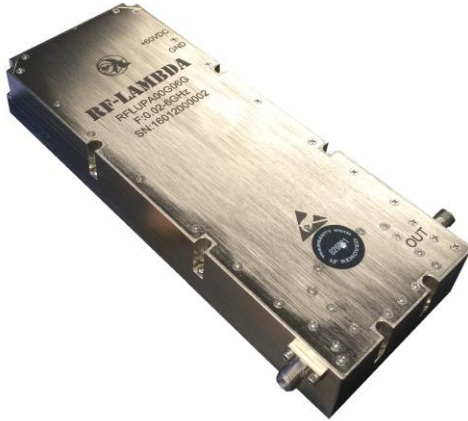




### 40W Ultra Wide Band Power Amplifier 13GHz~16.5GHz



#### Features

- Wideband Solid State Power Amplifier
- Gain: 50dB Typical
- Psat: +46dBm Typical
- Supply Voltage: +48V

#### Typical Applications

- Military & Defense Applications
- Wireless Infrastructure
- Test and Measurement

40W Ultra Wide Band Power Amplifier 13GHz~16.5GHz

Electrical Specifications,  $T_A = +25^\circ\text{C}$ ,  $V_{CC} = +48\text{V}$

Parameter	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Frequency Range	13 - 15		15 - 16.5				GHz
Gain		55			50		dB
Gain Flatness		±3			±7		dB
Gain Variation Over Temperature (-45 ~ +85)		±3			±3		dB
Input Return Loss		7			9		dB
Output Return Loss		10			8		dB
Output Power for 3 dB Compression (P3dB)		46			45		dBm
Supply Current		750			750		mA
Isolation S12		80			80		dB
Input Max Power (No damage)	Psat - Gain		Psat - Gain				dBm
Weight	≈ 1085						g
Impedance	50						Ohms
Input / Output Connectors	SMA-Female						
Finish	Nickel Plated						
Material	Copper						

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

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



Absolute Maximum Ratings	
Supply Voltage	+50 VDC
RF Input Power	Psat – Gain

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.

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 VDC
Power OFF Procedure	
Step 1	Turn Off VDC
Step 2	Remove RF Connection
Step 3	Remove Ground

### Environmental Specifications and Test Standards

Parameter	Standard	Description
Operational Temperature	MIL-STD-39016	-45°C~+55°C (Case Temperature less than 85C)
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)

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

40W Ultra Wide Band Power Amplifier 13GHz~16.5GHz



Ordering Information	
Part No.	Description
RFLUPA13G17GA	13GHz~16.5GHz 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.

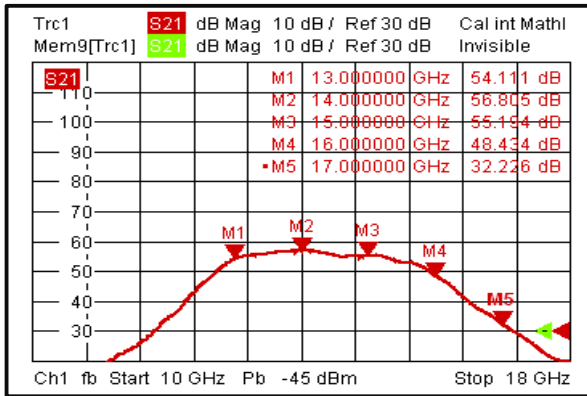
#### What is not covered with warranty?

Each RF - Lambda amplifier will go through power and temperature stress testing.

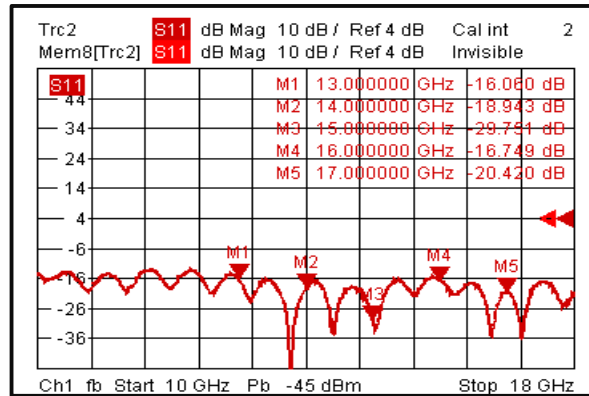
Since the die, ICs or MMICs are fragile, these are not covered by warranty. Any damage to these will NOT be free to repair.



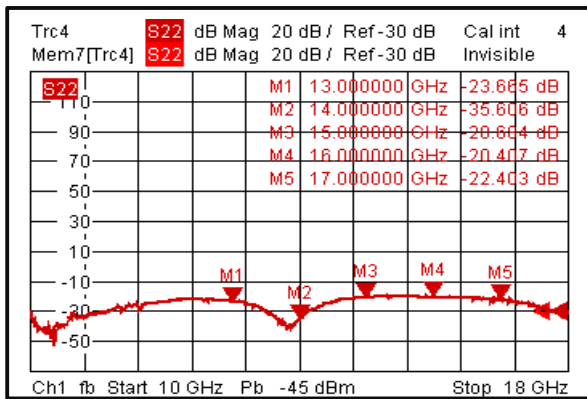
### Gain vs. Frequency



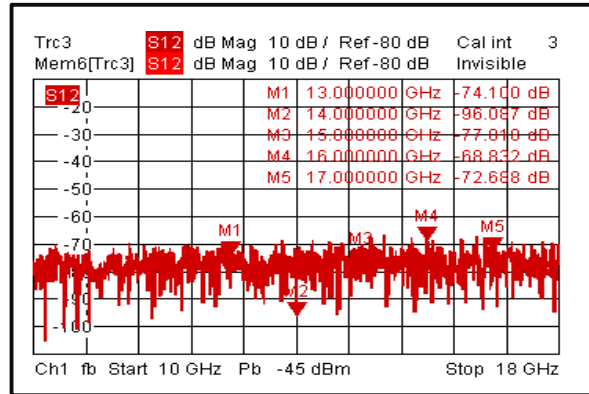
### Input Return Loss



### Output Return Loss



### Isolation



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

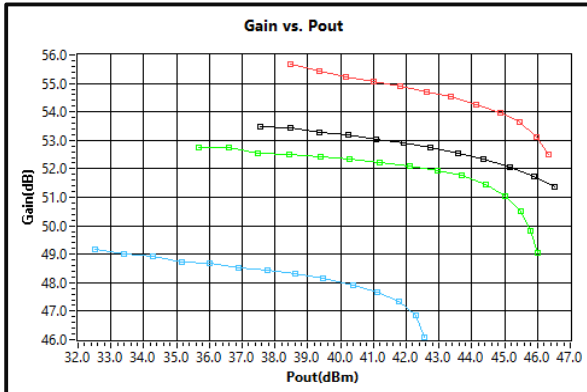


# RF-LAMBDA

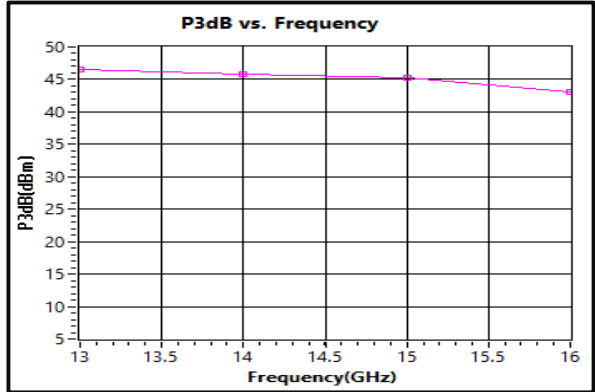
The power beyond expectations

RFLUPA13G17GA

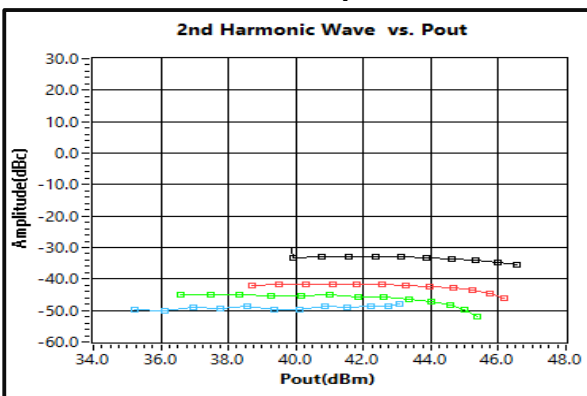
## Gain vs. Output Power



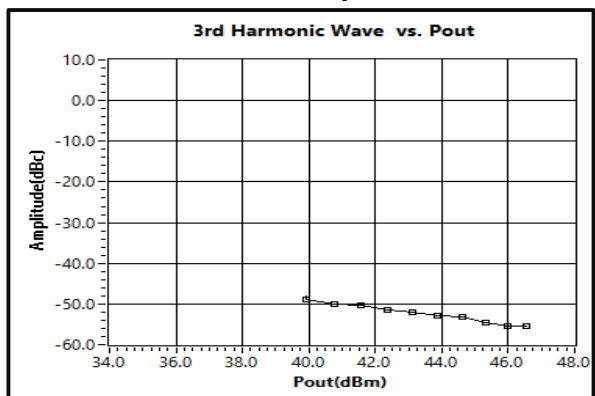
## P3dB vs. Frequency



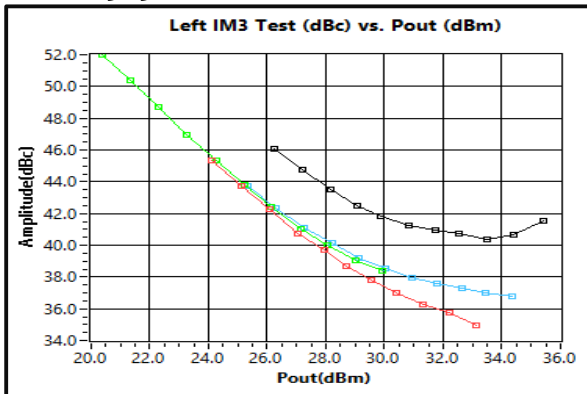
## 2nd Harmonic Wave Output Power



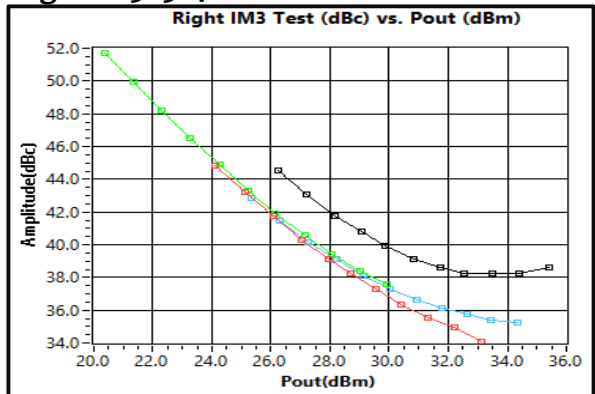
## 3rd Harmonic Wave Output Power



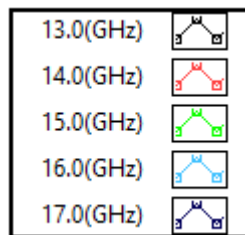
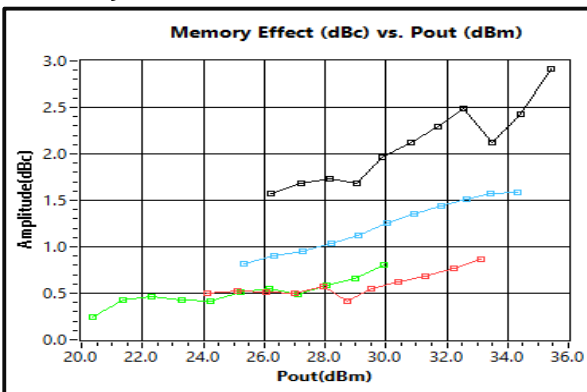
## Left IM3 13-17 GHz



## Right IM3 13-17 GHz



## Memory Effect 13-17 GHz



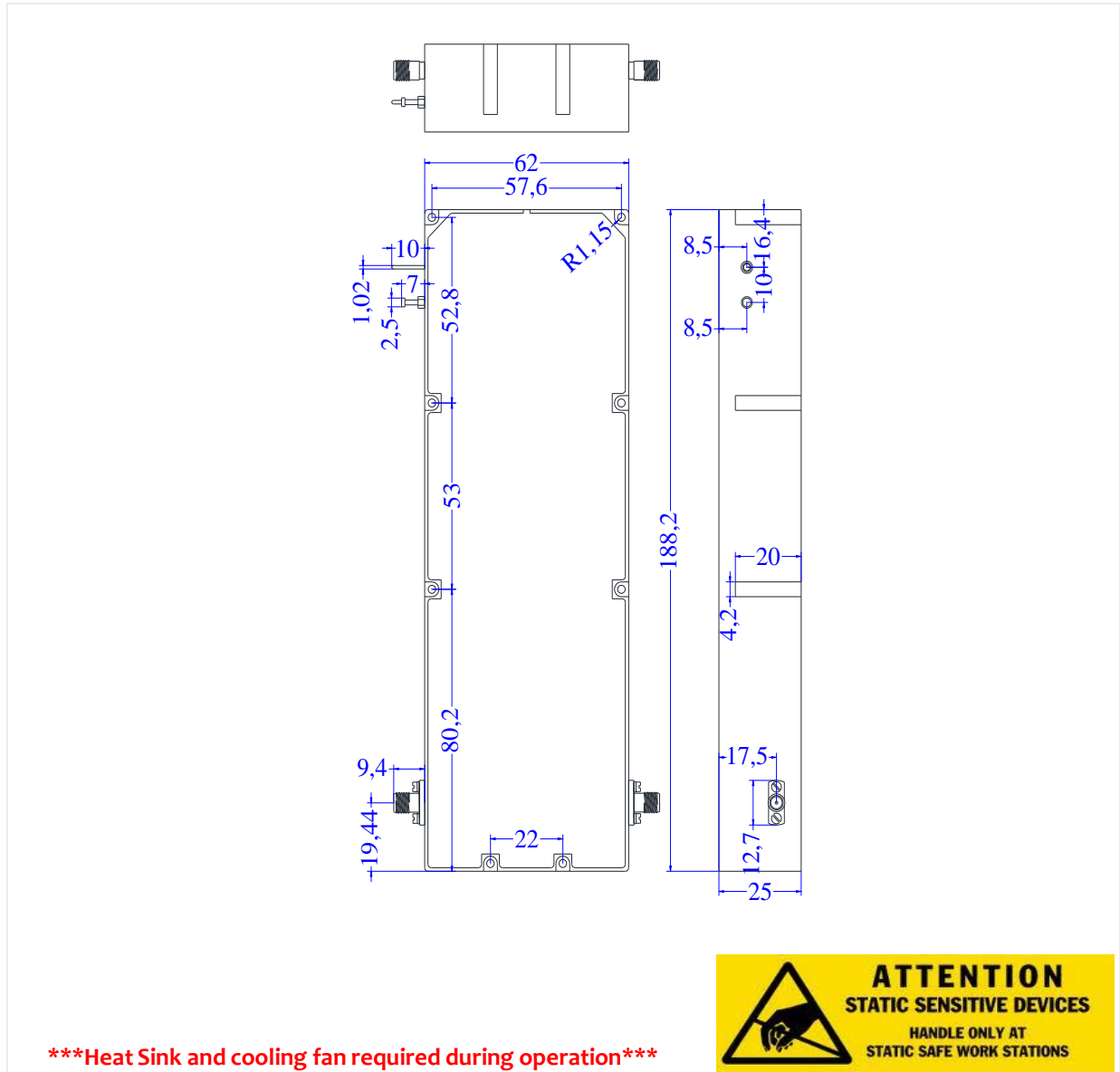
\*\*\*Heat Sink and cooling fan required during operation\*\*\*

40W Ultra Wide Band Power Amplifier 13GHz~16.5GHz



### Amplifier Outline Drawing:

All Dimensions in mm

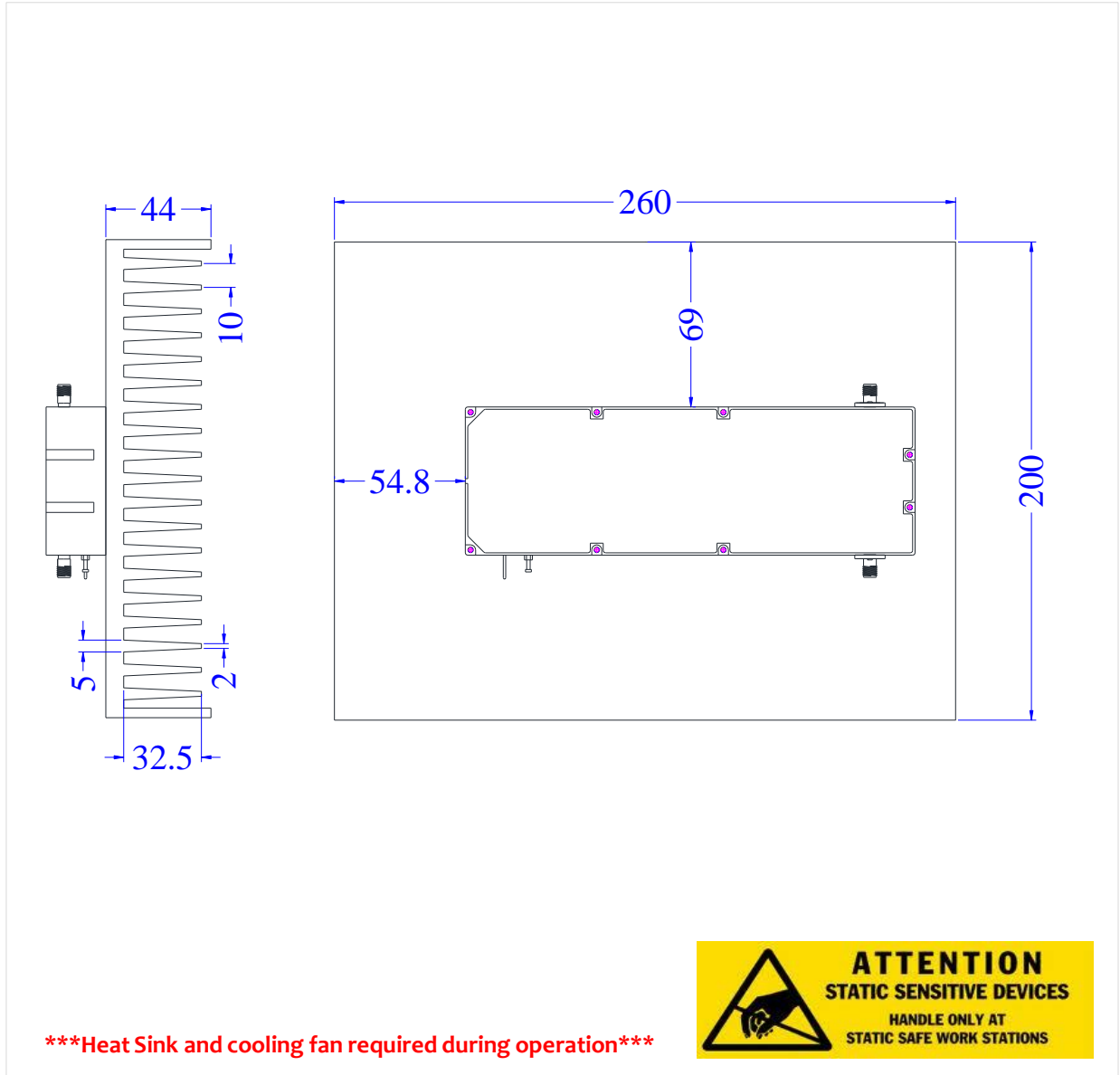


40W Ultra Wide Band Power Amplifier 13GHz~16.5GHz



### Heatsink Outline Drawing:

All Dimensions in mm

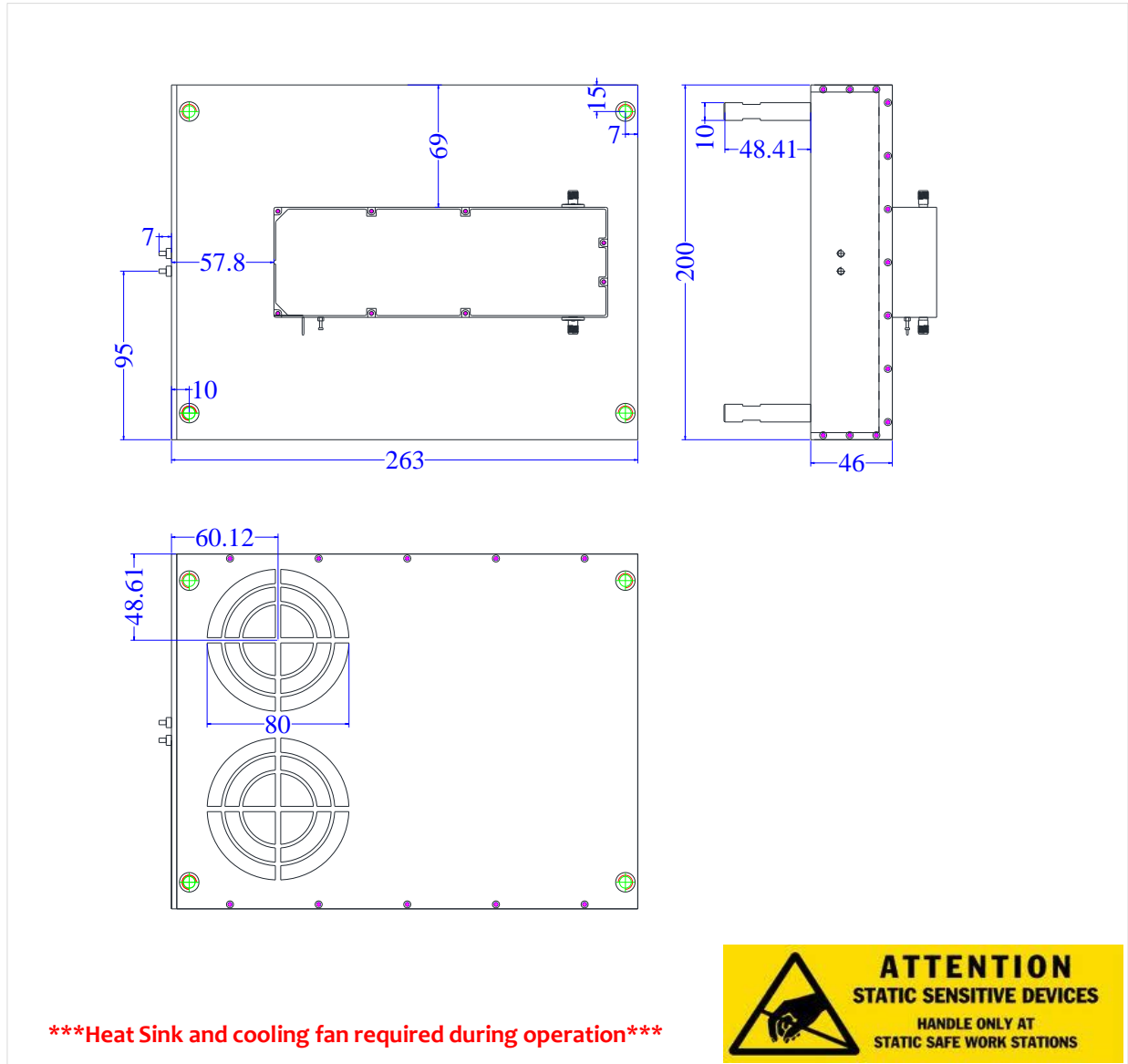


40W Ultra Wide Band Power Amplifier 13GHz~16.5GHz



### Air Cooling System Outline Drawing:

All Dimensions in mm



40W Ultra Wide Band Power Amplifier 13GHz~16.5GHz

### Important Notice

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