



RF-LAMBDA

LEADER OF RF BROADBAND SOLUTIONS

RSD10M20GSB

Ultra Wide Band Low Noise Amplifier 0.1GHz ~ 20GHz



Features

- Gain: 20dB Typical
- Noise Figure: 3.0dB Typical
- P1dB Output Power: +21dBm Typical
- Supply Voltage: +8V

Typical Applications

- Wireless Infrastructure
- Military & Aerospace
- Test and Measurement

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Electrical Specifications, $T_A = +25^\circ\text{C}$, $V_{CC} = +8\text{V}$

Parameter	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Frequency Range	0.1		10	10		20	GHz
Gain	18	19		19	20		dB
Gain Flatness		± 1.0	± 2.0		± 1.0	± 2.0	dB
Gain Variation Over Temperature (-45 ~ +85)		± 1.0			± 1.5		dB
Noise Figure		3.0			3.5		dB
Input VSWR		1.3			1.8		: 1
Output VSWR		1.5			2.0		: 1
Output 1dB Compression Point (P1dB)	19	21		17	20		dBm
Saturated Output Power (Psat)		22			21		dBm
Output Third Order Intercept (IP3)		33			28		dBm
Supply Current ($V_{CC}=+8\text{V}$)		200	300		200	300	mA
Isolation S12		-35			-25		dB
Weight	0.35						ounces
Impedance	50						Ohms
Input / Output Connectors	SMA-Female						
Finish	Gold Plated						
Material	Copper						
Package Sealing	Epoxy Sealed (Standard)						
	Hermetically Sealed (Optional)						



Absolute Maximum Ratings

Operating Voltage	+10V
RF Input Power	+23dBm

Biasing Up Procedure

Step 1	Connect Ground Pin
Step 2	Connect input and output
Step 3	Connect +8V biasing
Power OFF Procedure	
Step 1	Turn off +8V 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)



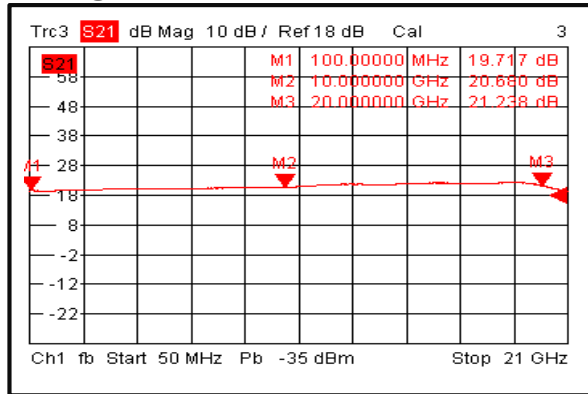
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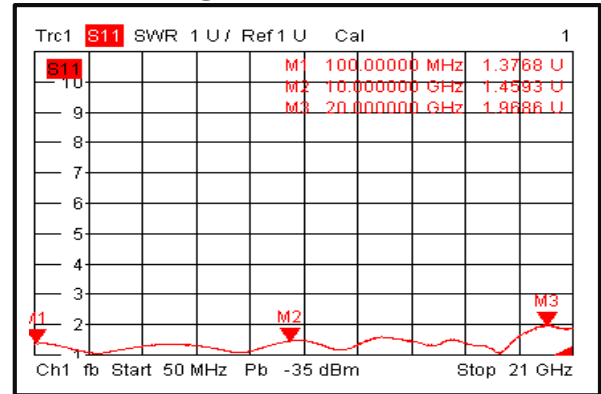
RSD10M20GSB

Typical Performance Plots

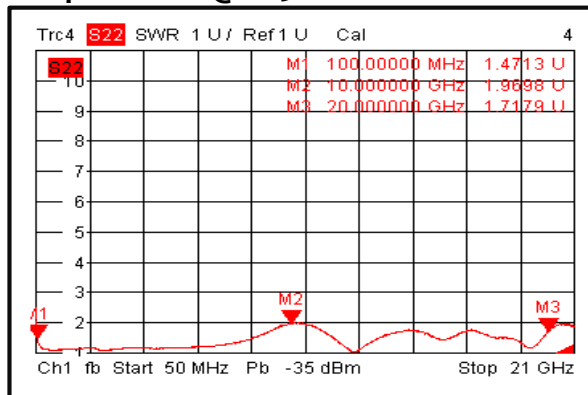
Gain @ +25°C



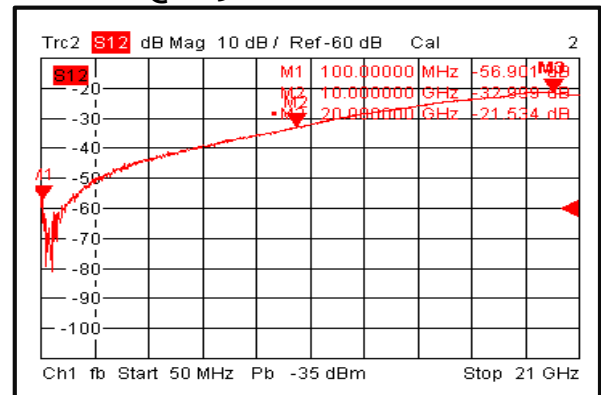
Input VSWR @ +25°C



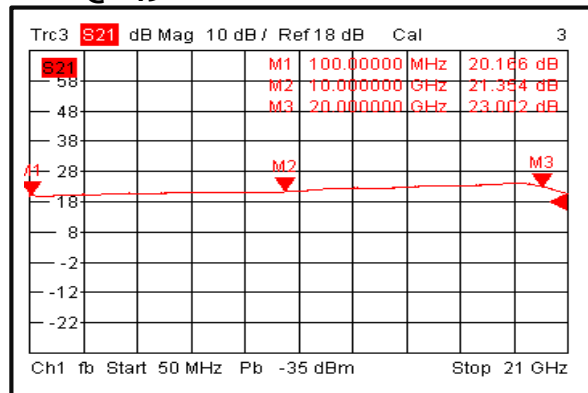
Output VSWR @ +25°C



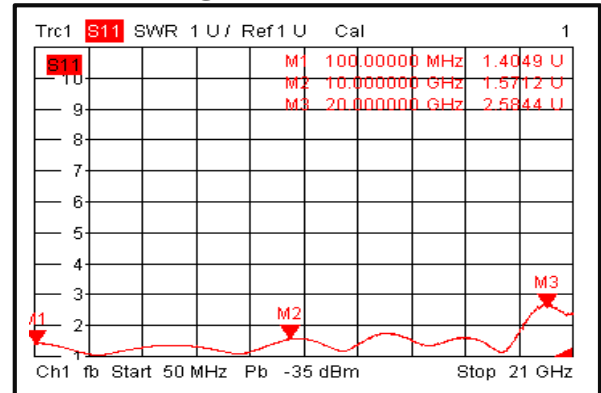
Isolation @ +25°C



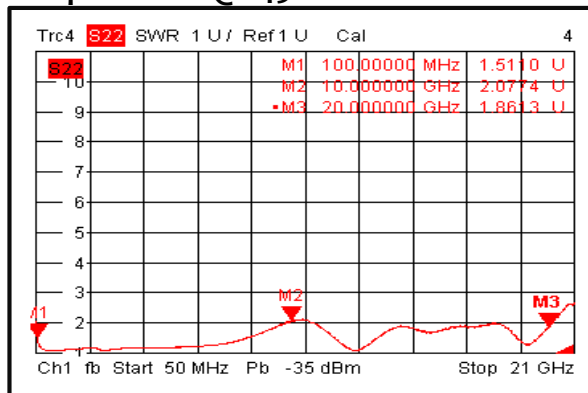
Gain @ -45°C



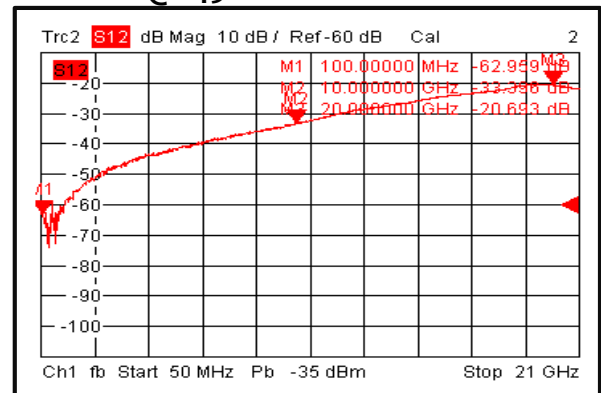
Input VSWR @ -45°C



Output VSWR @ -45°C



Isolation @ -45°C



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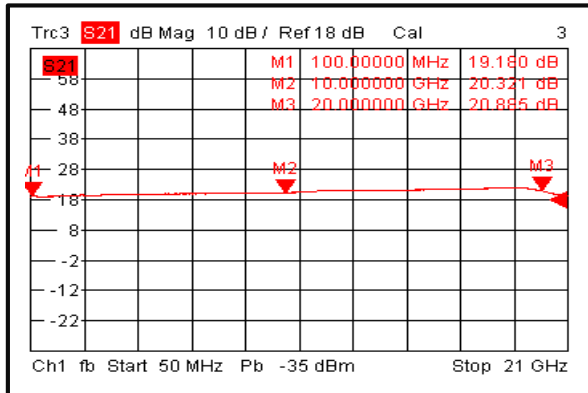


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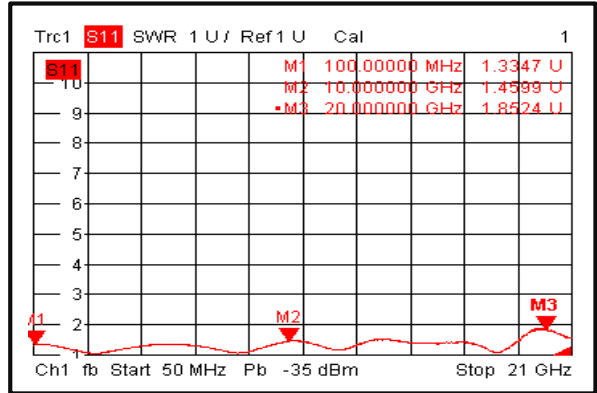
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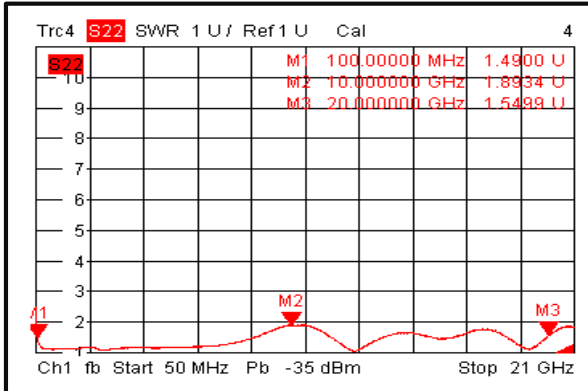
Gain @ +85°C



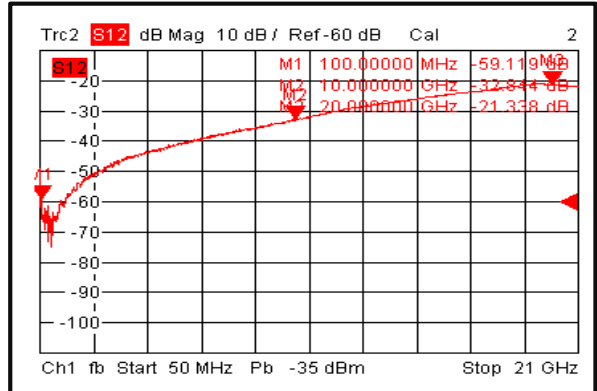
Input VSWR @ +85°C



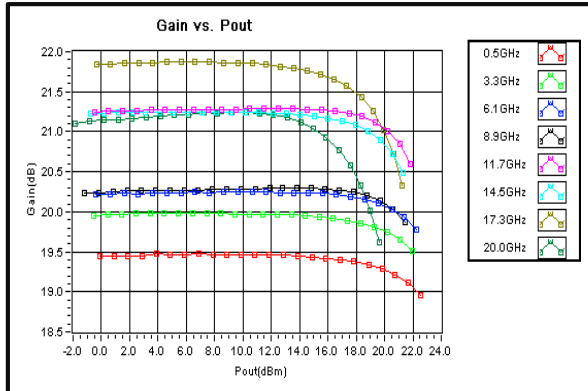
Output VSWR @ +85°C



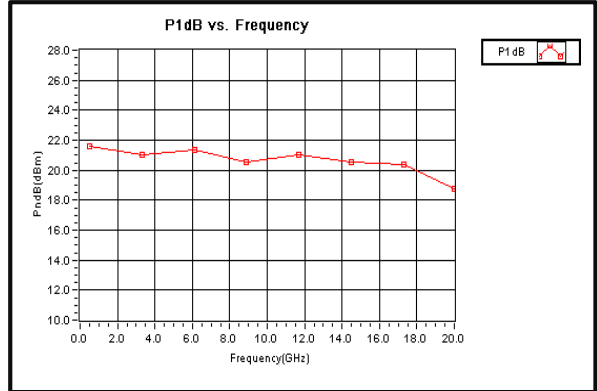
Isolation @ +85°C



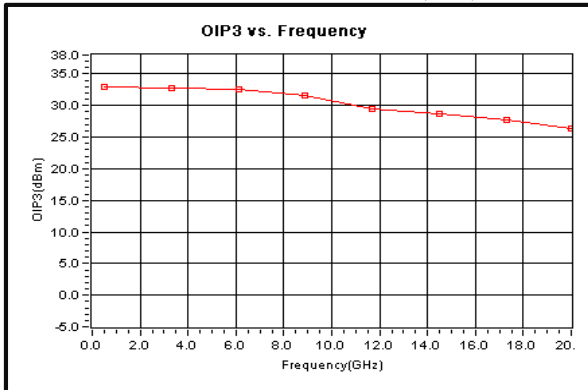
Gain vs. Output Power



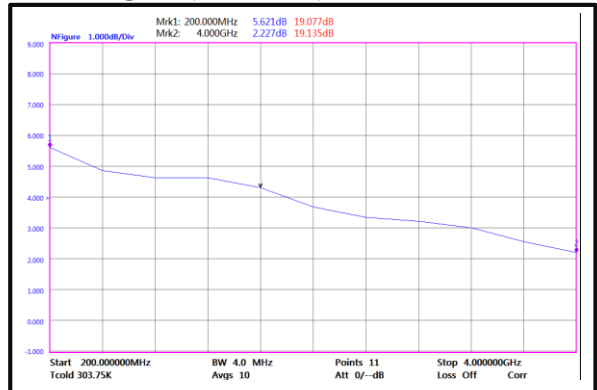
P1dB vs. Frequency



Output Third Order Intercept (IP3)



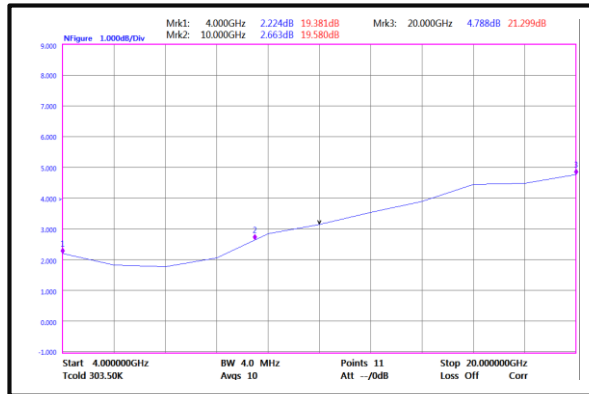
Noise Figure(0.2-4GHz)



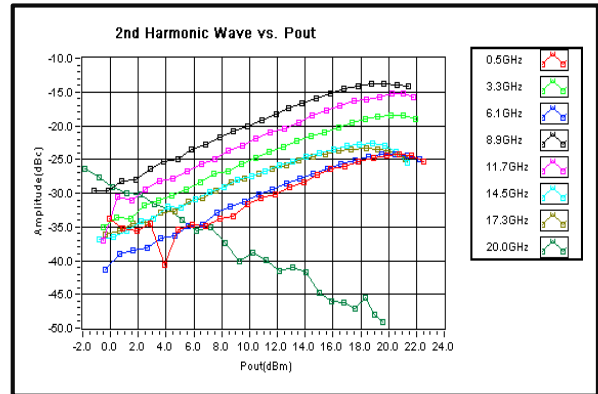
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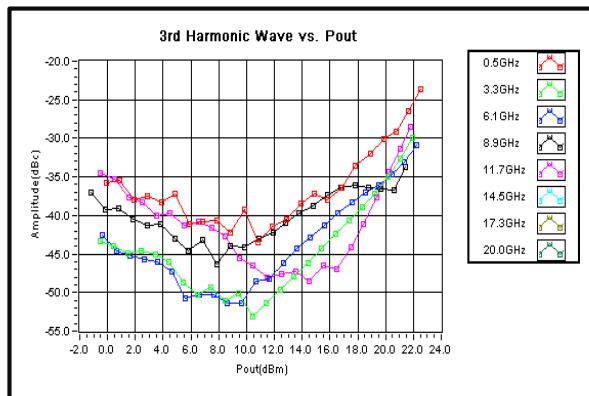
Noise Figure(4-20GHz)



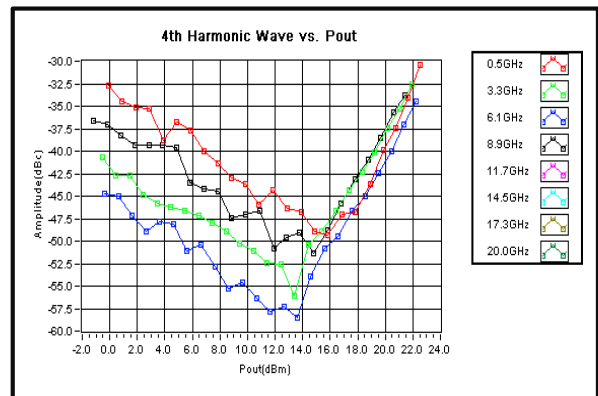
2nd Harmonic Wave Output Power



3rd Harmonic Wave Output Power



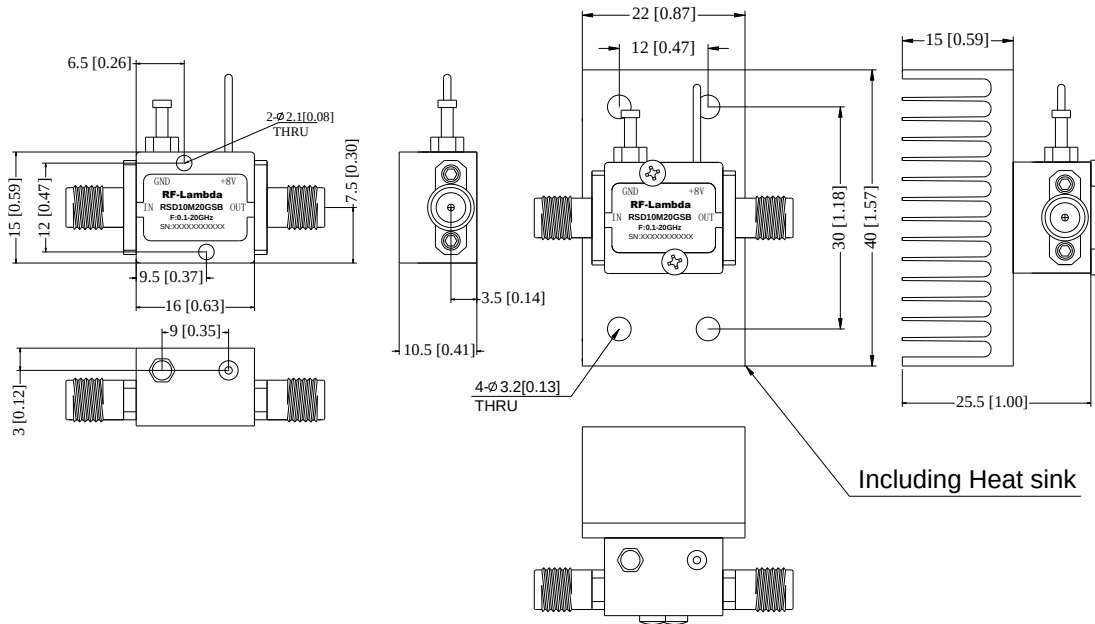
4th Harmonic Wave Output Power





Outline Drawing:

All Dimensions in mm [inches]



Heat Sink required during operation (Sold Separately)



Ordering Information

Part No.	ECCN	Description
RSD10M20GSB	EAR99	0.1-20GHz Low Noise Amplifier

Important Notice

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