Wide Band Power Amplifier
50MHz~500MHz

Features

- Gain: 53dB Typical
- Output Psat: +53dBm Typical
- Supply Voltage: +48V

Typical Applications

- Wireless Infrastructure
- Military & Aerospace
- Test and Measurement

Electrical Specifications, TA = +25°C, Vcc = +48V

Parameter		Min.	Typ.	Max.	Units
Frequency Range		50		500	MHz
Gain		48	53		dB
Gain Flatness			±3.0		dB
Gain Variation Over Temperature (-40°C~+60°C)			±3.0		dB
Input VSWR			1.5		: 1
Saturated Output Power (Psat)			53		dBm
Supply Current (Vcc=+48V)			8.5	13	A
Isolation S12			-55		dB
Efficiency @ Psat			30		%
Weight	Amplifier	46 Max.			ounces
	Including Heat sink	145 Max.			ounces
Impedance		50			Ohms
Input / Output Connectors		SMA-Female			
Finish		Nickel Plated			
Material		Aluminum			
Package Sealing		Epoxy Sealed (Standard)			
		Hermetically Sealed (Optional)			

Absolute Maximum Ratings

Operating Voltage	+50V
RF Input Power	+10dBm

Biasing Up Procedure

Step 1	Connect Ground Pin
Step 2	Connect input and output
Step 3	Connect +48V biasing
Power OFF Procedure	
Step 1	Turn off +48V biasing
Step 2	Remove RF connection
Step 3	Remove Ground.

Environmental Specifications and Test Standards

Parameter	Description
Operational Temperature	-40℃~+60℃ (Case Temperature)
Storage Temperature	-50℃~+105℃
Thermal Shock	-40℃ → +60℃ (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 +60℃ 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)

Ordering Information

Part No.	Description
RFLUPA50M500M	50-500MHz 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.

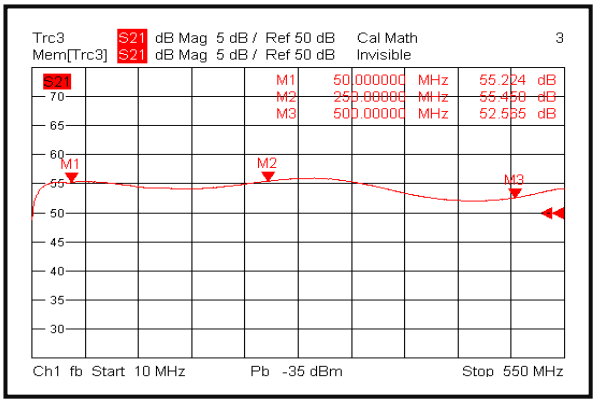
Proper electrostatic discharge (ESD) precautions are recommended to avoid performance degradation or loss of functionality.

What is not covered with warranty?

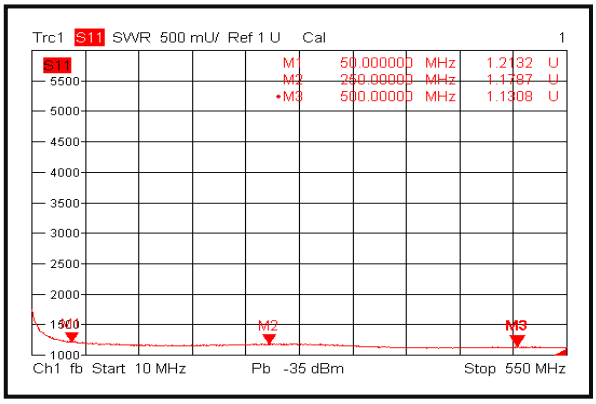
Each RF - Lambda amplifier will go through power and temperature stress testing.
Since the die, ICs or MMICs are fragile, these are not covered by warranty. Any damage to these will NOT be free to repair.

Typical Performance Plots

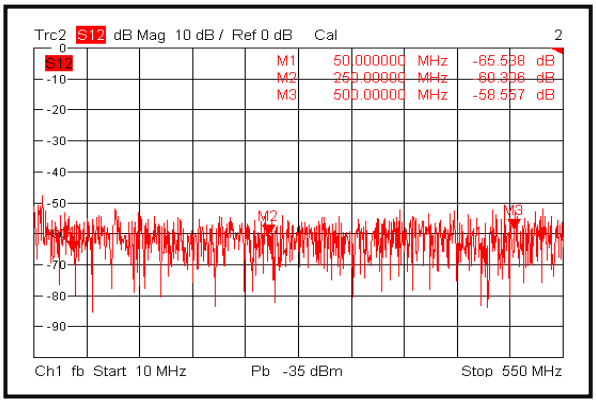
Gain@+25℃



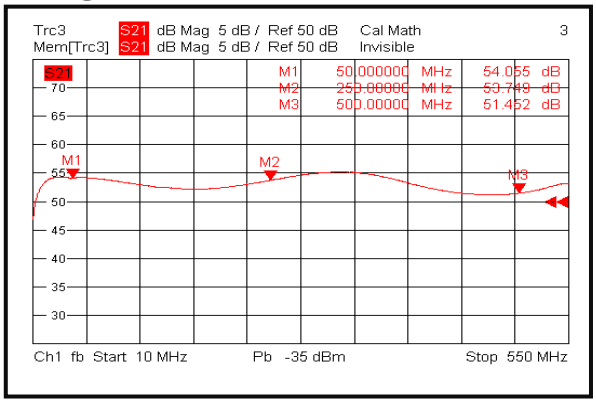
Input VSWR @+25℃



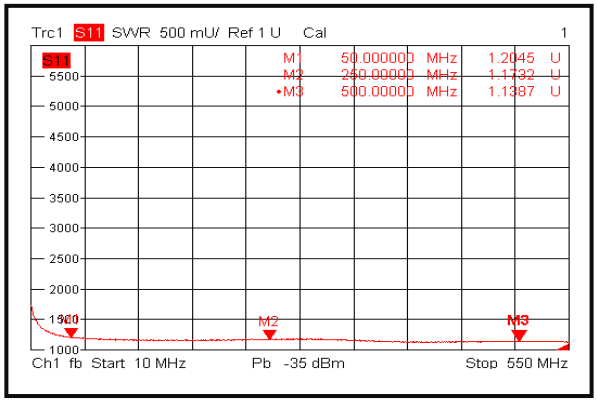
Isolation@+25℃



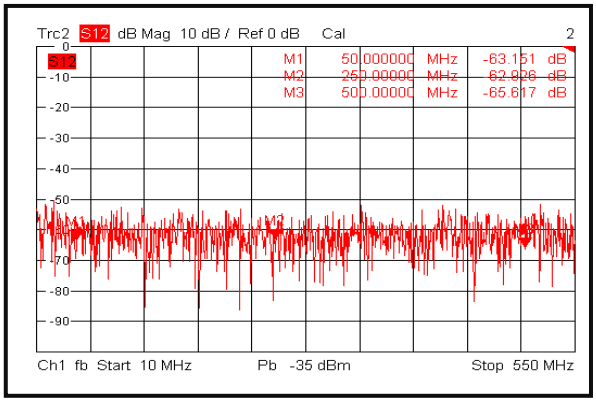
Gain@-40℃



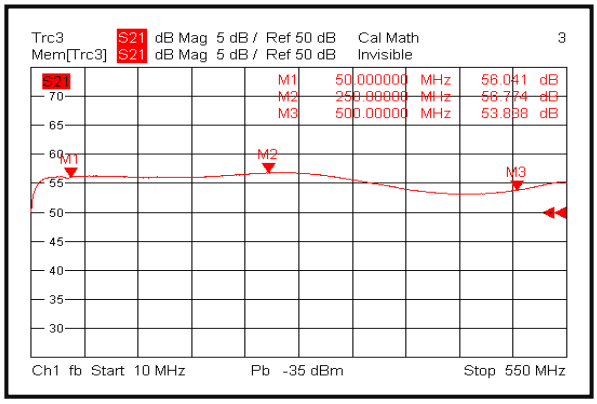
Input VSWR @-40℃



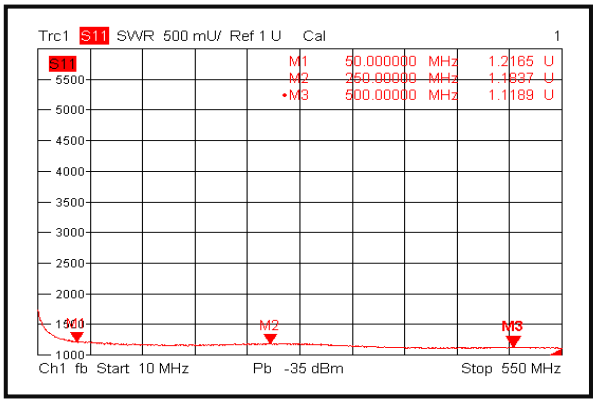
Isolation@-40℃



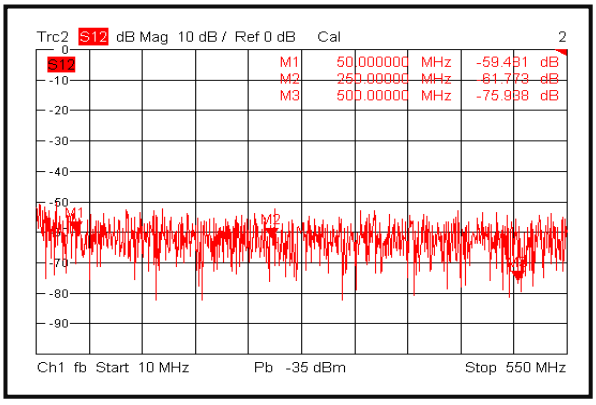
Gain@+60℃



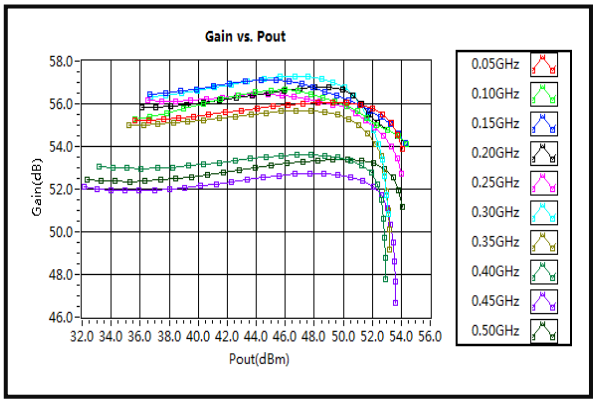
Input VSWR @+60℃



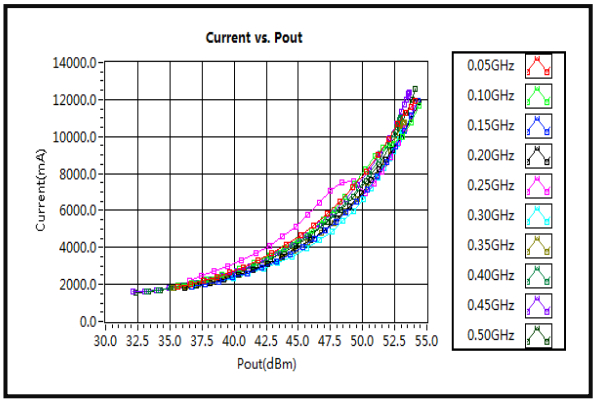
Isolation@+60℃



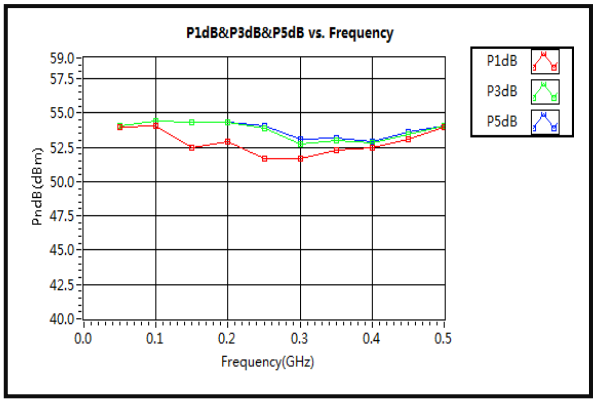
Gain vs. Output Power



Current



P1dB – P5dB vs. Frequency



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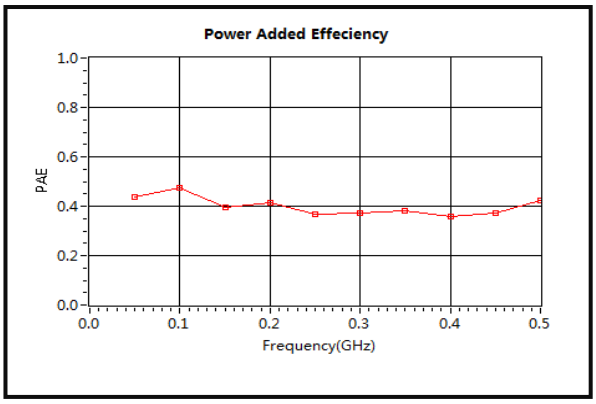
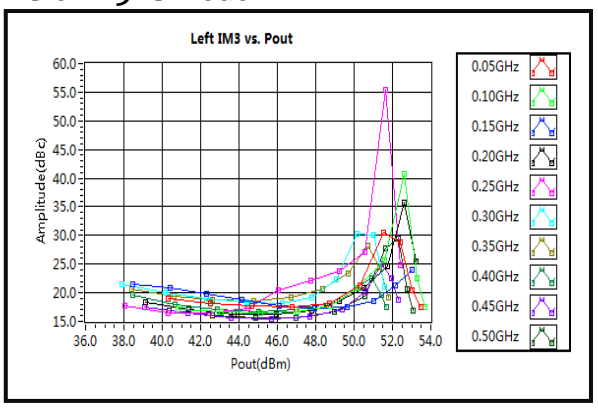
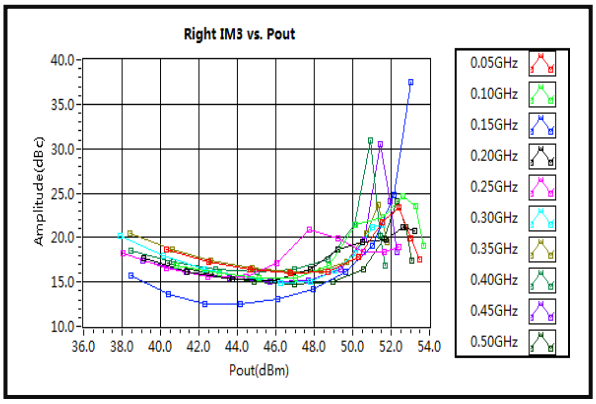
Power Added Efficiency



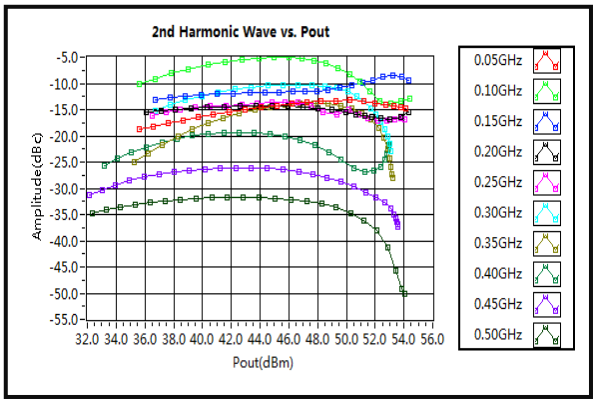
Left IM3 vs. Pout



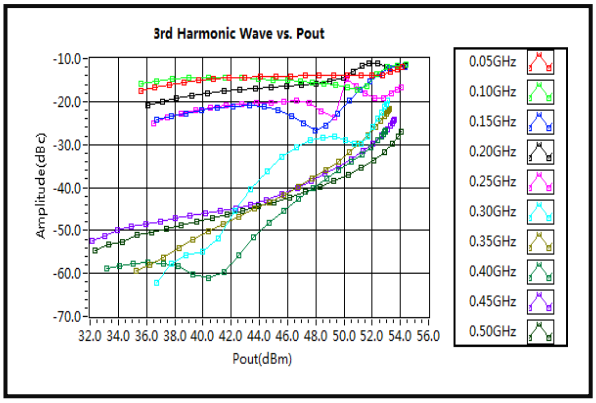
Right IM3 vs. Pout



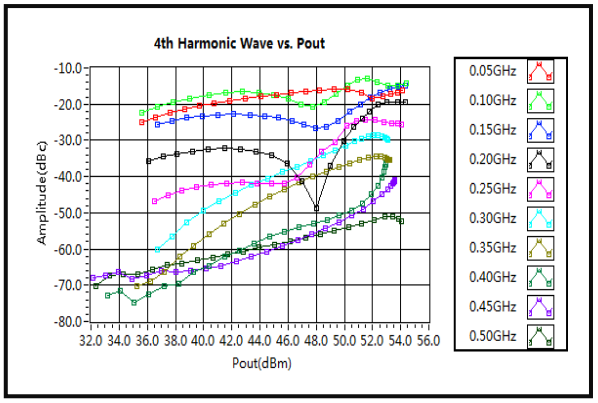
2nd Harmonic Wave Output Power



3rd Harmonic Wave Output Power



4th Harmonic Wave Output Power



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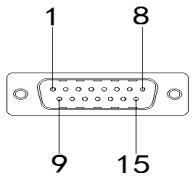
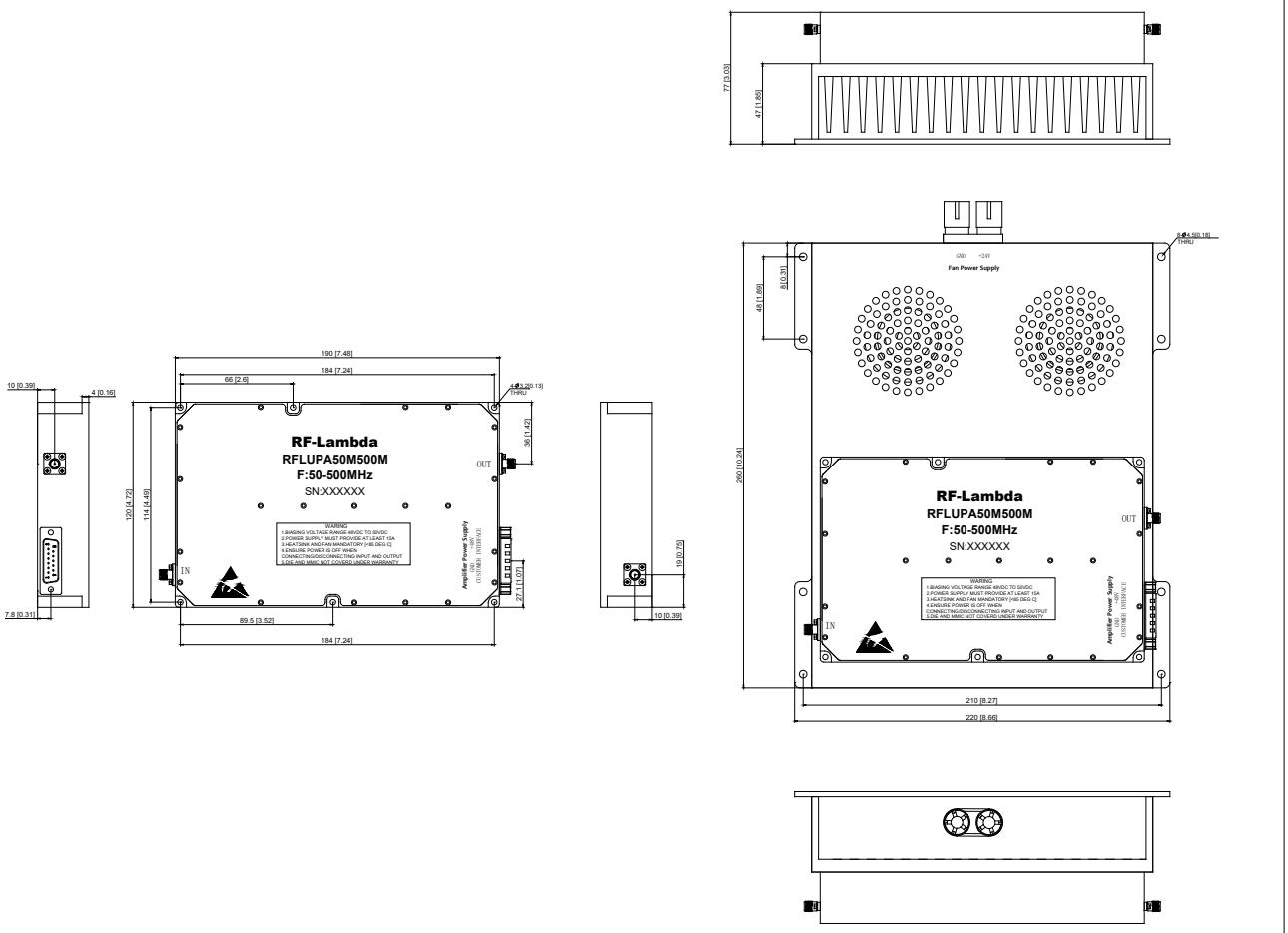
User Control Connector (Rear Panel)

D-sub 15(Male)					
Pin #	**Name**	**Function**	**Initial State**	**Description**	**Applied**
1	Reset	Control	/	Resets PA when logic LOW is applied and released	Yes
2	PA Enable / Disable	Control	High	Amplifier Disable,TTL Logic Low	Yes
3	Over Current	Indicator	Low	Pin will be latched to logic HIGH when drain current limit is reached	Yes
4	Over Temp	Ground	Low	Temp Over	Yes
5	GND	Ground	GND	Ground	Yes
6	GND	Ground	GND	Ground	Yes
7	+48V	Power Supply	+48V	+48V DC is supply Voltage	Yes
8	+48V	Power Supply	+48V	+48V DC is supply Voltage	Yes
9	Over VSWR	Indicator	Low	Pin will be latched to logic HIGH when output reflection is over limit	Yes
10	RF Input Over drive	Indicator	Low	Pin will be latched to logic HIGH when input signal is over limit	Yes
11	GND	Ground	GND	Ground	Yes
12	GND	Ground	GND	Ground	Yes
13	GND	Ground	GND	Ground	Yes
14	+48V	Power Supply	+48V	+48V DC is supply Voltage	Yes
15	+48V	Power Supply	+48V	+48V DC is supply Voltage	Yes

HIGH/LOW voltages are standard TTL signals:
0V-0.8V = LOW
2V-5V = HIGH

Outline Drawing:

All Dimensions in mm [inches]
Housing Tolerances ±0.25 [0.01]



Notes:
1.DB15 cable is configured for power connection port by default(RFCBLADB15)
2.Heat Sink required during operation (Sold separately)

Important Notice

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