Wide Band Solid State Power Amplifier
0.8GHz-3GHz

Note: The photo is for illustration purposes only.
Please refer to outline drawing.

Product Description

RFLUPA0830GQ is a wideband solid state power amplifier with a frequency range of 0.8 to 3GHz.

The power output of this amplifier is 47dBm typical. The typical gain is 55dB with a flatness of ±1.5dB. This power amplifier works with a +28 VDC power supply.

The working temperature of this product is between - 20℃ and + 60℃

Features

- Wideband Solid State Power Amplifier
- Gain 47dB Typical
- Output Saturation Power 47dBm Typical
- Supply Voltage +28VDC
- 50 Ohm Matched Input/Output

Typical Applications

- Wireless Infrastructure
- Military and Aerospace Applications
- Test Instrumentation
- Radar Systems
- 5G Wireless Communications
- Microwave Radio Systems
- TR Modules
- Research and Development
- Cellular Base Stations

Electrical Specifications (T_A=+25ºC)

Parameter	Min	Typ	Max	Units
Frequency Range		0.8 – 3		GHz
RF Output Power		47		dBm
Power Gain		55		dB
Power Gain Flatness		±1.5		dB
Noise Figure		11		dB
Input Return Loss			-10	dB
Harmonics @20W		-15		dBc
Spurious Signals		-60		dBc
Operating Voltage	24	28	32	Volt
DC Current @40W		6		Amp
Switch On/Off@10-90% Time		2	5	us
DC Current @ Shutdown		0.3		Amp
Weight		0.8[1.76]		Kg/lbs.
Impedance		50		Ohms
Input / Output Connectors		SMA-Female(Input) - SMA-Female(Output)		
Package		Epoxy Sealed (Standard)		
		Hermetically Sealed (Optional)		

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Absolute Maximum Ratings

Parameter	Rating
Input RF drive level without damage	+10dBm(Max)
Load VSWR @ POUT =20W	∞ @ all load phase & amplitude for duration of 1 minute; 3:1 @ all load phase & amplitude continuous
Over Temperature Shutdown	85°C @ heatsink (restored @ 60°C)

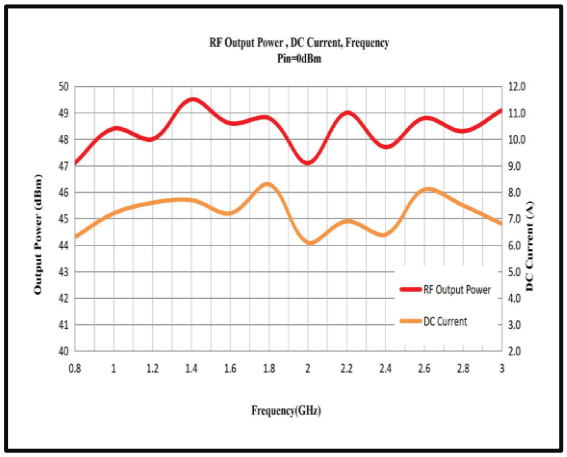
Environmental Specifications and Test Standards

Parameter	Description
Operational Temperature	-20ºC to +60ºC (Case Temperature)
Storage Temperature	-40ºC to +85ºC
Thermal Shock	-20ºC → +60ºC (5 Cycles / 10 hours)
**Random Vibration	MIL-STD-202G Table 214-I, Test Condition Letter C 1.5 Hours Per Axis
High Temperature Burn In	Temperature +85ºC 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 (For Hermetically Sealed Units)

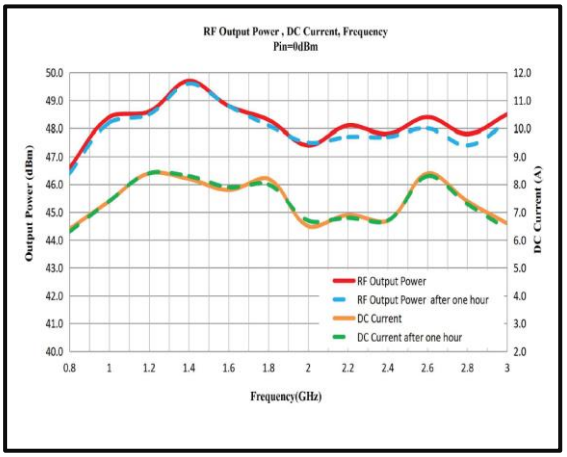
*Maximum RF input power is set to assure safety of amplifier. Input power may be increased at own risk to achieve full power of amplifier. Please reference gain and power curves.
**For vibration testing details please see additional information section.

Typical Performance Plots

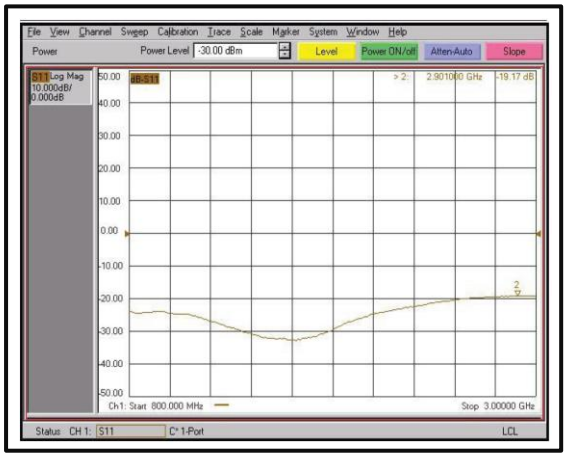
RF Output Power and Current



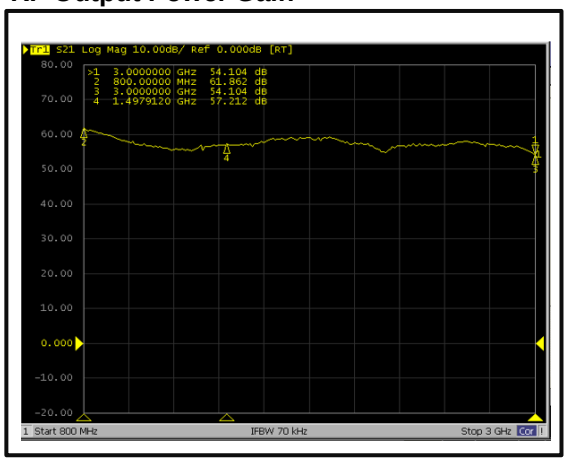
RF Output Power and Current at 63℃



Input Return Loss

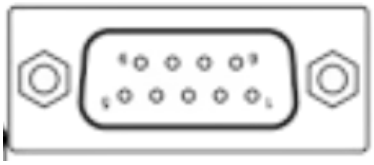


RF Output Power Gain



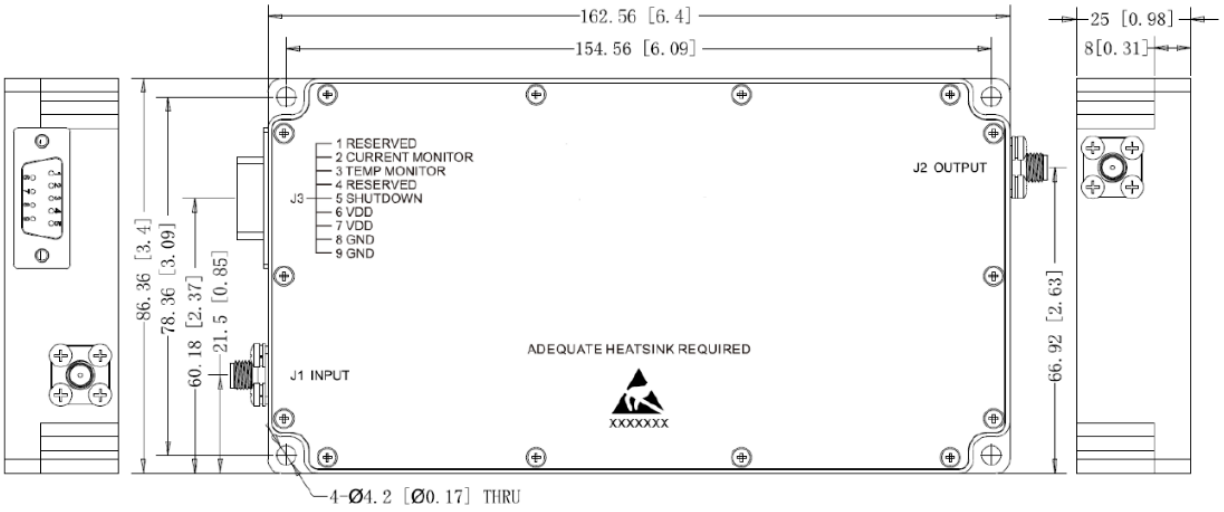
DC Interface Connector

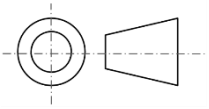
Male D-Sub 9-Pin is on the housing



Pin #	Description	Specifications
1	Reserved	No Connection
2	Current Monitor	Analog voltage relative to IDD @ 100mV per Ampere
3	Temp Monitor	Analog voltage relative to module temperature @ 10mV/°C
4	Reserved	No Connection
5	Shutdown	Amplifier Disable: TTL Logic High (5V)
6,7	VDD	+28VDC
8,9	GND	Ground

Outline Drawing





Notes:
1. Package Material: Aluminum
2. Finish: Nickel Plated
3. All dimensions are in millimeters [inches].
4. Tolerances ±0.2 [0.008] unless otherwise specified.
5. Standard torque wrench must be used for RF connections

Additional Information

Documentation	Webpage
ESD Policy	https://rflambda.com/pdf/rflambda_esd_control.pdf
Connector Torque Specifications	https://www.rflambda.com/pdf/Torque_Specifications.pdf
Random Vibration Test Standard	https://www.rflambda.com/pdf/rflambda_random_vibration_MIL-STD-202G.pdf

Ordering Information

Part Number	Modification	Description
RFLUPA0830GQ	Input connector SMA-Female and Output connector SMA-Female	0.8GHz-3GHz Wide Band Solid State 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.

Important Notice

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