



Main Features:

- Frequency Range: 1.75 to 6.25 GHz.
- Typical values: Psat 43 dBm, Gain 43 dB
- RF connectors (I/O): SMA Female
- D-sub 9 connector for DC connection
- Several mounting options
- Gold plated compact aluminum housing
- Hi-reliability and dedicated screening/ environmental tests available under request

ERZ-HPA-0175-0625-43

The ERZ-HPA-0175-0625-43 is a High Power Amplifier providing an output power of 43 dBm with a gain of 43 dB. The compact size and modularity makes it ideal for a wide range of applications.

Typical applications:

- Industrial / Laboratory
- Satcom / Telecom
- Space / Aerospace / Military

Performance

Parameter	Value			Units
	Min	Typ	Max	
Frequency	1.75	-	6.25	GHz
Output Power (Psat)	41	43	45	dBm
Small Signal Gain	40	43	46	dB
Gain Flatness	-	±1.25	-	dB
Noise Figure	-	-	-	dB
VSWR input	1.0:1	1.3:1	1.8:1	-
VSWR output	1.2:1	1.8:1	2.5:1	-
Switch ON/OFF time	-	150/350	-	ns
DC Voltage	24	28	32	V
Power Consumption (@Psat)	-	105	-	W

Specifications at a case temperature of 25°C

Output Power

Figure 1 shows saturated output power measurement as a function of frequency at room temperature (25°C).

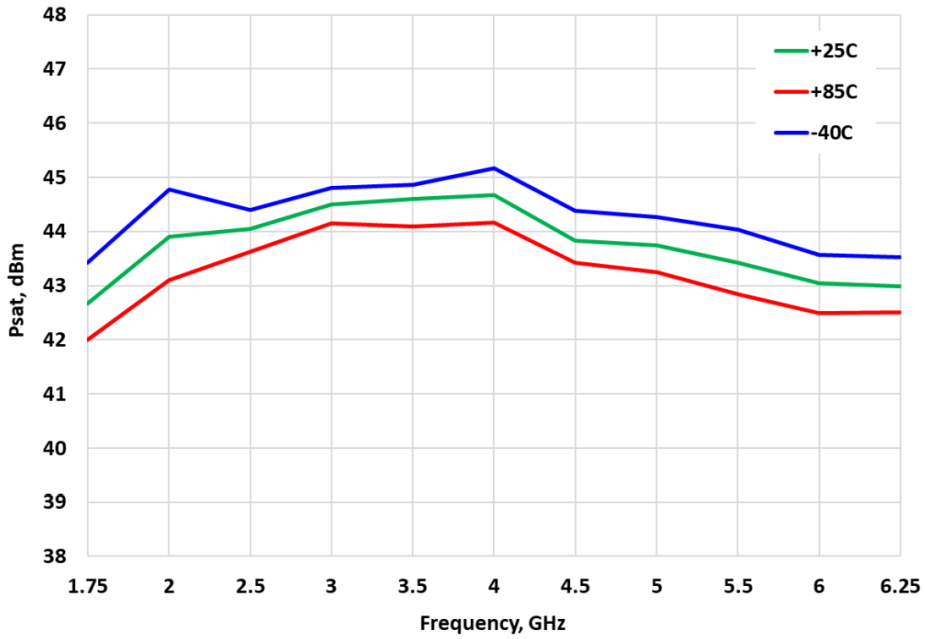


Figure 1: ERZ-HPA-0175-0625-43 Psat

Figure 2 shows output power Vs input power measurement at room temperature (25°C).

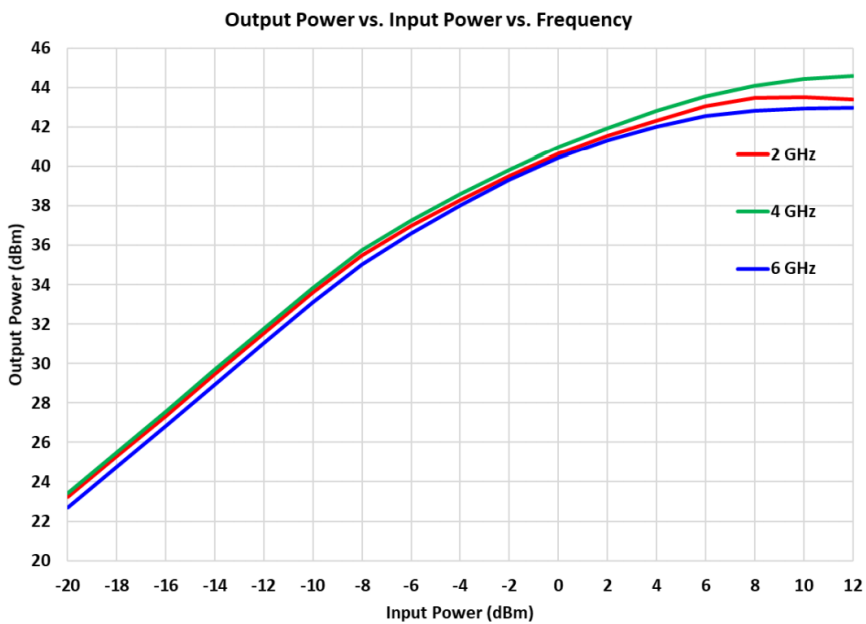


Figure 2: ERZ-HPA-0175-0625-43 Pout vs Pin.

Power Gain

Figure 3 shows the power gain at Psat measurement as a function of frequency at different temperatures.

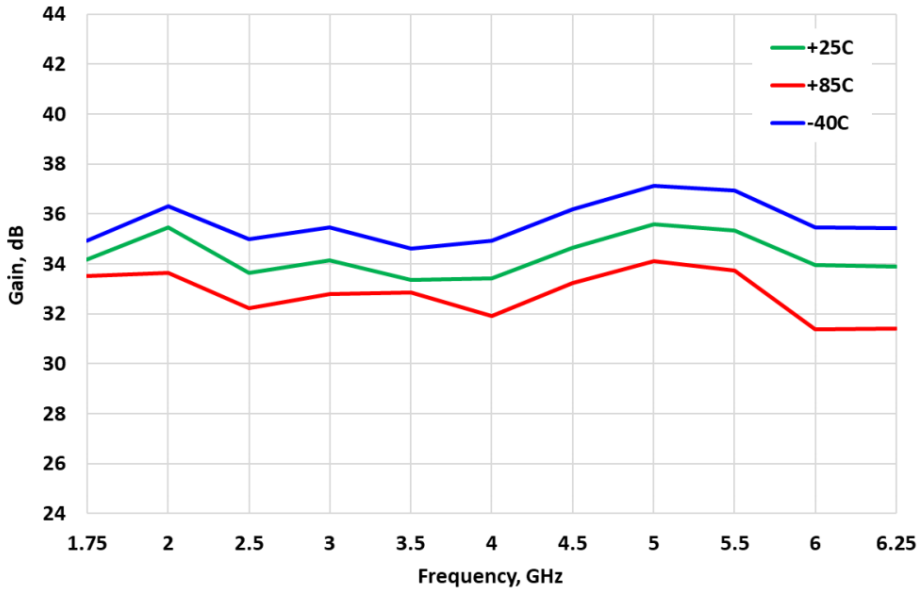


Figure 3: ERZ-HPA-0175-0625-43 PowerGain

Gain Vs Input Power

Figure 4 shows gain measurement Vs input power at different frequencies.

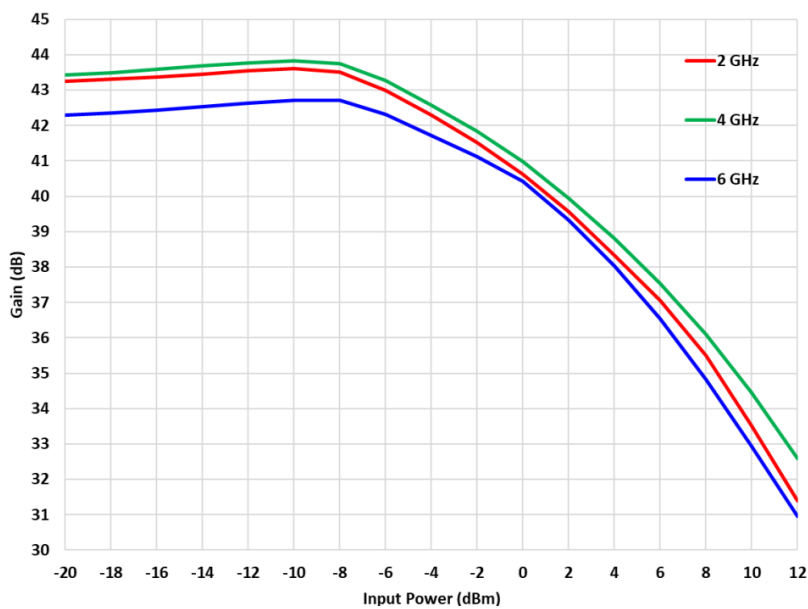


Figure 4: ERZ-HPA-0175-0625-43 Gain Vs Input Power

Small Signal Gain

Figure 5 shows the small signal gain measurement as a function of frequency at room temperature (25°C).

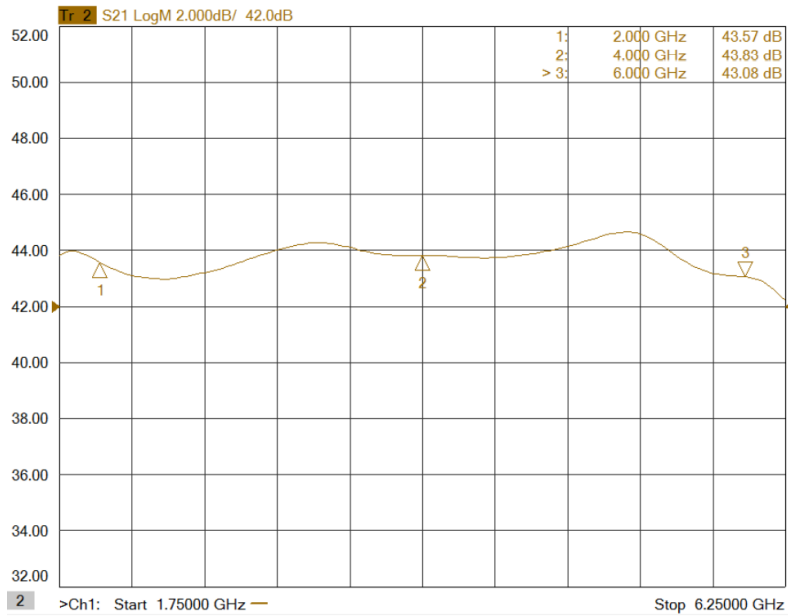


Figure 5: ERZ-HPA-0175-0625-43 Small Signal Gain

Gain Flatness over Frequency & Temperature

Figure 6 shows small signal gain flatness over frequency and temperature at -40°C, 25°C and 70°C.

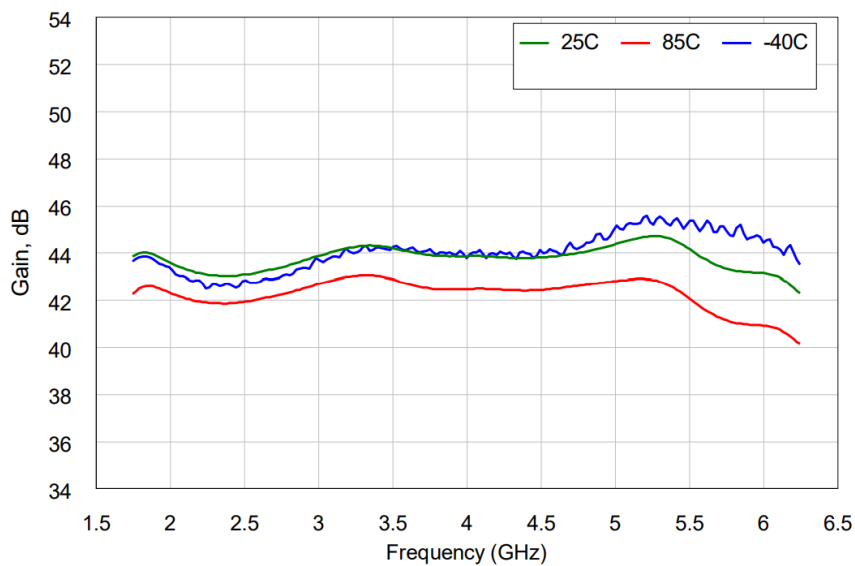


Figure 6: ERZ-HPA-0175-0625-43 Small Signal Gain over temperature

Input Matching

Figure 7 shows input VSWR as a function of frequency at room temperature (25°C).

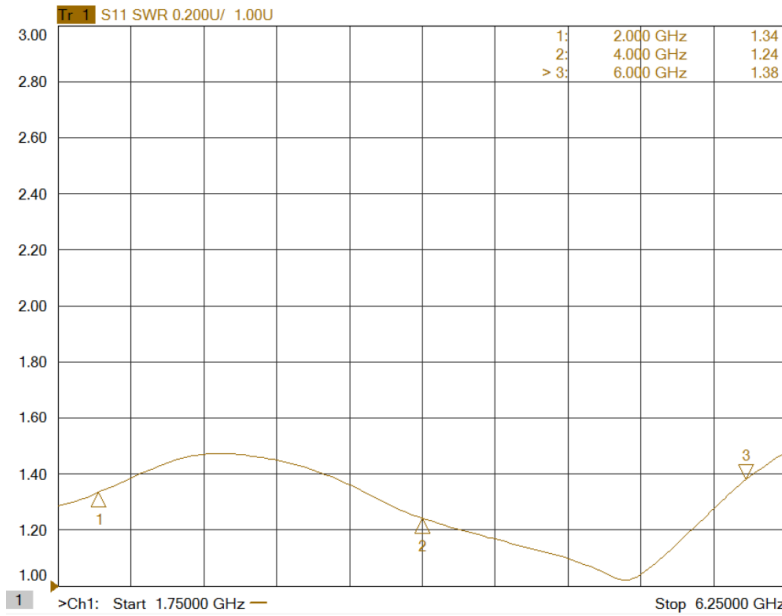


Figure 7: ERZ-HPA-0175-0625-43 Input Matching

Output Matching

Figure 8 shows output VSWR as a function of frequency at room temperature (25°C).

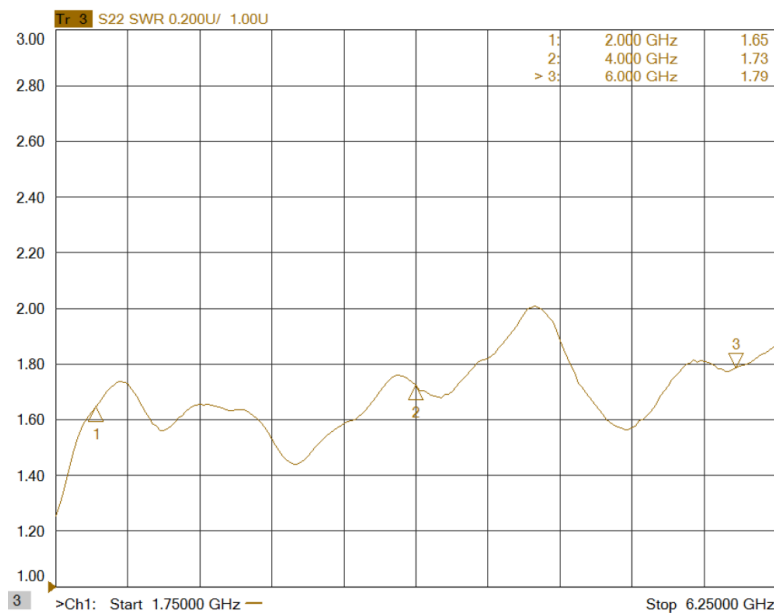


Figure 8: ERZ-HPA-0175-0625-43 Noise Figure

Mechanical Specifications

Parameter	Value	Units
Dimensions	125x95x22 (LxWxH)	mm
Weight	475 +/-10%	grams
RF Connectors	IN/OUT: SMA (F)	-
DC & Control Connector	D-sub 9 Male	-

Outline Drawing

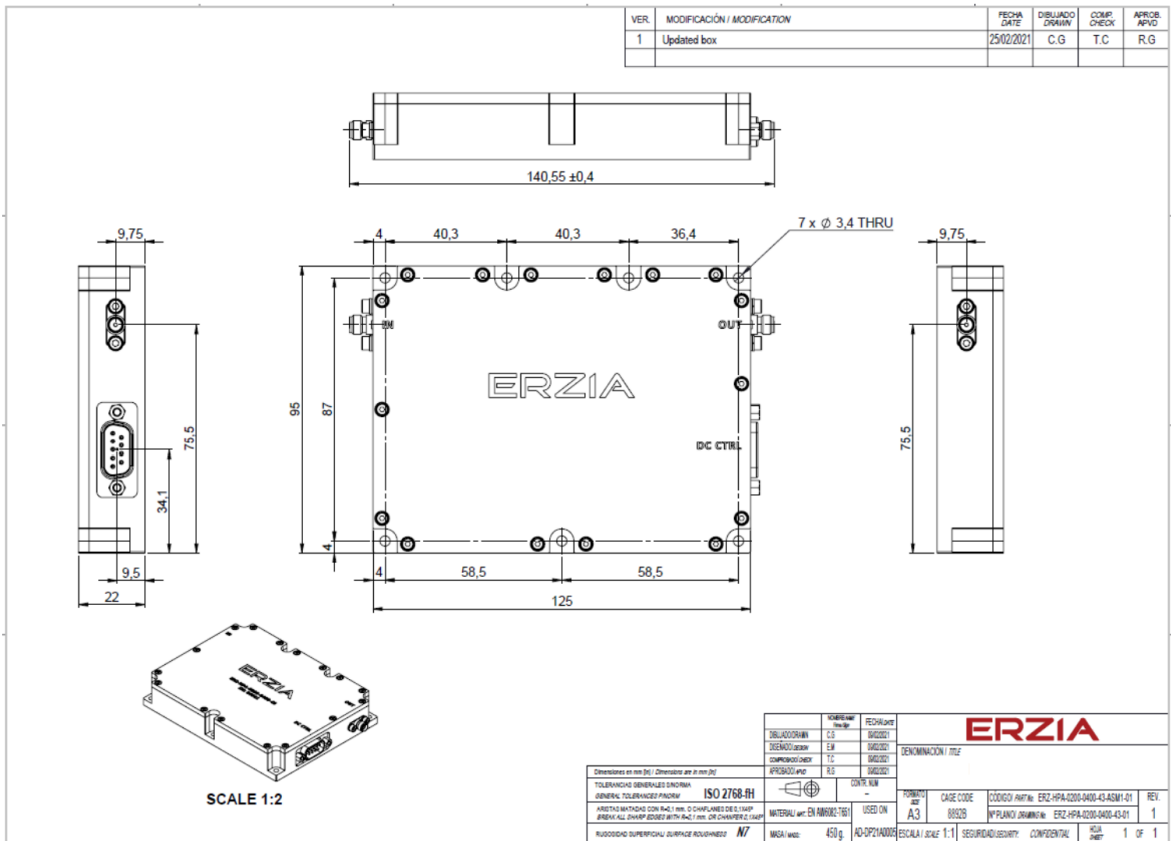


Figure 9: ERZ-HPA-0175-0625-43 Outline Drawing

DC & Control Interface

Power supply characteristics

- Input Voltage: 28 ±4 VDC

Control characteristics

- TTL command (ON/OFF function).
- Output Power, temperature and current monitoring.

Table below shows D-sub 9 connector (Male) pinout:

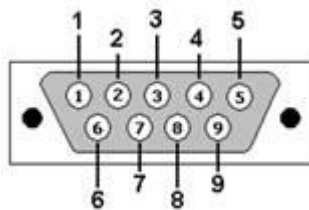


Figure 10: D-sub 9 Connector (Front view)

PIN	SIGNAL	DESCRIPTION
1	Output Power Monitor	
2	NC	Not Connected
3	Current Sensor	$V_o = 0.1V/A$
4	Temperature Monitor	$V_o = -11.69 \text{ mV } C \times T + 1.8663 \text{ V}$
5	Enable	TTL Signal OFF (0V to 0.8V); ON (2V to 5.5V)
6	+28V	+28 VDC
7	+28V	+28 VDC
8	GND	Ground
9	GND	Ground

Absolute Maximum Ratings

Condition	Value
Maximum DC Voltage	+32 VDC
Maximum RF Input Power	17 dBm
Operation temperature (at case)	-40° to 85 °C
Storage temperature	-55° to 125 °C

- Stress above these ratings may cause permanent damage to the device.
- It is final user responsibility to maintain the amplifier within the specified ranges.

Measurements Conditions

All measurements provided in this report were performed at the following conditions:

Condition	Value
Temperature (DUT ON)	-40°C, 25 °C, 85 °C ± 1°C
Humidity	44% ± 10%
DUT Warm up time	30 min
DUT minimum operation time	24 hours
Test equipment warm up time	2 hours
Additional temperature cycles in climatic chamber (DUT OFF)	-40°C to 70°C

Environmental Specifications (By Design)

Operating Temperature:	-40 to +85 °C	(MIL-STD-810F, method 520.2)
Storage Temperature:	-55 to +125 °C	(MIL-STD-810F, method 520.2)
Vibration:	8g rms	(MIL-STD-810F, method 514.5)
Shock:	20g, 11ms, saw-tooth	(MIL-STD-810F, method 516.5)
Acceleration:	15g	(MIL-STD-810F, method 513.5)

RoHS & REACH Compliance

This part is compliant with EU 2011/65/UE RoHS (Restrictions on the Use of Certain Hazardous Substances in Electrical and Electronic Equipment) and REACH (Registration, Evaluation, Authorization and restriction of Chemical substances) directives.



Documentation and Test Reports

All modules are at least delivered with: Electrical Test Report, Certificate of Conformance, Certificate of Acceptance and Origin. Optionally, units can be environmentally tested (temperature, vibration...).

Option (HS): Heat Sink

A heat sink (HS) can be provided to allow the operation of Power Amplifiers. Please note that most power amplifiers need heat sink or appropriate heat dissipation strategy.

Space / Military Usage

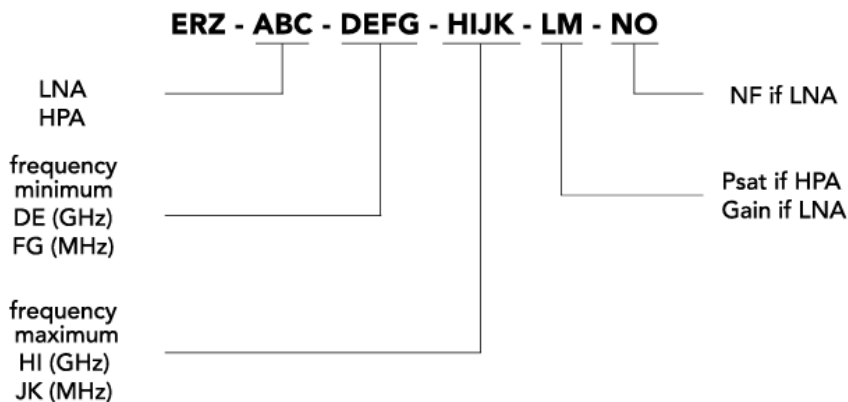
Most of ERZIA's products are based on rad-hard technologies and can be manufactured and integrated according to MIL / ECSS or specific hi-rel standard-screening for space, aeronautics, military or specific hi-reliability usage.

Customization and Extended Performances

ERZIA can fully design or adapt one of the existing RF amplifiers designs according to your specifications. Please contact us for additional information.

Model Number Codification

MODEL NUMBER



ERZIA

20210408_rev1.1

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