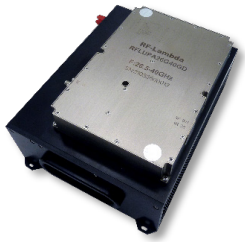
Wide Band Solid State Power Amplifier
26.5GHz-40GHz



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

Product Description

RFLUPA26G40GE is a wide band power amplifier with a frequency range of 26.5 to 40GHz.

The power output of this amplifier is 48dBm typical. The typical small signal gain is 55dB with a gain flatness of ±6dB. This performance is achieved through the use of GaN devices. This power amplifier works with typically +48 VDC power supply.

The power amplifier input connector is 2.92mm-female and output connector is WR28 (E-Plane).

The operating temperature of this product is -40 to +70ºC.

Features

- Solid State Power Amplifier
- Small Signal Gain 55dB Typical
- Output Saturation Power 48dBm Typical
- Supply Voltage +48 VDC
- 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		26.5		40	GHz
Small Signal Gain		50	55		dB
Gain Flatness			±6.0		dB
Gain Variation Over Temperature (-40ºC to +70ºC)			±3.0		dB
Input Return Loss			10		dB
*Output 1dB Compression Point (P1dB)			46		dBm
*Saturated Output Power (Psat)		45	48		dBm
RF ON/OFF Speed (IDQ on)			100		ns
Isolation S12			-60		dB
Supply Current (Vcc=+48V)			16	20	A
Power Added Efficiency (PAE)			10		%
Time Division Duplexing (TDD) Blanking	ON		2000		us
	OFF		500		us
Weight	Net		/		lbs.
	Including Heat Sink		/		
Impedance			50		Ohms
Input / Output Connectors			2.92mm-Female(Input) – WR28(Output, E-Plane)		
Package			Epoxy Sealed (Standard)		
			Hermetically Sealed (Optional)		

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Absolute Maximum Ratings

Parameter	Rating
Supply Voltage Range	+50VDC
*RF Input Power (RFIN)	+5dBm

Bias Up Procedure

1. Connect ground.
2. Connect input and output with 50 Ohm source/load. (In band VSWR < 1.9:1 or >10dB return loss.)
3. Connect positive supply and make sure power supply can handle max current.

Bias Down Procedure

1. Turn off power supply
2. Remove positive supply Connection
3. Remove RF Connection
4. Remove ground

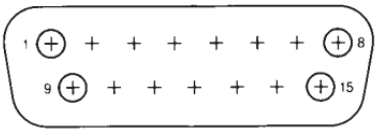
Environmental Specifications and Test Standards

Parameter	Description
Operational Temperature	-40ºC to +70ºC (Case Temperature)
Storage Temperature	-50ºC to +105ºC
Thermal Shock	-40ºC → +85ºC (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 +70ºC 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.

Protection Connector Table

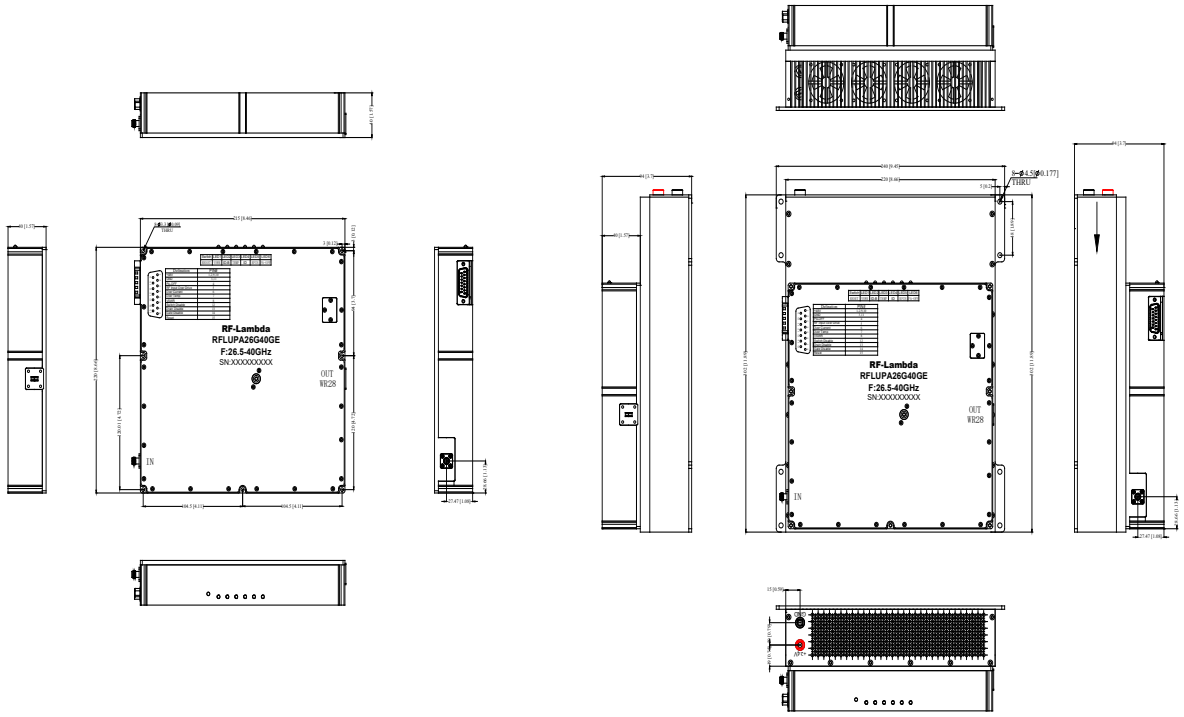
Male D-Sub is on the housing
The mating Female part number: 172-E15-203R001



Pin #	Name	Function	Initial State	Description	Applied
1,2, 9,10	VDD	Power Supply	+48V	+48V DC Supply Voltage	Yes
3,11	GND	Ground	GND	Ground	Yes
4	PA_OFF	Indicator	LOW	Amplifier working state, high level is off	Yes
5	RF Input Over Drive	Indicator	LOW	Pin will be latched to logic HIGH when input signal is over limit	Yes
6	Over Current	Indicator	LOW	Pin will be latched to logic HIGH when drain current limit is reached or current imbalance	Yes
7	Over Temp	Indicator	LOW	Pin will be latched to logic HIGH when amplifier is driven over temperature	Yes
8	VSWR	Indicator	LOW	Pin will be latched to logic HIGH when output reflection is over limit	No
12	Switch Disable	Control	HIGH	Applying logic LOW disconnect RF signal of amplifiers	Yes
13	Drain Disable	Control	HIGH	Applying logic LOW disable drains of amplifiers	Yes
14	Gate Disable	Control	HIGH	Applying logic LOW disable gates of amplifiers	Yes
15	Reset	Control	HIGH	Resets PA when logic LOW is applied and released	Yes

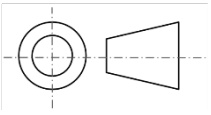
Notes:
- HIGH/LOW voltages are standard TTL signals 0.0V-0.8V = LOW. 2V-5V = HIGH. Input current is 10uA.
- Matching connector and cable will be shipped with the product.
- Applied=Yes means the feature is included. Applied=No means the feature is not included with this model.
- 5V reference supply can source 700mA.
- Indicator output signals can source 24mA.

Outline Drawing



Notes:

1. Package Material: Copper
2. Plating: Nickel
3. All dimensions are in millimeters [inches].
4. Tolerances ±0.1 [0.004] unless otherwise specified (Excl Heat Sink).
5. Heat sink required during operation (sold separately). Matching heatsink is listed on our website. If customer would like to use their own cooling method, please make sure the amplifier will operate under the specs that listed in page 2 of this datasheet.
6. DB15 cable is configured for power connection port by default (RFCBLADB15)
7. Heat Sink required during operation (Sold Separately)
8. Standard torque wrench must be used to secure RF connectors



Packing List

ID	Description	QTY
1	Fig a. Fan adapter	1
2	Fig b. DB15 cable (RFCBLADB15)	1

Fig a.

Fig b.

Additional Information

Documentation	Webpage
ESD Policy	https://rflambda.com/pdf/rflambda_esd_control.pdf
Heatsink Lookup Specifications	https://rflambda.com/search_heatsink.jsp
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
RFLUPA26G40GE	Input Connector 2.92mm-Female and Output Connector WR28	26.5GHz-40GHz 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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