200W Broadband High Power Amplifier
1.5MHz-30MHz

Product Description

RFLUPA01M30M is a broadband high power amplifier with a frequency range of 1.5 to 30MHz.

The power output of this amplifier is 200Watt typical. The typical gain is 53dB. This power amplifier works with a +28VDC power supply.

The working temperature of this product is between - 20℃ and +60℃.

Features

- Broadband High Power Amplifier
- Power Gain 53dB Typical
- RF Output Power 200W Typical
- Supply Voltage +28VDC
- 50 Ohm Matched Input / Output

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

Electrical Specifications (T_A=+25ºC)

Parameter		Min	Typ	Max	Units
Frequency Range		1.5		30	MHz
RF Output Power			200		W
Power Gain			53		dB
Input Return Loss				-10	dB
Harmonics @100W			-10		dB
Spurious Signals			-60		dB
Operating Voltage		24	28	32	V
DC Current @200W			15		A
Weight	Net		3.98 Max.		lbs.
	Including Heat sink		10.08 Max.		
Impedance			50		Ohms
Input / Output Connectors			SMA- Female(Input)-N-Female(Output)		
DC Interface Connector			Hybrid , D-Sub 7-Pin,Male		
Package			Epoxy Sealed (Standard)		
			Hermetically Sealed (Optional)		

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

Absolute Maximum Ratings

Parameter	Rating
Input RF drive level without damage	+10 dBm (Max)
Load VSWR @ POUT =100W	∞ @ all load phase & amplitude for duration of 1 minute ; 3:1 @ all load phase & amplitude continuous

Bias Up Procedure

1.Connect Ground Pin

2.Connect input and output

3.Connect +28V biasing

Bias Down Procedure

1.Turn off +28V biasing

2.Remove RF connection

3.Remove Ground.

Environmental Specifications and Test Standards

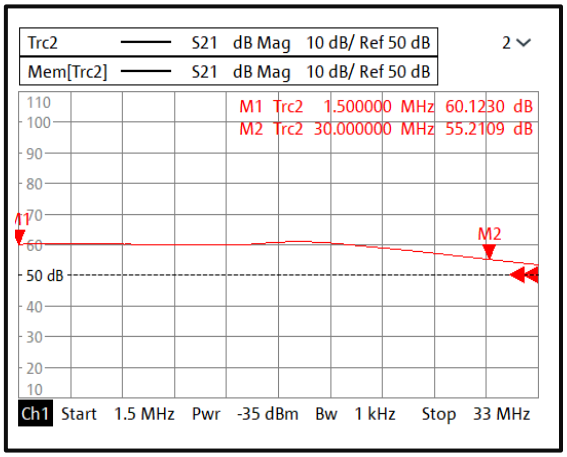
Parameter	Description
Operational Temperature	-40ºC to +60ºC (Case Temperature)
Storage Temperature	-50ºC to +105ºC
Thermal Shock	-40ºC → +85ºC (5 Cycles / 10 hours)
**Random Vibration	MIL-STD-202G Table 214-I, Test Condition Letter C 1.5 Hours Per Axis
High Temperature Burn In	Temperature +60ºC for 72 Hours
Shock	1. Weight >20g, 50g half sine wave for 11ms, Speed variation 3.44m/s 2. Weight <=20g, 100g Half sine wave for 6ms, Speed variation 3.75m/s 3. Total 18 times (6 directions, 3 repetitions per direction).
Altitude	Standard: 30,000 Ft (Epoxy Sealed Controlled Environment) Optional: Hermetically Sealed (60,000 ft. 1.0 PSI min)
Hermetically Sealed (Optional)	MIL-STD-883 (For Hermetically Sealed Units)

**For vibration testing details please see additional information section.

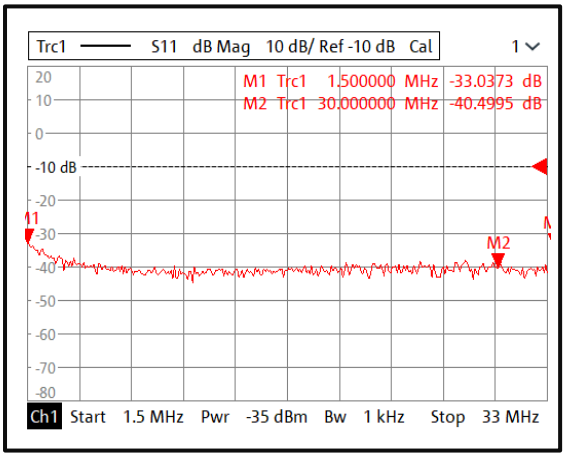
RF-LAMBDA USA LLC: www.rflambda.com
Sales: sales@rflambda.com Technical: support@rflambda.com

Typical Performance Plots

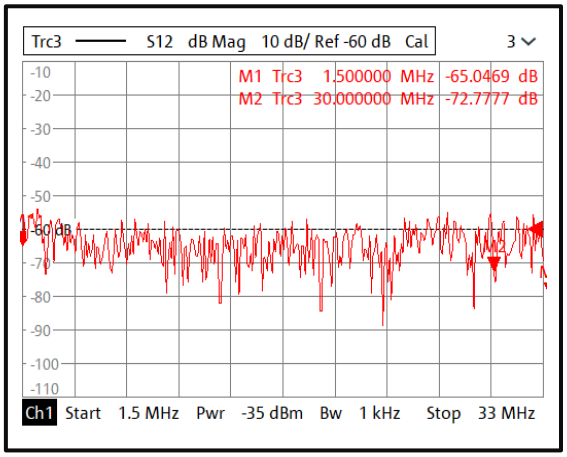
Gain @ +25℃



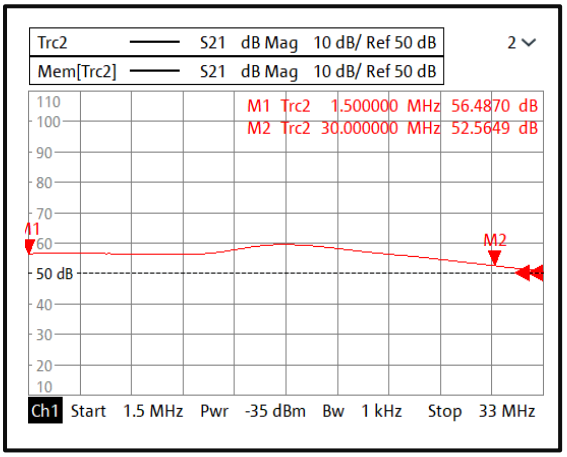
Input VSWR@+25℃



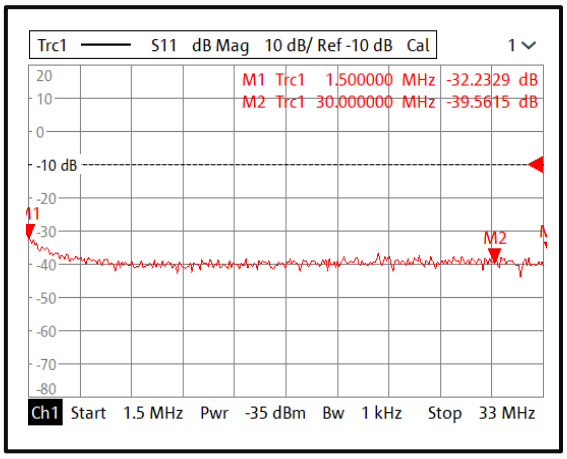
Isolation @ +25℃



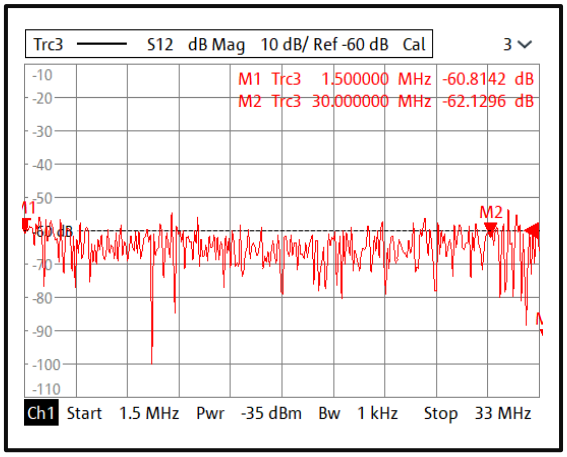
Gain @ -40℃



Input VSWR@ -40℃



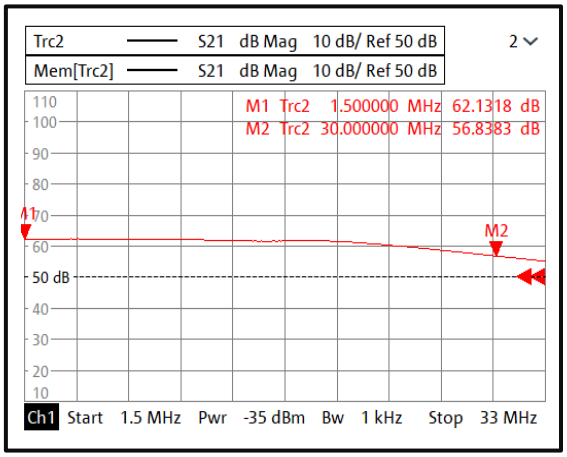
Isolation @ -40℃



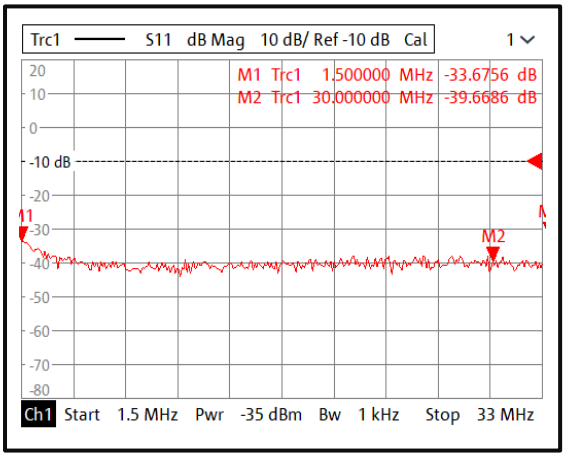
Note: Small signal VNA measurements include attenuators to protect equipment

Typical Performance Plots

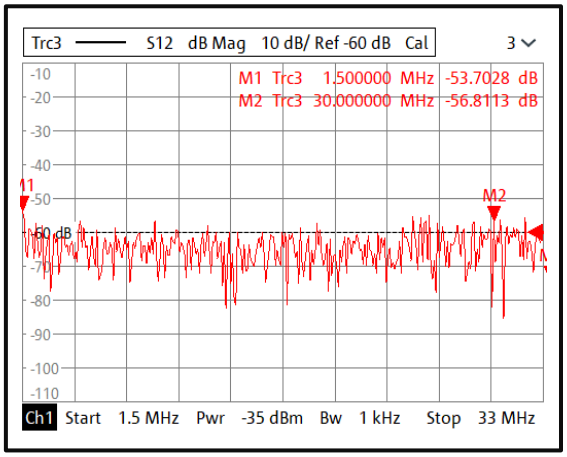
Gain @ +60℃



Input VSWR@ +60℃



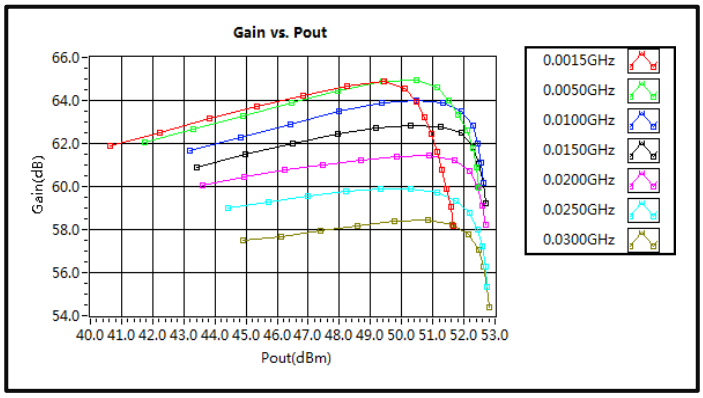
Isolation @ +60℃



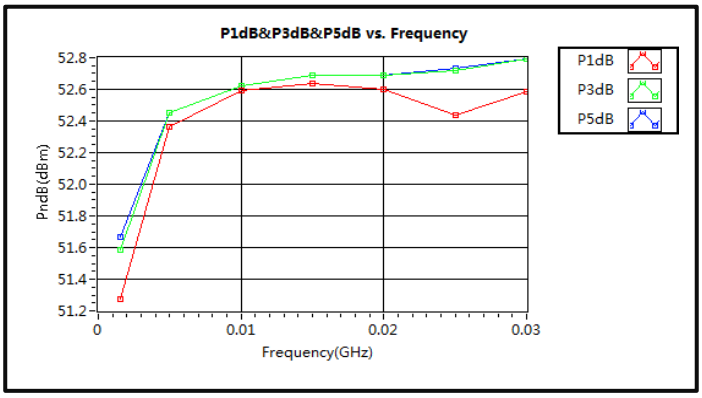
Note: Small signal VNA measurements include attenuators to protect equipment

Typical Performance Plots

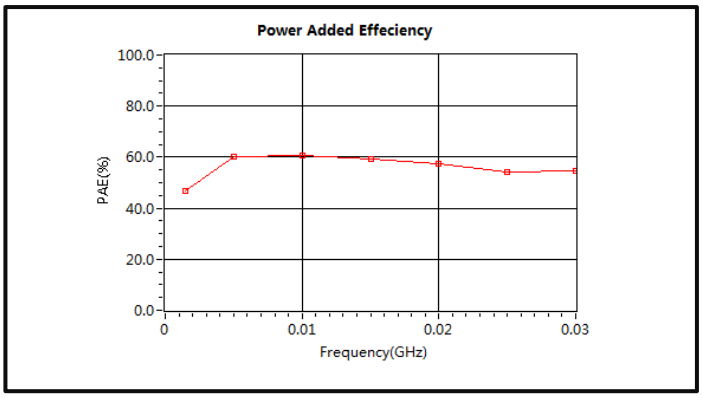
Gain vs. Output Power CW



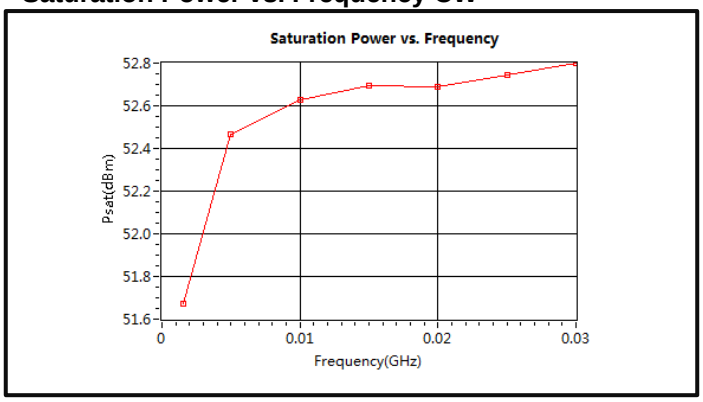
PndB vs. Frequency CW



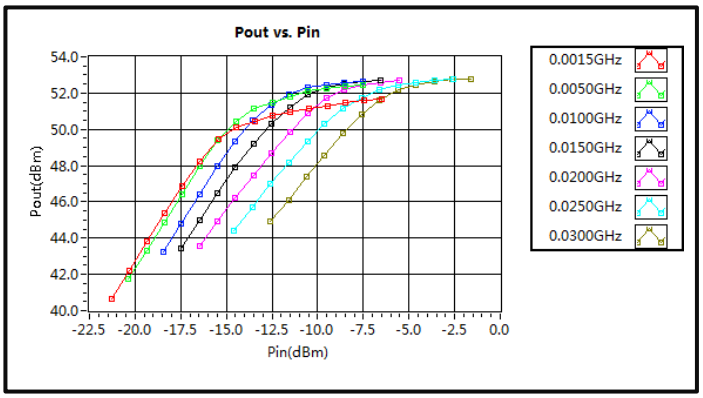
Power Added Efficiency CW



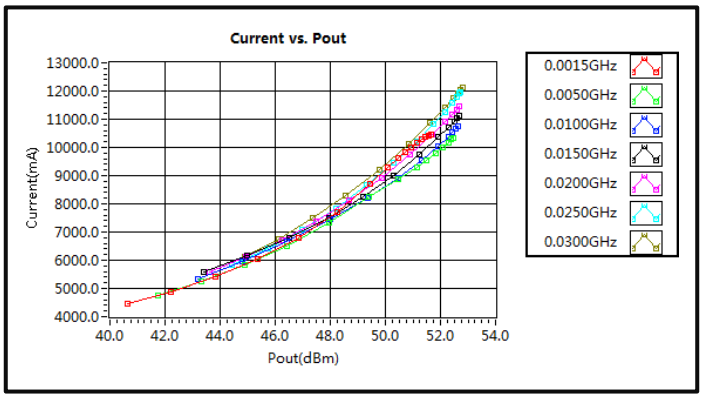
Saturation Power vs. Frequency CW



Pout vs. Pin

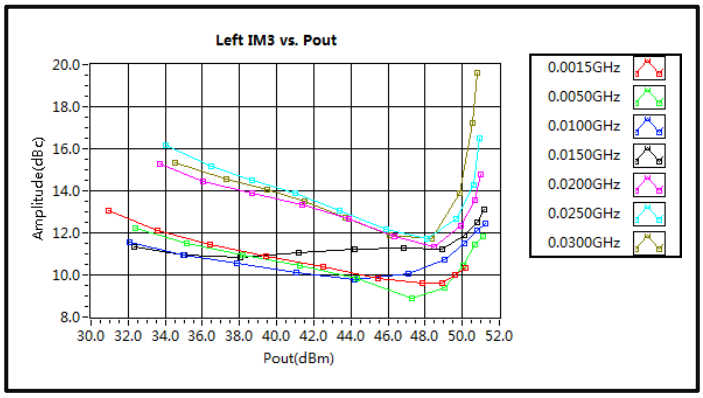


Current vs. Pout

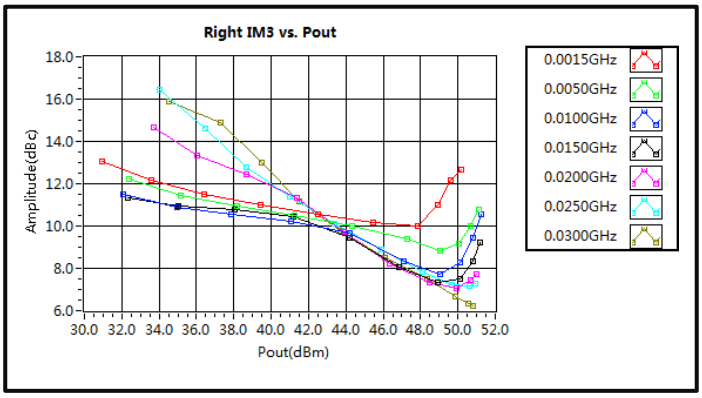


Typical Performance Plots

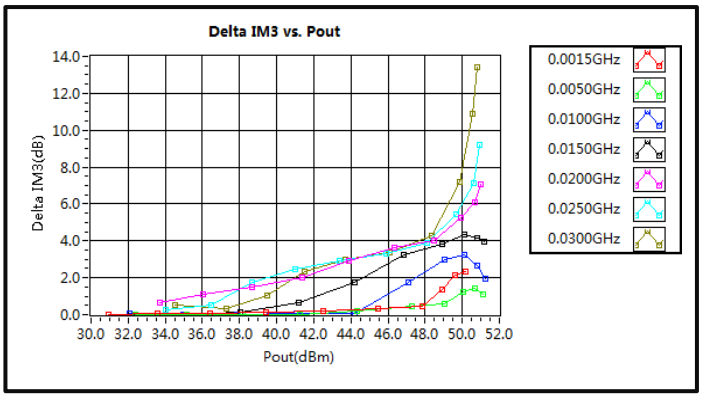
Left IM3 vs. Pout



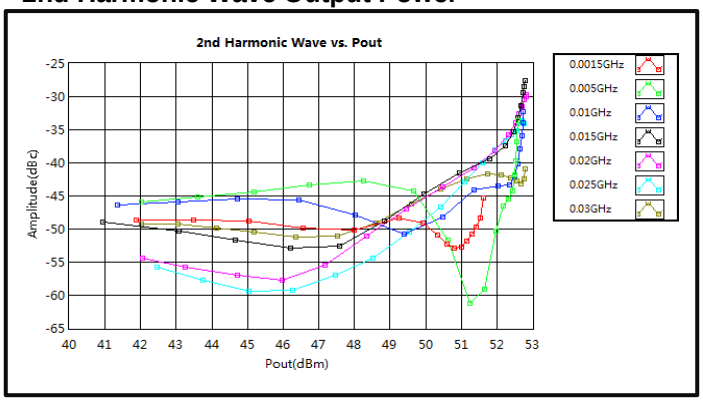
Right IM3 vs. Pout



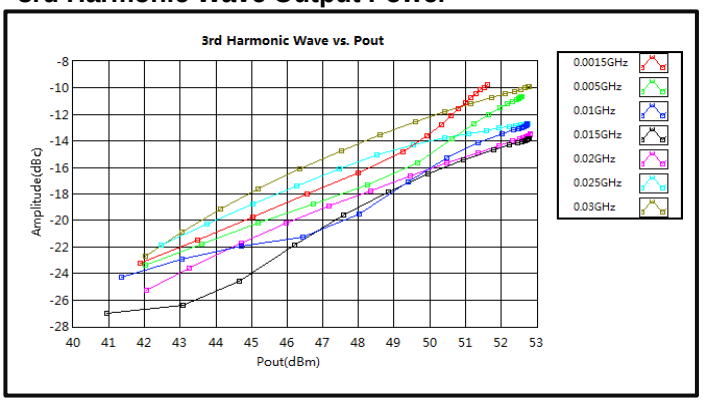
Delta IM3 vs. Pout



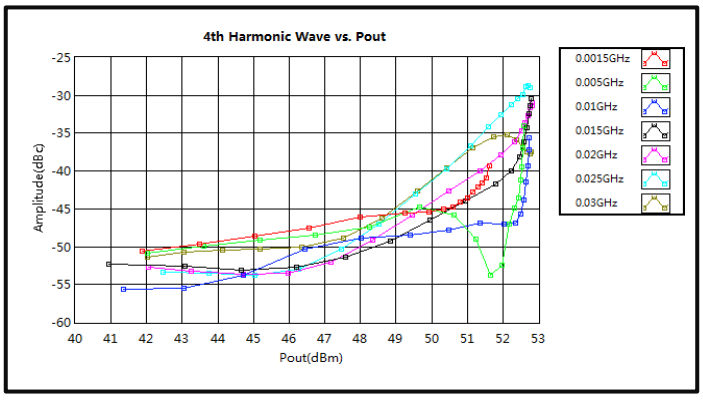
2nd Harmonic Wave Output Power



3rd Harmonic Wave Output Power



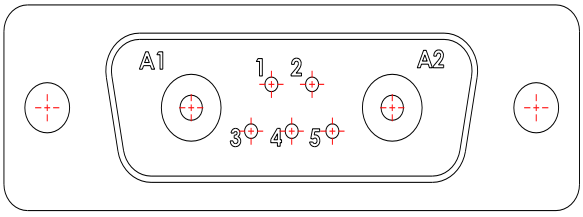
4th Harmonic Wave Output Power



Note: IM3 test performed with 1MHz tone spacing

DC Interface Connector

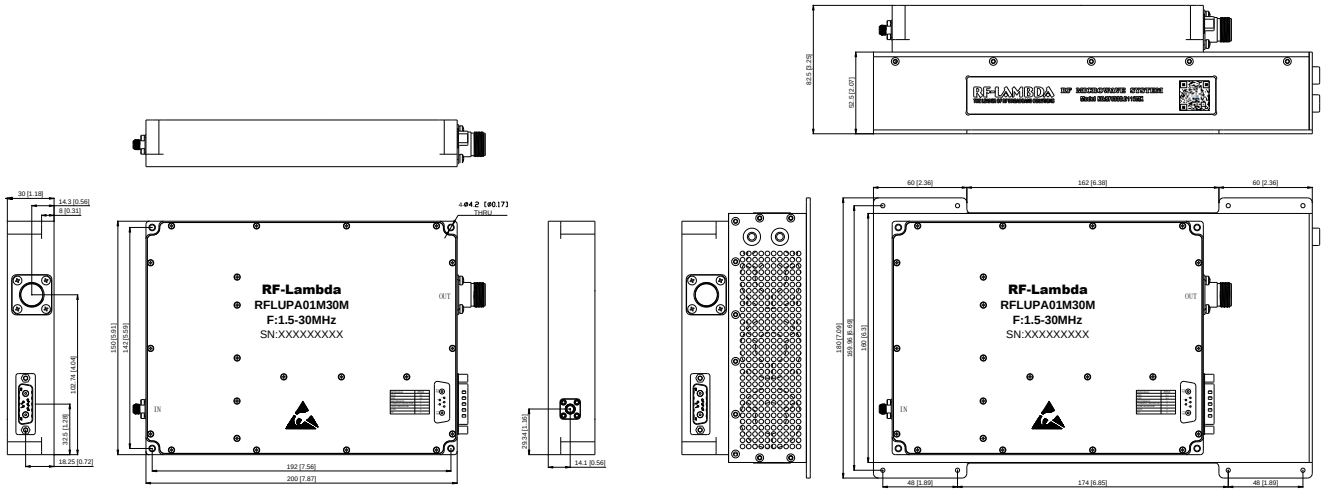
Male D-Sub is on the housing
The mating Female part number: 680S7W2203L201

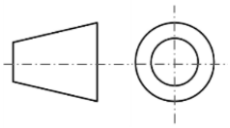


Pin #	Description	Specifications
A1	VDD	28VCC
A2	GND	Ground
1	SHUTDOWN	Amplifier Disable: TTL Logic High (3.3V) (Internally Pulled-Low)
2	CURRENT MONITOR	Analog voltage relative to IDD @ 100mV per Ampere
3	TEMP MONITOR	Analog voltage relative to Module's Temperature @ 10 mV/°C
4	GND	Ground
5	NC	No electrical connection

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

Outline Drawing





Notes:
1. Package Material: Aluminum
2. Finish: Conductive Oxidation
3. All dimensions are in millimeters [inches].
4. Housing Tolerances ±0.2[0.008] unless otherwise specified(Excl Heat Sink).
5. Heat sink required during operation (sold separately). Matching heatsink is listed on our website. If customer would like to use their own cooling method, please make sure the amplifier will operate under the specs that listed in page 2 of this datasheet.
6. Standard torque wrench must be used to secure RF connectors.

Packing List

ID	Description	QTY
1	Fig a. D-Sub cable (1262000118)	1

Fig a.

Additional Information

Documentation	Webpage
ESD Policy	https://rflambda.com/pdf/rflambda_esd_control.pdf
Heatsink Lookup Specifications	https://rflambda.com/search_heatsink.jsp
Connector Torque Specifications	https://www.rflambda.com/pdf/Torque_Specifications.pdf
Random Vibration Test Standard	https://www.rflambda.com/pdf/rflambda_random_vibration_MIL-STD-202G.pdf

Ordering Information

Part Number	Modification	Description
RFLUPA01M30M	Input Connector SMA-Female and Output Connector N-Female	1.5MHz-30MHz 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.

Important Notice

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