13-16.5GHz 40W Broadband Power Amplifier
AC 110V/220V

RoHS Compliant

Features

- High Output Power > 46dBm.
- Microwave Radio and VSAT.
- Aerospace and Military Applications.
- Telecom Infrastructure Applications.
- High peak to average handling capability.
- High linearity and low noise figure.
- Convenient AC Power Input.
- Integrated Heat Sink and Fan.
- All specifications can be modified upon request.

Electrical Specifications, T_A=25 ℃

Parameter	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Frequency Range	13		15	15		16.5	GHz
Gain	50	55	60	40	50	57	dB
Gain Flatness		±3			±7		dB
Gain Variation Over Temperature(-45 ~ +85)		±3			±3		dB
Input Return Loss		7			9		dB
Output Return Loss		10			8		dB
Saturated Output Power (Psat)	45	46	46.5	42	45	46	dBm
Supply Current (+48 VDC)		750	2000		750	2000	mA
Isolation S12	35	35		30	35		dB
Input Max Power(no damage)		-5			-5		dBm
Weight	3265						g
Impedance	50						Ohms
Input /Output Connector	SMA-Female						
Finish	Black Paint						
Material	Aluminum / Copper						

*** To achieve best/most reliable performance, keep case temperature below 38 degrees Celsius. Extra cooling on case is required

* P1dB, P3dB and Psat power test 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.

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RF-LAMBDA INC. www.rflambda.com
Sales: sales@rflambda.com Technical : support@rflambda.com

Absolute Maximum Ratings	
Supply Voltage	230 VAC
RF Input Power (RFIN)	-3 dBm
Storage Temperature(°C)	-50 to +125

Note: Maximum RF input power is defined to protect the amplifier from damage.
Input power may be increased at the users own risk to achieve the full output power of the amplifier. Please reference gain and power curves and monitor the temperature.

Biasing Up Procedure	
Step 1	Connect input and output with 50 Ohm source and load with in band return loss better than 10dB.
Step 2	Connect AC Plug
Step 3	Flip switch to "ON" position
Power OFF Procedure	
Step 1	Flip switch to "OFF" position
Step 2	Remove AC Plug
Step 3	Remove RF Connection

Environmental Specifications	
Operational Temperature (°C)	-45 ~ +85 (Case Temperature below 85)
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

Ordering Information	
Part No.	Description
RAMP13G17GA	40w 13-16.5GHz 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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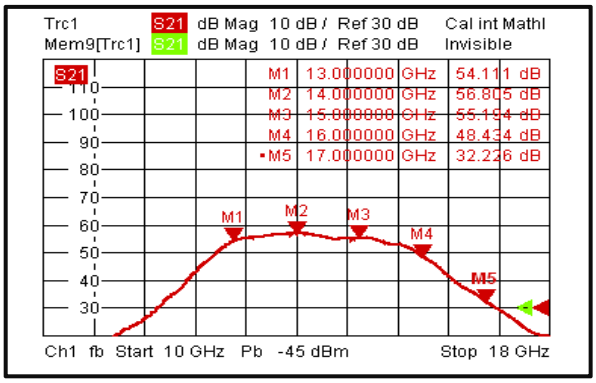
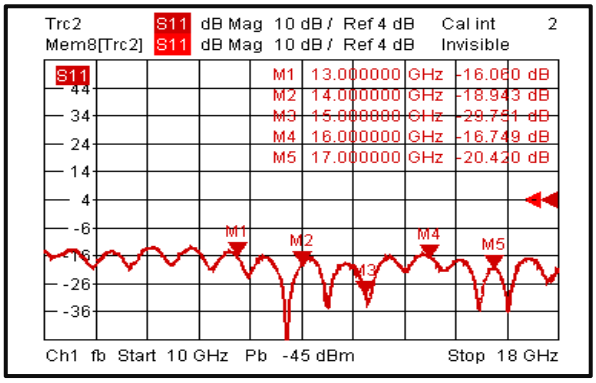
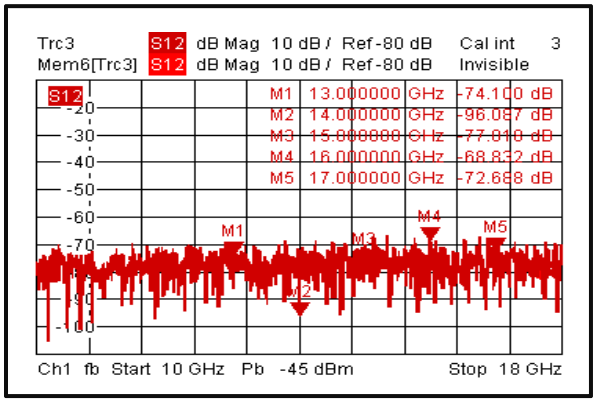
Gain vs. Frequency



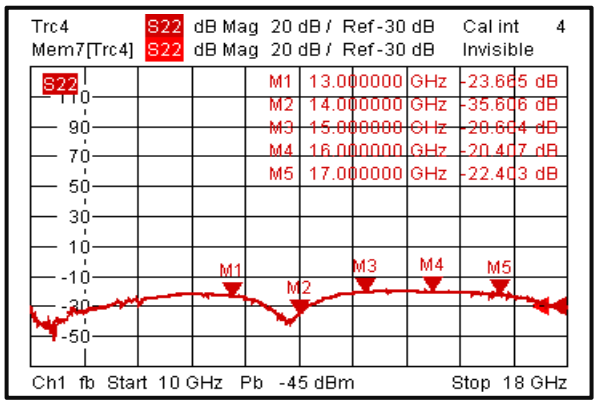
Input Return Loss



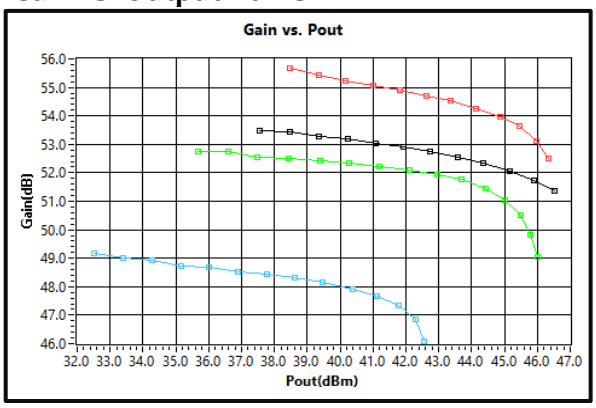
Output Return Loss



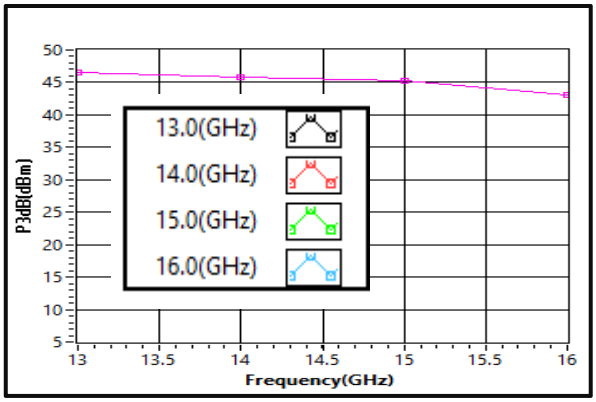
Isolation



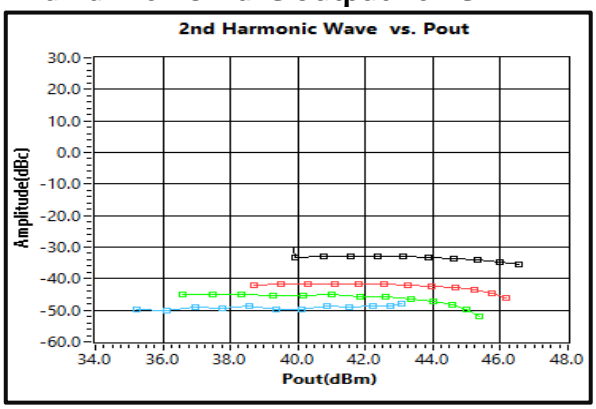
Gain vs. Output Power



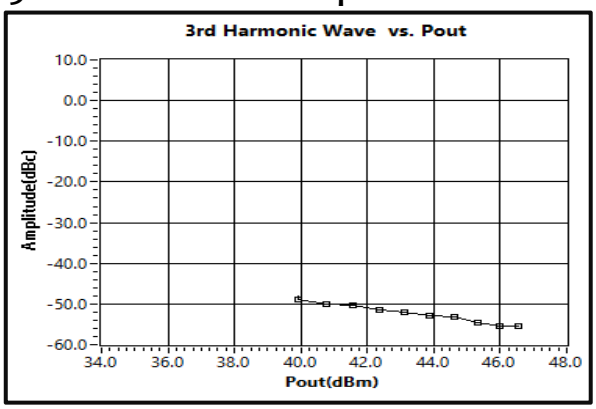
P3dB vs. Frequency 13-16 GHz



2nd Harmonic Wave Output Power

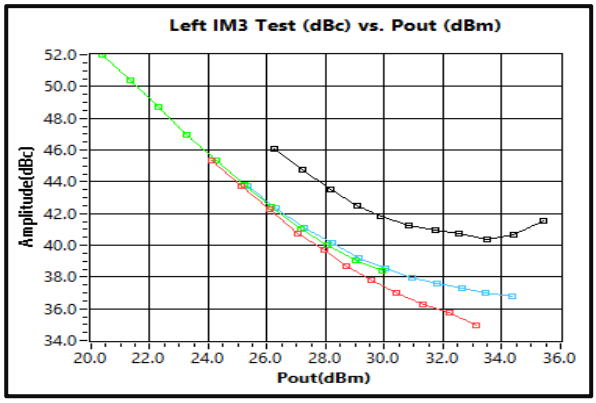


3rd Harmonic Wave Output Power

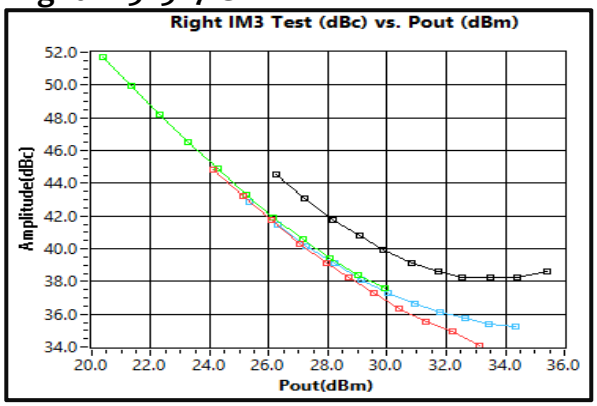


- Input/output return loss measurements include attenuators to protect equipment

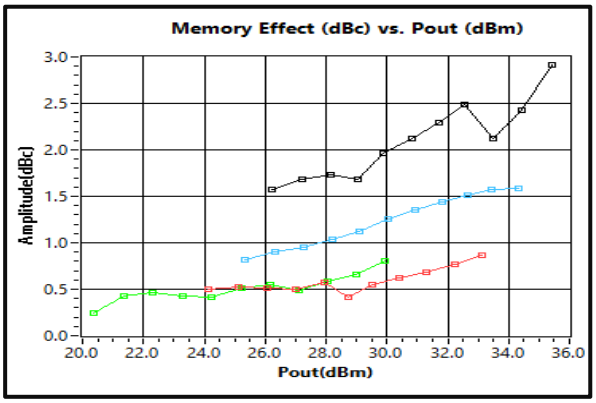
Left IM3 13-17 GHz

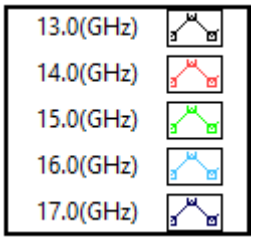


Right IM3 13-17 GHz



Memory Effect 13-17 GHz





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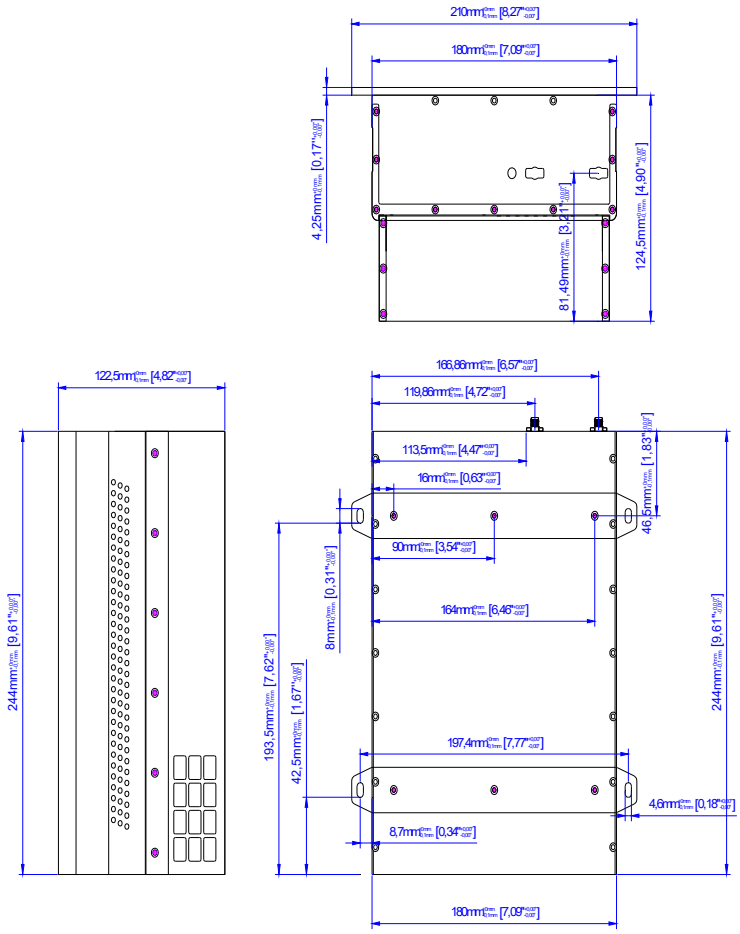
Outline Drawing:

All Dimensions in mm [inches]



Heat Sink and cooling fan required during operation

Important Notice

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