



Wide Band Variable Gain Low Noise Amplifier 6GHz~17GHz



Features

- Gain: 42dB Typical
- Noise Figure: 2.0dB Typical
- Output P1dB : +21dBm Typical
- PSAT Output Power: 22dBm
- Supply Voltage: +12V

Typical Applications

- Wireless Infrastructure
- Military & Aerospace
- Test and Measurement

Electrical Specifications, TA = +25 °C, Vcc = +12V, Vctl= -2V

Parameter	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Frequency Range	6		11	11		17	GHz
Gain	38	42	45	36	40	42	dB
Gain Adjustable Range		20			16		dB
Gain Flatness		±1.5	±3.0		±1.5	±3.0	dB
Gain Variation Over Temperature (-45°C ~ +85°C)		±1.0			±1.5		dB
Noise Figure		1.8	2.2		2.0	3.0	dB
Input VSWR		1.5	2.0		1.5	2.0	: 1
Output VSWR		2.0			2.0		: 1
Output 1dB Compression Point (P1dB)	19	21		19	21		dBm
Saturated Output Power (Psat)		22			22		dBm
Output Third Order Intercept (OIP3)		27			26		dBm
Isolation S12		-60			-60		dB
Supply Current (Vcc=+12V, Vctl=-2 to 0V)		160	250		160	250	mA
Weight	1.3 Max.						Ounces
Impedance	50						Ohms
Input / Output Connectors	SMA - Female						
Finish	Gold Plated						
Material	Aluminum						
Package Sealing	Epoxy Sealed (Standard)						
	Hermetically Sealed (Optional)						

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Absolute Maximum Ratings

Operating Voltage	+15V
Vg Control Voltage	-2V to 0V
RF Input Power (@25°C, 50Ω)	-20dBm

Biasing Up Procedure

Step 1	Connect Ground Pin
Step 2	Connect input and output
Step 3	Connect +12V biasing
Step 4	Connect Vctl Control
Step 5	Turn on +12V biasing
Step 6	Turn on Vctl Control
Power OFF Procedure	
Step 1	Turn off Vctl Control
Step 2	Turn off +12V biasing
Step 3	Remove RF connection
Step 4	Remove Ground.

Environmental Specifications and Test Standards

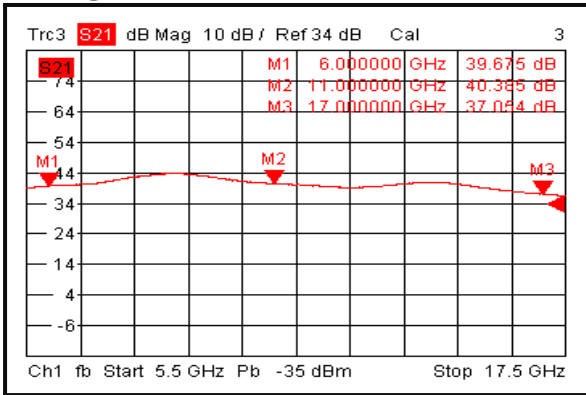
Parameter	Standard	Description
Operational Temperature	MIL-STD-39016	-45°C~+85°C
Storage Temperature		-50°C~+125°C
Thermal Shock		1 Hour@ -45°C → 1 Hour @ +85°C (5 Cycles)
Random Vibration		Acceleration Spectral Density 6 (m/s) Total 92.6 RMS
Electrical & Temperature Burn In		Temperature +85°C for 72 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)

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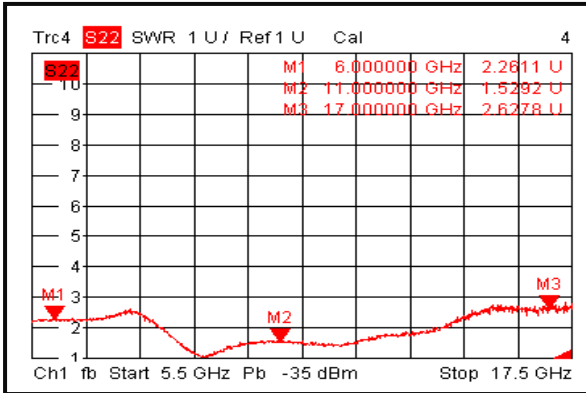


Typical Performance Plots

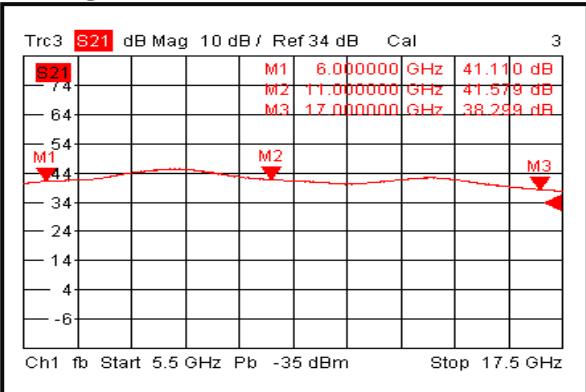
Gain @+25°C



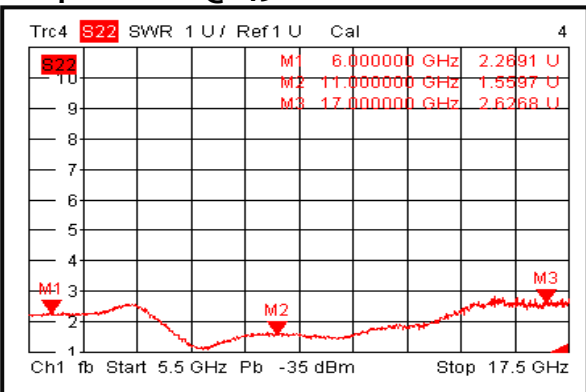
Output VSWR @+25°C



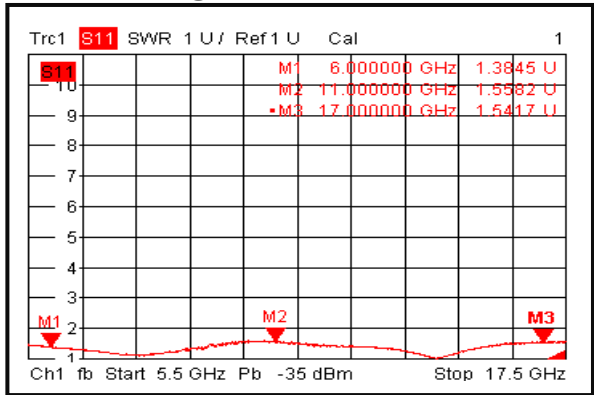
Gain @-45°C



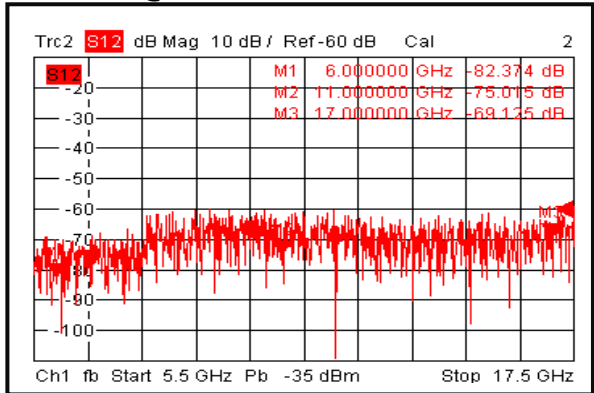
Output VSWR @-45°C



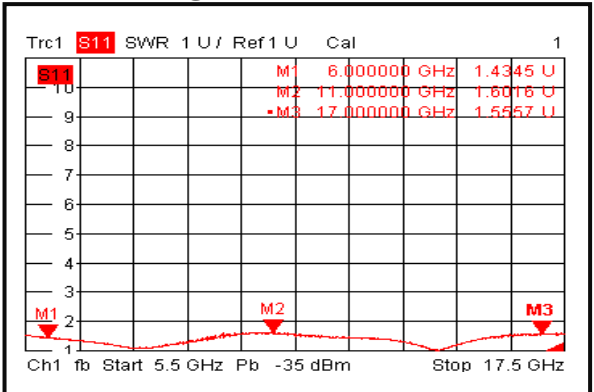
Input VSWR @+25°C



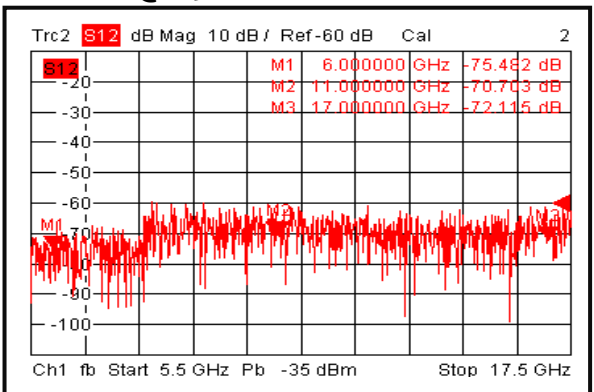
Isolation @+25°C



Input VSWR @-45°C



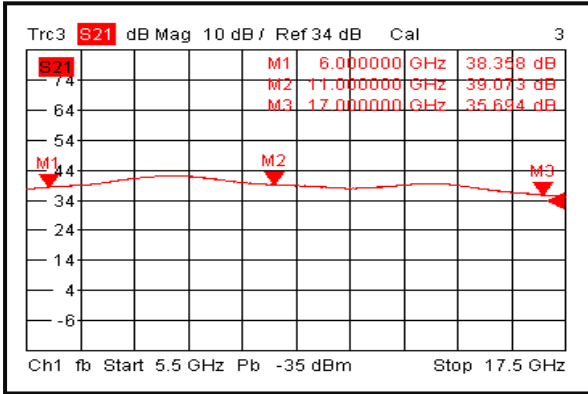
Isolation @-45°C



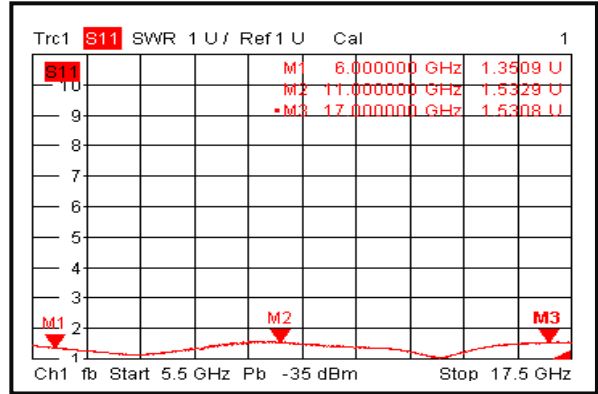
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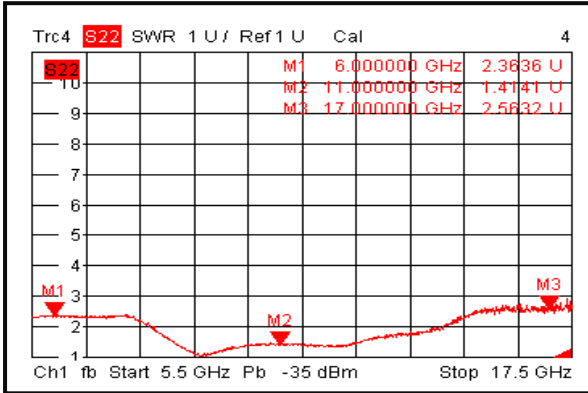
Gain @+85°C



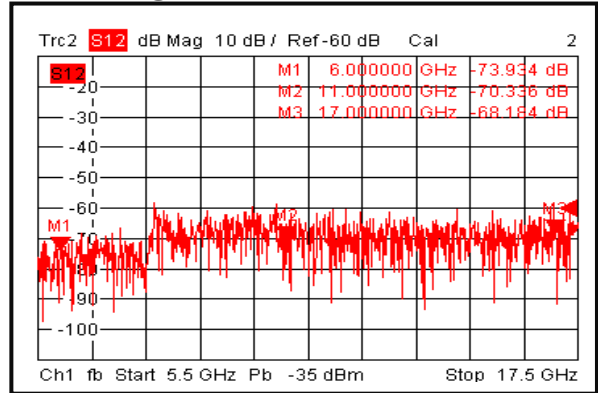
Input VSWR @+85°C



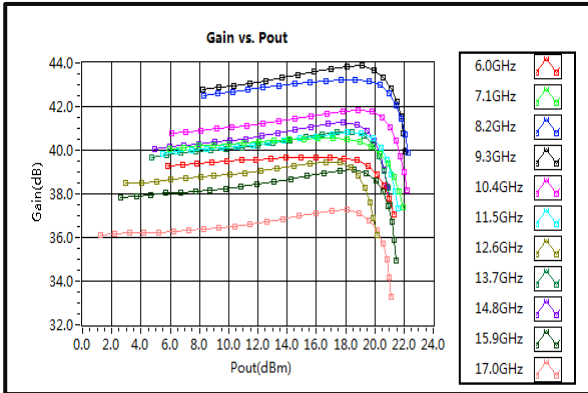
Output VSWR @+85°C



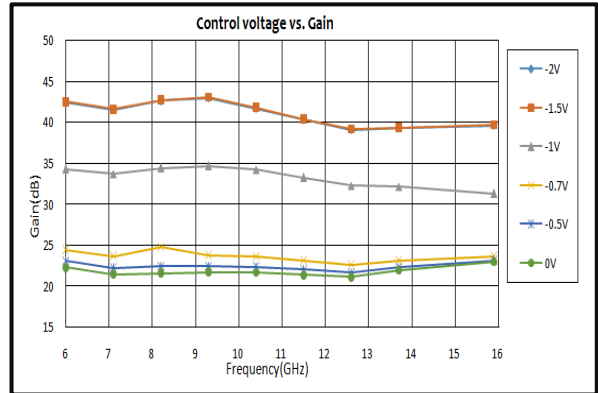
Isolation @+85°C



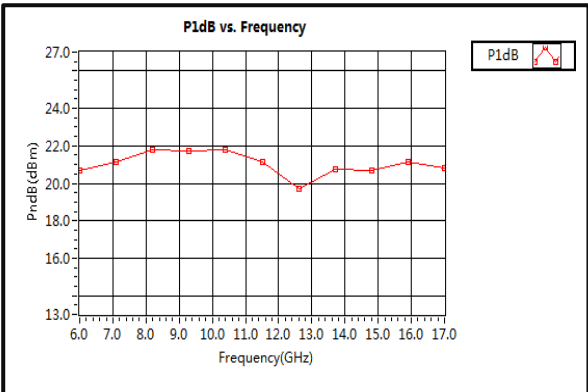
Gain vs. Output Power



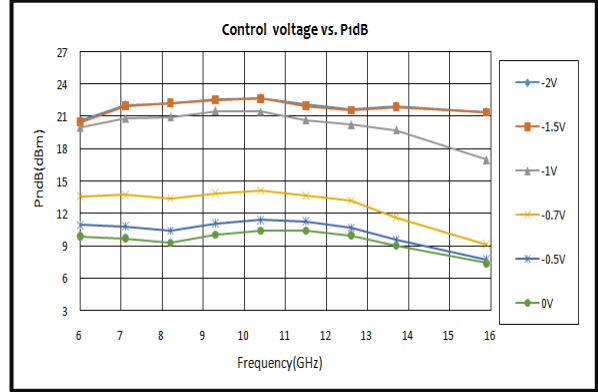
Control Voltage vs. Gain



P1dB vs. Frequency



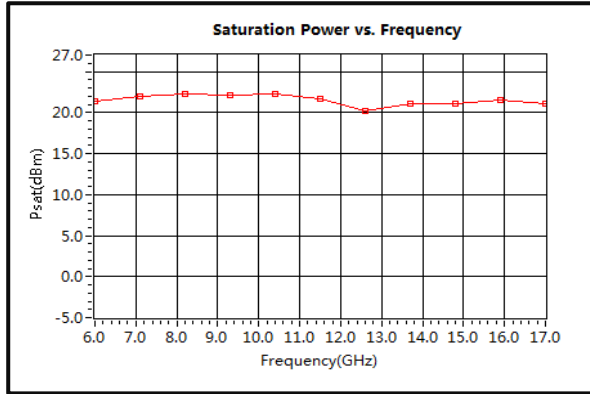
Control Voltage vs. P1dB



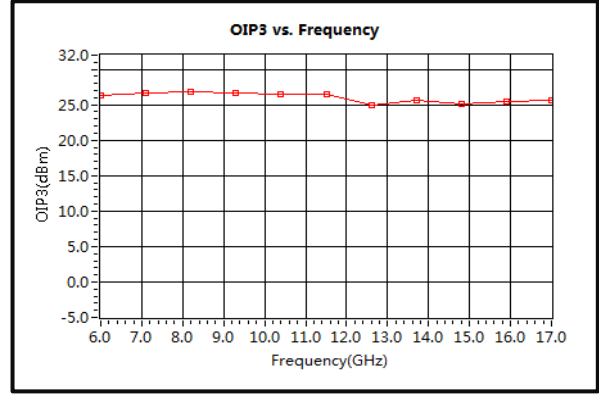
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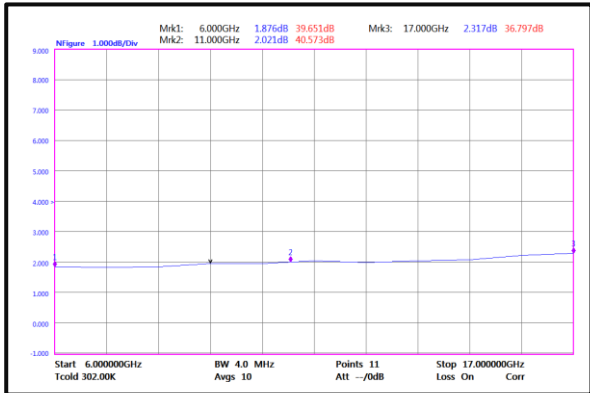
Saturation Power vs. Frequency



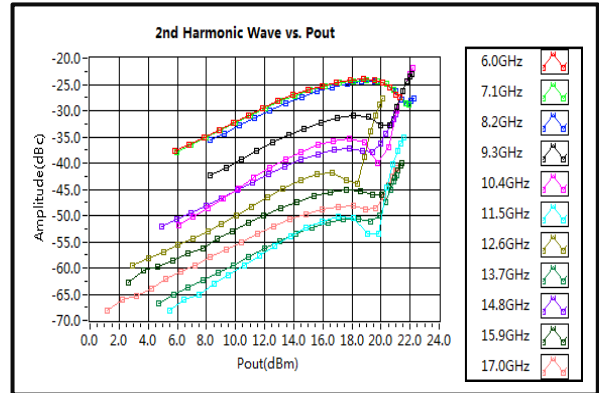
Output Third Order Intercept (OIP3)



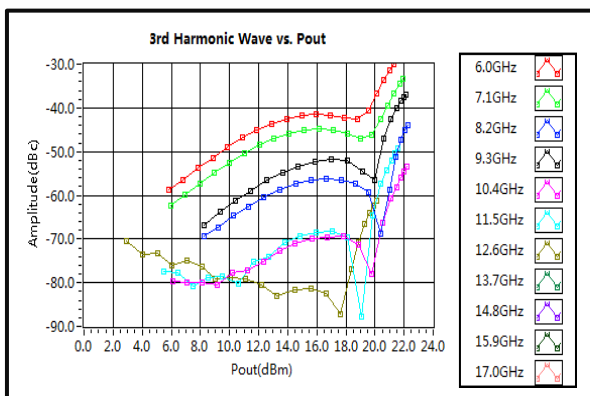
Noise Figure



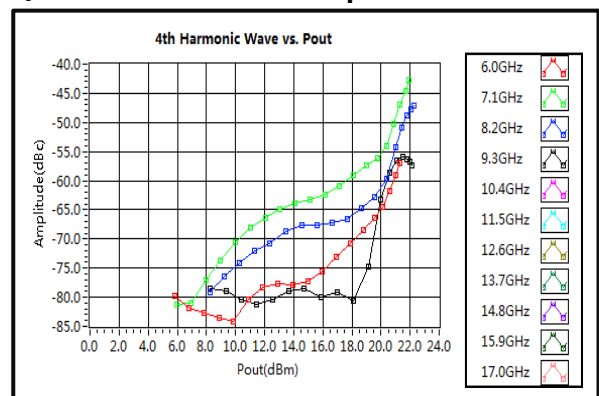
2nd Harmonic Wave Output Power



3rd Harmonic Wave Output Power



4th Harmonic Wave Output Power

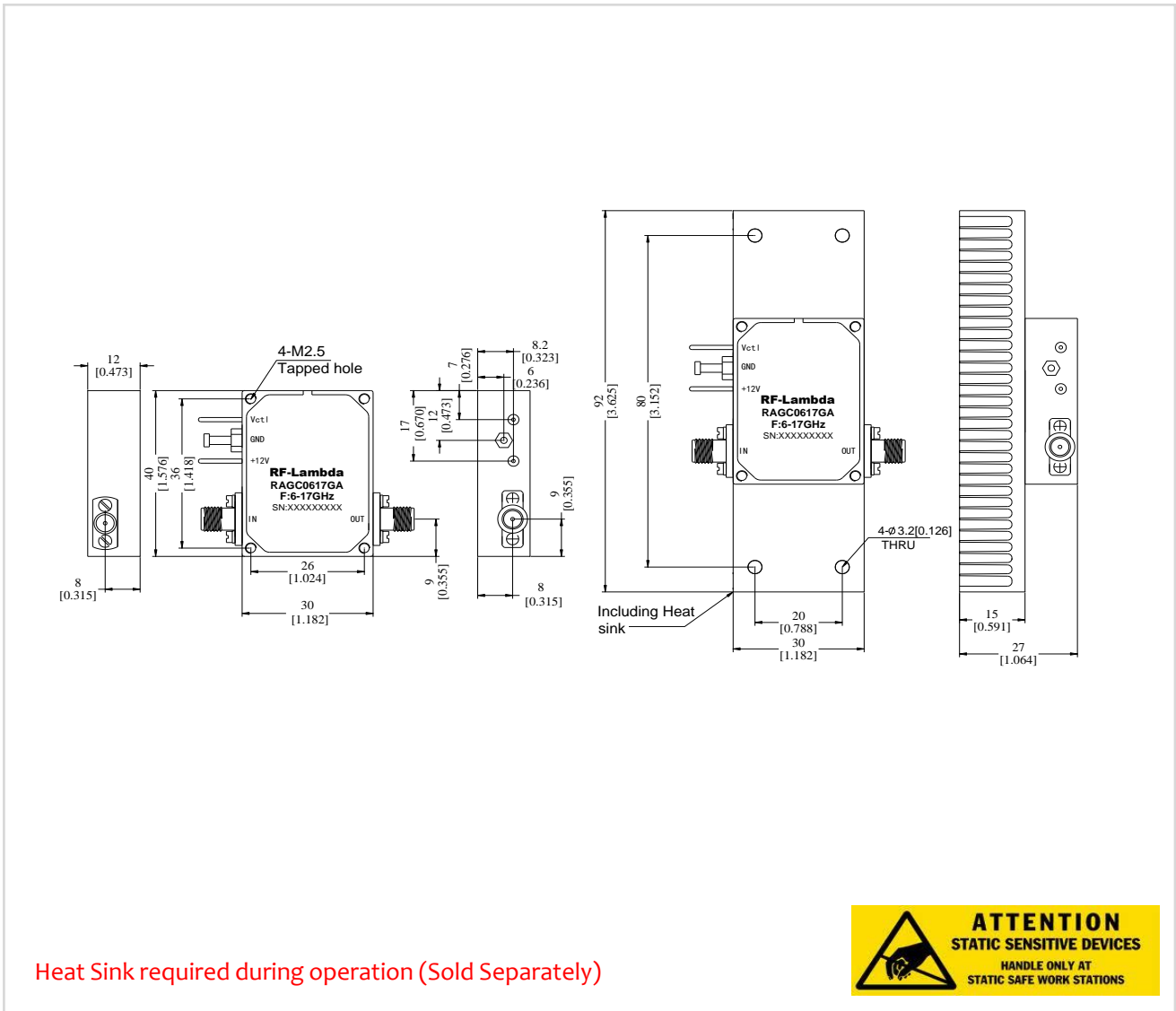


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Outline Drawing:

All Dimensions in mm [inches]



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Ordering Information

Part No.	Description
RAGC0617GA	6-17GHz Wide Band Variable Gain Low Noise Amplifier

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