



RF-LAMBDA

LEADER OF RF BROADBAND SOLUTIONS

RFLUPA06G10G2

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



Features

- Gain: 48dB Typical
- Noise Figure: 7.5dB Typical
- P1dB Output Power: +31dBm
- Supply Voltage: +31.5V @ 420mA
- 50 Ohm Matched Input / Output
- Size: 2.05*4.73*0.98

Typical Applications

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

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 (-45 ~ +85)		±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 (IP3)		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						
Finishing	Nickel (220 micron thickness)						
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
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. Do not drive input higher than required to achieve output Psat.

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

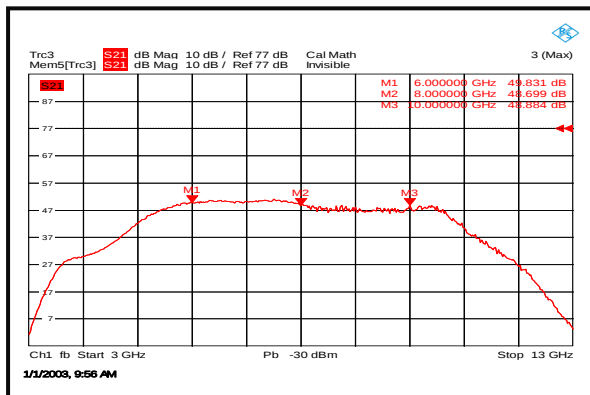
Environmental Specifications	
Operational Temperature (° C)	-45 ~ +85 (Case Temperature must be less than 85C at all times)
Altitude	30,000 ft. (Epoxy Sealed Controlled environment)
Vibration	25g RMS (15 degree 2KHz) endurance, 1 hour per axis
Humidity	100% RH at 35c, 95%RH at 40°C
Shock	20G for 11msc half sine wave, 3 axis both directions

Note: The operating temperature for the unit is specified at the package base. It is the user's responsibility to ensure the part is in an environment capable of maintaining the temperature within the specified limits

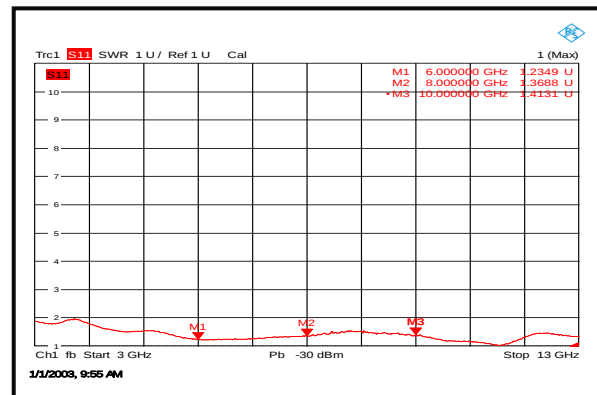
Ordering Information	
Part No.	Description
RFLUPA06G10G2	6GHz~10GHz Power Amplifier

Typical Performance Plots

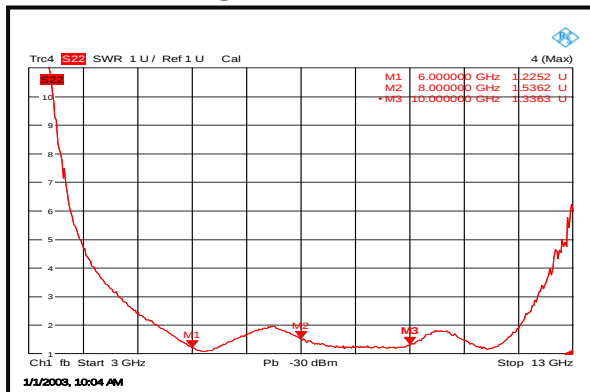
Gain @+25°C



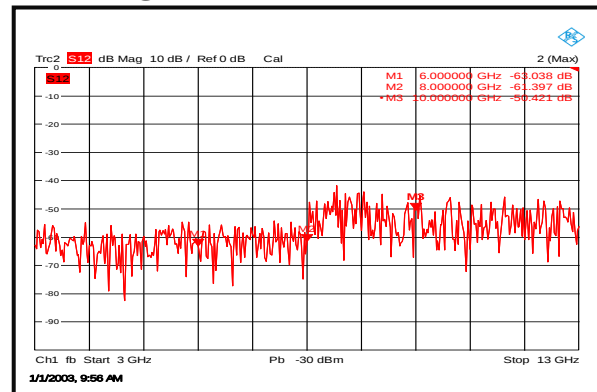
Input VSWR @+25°C



Output VSWR @+25°C



Isolation @+25°C



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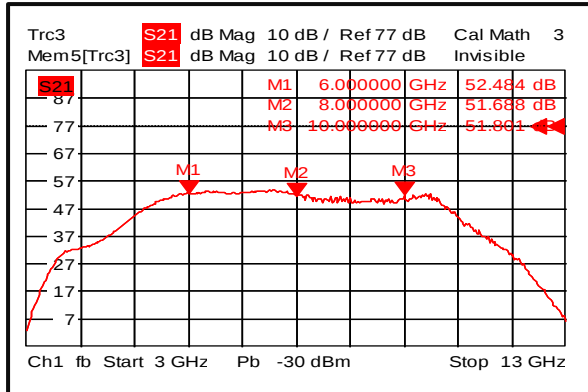


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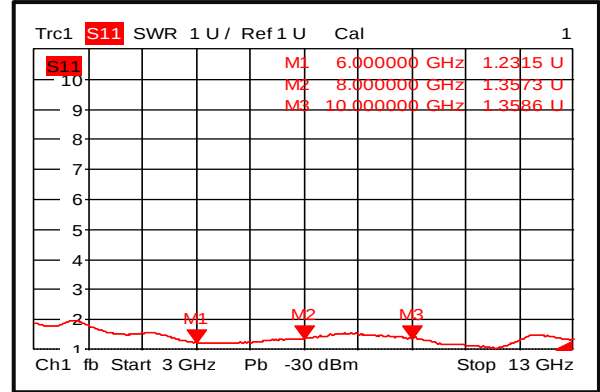
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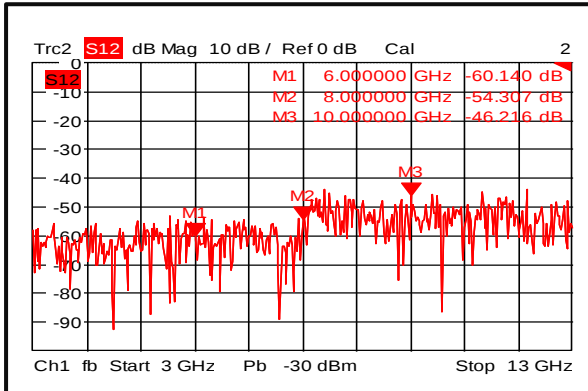
Gain @-45°C



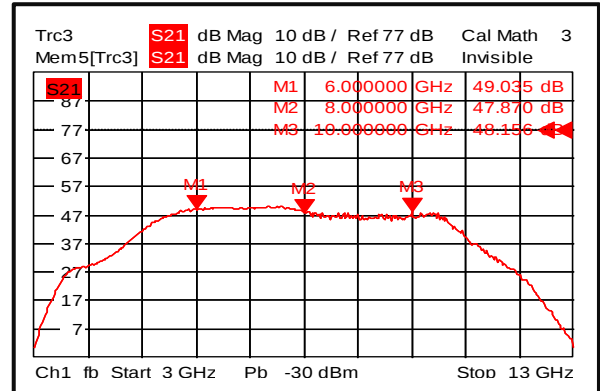
Input VSWR @-45°C



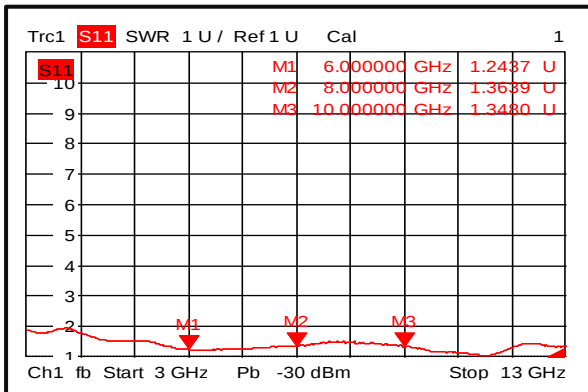
Isolation @-45°C



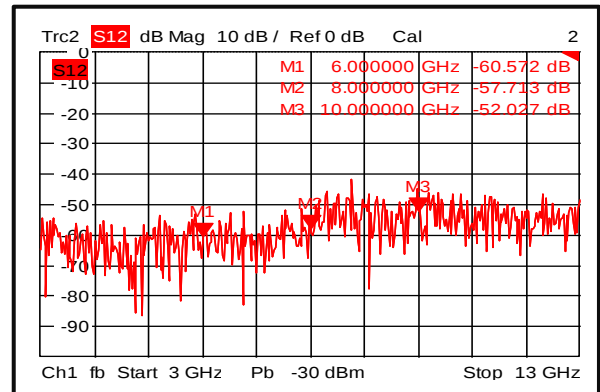
Gain @+85°C



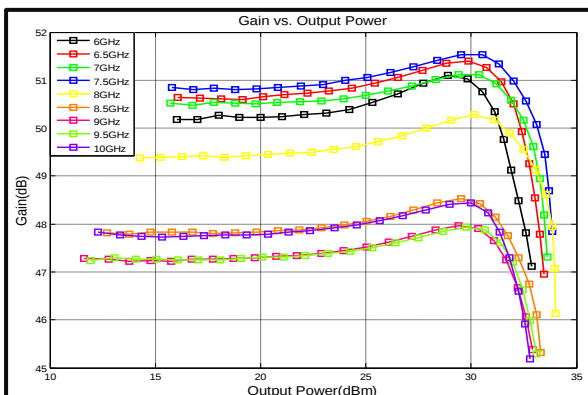
Input VSWR @+85°C



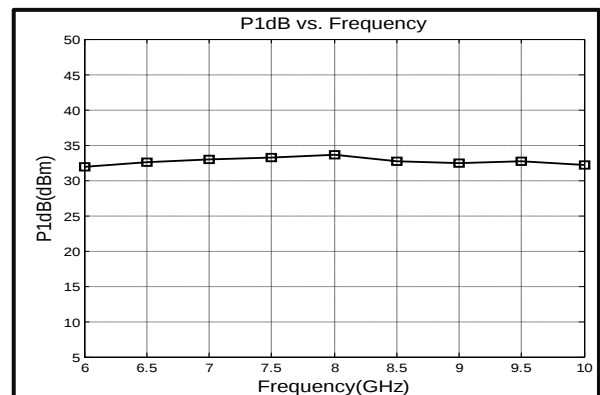
Isolation @+85°C



Gain vs. Output Power



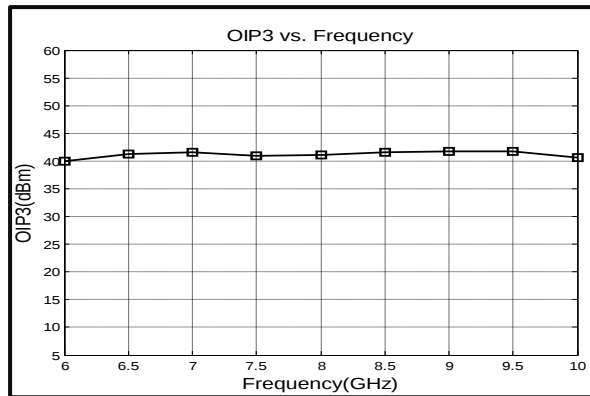
P1dB vs. Frequency



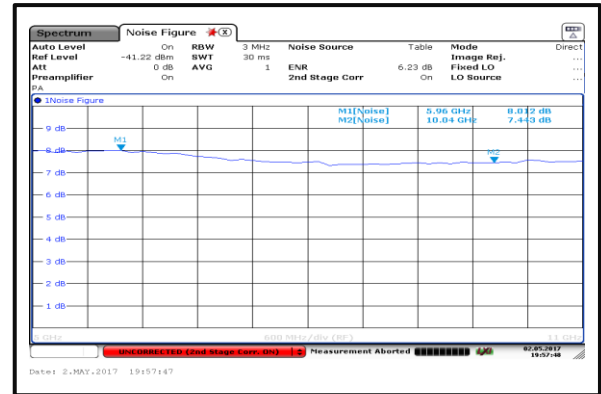
Wide Band Power Amplifier 6GHz ~ 10GHz



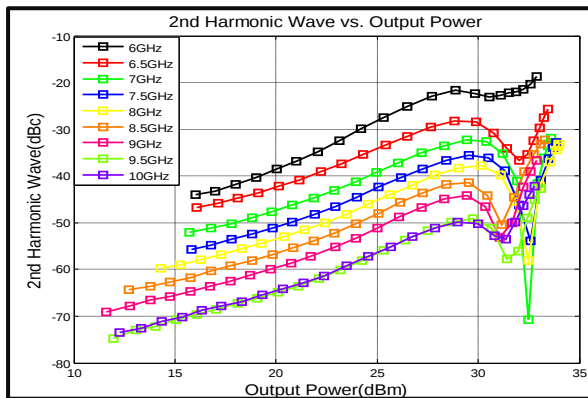
Output Third Order Intercept (IP₃)



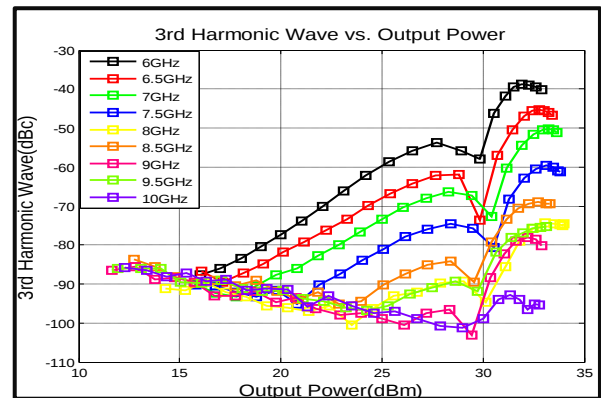
Noise Figure



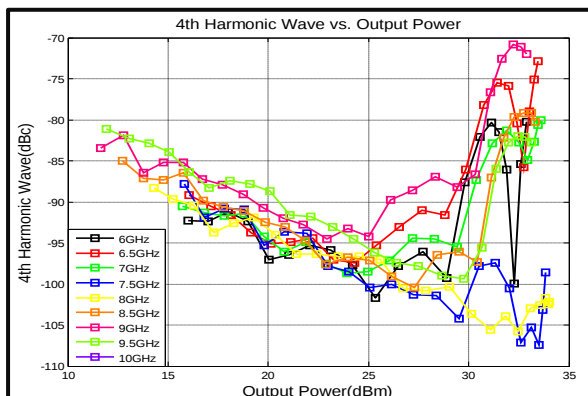
2nd Harmonic Wave output Power



3rd Harmonic Wave output Power



4th Harmonic Wave output Power





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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?

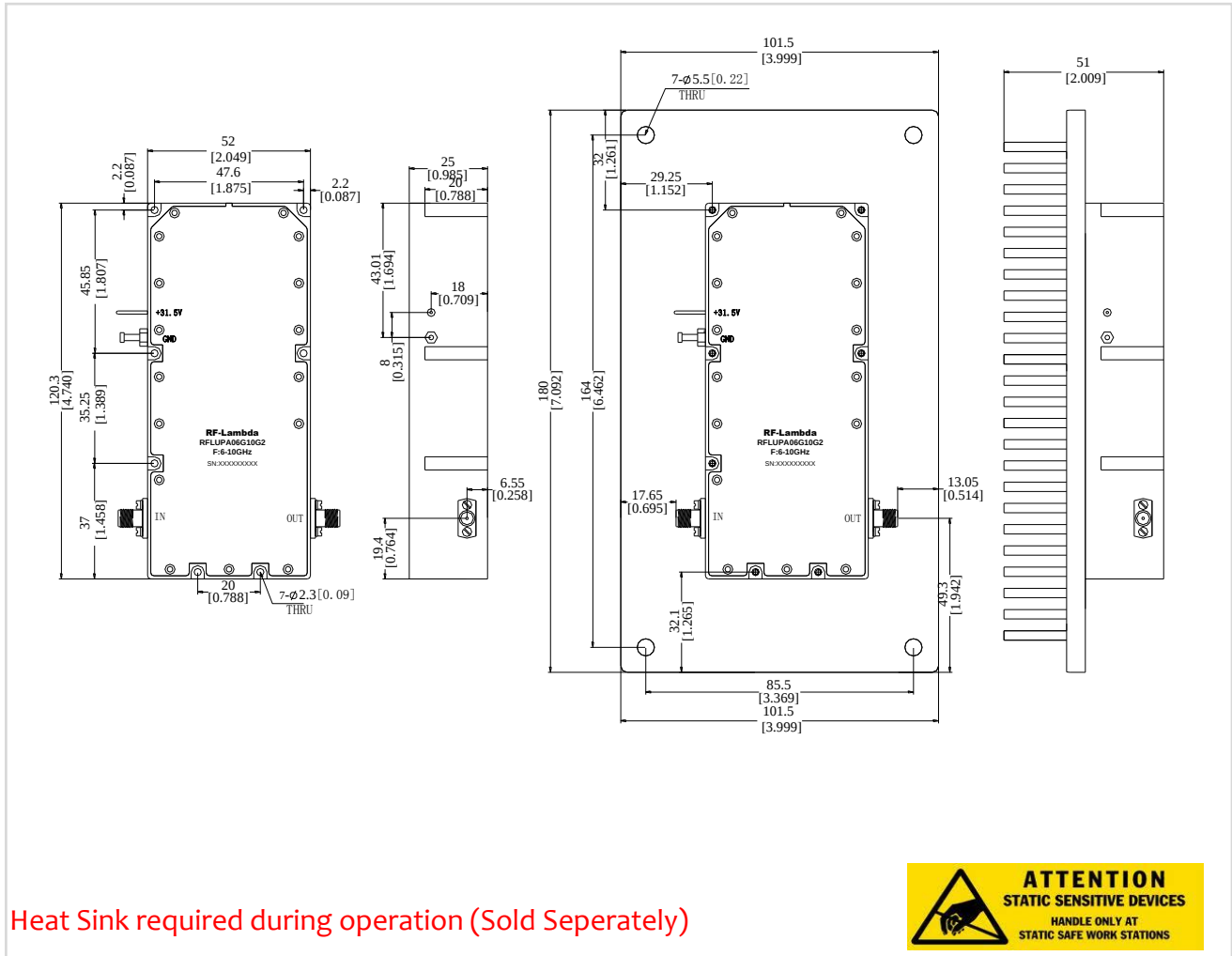
Each of RF-Lambda amplifiers will go through power and temperature stress testing. Due to fragile of the die, IC or MMIC, those are not covered by warranty. Any damage to those will NOT be free to repair.

Wide Band Power Amplifier 6GHz ~ 10GHz



Outline Drawing:

All Dimensions in mm [inches]



Ordering Information

Part No.	ECCN	Description
RFLUPA06G10G2	EAR99	6-10GHz Power Amplifier

Important Notice

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