100W Wide Band Power Amplifier
6GHz~12GHz

RoHS Compliant

Features

- Wideband Solid State Power Amplifier
- Psat: +50 dBm
- Gain: 70 dB
- Supply Voltage: +48V
- 50 Ohm Matched.

Typical Applications

- Wireless Infrastructure
- Short Haul / High Capacity Links
- RF Microwave and Vsat
- Military & Aerospace Applications
- Test Instrumentation

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

Parameter	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Frequency Range	6 – 10			10 – 12			GHz
Gain		72			67		dB
Gain Flatness		±10			±10		dB
Gain Variation Over Temperature (-45°C ~ +85°C)		±3			±3		dB
Input Return Loss		10			10		dB
Output Return Loss		10			10		dB
Saturated Output Power (Psat)		50			49		dBm
Supply Current (+48 VDC)		3.7	12		3.7	12	A
Input Max Power(no damage)	Psat – Gain			Psat – Gain			dBm
Weight	≈ 40						lbs
Impedance	50						Ohms
Input /Output Connector	Input SMA-Female --- Output N-Type Female						
Finishing	Nickel Plated						
Material	Aluminum / Copper						
Package Sealing	Epoxy and Screw Tight Sealing (Standard)						
	Hermetically Sealed (Optional with extra charge)						

* 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.

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Absolute Maximum Ratings	
Supply Voltage	+50 VDC
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 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 +48V
Power OFF Procedure	
Step 1	Turn off +48V
Step 2	Remove RF connection
Step 3	Remove Ground.

Environment specifications	
Operational Temperature (°C)	-45 ~ +85 (Case Temperature must be less than 85C all time)
Altitude	30,000 ft. (Epoxy Sealed Controlled environment)
	60,000 ft 1.0psi min (Hermetically Sealed Un-controlled environment) (Optional)
Vibration	25g RMS (15 degrees 2KHz) endurance, 1 hour per axis
Humidity	100% RH at 35c, 95%RH at 40°c
Shock	20G for 11msec 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
RFLUPA06G12GD	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.

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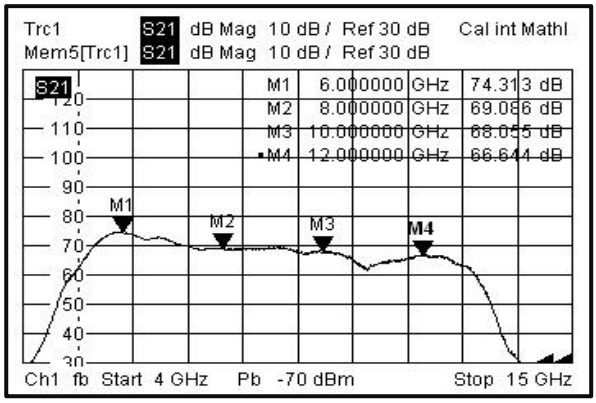
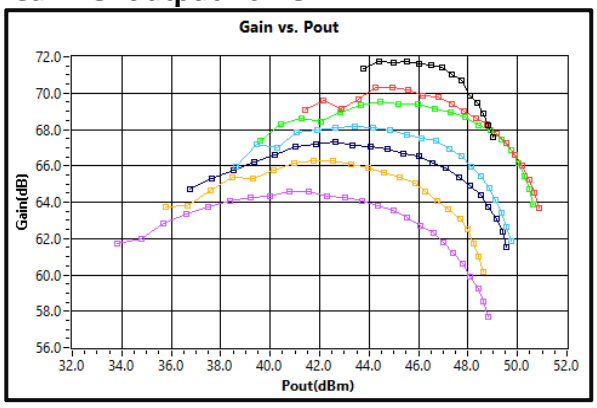
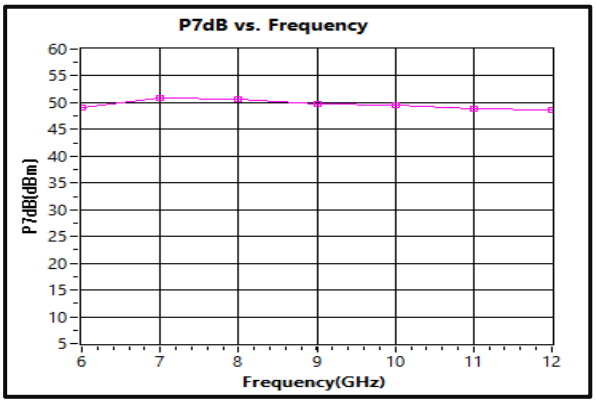
Gain



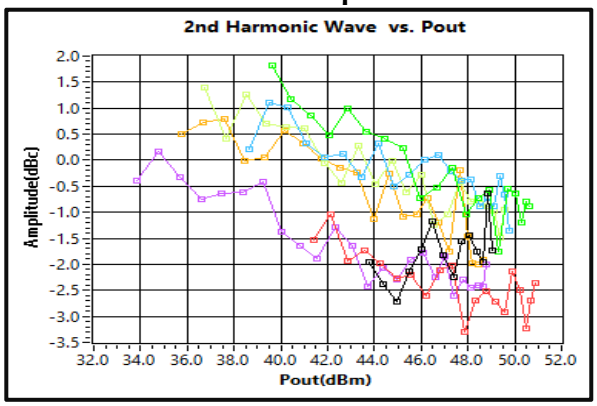
Gain vs. Output Power



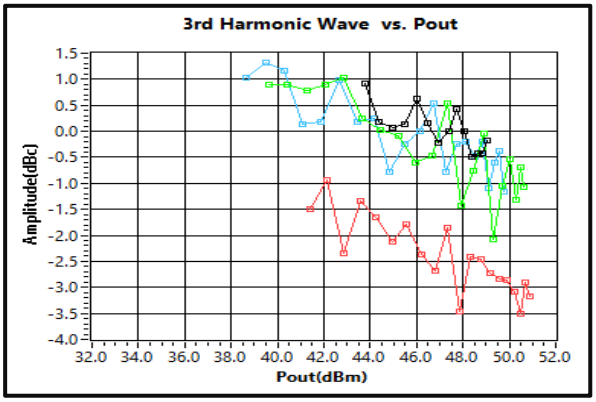
P7dB vs. Frequency



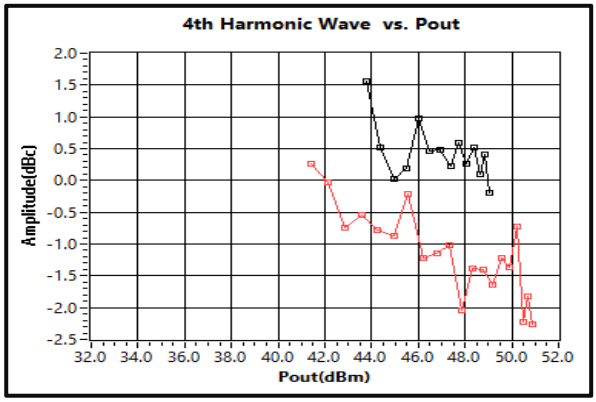
2nd Harmonic Wave Output Power

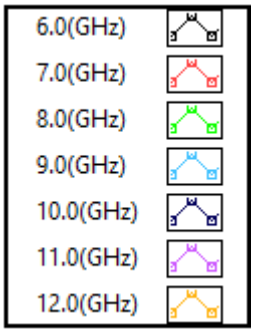


3rd Harmonic Wave Output Power



4th Harmonic Wave Output Power





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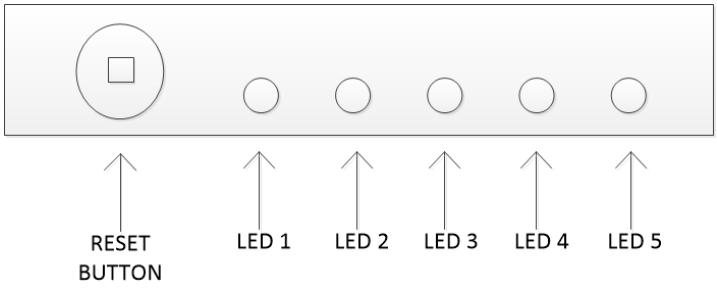
Alarm Status Panel:



	Name	Function	Initial State	Description	Applied
	RESET	Control		Manual reset button to reset PA	Yes
LED 1	POWER	Indicator	RED Color	LED will light to RED color when supply power is applied	Yes
LED 2	RF IN	Indicator	GREEN Color	PA will shut down and latch this LED to a RED color when input signal is over limit *	Yes
LED 3	VSWR	Indicator	GREEN Color	PA will shut down and latch this LED to a RED color when output reflection is over limit *	Yes
LED 4	ID	Indicator	GREEN Color	PA will shut down and latch this LED to a RED color when an imbalance in the drain current of the combining branches occurs or if a drain current limit is reached *	Yes
LED 5	TEMP	Indicator	GREEN Color	PA will shut down and latch this LED to a RED color when driven over temperature *	Yes

*LED needs to be manually reset to initial state by pressing RESET button

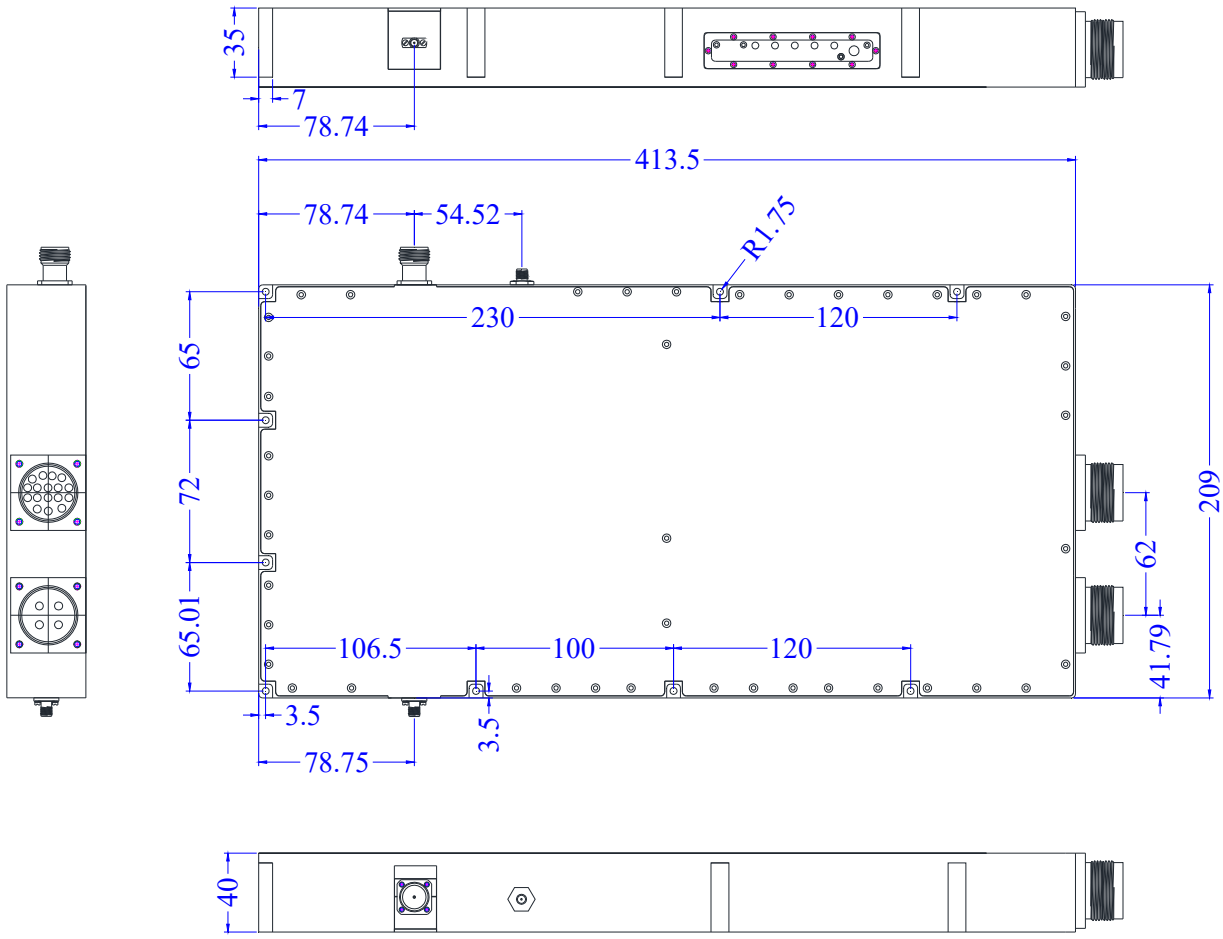
Protection Connector Table:

Pin #	Name	Function	Initial State	Description	Applied
A	Reset	Control		Resets PA when logic LOW is applied and released	No
B	Drain Disable	Control	LOW	Appling logic HIGH disables drains of amplifiers	Yes
C	Gate Disable	Control	LOW	Applying logic HIGH disables gates of amplifiers	No
D	RF IN Over	Indicator	LOW	Pin will be latched to logic HIGH when input signal is over limit	No
E	Temp Over	Indicator	LOW	Pin will be latched to logic HIGH when amplifier is driven over temperature	No
F	Current Over	Indicator	LOW	Pin will be latched to logic HIGH when drain current limit is reached	No
G	ID Imbalance	Indicator	LOW	Pin will be latched to logic HIGH when an imbalance in the drain current of the combining branches occurs	No
H	PA input power	Indicator		PA input power is represented by voltage	No
J	PA output power	Indicator		PA output power is represented by voltage	No
K	PA output reflection power	Indicator		PA output reflection power is represented by voltage	No
L	VSWR	Indicator	LOW	Pin will be latched to logic HIGH when output reflection is over limit	No
M	Temp Signal	Indicator		PA carrier case temperature is represented by voltage	Yes
N	+5V	Power Supply	+5V	+5V DC is supplied for reference	No
P	GND	Ground	GND	Ground	Yes
R	NA	NA	NA	NA	No
S	NA	NA	NA	NA	No
T	NA	NA	NA	NA	No

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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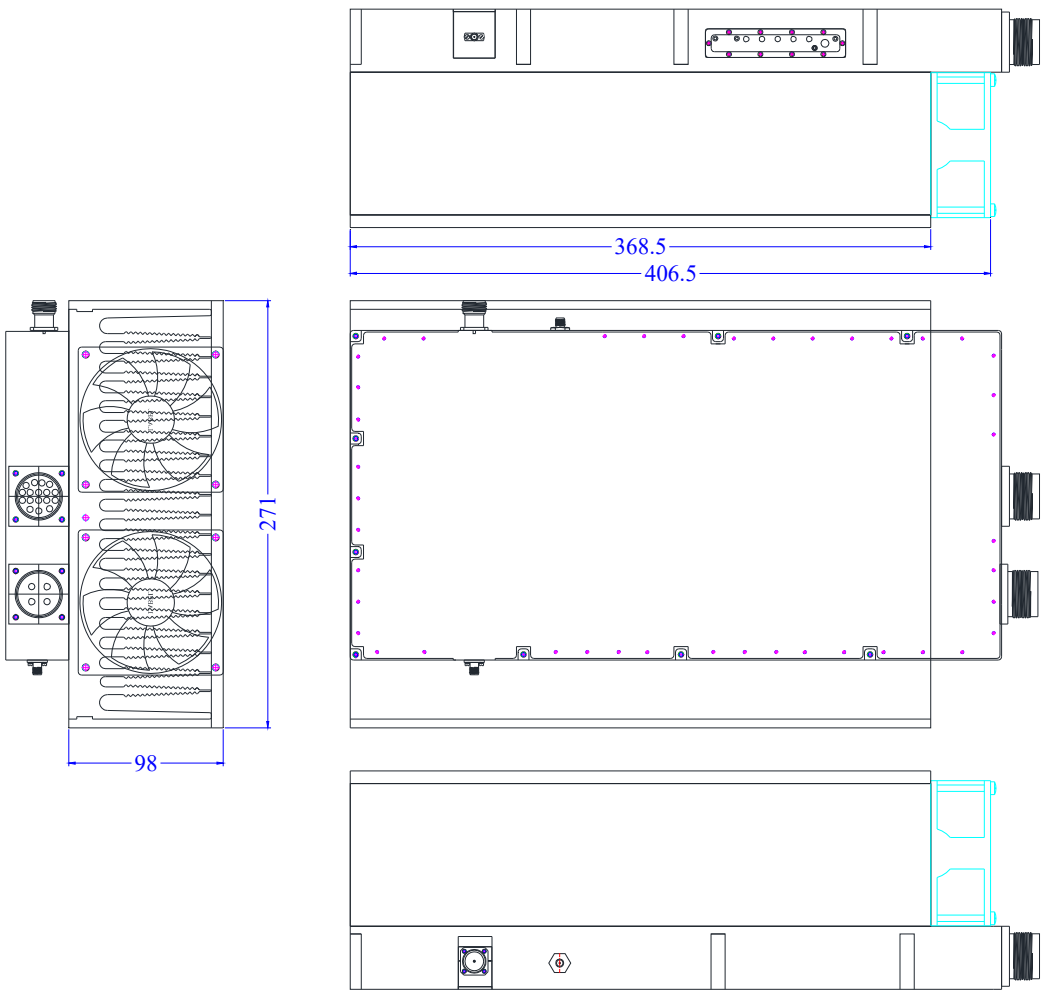
Outline Drawing Heatsink Including Air Cooling:

All Dimensions in mm



Heat Sink and cooling fan required during operation

Important Notice