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2W Wide Band Solid State Power Amplifier
6GHz~10GHz



Features

- Gain: 48dB Typical
- Noise Figure: 7.5dB Typical
- P1dB Output Power: +31dBm
- Supply Voltage: +31.5V

Typical Applications

- Wireless Infrastructure
- Military & Aerospace Applications
- Test & Measurement

Electrical Specifications , TA = +25°C, Vcc = +31.5V

Parameter	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Frequency Range	6		8	8		10	GHz
Gain	46	48		45	47		dB
Gain Flatness		±1.0			±1.0		dB
Gain Variation Over Temperature (-40°C~+85°C)		±2.0			±2.0		dB
Noise Figure		7.5			7.5		dB
Input Return Loss		15			15		dB
Output Return Loss		12			14		dB
Output 1dB Compression Point (P1dB)	31	33		31	32.5		dBm
Saturated Output Power (Psat)		34			33.5		dBm
Output Third Order Intercept (OIP3)		41.5			41.5		dBm
Supply Voltage (Vcc)	20		40	20		40	V
Supply Current (Vcc=+31.5V)		420	500		420	500	mA
Weight	27.4						Ounces
Impedance	50						Ohms
Input / Output Connectors	SMA - Female						
Finish	Nickel Plated						
Material	Copper						
Package Sealing	Epoxy Sealed						

* P1dB, P3dB and Psat power testing signal: 200µs pulse width with 10% duty cycle.
* For average CW power testing, a 5dB back off from Psat is required unless water/oil cooling system is applied.

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Absolute Maximum Ratings

Maximum Supply Voltage	+40V
RF Input Power	Psat - Gain

Biasing Up Procedure

Step 1	Connect Ground Pin
Step 2	Connect input and output with 50 Ohm source/load. (in band VSWR<1.9:1 or >10dB return loss)
Step 4	Connect +31.5V
Power OFF Procedure	
Step 2	Turn Off +31.5V
Step 3	Remove RF Connection
Step 4	Remove Ground

Environmental Specifications and Test Standards

Parameter	Description
Operational Temperature	-40℃~+85℃ (Case Temperature)
Storage Temperature	-50℃~+105℃
Thermal Shock	-40℃ → +85℃ (5 Cycles / 10 hours)
Random Vibration	MIL-STD-202G Table 214-I, Test Condition Letter C 1.5 Hours Per Axis
High Temperature Burn In	Temperature +85℃ 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 (For Hermetically Sealed Units)

Ordering Information

Part No.	Description
RFLUPA06G10G2	6GHz~10GHz Power 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.

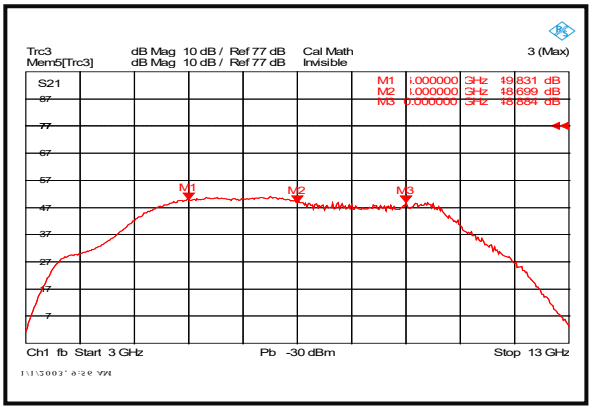
Proper electrostatic discharge (ESD) precautions are recommended to avoid performance degradation or loss of functionality.

What is not covered with warranty?

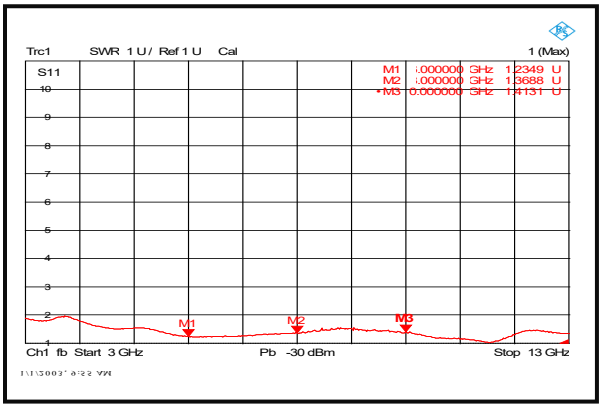
Each RF - Lambda amplifier will go through power and temperature stress testing.
Since the die, ICs or MMICs are fragile, these are not covered by warranty. Any damage to these will NOT be free to repair.

Typical Performance Plots

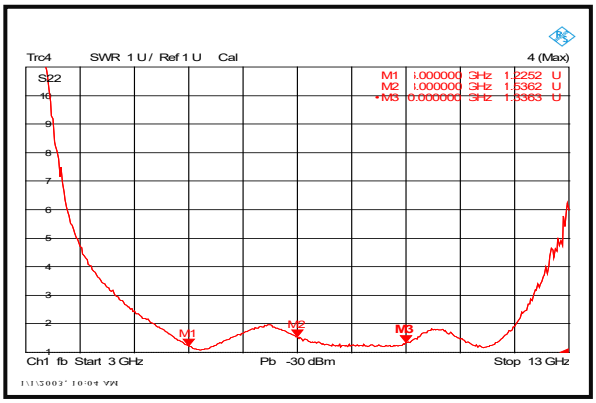
Gain @+25°C



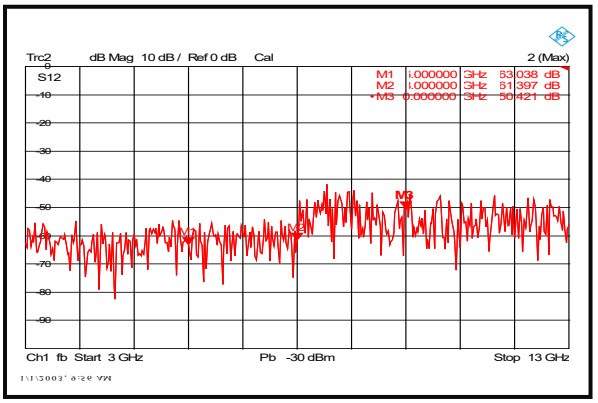
Input VSWR @+25°C



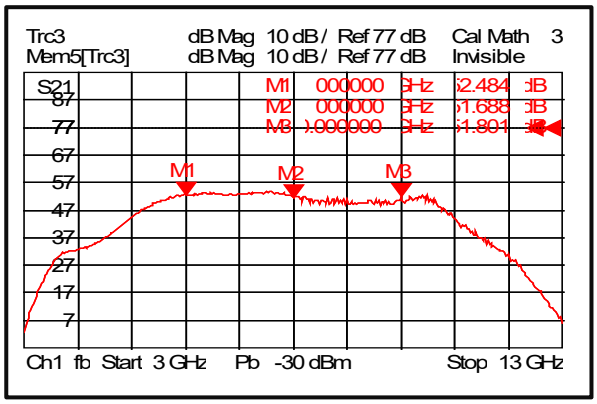
Output VSWR @+25°C



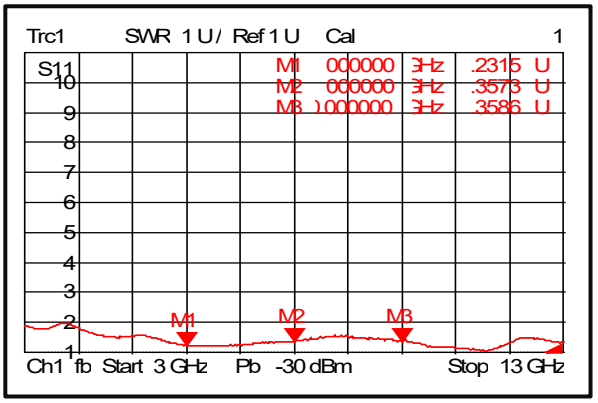
Isolation @+25°C



Gain @-40°C

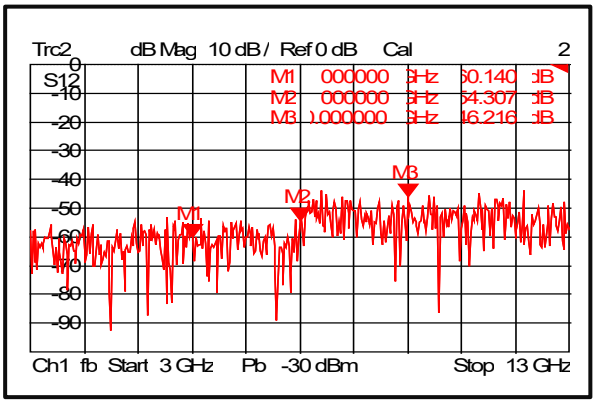


Input VSWR @-40°C

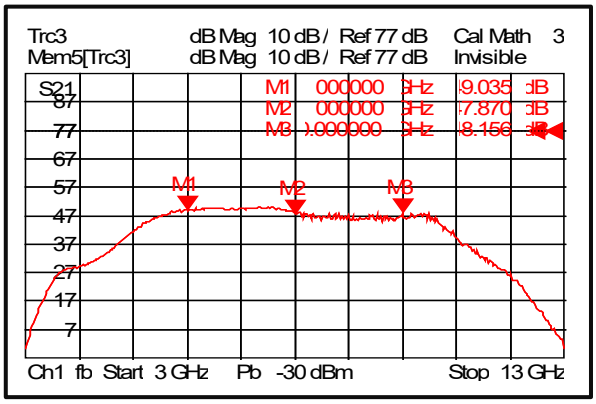


2W Wide Band Solid State Power Amplifier 6GHz ~ 10 GHz

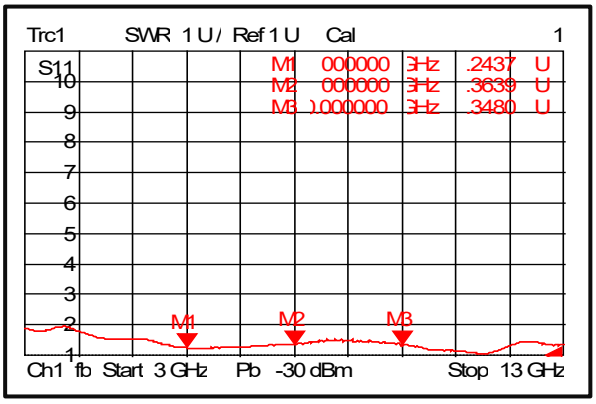
Isolation @-40℃



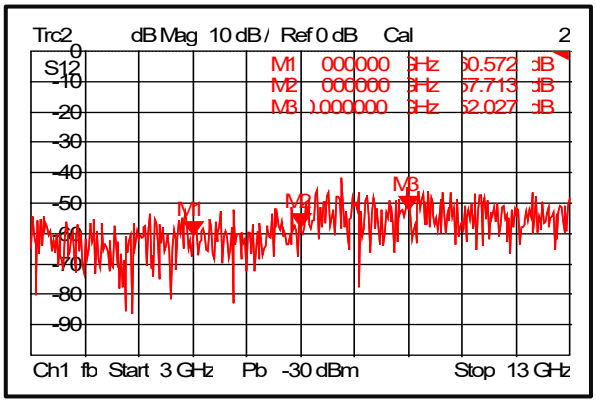
Gain @+85℃



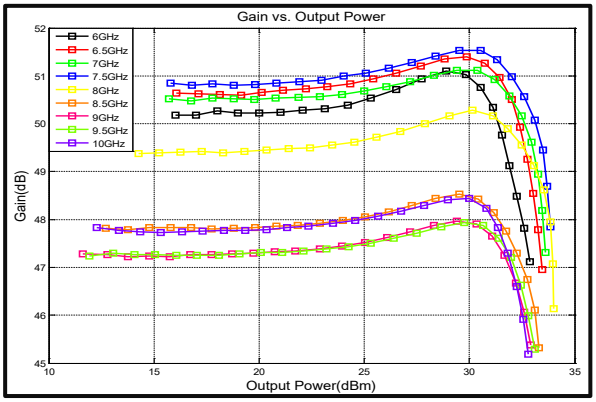
Input VSWR @+85℃



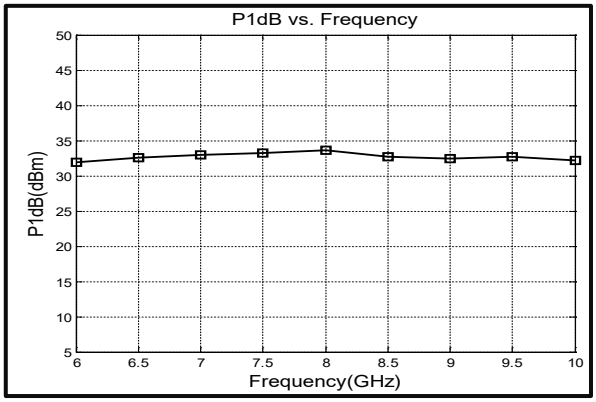
Isolation @+85℃



Gain vs. Output Power

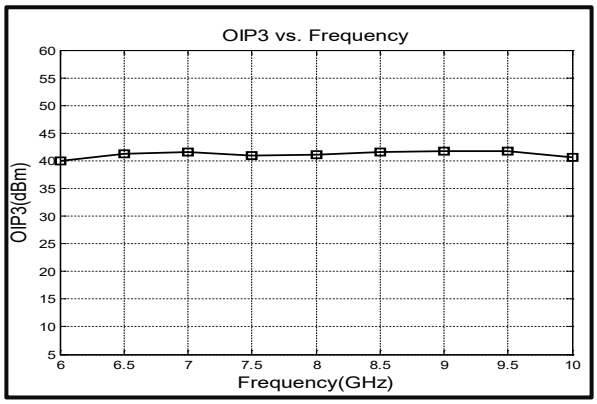


P1dB vs. Frequency

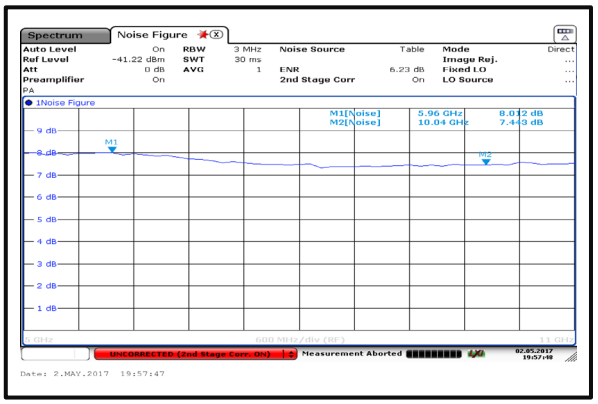


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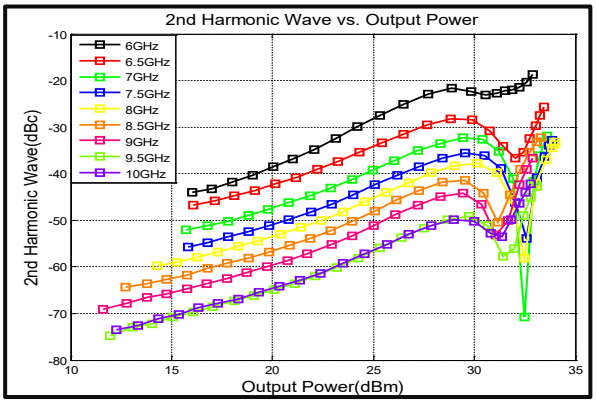
Output Third Order Intercept (OIP3)



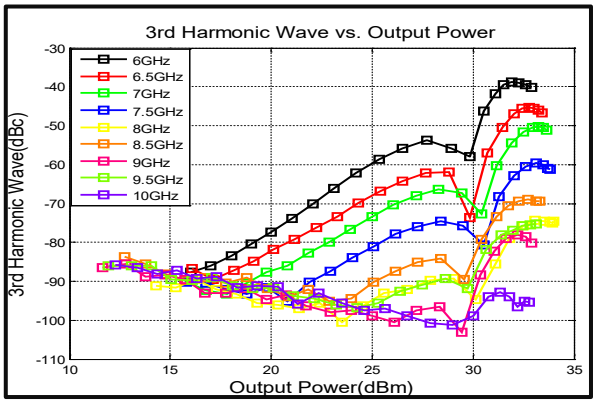
Noise Figure



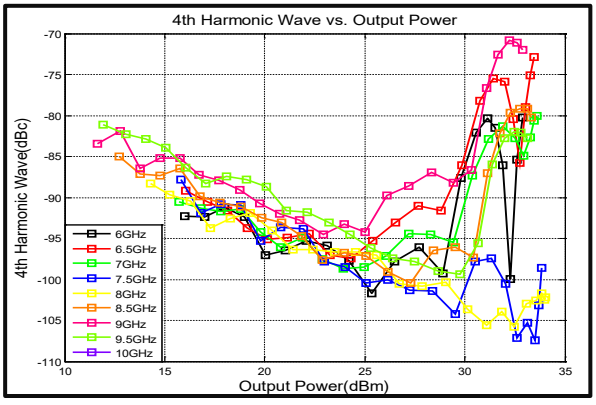
2nd Harmonic Wave Output Power



3rd Harmonic Wave Output Power



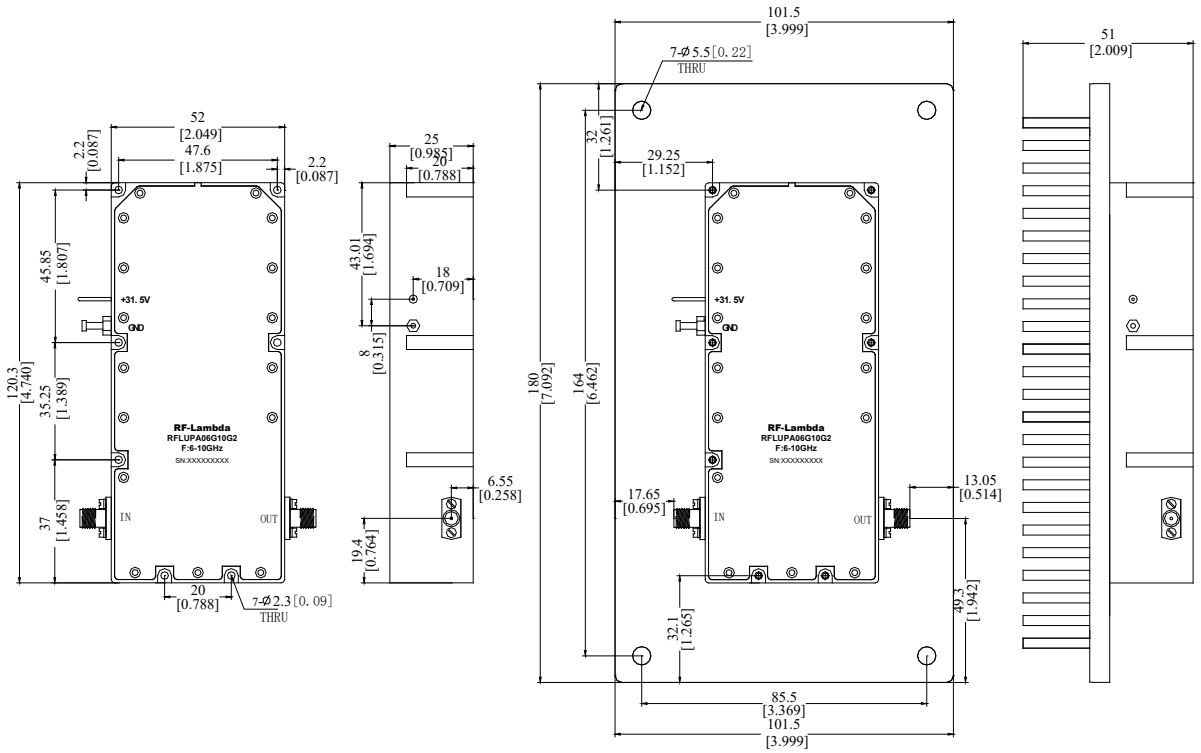
4th Harmonic Wave Output Power



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Outline Drawing:

All Dimensions in mm [inches]
Housing Tolerances ± 0.2 [0.008]



Notes:

1. Heat Sink required during operation (Sold Separately)
2. Standard torque wrench must be used to secure RF connectors



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