



Main Features:

- Frequency Range: 0.5 to 18 GHz.
- Noise Figure: 3 dB, P1dB 22 dBm.
- RF connectors (I/O): SMA Female
- DC voltage through out RF connector
- Several mounting options
- Painted coating on aluminum housing
- Hi-reliability and dedicated screening/ environmental tests available under request

ERZ-LNA-0050-1800-18-3.5

The ERZ-LNA-0050-1800-18-3.5 is a Low Noise Amplifier providing a gain of 18 dB with a noise figure of 3 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	0.5	-	18	GHz
Output Power (P1dB)	17	20	22	dBm
Small Signal Gain	15	18	20	dB
Gain Flatness	-	±1.5	-	dB
Noise Figure	1.5	3	4.5	dB
VSWR input	1.0:1	1.5:1	1.8:1	-
VSWR output	1.0:1	1.5:1	1.8:1	-
DC Voltage	12	15	18	V
Power Consumption	-	2.5	-	W
RF Connectors	SMA Female			-

Specifications at a case temperature of 25°C at 15 V

Output Power (P1dB)

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

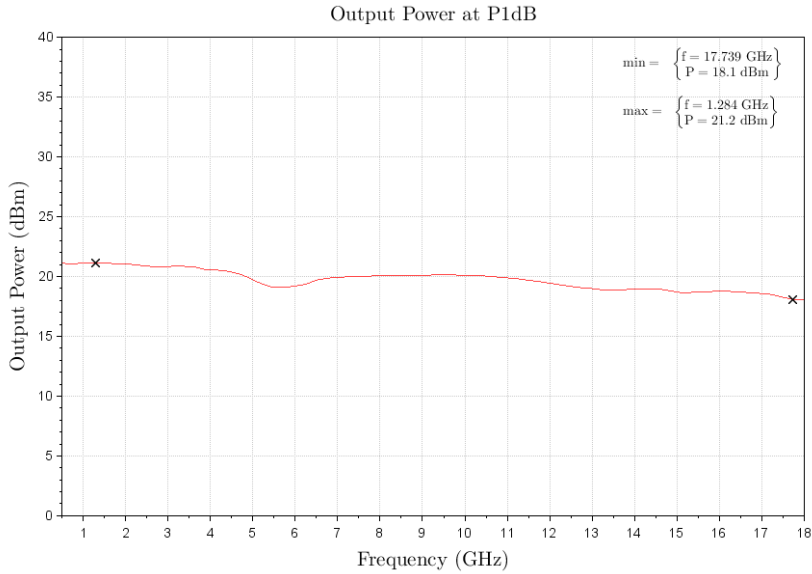


Figure 1: ERZ-LNA-0050-1800-18-3.5 P1dB

Small Signal Gain

Figure 2 shows small signal gain measurement as a function of frequency at different temperatures.

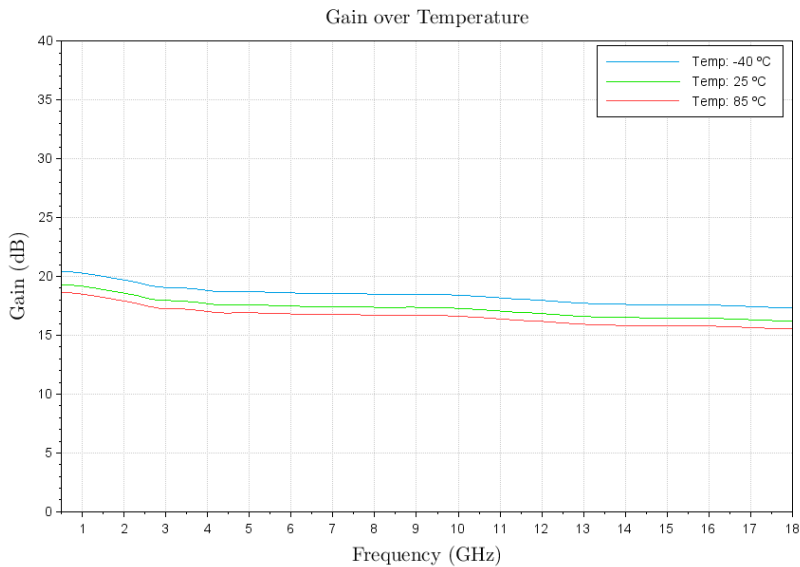


Figure 2: ERZ-LNA-0050-1800-18-3.5 Small Signal Gain

Noise Figure

Figure 3 shows the noise figure measurement as a function of frequency at room temperature (25°C).

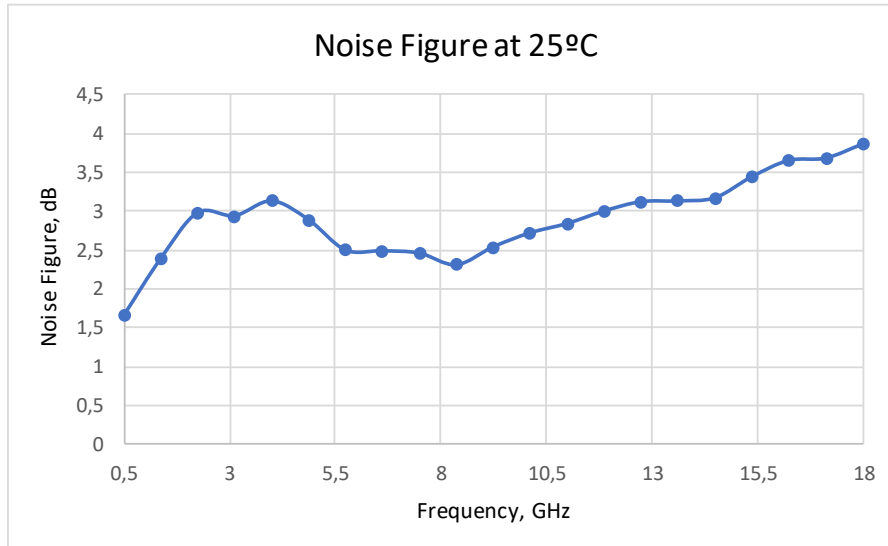


Figure 3: ERZ-LNA-0050-1800-18-3.5 Noise Figure

Input and Output Matching

Figure 4 shows input (S11) and output (S22) VSWR as a function of frequency at room temperature (25°C).

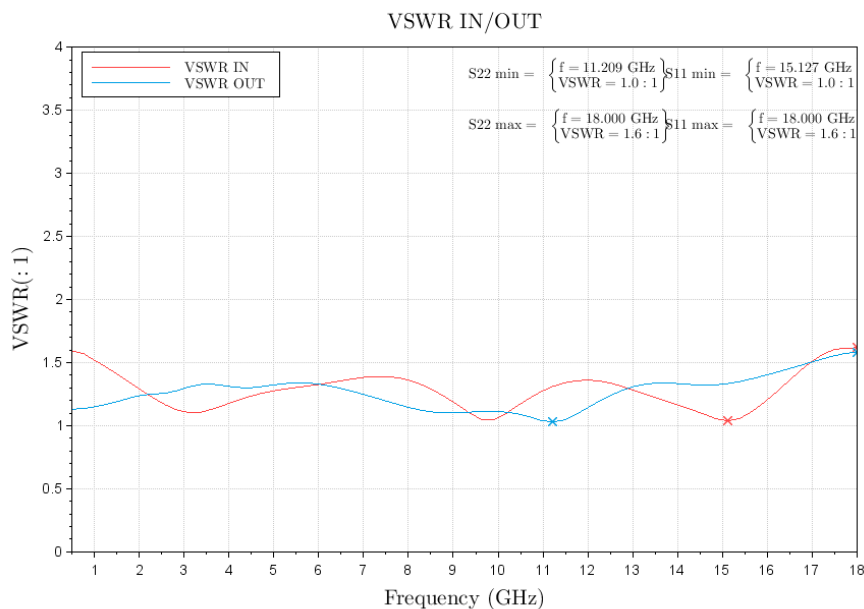


Figure 4: ERZ-LNA-0050-1800-18-3.5 Input&Output Matching

Absolute Maximum Ratings

Condition	Value
DC Voltage	+18 VDC
Maximum Input Power (CW)	20 dBm
Operation temperature (at case)	-45 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.



Mechanics and Housing

VER	MODIFICACIÓN / MODIFICATION	FECHA DATE	DIBUJADO DRAWN	COMP CHECK	APROB APVD
1	---				

NOTAS/NOTES:

- Tratamiento/ Treatment:
 - Arenado con bola de vidrio/ Shot peening
 - GOLD PLATED:
 - Electroless Nickel-Phosphorus NiP(10-15%) 11-13µm (ASTM B733, Tpe V, Class4)+ Au 2µm (MIL45204)

DIBUJO/DRAWING		NO. DE DIBUJO/NO. OF DRAWING	FECHA/DATE	ERZIA	
DIBUJO/DRAWING	CS	01	01/2023	DENOMINACIÓN / TITLE	
DISEÑO/DESIGN	JC	01	01/2023	ERZ-LNA-0050-1800-18-5	
COMPROBADO/CHECKED	TC	01	01/2023		
APROBADO/APP. /	RG	01	01/2023		
Dimensiones en mm [in] - Dimensiones en in [mm] [in]					
TOLERANCIAS GENERALES DIMENSIONES GENERALES TOLERANCES DIMENSIONS			ISO 2768-MH		
ARETAS BASTIDAS CON RAJ. 180º O CHAVANES DE 0.5x0.5P			R0.5		
BRESKALL CHAMF BOSTED WITH RAJ. 180º O CHAMFERE 0.5x0.5			R0.5		
RUGOSIDAD SUPERFICIAL SURFACE ROUGHNESS			N7		
MATERIAL MAT. EN ARMADO/TEC	USED ON	CONTROL	FORMATO/REV	CAGE CODE	CODIGO PART/NO
INVAR			A3	8822B	ERZ-LNA-0050-1800-18-5
WEIGHT	<15 g	ADOPCIÓN/ADOPTION	ESCALA/SCALE	2:1	SEGURIDAD/SECURITY
					CONFIDENTIAL
					REVISION 1 OF 1

Parameter	Value
Size	16.3x17.8x7.3 mm
Weight	12.8 grams +/-10%
RF Input Connector	SMA Female
RF Output Connector	SMA Female
DC Connector	Filtered Pins

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

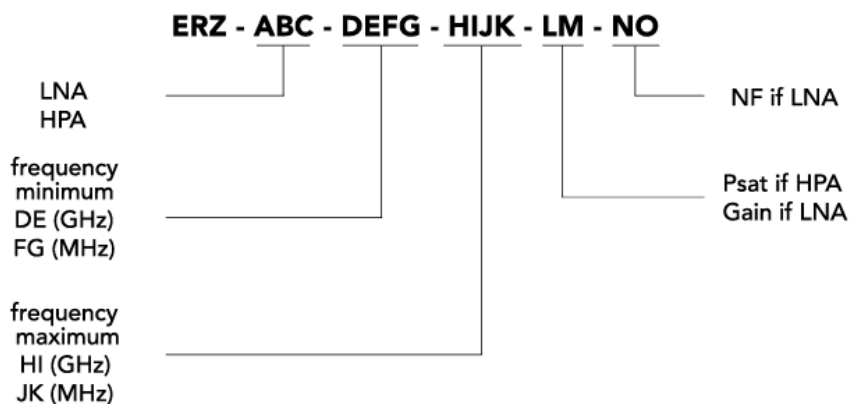
Most of ERZIA's products are based on rad-hard technologies and can be manufactured and integrated according to MIL / ECSS or specific hi-rel standard-screening for space, aeronautics, military or specific hi-reliability usage.

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

20230602_rev1.0

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