ERZIA

DATASHEET

Low Noise Amplifier

ERZ-LNA-4250-4550-30-4.5

Main Features:

- Frequency Range: 42.5 to 45.5 GHz.
- Typical values: Gain 29 dB, NF 4.5 dB
- RF connectors (I/O): WR22
- Solder filtered pins for DC connection
- Several mounting options
- Gold platted compact aluminum housing
- Hi-reliability and dedicated screening/ environmental tests available under request

ERZ-LNA-4250-4550-30-4.5

The ERZ-LNA-4250-4550-30-4.5 is a Low Noise Amplifier providing a gain of 29 dB with a noise figure below 4.5 dB. The compact size and modularity makes it ideal for a wide range of applications.

Typical applications:

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

Performance

Parameter	Value			Units
	Min	Typ	Max	
Frequency	42.5	-	45.5	GHz
Output Power (P1dB)	16	18	20	dBm
Small Signal Gain	28	29	31	dB
Gain Flatness	-	±0.5	-	dB
Noise Figure	3	3.8	4.5	dB
OIP3	21	23	25	dBm
VSWR input	1.5:1	2.3:1	3.0:1	-
VSWR output	1.1:1	1.3:1	1.5:1	-
DC Voltage	9	12	15	V
Power Consumption	-	2.5	-	W
Connectors	WR22 IN/OUT			-

Specifications at a case temperature of 25°C at 12V

Output Power

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

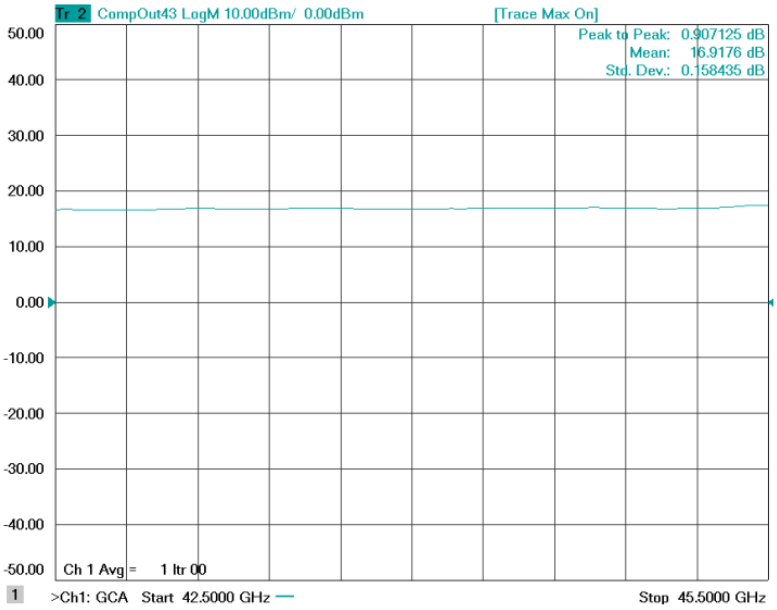

Figure 1: ERZ-LNA-4250-4550-30-4.5 P1dB

Figure 2 shows saturated output power measurement as a function of frequency at room temperature (25°C).

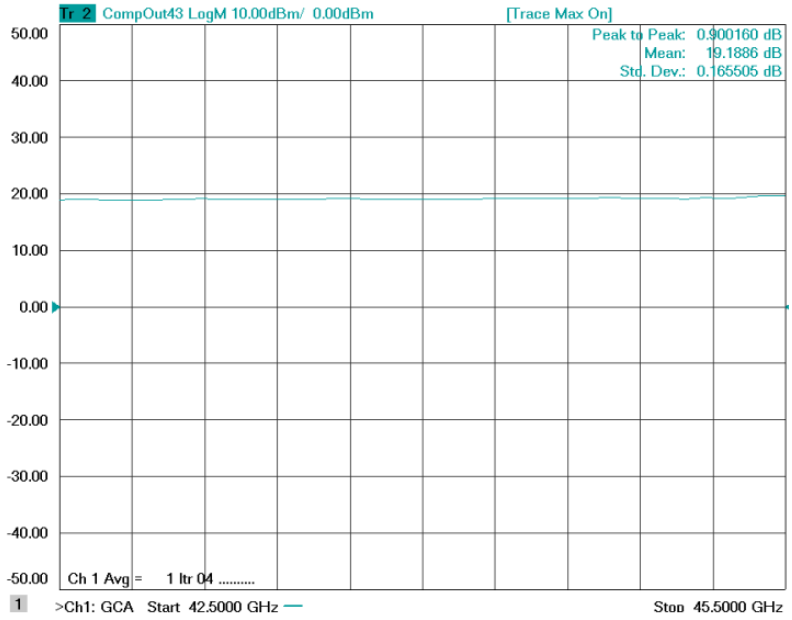

Figure 2: ERZ-LNA-4250-4550-30-4.5 Saturated Output Power

Small Signal Gain

Figure 3 shows small signal gain measurement as a function of frequency at room temperature (25°C).

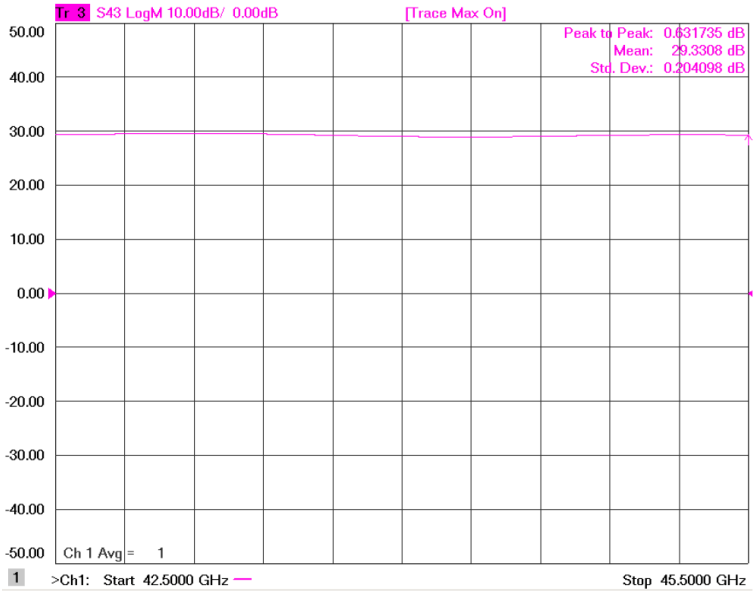

Figure 3: ERZ-LNA-4250-4550-30-4.5 Small Signal Gain

Noise Figure

Figure 4 shows the noise figure measurement as a function of frequency at room temperature (25°C).

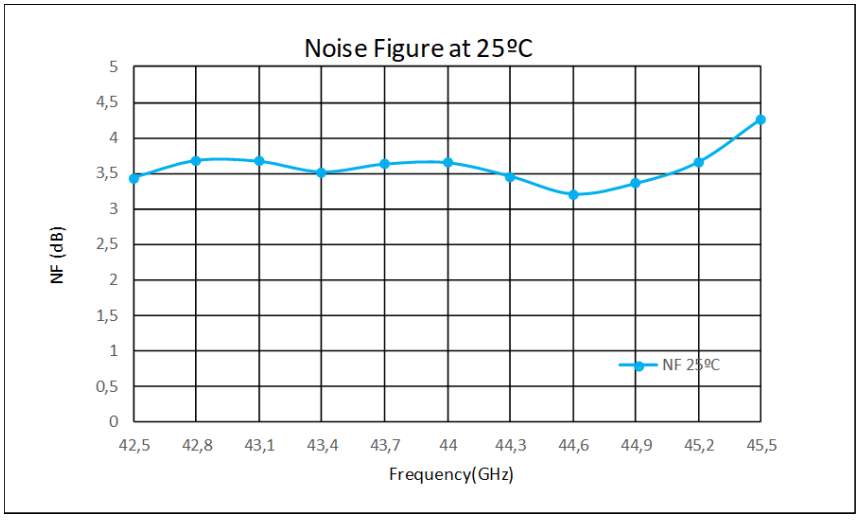

Figure 4: ERZ-LNA-4250-4550-30-4.5 Noise Figure

Input and Output Matching

Figure 5 and Figure 6 show input (S11) and output (S22) VSWR as a function of frequency at room temperature (25°C).

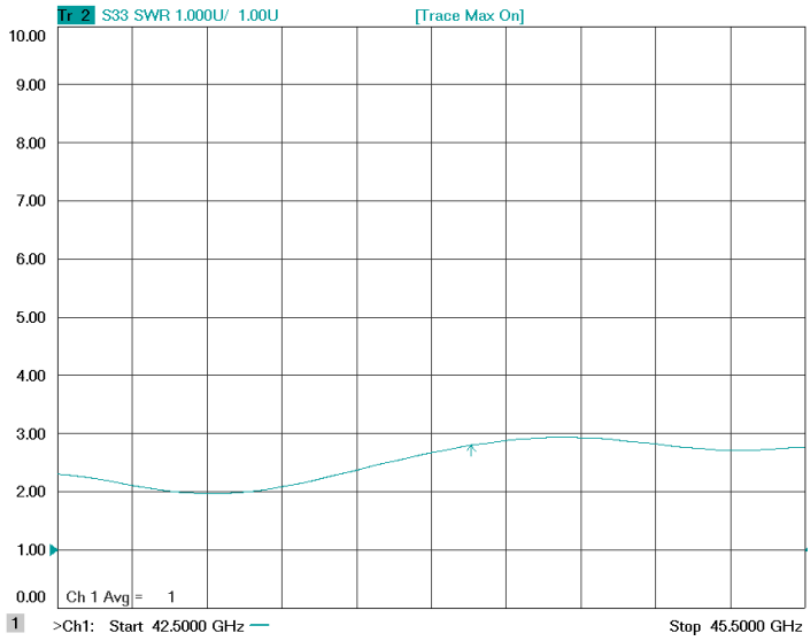

Figure 5: ERZ-LNA-4250-4550-30-4.5 Input Matching

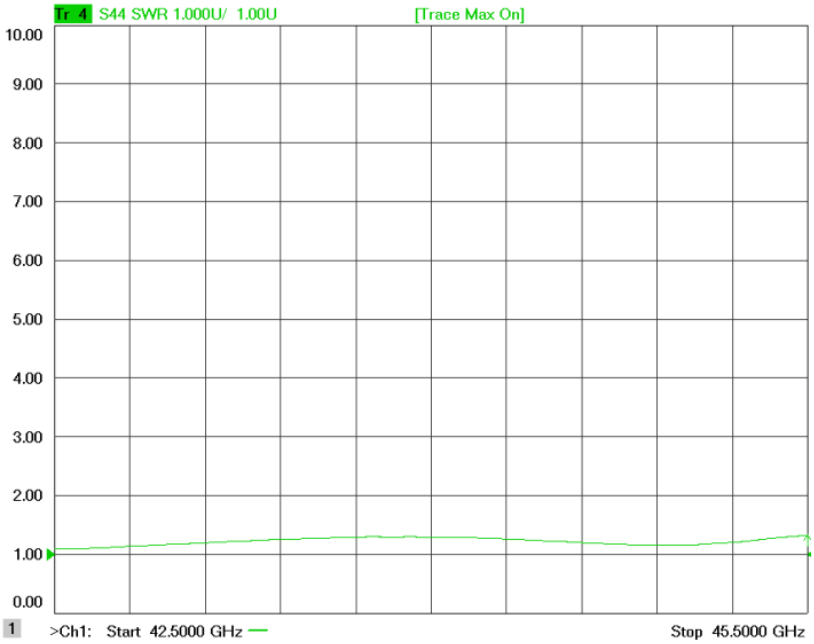

Figure 6: ERZ-LNA-4250-4550-30-4.5 Output Matching

OIP3

Figure 7 shows OIP3 measurement as a function of frequency at room temperature (25°C).

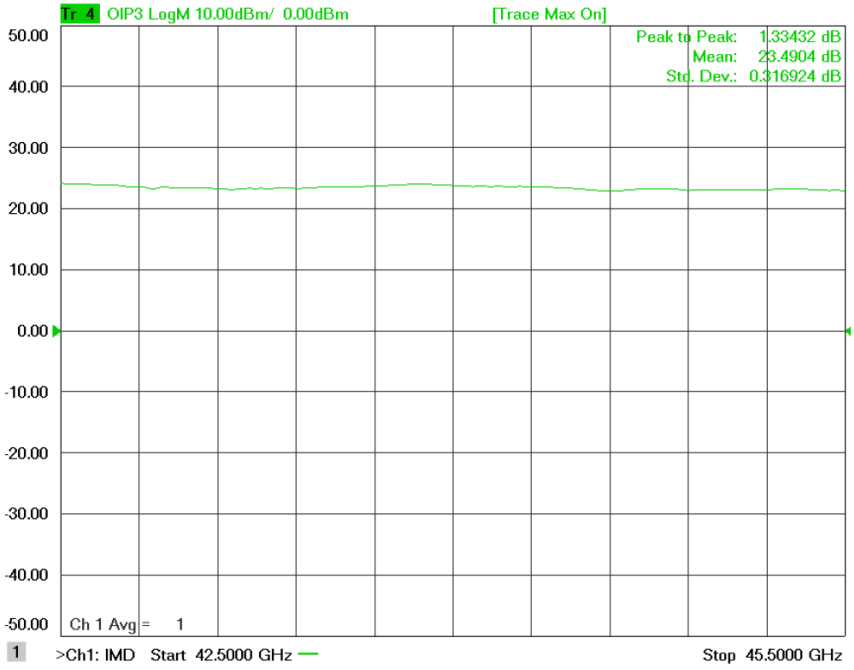

Figure 6: ERZ-LNA-4250-4550-30-4.5 OIP3

Absolute Maximum Ratings

Condition	Value
DC Voltage	+15 VDC
Maximum Input Power (CW)	10 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)	25 °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 85°C

Environmental Specifications (By Design)

Operating Temperature:	-45 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.

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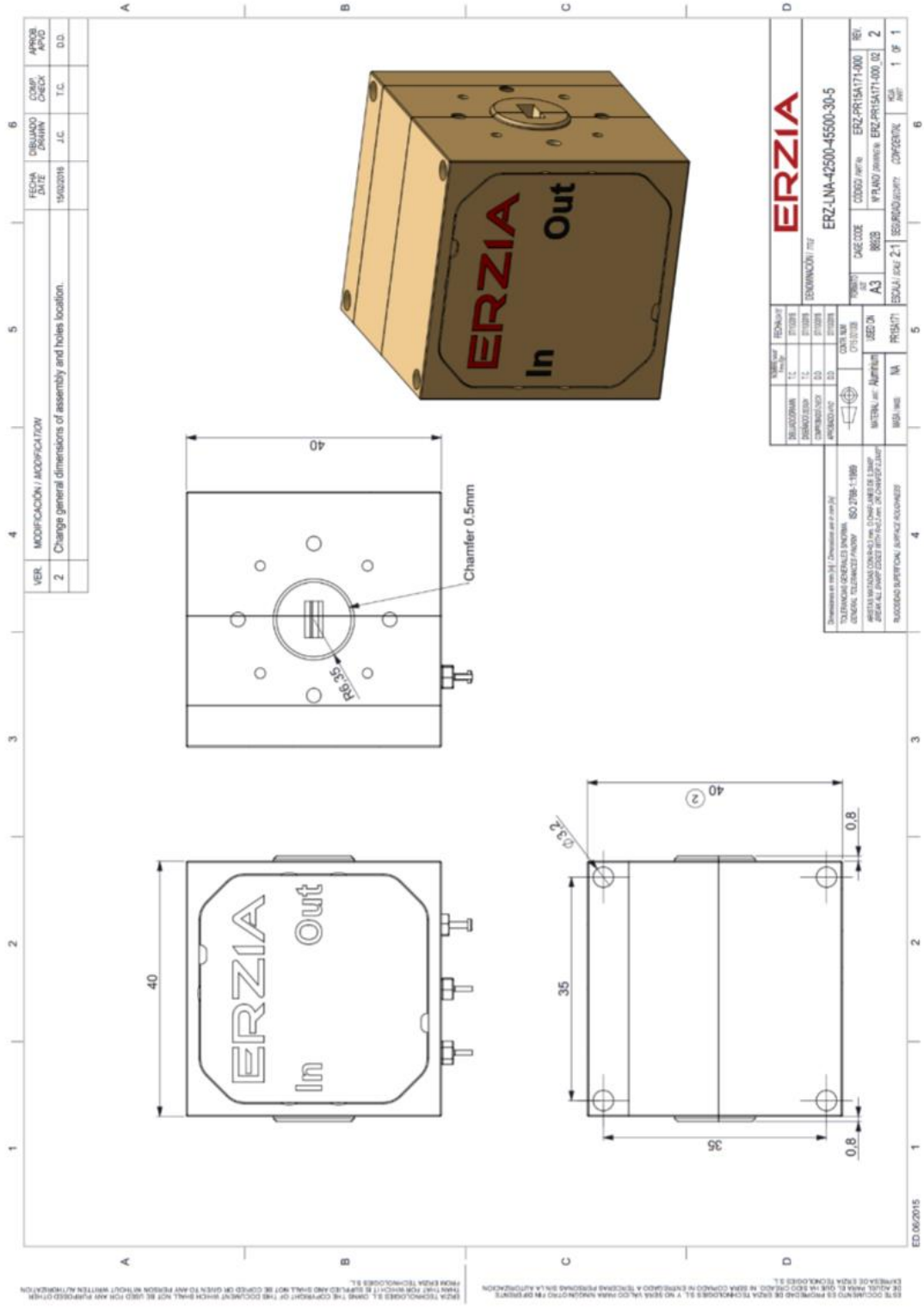
Mechanics and Housing



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 / Hi-Rel Usage

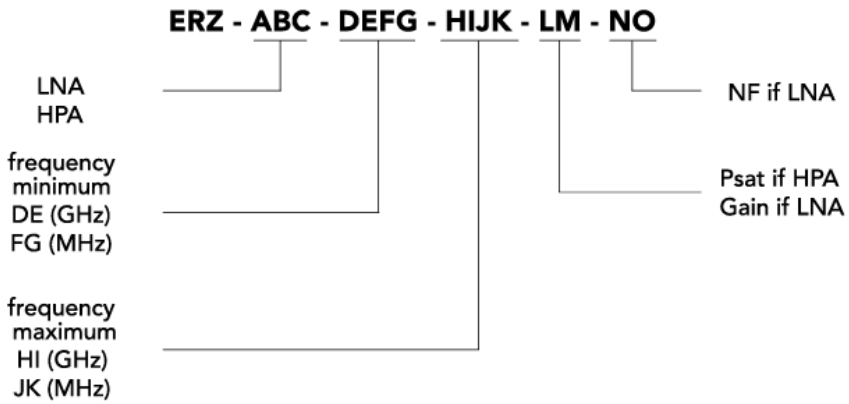
Most of ERZIA´s products are based on rad-hard technologies and can be manufactured and integrated according to MIL / ECSS or specific hi-rel standard-screening for space, aeronautics, or specific hi-reliability usage.

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



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