

Wideband AC
Low Noise Amplifier
0.05GHz – 3.3GHz

RAMP40M35GA



PRODUCT SUMMARY

PRODUCT OVERVIEW

GENERAL DESCRIPTION

RAMP40M35GA is a wideband AC low noise amplifier with a frequency range of 0.05 to 3.3GHz.

The power output of this amplifier is 23dBm typical. The typical small signal gain is 32dB with a flatness of ± 1.0 dB. The power amplifier's input connector is SMA-Female and Output connector is SAM-Female. The operating temperature of this product is within -40°C to $+85^{\circ}\text{C}$.



FEATURES

- » Wide band AC Low Noise Amplifier
- » Small Signal Gain 32dB Typical
- » P1dB Output Power 23dBm Typical
- » Output Saturation Power 26dBm Typical
- » Supply Voltage 110/220 VAC
- » 50 Ohm Matched Input / Output
- » High peak to average handling capability
- » High linearity and low noise figure
- » Convenient AC Power Input
- » Integrated Heat Sink and Fan

TYPICAL APPLICATIONS

- » Wireless Infrastructure
- » Military and Aerospace Applications
- » Test Instrumentation
- » Radar Systems
- » 5G Wireless Communications
- » Microwave Radio Systems
- » TR Modules
- » Research and Development
- » Cellular Base Stations

QUALITY STANDARDS



ESD Policy



https://rflambda.com/pdf/rflambda_esd_control.pdf

Random Vibration Test Standard



https://www.rflambda.com/pdf/rflambda_random_vibration_MIL-STD-202G.pdf

Connector Torque Specifications



https://www.rflambda.com/pdf/Torque_Specifications.pdf

Parameter	Description
Operational Temperature	-40°C to +85°C (Case Temperature)
Thermal Shock	-40°C to +85°C (5 Cycles / 10 hours, Only internal modules tested prior to final assembly)
*Random Vibration	MIL-STD-202G, Table 214-I, Test Condition Letter C, 1.5 Hours Per Axis
High Temperature Burn In	Temperature +85°C for 72 Hours
Storage Temperature	-50°C to +105°C

*For vibration testing details please see additional information section.

RF-Lambda is ISO: 9000 certified with 25,000 ft² combined R&D and production space, including an ISO7 10K Clean Room to meet ISO-14644-1.

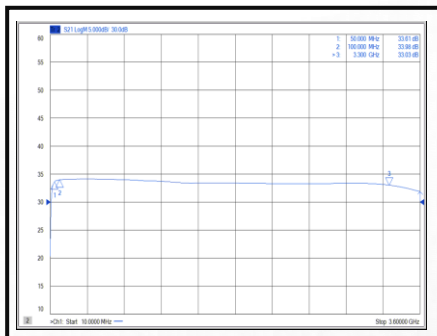
TECHNICAL DATA SPECIFICATIONS

Parameter	Min	Typ	Max	Min	Typ	Max	Units
Frequency Range	0.05		0.1	0.1		3.3	GHz
Small Signal Gain	30	32		30	32		dB
Gain Flatness		±1.0			±1.0		dB
Gain Variation Over Temperature (-40°C to 85°C)		±0.8			±1.0		dB
Noise Figure		2.0	2.5		2.5	3.0	dB
Input VSWR		1.5	2.0		1.6	2.0	:1
Output VSWR		1.5	2.0		1.6	2.0	:1
Output 1dB Compression Point (P1dB)	21	23		21	23		dBm
Saturated Output Power (Psat)		26			25		dBm
Output Third Order Intercept (OIP3)		35			35		dBm
Current (AC=220V)		55			55		mA
Isolation S12		-40			-40		dB
Weight			2.5 Max				lbs.
Impedance			50				Ohms
*RF Input Power (RFIN)			+0				dBm
Supply Voltage Range			110 to 240				VAC

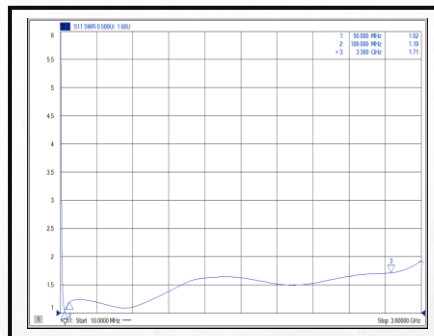
*Maximum RF input power is set to assure safety of amplifier. Input power may be increased at own risk to achieve full power of amplifier. Please reference gain and power curves.

TYPICAL PERFORMANCE PLOTS

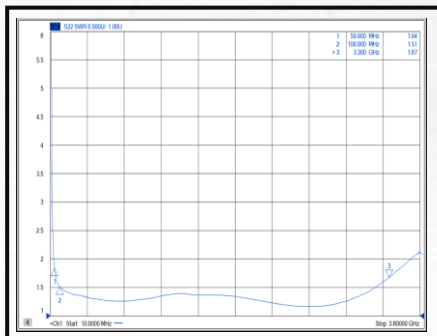
Gain @+25°C



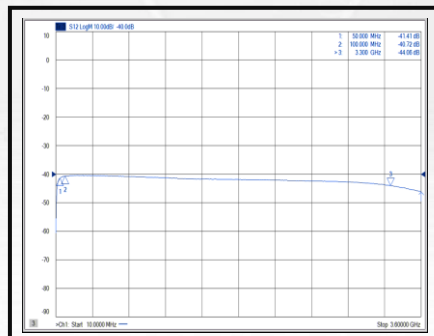
Input VSWR @+25°C



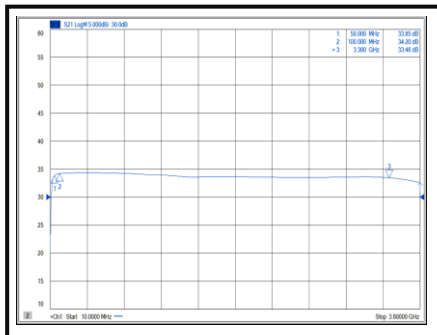
Output VSWR @+25°C



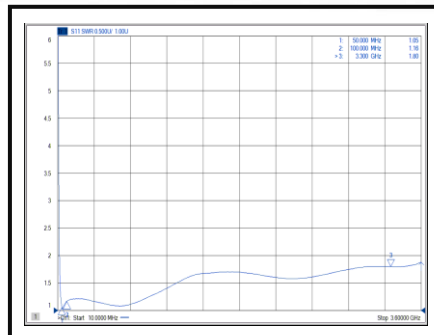
Isolation @+25°C



Gain @-40°C



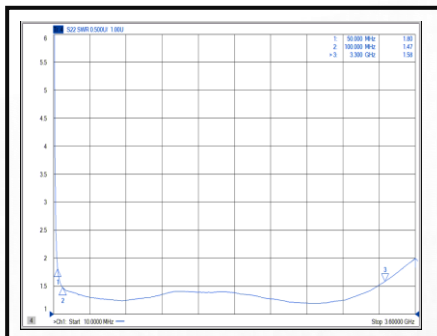
Input VSWR @-40°C



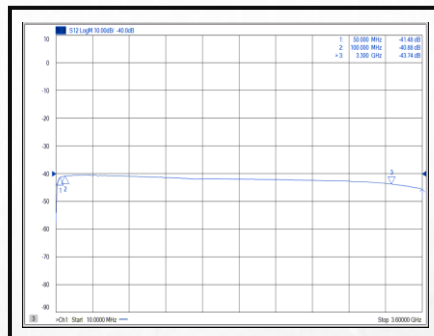
Note: Small signal VNA measurements include attenuators to protect equipment.

TYPICAL PERFORMANCE PLOTS

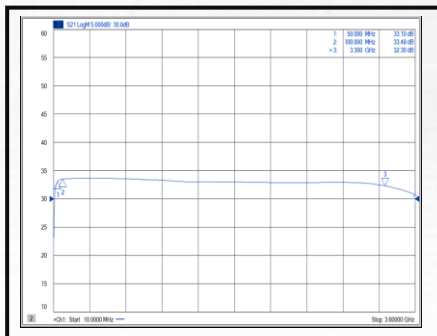
Output VSWR@-40°C



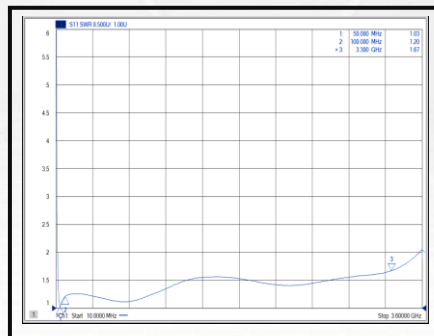
Isolation @-40°C



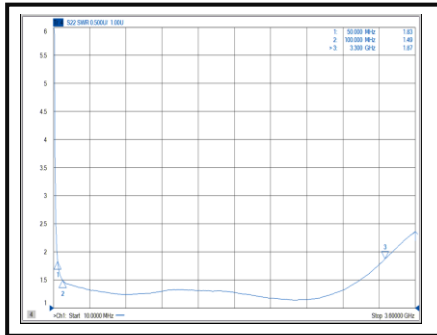
Gain @+85°C



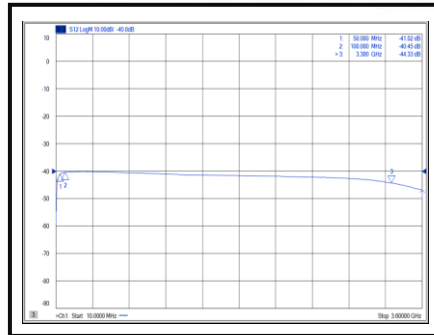
Input VSWR @+85°C



Output VSWR@+85°C



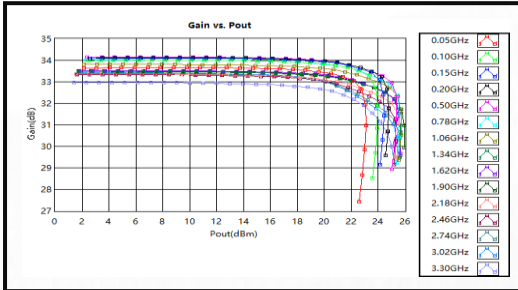
Isolation @+85°C



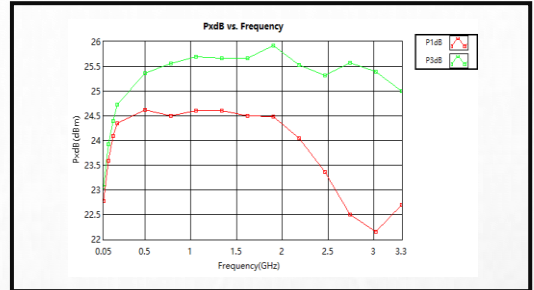
Note: Small signal VNA measurements include attenuators to protect equipment.

TYPICAL PERFORMANCE PLOTS

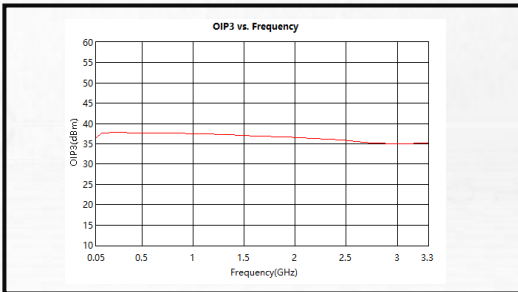
Gain vs. Output Power CW



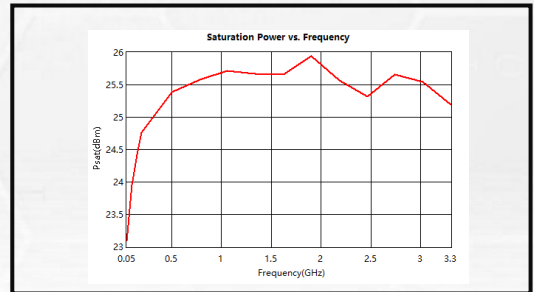
PndB vs. Frequency CW



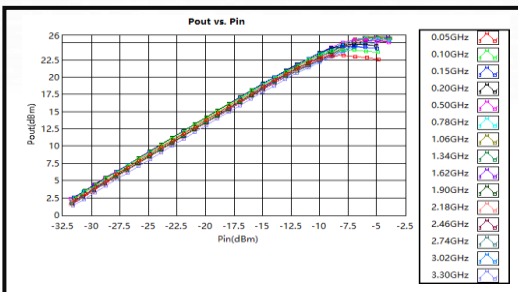
Output Third Order Intercept (OIP3)



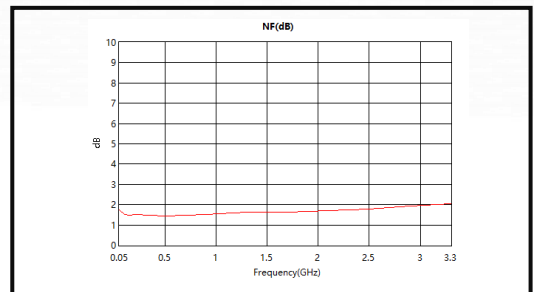
Saturation Power vs. Frequency CW



Pout vs. Pin

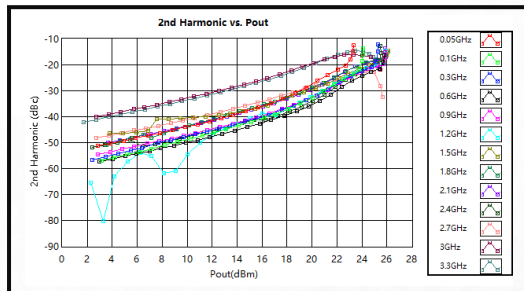


Noise Figure

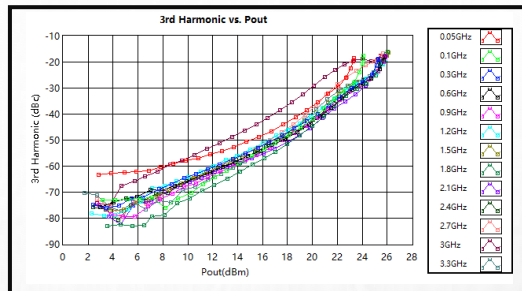


TYPICAL PERFORMANCE PLOTS

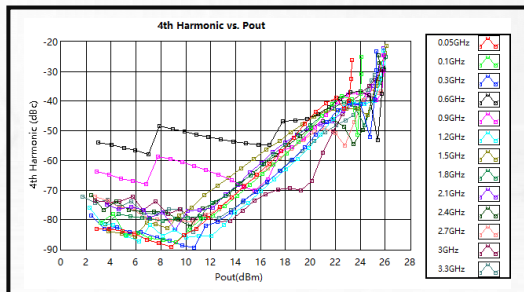
2nd Harmonics



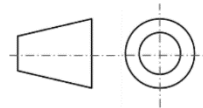
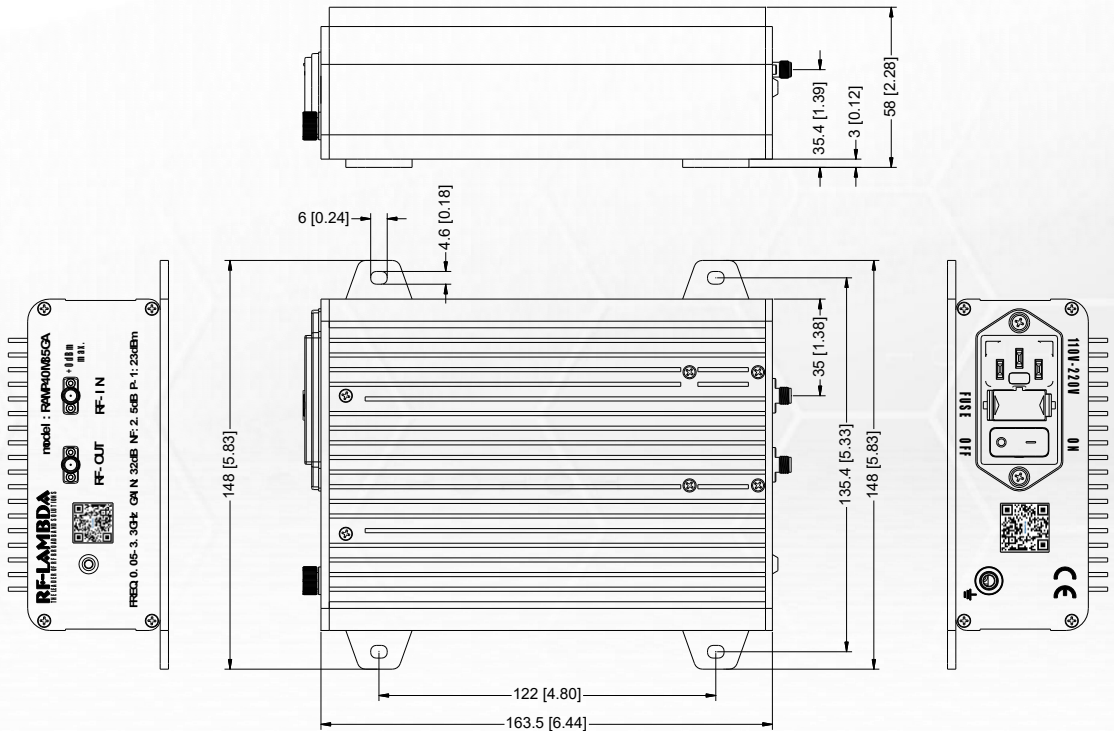
3rd Harmonics



4th Harmonics



OUTLINE DRAWING



Notes:

1. Package Material: Aluminum
2. Finish: Black Paint.
3. Tolerances ± 2.5 [0.1] unless otherwise specified.
4. All dimensions are in millimeters [inches].
5. Standard torque wrench must be used to secure RF connectors.

ORDERING INFORMATION

Part Number	Modification	Description
RAMP40M35GA	Input connector SMA-Female and Output connector SMA- Female	0.05GHz – 3.3GHz Wideband AC Low Noise 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.

IMPORTANT NOTICE

The information contained herein is believed to be reliable. RF-Lambda makes no warranties regarding the information contained herein. RF-Lambda assumes no responsibility or liability whatsoever for any of the information contained herein. RF-Lambda assumes no responsibility or liability whatsoever for the use of the information contained herein. The information contained herein is provided "AS IS, WHERE IS" and with all faults, and the entire risk associated with such information is entirely with the user. All information contained herein is subject to change without notice. Customers should obtain and verify the latest relevant information before placing orders for RF-Lambda products. The information contained herein or any use of such information does not grant, explicitly or implicitly, to any party any patent rights, licenses, or any other intellectual property rights, whether with regard to such information itself or anything described by such information.

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