

## Wideband Solid State Power Amplifier 6-18GHz



\*Please refer outline page for detail dimension

### Typical Applications

- Wireless Infrastructure
- Military and Aerospace Applications
- Test Instrumentation
- Radar Systems
- 5G Wireless Communications
- Microwave Radio Systems
- TR Modules
- Research and Development
- Cellular Base Stations

### Product Description

RFLUPA0618GF is a wideband power amplifier with frequency range of 6 to 18GHz, with VDC power supply. High efficiency cooling system is designed within amplifier.

### Features

1. Small Signal Gain 80dB Typical
2. Adjustable Digital Control Attenuator
3. Psat 52dBm Typical
4. Power supply: +48 VDC
5. 50 Ohm Matched Input/Output
6. Protection Functions:
  - Over temperature
  - Over current
  - Current imbalance
  - RF input over drive protection
  - VSWR protection
7. Amplifier Automatic Calibration Function
8. RF Output Power Indication
9. RF Output Enable Function
10. High Maximum RF Input Power Handling, 10W max
11. Ethernet Remote Control

### Electrical Specifications (T<sub>A</sub>=+25°C)

Parameter	Min	Typ	Max	Units
Frequency Range		6 – 18		GHz
Small Signal Gain		80		dB
Gain Flatness		+/-10		dB
Gain Variation Over Temperature (-30°C to +50°C)		+/-5		dB
Input Return Loss		-18		dB
*Output 1dB Compression Point (P1dB)		48		dBm
*Saturated Output Power (Psat)		52		dBm
Supply Current ( +48 VDC)		17	53	A
IM3		-30		dBc
RF ON and OFF Speed		80/2500		us
Power Added Efficiency (PAE)		20		%
Weight		40		Lbs
Impedance		50		Ohms
Input / Output Connectors	N-Type Female			
Package	Please see the mechanical drawing			

\* P1dB, P3dB and Psat power test signal: 200µs pulse width with 10% duty cycle.

**Absolute Maximum Ratings**

Parameter	Rating
Supply Voltage Range	19 ~ 72 VDC
*RF Input Power (RFIN)	Psat – Large Signal Gain

**Bias Up Procedure**

1. Connect input and output with 50 Ohm source/load. (In band VSWR < 1.9:1 or >10dB return loss.)
2. Connect Power Cable
3. Turn On Back Panel Power Supply Air Breaker
4. Press Front Panel Power Switch to Power Display

**Bias Down Procedure**

1. Press Front Panel Power Switch to Power Off Display
2. Turn Off Back Panel Power Supply Breaker
3. Remove Power Cable (If Moving Equipment)
4. Disconnect input and output with 50 Ohm source/load. (In band VSWR < 1.9:1 or >10dB return loss.)

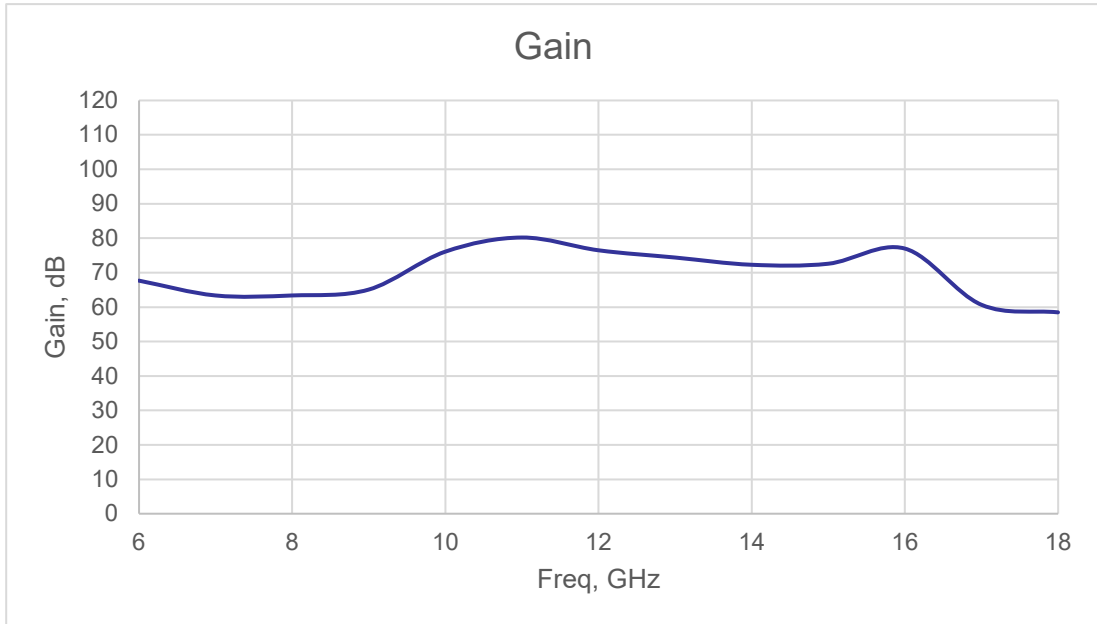
**Environmental Specifications and Test Standards**

Parameter	Description
Operational Temperature	-30°C to +50°C (Case Temperature)
Storage Temperature	-55°C to +125°C
Thermal Shock	-40°C → +85°C (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°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	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)

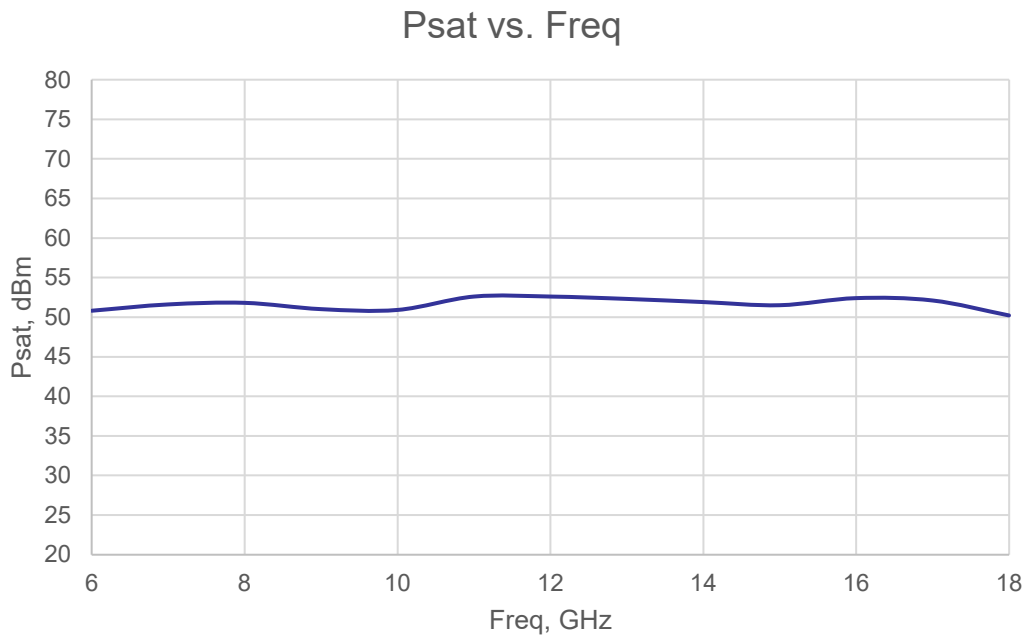
\*Maximum RF input power is set to assure safety of amplifier. Input power may be increased at own risk to achieve full power of amplifier. Please reference gain and power curves.

\*\*For vibration testing details please see additional information section.

Typical Performance Plots

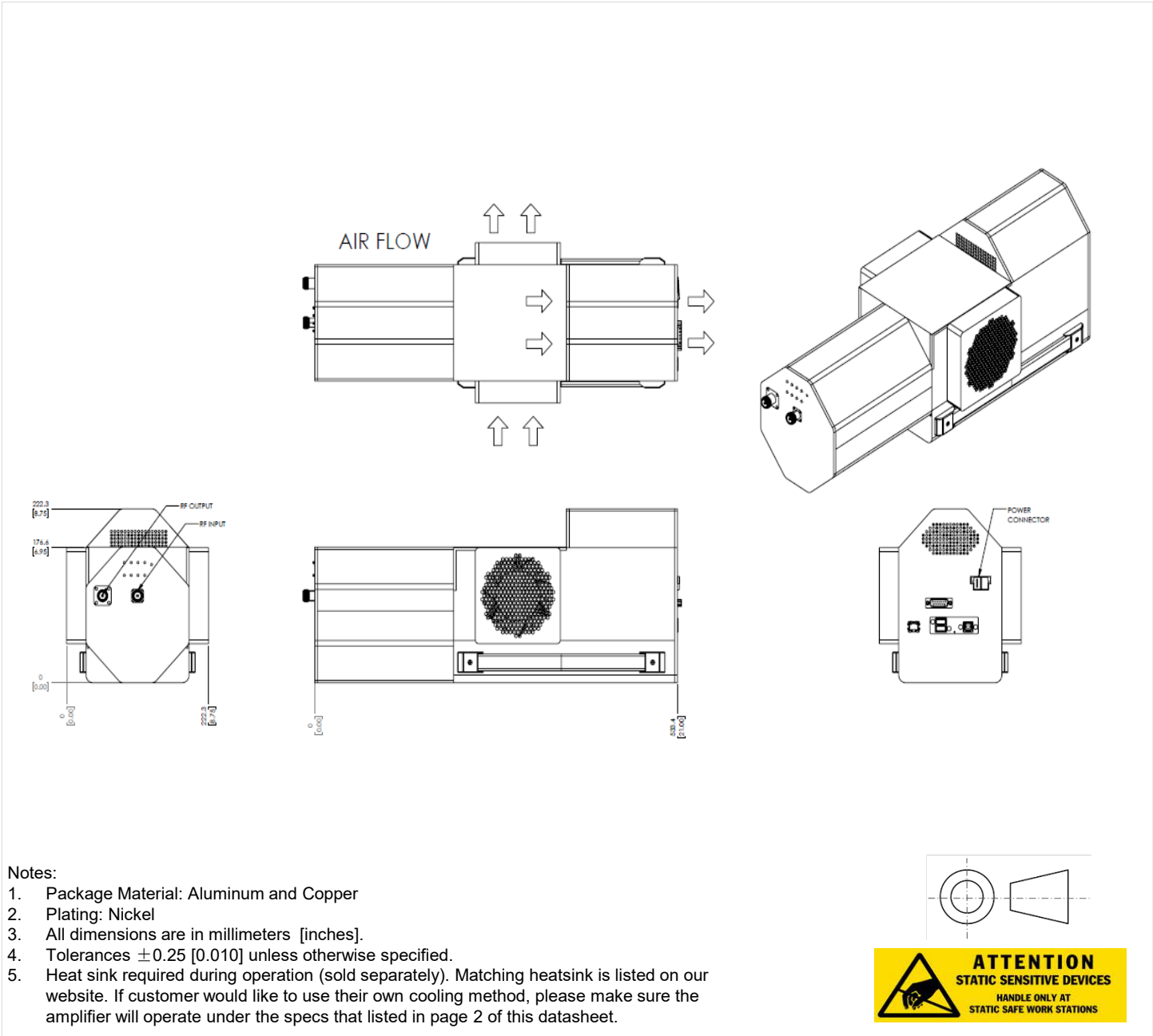


\*adjustable digital control attenuator with 0.5dB step is equipped.



Note: Small signal VNA measurements include attenuators to protect equipment

**Outline Drawing**



**Additional Information**

Documentation	Webpage
ESD Policy	<a href="https://rflambda.com/pdf/rflambda_esd_control.pdf">https://rflambda.com/pdf/rflambda_esd_control.pdf</a>
Heatsink Lookup Specifications	<a href="https://rflambda.com/search_heatsink.jsp">https://rflambda.com/search_heatsink.jsp</a>
Connector Torque Specifications	<a href="https://www.rflambda.com/pdf/Torque_Specifications.pdf">https://www.rflambda.com/pdf/Torque_Specifications.pdf</a>
Random Vibration Test Standard	<a href="https://www.rflambda.com/pdf/rflambda_random_vibration_MIL-STD-202G.pdf">https://www.rflambda.com/pdf/rflambda_random_vibration_MIL-STD-202G.pdf</a>

**Ordering Information**

Part Number	Modification	Description
RFLUPA0618GF	Input connector N-Type and Output connector N-Type	6GHz-18GHz Benchtop 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.

**Important Notice**

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