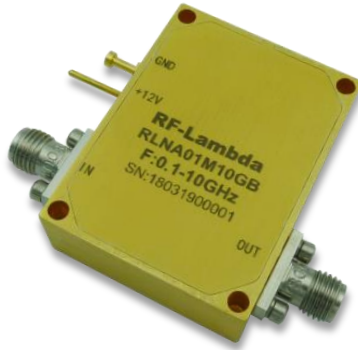




## Ultra Wide Band Low Noise Amplifier 0.1GHz~20GHz



### Features

- Gain: 33dB Typical
- Functional Bandwidth : 0.1GHz - 20GHz
- Noise Figure: 2.2dB Typical
- P1dB Output Power: +26dBm Typical
- Supply Voltage: +12V

### Typical Applications

- Wireless Infrastructure
- RF Microwave & VSAT
- Military & Aerospace
- Test and Measurement

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

Parameter	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Frequency Range	0.1		10	10		18	18		20	GHz
Gain	28	33		25	29			27		dB
Gain Flatness		±2.0			±2.0			±1.0		dB
Gain Variation Over Temperature (-45 ~ +85)		±1.0			±1.5			±1.5		dB
Noise Figure		2.2	4.5		2.8	4.0		3.0		dB
Input VSWR		1.8			1.8			1.8		:1
Output VSWR		1.8			1.8			1.8		:1
Output 1dB Compression Point (P1dB)	23.5	26		20	22			21		dBm
Saturated Output Power (Psat)		28			24			22		dBm
Output Third Order Intercept (IP3)		35			32			29		dBm
Isolation S12		-60			-55			-55		dB
Supply Current (Vcc=+12V)		320	400		320	400		320	400	mA
Weight	3.17									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)									

Ultra Wide Band Low Noise Amplifier 0.1GHz~20GHz



**Absolute Maximum Ratings**

Operating Voltage	+15V
RF Input Power	+3dBm

**Biasing Up Procedure**

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

**Environmental Specifications and Test Standards**

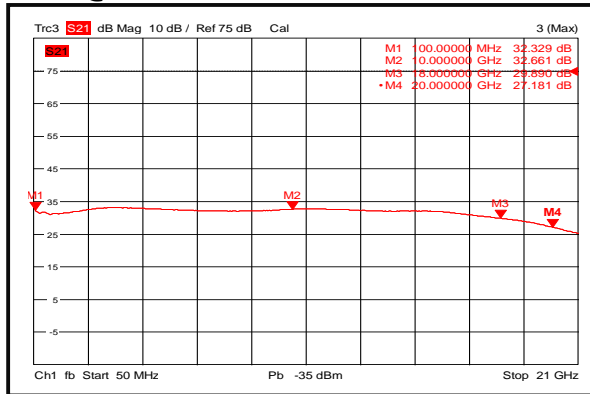
Parameter	Standard	Description
Operational Temperature	MIL-STD-39016	-45°C~+85°C
Storage Temperature		-55°C~+125°C
Thermal Shock		1 Hour@ -45°C → 1 Hour @ +85°C (5 Cycles)
Random Vibration		Acceleration Spectral Density 6 (m/s) Total 92.6 RMS
Electrical & Temperature Burn In		Temperature +85°C for 72 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		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)

**Ultra Wide Band Low Noise Amplifier 0.1GHz~20GHz**

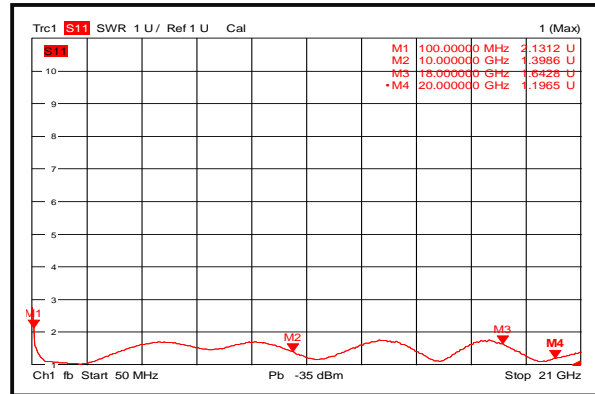


### Typical Performance Plots

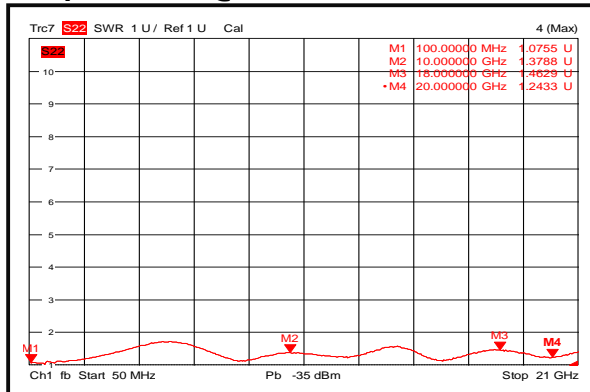
#### Gain @+25°C



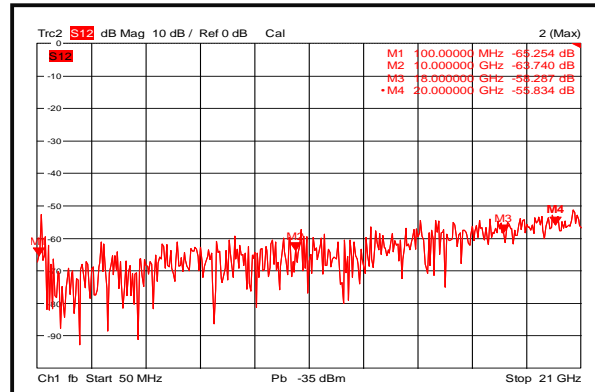
#### Input VSWR @+25°C



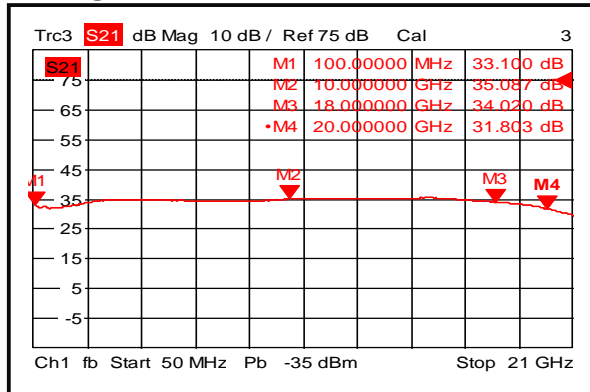
#### Output VSWR @+25°C



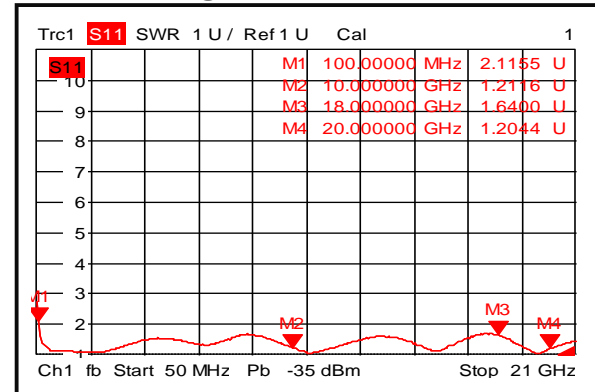
#### Isolation @+25°C



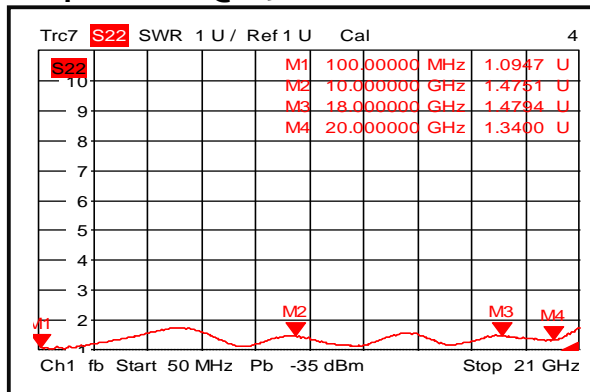
#### Gain @-45°C



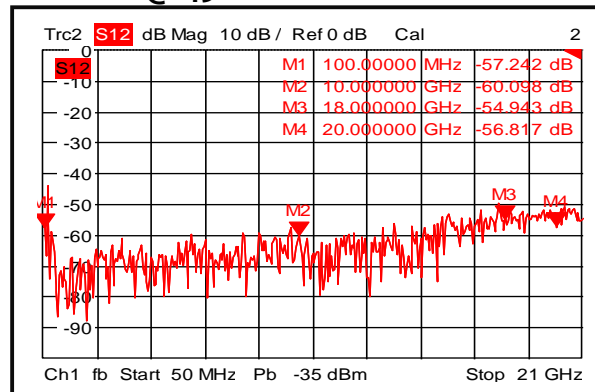
#### Input VSWR @-45°C



#### Output VSWR @-45°C



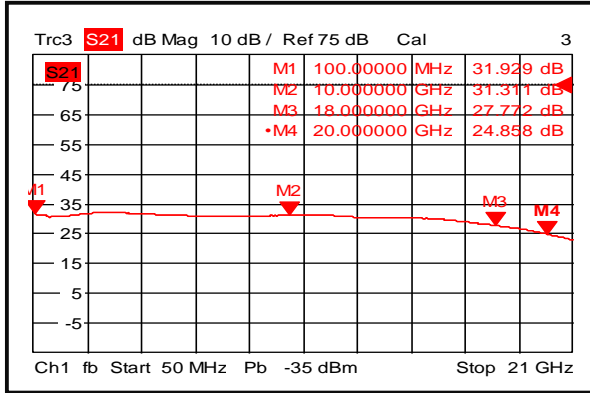
#### Isolation @-45°C



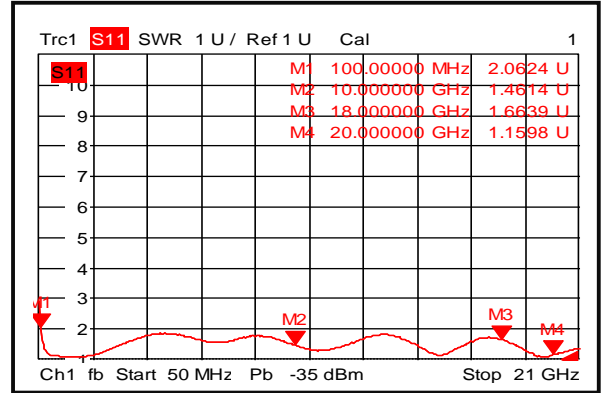
Ultra Wide Band Low Noise Amplifier 0.1GHz~20GHz



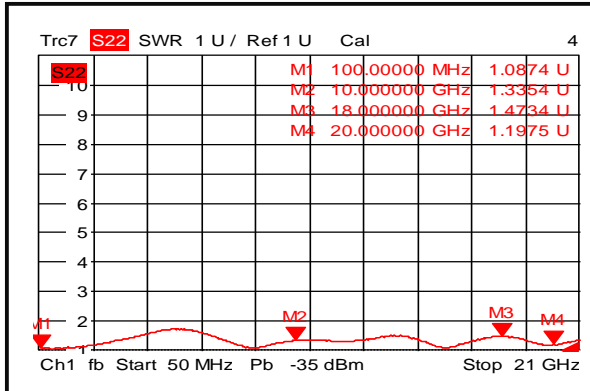
### Gain @+85°C



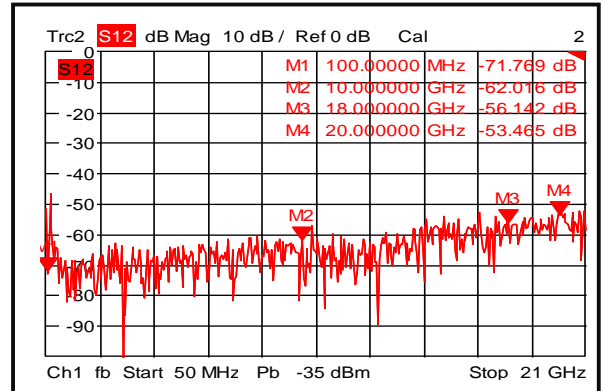
### Input VSWR @+85°C



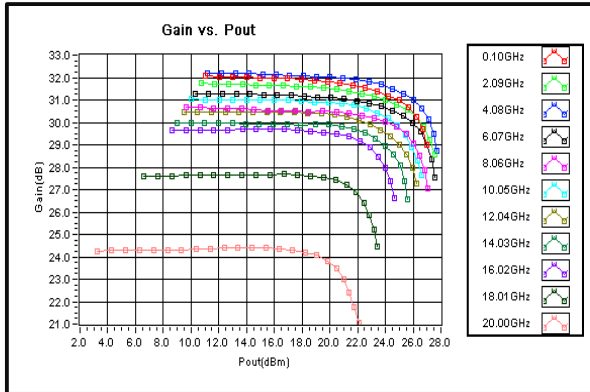
### Output VSWR @+85°C



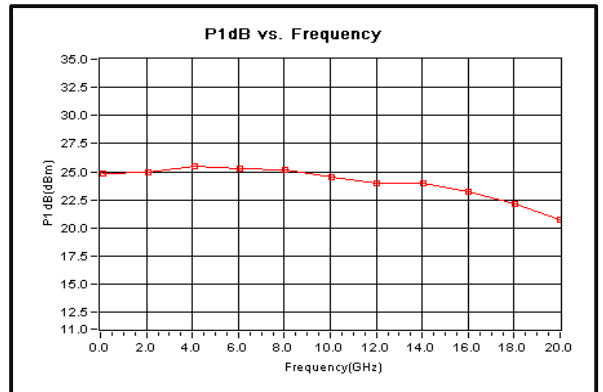
### Isolation @+85°C



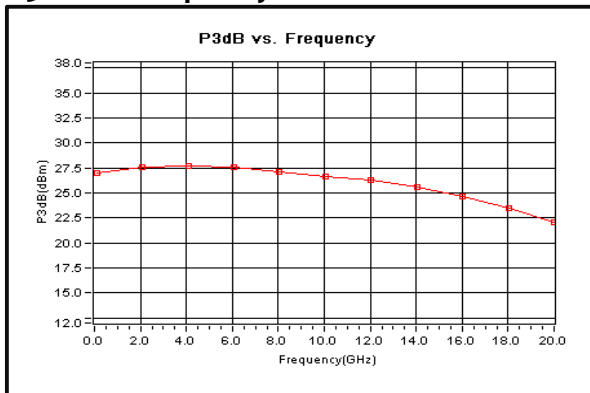
### Gain vs. Output Power



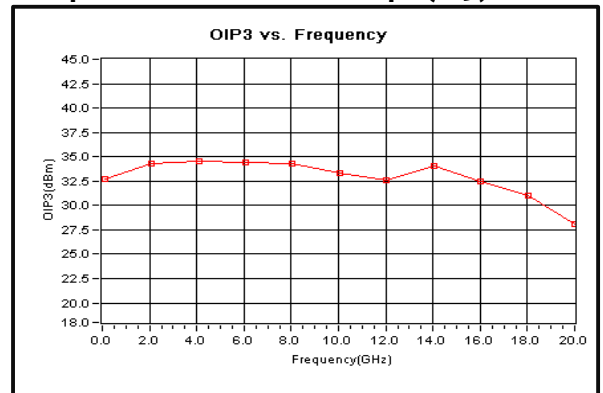
### P1dB vs. Frequency



### P3dB vs. Frequency



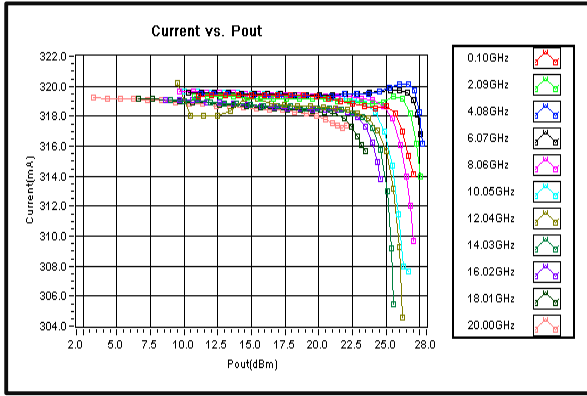
### Output Third Order Intercept (IP3)



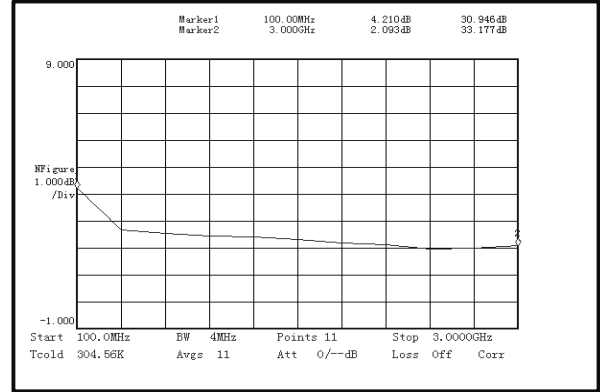
Ultra Wide Band Low Noise Amplifier 0.1GHz~20GHz



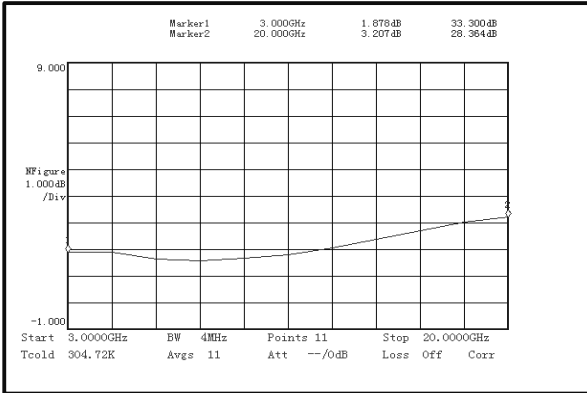
**Current**



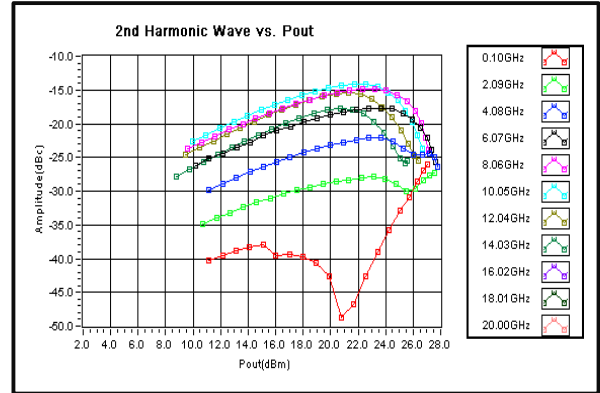
**Noise Figure(100MHz-3GHz)**



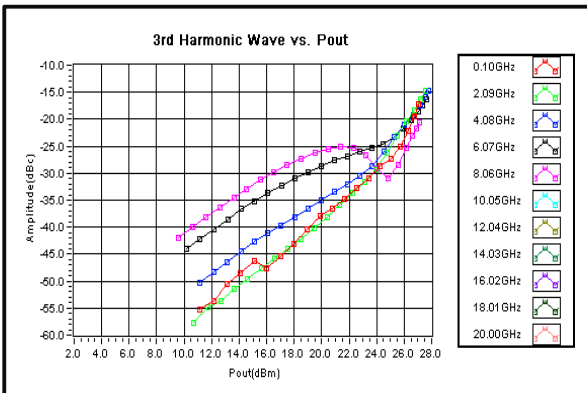
**Noise Figure(3GHz-20GHz)**



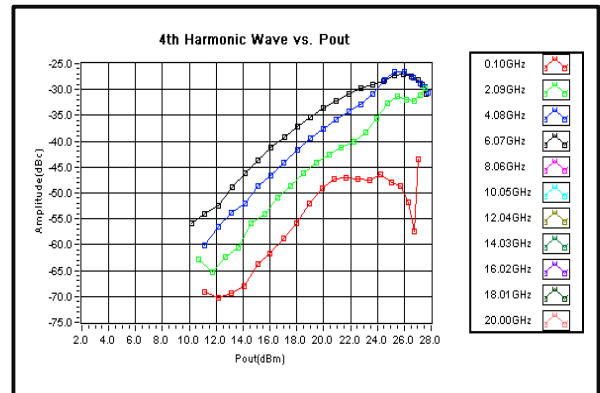
**2nd Harmonic Wave Output Power**



**3rd Harmonic Wave Output Power**



**4th Harmonic Wave Output Power**

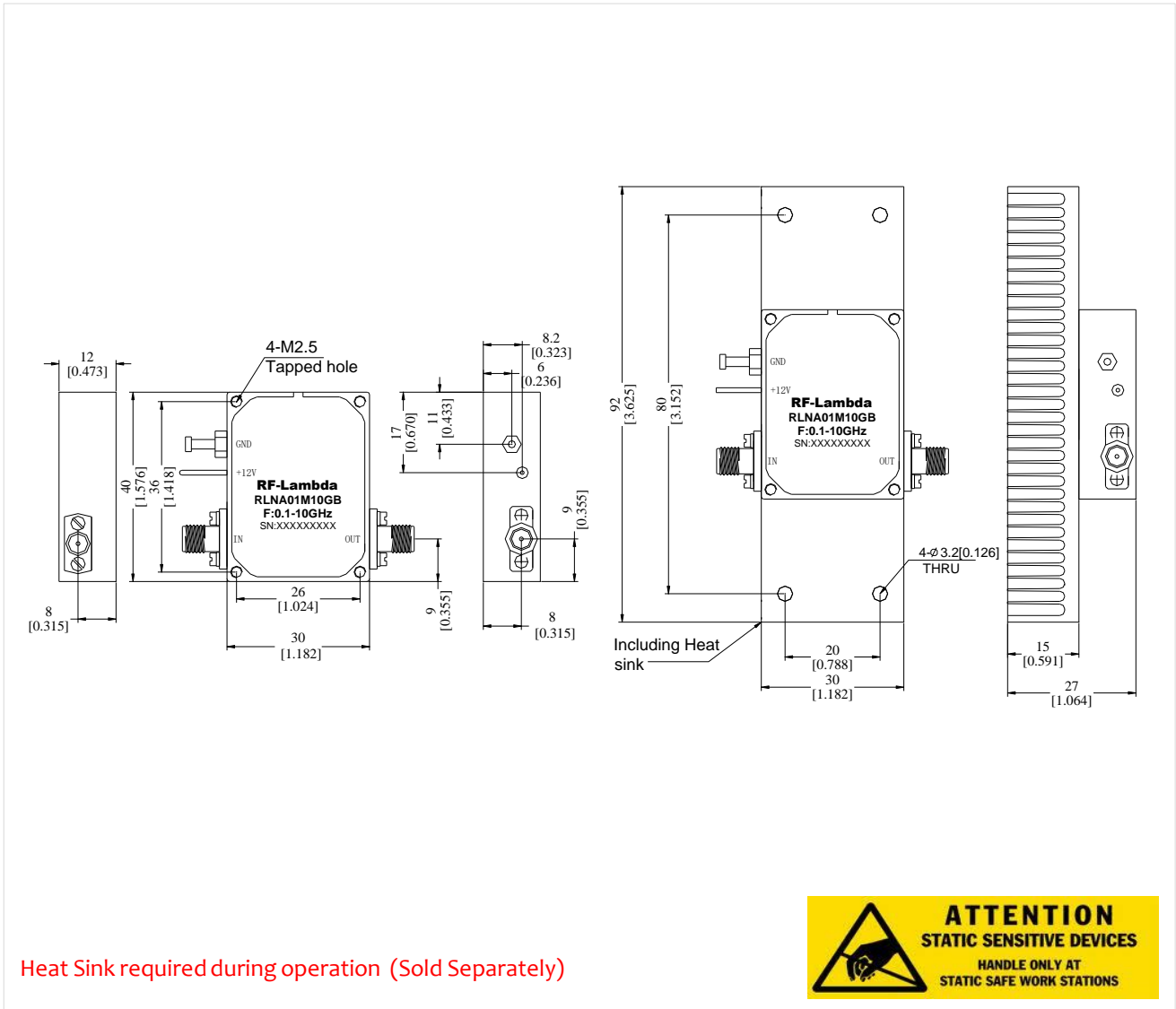


**Ultra Wide Band Low Noise Amplifier 0.1GHz~20GHz**



**Outline Drawing:**

All Dimensions in mm [inches]



**Ultra Wide Band Low Noise Amplifier 0.1GHz~20GHz**

**Ordering Information**

Part No.	ECCN	Description
RLNA01M10GB	EAR99	0.1-10GHz Low Noise Amplifier

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