



40W Wide Band Solid State Power Amplifier 6-18GHz



Features

- Wideband Solid State Power Amplifier
- Psat: +46dBm
- Gain: 65 dB
- Supply Voltage: +48V
- 50 Ohm Matched.

Typical Applications

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

Electrical Specifications , TA = +25°C

Parameter	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Frequency Range	6		12	12		18	GHz
Gain		70			65		dB
Gain Flatness		±5			±4		dB
Gain Variation Over Temperature (-45 ~ +85)		±3			±3		dB
Noise Figure		6			6		dB
Input Return Loss		15			13		dB
Output Return Loss		25			22		dB
Output 1dB Compression Point (P1dB)		43			41		dBm
Saturated Output Power (Psat)		46			45		dBm
IM3 at (40dBm output)		-41			-39		dBc
Supply Current (Vcc=+48V)		4.5	7		4.5	7	A
Isolation S12		86			85		dB
Input Max Power(no damage)	Psat-Gain						dBm
Weight	≈ 40						lbs
Impedance	50						Ohms
Input / Output Connectors	SMA-Female						
Finish	Standard: Nickel 220 micron thickness						
Material	Aluminum / Copper						
Package Sealing	Epoxy and Screw tight Sealing (Standard)						
	Hermetically Sealed (Optional)						

* 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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RF-LAMBDA

The power beyond expectations

RFLUPA0618GC

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Absolute Maximum Ratings	
Supply Voltage	+50Vdc
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 Sealed Controlled environment)
	60,000 ft 1.0psi min (Hermetically Sealed Uncontrolled 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 input and output with 50 Ohm source/load. (in band VSWR<1.9:1 or >10dB return loss)
Step 2	Connect Ground Pin
Step 3	Connect +48V biasing
Power OFF Procedure	
Step 1	Turn off +48V biasing
Step 2	Remove RF connection
Step 3	Remove Ground.

Ordering Information	
Part No.	Description
RFLUPA0618GC	6GHz~18GHz 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.

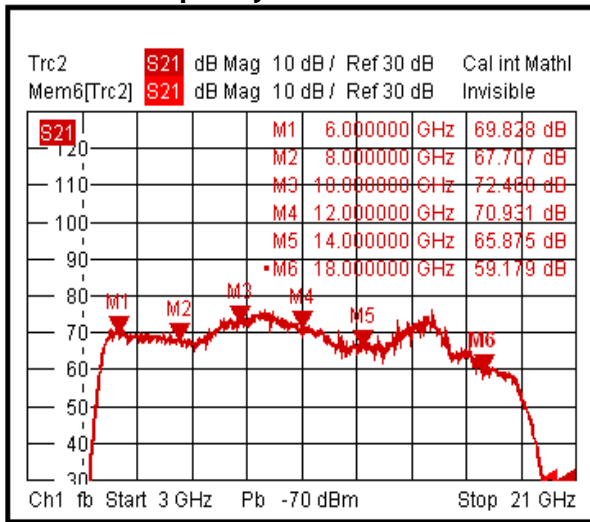
Proper electrostatic discharge (ESD) precautions are recommended to avoid performance degradation or loss of functionality.

What is not covered with warranty?

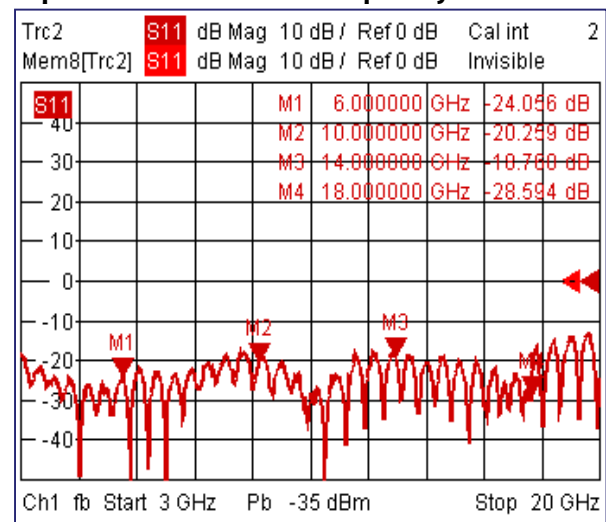
Each RF - Lambda amplifier will go through power and temperature stress testing. Since the die, ICs or MMICs are fragile, these are not covered by warranty. Any damage to these will NOT be free to repair.



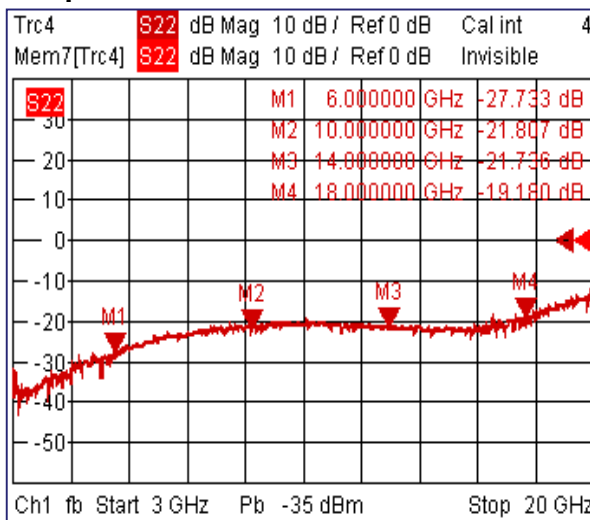
Gain vs. Frequency



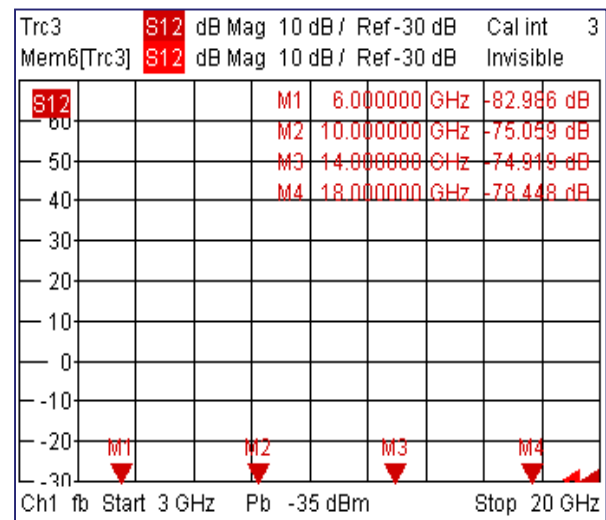
Input Return Loss vs. Frequency



Output Return Loss



Isolation

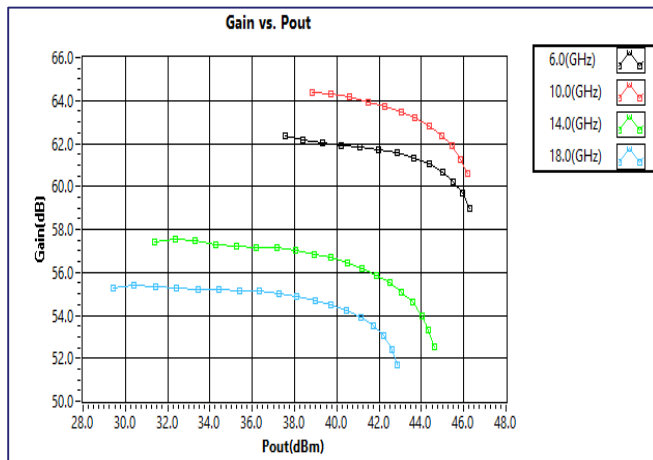


Note: Input/output return loss measurements include attenuators to protect equipment

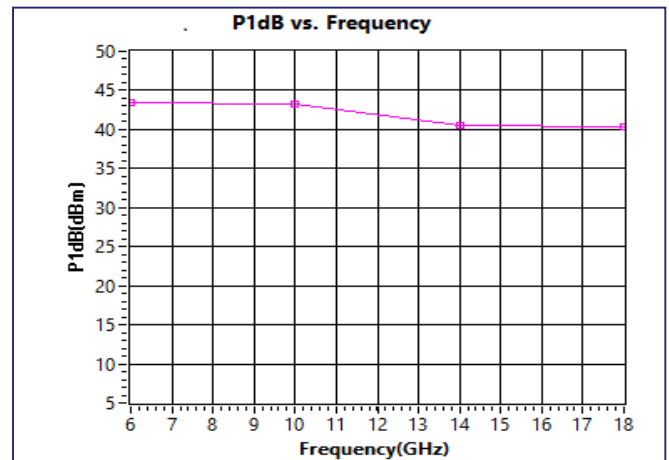
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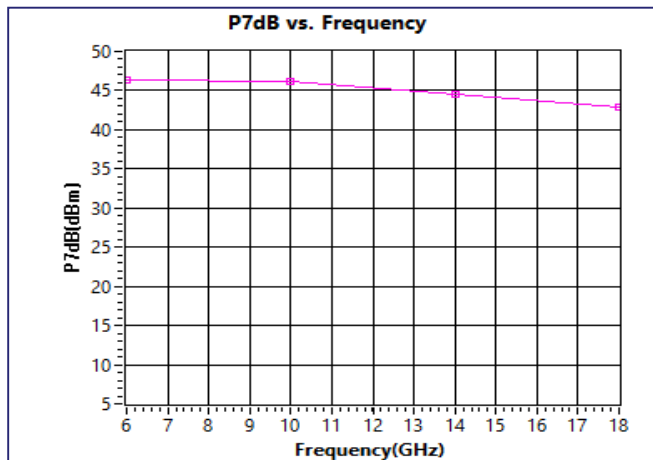
Gain vs. Output Power 6-18GHz



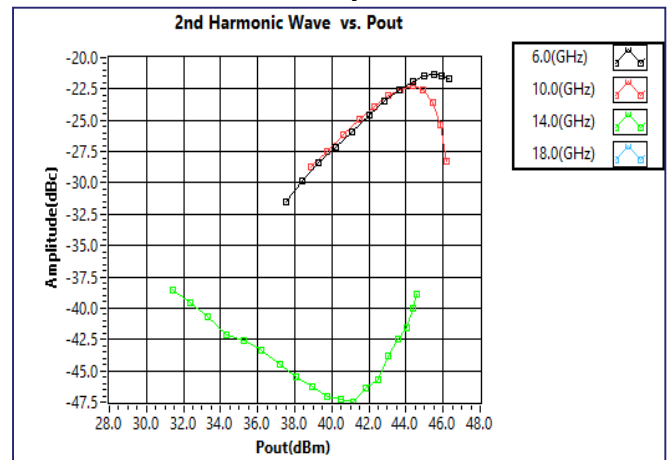
P1dB vs. Frequency 6-18GHz



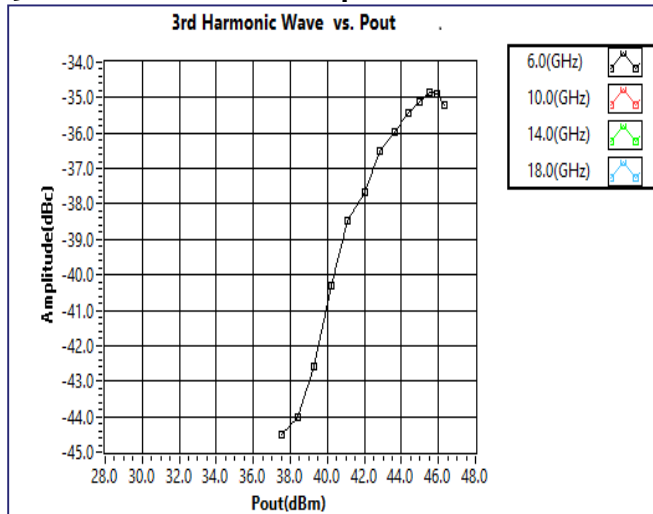
P7dB vs. Frequency 6-18GHz



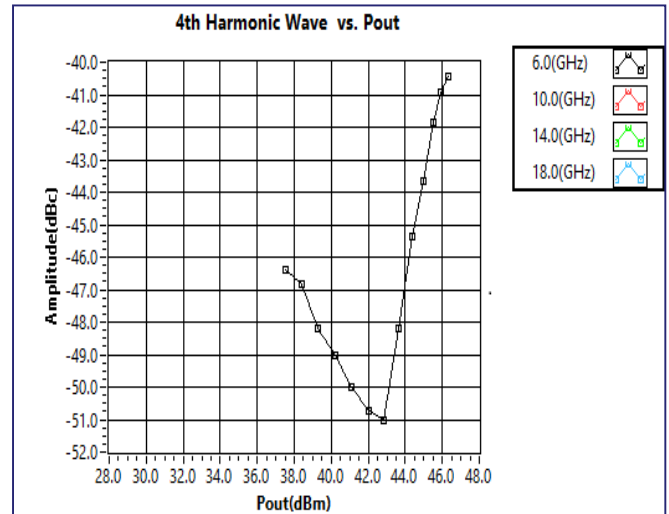
2nd Harmonic Wave Output Power 6-18GHz



3rd Harmonic Wave Output Power 6-18GHz



4th Harmonic Wave Output Power 6-10GHz



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Protection Connector Table:

Pin #	Name	Function	Initial State	Description	Applied
A	Reset	Control		Resets PA when logic <u>LOW</u> is applied and released	No
B	Drain Disable	Control	LOW	Applying logic <u>HIGH</u> disables drains of amplifiers	Yes
C	Gate Disable	Control	LOW	Applying logic <u>HIGH</u> disables gates of amplifiers	No
D	RF IN Over	Indicator	LOW	Pin will be latched to logic <u>HIGH</u> when input signal is over limit	No
E	Temp Over	Indicator	LOW	Pin will be latched to logic <u>HIGH</u> when amplifier is driven over temperature	No
F	Current Over	Indicator	LOW	Pin will be latched to logic <u>HIGH</u> when drain current limit is reached	No
G	ID Imbalance	Indicator	LOW	Pin will be latched to logic <u>HIGH</u> when an imbalance in the drain current of the combining branches occurs	No
H	PA input power	Indicator		PA input power is represented by voltage	No
J	PA output power	Indicator		PA output power is represented by voltage	No
K	PA output reflection power	Indicator		PA output reflection power is represented by voltage	No
L	VSWR	Indicator	LOW	Pin will be latched to logic <u>HIGH</u> when output reflection is over limit	No
M	Temp Signal	Indicator		PA carrier case temperature is represented by voltage	Yes
N	+5V	Power Supply	+5V	+5V DC is supplied for reference	No
P	GND	Ground	GND	Ground	Yes
R	NA	NA	NA	NA	No
S	NA	NA	NA	NA	No
T	NA	NA	NA	NA	No

HIGH/LOW voltages are standard TTL signals:
 0.0V-0.8V = LOW
 2V-5V = HIGH

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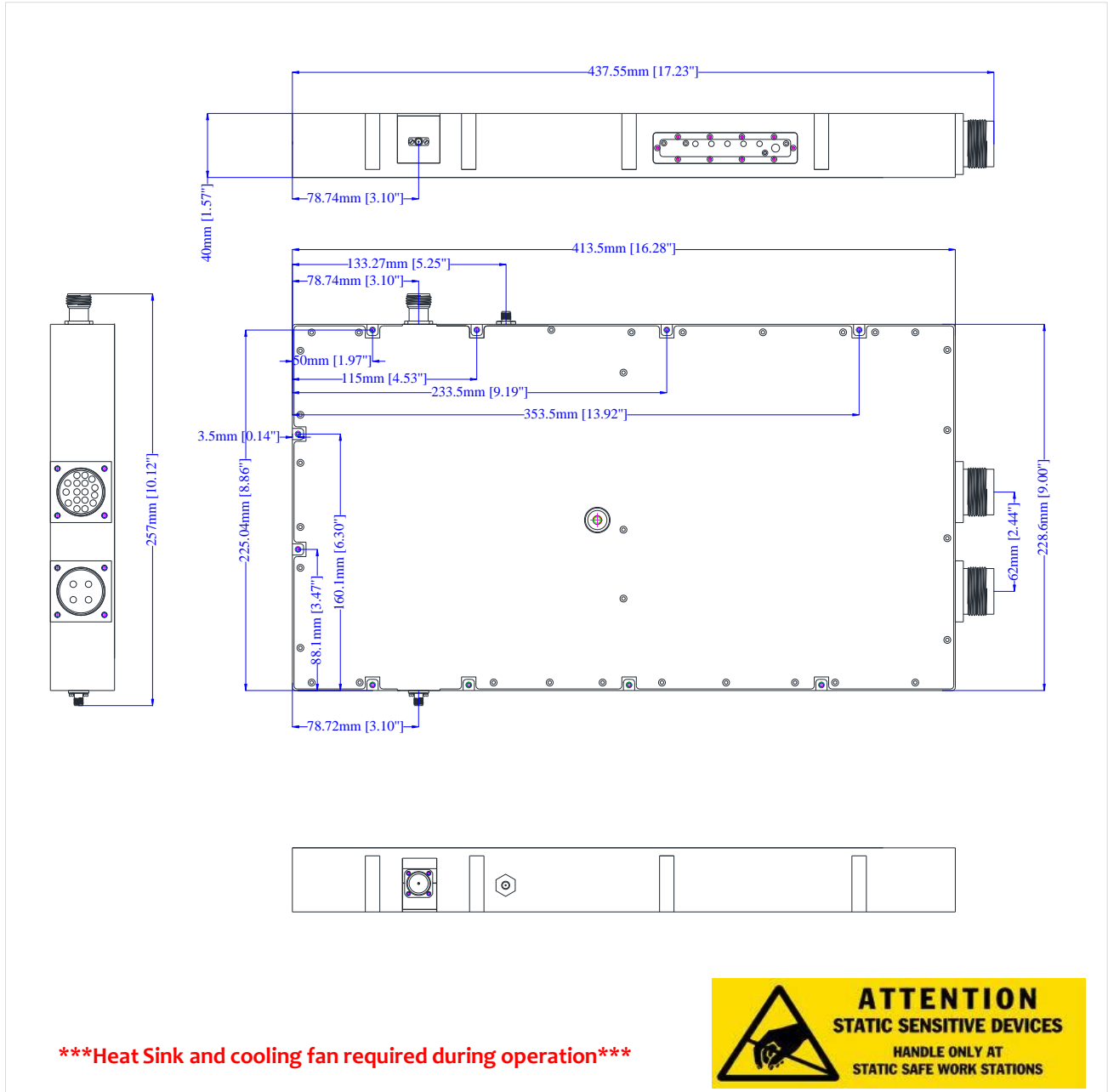
RF-LAMBDA

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Outline Drawing:

All Dimensions in mm

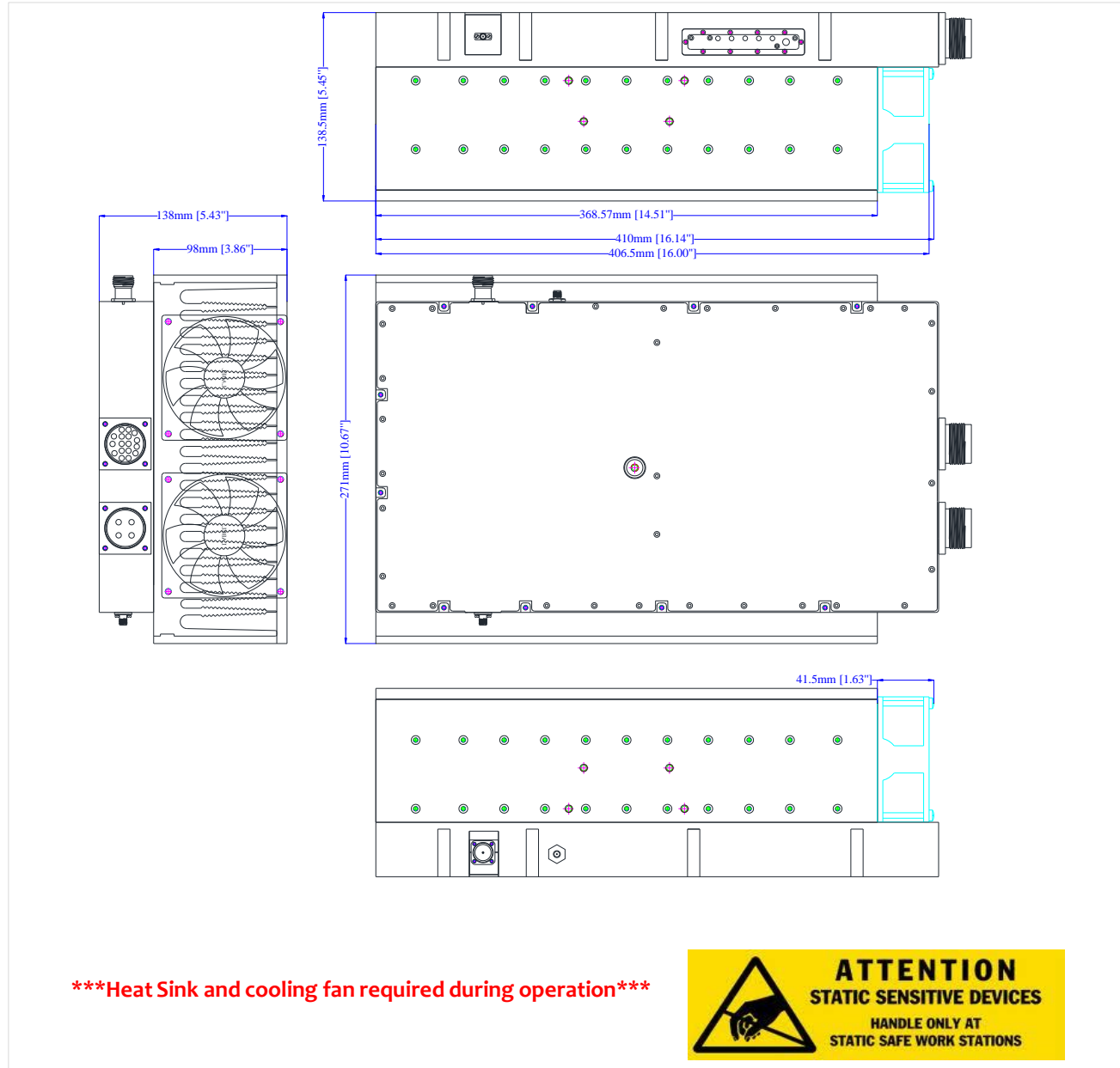


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Outline Drawing Heatsink Including Air Cooling:

All Dimensions in mm



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Important Notice

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