



2W Ultra Wide Band Power Amplifier 0.2GHz~35GHz



Features

- Wideband Solid State Power Amplifier
- Gain: 37dB Typical
- Psat 35dBm Typical

Typical Applications

- Wireless Infrastructure
- Short Haul / High Capacity Links
- RF Microwave and Vsat
- Military & Aerospace Applications
- Test Instrumentation

2W Ultra Wide Band Power Amplifier 0.2G-35GHz

Electrical Specifications , TA = +25°C, Vcc = +12V.

Parameter	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Frequency Range	0.2 - 0.9			1 - 32			33 - 35			GHz
Gain		37			32			30		dB
Gain Flatness		±3			±3			±3		dB
Gain Variation Over Temperature (-45 ~ +85)		±3			±3			±3		dB
Input Return Loss		15			15			15		dB
Output Return Loss		25			25			20		dB
Saturated Output Power (Psat)		35			32.5			31		dBm
Supply Current (+12V)		1.28			1.28			1.28		A
Isolation S12		75			65			65		dB
Input Max Power (No Damage)	Psat - Gain									dBm
Weight	2100									g
Impedance	50									Ohms
Input / Output Connectors	2.92mm -Female									
Finish	Nickel Plating									
Material	Aluminum / Copper									

* P1dB, P3dB and Psat power testing signal: 200µs pulse width with 10% duty cycle.

* For average CW power testing, a 5dB back off from Psat is required unless water/oil cooling system is applied.



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The power beyond expectations

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Absolute Maximum Ratings	
Supply Voltage	+12V +/- 10%
RF Input Power (RFIN) Pin max = Psat - Gainsat	Psat - Gain
Storage Temperature (°C)	-50 to +125

Note: Maximum RF input power is set to assure safety of amplifier. Input power may be increased at own risk to achieve full power of amplifier. Please reference gain and power curves.

Environmental Specifications	
Operational Temperature (°C)	-45 ~ +55 (Case Temperature must be less than 85C all time)
Altitude	30,000 ft. (Epoxy Seal Controlled environment)
	60,000 ft 1.0psi min (Hermetically Seal 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

Note: The operating temperature for the unit is specified at the package base. It is the user's responsibility to ensure the part is in an environment capable of maintaining the temperature within the specified limits

Biasing Up Procedure	
Step 1	Connect Ground Pin
Step 2	Connect input and output with 50 Ohm source/load. (VSWR<1.9:1 or >10dB return loss)
Step 3	Connect +12V biasing
Power OFF Procedure	
Step 1	Turn off +12V biasing
Step 2	Remove RF connection
Step 3	Remove Ground Pin

Ordering Information		
Part No.	ECCN	Description
RFLUPA01G31GA	EAR99	1GHz~31GHz Power Amplifier

Amplifier Use

Ensure that the amplifier input and output ports are safely terminated into a proper 50 ohm load before turning on the power. Never operate the amplifier without a load. A proper 50 ohm load is defined as a load with impedance less than 1.9:1 or return loss larger than 10dB relative to 50 Ohm within the specified operating band width.

Power Supply Requirements

Power supply must be able to provide adequate current for the amplifier. Power supply should be able to provide 1.5 times the typical current or 1.2 times the maximum current (whichever is greater).

In most cases, RF - Lambda amplifiers will withstand severe mismatches without damage. However, operation with poor loads is discouraged. If prolonged operation with poor or unknown loads is expected, an external device such as an isolator or circulator should be used to protect the amplifier.

Ensure that the power is off when connecting or disconnecting the input or output of the amp.

Prevent overdriving the amplifier. Do not exceed the recommended input power level.

Adequate heat-sinking required for RF amplifier modules. Please inquire.

Amplifiers do not contain Thermal protection, Reverse DC polarity or Over voltage protection with the exception of a few models. Please inquire.

Proper electrostatic discharge (ESD) precautions are recommended to avoid performance degradation or loss of functionality.

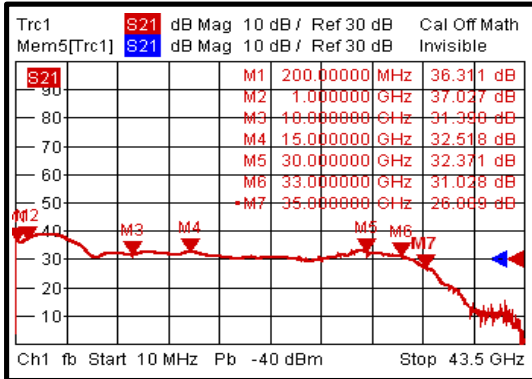
What is not covered with warranty?

Each RF - Lambda amplifier will go through power and temperature stress testing. Since the die, ICs or MMICs are fragile, these are not covered by warranty. Any damage to these will NOT be free to repair.

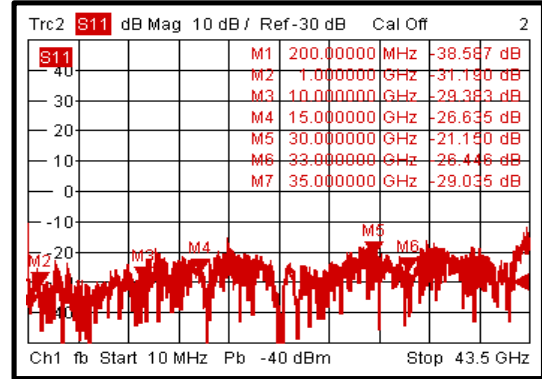
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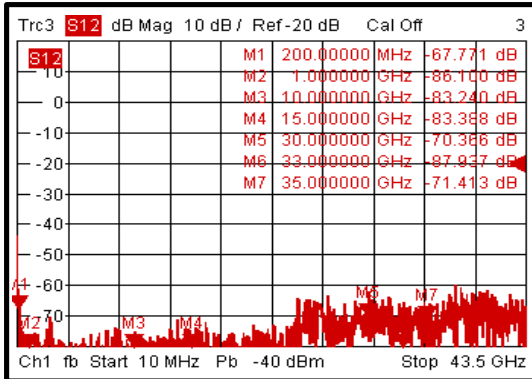
Gain vs. Frequency



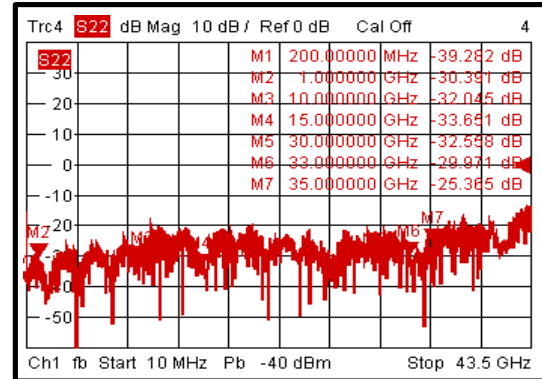
Input Return Loss



Isolation



Output Return Loss



Note: Input/output return loss measurements include attenuators to protect equipment

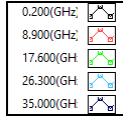
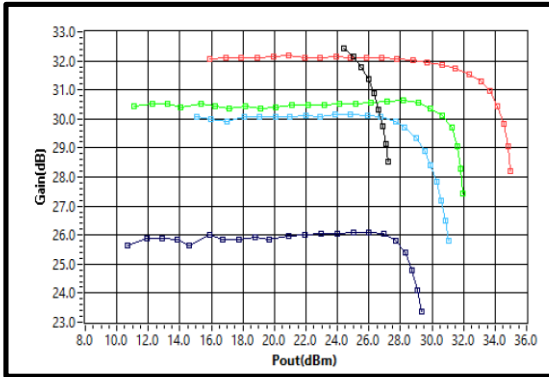


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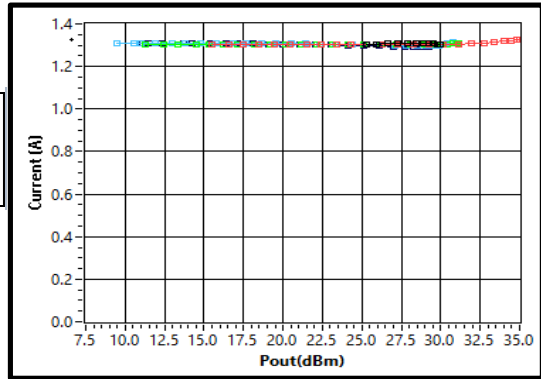
The power beyond expectations

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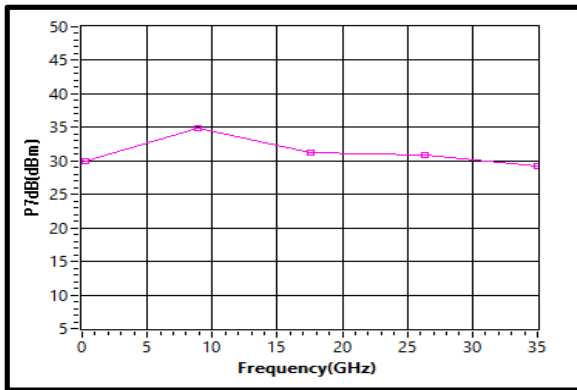
Gain vs. Output Power



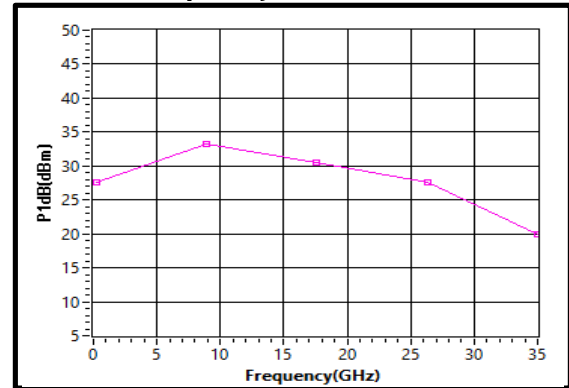
Current vs. Pout



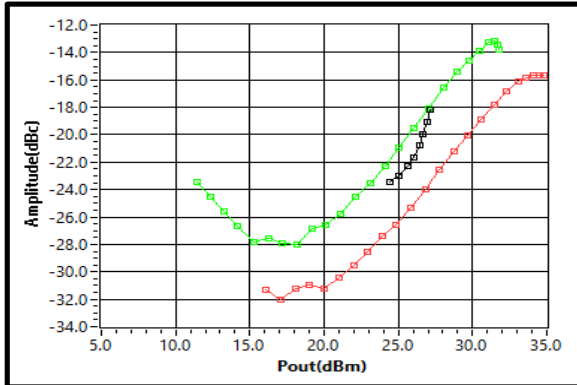
P7dB vs. Frequency



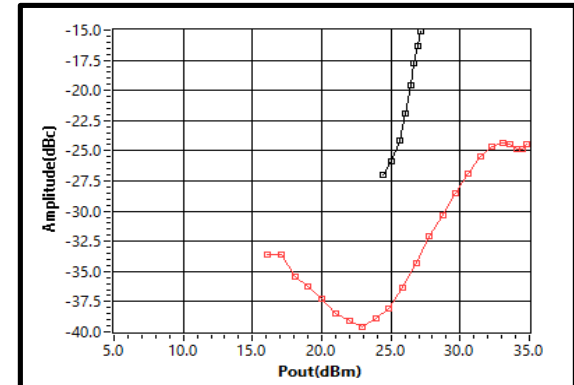
P1dB vs. Frequency



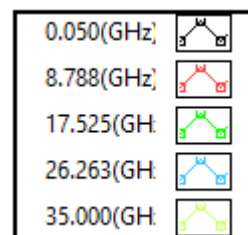
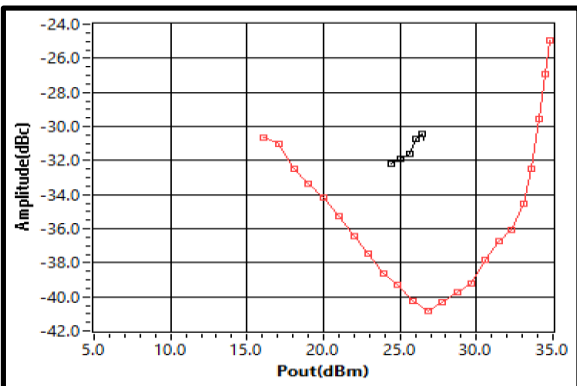
2nd Harmonic Wave vs. Pout



3rd Harmonic Wave vs. Pout



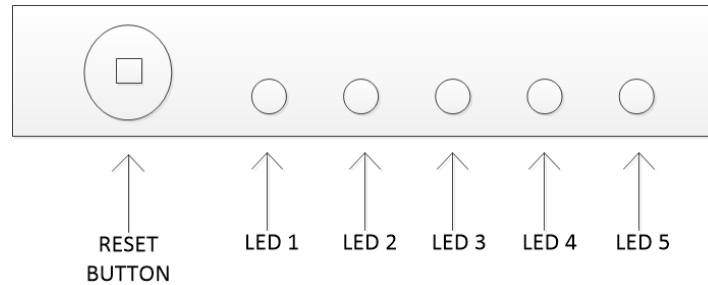
4th Harmonic Wave vs. Pout



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Alarm Status Panel:



	Name	Function	Initial State	Description	Applied
	RESET	Control		Manual reset button to reset PA	Yes
LED 1	POWER	Indicator	RED Color	LED will light to <u>RED</u> color when supply power is applied	Yes
LED 2	RF IN	Indicator	GREEN Color	PA will shut down and latch this LED to a <u>RED</u> color when input signal is over limit *	No
LED 3	VSWR	Indicator	GREEN Color	PA will shut down and latch this LED to a <u>RED</u> color when output reflection is over limit *	No
LED 4	ID	Indicator	GREEN Color	PA will shut down and latch this LED to a <u>RED</u> color when an imbalance in the drain current of the combining branches occurs OR if a drain current limit is reached *	Yes
LED 5	TEMP	Indicator	GREEN Color	PA will shut down and latch this LED to a <u>RED</u> color when driven over temperature *	No

*LED needs to be manually reset to initial state by pressing RESET button



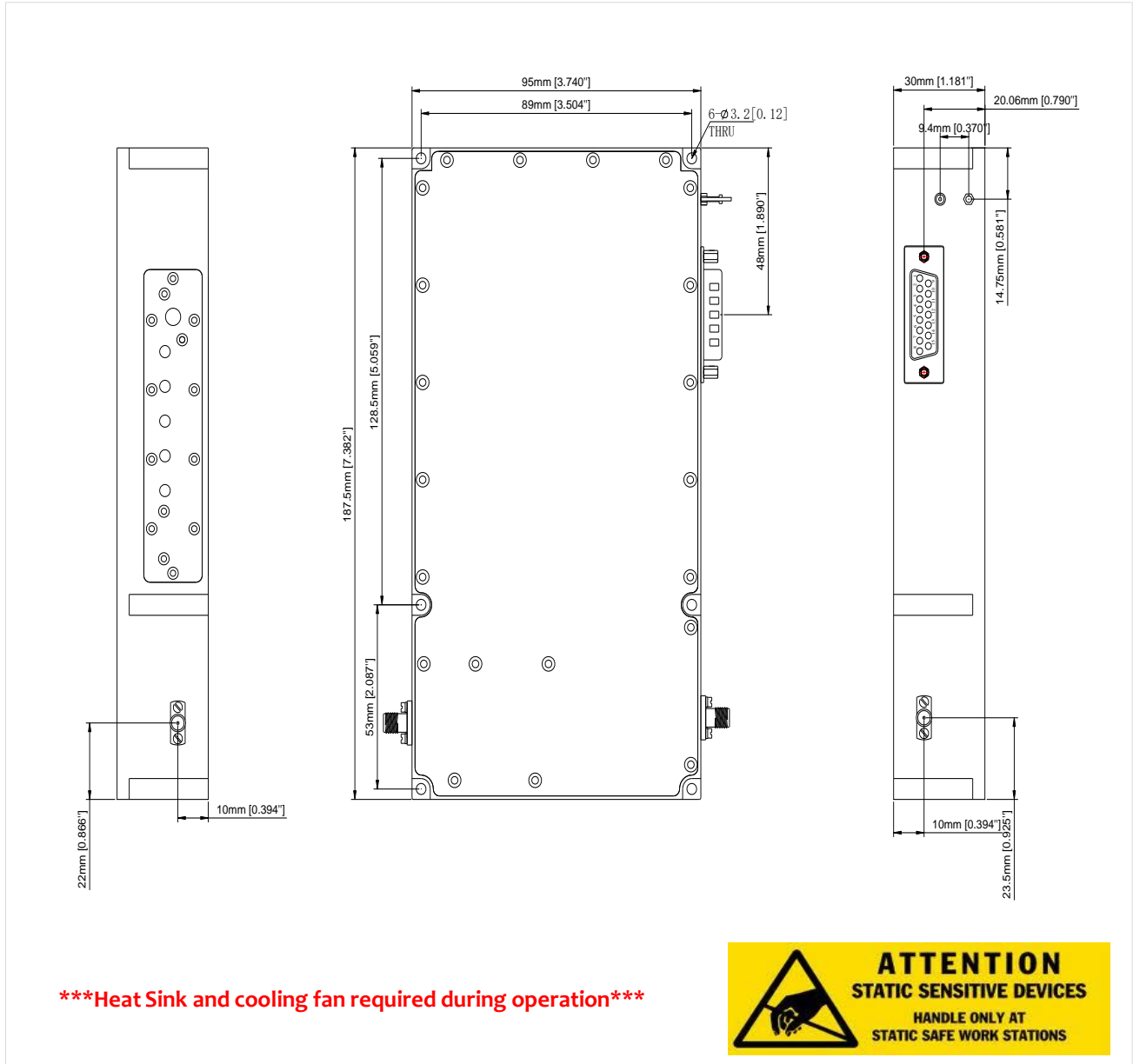
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The power beyond expectations

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Outline Drawing:

All Dimensions in mm [inches]



Heat Sink and cooling fan required during operation

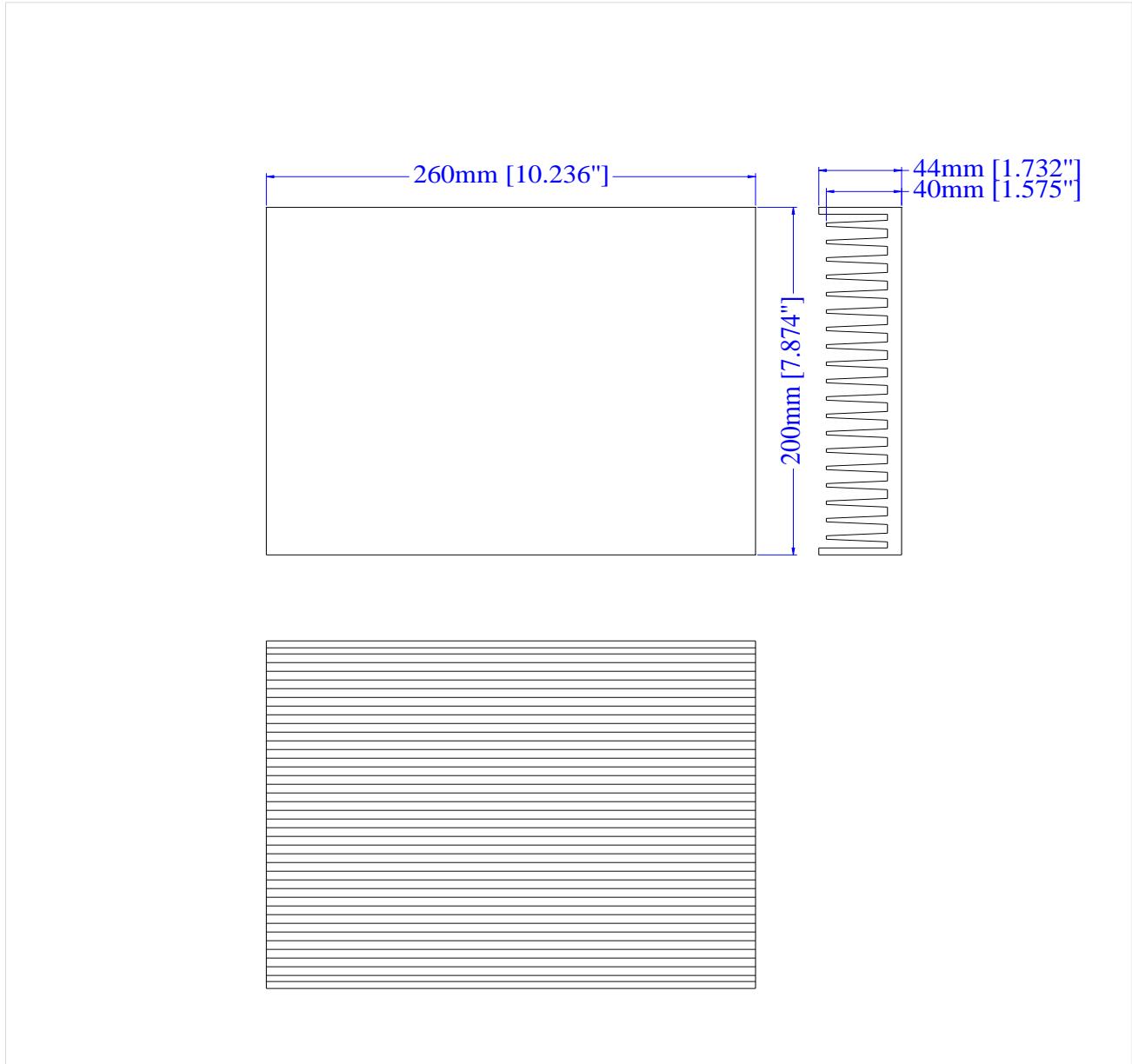


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Heatsink Drawing:

All Dimensions in mm [inches]



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