100W Power Amplifier 8GHz~11GHz

- High output power +50dBm
- Aerospace and military application
- X-band radar
- High Peak to average handle capability
- All specifications can be modified upon request

RoHS Compliant

Parameter	Min	Typ	Max	Units
Frequency Range		8-11GHz		GHz
Gain		48		dB
Gain Variation Over Temperature		6	8	dB
Input Return Loss	-7	-15	-20	dB
Output Return Loss	-6	-15	-23	dB
Saturated Power (Psat)		50		dBm
Output Third Order Intercept (IP3)	46	47	49	dBm
Supply Current (Idd) (Vdd=+48V)		900	8000	mA
Power Supply	36	48	60	V
Isolation S12		-45	-40	dB
Input Max		14		dBm
Weight		≈ 6000		g
Impedance		50		Ohms
Input /Output Connector		SMA-Female Input/N-Type Output		
Finishing		Nickel Plated Finish		
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.

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Absolute Maximum Ratings	
Supply Voltage	+60 VDC
RF Input Power (RFIN) Pin_max = Psat - Gainsat	14dBm
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 input and output with 50 Ohm source/load. (in band VSWR<1.9:1 or >10dB return loss)
Step 2	Connect Ground Pin
Step 4	Connect +48V biasing
Power OFF Procedure	
Step 2	Turn off +48V biasing
Step 3	Remove RF connection
Step 4	Remove Ground.

Environment specifications	
Operational Temperature (C°)	-45 ~ +85(Case Temperature must be less than 85C all time)
Altitude	30,000 ft. (Epoxy Seal Controlled environment) 60,000 ft 1.0psi min (Hermetically Seal Un-controlled environment) (Optional)
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 sin 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
RFLUPA08G11GC	8GHz~11GHz 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.

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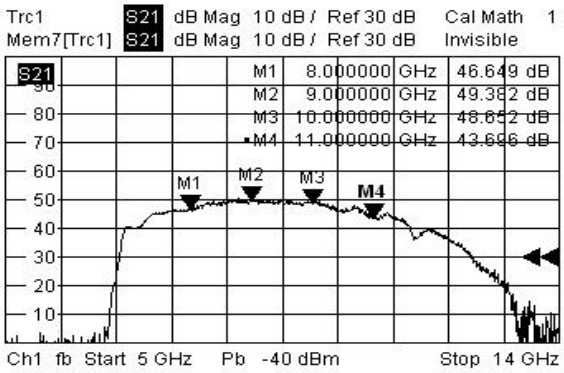
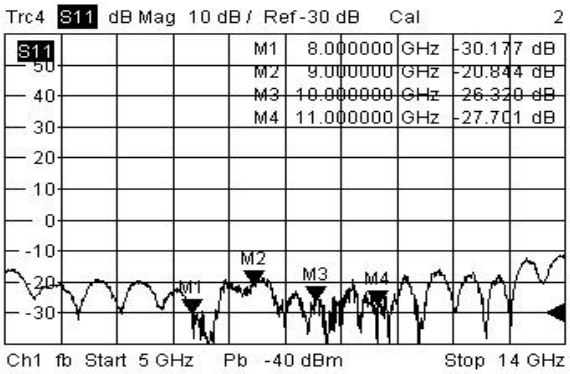
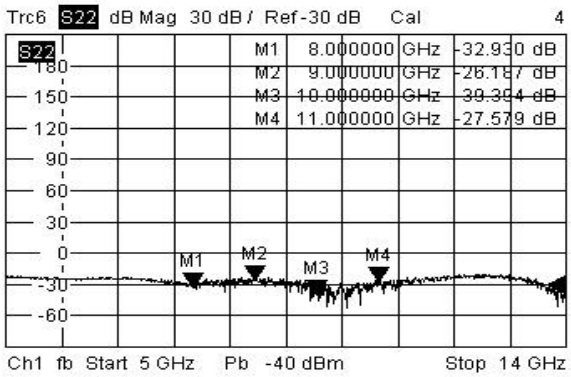
Gain



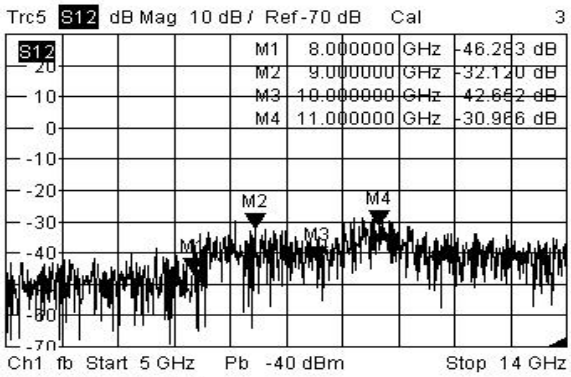
Input Return Loss



Output Return Loss



Isolation



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

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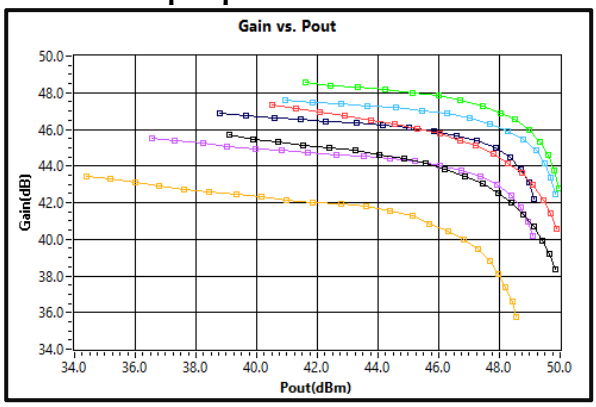
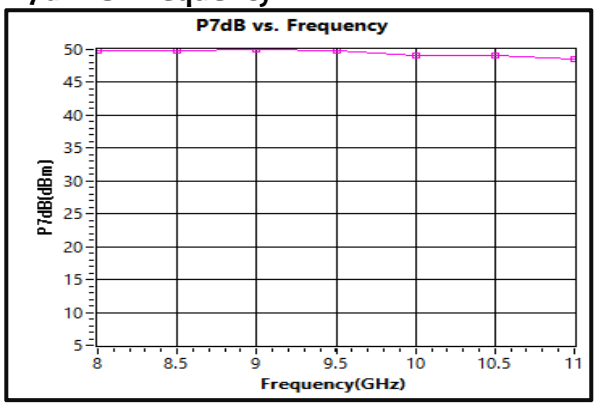
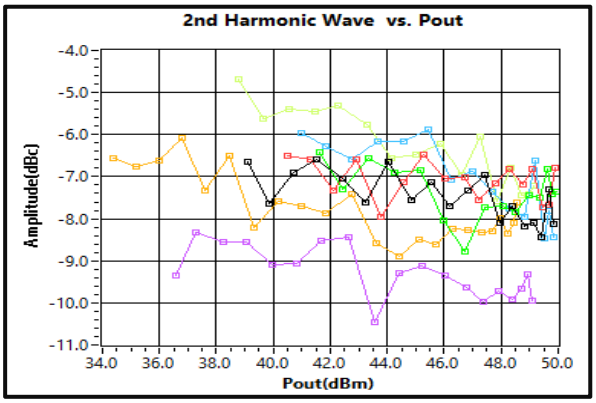
Gain vs. output power



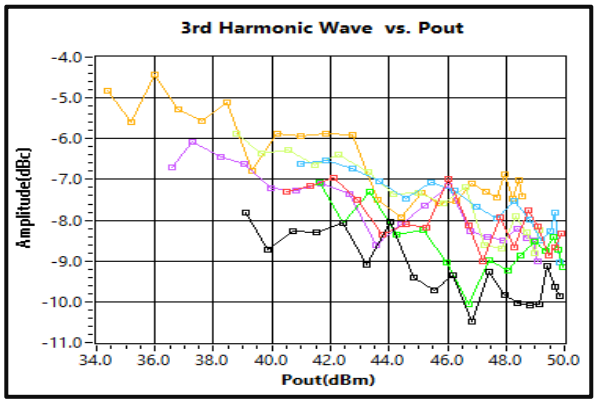
P7dB vs. Frequency



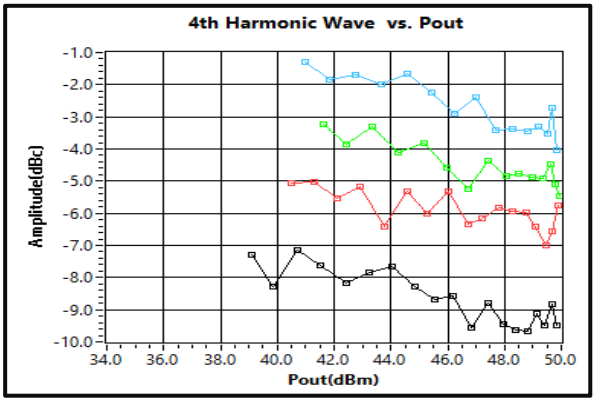
2nd Harmonic Wave vs Output Power

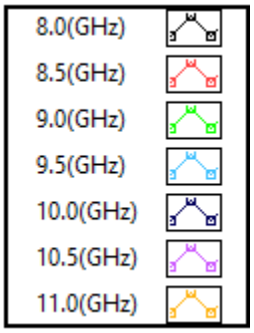


3rd Harmonic Wave Output Power



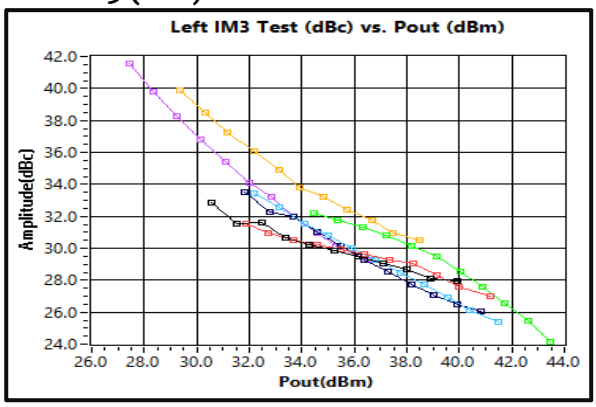
4th Harmonic Wave vs Output Power



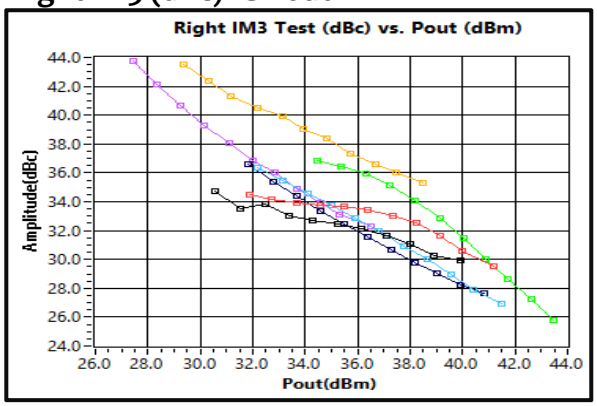


10% Duty Cycle 200us Pulse Width

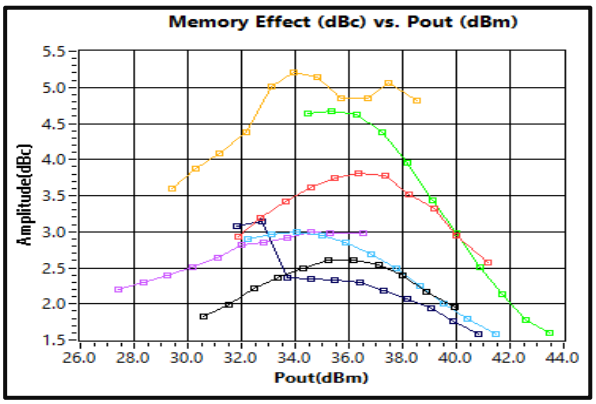
Left IM3 (dBc) vs Pout

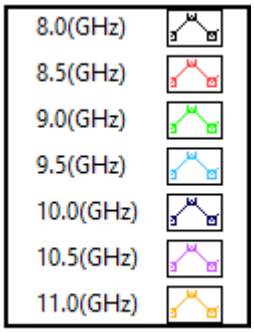


Right IM3 (dBc) vs Pout



Memory Effect vs Pout





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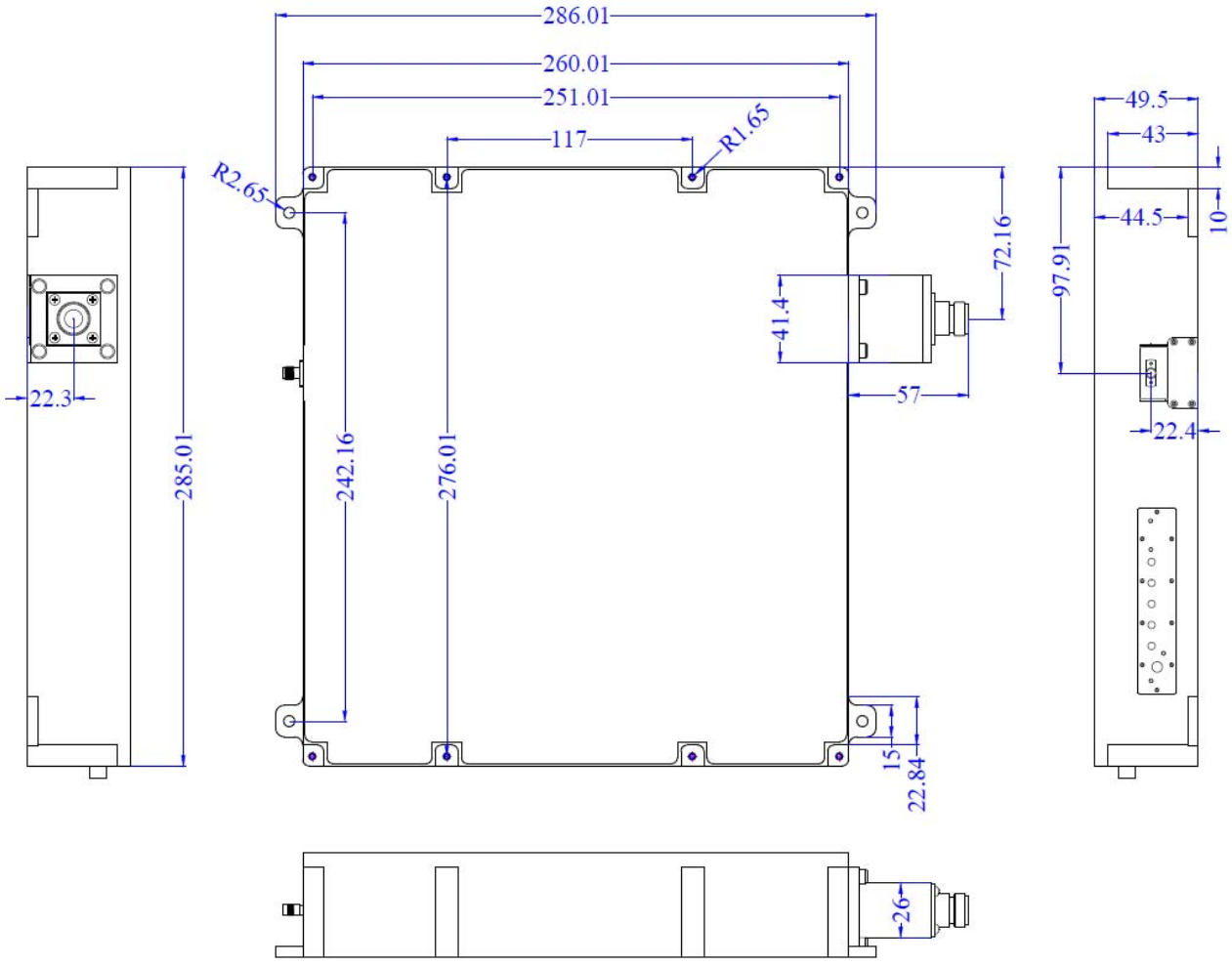

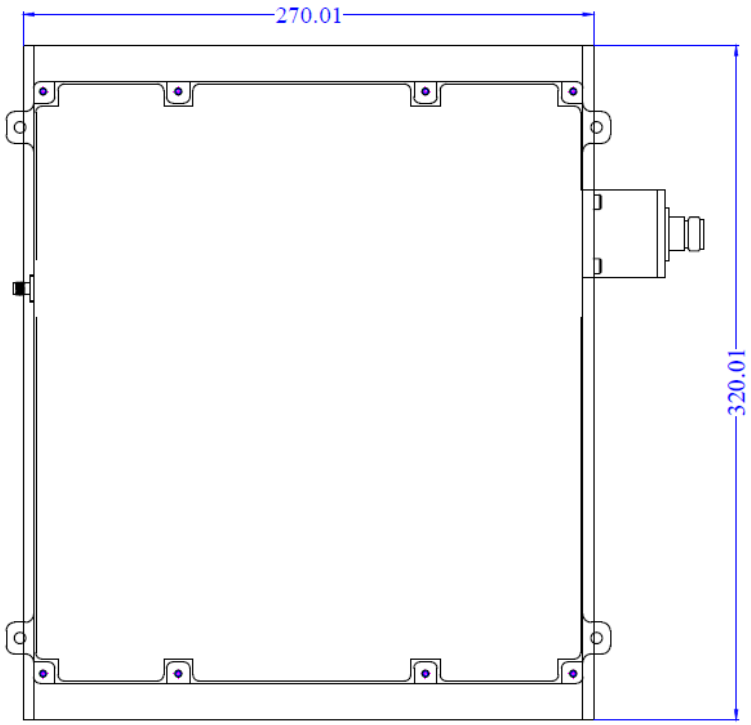

Heat Sink and cooling fan required during operation

Important Notice

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RF-Lambda products are not warranted or authorized for use as critical components in medical, life-saving, or life sustaining applications, or other applications where a failure would reasonably be expected to cause severe personal injury or death.

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