

PAB-2 | Medium Power Linear Gain Block Amplifier

10MHz to 2.7GHz | Class-A | P1dB +30dBm | Gain 15dB typ. | 50Ω

PAB-2 is a high-performance broadband gain block amplifier operating from 10MHz to 2.7 GHz without the need for external matching components. It delivers +30dBm output power with 15dB typical gain (10MHz–1GHz), excellent return loss (>15dB), and high linearity, featuring a typical IP3 of +46.1dBm and P1dB of +30.4dBm at 1 GHz. Ideal for broadband laboratory and research applications, requiring clean, reliable power across a wide frequency range.

■ Features:

- wideband without external matching components: 10MHz to 2.7GHz
- high Pout, P1dB +30.4 dBm typ. @ 1GHz
- gain: 15dB typ. (10MHz to 1GHz)
- excellent return loss > 15 dB
- high IP3: +46.1dBm typ. @ 1GHz

■ Typical applications:

- laboratory applications
- RF front ends
- LNA applications
- test instruments
- wireless communications
- general purpose amplification
- R&D Labs



■ Absolute Maximum Ratings & Environmental Specifications

Parameter	Testing conditions	Value	Units
Maximum Input Level	for no damage	+15	dBm
Operating Temperature	ambient	0...+90	°C
Supply Voltage		15.5	V
Shock	normal truck transport	-	-
Vibration	normal truck transport	-	-

Note 1: Electrical specifications and performance data contained herein are based on ROWAVES applicable test performance criteria and measurement methods. Note 2: This document and the information contained herein is provided for evaluation purposes only and is subject to change without notice.

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■ Electrical Specifications:

@ TA = +25°C

Parameter	Testing conditions	Min.	Typ.	Max.	Units
Frequency Range	-	10	-	2700	MHz
Power Output	-	-	-	1	W
Power@ 1dB Compression Point	@1GHz	-	-	30	dBm
Operation Class	-	-	-	-	A
Gain	@ -10dBm input	12	15	18	dB
Gain Flatness	from 0.01 to 2.7 GHz	-	±3.5	-	dB
Harmonics	2f (@60MHz/14.8dBm Pout) 3f (@60MHz/14.8dBm Pout)	-	-60 -74	-	dBc
Third Order Intercept Point IP3	@1GHz	-	+46	-	dBm
Noise Figure	@1000MHz	-	3	3.5	dB
Input VSWR	-	-	1.4:1	1.5:1	-
Output VSWR	-	-	1.5:1	1.7:1	-
Input Return Loss	-	-12.7	-15	-25	dB
Power Consumption	-	-	4.2	-	W
Operating D.C. Voltage	-	11	12	14	Vdc
Operating D.C. Current	-	0.3	0.35	0.4	Adc

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■ Typical Performance

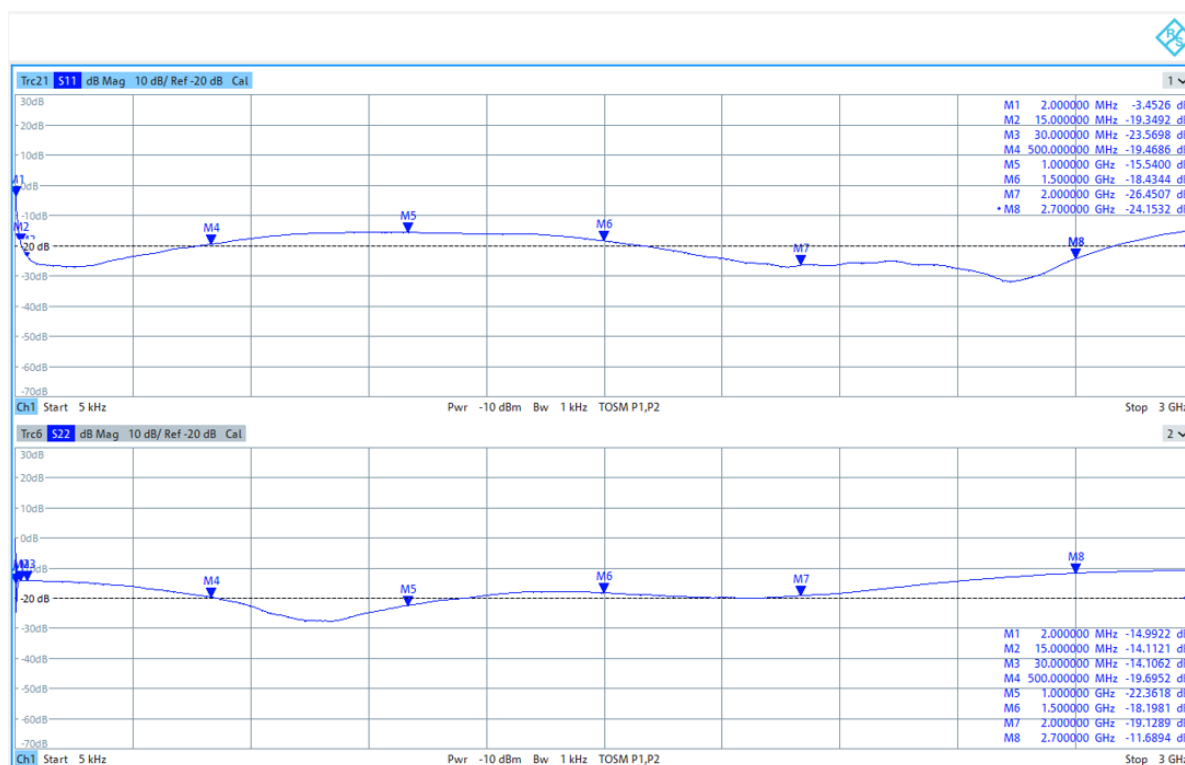


Fig.1 - S11 & S22 plots, 2MHz to 2.7GHz

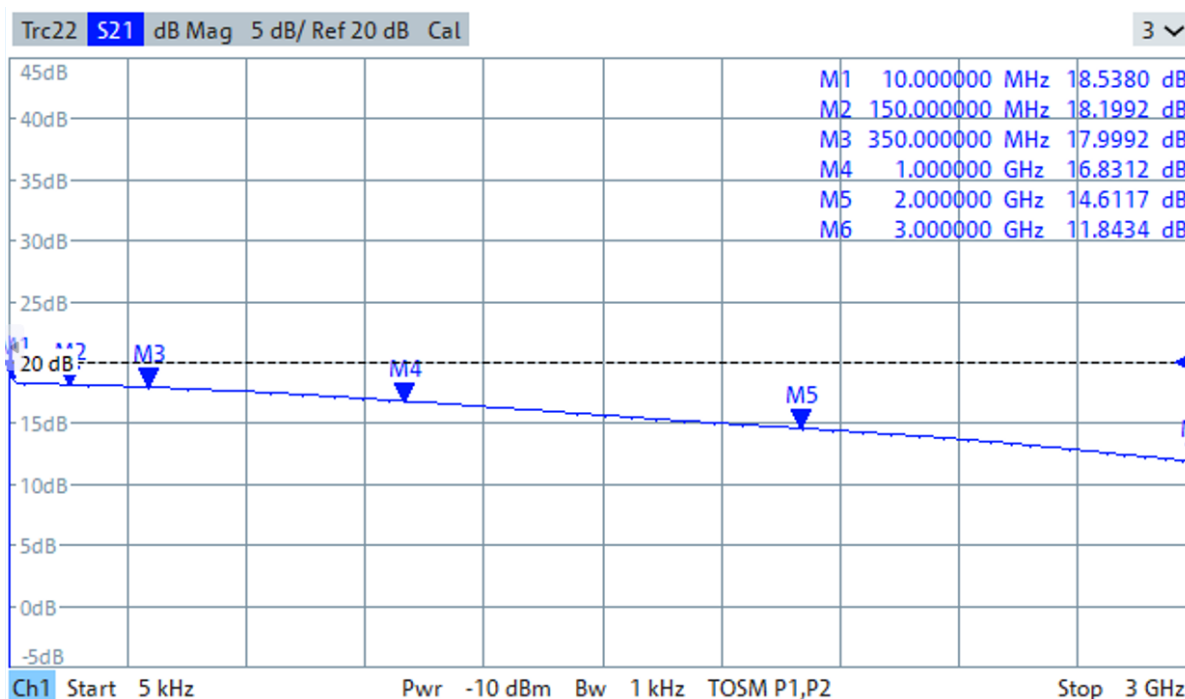


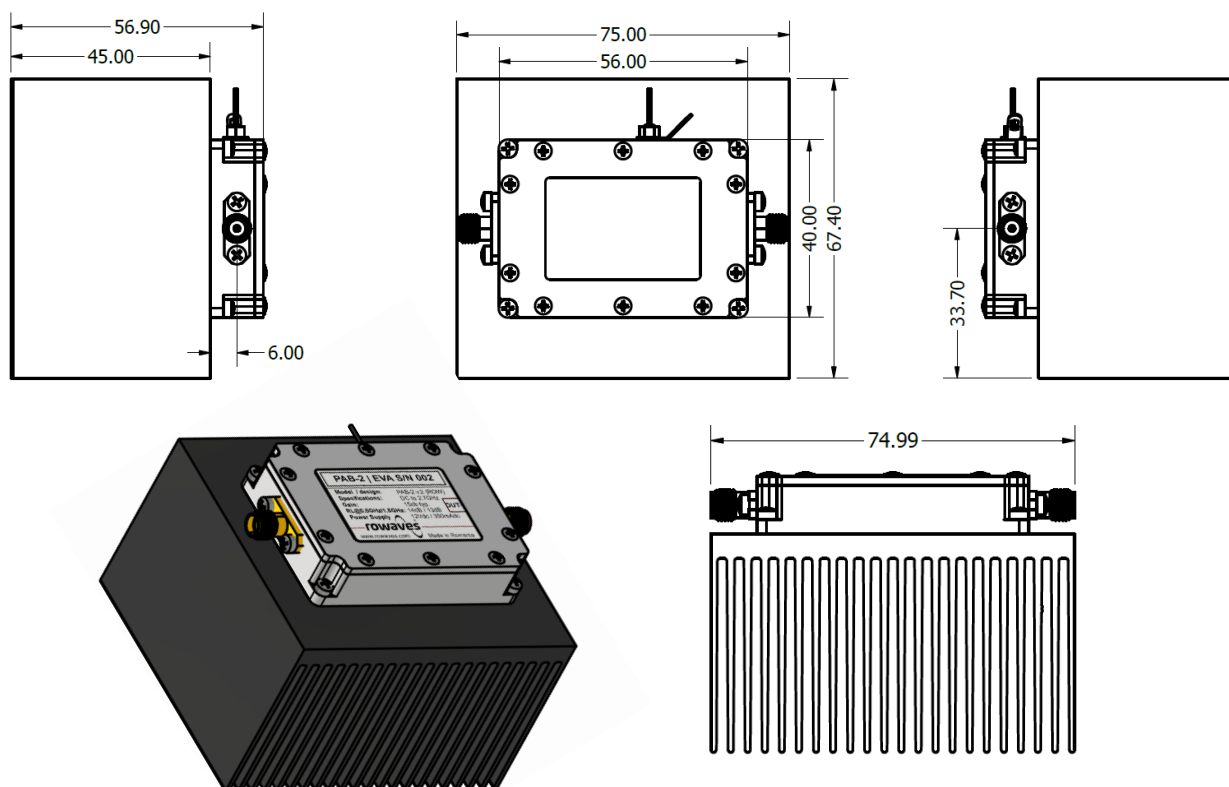
Fig.2 - Gain product

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■ Outline drawing:



■ Mechanical specifications:

Parameter	Value	Unit	Comments
Length	75/ 2.95 ± 1mm	mm / in	
Width	67.4/ 3.65 ± 1mm	mm / in	
Height	56.9/ 3.24 ± 0.5mm	mm / in	
Weight	340/0.75 ± 5	g / lbs	
Cooling	-	-	external heatsink

■ Connectors

Description	Connector 1 (IN)	Connectors 2 (OUT)
Type	50Ω SMA-Female, straight	50Ω SMA-Female, straight

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■ Ordering Information

Model	Modification	Description
PAB-2	-	fully equipped amplifier, ready to use
PAB-2X	no heatsink	contact us for price and availability (some parameters might change)

■ Recommended usage - verification steps:

- values in datasheet are at 25°C, sea level
- ESD sensitive material, transport device in approved ESD bags and handle in appropriate ESD workstations
- when using it, do not block heatsink areas to avoid excessive overheating and permanent damage
- for safe operation, it is highly recommended a 10dB / 5W attenuator to be used at the output of the power amplifier
- confirm that proper ESD precautions and controls are always in place before handling the amplifier
- confirm that adequate system grounding is established. The DC power supply and amplifier must have a common ground in order to operate properly
- power amplifiers may require additional DC current when initially powered-up. Depending on the design, the input current draw could range from an additional 10% to 100% above the maximum rated DC current of the amplifier. This varies based on product part number. Please note that this is a Class-A amplifier design.
- confirm the DC power supply, if limited, is set to allow for additional start-up current that's rated for the power amplifier.
- confirm the system is designed and calibrated for 50Ω ohms
- perform a CALIBRATION (if required) with the loads, before connecting the amplifier to the Vector Network Analyzer to ensure proper performance
- use a fixed attenuator between the signal source and input port of the amplifier to optimise the input VSWR match
- confirm the input power level at the input port of the amplifier does not exceed the maximum rated limit for input power (as stated in the amplifier's datasheet)
- confirm the Vector Network Analyzer is always connected to the amplifier first, before DC power is applied to the amplifier.
- as long as the input and output ports of the amplifier are connected to a 50Ω load and RF signal power is applied, the amplifier can be powered up with DC voltage
- confirm the amplifier output load is matched for a 50 Ohm impedance and will not exceed the maximum rated VSWR or Return Loss limit for the amplifier. Exceeding the maximum rated VSWR or Return Loss limit will result in reflected signal power that could damage the amplifier and void the warranty
- the attenuator or isolator used at the output port of the amplifier must be rated to handle the output power level and operational frequency band of the amplifier

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■ Change History | DS-11

date	change	comment
2 Jun 2025	initial release	1st revision available
6 Jun 2025	added mech. drawing,	Avirvarei A.
12 Jun 2025	mechanical specifications	Zabava V.
17 Jun 2025	harmonics, noise figure	Zabava V. / Avirvarei A.
Jul 17, 2026	added QMS certification details	Avirvarei

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