



RF-LAMBDA

LEADER OF RF BROADBAND SOLUTIONS

R18G31GSA

Wide Band Low Noise Amplifier 16GHz~33GHz



Features

- Gain: 12dB Typical
- Noise Figure: 3.0dB Typical
- P1dB Output Power: +10dBm Typical
- Supply Voltage: +3V

Typical Applications

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

Electrical Specifications, TA = +25°C, Vcc = +3V

Parameter	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Frequency Range	16~18			18~31			31~33			GHz
Gain		10		10.5	12			10.5		dB
Gain Flatness		± 0.5			± 0.5			± 0.5		dB
Gain Variation Over Temperature (-45 ~ +85)		± 1.0			± 1.0			± 1.0		dB
Noise Figure		2.8			2.8	4.5		4.5		dB
Input VSWR		4			1.8			3.5		: 1
Output VSWR		3			1.6			2.0		: 1
Output 1dB Compression Point (P1dB)		10		8	12	14		11		dBm
Saturated Output Power (Psat)		11			12			12		dBm
Output Third Order Intercept (IP3)		21			19			21		dBm
Isolation S12		-45			-37			-36		dB
Supply Current (Vcc=+3V)		65	85		65	85		65	85	mA
Weight	0.71									ounces
Impedance	50									Ohms
Input / Output Connectors	2.92mm-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	+5V
RF Input Power	+8dBm

Biasing Up Procedure

Step 1	Connect Ground Pin
Step 2	Connect input and output
Step 3	Connect +3V biasing
Power OFF Procedure	
Step 1	Turn off +3V 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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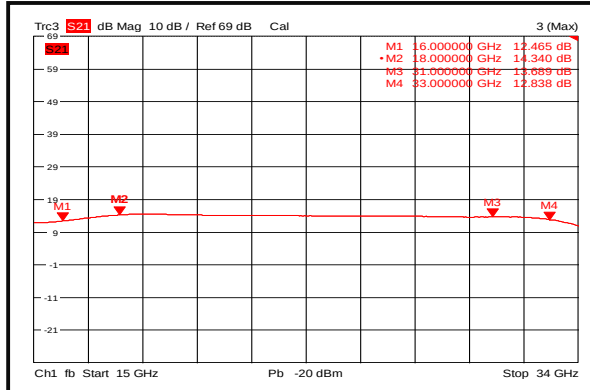
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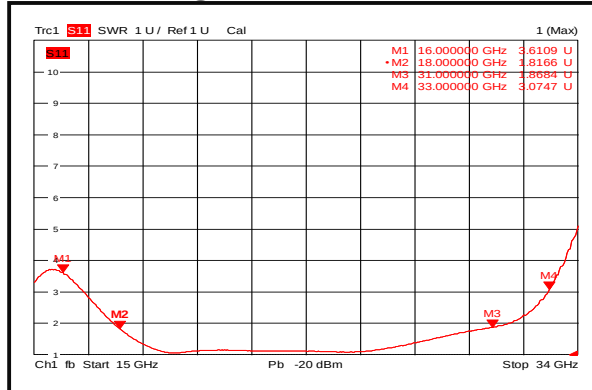
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Typical Performance Plots

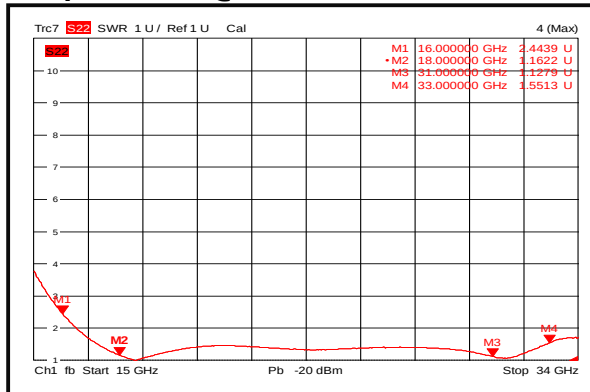
Gain @+25°C



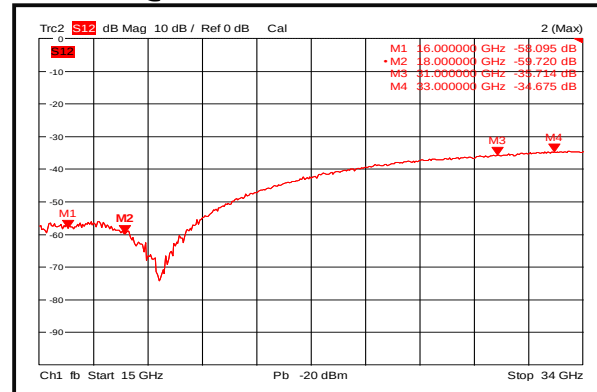
Input VSWR @+25°C



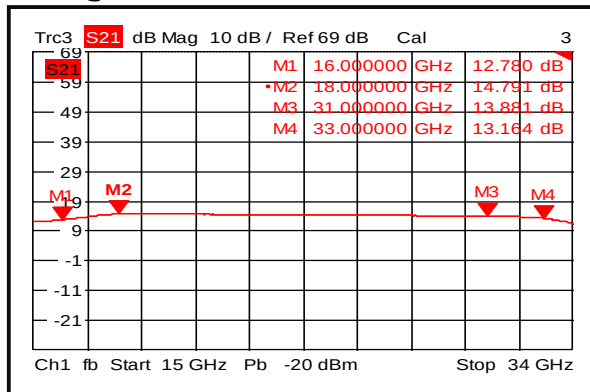
Output VSWR @+25°C



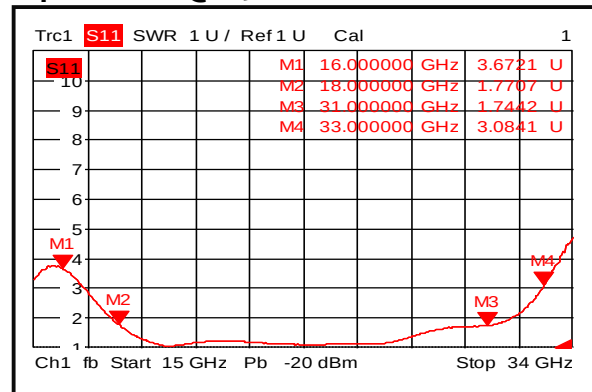
Isolation @+25°C



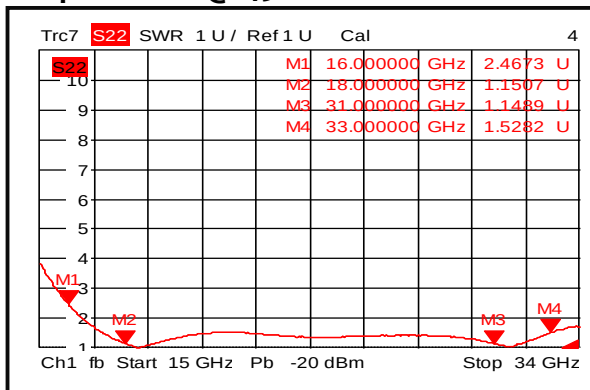
Gain @-45°C



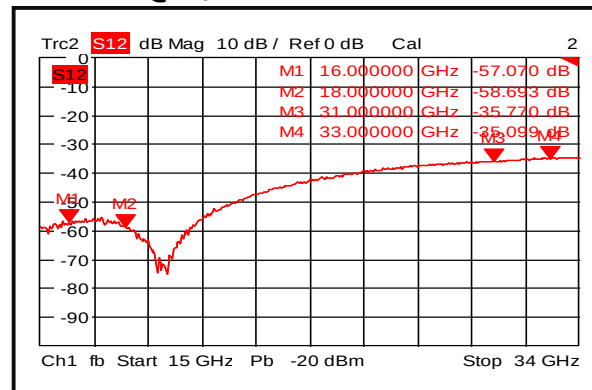
Input VSWR @-45°C



Output VSWR @-45°C



Isolation @-45°C



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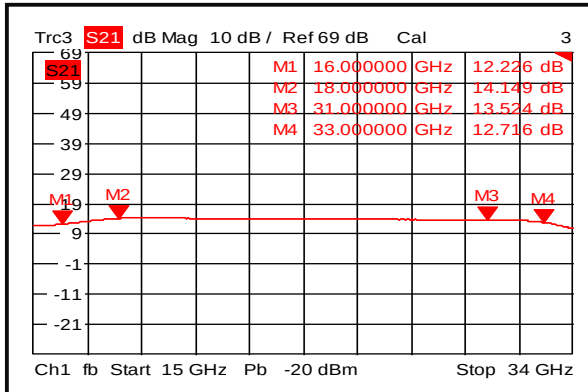


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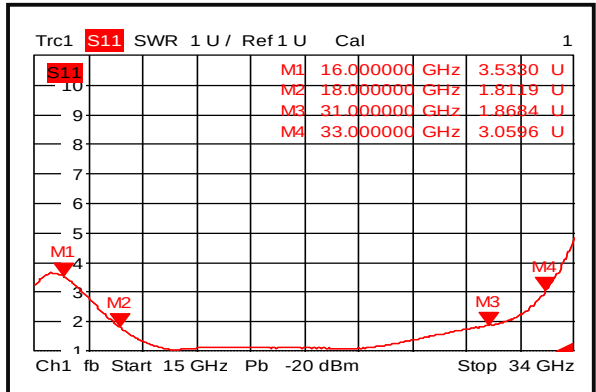
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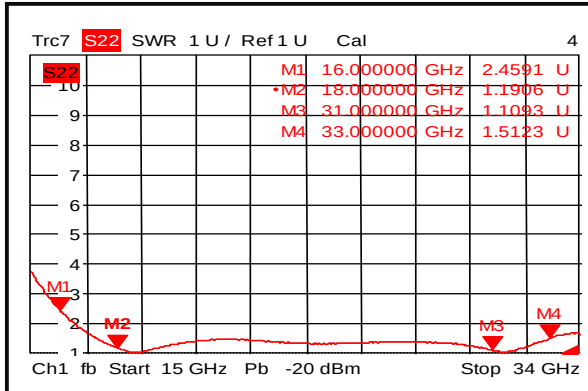
Gain @+85°C



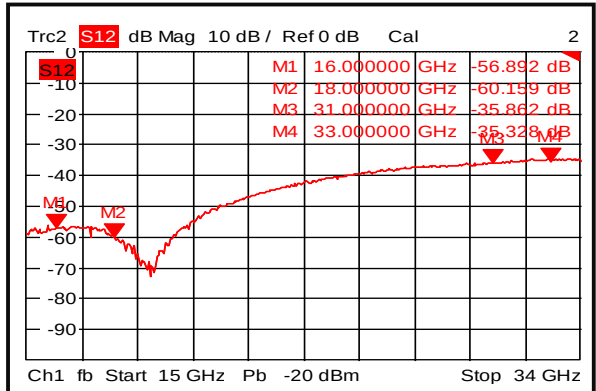
Input VSWR @+85°C



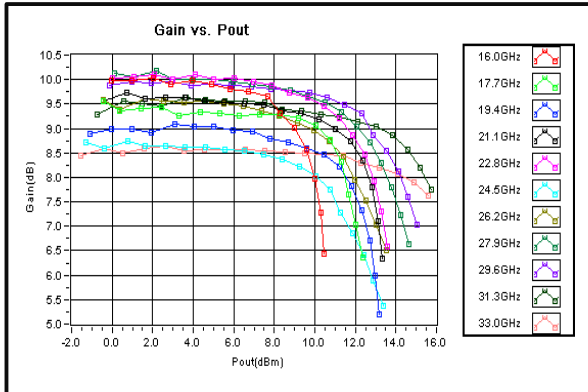
Output VSWR @+85°C



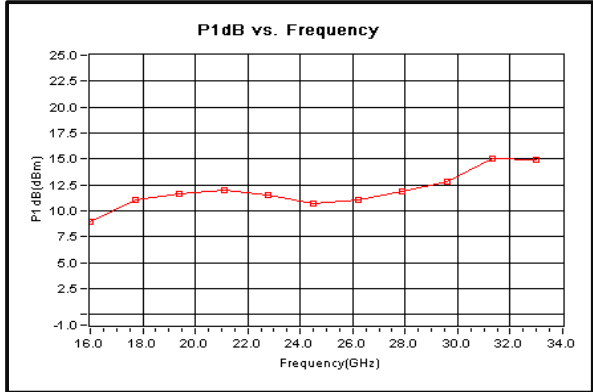
Isolation @+85°C



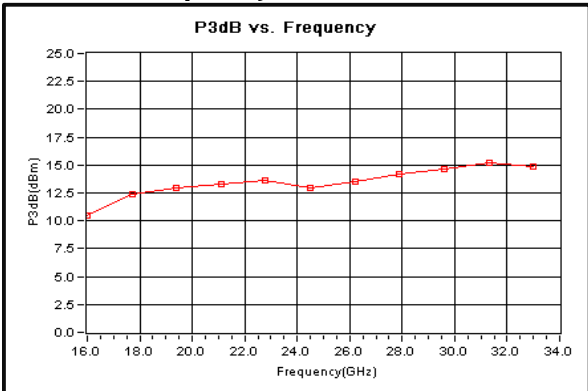
Gain vs. Output Power



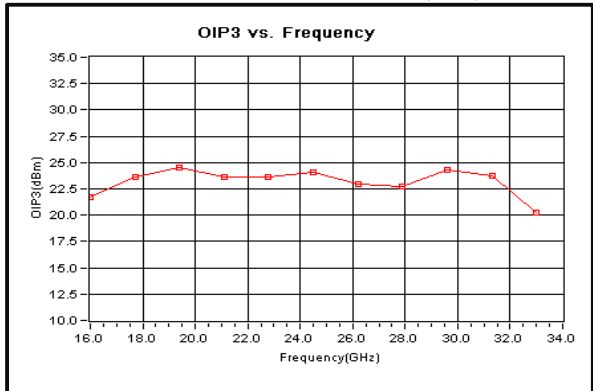
P1dB vs. Frequency



P3dB vs. Frequency



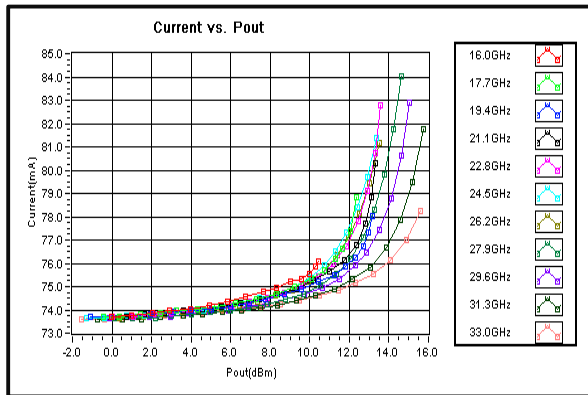
Output Third Order Intercept (IP3)



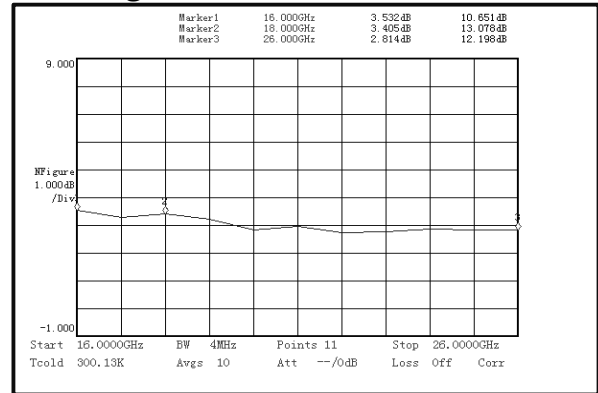
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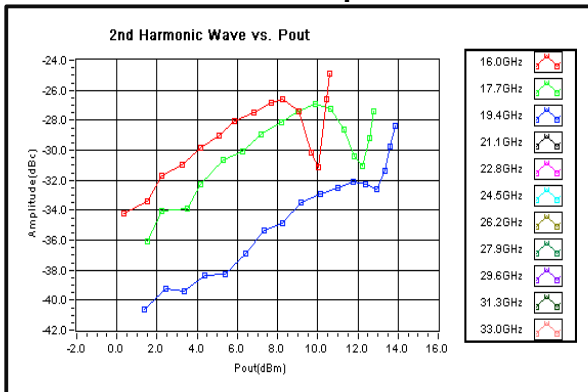
Current



Noise Figure



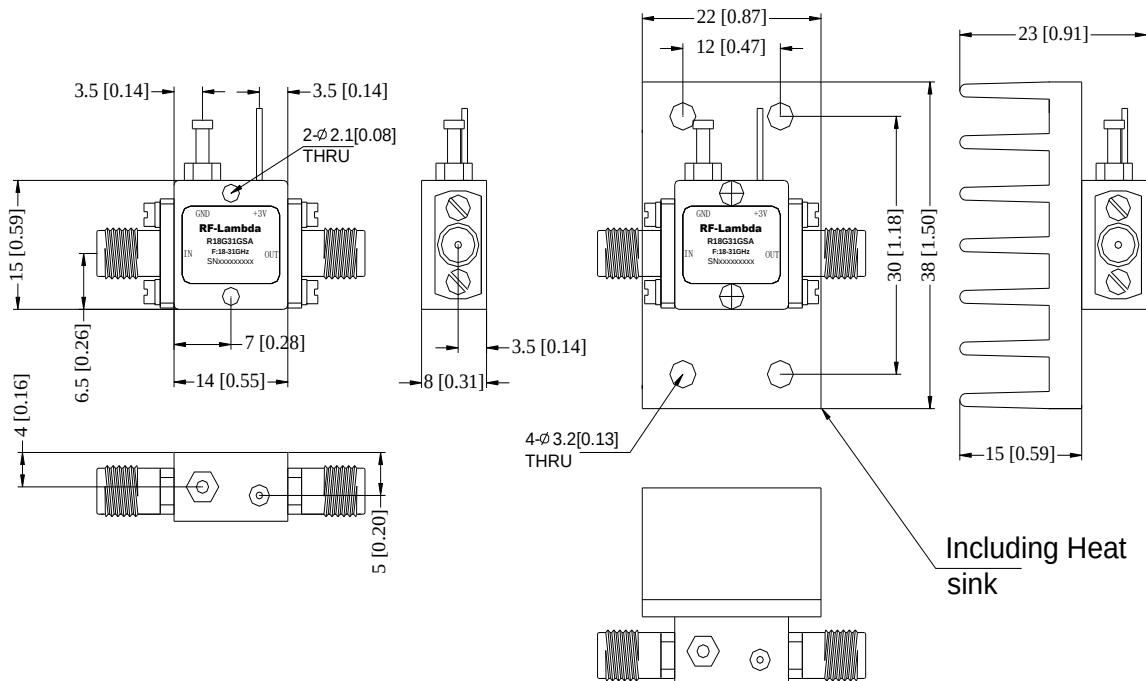
2nd Harmonic Wave Output Power





Outline Drawing:

All Dimensions in mm [inches]



Heat Sink required during operation (Sold Separately)



Ordering Information

Part No.	ECCN	Description
R18G31GSA	EAR99	16-33GHz Low Noise Amplifier

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