Wide Band Power Amplifier
0.7GHz ~ 6GHz

RoHS Compliant

Features

- Wideband Power Amplifier
- Gain: 53dB
- Output power +48dBm typical
- High P1dB: +44dBm Full Band
- Supply Voltage: +28V

Typical Applications

- Wireless Infrastructure
- Military & Aerospace
- Test and Measurement

Electrical Specifications, T_A = +25°C, Vcc = +28V

Parameter	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Frequency Range	0.7		5.5	5.5		6.0	GHz
Gain	50	55		50	55		dB
Gain Flatness		±3.0	±5.0	±0.5	±1.0		dB
Gain Variation Over Temperature (-45 ~ +85)		±3.0		±3.0			dB
Input VSWR		1.5			1.5		:1
Output 1dB Compression Point (P1dB)	45	47		44	45		dBm
Saturated Output Power (Psat)	46	48		44	45		dBm
Isolation S12	50	60		50	60		dB
Supply Current (Vcc=+28V)		0.7	13		0.7	10	A
Fan Supply Current (Vcc=+24V)		1.0			1.0		A
Efficiency at P1dB	15	20	15	17			%
Switching Speed (10% to 90%)		0.5	1		0.5	1	µs
Weight	360.49						ounces
Impedance	50						Ohms
Input / Output Connectors	SMA-Female						
Finish	Nickel Plated						
Material	Aluminum/copper						
Package Sealing	Epoxy Sealed (Standard)						
	Hermetically Sealed (Optional)						

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Absolute Maximum Ratings

Operating Voltage	+30V
RF Input Power	+0dBm

Biasing Up Procedure

Step 1	Connect Ground Pin
Step 2	Connect input and output
Step 3	Connect +28V biasing
Power OFF Procedure	
Step 1	Turn off +28V biasing
Step 2	Remove RF connection
Step 3	Remove Ground.

Environmental Specifications and Test Standards

Parameter	Standard	Description
Operational Temperature	MIL-STD-39016	-40℃~+85℃ (Case Temperature)
Storage Temperature		-55℃~+125℃
Thermal Shock		1 Hour@ -45℃ → 1 Hour @ +85℃ (5 Cycles)
Random Vibration		Acceleration Spectral Density 6 (m/s) Total 92.6 RMS
Electrical & Temperature Burn In		Temperature +85℃ 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	MIL-STD-883 (For Hermetically Sealed Units)

Ordering Information

Part No.	ECCN	Description
RFLUPA0706GG	EAR99	0.7-6GHz 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.

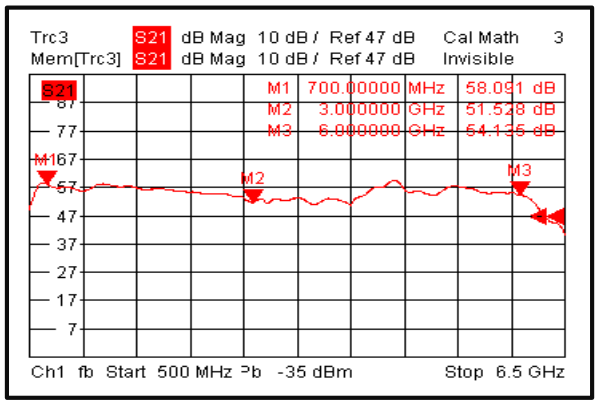
Proper electrostatic discharge (ESD) precautions are recommended to avoid performance degradation or loss of functionality.

What is not covered with warranty?

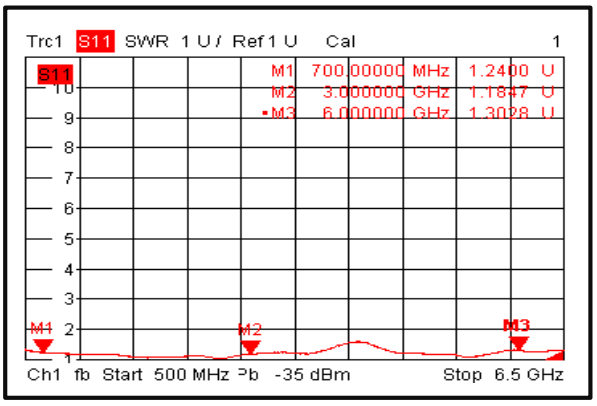
Each RF - Lambda amplifier will go through power and temperature stress testing.
Since the die, ICs or MMICs are fragile, these are not covered by warranty. Any damage to these will NOT be free to repair.

Typical Performance Plots

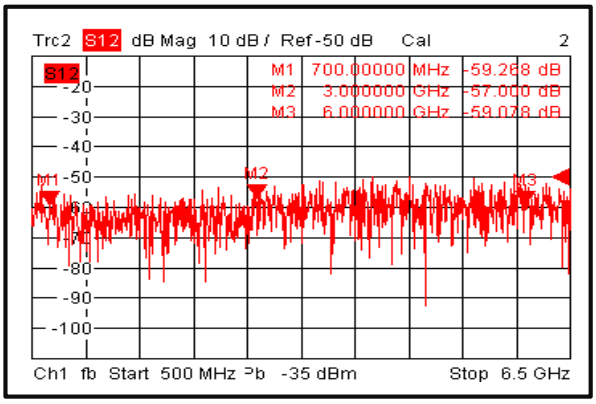
Gain



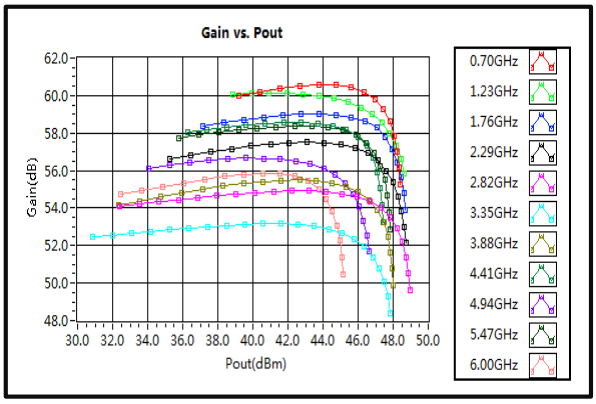
Input VSWR



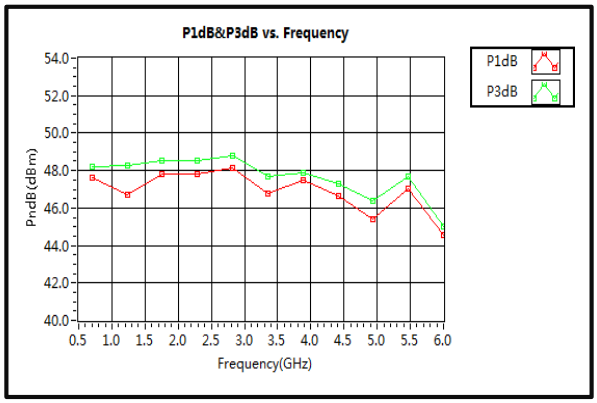
Isolation



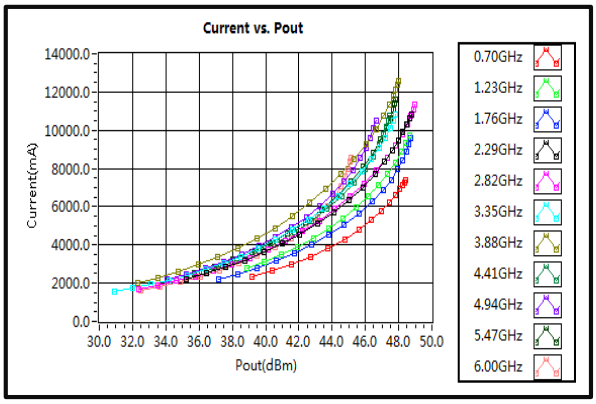
Gain vs. Output Power



P1dB & P3dB vs. Frequency



Current



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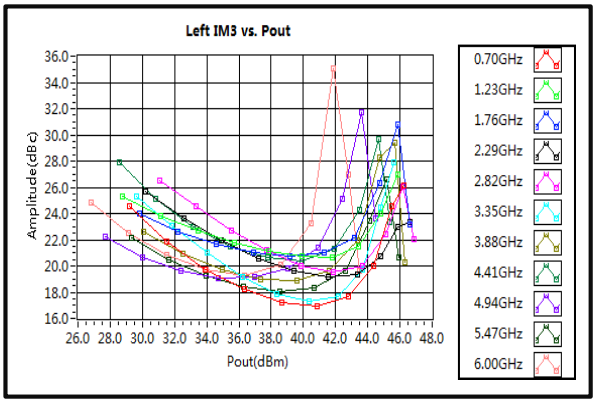
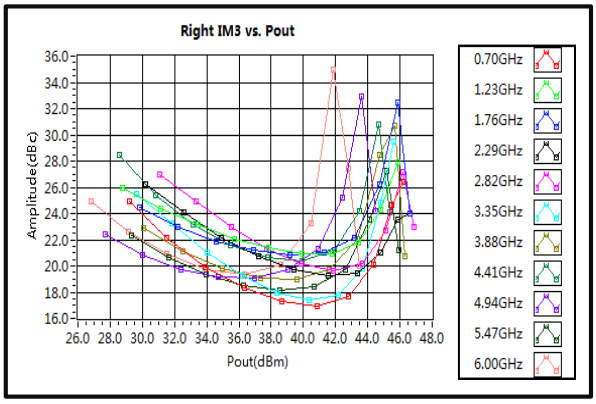
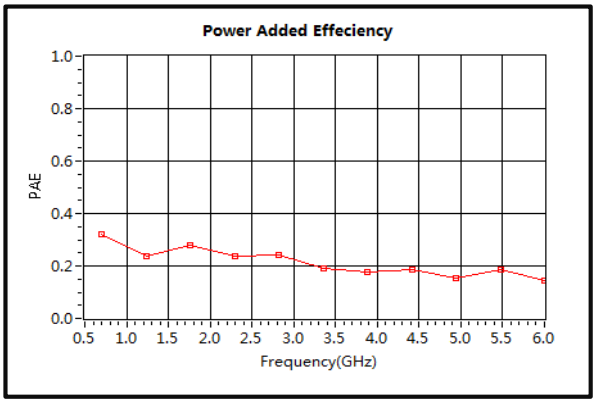
Left IM3 vs. Pout



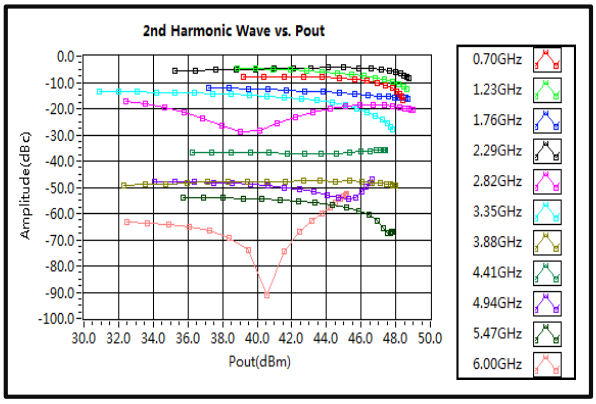
Right IM3 vs. Pout



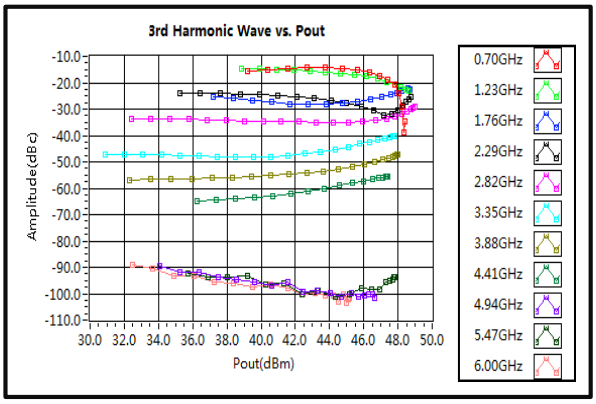
Power Added Effeciency



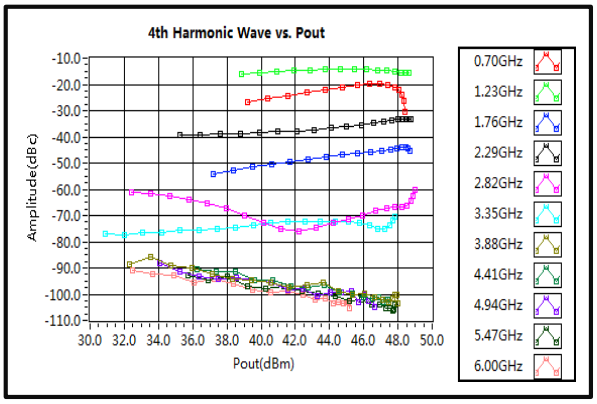
2nd Harmonic Wave Output Power



3rd Harmonic Wave Output Power



4th Harmonic Wave Output Power



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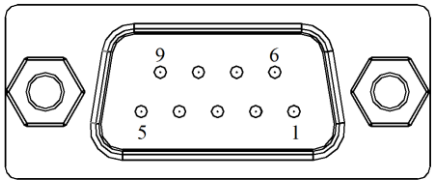
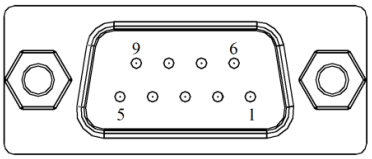
Power Connector

D-Sub 9	

PIN #	NAME	DESCRIPTION
1,2,3,4,5	VDD	+28VDC
6,7,8,9	GND	Ground

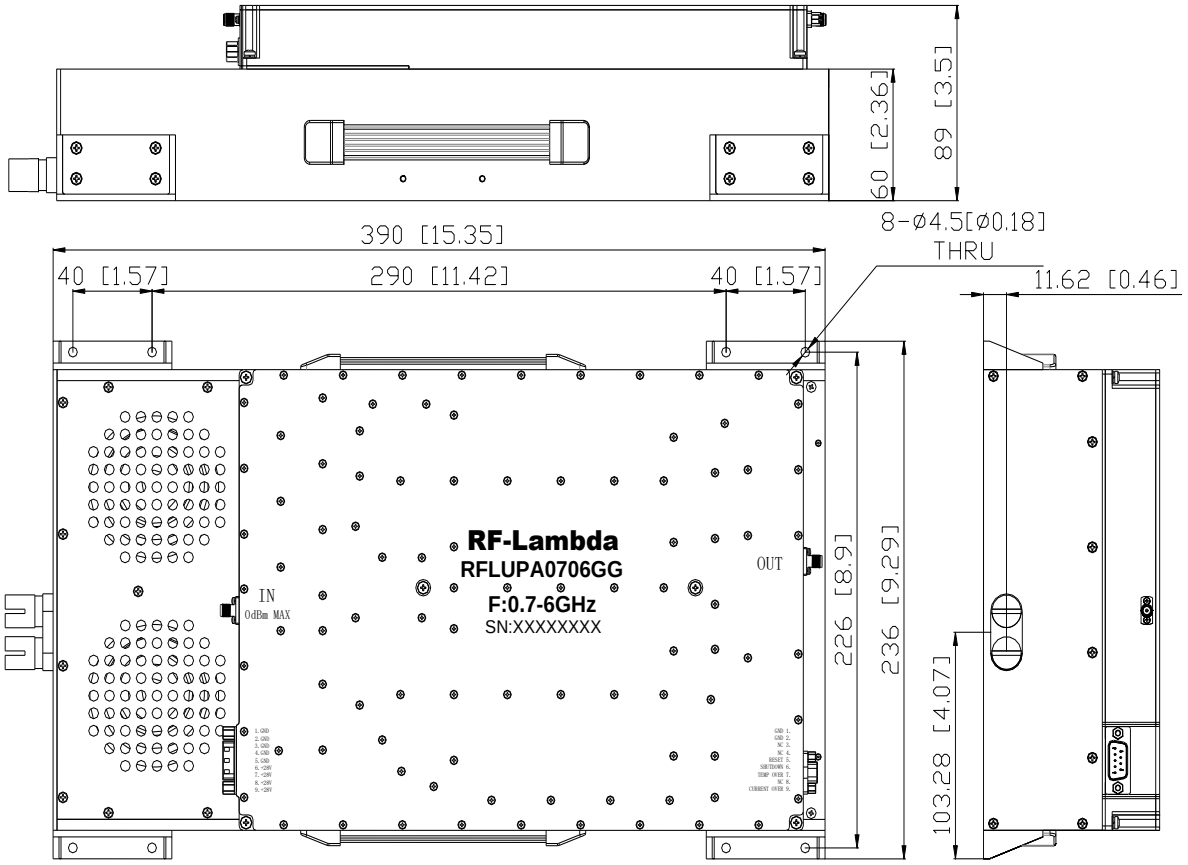
Interface Connector

Micro D-sub 9	

PIN #	NAME	DESCRIPTION
1,2	GND	Ground
3,4	NC	Not Connected
5	RESET	Resets PA when logic LOW is applied and released (Internally Pulled-High +3.3V)
6	SHUTDOWN	Applying logic LOW disables gates of amplifiers (Internally Pulled-High +3.3V)
7	TEMP OVER	PA will first shut down then latch this PIN to logic high when driven over Temperature
8	GND	Ground
9	OVER CURRENT	PA will first shut down then latch this PIN to logic high when Current Limit is reached

Outline Drawing Including Cooling:

All Dimensions in mm [inches]



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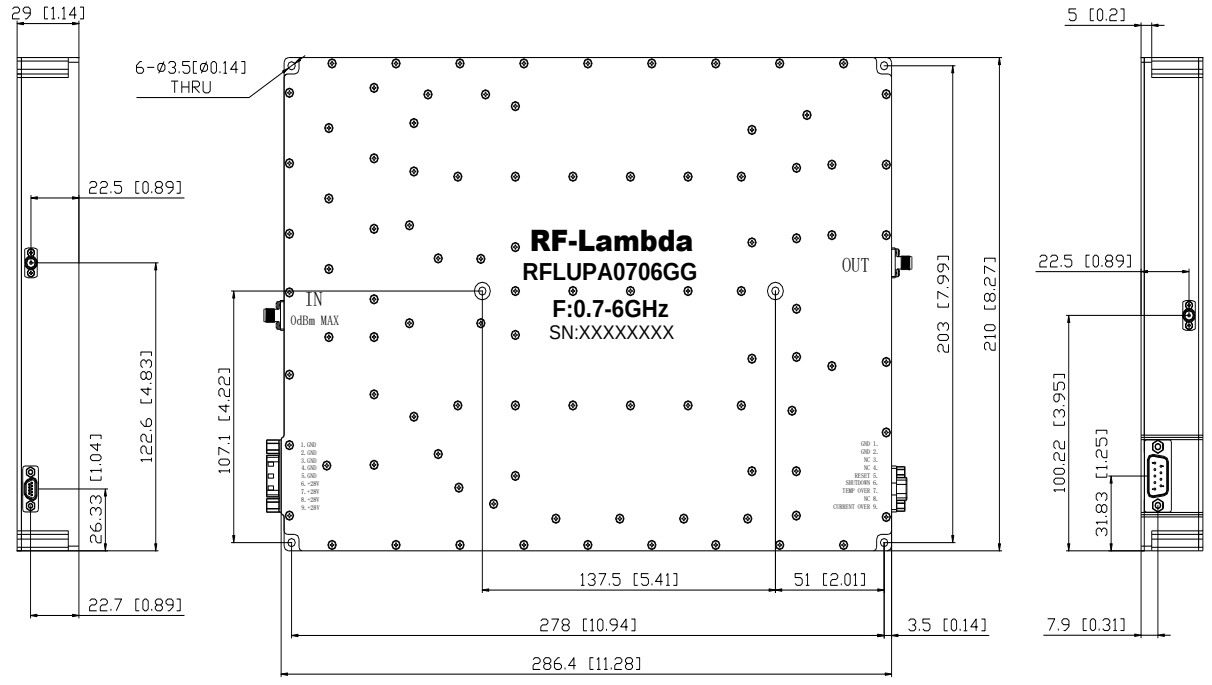
Amplifier Outline Drawing:

All Dimensions in mm [inches]



Heat Sink required during operation

Important Notice

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