



RF-LAMBDA

LEADER OF RF BROADBAND SOLUTIONS

R13M02GSA

Wide Band Low Noise Amplifier 1.3GHz~2.9GHz



Features

- Gain: 30 dB Typical
- Noise Figure: 1.0dB Typical
- P1dB Output Power: +25dBm Typical
- Supply Voltage: +5V

Typical Applications

- Telecom Infrastructure
- Microwave Radio & VSAT
- Military & Space
- Test Instrumentation

Electrical Specifications, TA = +25°C, Vdd = +5V

Parameter	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Frequency Range	1.3		2.2	2.2		2.9	GHz
Gain	28	34		24	26		dB
Gain Flatness		±2	±2.5		±1.5	±2.0	dB
Gain Variation Over Temperature (-45 ~ +85)		±0.5			±0.5		dB
Noise Figure		1.0	1.5		1.2	1.8	dB
Input VSWR		1.5	2.0		1.8	2.2	: 1
Output VSWR		1.8	2.0		1.8	2.2	: 1
Output Power for 1dB Compression (P1dB)	22	25		23	25		dBm
Saturated Output Power (Psat)		26			26		dBm
Output Third Order Intercept (IP3)		36			39		dBm
Supply Current (Vdd= 5V)		150	200		150	200	mA
Isolation S12		-50			-45		dB
Weight	1.76						ounces
Impedance	50						Ohms
Input / Output Connectors	SMA-Female						
Finish	Gold Plated						
Material	Aluminum						
Package Sealing	Epoxy Sealing (Standard)						
	Hermetically Sealed (Optional)						

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Absolute Maximum Ratings

Operating Voltage	+6V
RF Input Power	+25dB m

Biasing Up Procedure

Step 1	Connect Ground Pin
Step 2	Connect input and output
Step 3	Connect +5V biasing
Power OFF Procedure	
Step 1	Turn off +5V biasing
Step 2	Remove RF connection
Step 3	Remove Ground.

Environmental Specifications and Test Standards

Parameter	Standard	Description
Operational Temperature	MIL-STD-39016	-45°C~+85°C
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)



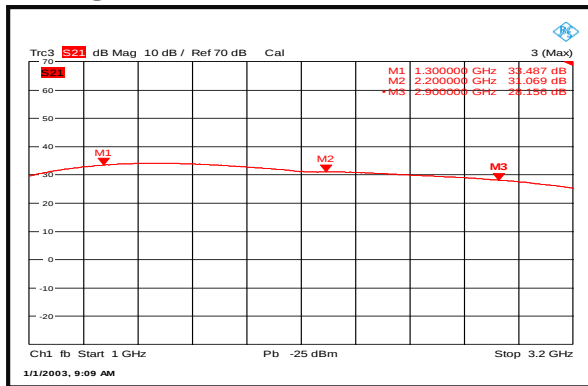
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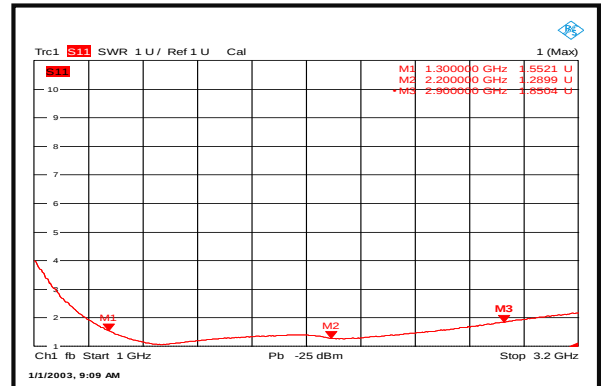
R13M02GSA

Typical Performance Plots

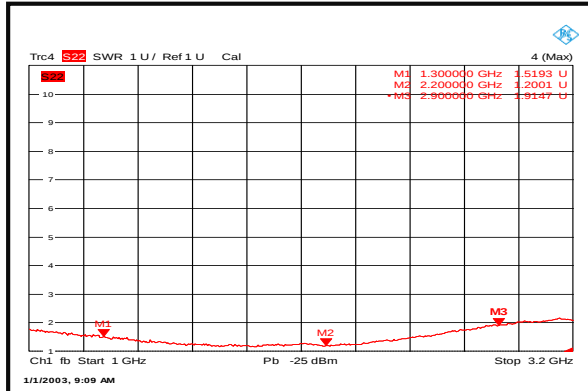
Gain @+25°C



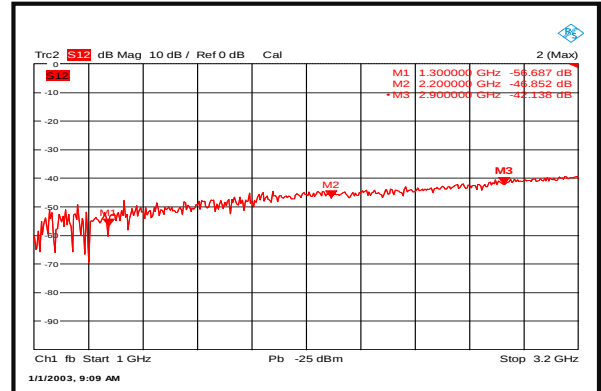
Input VSWR @+25°C



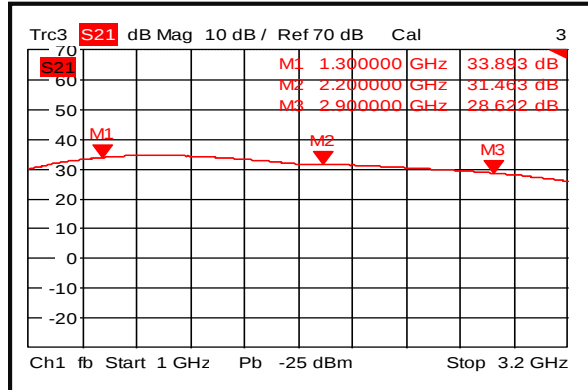
Output VSWR @+25°C



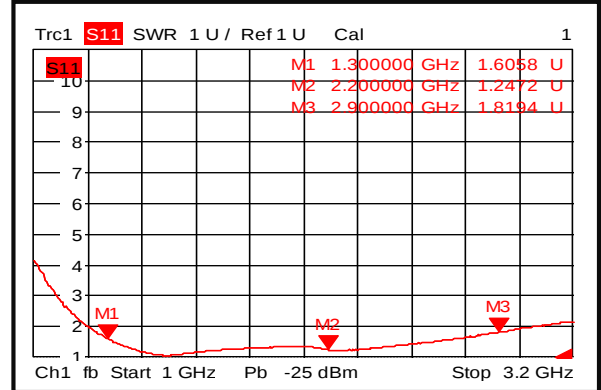
Isolation @+25°C



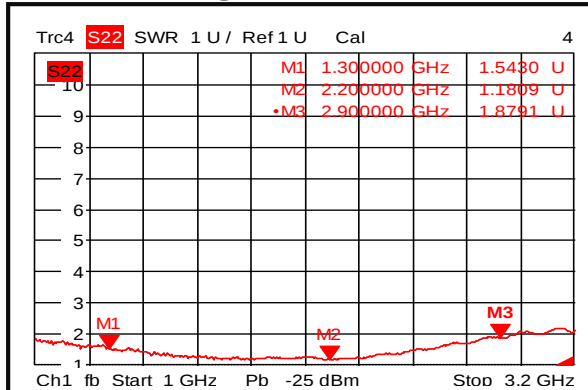
Gain @-45°C



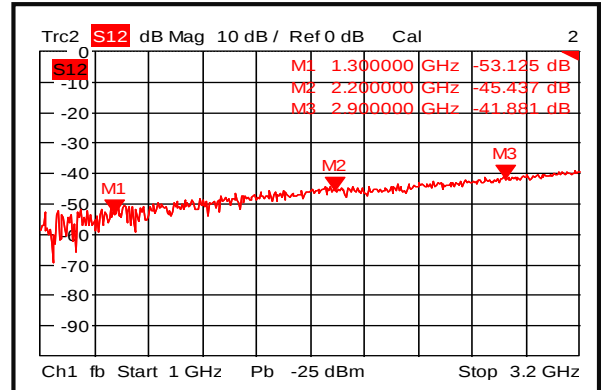
Input VSWR @-45°C



Output VSWR @-45°C



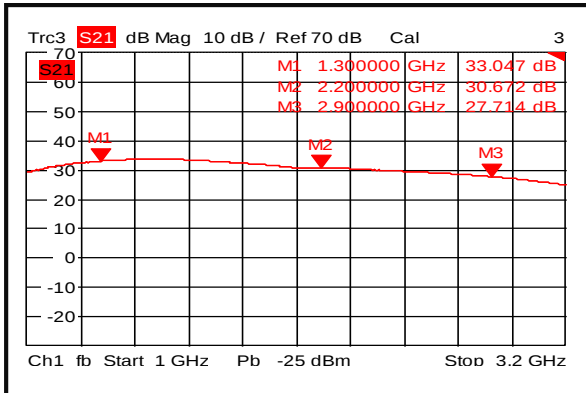
Isolation @-45°C



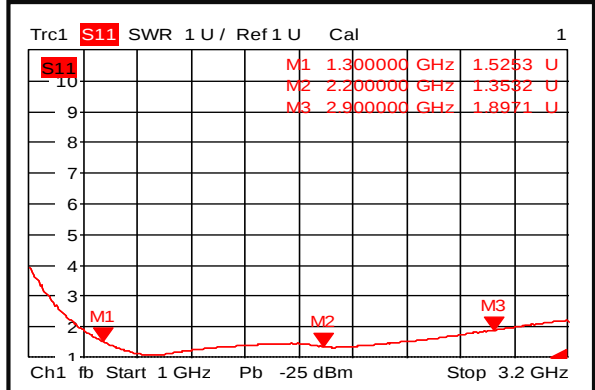
Wide Band Low Noise Amplifier 1.3GHz~2.9GHz



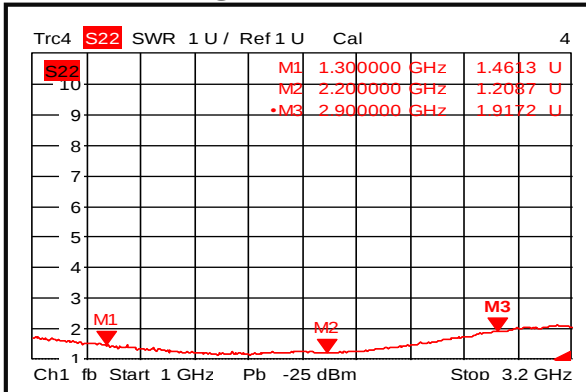
Gain @+85°C



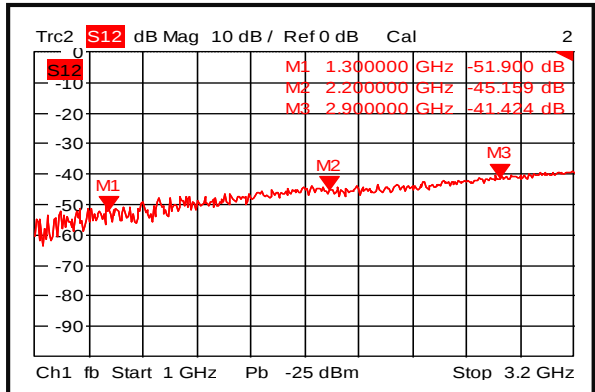
Input VSWR @+85°C



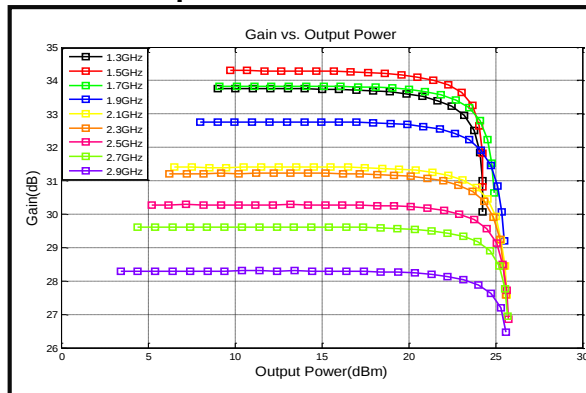
Output VSWR @+85°C



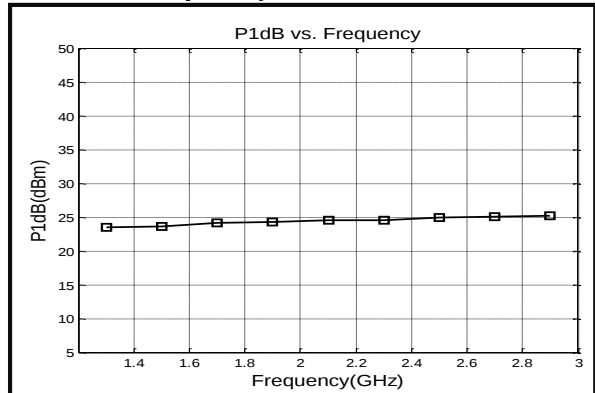
Isolation @+85°C



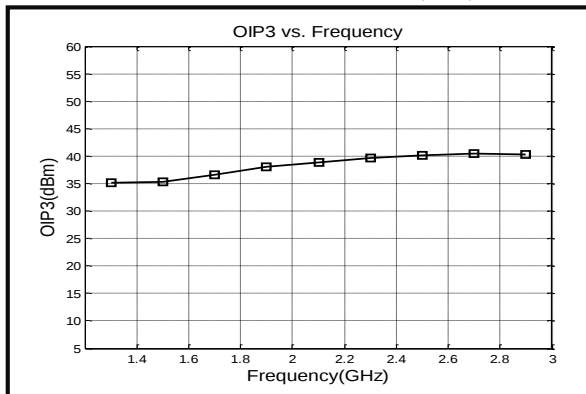
Gain vs. Output Power



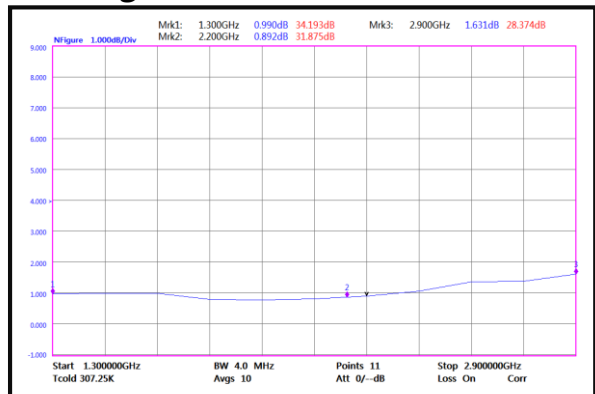
P1dB vs. Frequency



Output Third Order Intercept (IP3)

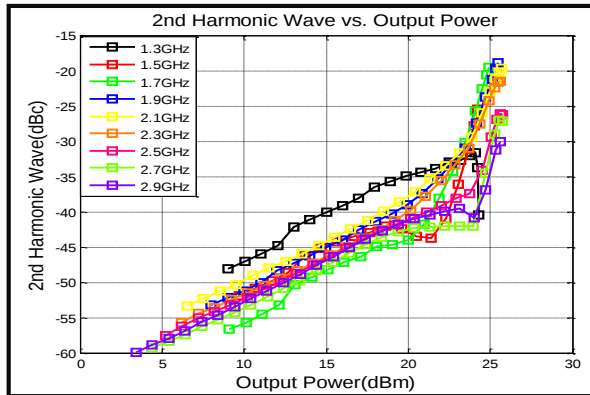


Noise Figure

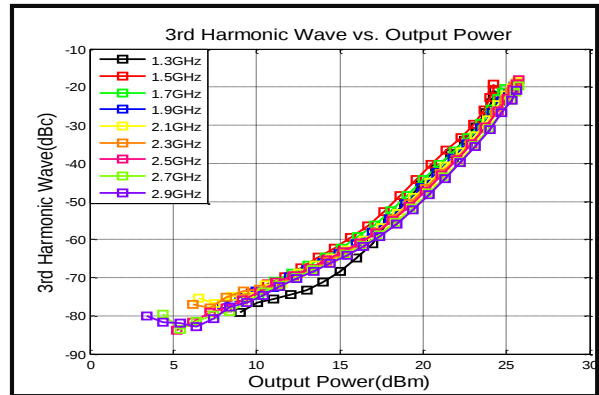




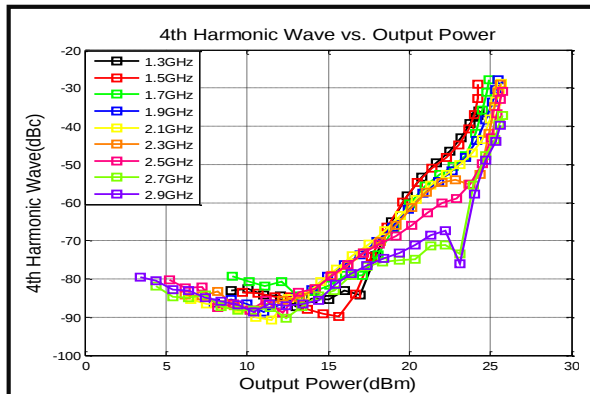
2nd Harmonic Wave Output Power



3rd Harmonic Wave Output Power



4th Harmonic Wave Output Power

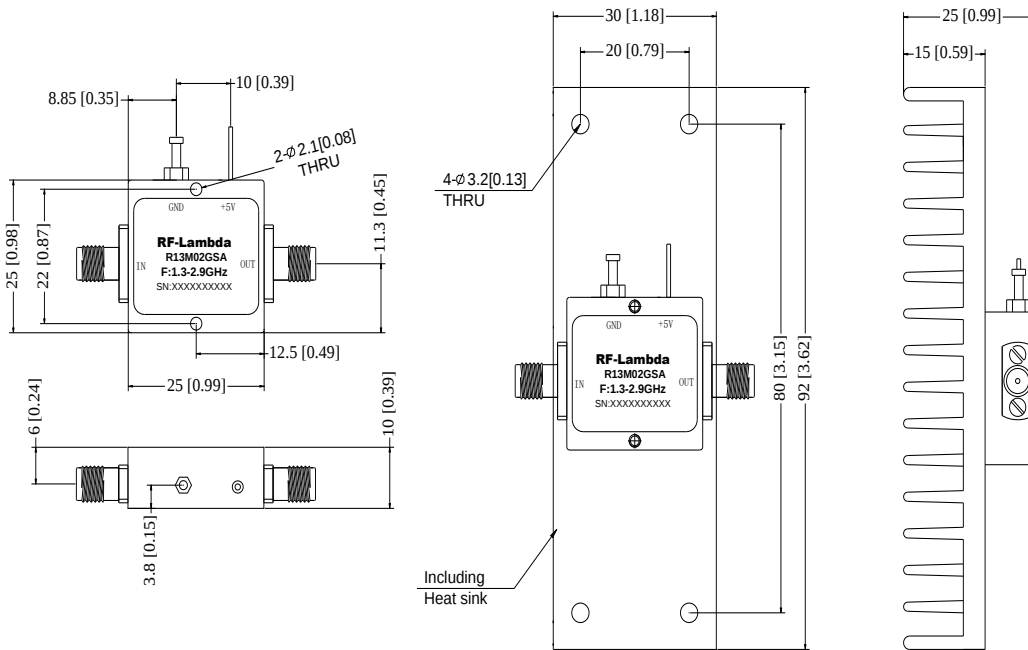


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Outline Drawing:

All Dimensions in mm [inches]



Heat Sink required during operation (Sold Separately)



Ordering Information

Part No.	ECCN	Description
R13M02GSA	EAR99	1.3-2.9GHz Low Noise Amplifier

Important Notice

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