

RigExpert® 2.4GPA Bidirectional 2.4 GHz Power Amplifier

Product Overview

Bidirectional 2.4 GHz band amplifier, designed for low voltage application. Provides around 10 dB RX gain for small signals in passband and 22 dB for TX. The output power +36 dBm in Pulse mode can be reached and +34 dBm in CW mode. 50 Ohm matched. VOX based TX/RX switching. VOX level can be adjusted by replacing resistors.



1

Applications

- TX/RX Amplifier for UAV Systems
- SDR
- HAM Radio
- IoT
- Test & Measurement

Main Features

- 2.0–2.6 GHz Operation
- Automatic TX/RX switching
- Tiny Size
- Low Voltage Operation, 5 V Power Supply
- 22 dB TX RF gain
- 10 dB RX RF gain
- 34 dBm CW TX Power
- 36 dBm Pulse TX Power
- ESD Protection
- Max switching speed between TX and RX – 10 ms (nominal 5 ms)
- RF connector type: MMCX female
- Power connector type: JST PH2.0 (4-pin)



Specifications

Table 1. Absolute Maximum Ratings

Parameter	Rating
Max RF Input TX Power	14.5 dBm
Min RF Input TX Power	9 dBm
Max RF Input RX Power	-2 dBm
Device Voltage	5.5 V

**Important note: Input TX Power can be adjusted by changing input ATT.

Table 2. Recommended Operating Conditions

Parameter	Min	Typ.	Max.	Units
RF Input TX Power	9	13	14.5	dBm
Device Voltage	+4.75	+5	+5.25	V

Table 3. Electrical Specifications

Parameter	Conditions	Min	Typ.	Max.	Units
Operational Frequency Range		2000		2600	MHz
TX Gain			22		dB
RX Gain			10		dB
Output Power CW	Input RF Power 13 dBm @ 2.4 GHz	33.5	34.5	35	dBm
Output Power Pulse	Input RF Power 13 dBm @ 2.4 GHz	34	35	36	dBm
2 nd Harmonic CW	Output Power 34.4 dBm @ 2.4 GHz		0		dBm
2 nd Harmonic Pulse	Output Power 35 dBm @ 2.4 GHz		2		dBm
Power Consumption in TX	Input RF Power 13 dBm @ 2.4 GHz		9.1		W
Power Consumption in RX			0.3		W

Mechanical Specifications

Table 4. Dimensions and weight

Dimensions, mm	40 x 56 x 15
Weight, g	51

Laboratory measurement results

NOTICE. All measurements are done with 5 V power supply and room temperature 22°C.

Figure 1. LNA Gain sweep. Input RF signal -20 dBm

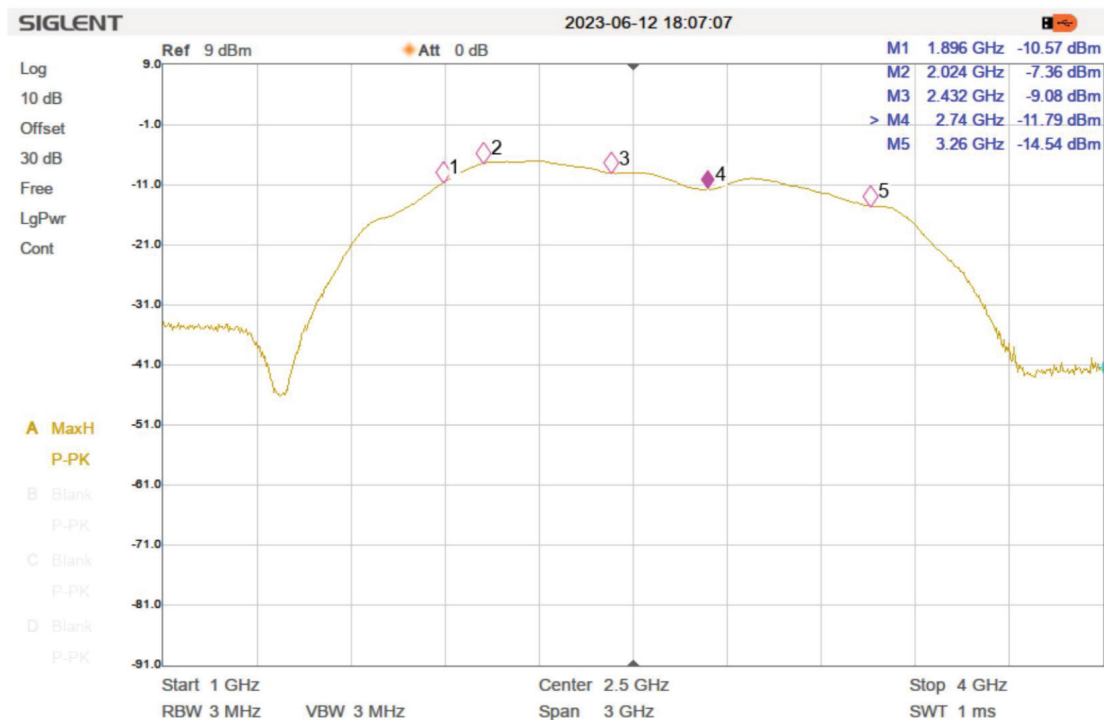


Figure 2. LNA Gain sweep. Input RF signal -40 dBm

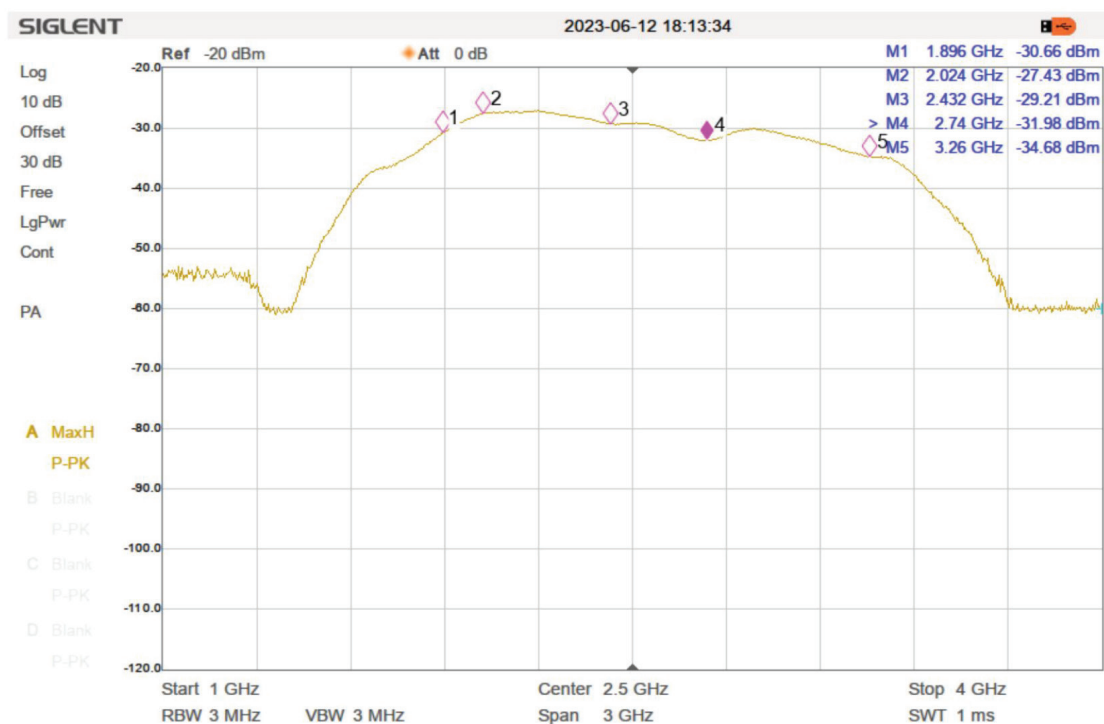


Figure 3. PA Gain sweep. Input RF signal CW 13 dBm

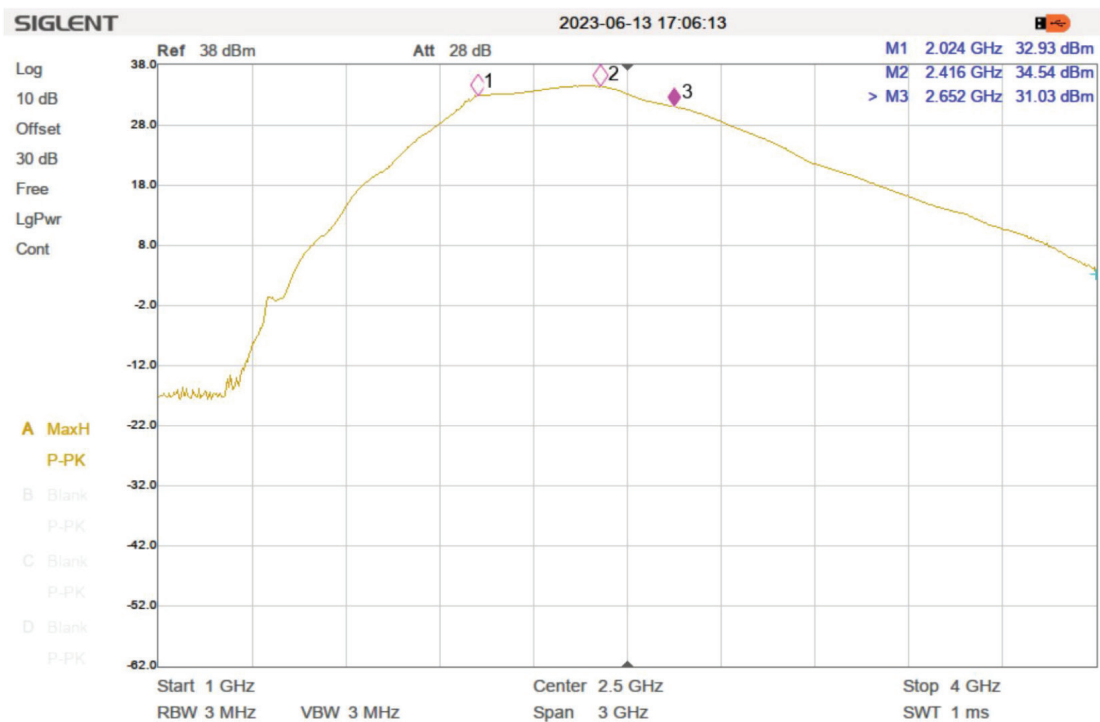


Figure 4. PA Gain sweep. Input RF signal Pulse 13 dBm

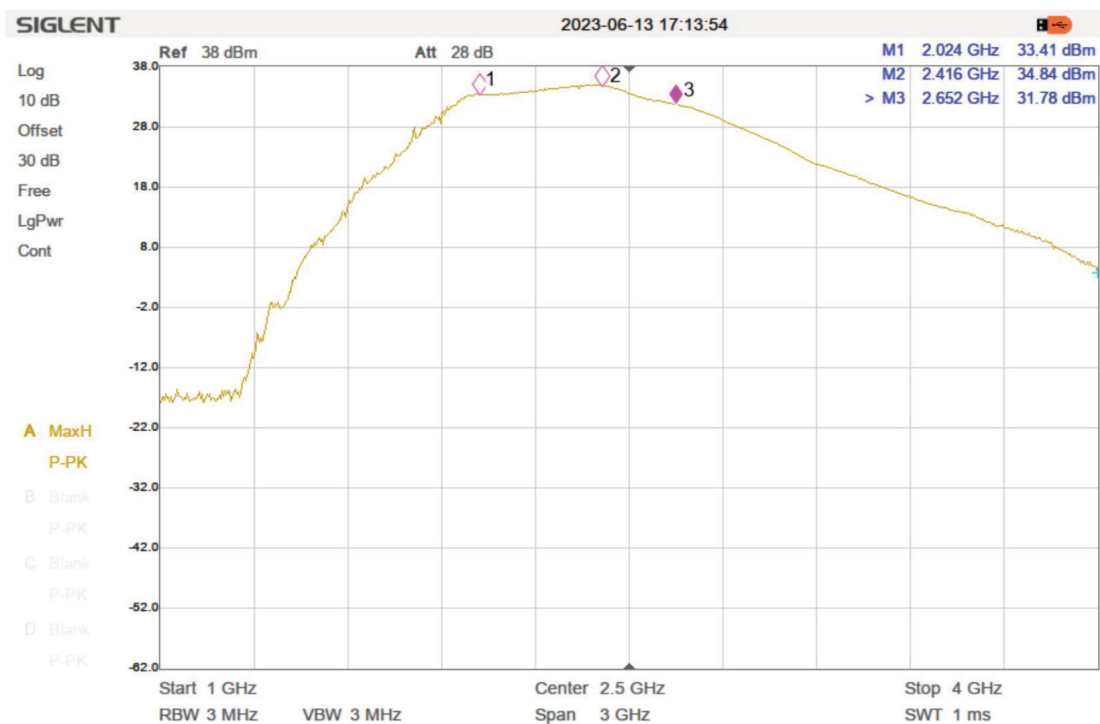


Figure 5. PA Gain. Input RF signal CW 13 dBm @ 2400 MHz

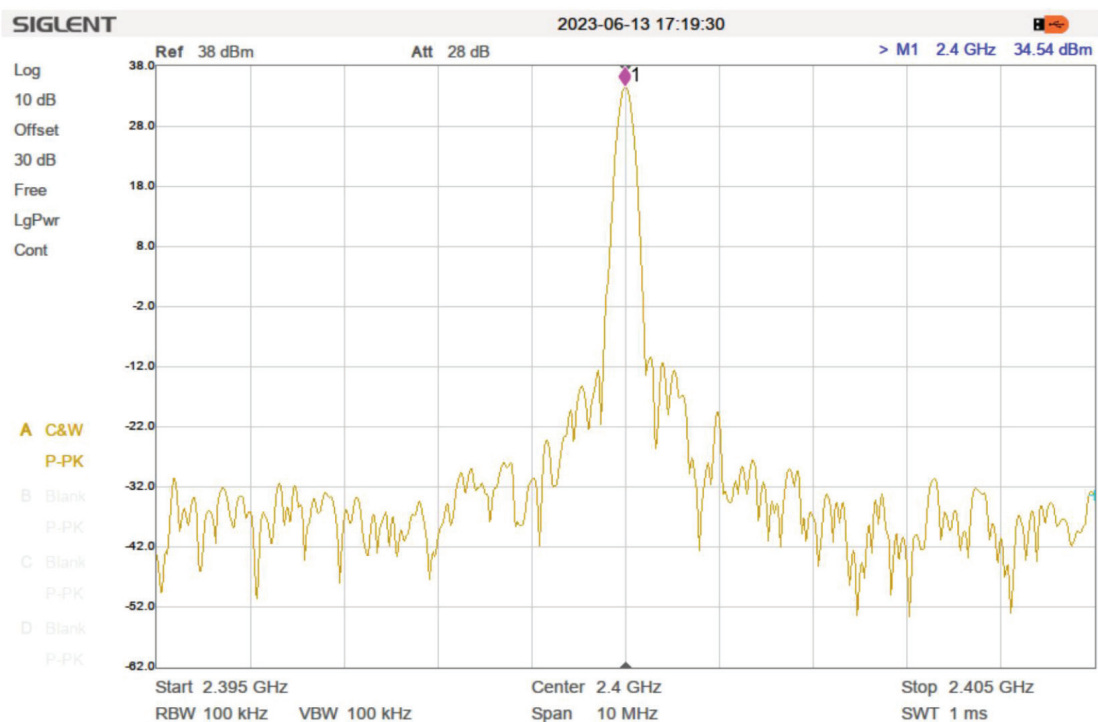


Figure 6. PA Gain. Input RF signal Pulse 13 dBm @ 2400 MHz

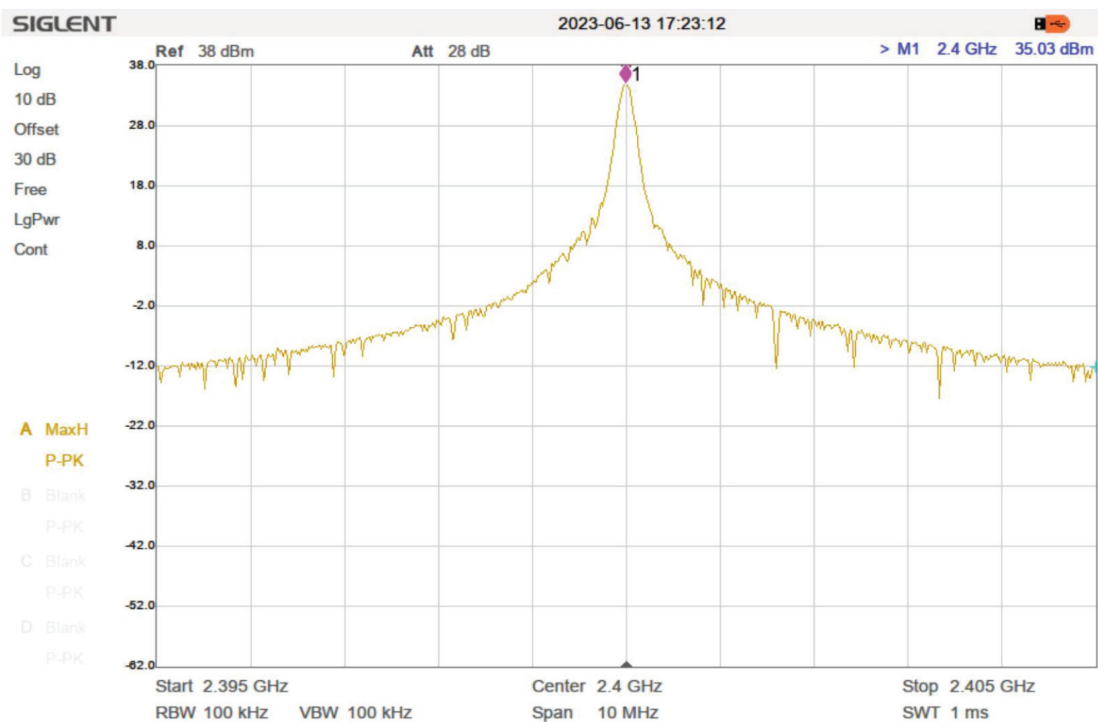


Figure 7. 2nd Harmonic. Output Power Pulse 35 dBm

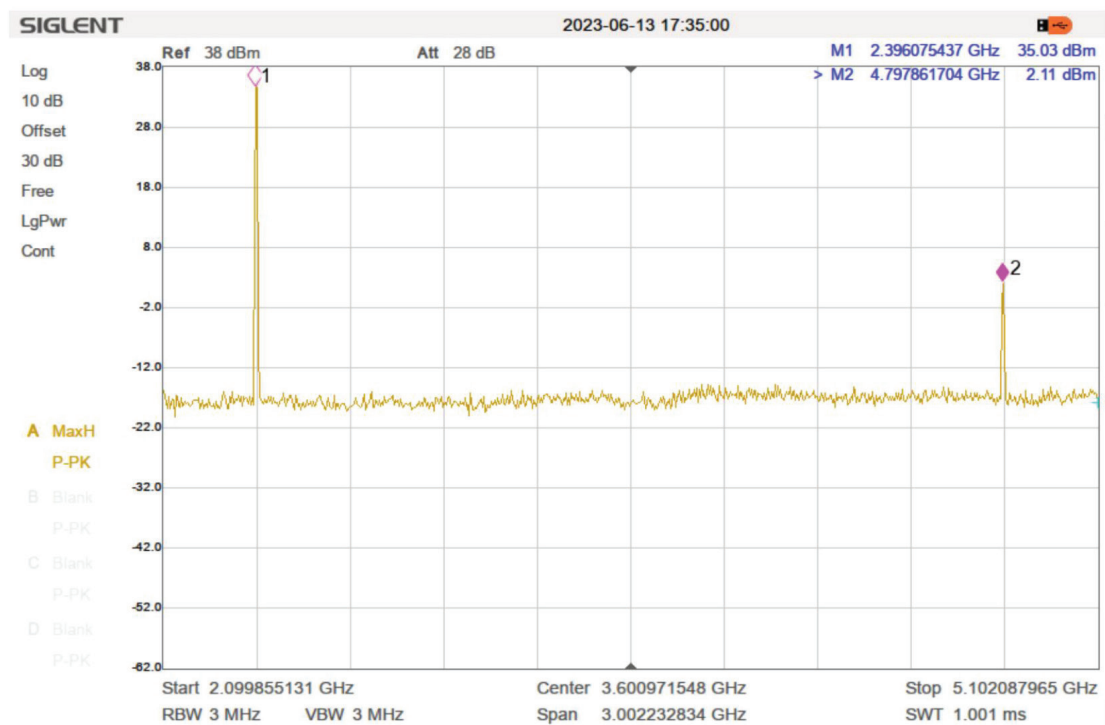


Figure 8. 2nd Harmonic. Output Power CW 34 dBm

