

Ultra Wide Band Power Amplifier 20 - 54GHz



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

Key Features

- Ultra Wide Band Power Amplifier
- Frequency Range 20-54GHz
- Output Power 30dBm Typical
- Noise Figure 7dB

Typical Applications

- Wireless Infrastructure
- Military and Aerospace
- Test and Measurement
- Radar and Satellite
- 5G LTE Communications

Electrical Specifications, TA =+25°C

| Description | RFLUPA20G54GA | | | | | | |
|-------------------------------------|---|-----|-------------|-----|-----|-----|-------|
| | Ultra Wide Band Power Amplifier | | | | | | |
| Parameter | Min | Typ | Max | Min | Typ | Max | Units |
| Frequency Range | 20-40 | | 40-54 | | | | GHz |
| Gain | | 50 | | | 50 | | dB |
| Gain Variation Over Temperature | | ±3 | | | ±3 | | dB |
| Noise Figure | | 7 | | | 6 | | dB |
| Input Return Loss | | 15 | | | 15 | | : 1 |
| Output Return Loss | | 19 | | | 15 | | : 1 |
| Output 1dB Compression Point (P1dB) | | 28 | | | 26 | | dBm |
| Saturated Output Power (Psat) | | 30 | | | 27 | | dBm |
| Output Third Order Intercept (IP3) | | 38 | | | 36 | | dBm |
| Supply Current (Vcc = +36V) | | 700 | 850 | | 700 | 850 | mA |
| DC Voltage | | 36 | | | 36 | | V |
| Isolation S12 | | 60 | | | 60 | | dB |
| Maximum Input Power | Psat - Gain | | Psat - Gain | | | | dBm |
| Weight | 125 | | | | | | g |
| Impedance | 50 | | | | | | Ohms |
| Input / Output Connectors | 2.4mm – Female | | | | | | |
| Finish | Gold Plated | | | | | | |
| Material | Aluminum / Copper | | | | | | |
| Environmental Seal | Epoxy (Standard) Hermetic (Optional) | | | | | | |

Absolute Maximum Ratings

| Parameter | Value |
|----------------|-----------------|
| Biassing | +40VDC |
| RF Input Power | Psat – Gain Sat |

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 and Test Standards

| Parameter | Description |
|--------------------------------|---|
| Operational Temperature | -40°C to +55°C (Case Temperature less than 85°C) |
| Storage Temperature | -50°C to +125°C |
| Thermal Shock | -40°C → +85°C (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 +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 (For Hermetically Sealed Units) |

Ordering Information

| Part Number | Description |
|---------------|---------------------------------|
| RFLUPA20G54GA | Ultra Wide Band 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.

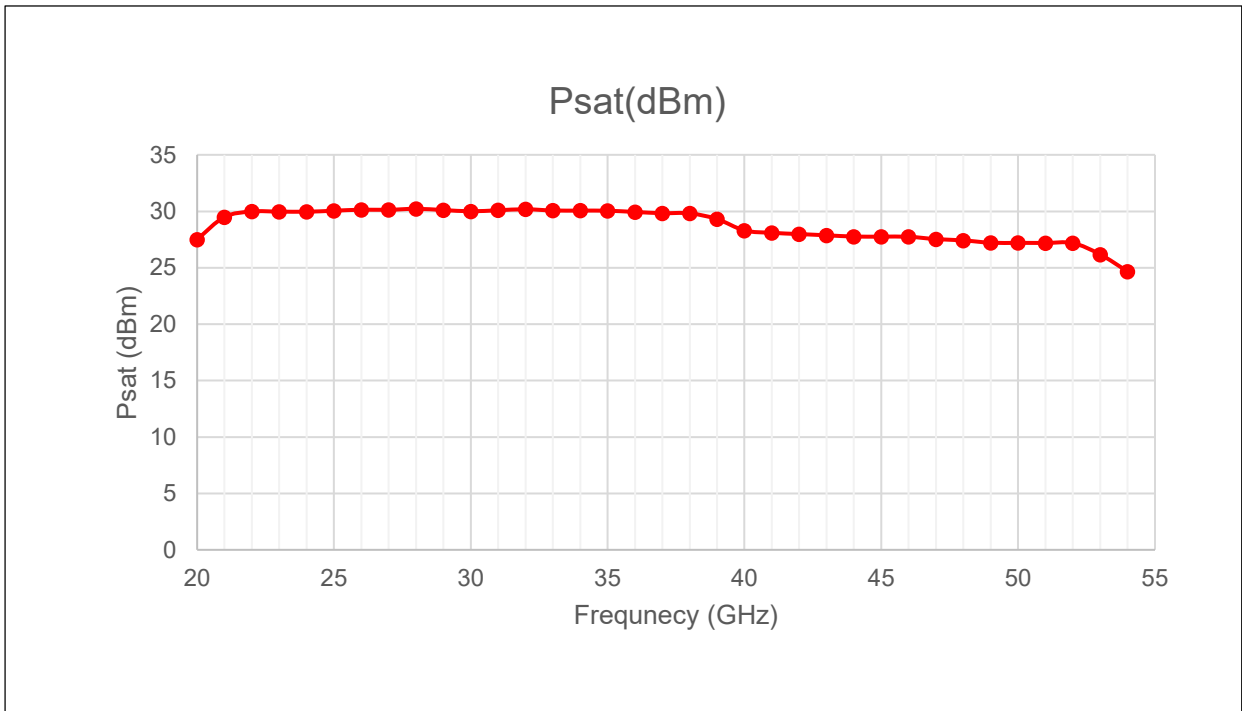
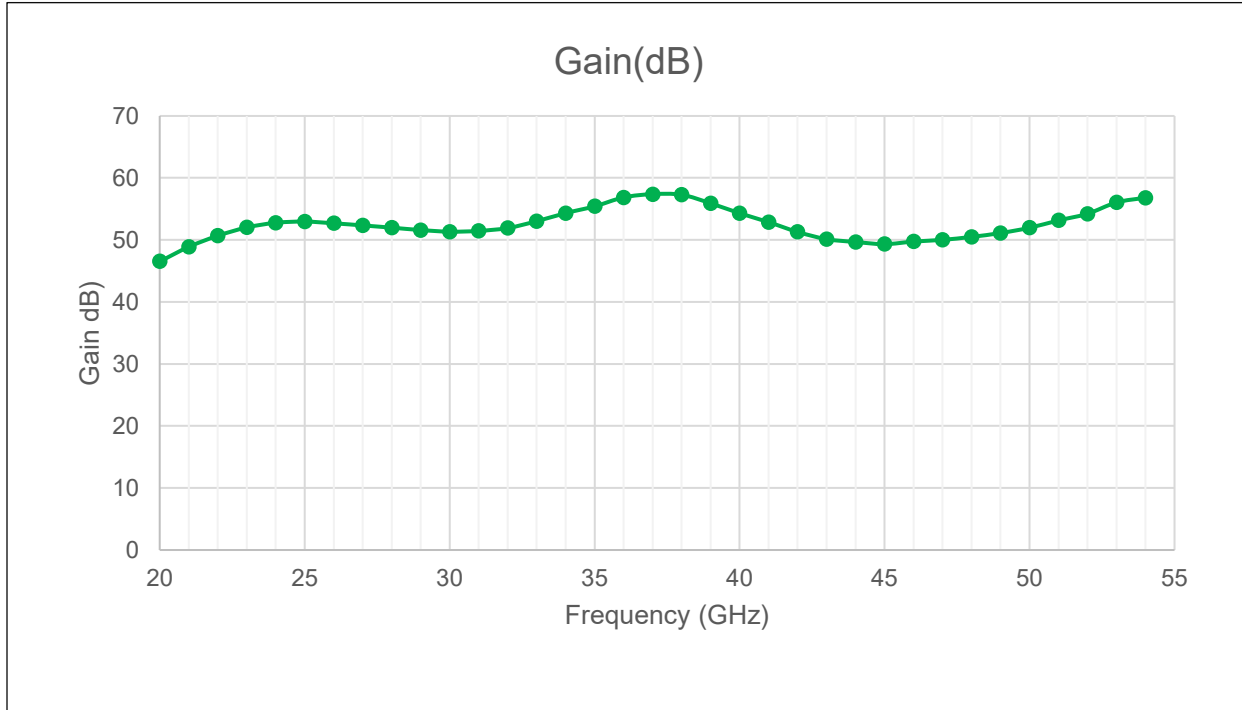
Amplifiers do not contain Thermal protection, Reverse DC polarity or Over voltage protection with the exception of a few models. Please inquire.

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

What is not covered with warranty?

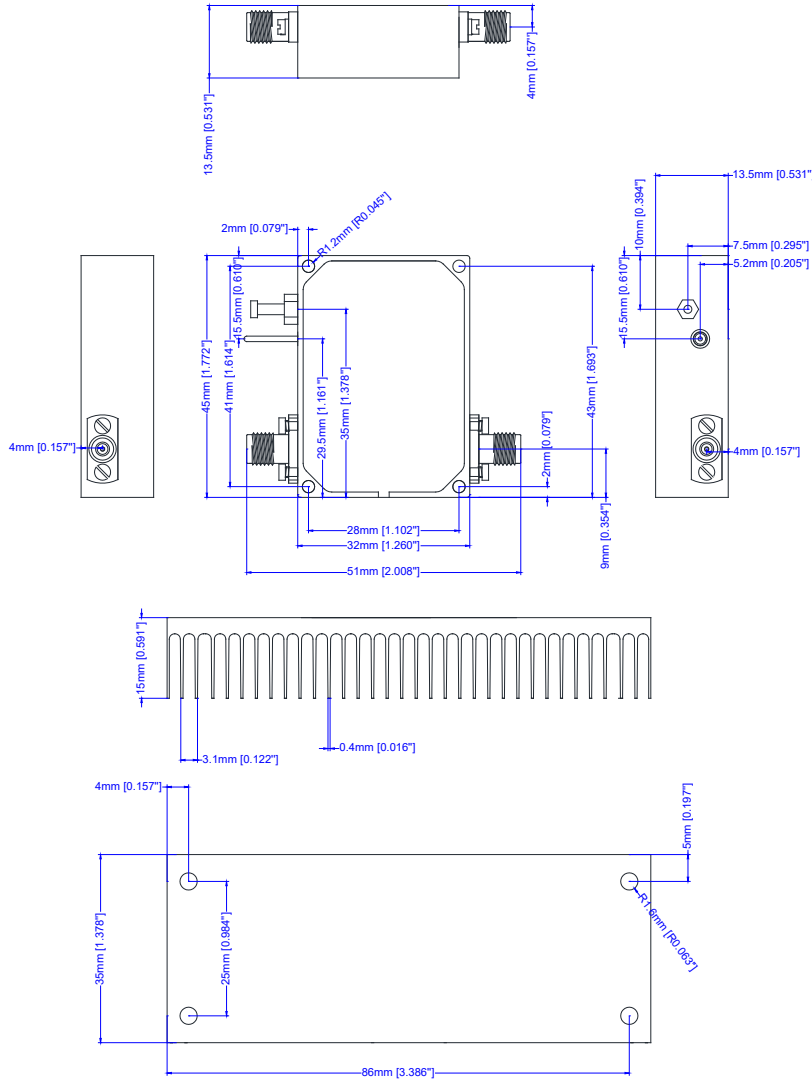
Each RF - Lambda amplifier will go through power and temperature stress testing. Since the die, ICs or MMICs are fragile, these are not covered by warranty. Any damage to these will NOT be free to repair.

Typical Performance Plots



Outline Drawing

All Dimensions in mm [inches]



Notes:
 Standard torque wrench must be used to secure RF connectors.
 Heatsink and Fan Mandatory for operation.
 Final Dimensions subject to change.



Important Notice

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