



Ultra Wide Band Low Noise Amplifier 0.1GHz ~ 20GHz



Features

- Gain: 28dB Typical
- Noise Figure: 1.8dB Typical
- Output P1dB: 16dBm Typical

Typical Applications

- Wireless Infrastructure
- Military & Aerospace
- Test and Measurement

Electrical Specifications, $T_A = +25^\circ\text{C}$, $V_{CC} = +12\text{V}$

Parameter	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Frequency Range	0.1		0.2	0.2		10	10		20	GHz
Gain	27	30		27	29		25	27		dB
Gain Flatness		± 1.0			± 1.0	± 1.5		± 1.5	± 2.0	dB
Gain Variation Over Temperature ($-45^\circ\text{C} \sim +85^\circ\text{C}$)		± 0.6			± 0.8			± 1.0		dB
Noise Figure		3.5			1.5	3.5		2.5	3.6	dB
Input VSWR		3			1.8	2		1.8	2	:1
Output VSWR		1.5			1.5	1.8		1.5	1.8	:1
Output 1dB Compression Point (P1dB)		22		22	24		20	22		dBm
Saturated Output Power (Psat)		24			25			23		dBm
Output Third Order Intercept (OIP3)		28			28			27		dBm
Supply Current ($V_{CC} = +12\text{V}$)		210	260		210	260		210	260	mA
Isolation S12		-60			-65			-58		dB
Weight	1.41									ounces
Impedance	50									Ohms
Input / Output Connectors	SMA-Female									
Finish	Gold Plated									
Material	Aluminum									
Package Seal	Epoxy Sealed (Standard)									
	Hermetically Sealed (Optional)									

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Absolute Maximum Ratings

Operating Voltage	+15V
RF Input Power (RFIN)	+4dBm

Biasing Up Procedure

Step 1	Connect Ground Pin
Step 2	Connect input and output
Step 3	Connect +12V biasing
Power OFF Procedure	
Step 1	Turn off +12V biasing
Step 2	Remove RF connection
Step 3	Remove Ground.

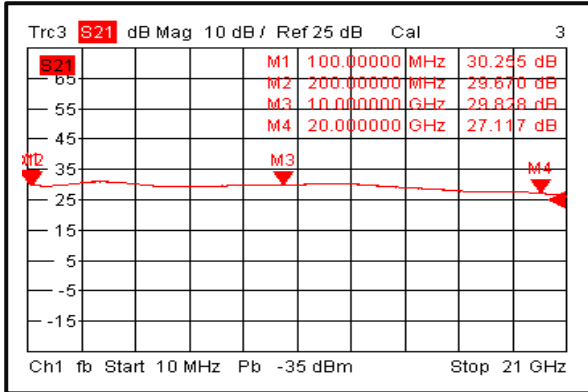
Environmental Specifications and Test Standards

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		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)

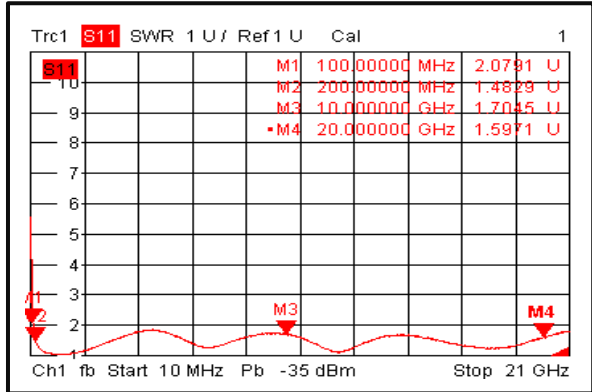
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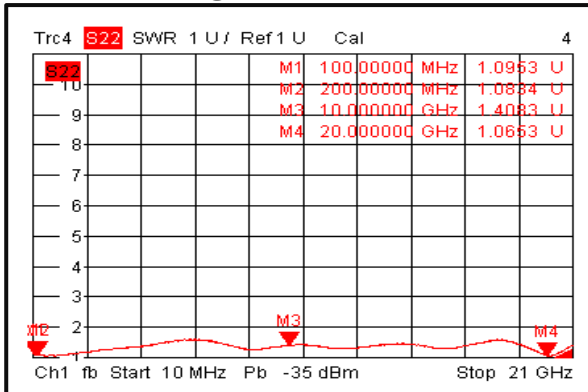
Typical Performance Plots
Gain @+25°C



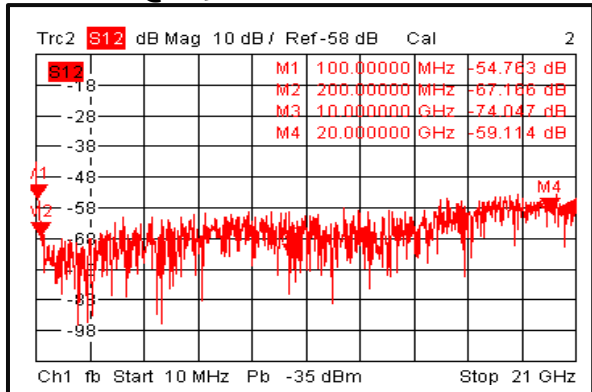
Input VSWR @+25°C



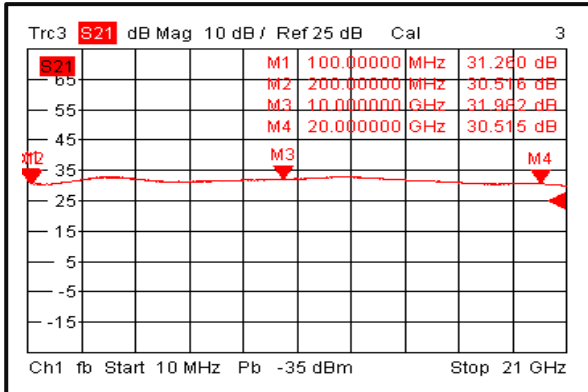
Output VSWR @+25°C



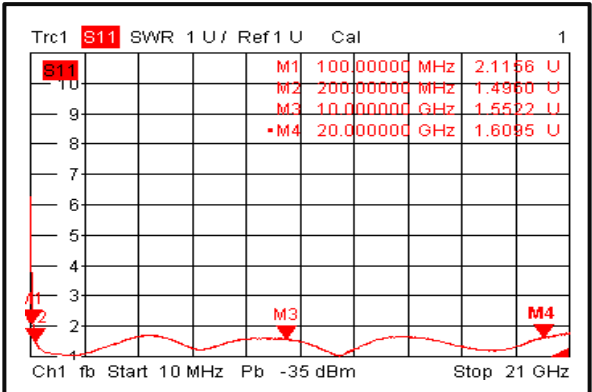
Isolation @+25°C



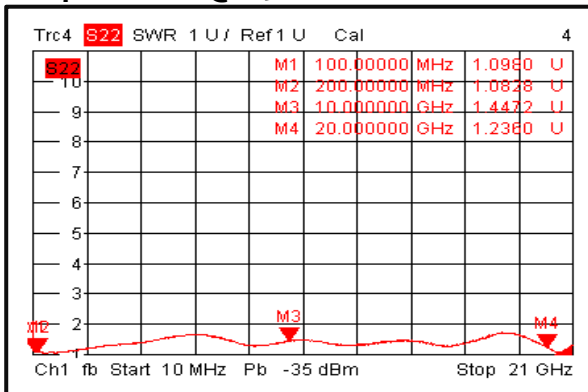
Gain @-45°C



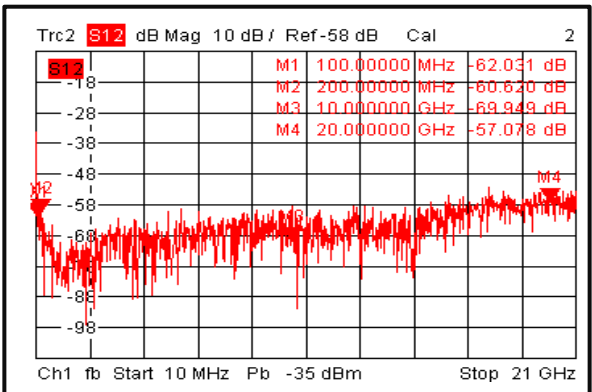
Input VSWR @-45°C



Output VSWR @-45°C



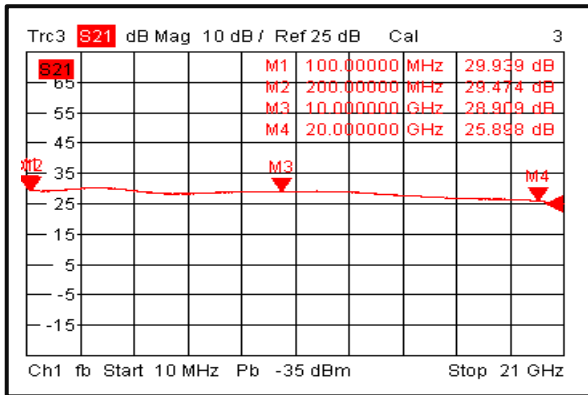
Isolation @-45°C



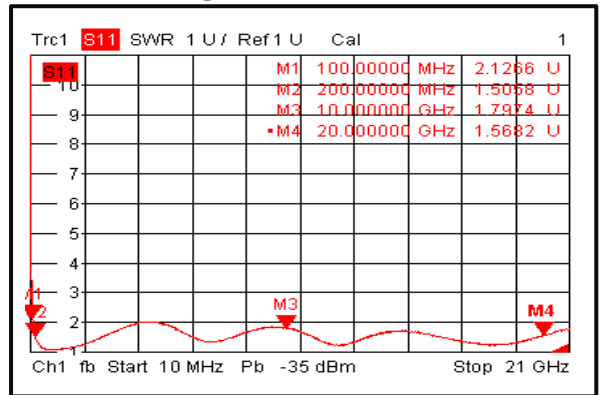
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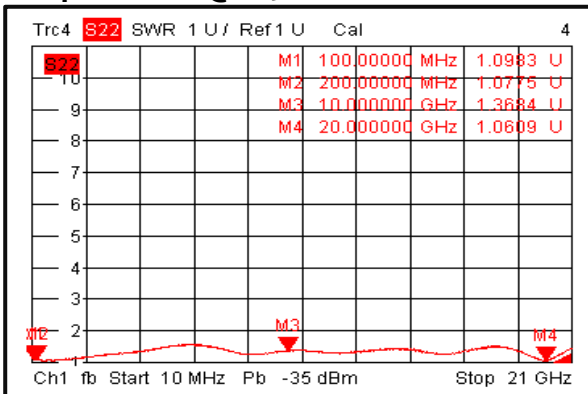
Gain @+85°C



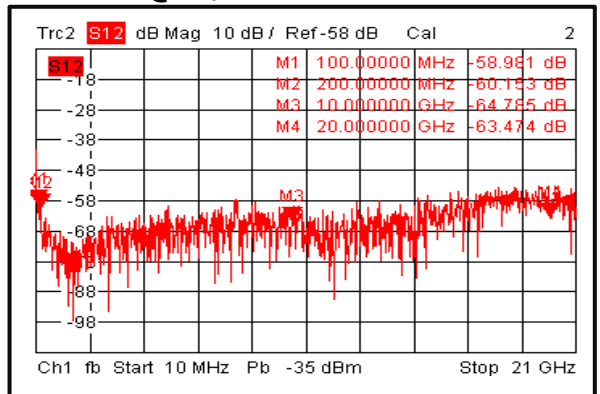
Input VSWR @+85°C



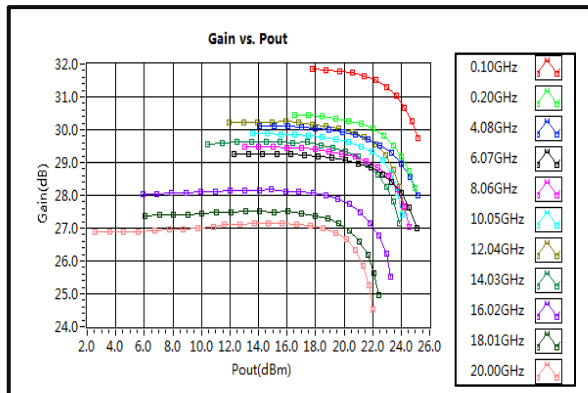
Output VSWR @+85°C



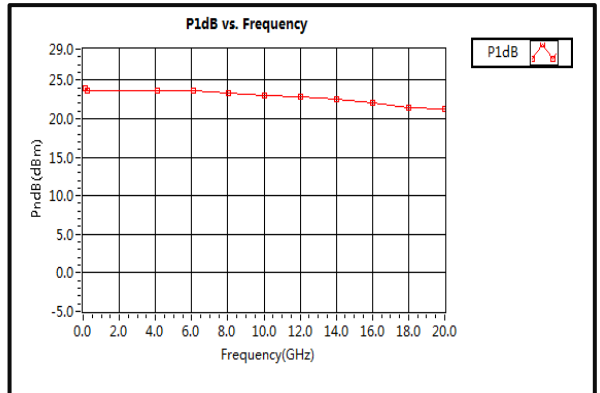
Isolation @+85°C



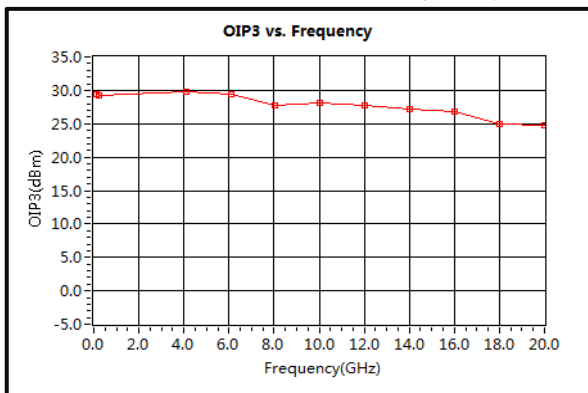
Gain vs. Output Power



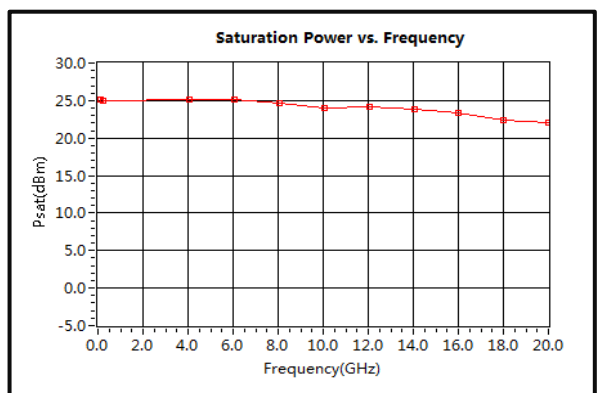
P1dB vs. Frequency



Output Third Order Intercept (OIP3)



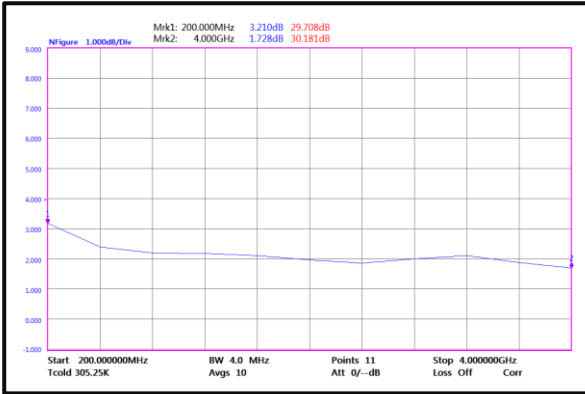
Saturation Power vs. Frequency



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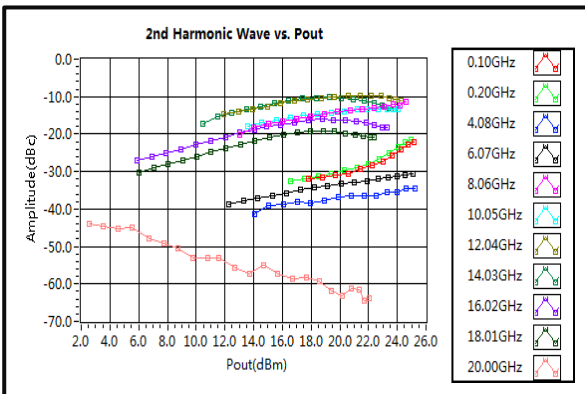
Noise Figure(0.2-4GHz)



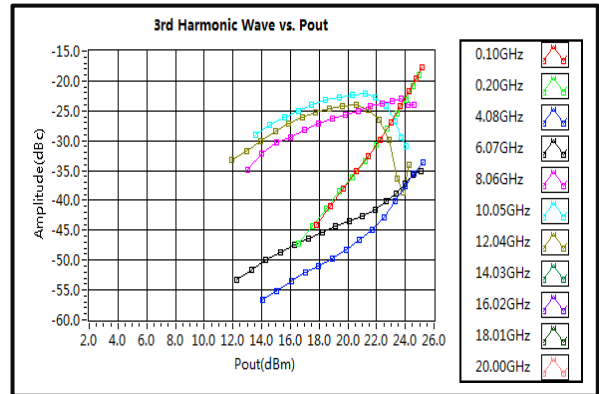
Noise Figure(4-20GHz)



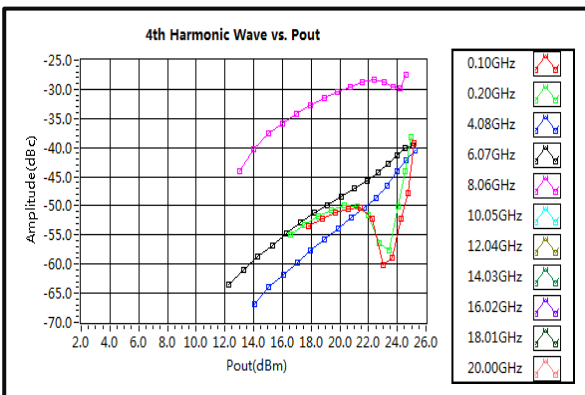
2nd Harmonic Wave Output Power



3rd Harmonic Wave Output Power



4th Harmonic Wave Output Power

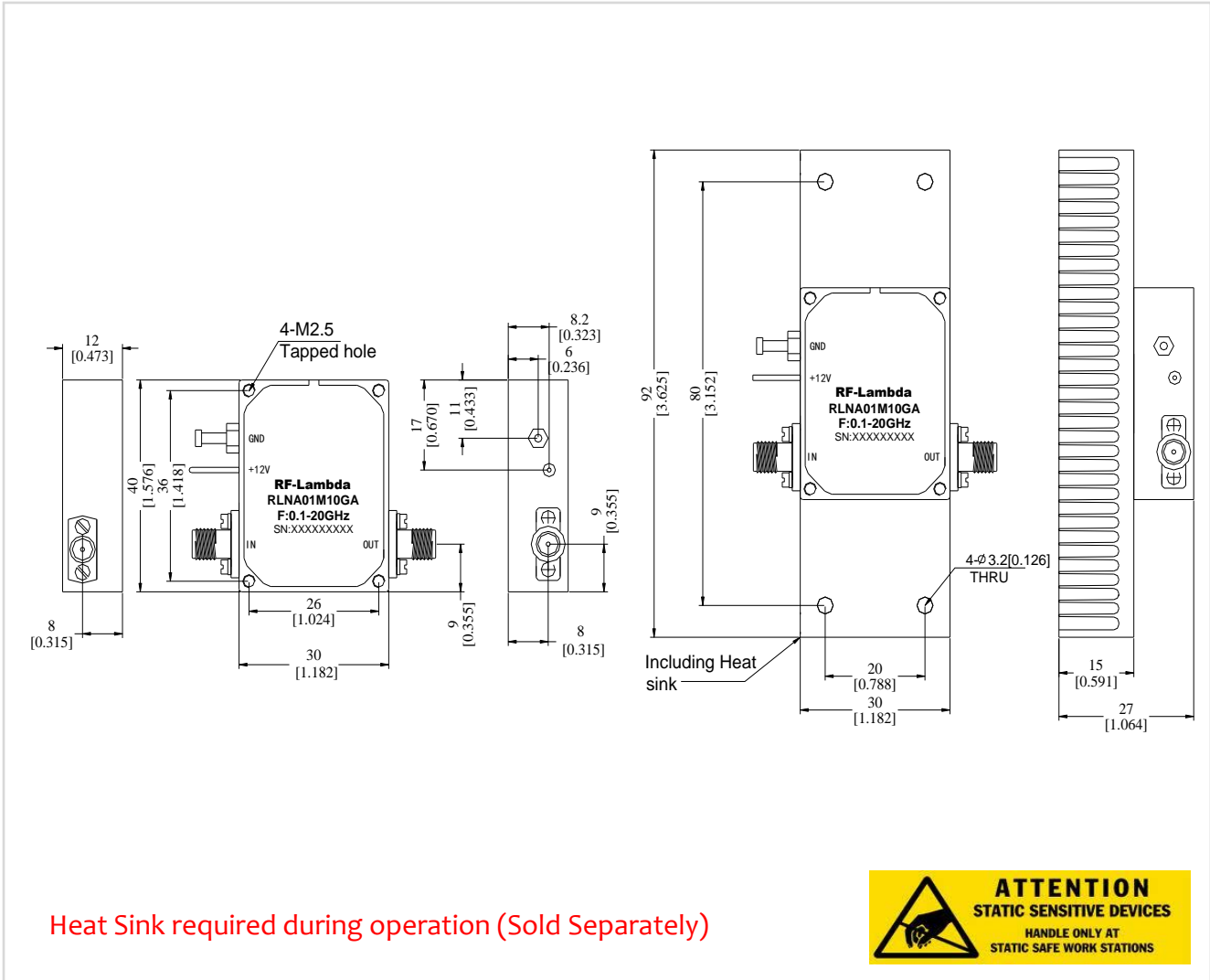


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Outline Drawing:

All Dimensions in mm [inches]



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Ordering Information

Part No.	ECCN	Description
RLNA01M10GA	EAR99	0.1-20GHz Low Noise Amplifier

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