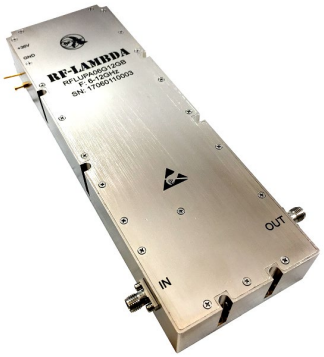
Wideband Solid State Power Amplifier
6-12GHz



Features

- Wideband Solid State Power Amplifier
- Gain: 55 dB Typical
- Psat: +45dBm Typical
- Supply Voltage: +36V

Typical Applications

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

Electrical Specifications, TA = +25°C, Vdd = +36V

Parameter	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Frequency Range	6 – 9			10 – 12			GHz
Gain		60			55		dB
Gain Flatness		±5			±3		dB
Gain Variation Over Temperature (-45 ~ +85)		±3			±3		dB
Input Return Loss		15			10		dB
Output Return Loss		10			10		dB
Saturated Output Power (Psat) 10% Duty Cycle 200μs Pulse Width		45			45		dBm
Supply Current (Vcc=+36V)		1.4	5		1.4	5	A
Input Max Power (No Damage)	Psat – Gain			Psat – Gain			dBm
Weight	1285						g
Impedance	50						Ohms
Input / Output Connectors	SMA-Female						
Finish	Nickel Plated						
Material	Aluminum / Copper						

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

Absolute Maximum Ratings	
Supply Voltage	+60 VDC
RF Input Power (RFIN) Pin_max = Psat - Gainsat	Psat – Gain

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

Environmental Specifications and Test Standards

Parameter	Description
Operational Temperature	-45°C~+55°C (Case Temperature less than +85°C)
Storage Temperature	-50°C~+125°C
Thermal Shock	-45°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)

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**
RFLUPA06G12GB	6GHz~12GHz 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.

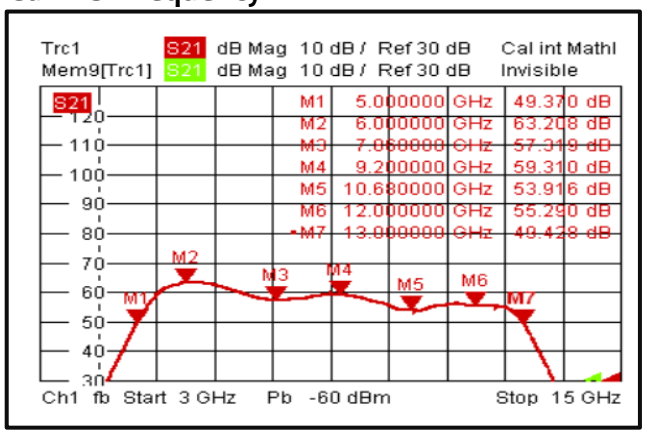
Proper electrostatic discharge (ESD) precautions are recommended to avoid performance degradation or loss of functionality.

What is not covered with warranty?

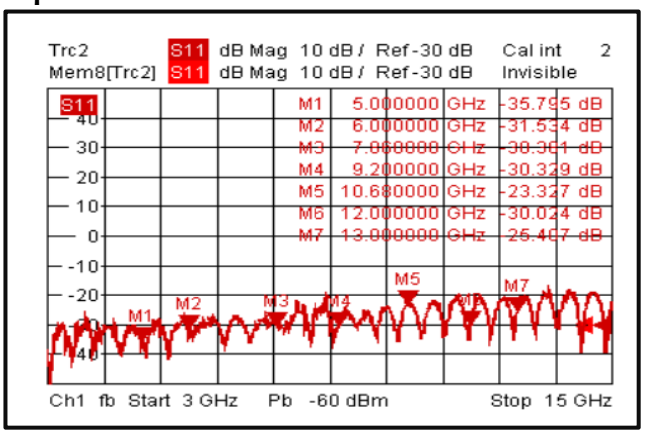
Each RF - Lambda amplifier will go through power and temperature stress testing.
Since the die, ICs or MMICs are fragile, these are not covered by warranty. Any damage to these will NOT be free to repair.

Typical Performance Plots

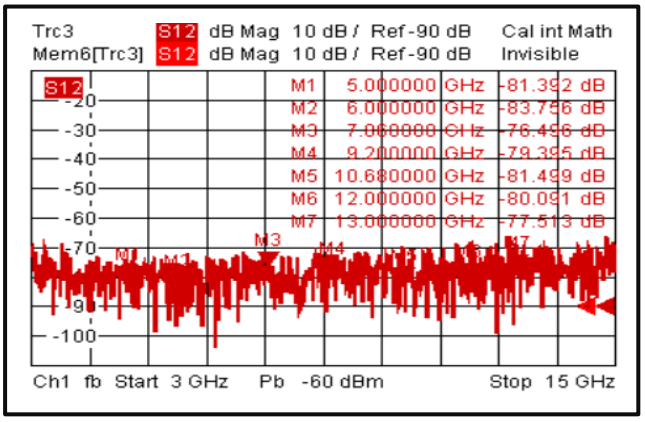
Gain vs. Frequency



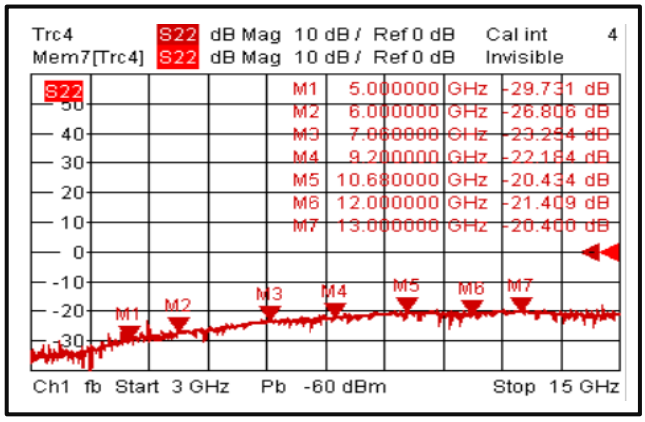
Input Return Loss



Isolation

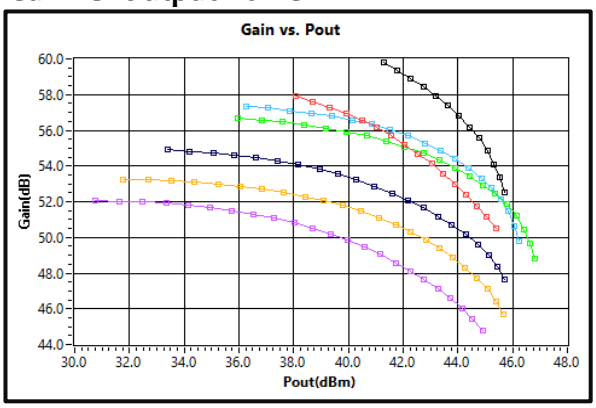


Output Return Loss

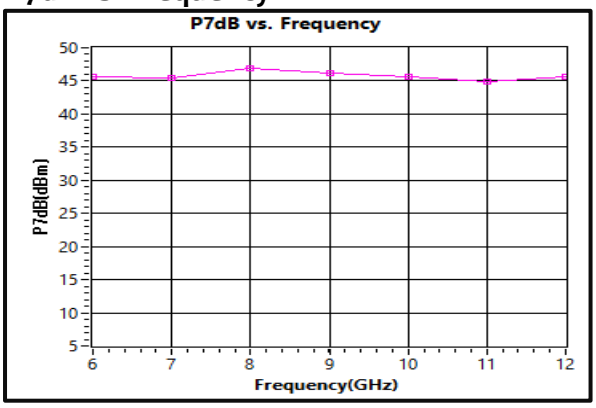


Note: Input / Output return loss measurements include attenuators to protect equipment

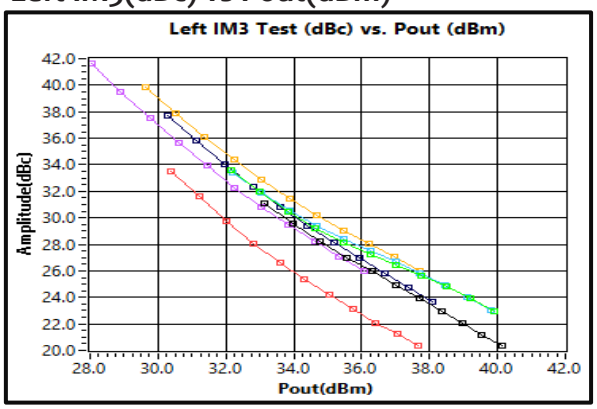
Gain vs. Output Power



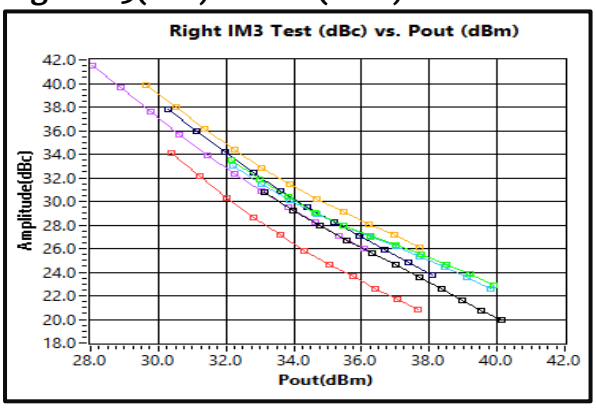
P7dB vs. Frequency



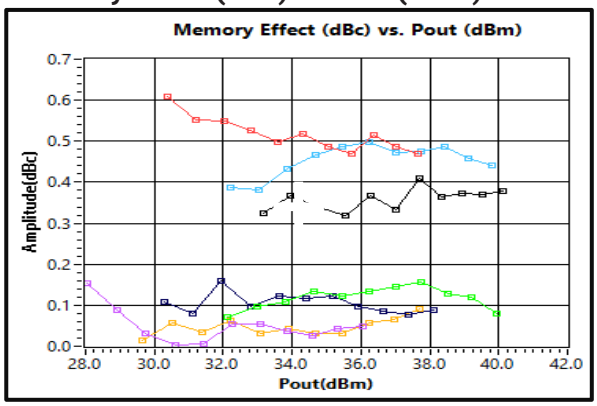
Left IM3(dBc) vs Pout(dBm)



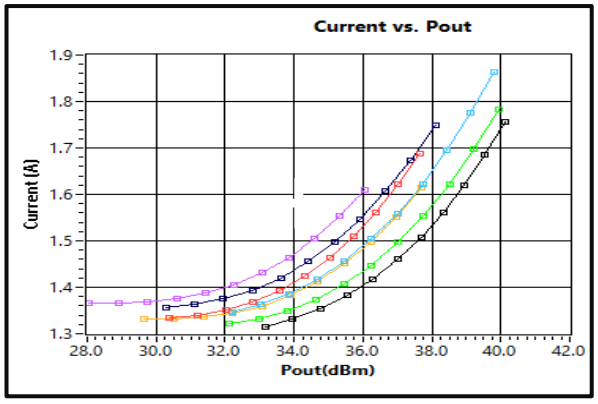
Right IM3(dBc) vs Pout(dBm)

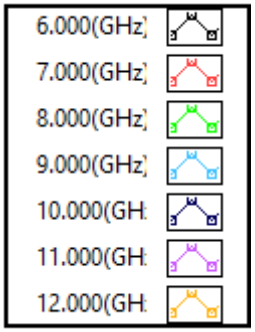


Memory Effect(dBc) vs Pout(dBm)



Current vs Pout





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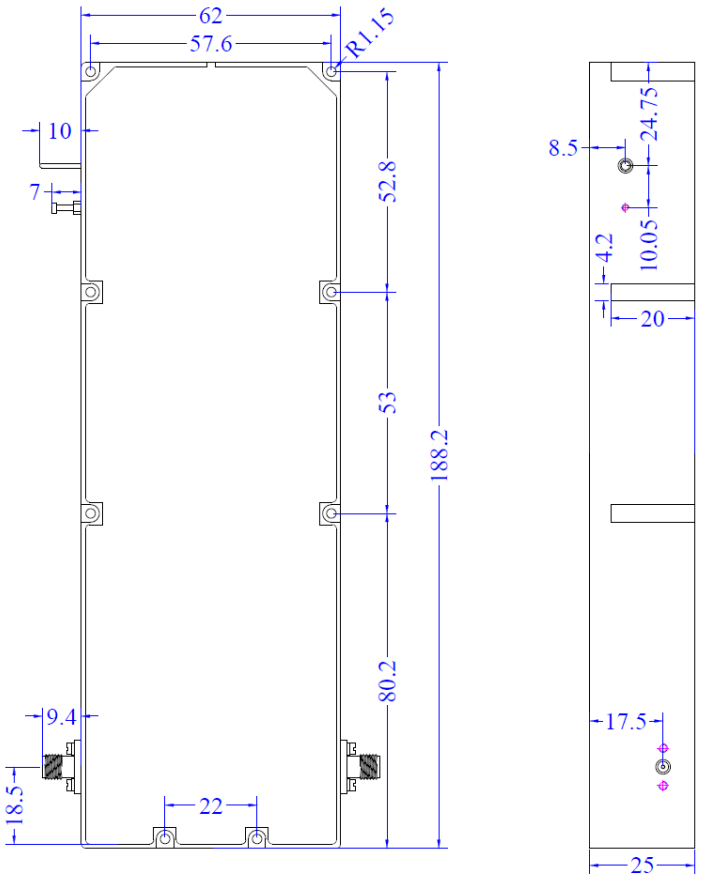
Outline Drawing:

All Dimensions in mm



Heat Sink and cooling fan required during operation

Important Notice

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