



## 40W Power Amplifier 6-18GHz



- Short Haul / High Capacity Links
- High Power Amplifier
- Military & Space
- Psat: + 46dBm
- Gain: 58 dB
- Supply Voltage: +36V
- 50 Ohm Matched Input/Output



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

Parameter	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Frequency Range	6		12	12		18	GHz
Gain	58	62	68	52	56	60	dB
Gain Flatness		±5			±4		dB
Gain Variation Over Temperature(-45 ~ +85)		±3			±3		dB
Noise Figure		6			6		dB
Input Return Loss		15			13		dB
Output Return Loss		25			22		dB
Output Power for 1 dB Compression (P1dB)	42	43	44	40	41	42	dBm
Saturated Output Power (Psat)	45	46	46.5	43	45	46	dBm
IM3 at (40dBm output)		-41			-39		dBc
Supply Current (Idd) (Vcc=+36V)	5.7	6	9	5.7	6	9	A
Isolation S12	80	86		79	85		dB
Input Max Power(no damage)			+5			+5	dBm
Weight	3000						g
Impedance	50						Ohms
Input /Output Connector	SMA-Female						
Finishing	Standard: Nickel 220 micron thickness						
Material	Aluminum/copper						
Package Sealing	Epoxy and Screw tight Sealing (Standard)						
	Hermetically Seal (Option with extra charge)						

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

\* For average CW power testing, a 5dB back off from Psat is required unless water/oil cooling system is applied.



# RF-LAMBDA

The power beyond expectations

RFLUPA0618GC

40W Wide Band Solid State Power Amplifier 6-18GHz

Absolute Maximum Ratings	
Supply Voltage	+40Vdc
RF Input Power (RFIN) Pin_max = Psat - Gainsat	+5dBm
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 +36V biasing
Power OFF Procedure	
Step 2	Turn off +36V 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	ECCN	Description
RFLUPA0618GC	3A001.b.4.b.4	6GHz~18GHz 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.

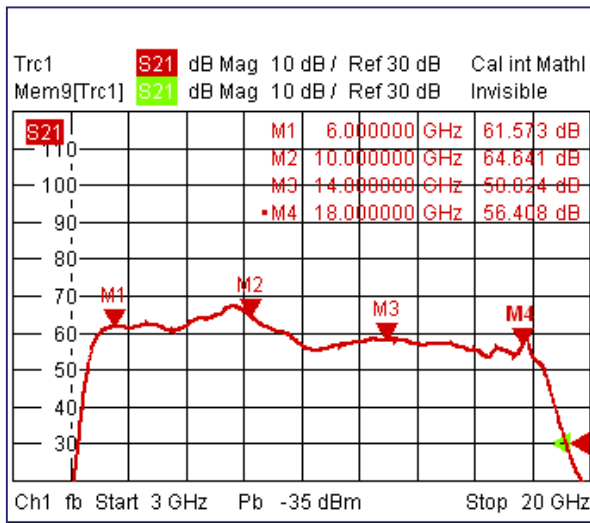
Proper electrostatic discharge (ESD) precautions are recommended to avoid performance degradation or loss of functionality.

### What is not covered with warranty?

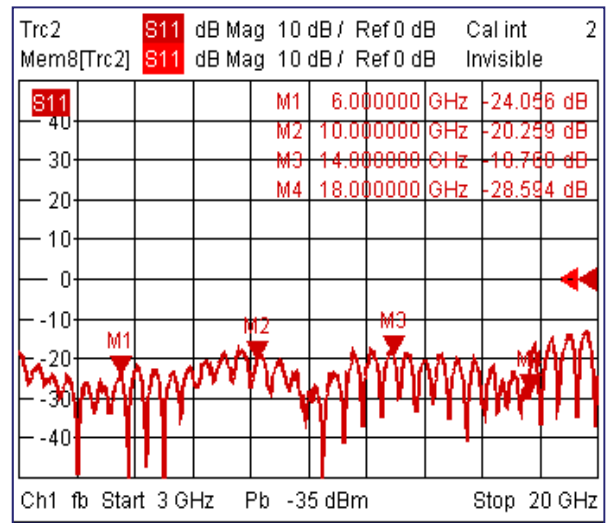
Each of RF-Lambda amplifiers will go through power and temperature stress testing. Due to fragile of the die, IC or MMIC, those are not covered by warranty. Any damage to those will NOT be free to repair.



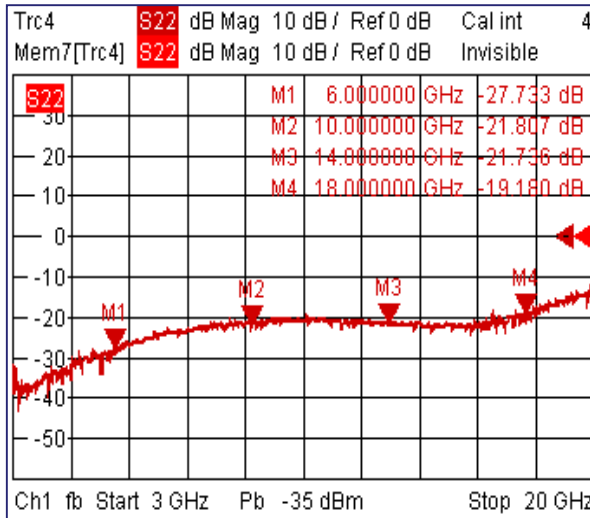
### Gain



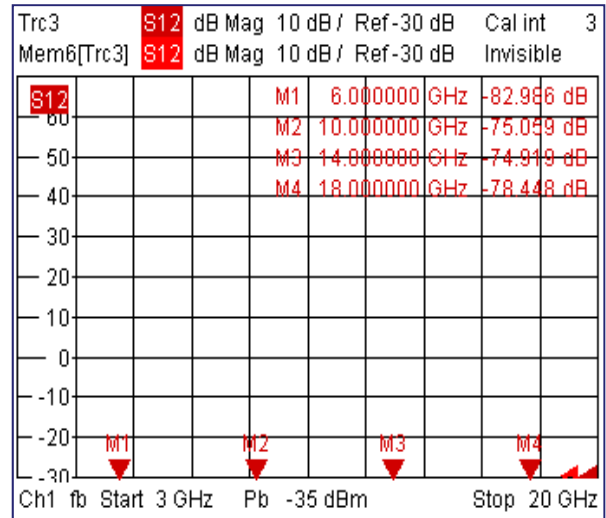
### Input Return Loss



### Output Return Loss



### Isolation



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

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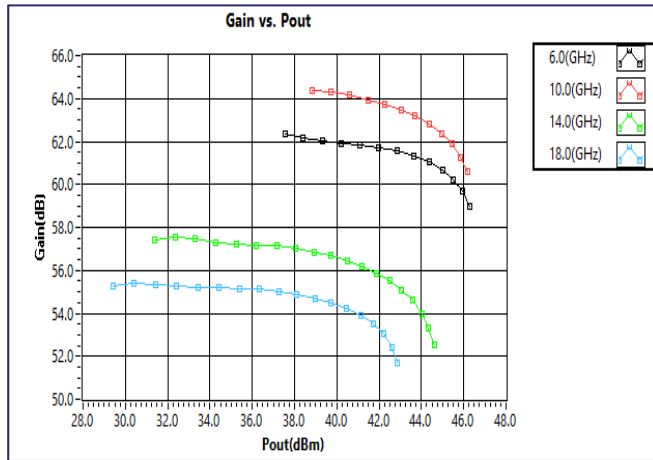


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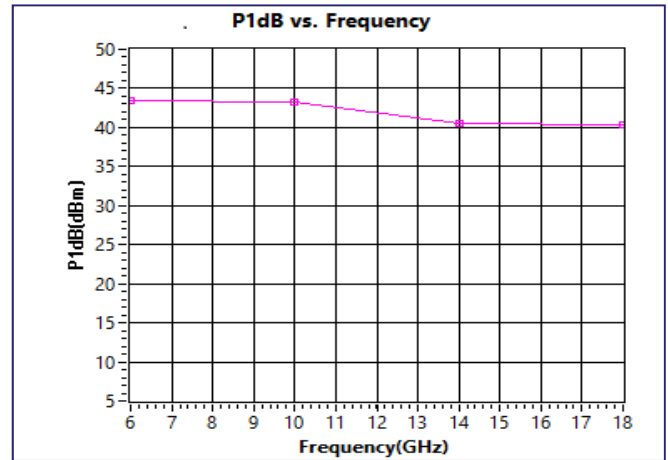
The power beyond expectations

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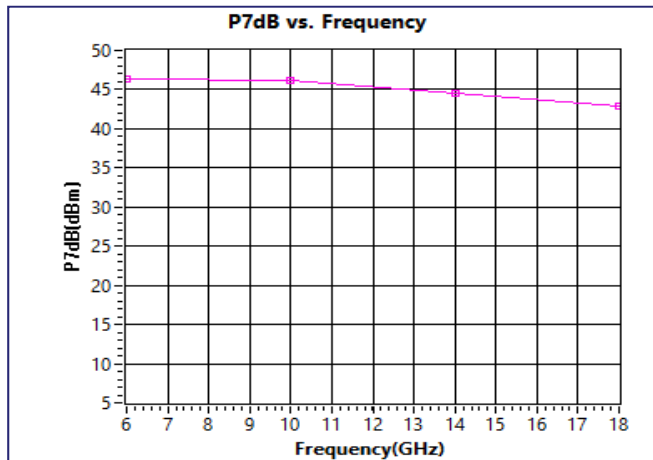
Gain vs. output power 6-18GHz



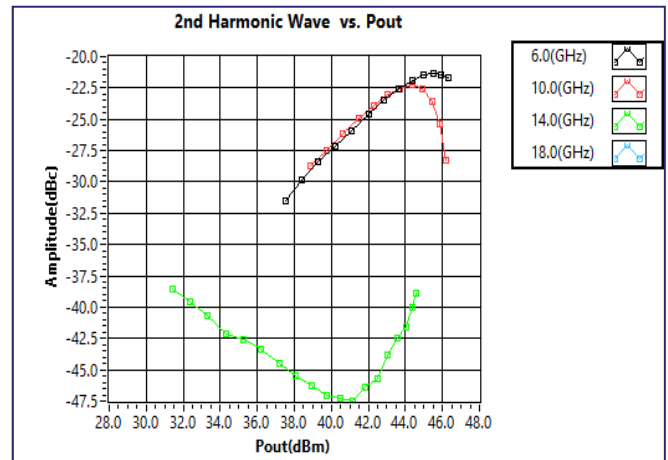
P1dB vs. Frequency 6-18GHz



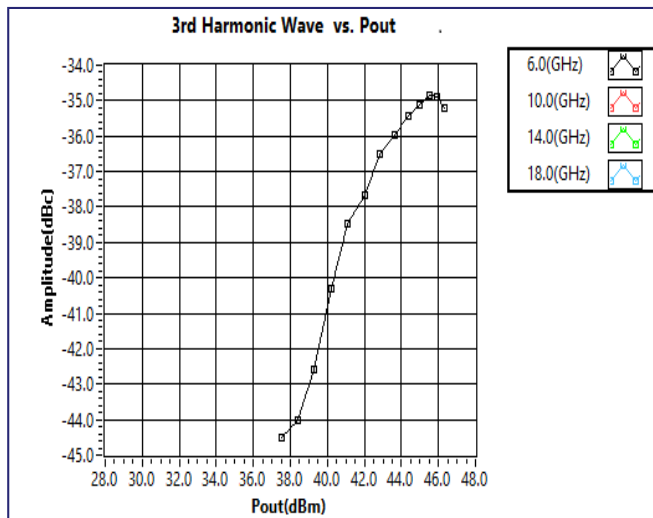
P7dB vs. Frequency 6-18GHz



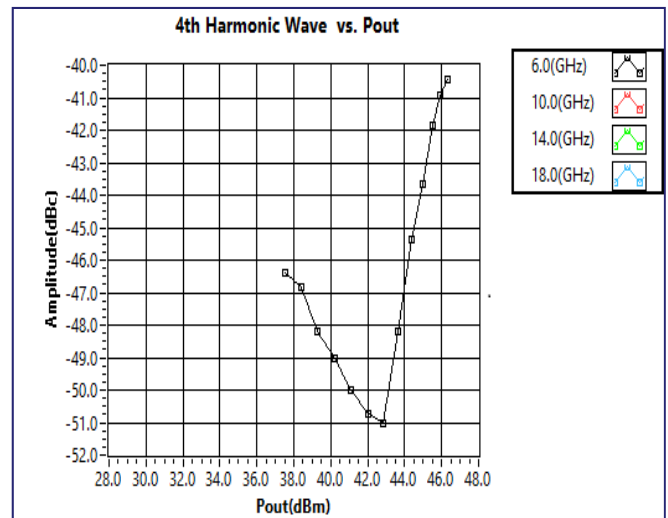
2nd Harmonic Wave Output Power 6-18GHz



3rd Harmonic Wave output Power 6-18GHz



4th Harmonic Wave output Power 6-10GHz



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PIN #	NAME	Function	TYPE	STANDARD	ENABLE	DESCRIPTION	Applied
1	RESET	Control	INPUT/OUTPUT	TTL	LOW	Set as logic low to reset PA (Front Panel also has a manual reset button to perform the same function)	Yes
2	Input Over	Indication	OUTPUT	TTL	HIGH	PA will first shut down then latch this PIN to logic high upon input overdrive	Yes
3	Over Temperature	Indication	OUTPUT	TTL	HIGH	PA will first shut down then latch this PIN to logic high when driven over temperature	Yes
4	Over Current	Indication	OUTPUT	TTL	HIGH	PA will first shut down then latch this PIN to logic high when Current Limit is reached	Yes
5	IDD Imbalance	Indication	OUTPUT	TTL	HIGH	PA will first shut down then latch this PIN to logic high upon imbalance in drain current of combining branches	Yes

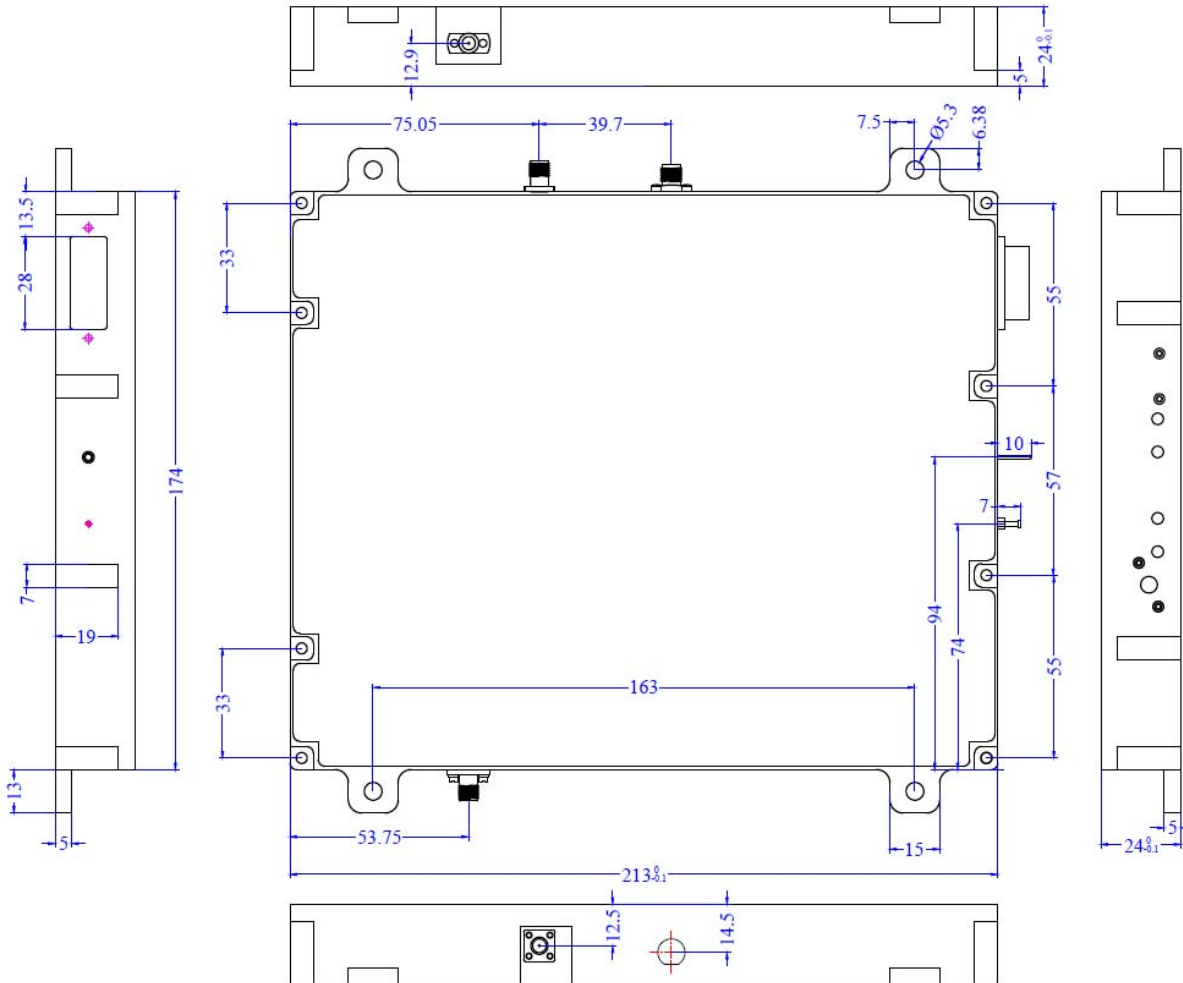
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\*\*\*Heat Sink and cooling fan required during operation\*\*\*



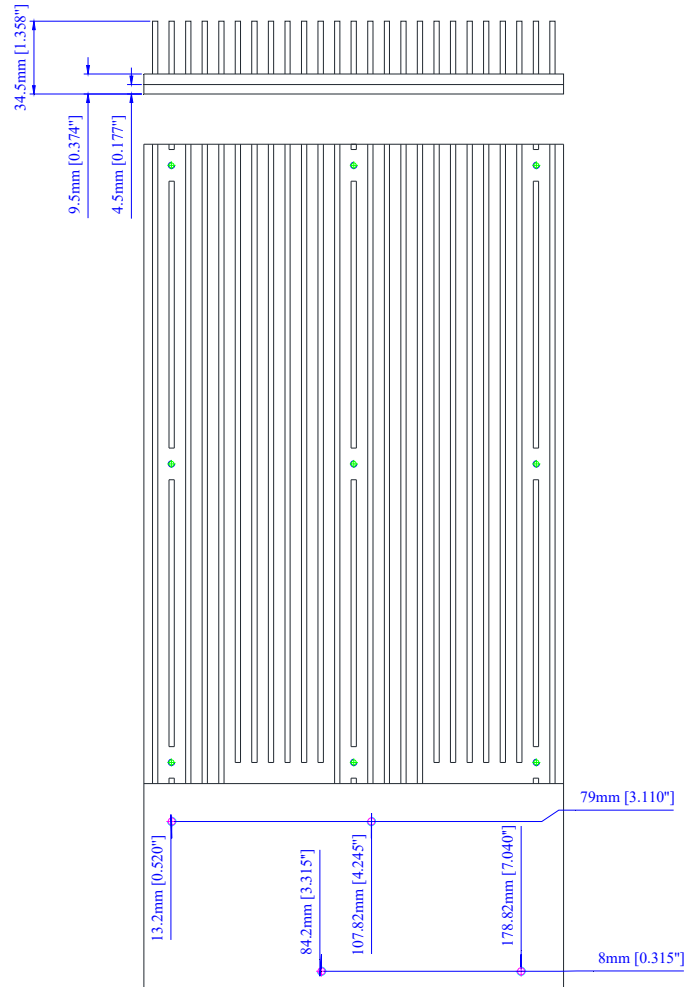
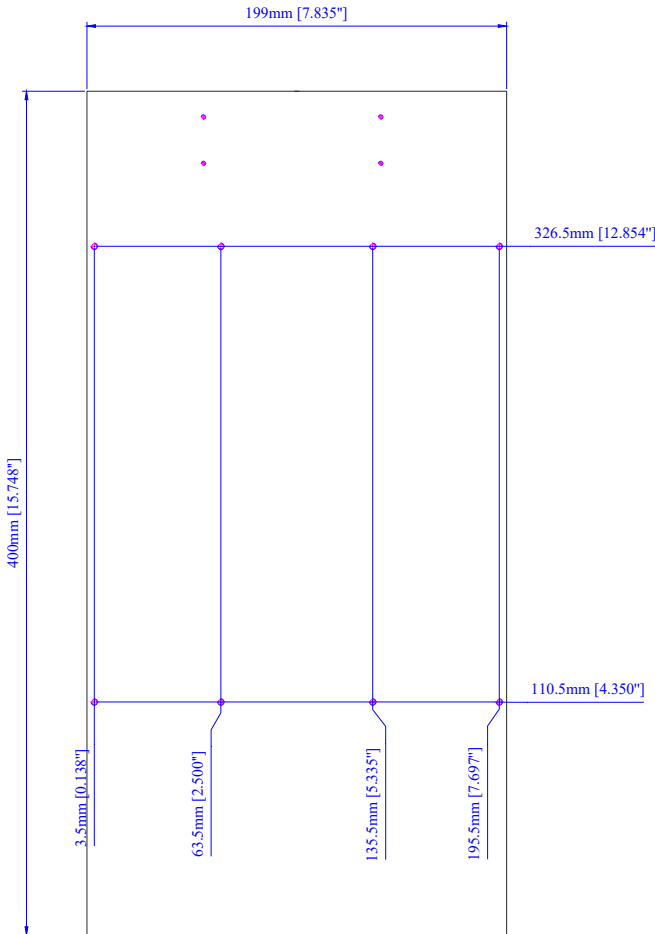
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