300W Wide Band Solid State 6GHz~12GHz

Features

- Wideband Solid State Power Amplifier
- Gain: 65dB Typical
- Psat: +55dBm Typical
- Automatic Calibration
- Built in Temperature Compensation.
- Adjustable Attenuation: 31.5dB range, 0.5dB step
- Supply Voltage: +48V DC

Typical Applications

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

Electrical Specifications, T_A = +25°C, Vcc = +48V

Parameter	Min.	Typ.	Max.	Units
Frequency Range		6 – 12		GHz
Gain		65		dB
Gain Flatness		±5		dB
Gain Variation Over Temperature (-45°C ~ +85°C)		±5		dB
Input Return Loss		20		dB
Output Return Loss		15		dB
Saturated Output Power (Psat)		55		dBm
Supply Current		20	70	A
Isolation S12		35		dB
Input Max Power (No damage)		Psat – Gain		dBm
Weight		50		kg
Impedance		50		Ohms
Input /Output Connectors		Input N-Type Female --- Output N-Type Female		

* P1dB, P3dB and Psat power test 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	+60Vdc
RF Input Power (RFIN) Pin_max = Psat - Gainsat	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.

Biasing Up Procedure

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

Environmental Specifications and Test Standards

Parameter	Standard	Description
Operational Temperature	MIL-STD-39016	-45℃~+85℃
Storage Temperature		-55℃~+125℃
Thermal Shock		1 Hour@ -45℃ → 1 Hour @ +85℃ (5 Cycles)
Random Vibration		Acceleration Spectral Density 6 (m/s) Total 92.6 RMS
Electrical & 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	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
RFLUPA06G12GF2	06GHz~12GHz EMC 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.

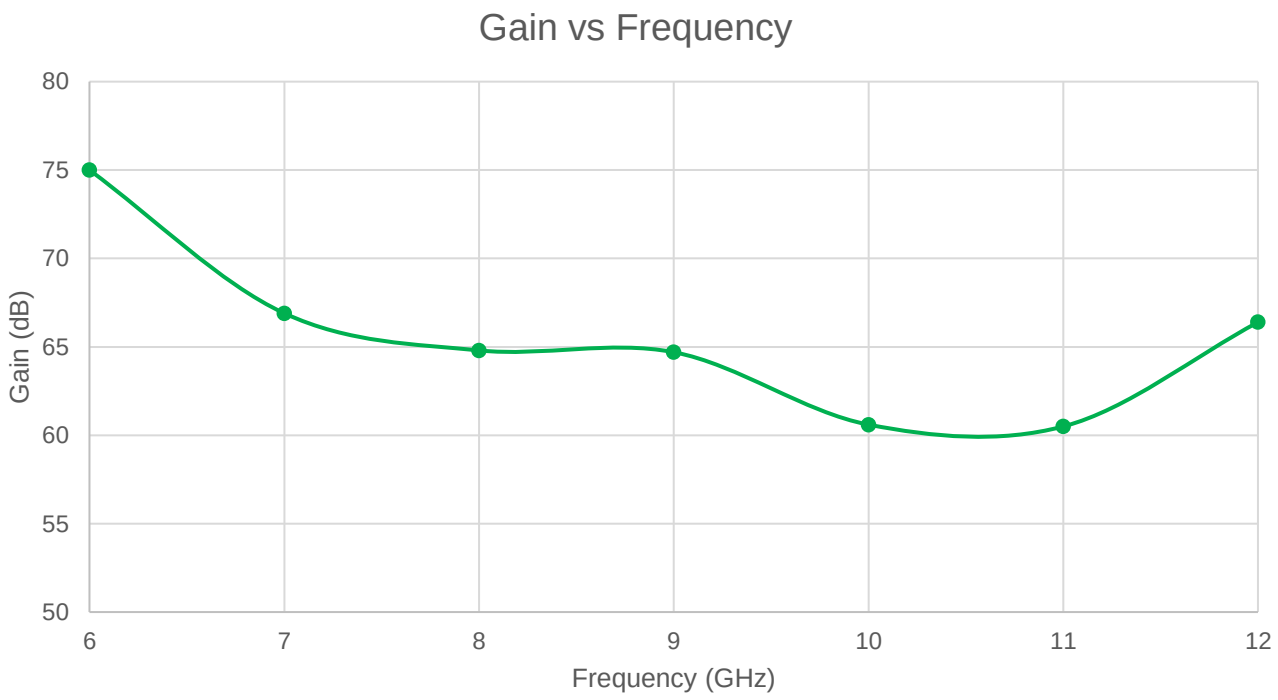
Adequate heat-sinking required for RF amplifier modules. Please inquire.

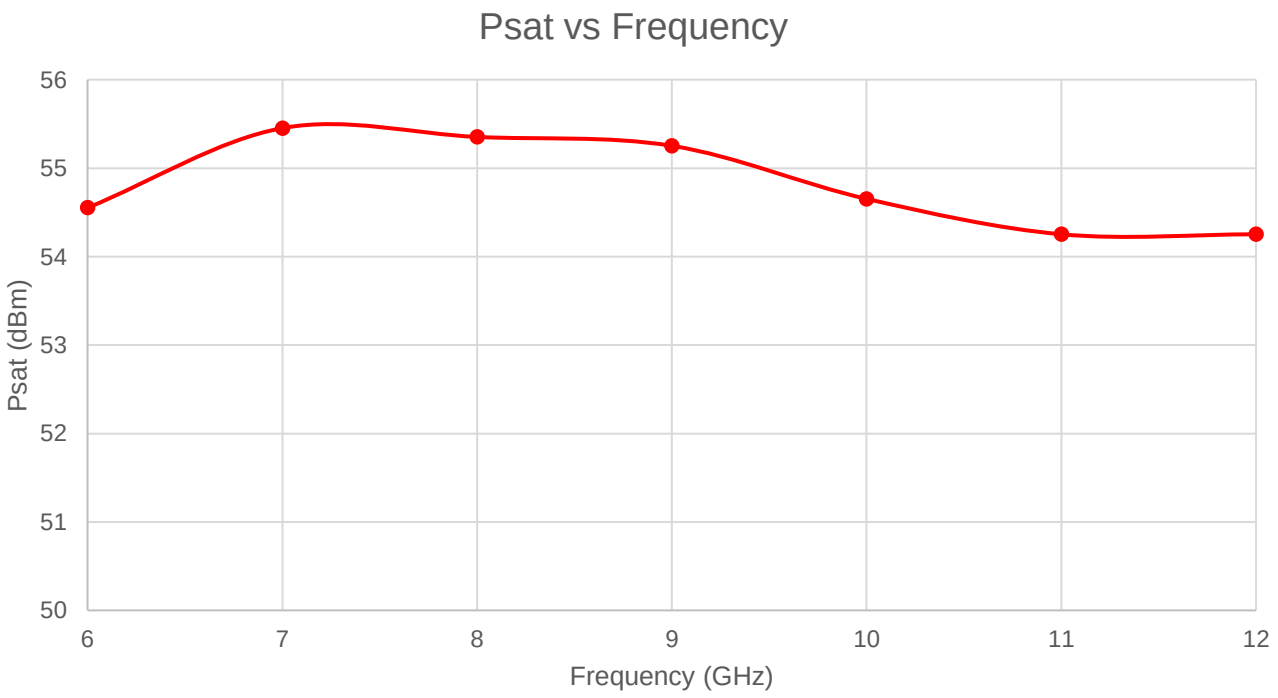
Amplifiers do not contain Thermal protection, Reverse DC polarity or Over voltage protection with the exception of a few models. Please inquire.

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

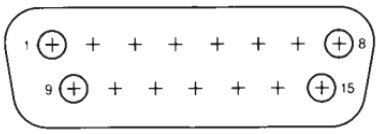
What is not covered with warranty?

Each 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.


Gain vs Frequency
Gain (dB)
80
75
70
65
60
55
50
6
7
8
9
10
11
12
Frequency (GHz)


Psat vs Frequency
Psat (dBm)
56
55
54
53
52
51
50
6
7
8
9
10
11
12
Frequency (GHz)

Protection Connector Table:

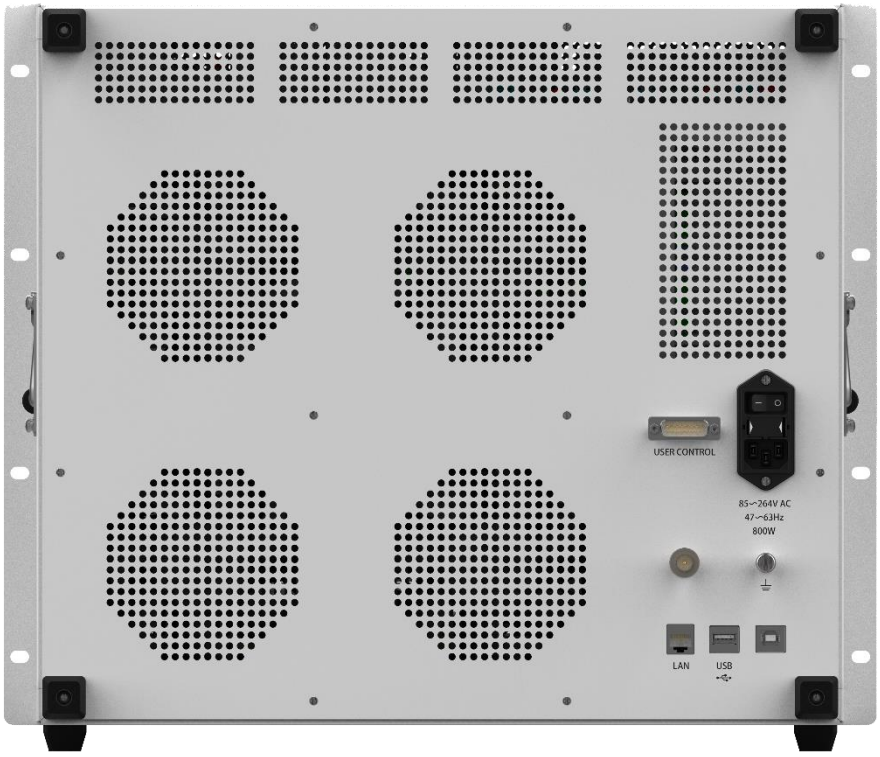


Pin #	Name	Function	Initial State	Description	Applied
1	Reset	Control		Resets PA when logic LOW is applied and released	Yes
2	Drain Disable	Control	LOW	Appling logic HIGH disables drains of amplifiers	Yes
3	Gate Disable	Control	LOW	Applying logic HIGH disables gates of amplifiers	Yes
4	RF IN Over	Indicator	LOW	Pin will be latched to logic HIGH when input signal is over limit	No
5	Temp Over	Indicator	LOW	Pin will be latched to logic HIGH when amplifier is driven over temperature	Yes
6	Current Over	Indicator	LOW	Pin will be latched to logic HIGH when drain current limit is reached	Yes
7	ID Imbalance	Indicator	LOW	Pin will be latched to logic HIGH when an imbalance in the drain current of the combining branches occurs	Yes
8	PA input power	Indicator		PA input power is represented by voltage	No
9	PA output power	Indicator		PA output power is represented by voltage	No
10	PA output reflection power	Indicator		PA output reflection power is represented by voltage	No
11	VSWR	Indicator	LOW	Pin will be latched to logic HIGH when output reflection is over limit	No
12	Temp Signal	Indicator		PA carrier case temperature is represented by voltage	Yes
13	+5V	Power Supply	+5V	+5V DC is supplied for reference	Yes
14	GND	Ground	GND	Ground	Yes
15	GND	Ground	GND	Ground	Yes

HIGH/LOW voltages are standard TTL signals:
0.0V-0.8V = LOW
2V-5V = HIGH

Outline Drawing:

All Dimensions in mm



Heat Sink and cooling fan required during operation

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Important Notice

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