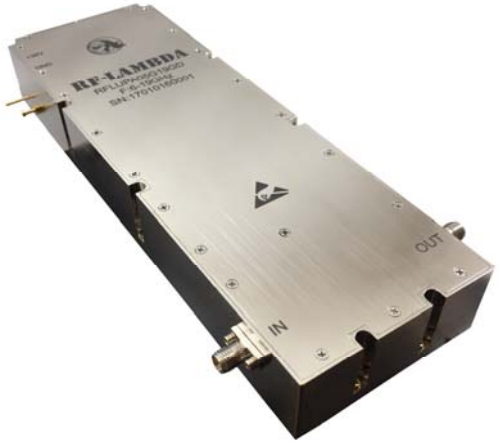
20W Solid State Power Amplifier
6~19GHz



RoHS Compliant

Features

- Wideband Solid State Power Amplifier
- Psat: + 43dBm
- Gain: 55 dB
- Supply Voltage: +36V
- 50 Ohm Matched.

Typical Applications

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

Electrical Specifications, T_A = +25°C, Vcc = +36V

Parameter	Min	Typ	Max	Min	Typ	Max	Units
Frequency Range		6 – 12			12 - 19		GHz
Gain		50			50		dB
Gain Flatness		±6			±5		dB
Gain Variation Over Temperature (-45°C ~ +85°C)		±3			±3		dB
Input Return Loss		12			13		dB
Output Return Loss		7			8		dB
Saturated Output Power (Psat)		43			42		dBm
Supply Current (Vcc=+36V)		1.75	7		1.75	7	A
Isolation S12		80			75		dB
Max Input Power (No Damage)		Psat – Gain			Psat – Gain		dBm
Weight		3000					g
Impedance		50					Ohms
Input / Output Connectors		SMA - Female					
Finish		Nickel Plated					
Material		Aluminum / Copper					
Package Sealing		Epoxy and Screw Tight Sealing (Standard)					
		Hermetically Sealed (Optional with extra charge)					

* 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	+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.

Biasing Up Procedure	
Step 1	Connect ground
Step 2	Connect input and output with 50 Ohm source/load. (in band VSWR<1.9:1 or >10dB return loss)
Step 3	Connect +36V
Power OFF Procedure	
Step 1	Turn off +36V
Step 2	Remove RF connection
Step 3	Remove ground

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

Ordering Information		
Part No.	ECCN	Description
RFLUPA0519GD	3A001.b.4.b.4	6GHz~19GHz 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 of RF-Lambda amplifiers will go through power and temperature stress testing.
Due to fragile of the die, IC or MMIC, those are not covered by warranty. Any damage to those will NOT be free to repair.

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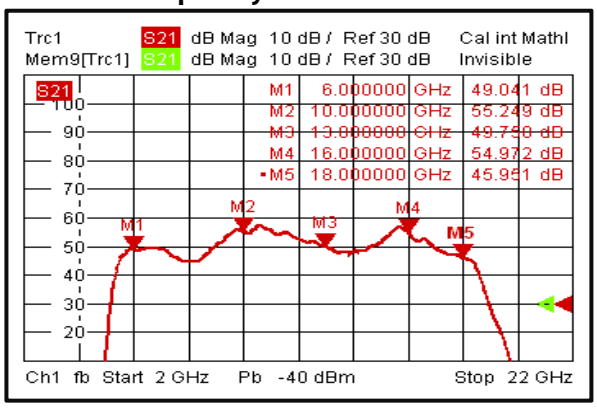
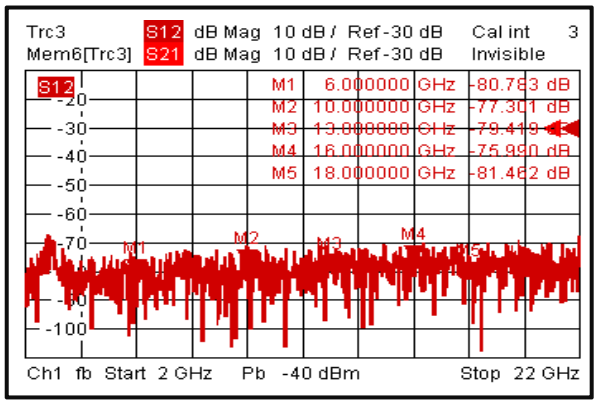
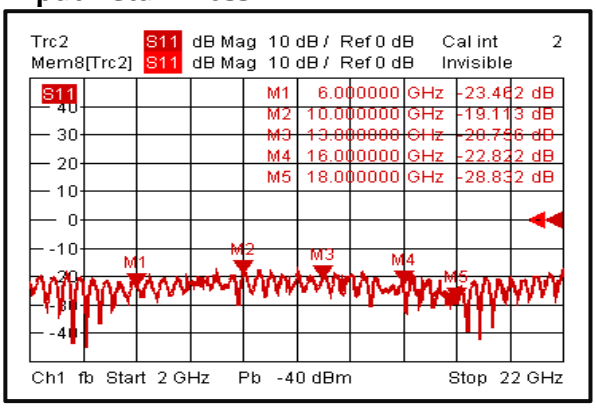
Gain vs. Frequency



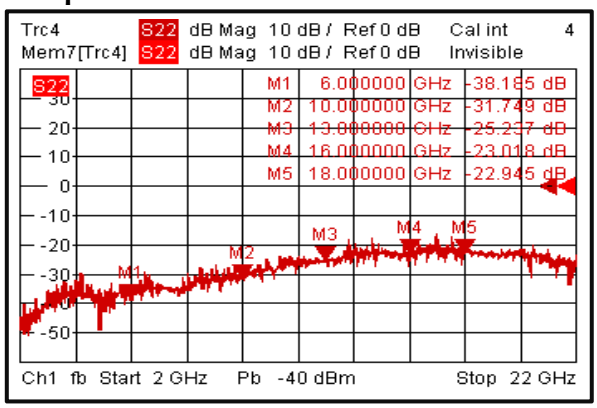
Isolation



Input Return Loss



Output Return Loss



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

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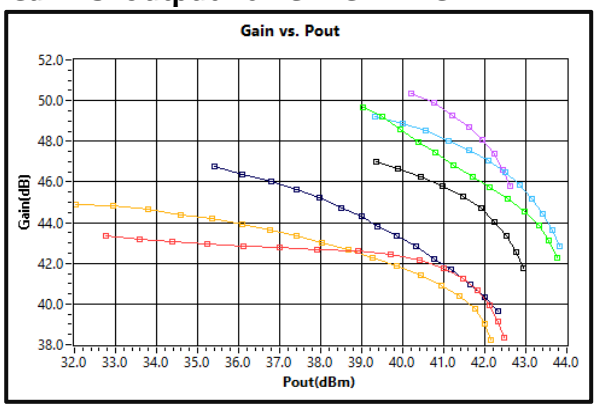
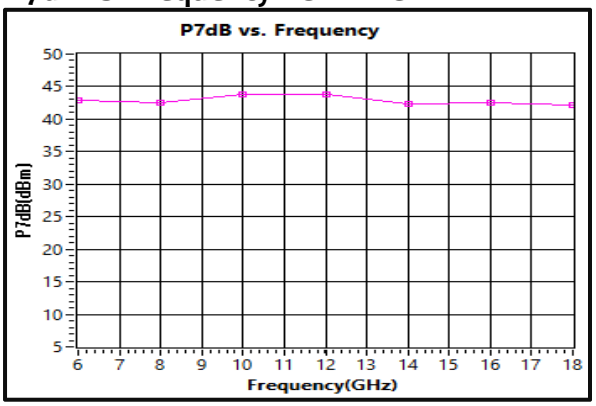
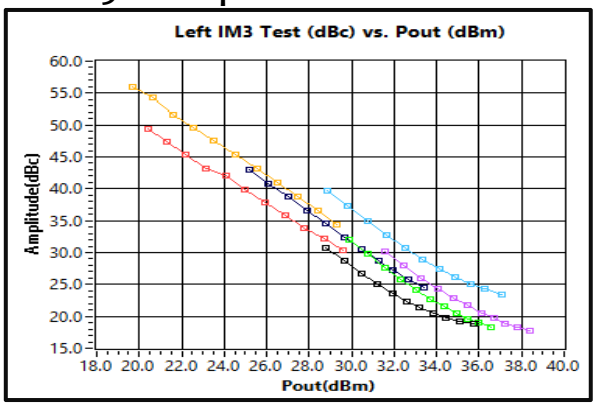
Gain vs. Output Power 6GHz-18GHz



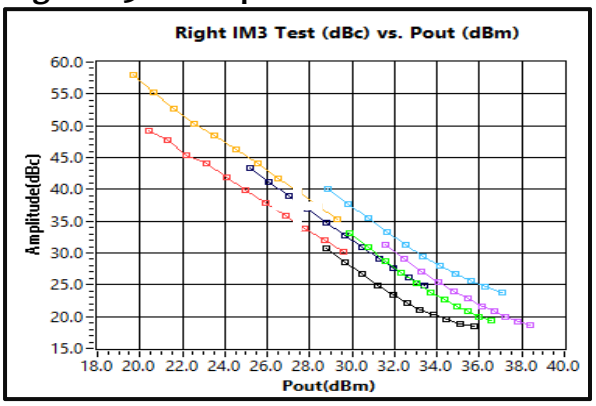
P7dB vs. Frequency 6GHz-18GHz



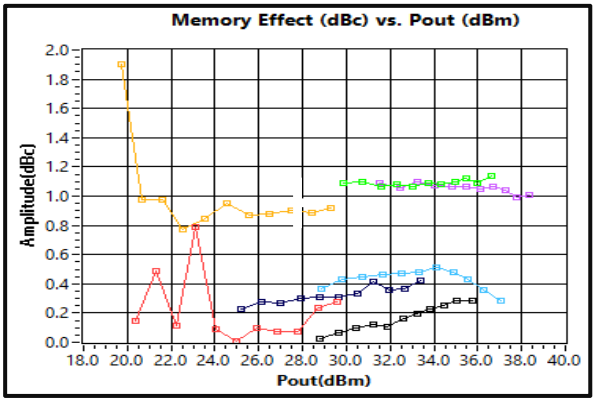
Left IM3 vs. Output Power 6GHz-18GHz

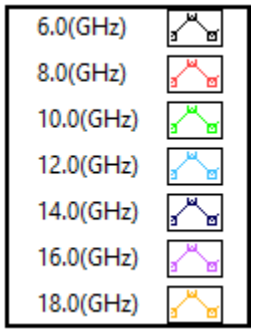


Right IM3 vs. Output Power 6GHz-18GHz



Memory Effect vs. Output Power 6GHz-18GHz





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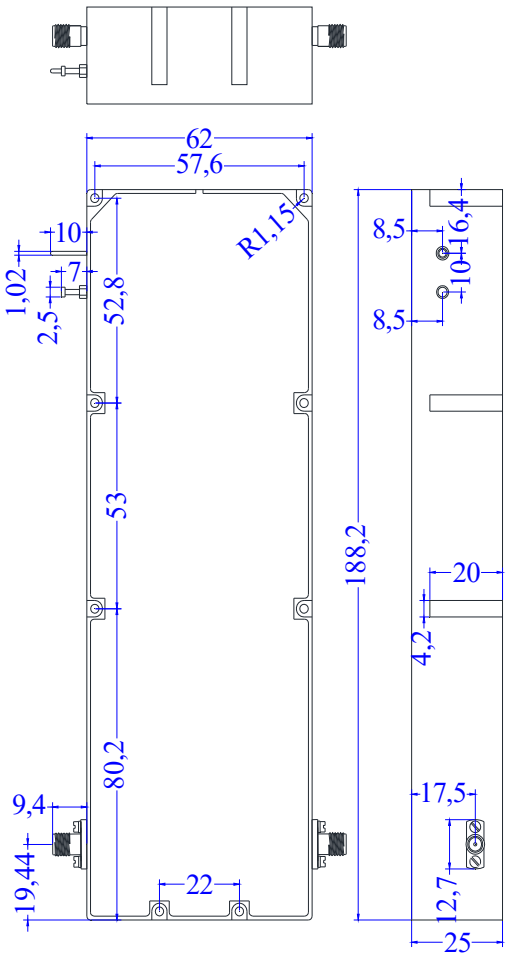
Amplifier Outline Drawing:

All Dimensions in mm



Heat Sink and cooling fan required during operation

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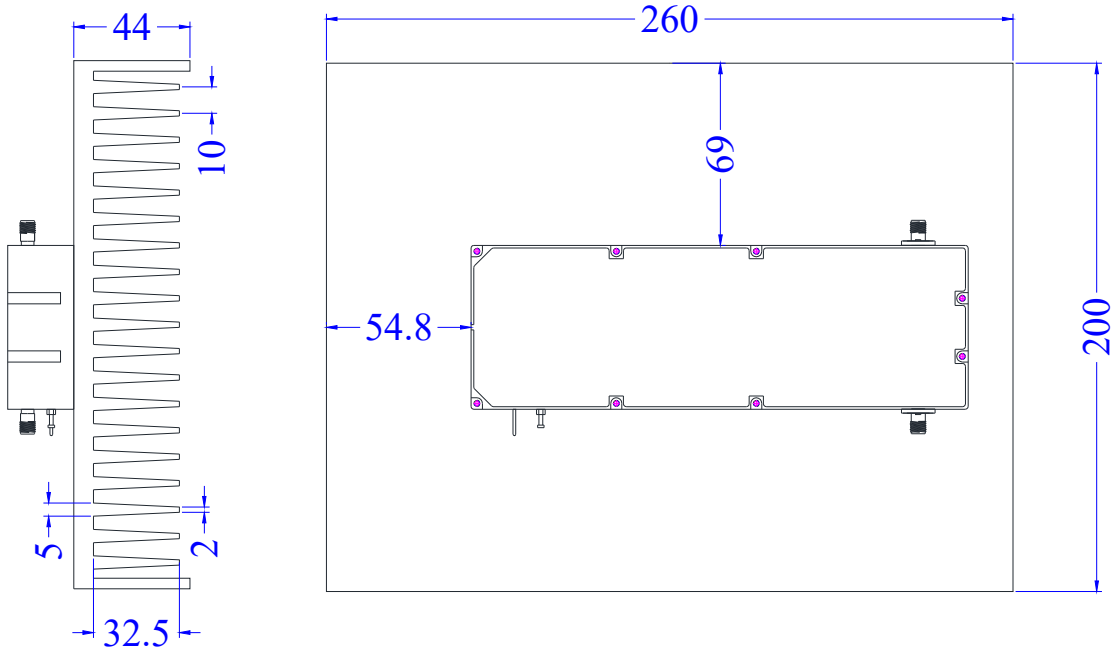
Heatsink Outline Drawing:

All Dimensions in mm



Heat Sink and cooling fan required during operation

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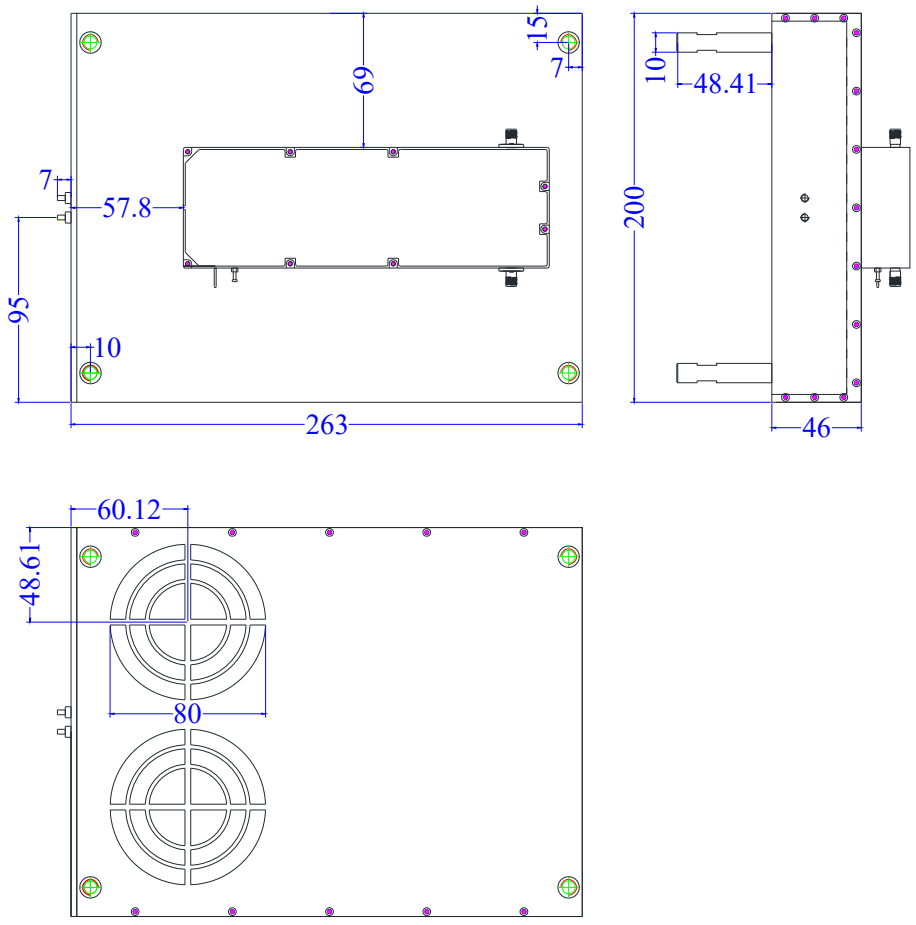
Air Cooling System Outline Drawing:

All Dimensions in mm



Heat Sink and cooling fan required during operation

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