



WR229 Low Noise Amplifier 3.3GHz ~ 4.9GHz



Features

- Gain: 60dB Typical
- Noise Figure: 2.2dB Typical
- P1dB Output Power: +18dBm Typical

Typical Applications

- Wireless Infrastructure
- Military & Aerospace
- Test & Measurement

Electrical Specifications, $T_A = +25^\circ\text{C}$

Parameter	Min.	Typ.	Max.	Units
Frequency Range	3.3		4.9	GHz
Gain	55	60		dB
Gain Flatness		± 1.5		dB
Gain Variation Over Temperature ($-45^\circ\text{C} \sim +85^\circ\text{C}$)		± 1.0		dB
Noise Figure		1.6	2.8	dB
Input VSWR		1.5		: 1
Output VSWR		1.5		: 1
Output 1dB Compression Point (P1dB)	15	19		dBm
Saturated Output Power (Psat)		23		dBm
Output Third Order Intercept (OIP3)		30		dBm
Isolation S12		-60		dB
Supply Current (Vcc=+12V)		250		mA
Weight	14.81			ounces
Impedance	50			Ohms
Input / Output Connectors	WR229/N-Female			
power connector	SMA-Female			
Material	Aluminum			
Package Sealing	Epoxy Sealed			

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Absolute Maximum Ratings

Operating Voltage	+15V
RF Input Power	-20dBm

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	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)



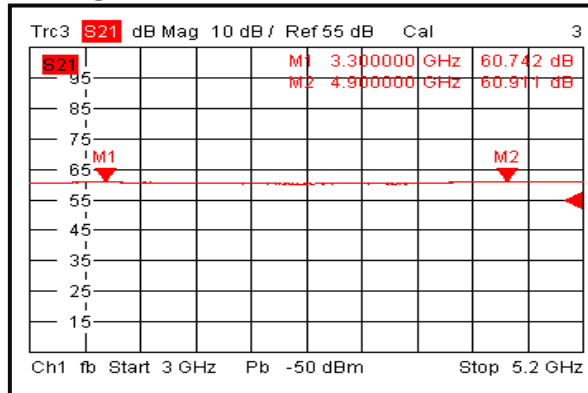
RF-LAMBDA

LEADER OF RF BROADBAND SOLUTIONS

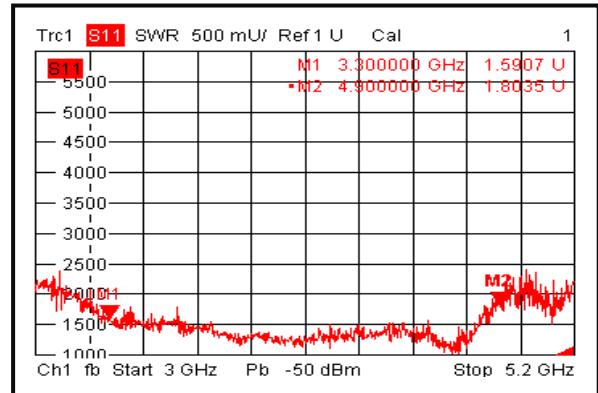
RLNAW229

Typical Performance Plots

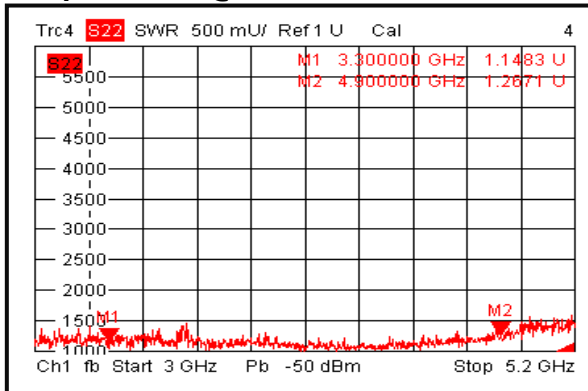
Gain @+25°C



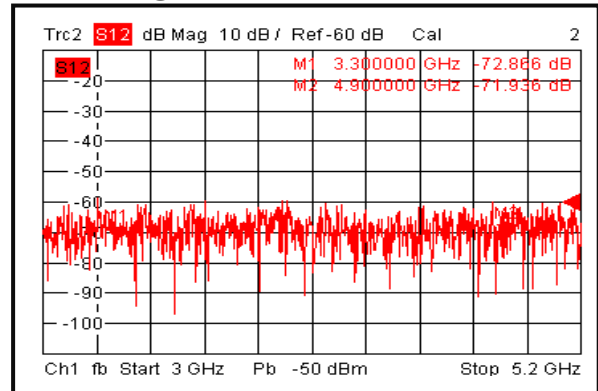
Input VSWR @+25°C



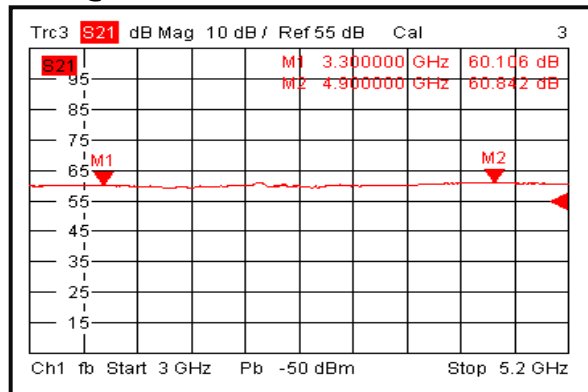
Output VSWR @+25°C



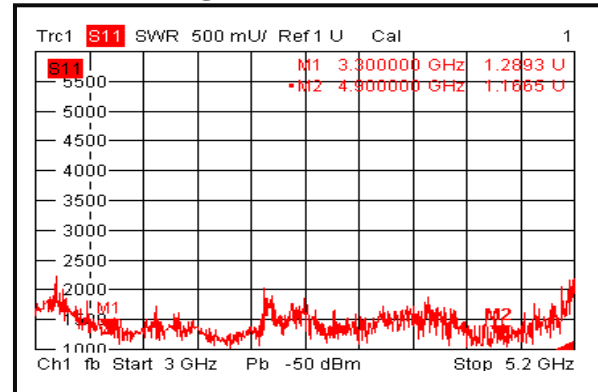
Isolation @+25°C



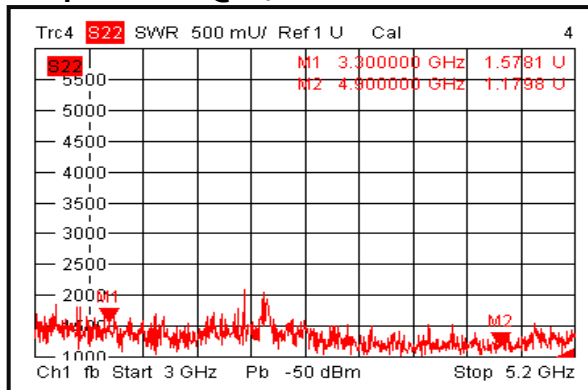
Gain @-45°C



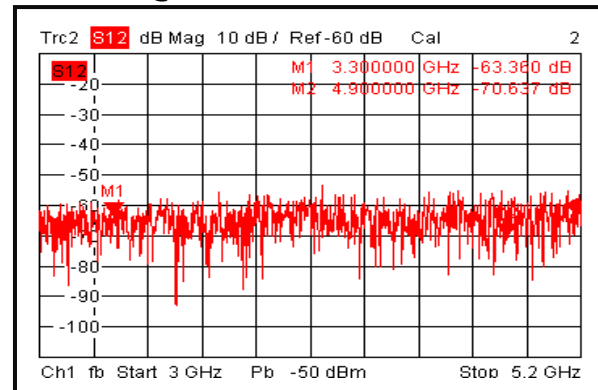
Input VSWR @-45°C



Output VSWR @-45°C



Isolation @-45°C



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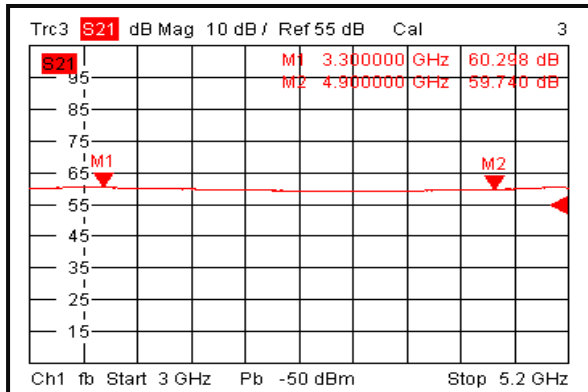


RF-LAMBDA

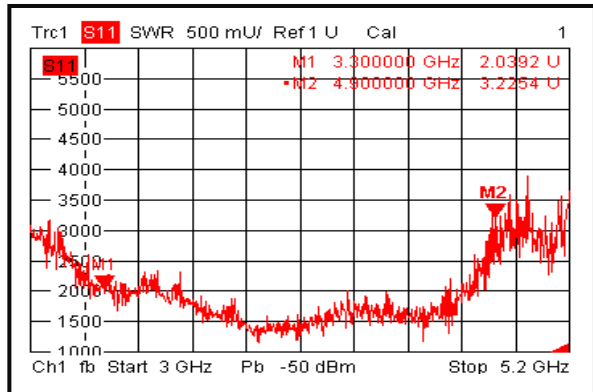
LEADER OF RF BROADBAND SOLUTIONS

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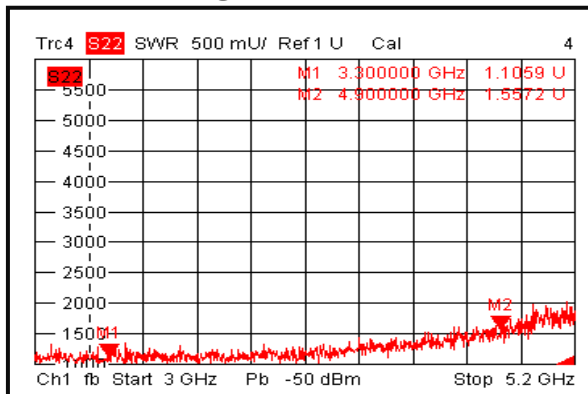
Gain @+85°C



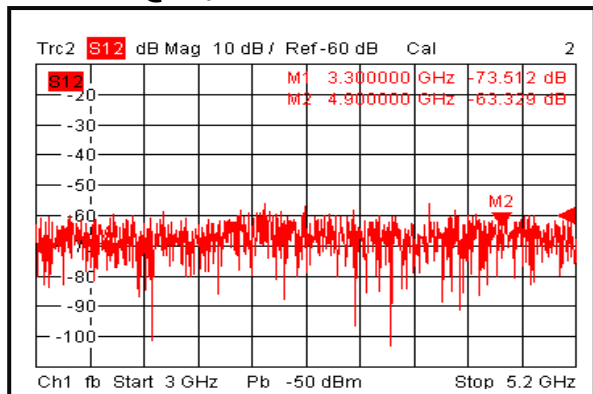
Input VSWR @+85°C



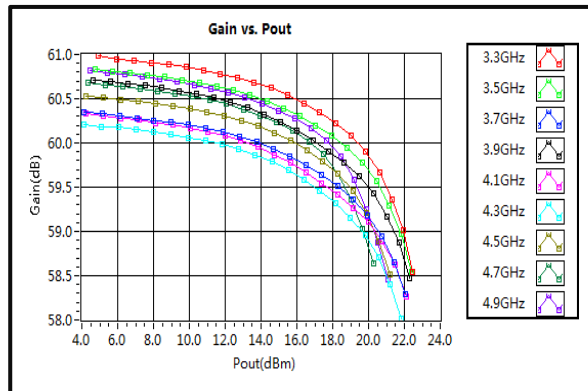
Output VSWR @+85°C



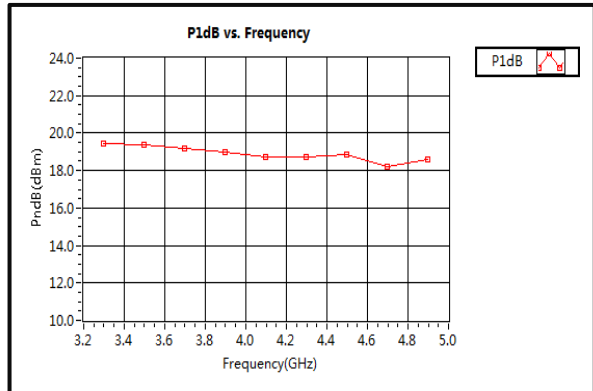
Isolation @+85°C



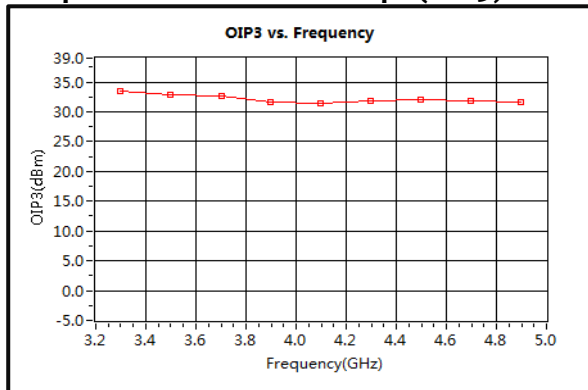
Gain vs. Output Power



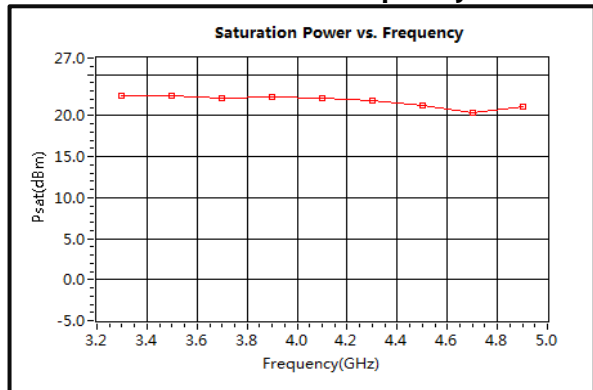
P1dB vs. Frequency



Output Third Order Intercept (OIP3)



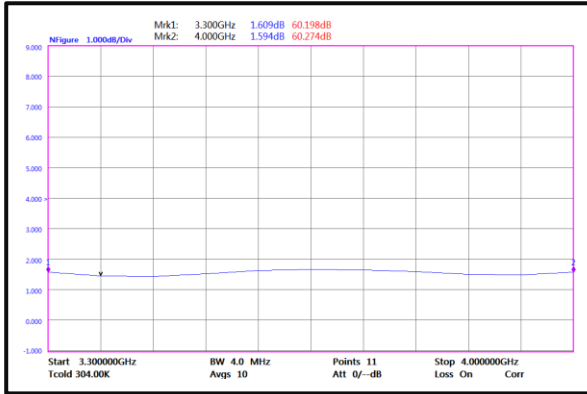
Saturation Power vs. Frequency



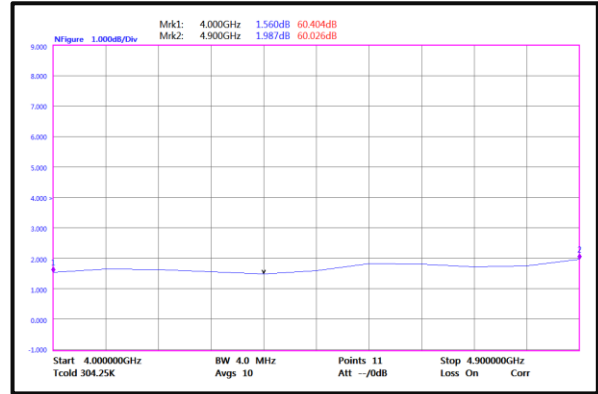
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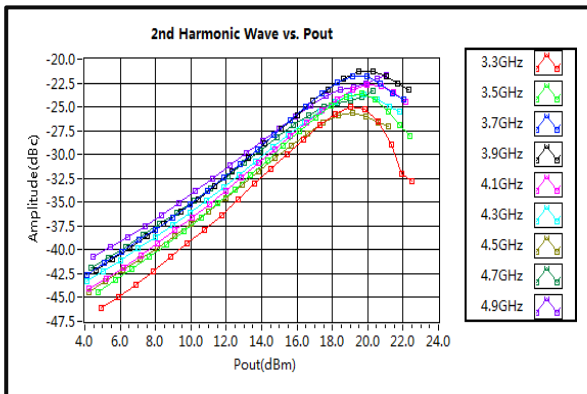
Noise Figure(3.3GHz-4GHz)



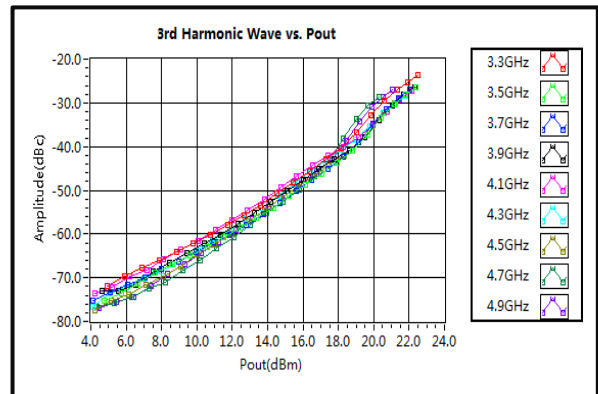
Noise Figure(4GHz-4.9GHz)



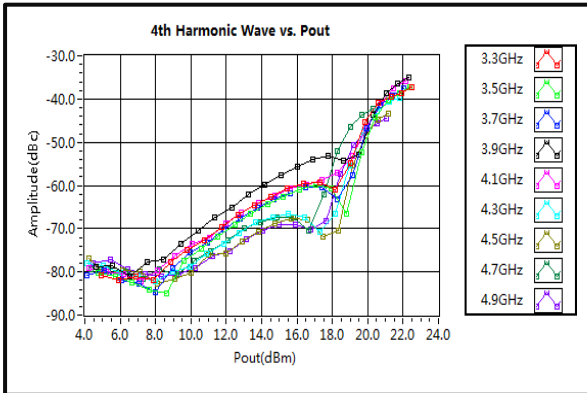
2nd Harmonic Wave Output Power



3rd Harmonic Wave Output Power



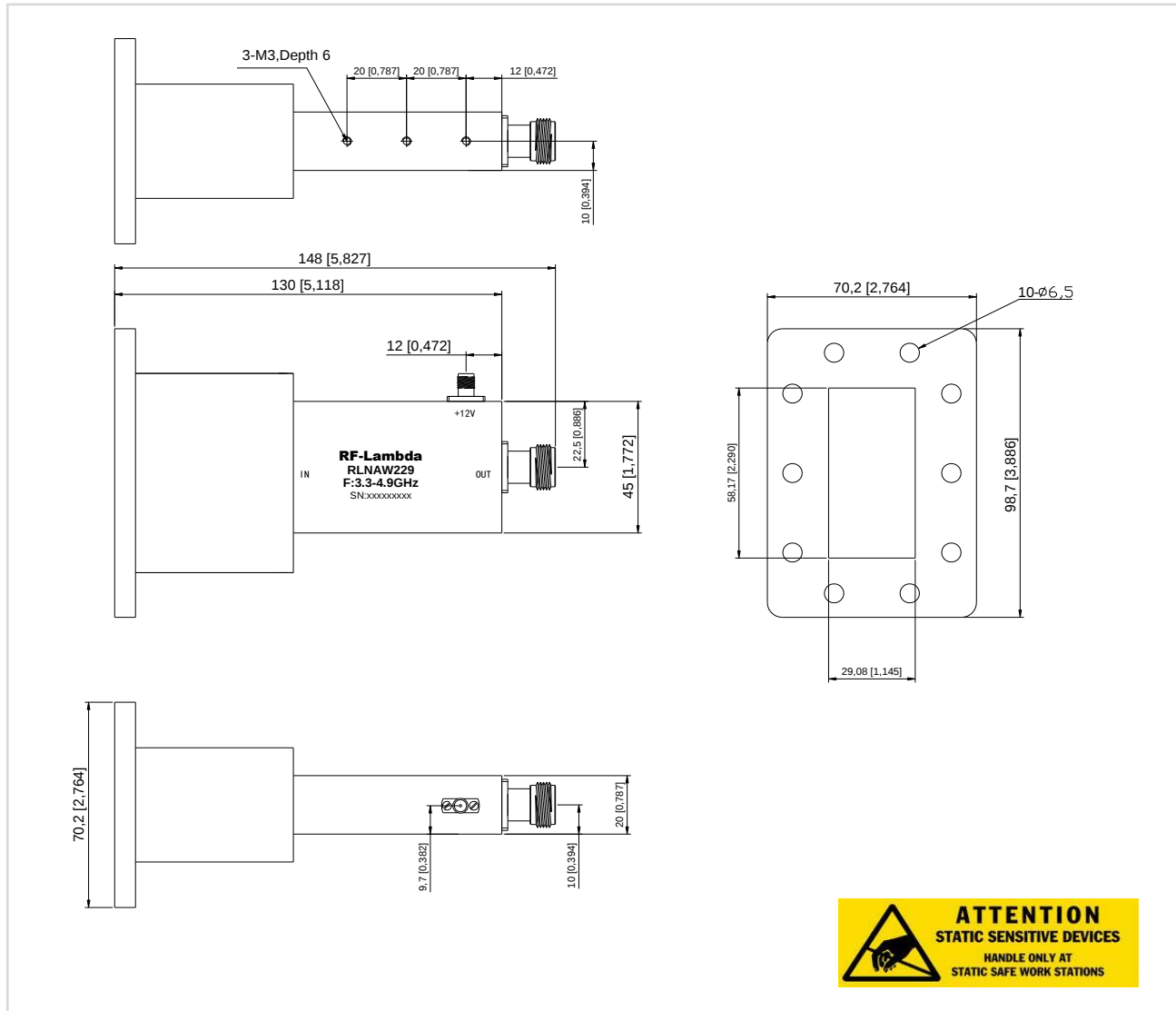
4th Harmonic Wave Output Power





Outline Drawing:

All Dimensions in mm [inches]



Ordering Information

Part No.	ECCN	Description
RLNAW229	EAR99	3.3-4.9GHz WR229 Low Noise Amplifier

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