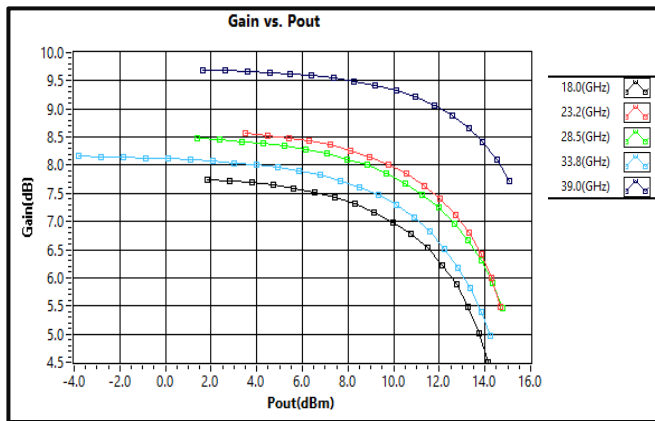
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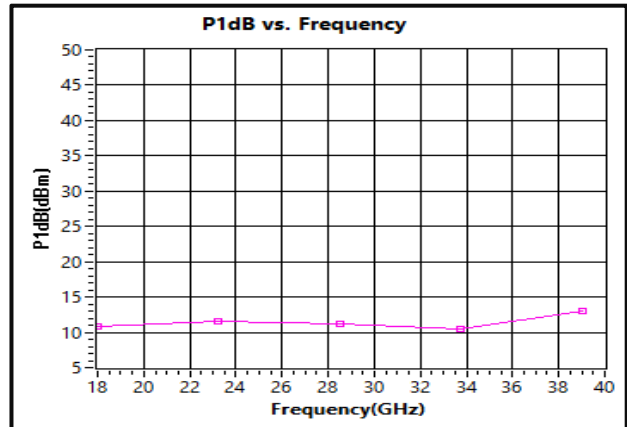
Wideband S-Parameters



Gain vs. Output Power



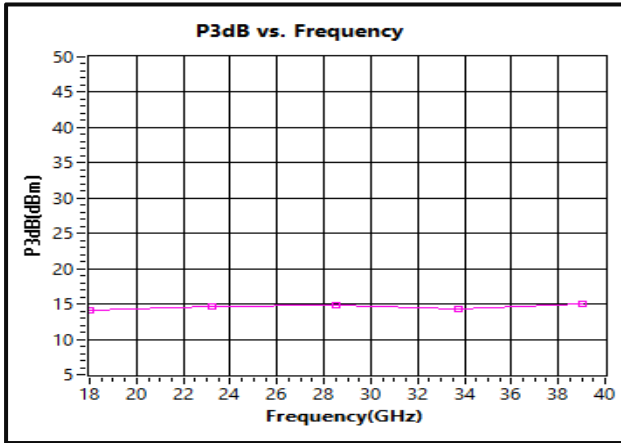
P1dB vs. Frequency



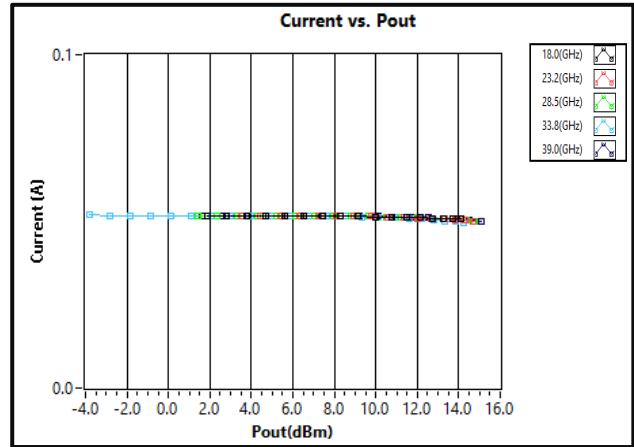
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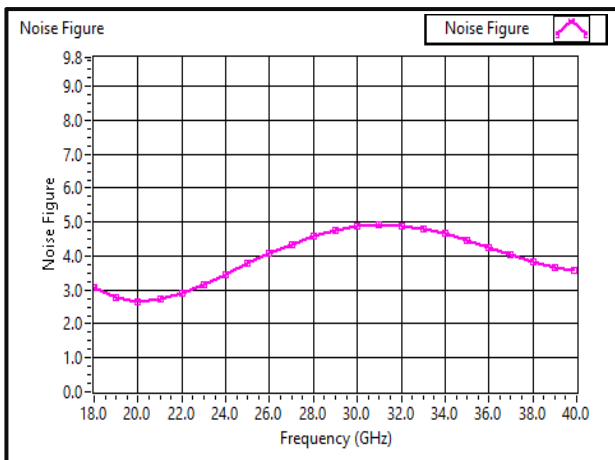
P3dB vs. Frequency



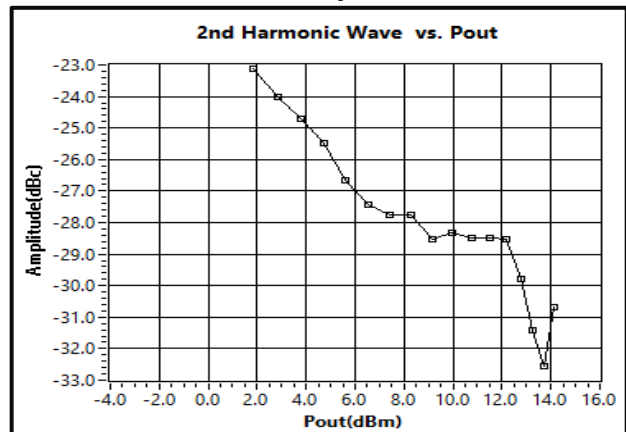
Current vs. Pout



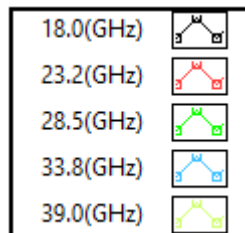
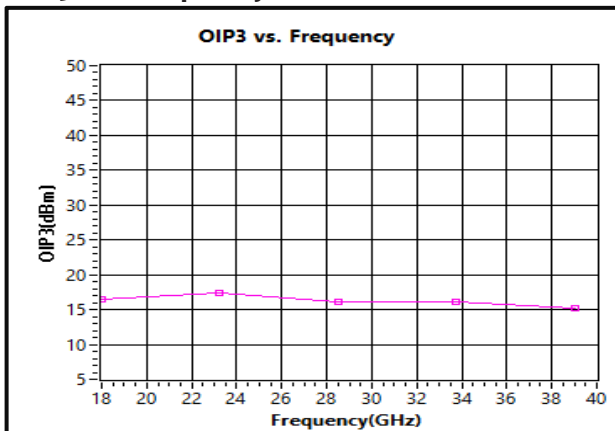
Noise Figure vs. Frequency



2nd Harmonic Wave Output Power



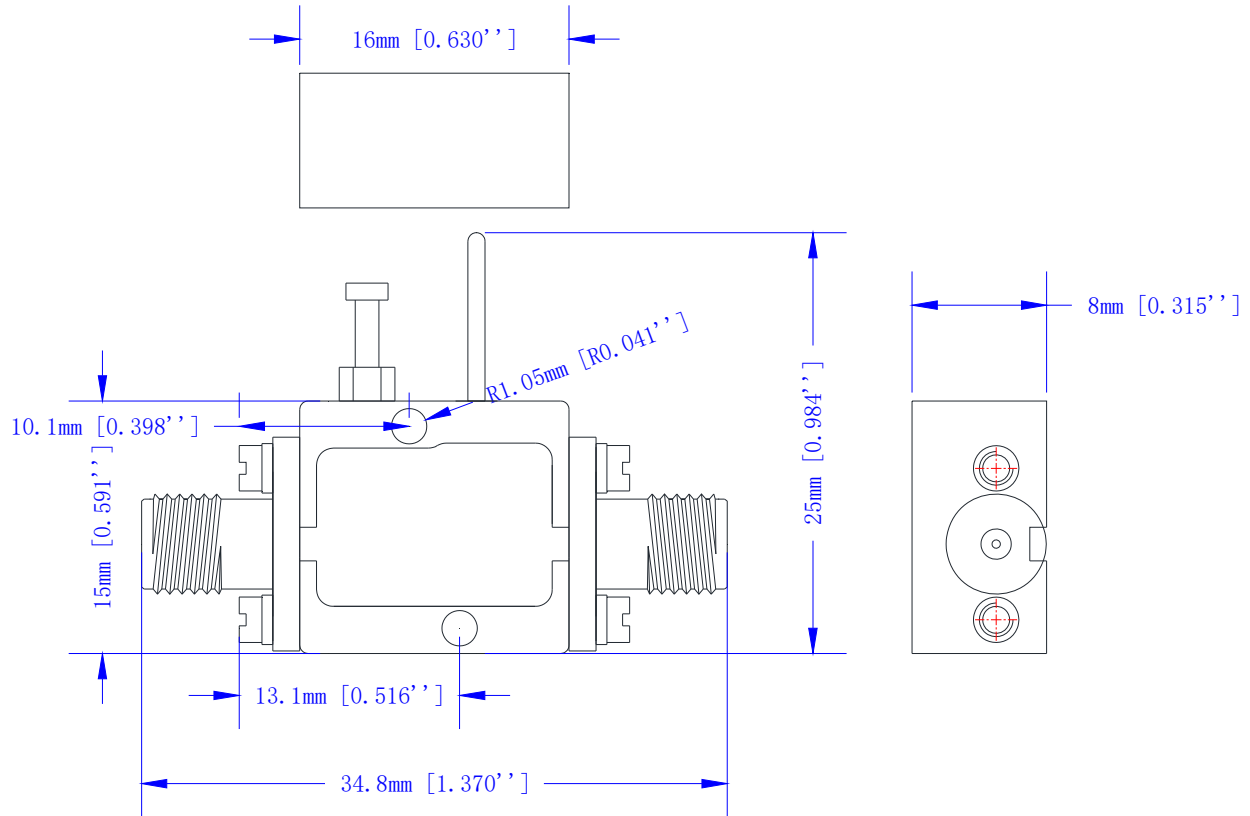
OIP3 vs. Frequency





Outline Drawing:

All Dimensions in mm [inches]



*** Heat Sink required during operation. ***



Important Notice

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