



RF-LAMBDA

LEADER OF RF BROADBAND SOLUTIONS

RFLUPA0506GE-B

10W Ultra Wide Band Power Amplifier 0.5GHz ~ 6GHz



Note: The photo is for illustration purposes only.
Please refer to the outline drawing.



Features

- Gain: 42dB Typical
- Output Power: +38dBm Typical
- Supply Voltage: +28V
- TTL Shutdown

Typical Applications

- Wireless Infrastructure
- Military & Aerospace
- Test Instrument

Electrical Specifications, $T_A = +25^\circ\text{C}$, $V_{CC} = +28\text{V}$

Parameter	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Frequency Range	0.5		2	2		6	GHz
Gain	35	42		36	40		dB
Gain Flatness		± 3.0			± 2.0		dB
Gain Variation Over Temperature ($-45^\circ\text{C} \sim +85^\circ\text{C}$)		± 1.5			± 1.5		dB
Input VSWR		1.8	2.5		1.8	2.5	: 1
Output 1dB Compression Point (P1dB)	35	38		35	37		dBm
Saturated Output Power (Psat)		40			39		dBm
Isolation S12		-65			-65		dB
Supply Current ($V_{CC}=+28\text{V}$)		600	1500		600	1500	mA
Efficiency at P1dB		20			20		%
The turn-on time (TTL=+5V)		1			1		μs
The turn-off time (TTL=0V)		1			1		μs
Weight	/						ounces
Impedance	50						Ohms
Input / Output Connectors	SMA-Female						
Finish	Nickel Plated						
Material	Aluminum						
Package Sealing	Epoxy Sealed (Standard)						
	Hermetically Sealed (Optional)						

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Absolute Maximum Ratings

Operating Voltage	+29V
RF Input Power	+8dBm

Biasing Up Procedure

Step 1	Connect Ground Pin
Step 2	Connect input and output
Step 3	Connect +28V biasing
Step 4	TTL Turn on (+5V)
Power OFF Procedure	
Step 1	TTL Turn off (+0V)
Step 2	Turn off +28V biasing
Step 3	Remove RF connection
Step 4	Remove Ground.

Environmental Specifications and Test Standards

Parameter	Standard	Description
Operational Temperature	MIL-STD-39016	-45°C~+85°C (Case Temperature)
Storage Temperature		-55°C~+125°C
Thermal Shock		1 Hour@ -45°C → 1 Hour @ +85°C (5 Cycles)
Random Vibration		Acceleration Spectral Density 6 (m/s) Total 92.6 RMS
Electrical & Temperature Burn In		Temperature +85°C 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	MIL-STD-883	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.	ECCN	Description
RFLUPA0506GE-B	EAR99	0.5-6GHz 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.



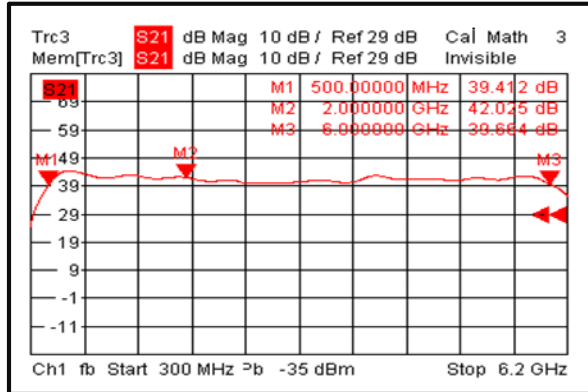
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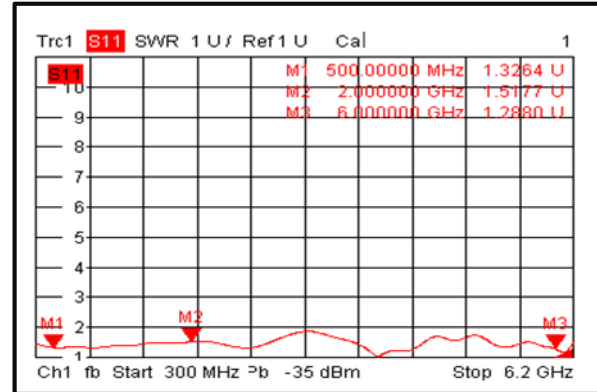
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Typical Performance Plots

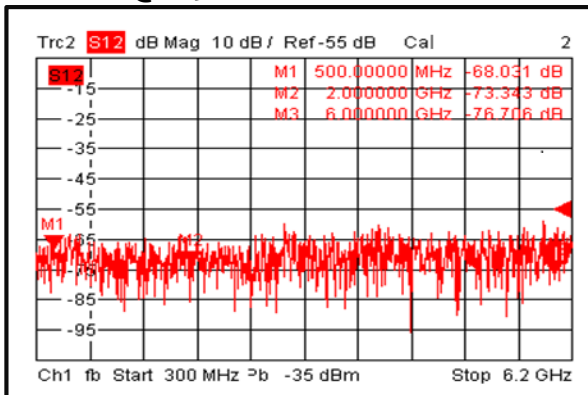
Gain@+25°C



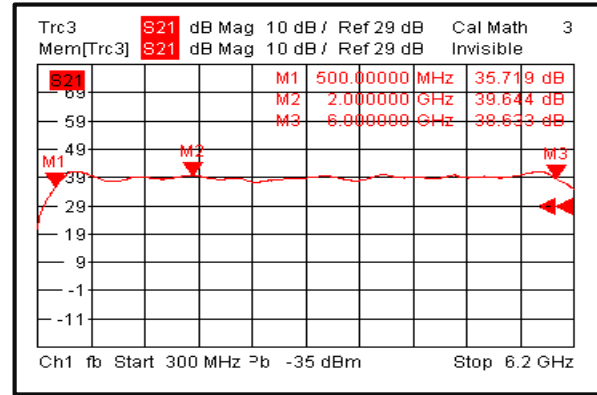
Input VSWR@+25°C



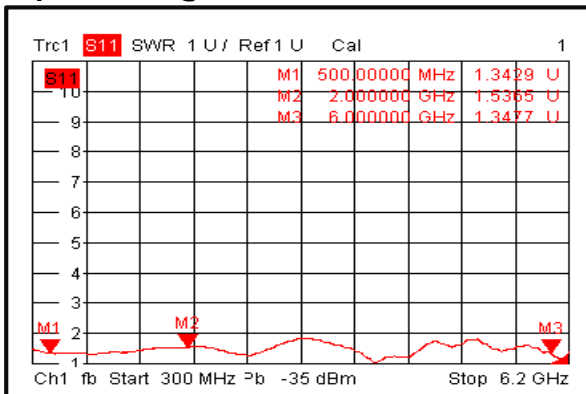
Isolation@+25°C



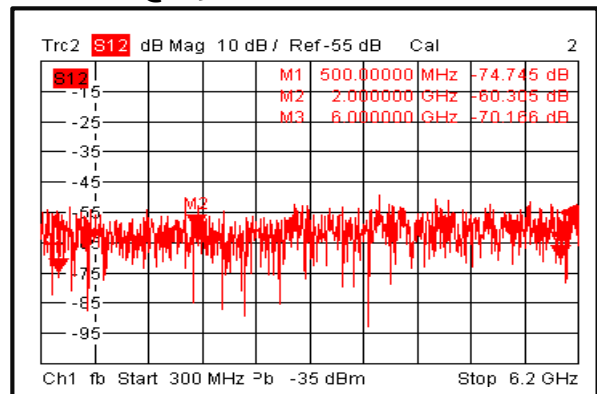
Gain@-45°C



Input VSWR@-45°C



Isolation@-45°C



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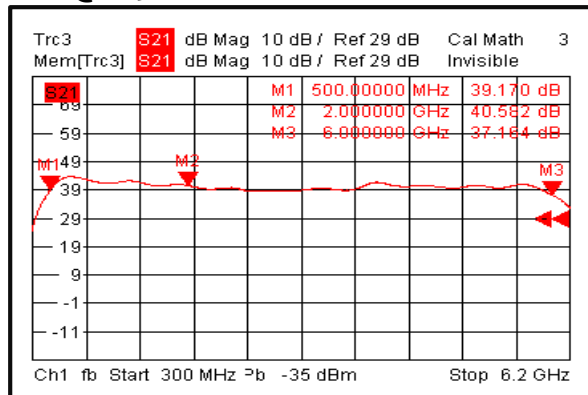


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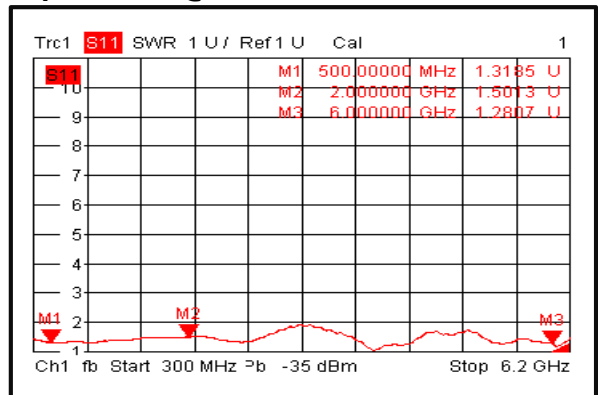
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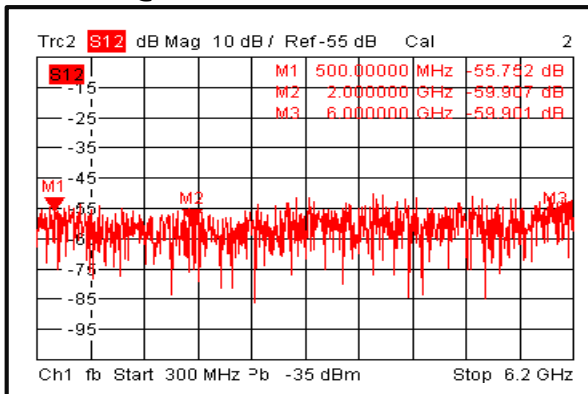
Gain@+85°C



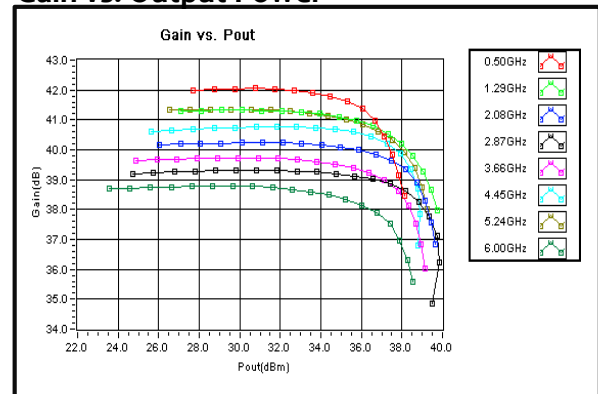
Input VSWR@+85°C



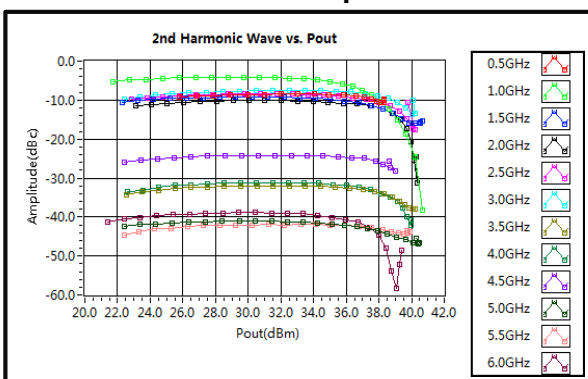
Isolation@+85°C



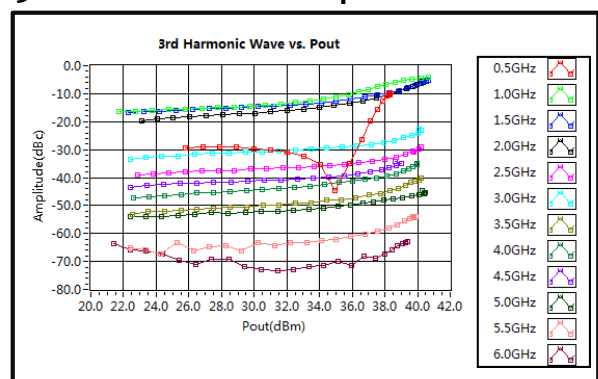
Gain vs. Output Power



2nd Harmonic Wave Output Power



3rd Harmonic Wave output Power



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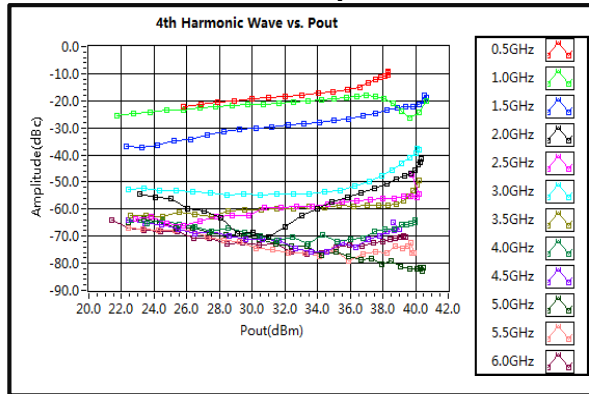


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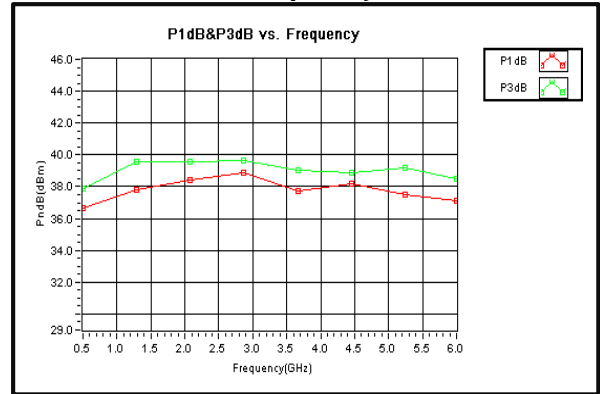
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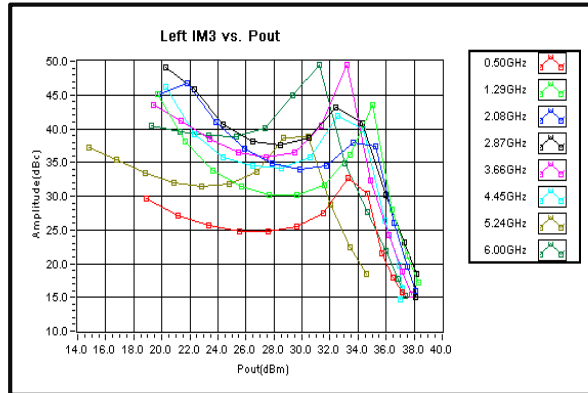
4th Harmonic Wave output Power



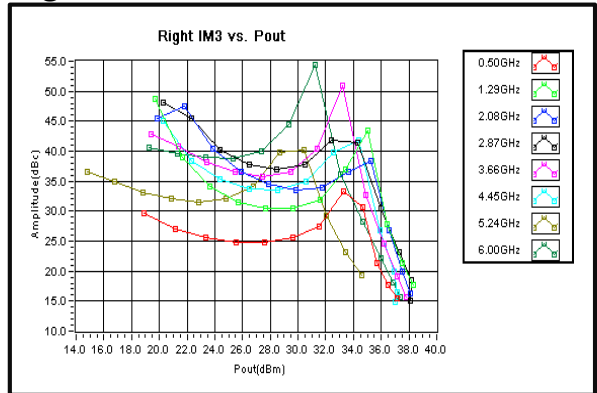
P1dB & P3dB vs. Frequency



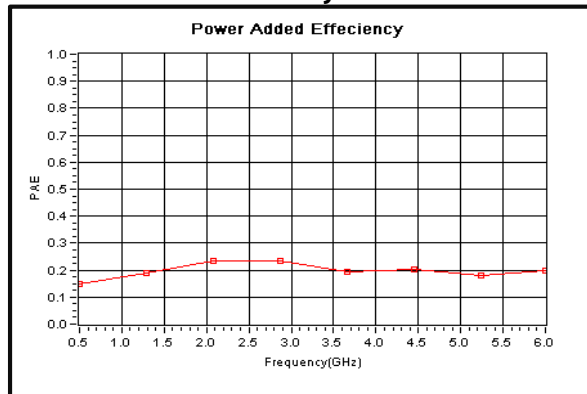
Left IM3 vs. Pout



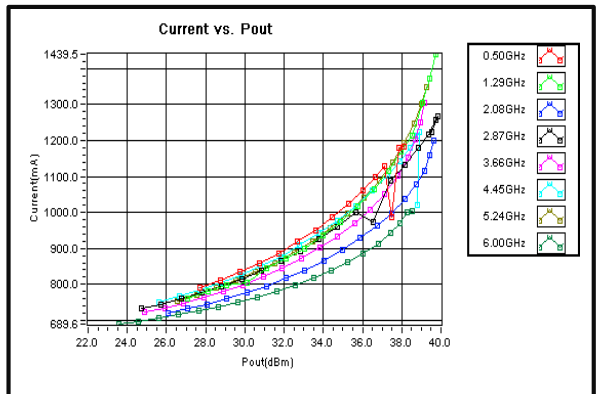
Right IM3 vs. Pout



Power Added Efficiency



Current



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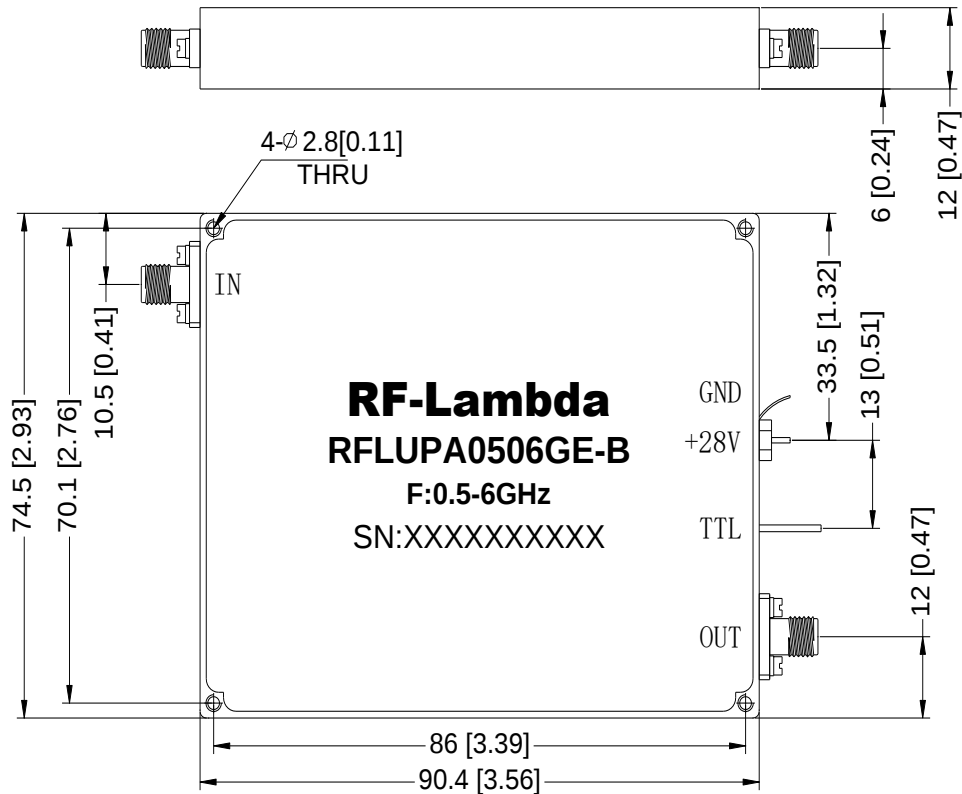
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Outline Drawing:

All Dimensions in mm [inches]



Heat Sink required during operation (Sold Separately)



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Important Notice

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