



Wide Band Low Noise Amplifier 29GHz ~ 36GHz



Features

- Gain: 20dB Typical
- Noise Figure: 3.0dB Typical
- P1dB Output Power: +12dBm Typical
- Supply Voltage: +3V

Typical Applications

- Wireless Infrastructure
- Military & Aerospace
- Test Instrument

Electrical Specifications, $T_A = +25^\circ\text{C}$, $V_{CC} = +3\text{V}$

Parameter	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Frequency Range	29		33	33		36	GHz
Gain	17	21	25	19	22	26	dB
Gain Flatness		± 1.0			± 1.5		dB
Gain Variation Over Temperature ($-45^\circ\text{C} \sim +85^\circ\text{C}$)		± 2.0			± 2.0		dB
Noise Figure		3.0	4.0		3.0	4.0	dB
Input VSWR		1.8			1.8		:1
Output VSWR		2.0			2.2		:1
Output 1dB Compression Point (P1dB)	9	12		8	11		dBm
Saturated Output Power (Psat)		14.5			14		dBm
Output Third Order Intercept (OIP3)		23			23		dBm
Supply Current ($V_{CC} = +3\text{V}$)		80	90		80	90	mA
Isolation S12		-40			-40		dB
Weight	0.35 Max.						ounces
Impedance	50						Ohms
Input / Output Connectors	2.92mm - Female						
Finish	Gold Plated						
Material	Aluminum						
Package Sealing	Epoxy Sealed (Standard)						
	Hermetically Sealed (Optional)						

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Absolute Maximum Ratings

Operating Voltage	+3.5V
RF Input Power	+5dBm

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.

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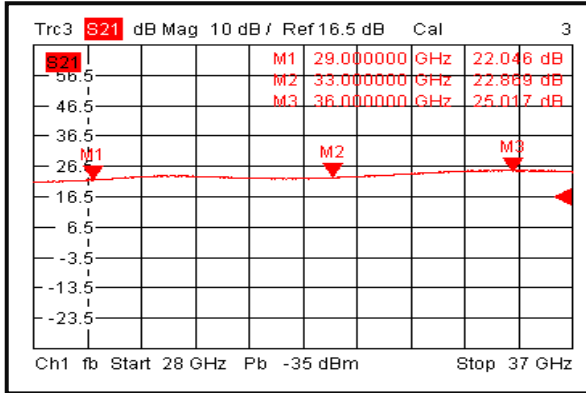
Environmental Specifications and Test Standards

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)

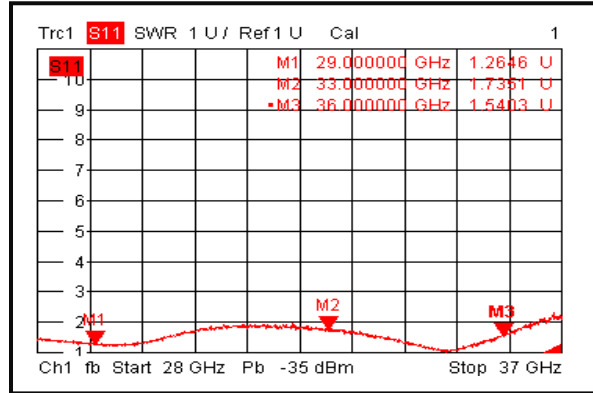


Typical Performance Plots

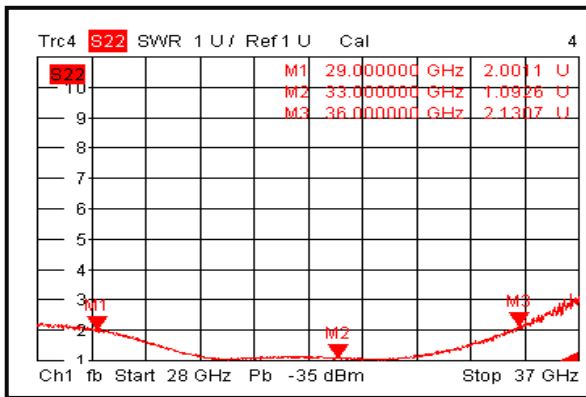
Gain @+25°C



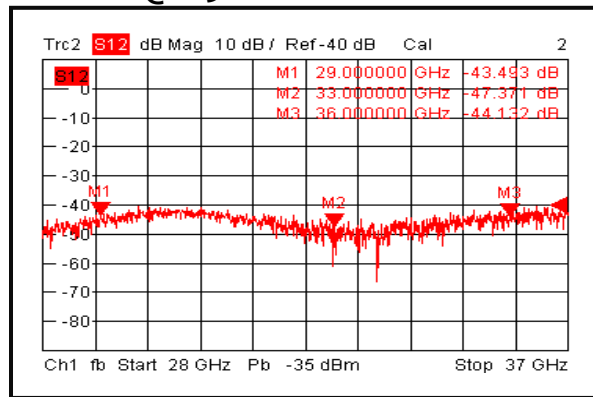
Input VSWR @+25°C



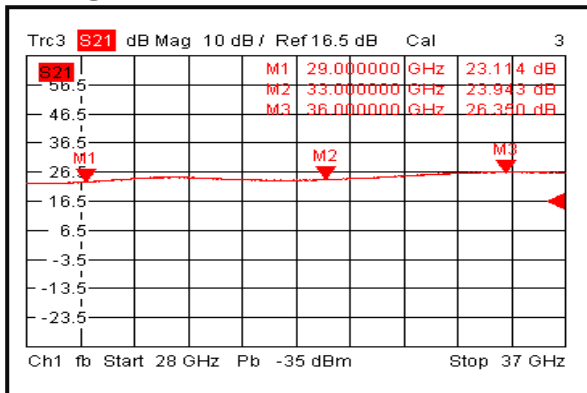
Output VSWR @+25°C



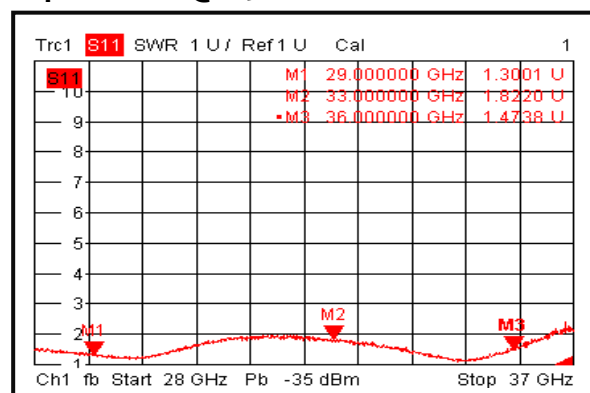
Isolation @+25°C



Gain @-45°C



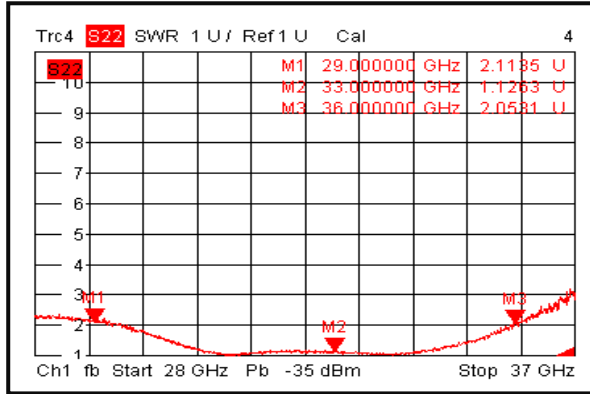
Input VSWR @-45°C



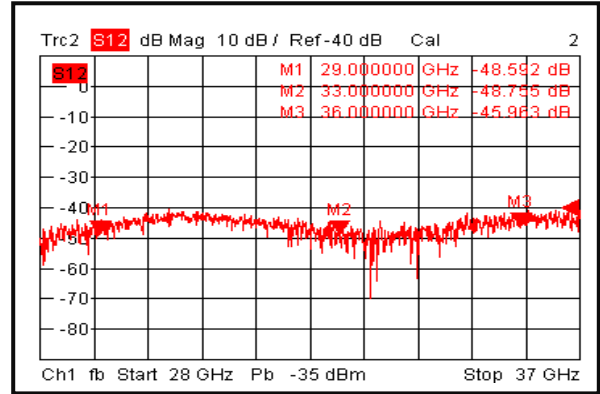
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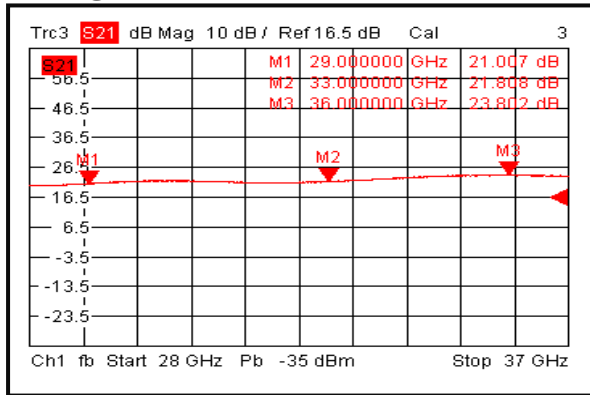
Output VSWR @-45°C



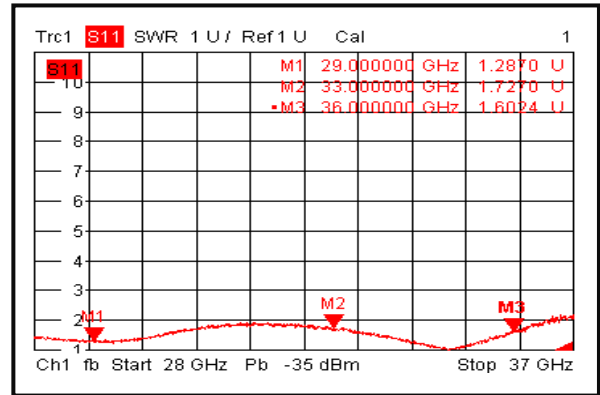
Isolation @-45°C



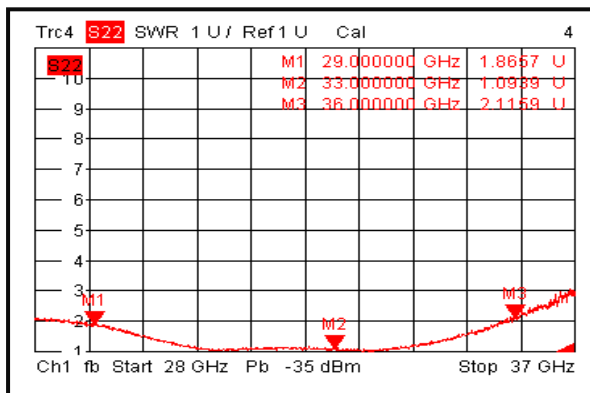
Gain @+85°C



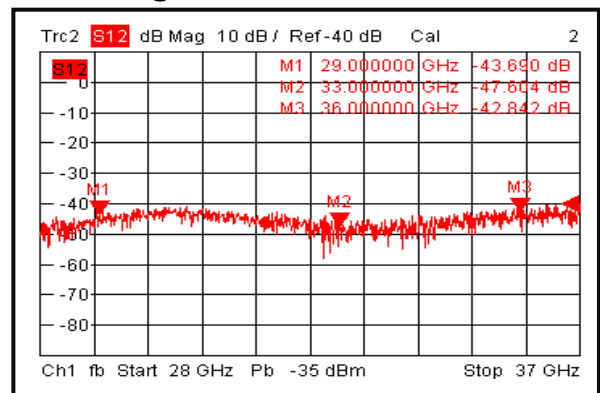
Input VSWR @+85°C



Output VSWR @+85°C



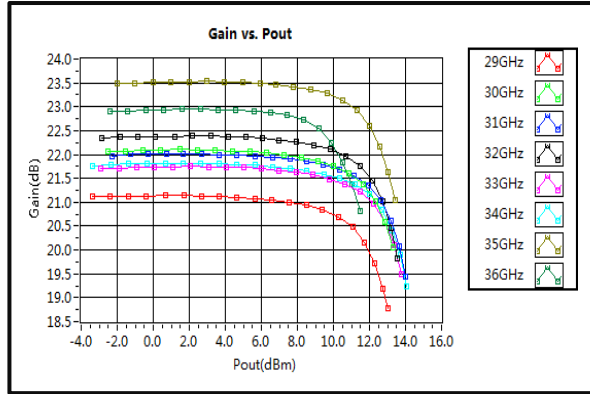
Isolation @+85°C



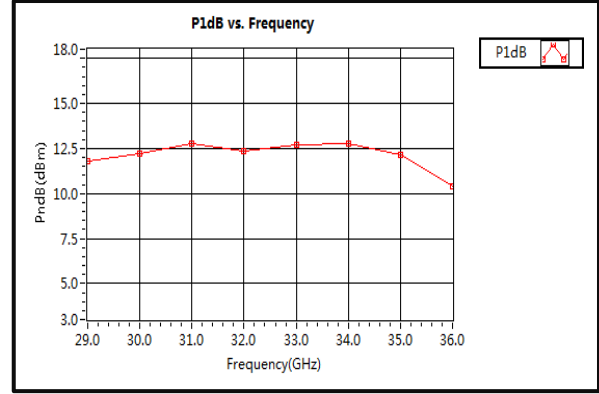
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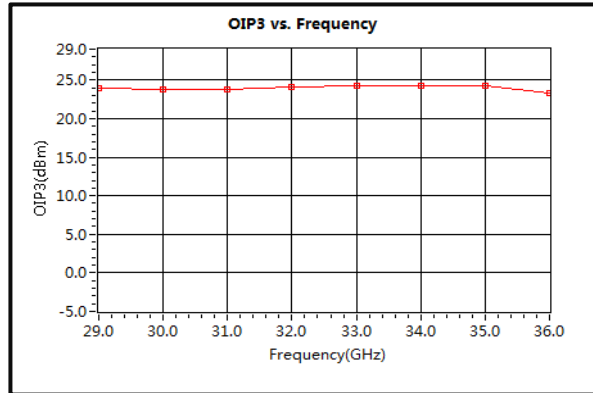
Gain vs. Output Power



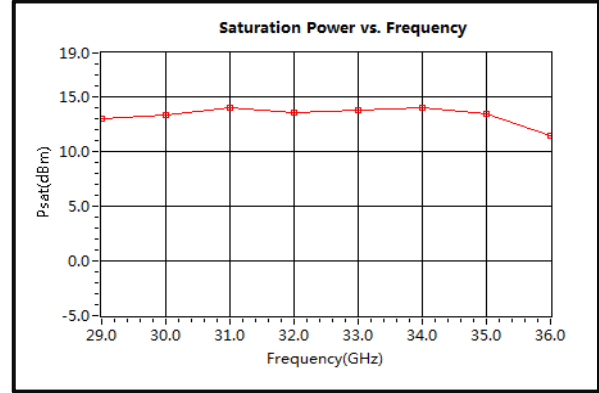
P1dB vs. Frequency



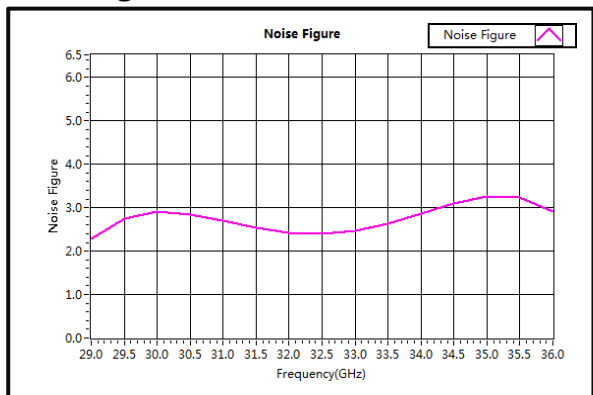
Output Third Order Intercept (OIP3)



Saturation Power vs. Frequency



Noise Figure

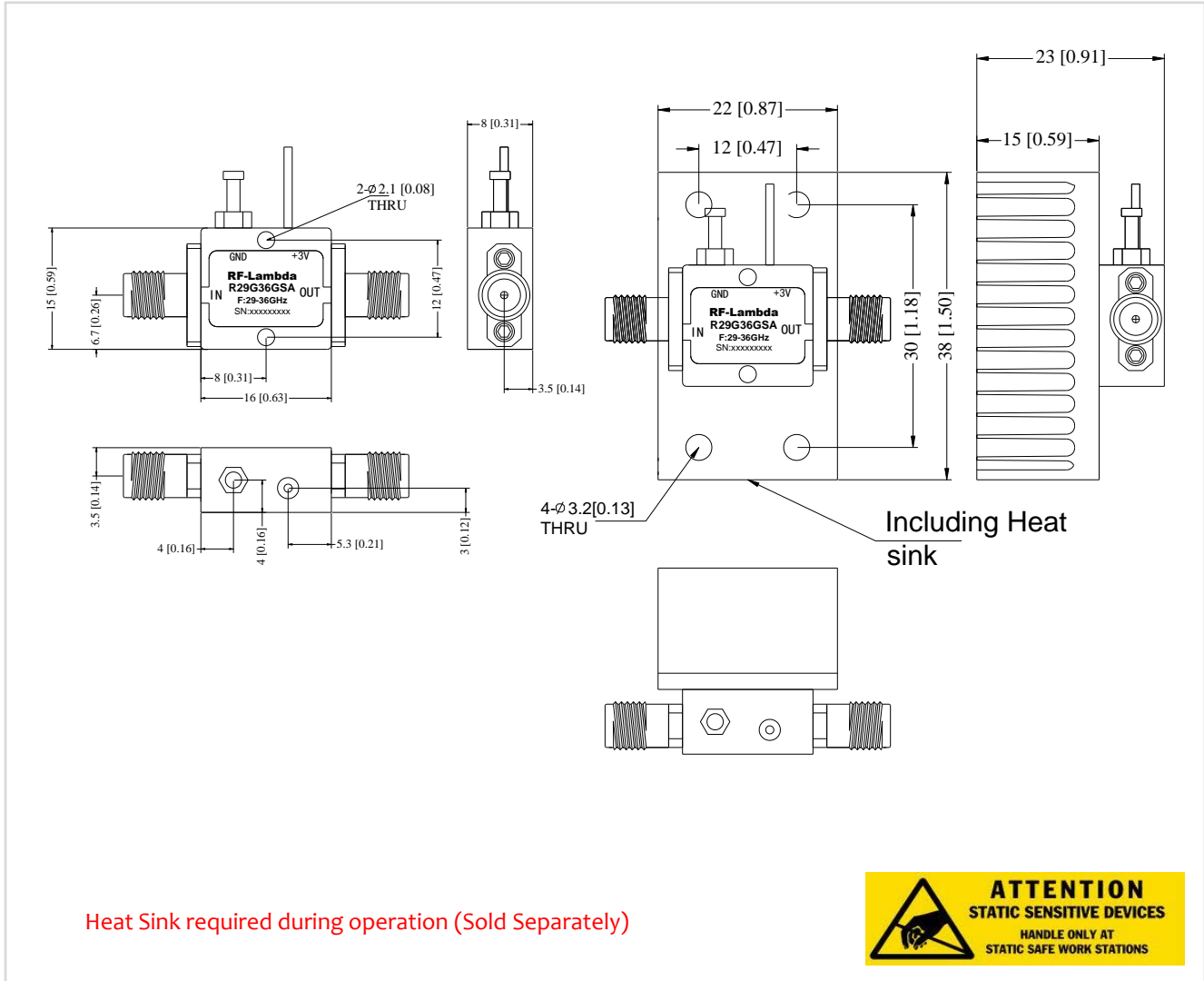


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Outline Drawing:

All Dimensions in mm [inches]



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Ordering Information

Part No.	ECCN	Description
R29G36GSA	EAR99	29-36GHz Low Noise Amplifier

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