



### Main Features:

- Frequency Range: 2 to 4 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-0200-0400-43

The ERZ-HPA-0200-0400-43 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	2	-	4	GHz
Output Power (Psat)	42	43	45	dBm
Small Signal Gain	42	43	46	dB
Gain Flatness	-	±1	-	dB
Noise Figure	-	-	-	dB
VSWR input	1.0:1	1.3:1	1.8:1	-
VSWR output	1.2:1	1.8:1	2.1:1	-
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).

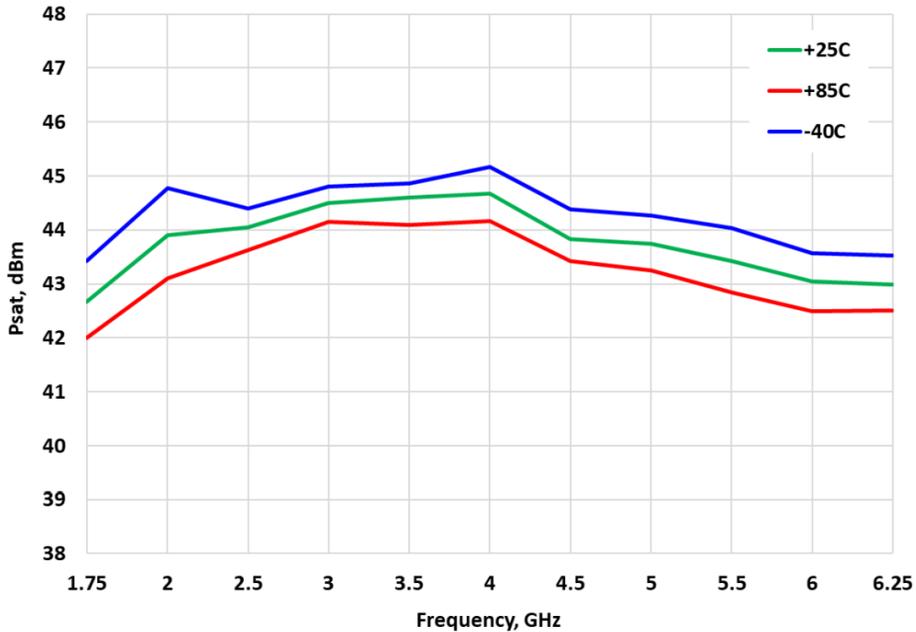


Figure 1: ERZ-HPA-0200-0400-43 Psat

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

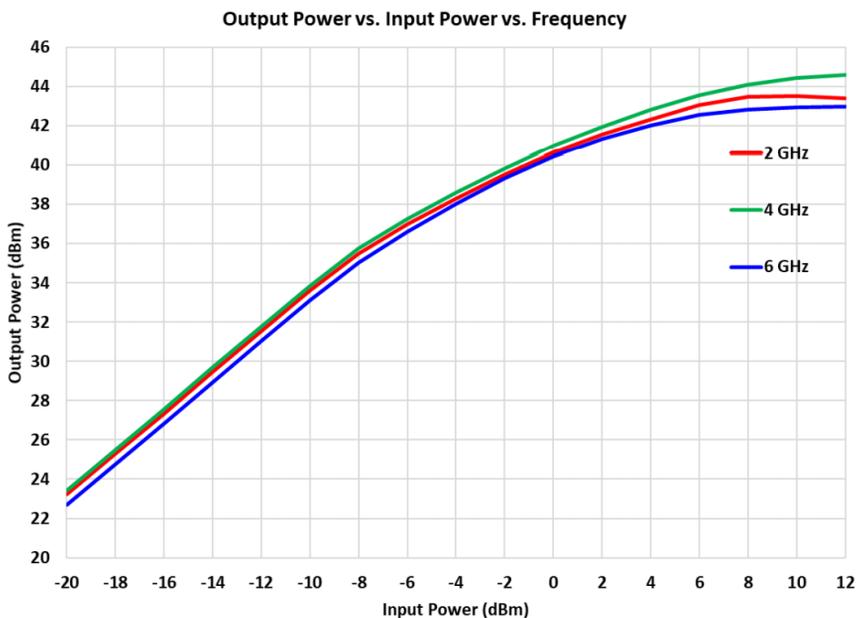


Figure 2: ERZ-HPA-0200-0400-43 Pout vs Pin.

### Power Gain

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

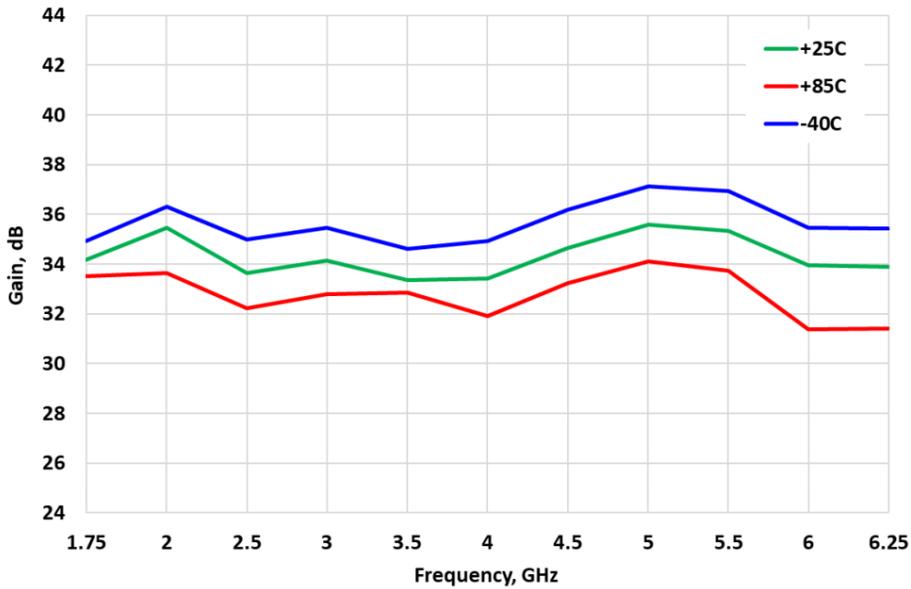


Figure 3: ERZ-HPA-0200-0400-43 PowerGain

### Gain Vs Input Power

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

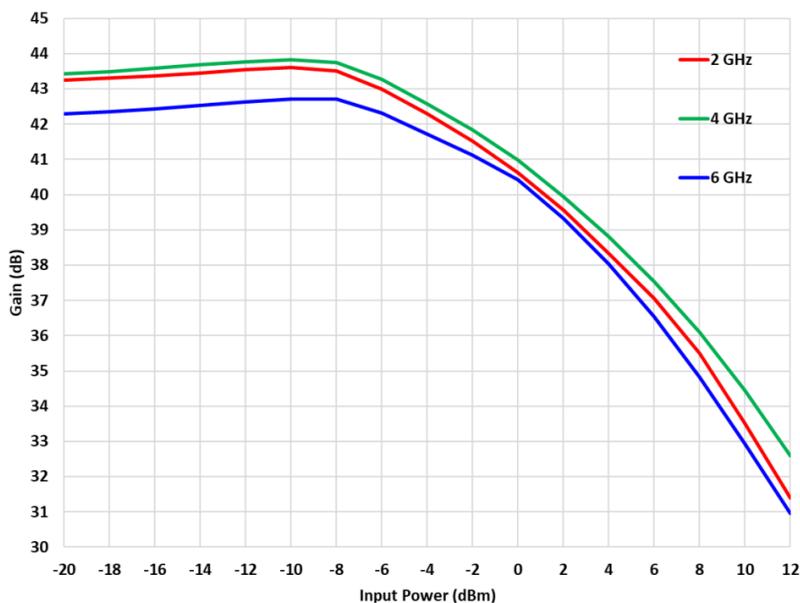


Figure 4: ERZ-HPA-0200-0400-43 Gain Vs Input Power

### Small Signal Gain

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

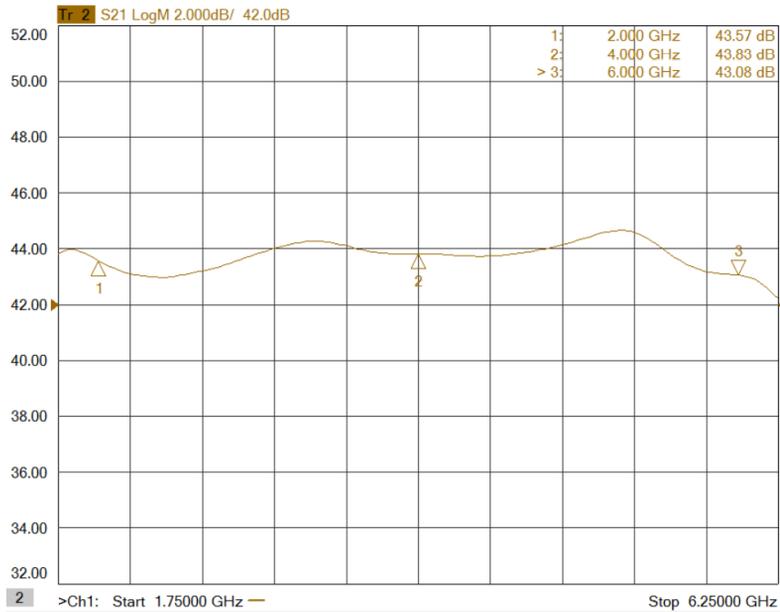


Figure 5: ERZ-HPA-0200-0400-43 Small Signal Gain

### Gain Flatness over Frequency & Temperature

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

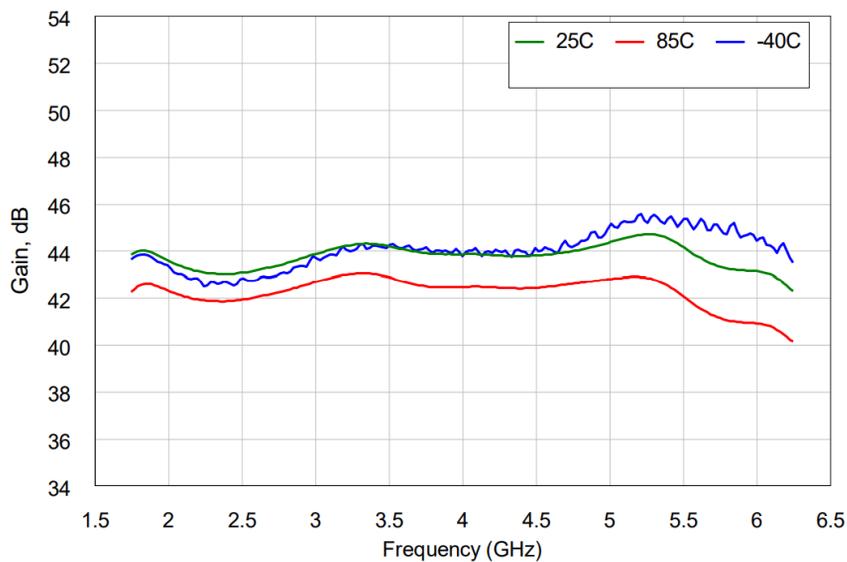


Figure 6: ERZ-HPA-0200-0400-43 Small Signal Gain over temperature

## Input Matching

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

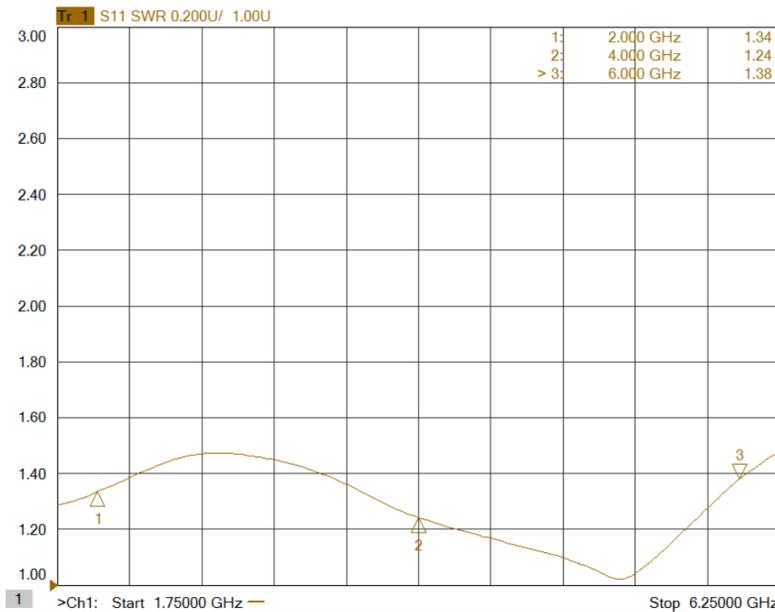


Figure 7: ERZ-HPA-0200-0400-43 Input Matching

## Output Matching

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

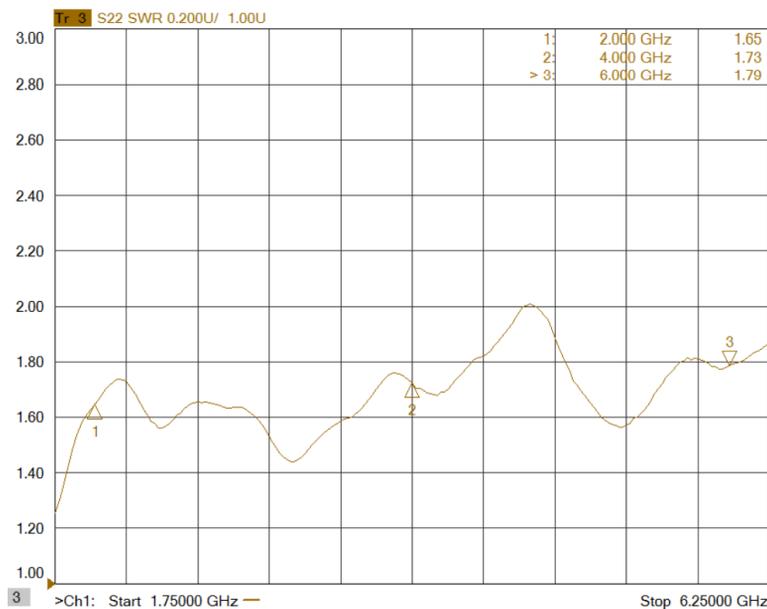


Figure 8: ERZ-HPA-0200-0400-43 Noise Figure

### 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

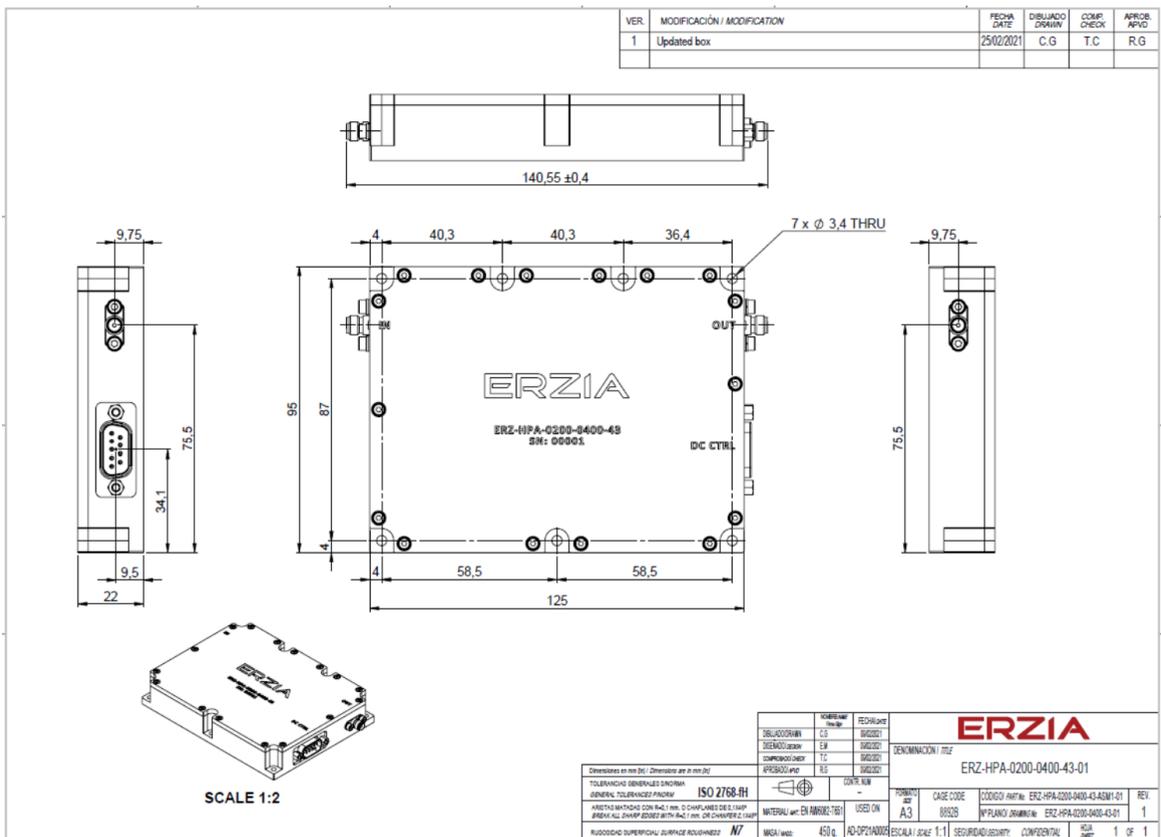


Figure 9: ERZ-HPA-0200-0400-43 Outline Drawing

## DC & Control Interface

Power supply characteristics

- Input Voltage: 28 ±4 VDC

Control characteristics

- TTL command (ON/OFF function).
- Temperature & Current monitoring.

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

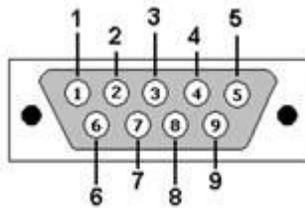


Figure 10: D-sub 9 Connector (Front view)

PIN	LABEL	SIGNAL	DESCRIPTION
1	VCC	+28V Power Source	Power Supply
2	VCC	+28V Power Source	Power Supply
3	GND	Ground	Ground
4	EN	LVTTL Enable	OFF (0V to 0.8V); ON (2V to 5.5V);
5	TEMP	Temperature Monitor	$V_o = -11.69 \text{ mV}/^\circ\text{C} \times T + 1.8663 \text{ V}$
6	PGND	Power Ground	Power Ground
7	PGND	Power Ground	Power Ground
8	GND	Ground	Ground
9	I_SEN	Current SENSE	$V_o = 0.1\text{V/A}$

### 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

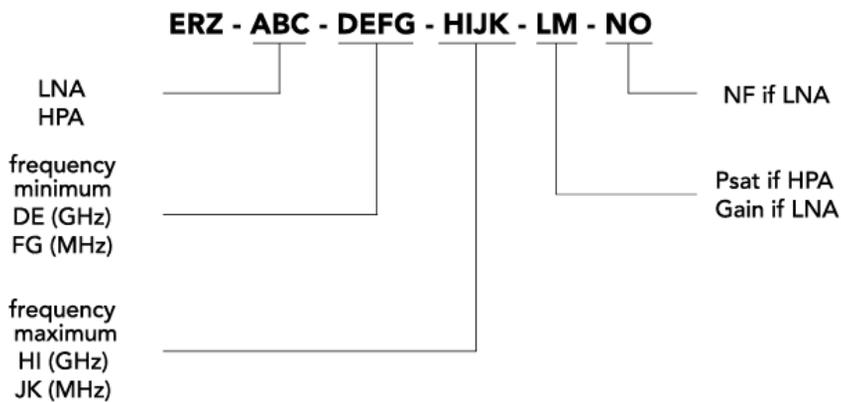
Most of ERZIA's products are based on rad-hard technologies and can be manufactured and integrated according to MIL / ECSS or specific hi-rel standard-screening for space, aeronautics, military or specific hi-reliability usage.

## 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

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