

RigExpert WGA500

100-1200 MHz Automatic Rx/Tx RF Signal Amplifier

10W Wideband GAN Power Amplifier

Product Overview

- The ultra-wideband bidirectional amplifier is designed for use in analog and digital communication systems.
(UAV / HAM / IoT / UGV etc.)
- **Model WGA500** is a bidirectional amplifier that automatically switches between RX/TX modes depending on the input signal level (if no signal is present at the input, it switches to RX mode).
- Operating frequency range: 100 MHz – 1200 MHz
- Automatic switching (VOX) between receive and transmit modes



Applications

- UAV / Drone control systems
- Amateur radio (HAM)
- IoT / wireless sensor networks
- Lab testing & RF measurements
- Radio broadcasting / data transmission
- Mobile base or temporary communication stations
- EMC / interference testing – simulating
- Radio telemetry systems
- Unmanned ground vehicles (UGVs)

Main Features

- Operating frequency range: 100 MHz – 1200 MHz
- Impedance: 50 Ω
- Built-in LPF cutoff frequency (RX/TX): 1200 MHz (can be customized to customer requirements: 320¹, 490¹, 570¹, 630¹, 800¹, 850, 1000 MHz).
- Saturation power: P@3dB – 13 W @ 550 MHz
- Average power across operating range: 10 W
- Maximum TX input level: 30 dBm / 1 W (can be adjusted to customer requirements from 15 to 30 dBm)
- RX gain (average): 8.6 dB
- Maximum RX input level: –15 dBm
- Switching speed between TX and RX: ≤ 1180 ns
- Supply voltage: 12–24 V (recommended 18 V)
- Max current consumption RX mode: 500 mA @18 V (9 W)
- Max current consumption TX mode: 1.7 A @18 V (30 W)
- RF connector type: SMA-F
- Power connector type: 4-pin JST PH2.0
- Reverse polarity protection (fuse)
- Active and passive cooling
- Operating temperature: –20...+40 °C
- Dimensions: 100 × 55 × 60 mm
- Weight: 337 g

Note: 1 – For lower frequency bands, with power limited to 8 W

General Recommendations:

1. Do not operate the amplifier in TX mode without an antenna or 50 Ω load.
2. Tighten SMA connectors manually (without tools).
3. Ensure ventilation openings remain unobstructed for reliable cooling.
4. In the basic model, for lower operating frequencies, the use of an external LPF with the required cutoff frequency is recommended.
5. The amplifier is not protected against ingress of moisture, dust, or dirt.
6. The power supply must provide a starting current of at least 3 A.

Amplitude-Frequency Characteristics:

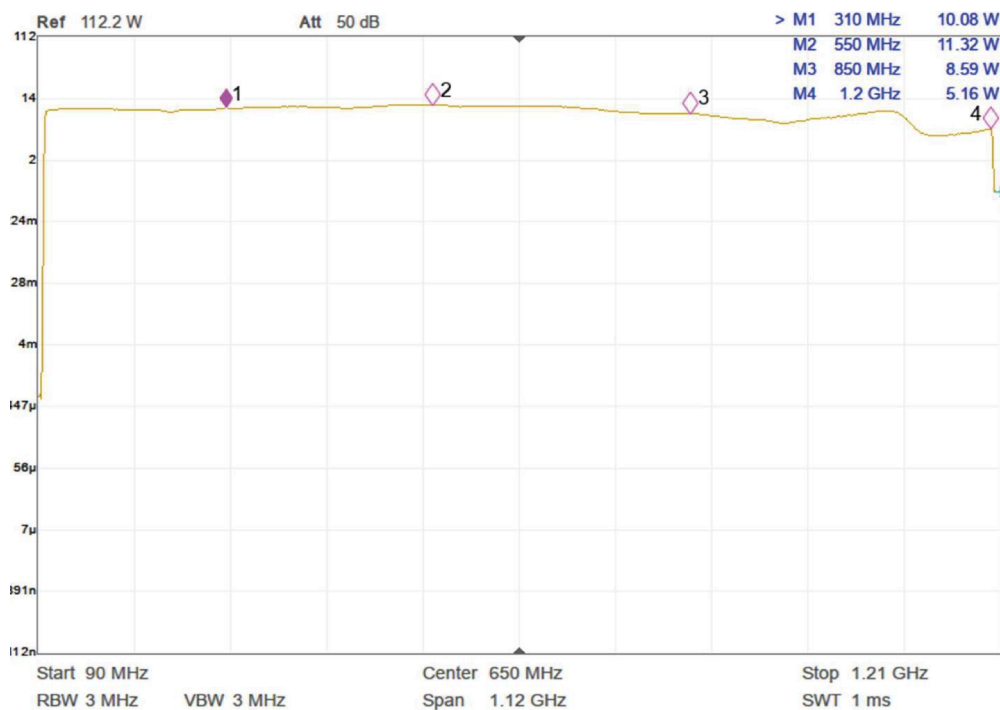


Figure 1 – TX Output Power vs. Frequency

Amplitude-Frequency Characteristics:

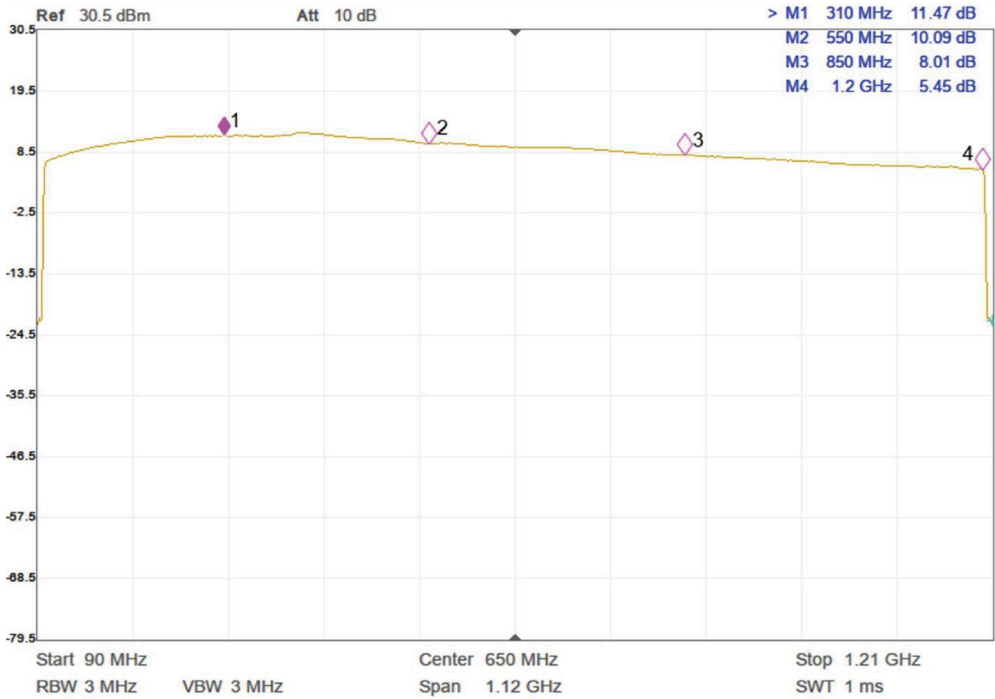


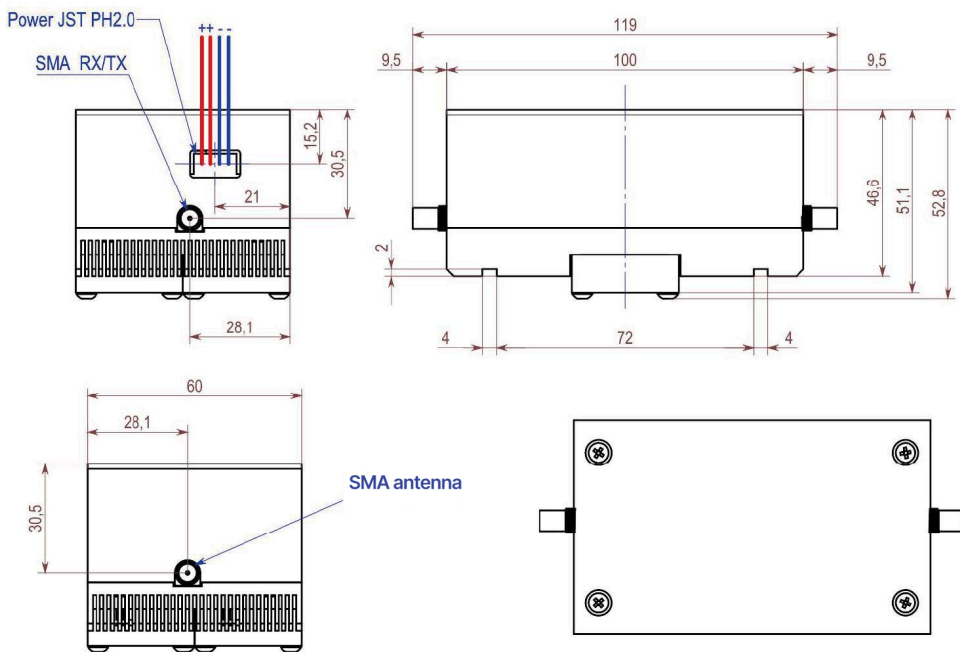
Figure 2 – RX Gain vs. Frequency

⚠ Usage Rules (IMPORTANT):

Before powering on the amplifier, make sure that:

- The power connector is correctly polarized
- Supply voltage is within 12–24 V
- The power supply is capable of delivering at least 40 W
- RF input power does not exceed 30 dBm (1000 mW)
- The amplifier is connected to a load or antenna with 50 Ω impedance
- The antenna's operating range is 100–1200 MHz

Drawings and Dimensions



The + + and -- -- power leads must be paired at the connection point to the power supply.