

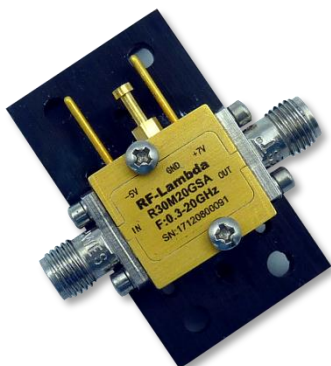


RF-LAMBDA

LEADER OF RF BROADBAND SOLUTIONS

R30M20GSA

Ultra Wide Band Low Noise Amplifier 0.3GHz ~ 20GHz



Features

- Gain: 14dB Typical
- Noise Figure: 2.5dB Typical
- P1dB Output Power: +13dBm Typical
- 50 Ohm Matched

Typical Applications

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

Electrical Specifications, $T_A = +25^\circ\text{C}$, $V_{CC} = +7\text{V}$, $V_{GG} = -5\text{V}$

Parameter	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	units
Frequency Range	0.3		10	10		16	16		20	GHz
Gain	12	15		12	13		10	12		dB
Gain Flatness		± 1.5			± 1.0			± 1.0		dB
Gain Variation Over Temperature (-45 to +85)		± 0.5			± 0.5			± 0.5		dB
Noise Figure		2.1	3.5		2.4	3.0		3.0	3.8	dB
Input VSWR		1.4	2.0		1.6	2.0		1.5	2.0	: 1
Output VSWR		2.0	2.5		1.6	2.0		1.5	2.0	: 1
Output 1dB Compression Point (P1dB)	12	15		11	13		10	12		dBm
Saturated Output Power (Psat)		17			15			14		dBm
Output Third Order Intercept (IP3)		27			25			23		dBm
Supply Current ($V_{CC} = +7\text{V}$, $V_{GG} = -5\text{V}$)		70	90		70	90		70	90	mA
Isolation S12		-25			-30			-25		dB
Weight	1.06									Ounces
Impedance	50									Ohms
Input / Output Connectors	SMA-Female									
Finish	Standard: Gold 40 micron; Nickel 220 micron thickness									
	Option: Gold 80 micron; Nickel 180 micron thickness									
Material	Aluminum									
Package Sealing	Epoxy Sealed (Standard)									
	Hermetically Sealed (Optional)									

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Absolute Maximum Ratings

Operating Voltage	+8V
RF Input Power	+15dBm

Biasing Up Procedure

Step 1	Connect Ground Pin
Step 2	Connect input and output
step3	Connect -5V biasing
Step 4	Connect +7V biasing
Power OFF Procedure	
Step 1	Turn off +7V biasing
Step 2	Turn off -5V biasing
Step 3	Remove RF connection
Step 4	Remove Ground.

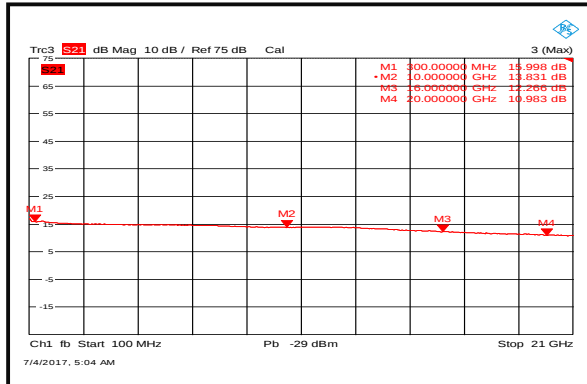
Environmental Specifications and Test Standards

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)

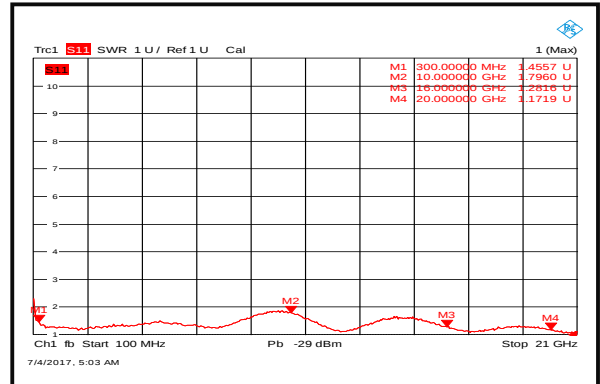


Typical Performance Plots

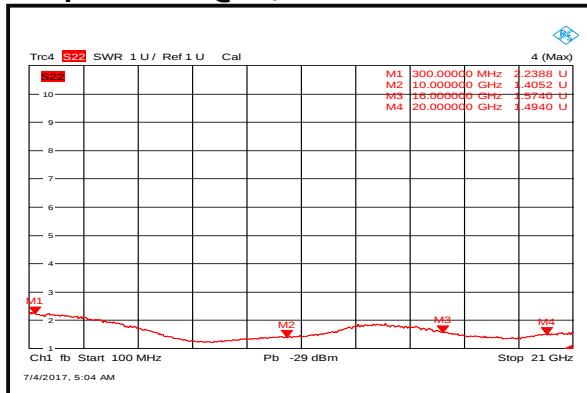
Gain @+25°C



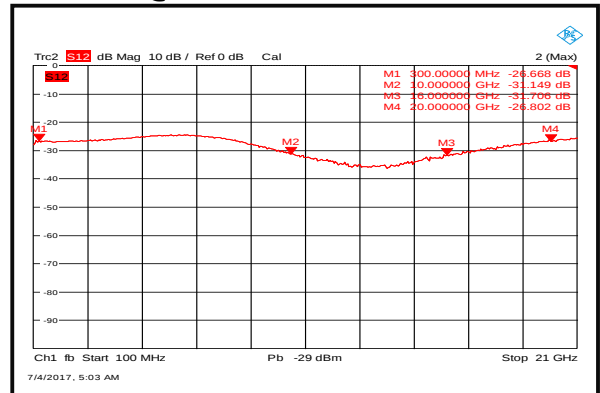
Input VSWR @+25°C



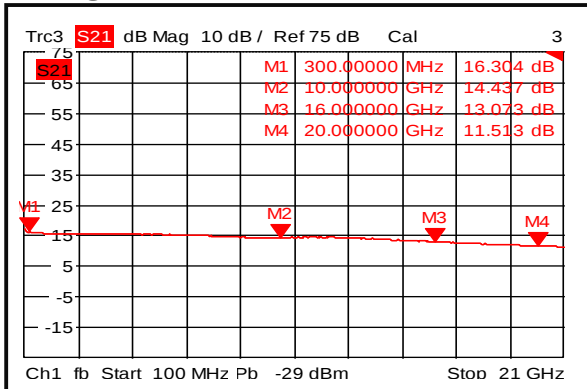
Output VSWR @+25°C



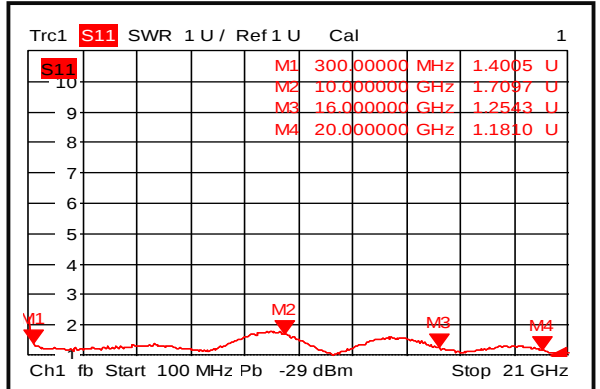
Isolation @+25°C



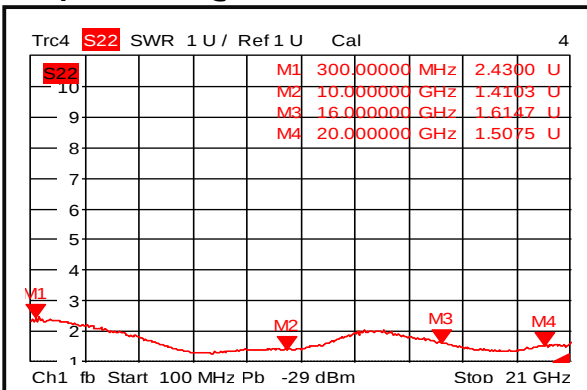
Gain @-45°C



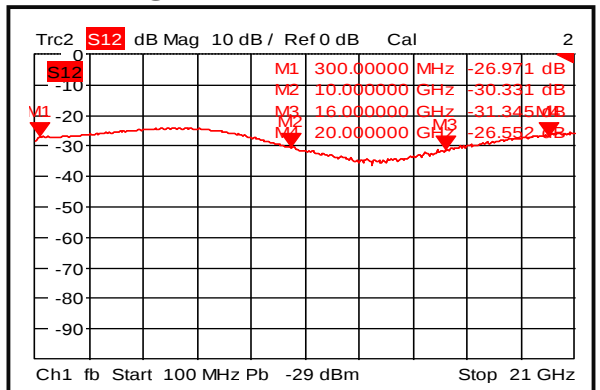
Input VSWR @-45°C



Output VSWR @-45°C



Isolation @-45°C



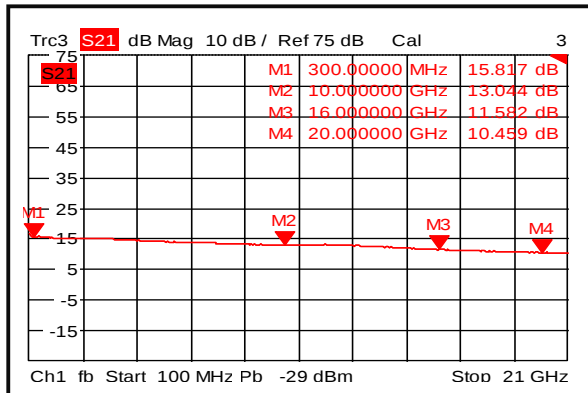


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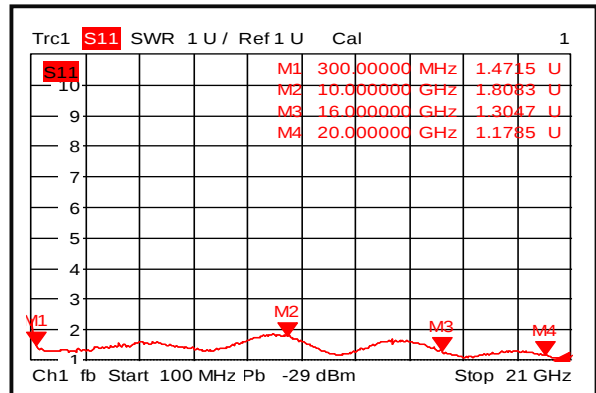
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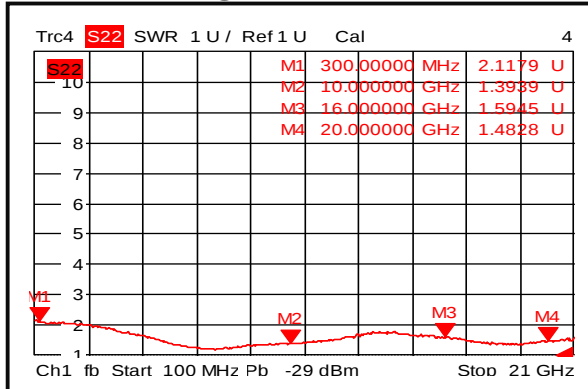
Gain @+85°C



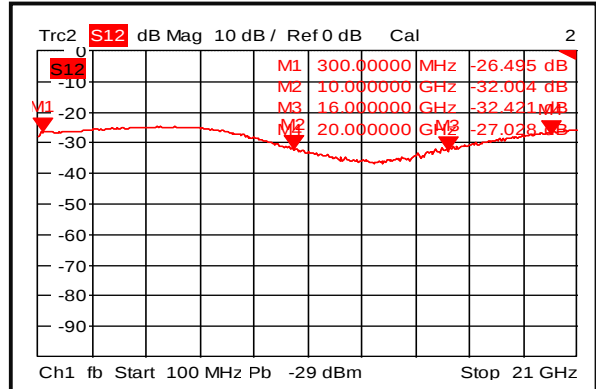
Input VSWR @+85°C



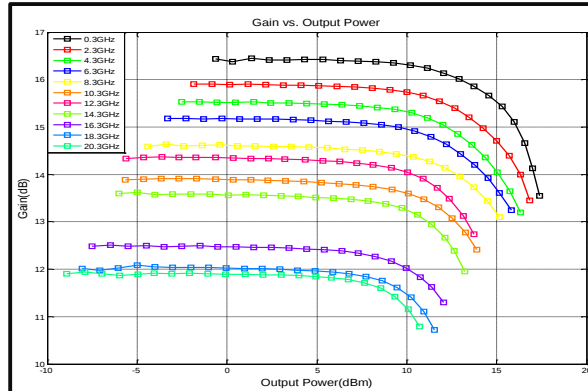
Output VSWR @+85°C



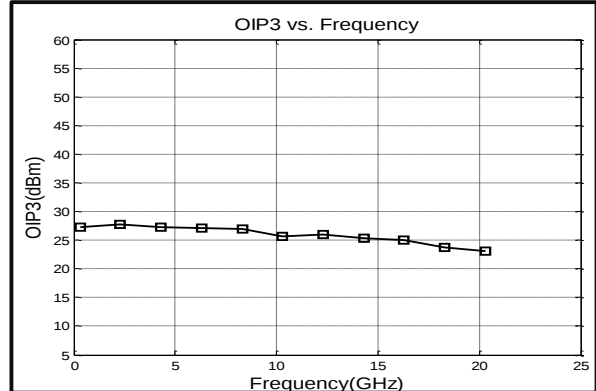
Isolation @+85°C



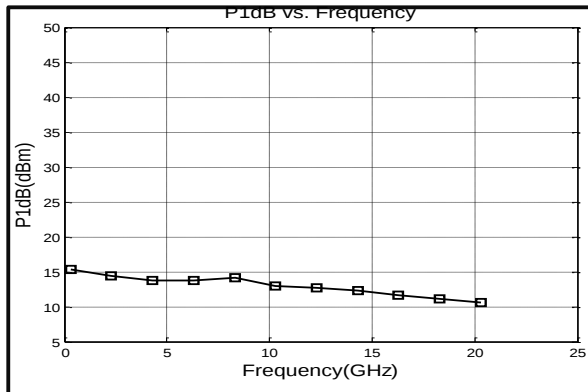
Gain vs. Output Power



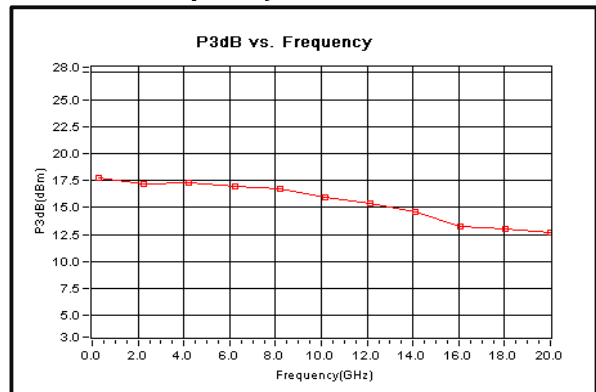
Output Third Order Intercept (IP3)



P1dB vs. Frequency



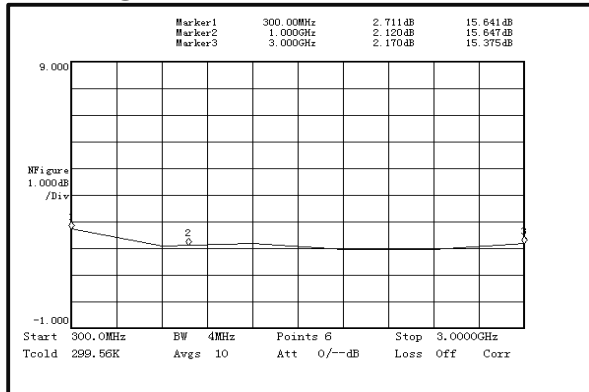
P3dB vs. Frequency



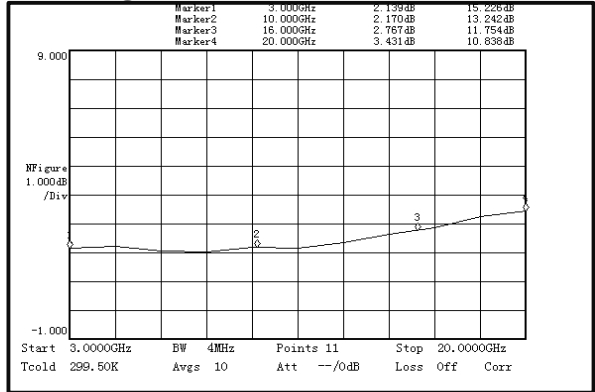
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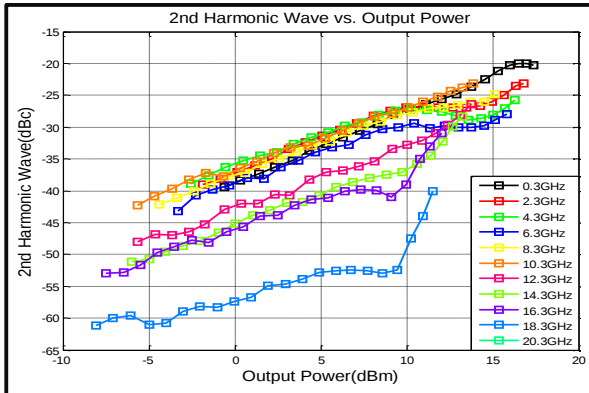
Noise Figure



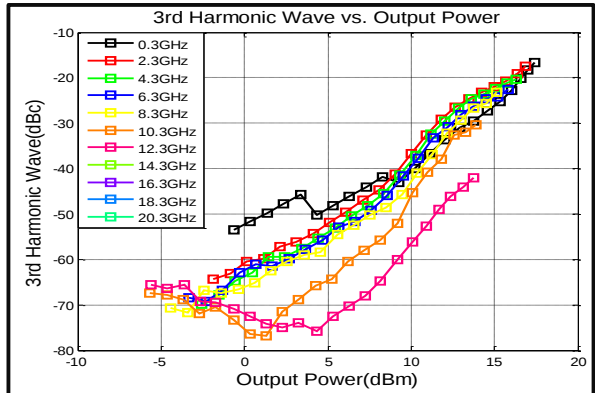
Noise Figure



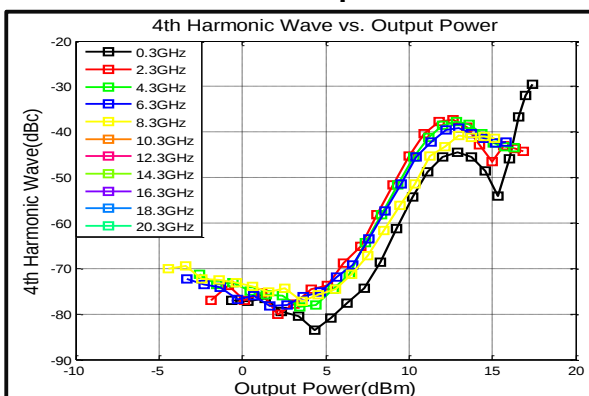
2nd Harmonic Wave Output Power



3rd Harmonic Wave Output Power



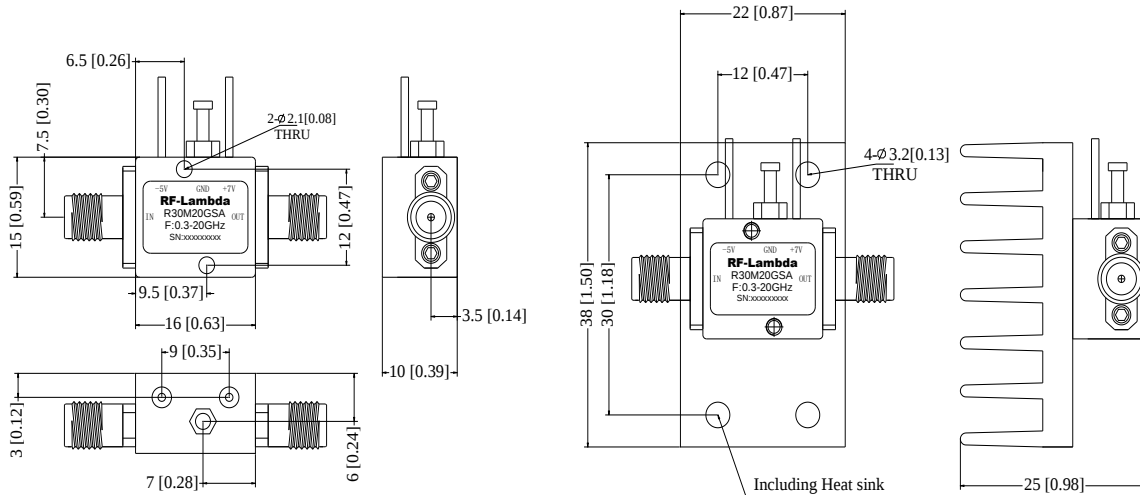
4th Harmonic Wave Output Power





Outline Drawing:

All Dimensions in mm [inches]



Heat Sink required during operation (Sold Separately)



Ordering Information

Part No.	ECCN	Description
R30M20GSA	EAR99	0.3-20GHz Low Noise Amplifier

Important Notice

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