



### Low Noise Amplifier 1.1GHz~1.7GHz



#### Features

- Gain: 34dB Typical
- Noise Figure: 0.9dB Typical
- P1dB Output Power: +20dBm Typical
- Supply Voltage: +12V @ 190mA
- 50 Ohm Matched Input / Output
- Size: 1.58x 0.99" x 0.47"

#### Typical Applications

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

#### Electrical Specifications, $T_A = +25\text{ }^\circ\text{C}$ , $V_{CC} = +12\text{V}$

Parameter	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Frequency Range	1.1		1.7	0.8		1.9	GHz
Gain	32	34		30	33		dB
Gain Flatness		$\pm 0.3$	$\pm 0.5$		$\pm 0.75$	$\pm 1.0$	dB
Gain Variation Over Temperature(-45 ~ +85)		$\pm 0.8$	$\pm 1.0$		$\pm 0.8$	$\pm 1.0$	dB
Noise Figure		0.9	1.2		1.0	1.6	dB
Input VSWR		1.5	1.8		1.5	1.8	: 1
Output VSWR		1.6	2.0		1.5	2.3	: 1
Output 1dB Compression Point (P1dB)	18	20		18	20		dBm
Saturated Output Power (Psat)		22			22		dBm
Output Third Order Intercept (IP3)		35			35		dBm
Supply Current ( $V_{CC}=+12\text{V}$ )		190	270		190	270	mA
Isolation S12		-60			-55		dB
Weight	2.47						Ounces
Impedance	50						Ohms
Input / Output Connectors	SMA-Female						
Finishing	Standard: Gold 40 micron; Nickel 220 micron thickness						
	Option: Gold 80 micron; Nickel 180 micron thickness						
Material	Aluminum						
Package Sealing	Epoxy Sealing (Standard)						
	Hermetically Seal (Option with extra charge)						

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**Absolute Maximum Ratings**

Operating Voltage	+12V ± 5%
RF Input Power	odB m

**Biasing Up Procedure**

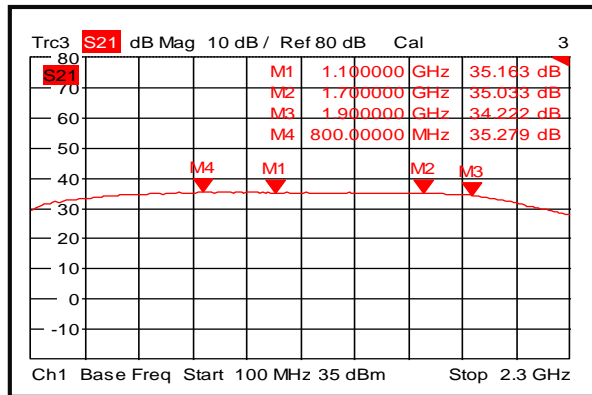
Step 1	Connect Ground Pin
Step 2	Connect input and output
Step 3	Connect +12V biasing
Power OFF Procedure	
Step 1	Turn off +12V biasing
Step 2	Remove RF connection
Step 3	Remove Ground.

**Environmental Specifications**

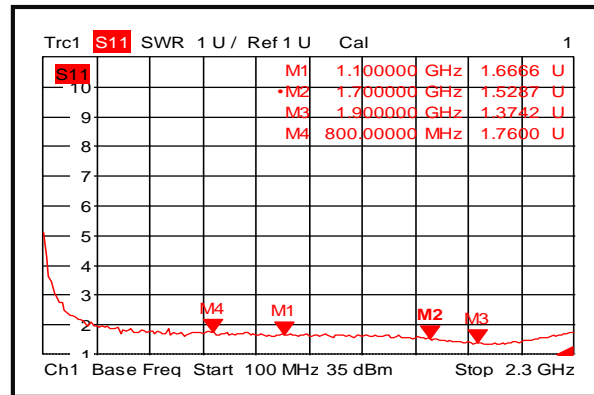
Operational Temperature (°C)	-45 to +85
Storage Temperature (°C)	-55 to +125
Altitude	30,000 ft. (Epoxy Sealed Controlled environment)
	60,000 ft. 1.0psi min (Hermetically Sealed Un-controlled environment) (Optional)
Vibration	25g RMS (15 degrees 2KHz) endurance, 1 hour per axis
Humidity	100% RH at 35c, 95%RH at 40°C
Shock	20G for 11msec half sine wave, 3 axis both directions

**Typical Performance Plots**

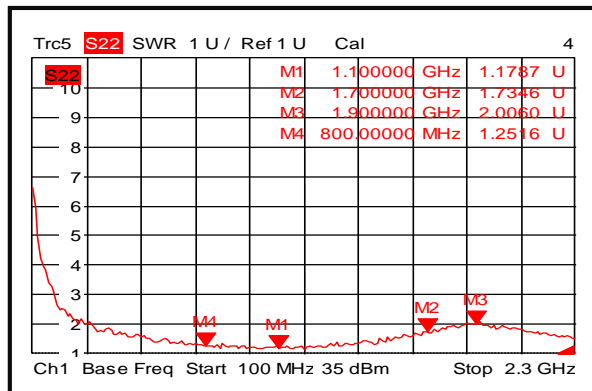
**Gain**



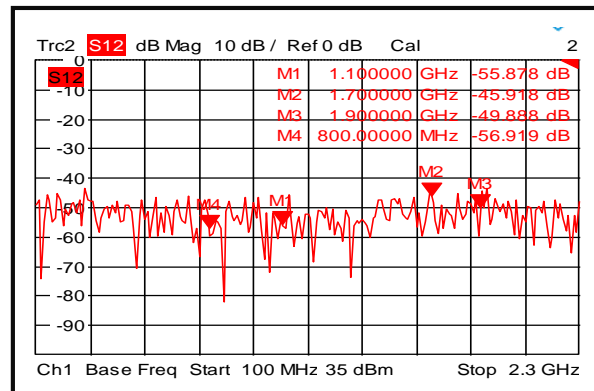
**Input VSWR**



**Output VSWR**



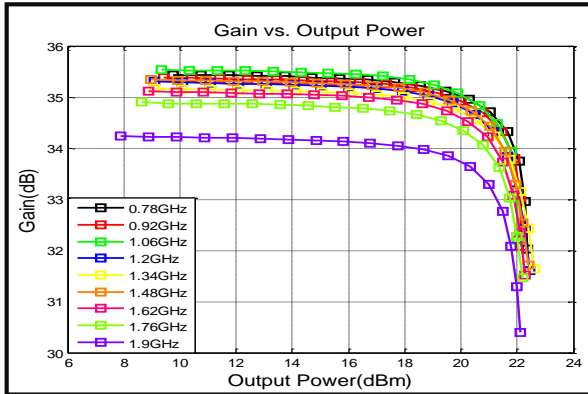
**Isolation**



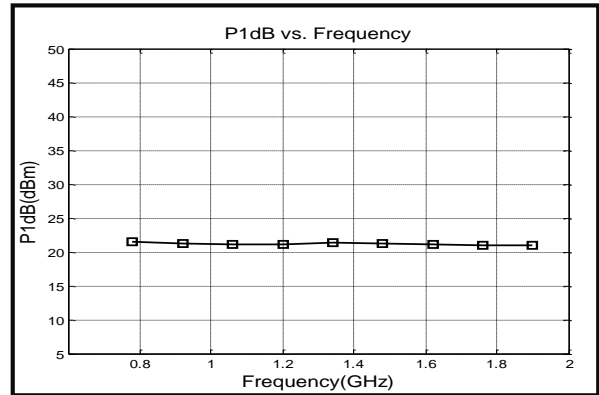
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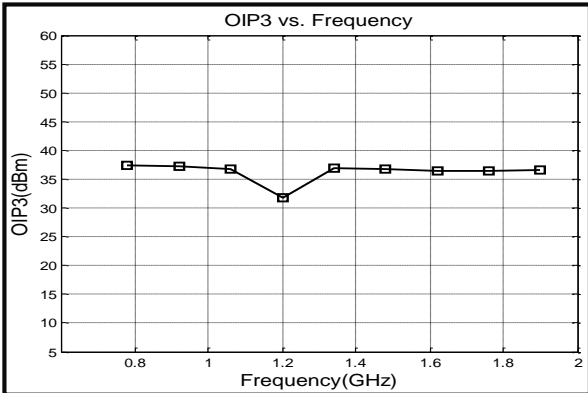
### Gain vs. Output Power



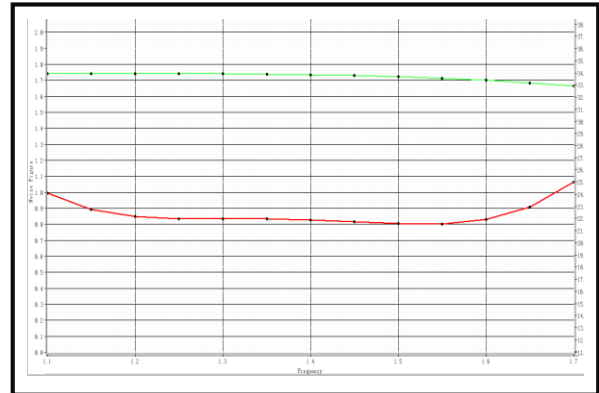
### P1dB vs. Frequency



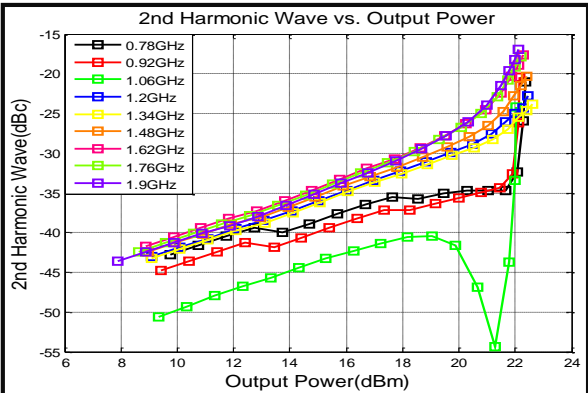
### Output Third Order Intercept (IP3)



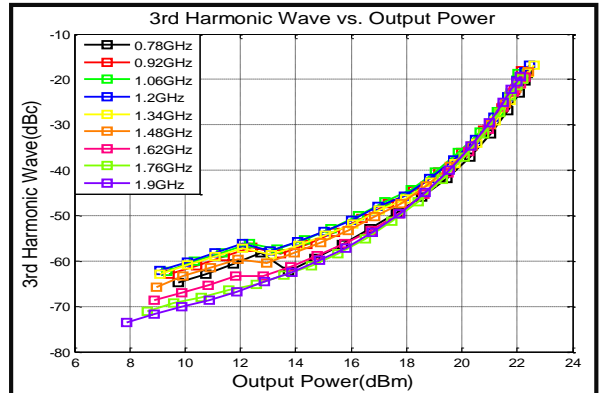
### Noise Figure



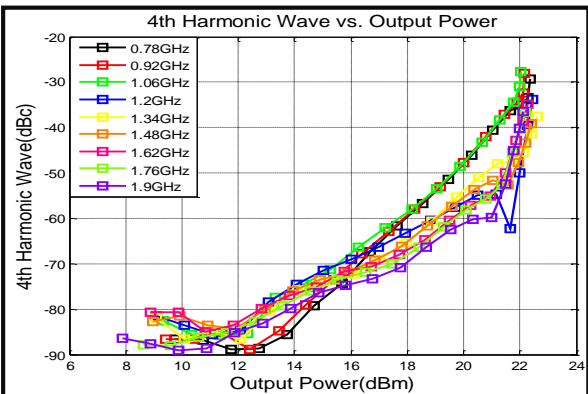
### 2nd Harmonic Wave Output Power



### 3rd Harmonic Wave Output Power



### 4th Harmonic Wave Output Power



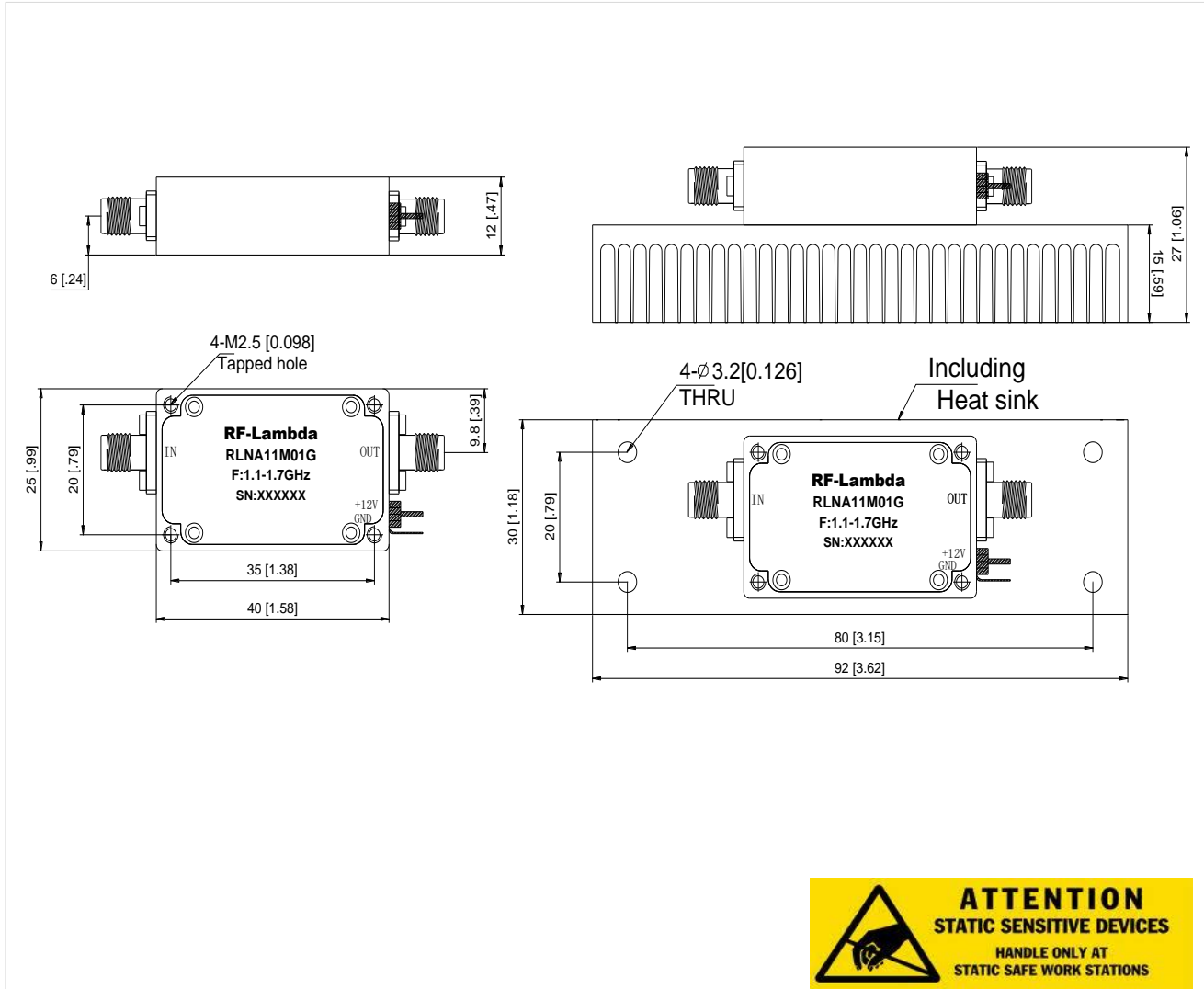
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**Outline Drawing:**

All Dimensions in mm [inches]

Heat Sink required during operation (Sold Separately)



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**Ordering Information**

Part No.	ECCN	Description
RLNA11M01G	EAR99	1.1-1.7GHz Low Noise Amplifier

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