



RF-LAMBDA

LEADER OF RF BROADBAND SOLUTIONS

RFLUPA0025GA

Wide Band Solid State Power Amplifier 0.03GHz~2.5GHz



Features

- Gain: 38dB Typical
- Output power +38dBm Typical
- High P1dB: +32dBm Full Band
- Supply Voltage: +28V

Typical Applications

- Wireless Infrastructure
- RF Microwave & VSAT
- Military & Aerospace
- Test Instrument
- Fiber Optics

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

Parameter	Min.	Typ.	Max.	Units
Frequency Range	0.03		2.5	GHz
Gain	35	38		dB
Gain Flatness		± 1.5	± 2.5	dB
Gain Variation Over Temperature (-45 ~ +85)		± 1.5		dB
Input VSWR		1.6	2.0	dB
Output Power for 1 dB Compression (P1dB)	32	34		dBm
Saturated Output Power (Psat)		38		dBm
3rd order intermodulation product (IM3) @P1dB		-25		dBc
DC Quiescent Current (No RF Input Power)		750	800	mA
DC Current ($V_{CC}=+28\text{V}$) at $P_{out}=P_{1dB}$		0.65	0.9	A
Efficiency at Psat (RF Output Power / DC Power Consumption)		33		%
Isolation S12		-55		dB
Weight	9.88			ounces
Impedance	50			Ohms
Input / Output Connectors	SMA - Female			
Finish	Nickel Plated			
Material	Copper			
Package Sealing	Epoxy Sealed (Standard)			
	Hermetically Sealed (Optional)			

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Absolute Maximum Ratings

Operating Voltage	+32V
RF Input Power	8dBm

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°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		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
RFLUPA0025GA	EAR99	0.03-2.5GHz 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.

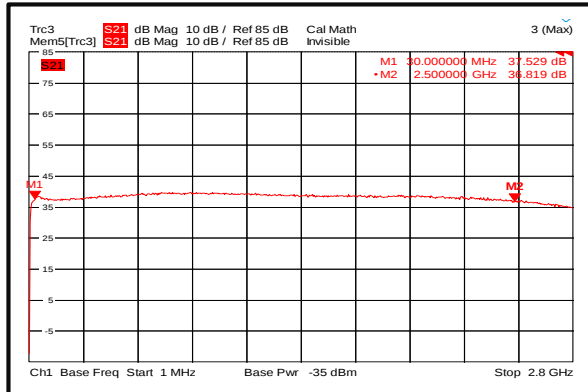
What is not covered with warranty?

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.

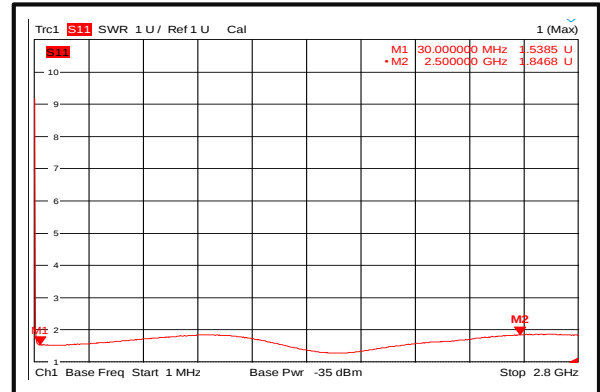


Typical Performance Plots

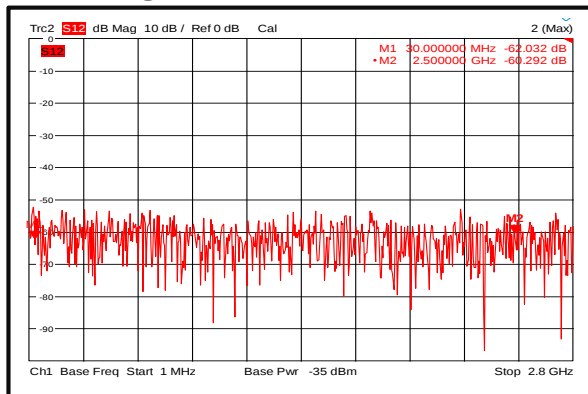
Gain@+25°C



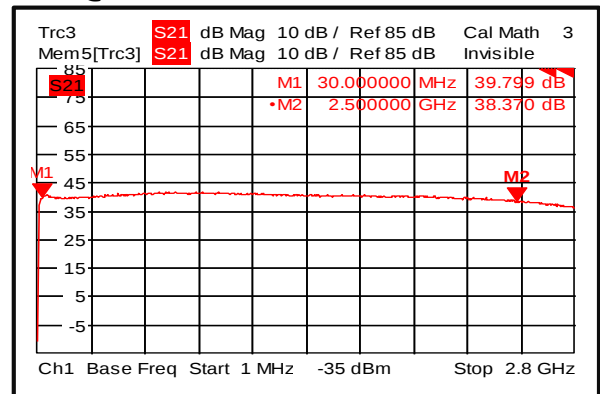
Input VSWR @+25°C



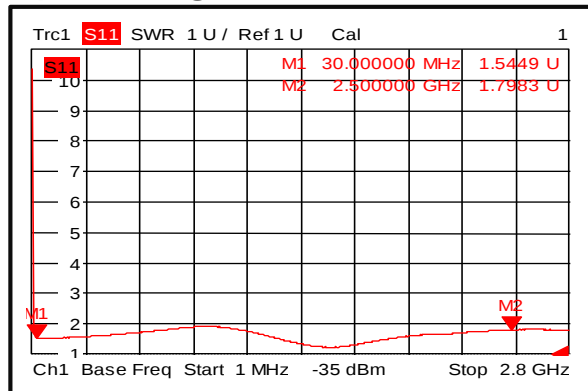
Isolation@+25°C



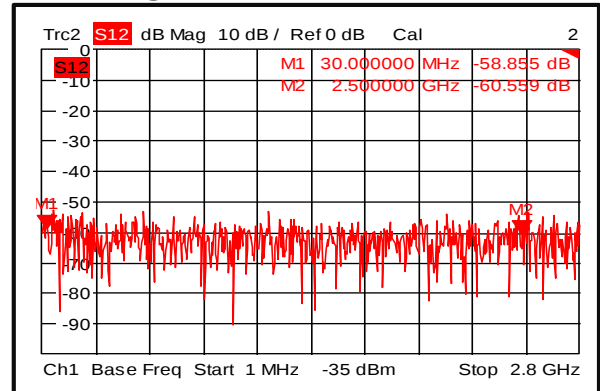
Gain@-45°C



Input VSWR @-45°C

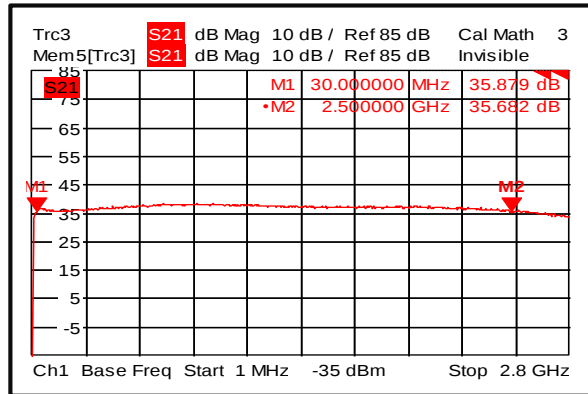


Isolation@-45°C

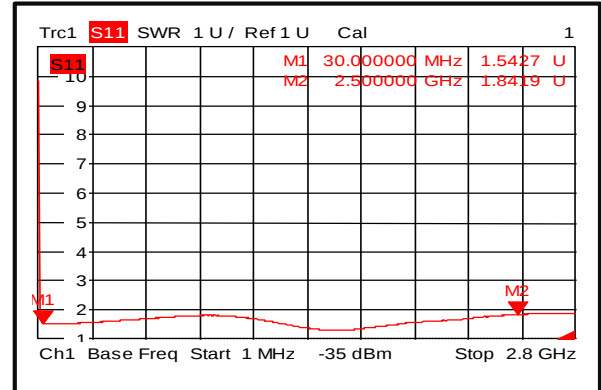




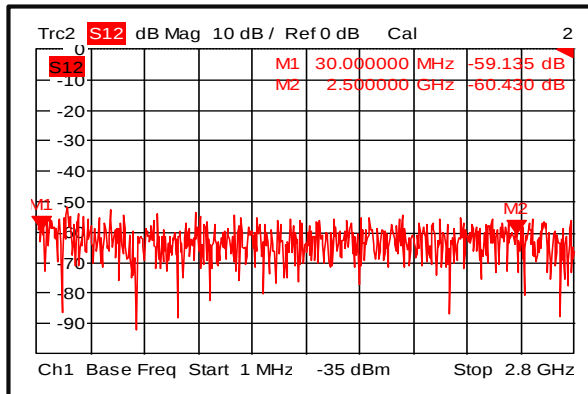
Gain@+85°C



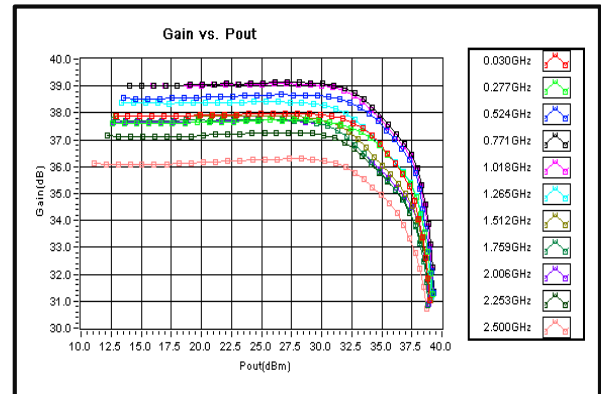
Input VSWR @+85°C



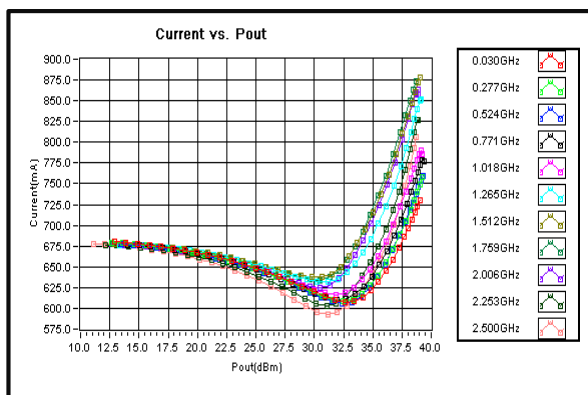
Isolation@+85°C



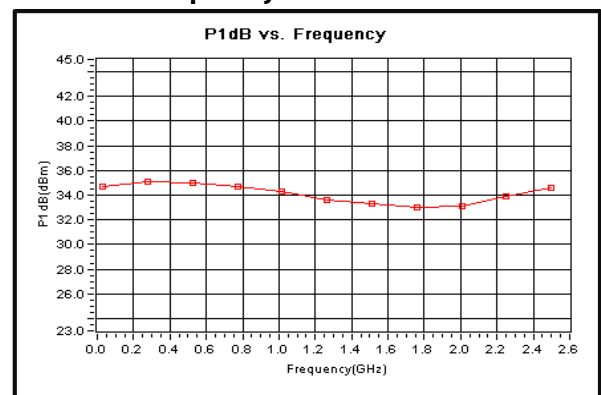
Gain vs. Output Power



Current

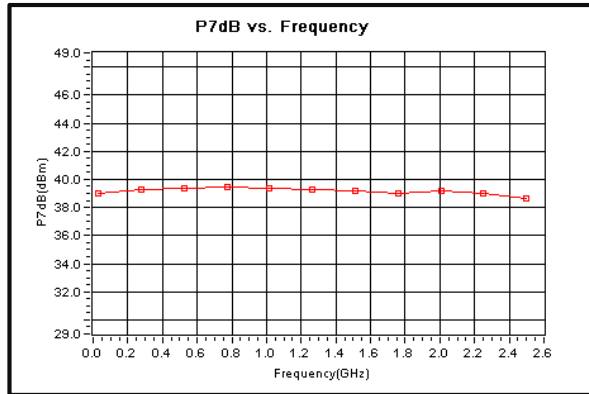


P1dB vs. Frequency

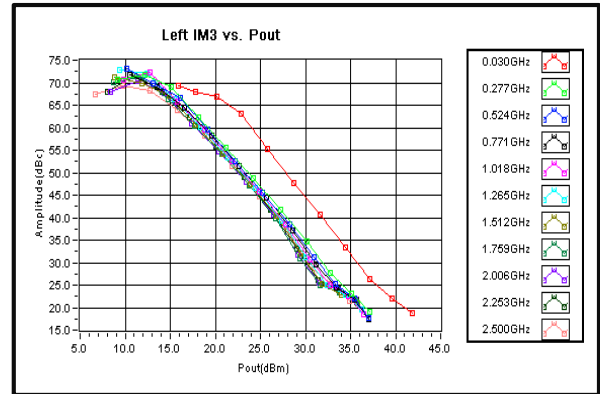




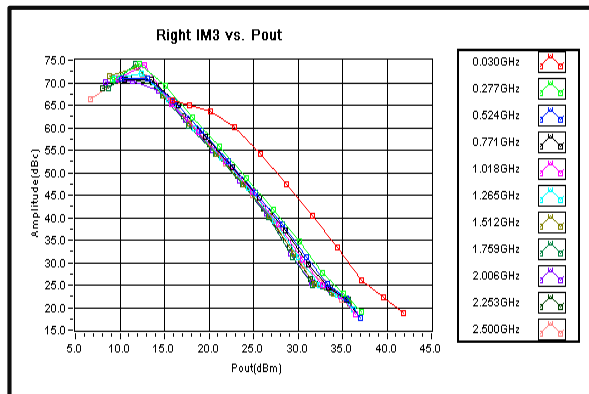
P7dB vs. Frequency



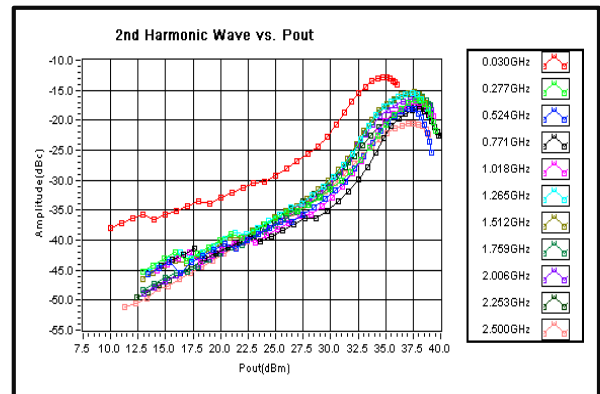
Left IM3 vs. Pout



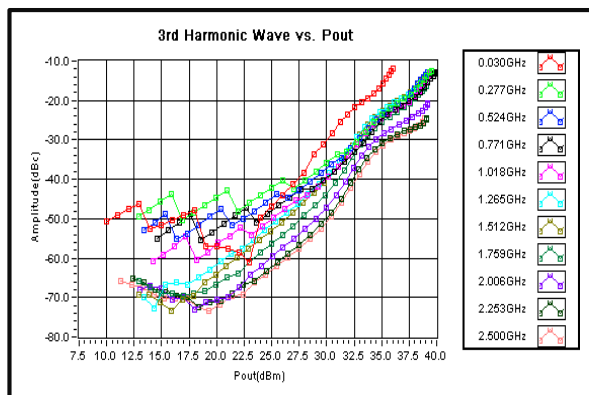
Right IM3 vs. Pout



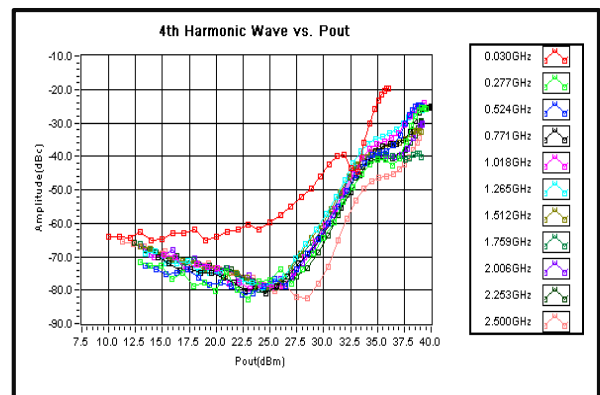
2nd Harmonic Wave Output Power



3rd Harmonic Wave Output Power



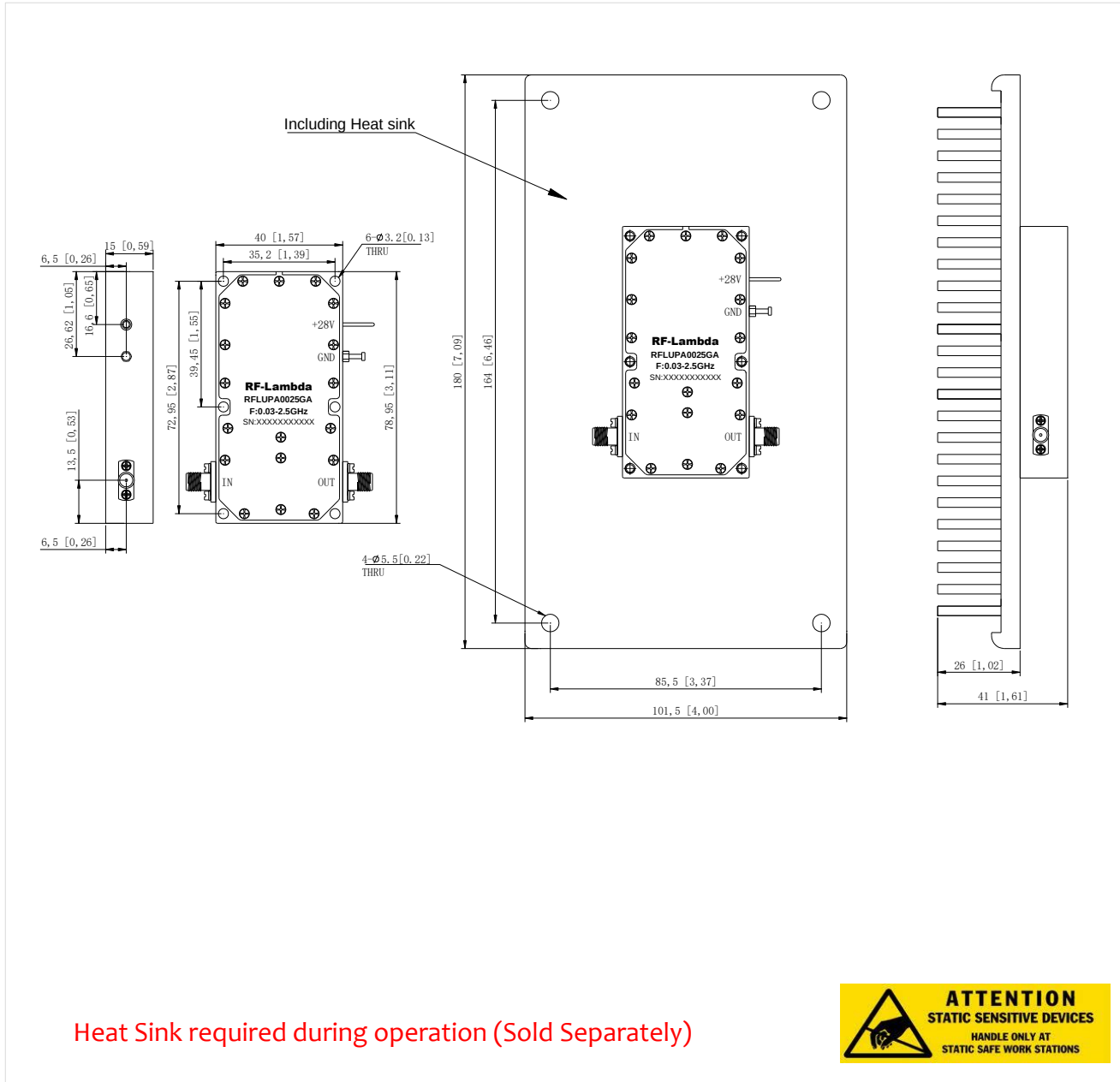
4th Harmonic Wave Output Power





Outline Drawing:

All Dimensions in mm [inches]



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Important Notice

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