



### Main Features:

- Frequency Range: 0.5 to 18 GHz.
- Typical values: Gain -8 to +25 dB, NF 4 dB
- RF connectors (I/O): SMA (F)
- DB9 connector for DC connection and control
- Several mounting options
- Gold plated compact aluminum housing
- Hi-reliability and dedicated screening/ environmental tests available under request

### ERZ-LNA-0050-1800-23-8

The ERZ-LNA-0050-1800-23-8 is a Wideband Low Noise Amplifier with variable gain and a noise figure of 4 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) @min att	14	16	18	dBm
Small Signal Gain (@min att / @max att)	20 / -8	23 / -3	26 / -1	dB
Gain Flatness (@min att / @max att)	-	±1.5 / ±3	-	dB
Noise Figure (@min att)	-	4	8	dB
VSWR input	-	1.5:1	2.0:1	-
VSWR output	-	1.5:1	2.2:1	-
DC Voltage	9	12	15	V
Power Consumption	-	2	-	W
Attenuation range	-	25 (Step 0.5)	-	dB
RF Connectors	SMA Female IN/OUT			-

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

### Small Signal Gain

Figure 1 and 2 show the small signal gain measurement at minimum attenuation and at 25 dB attenuation as a function of frequency at room temperature (25°C).

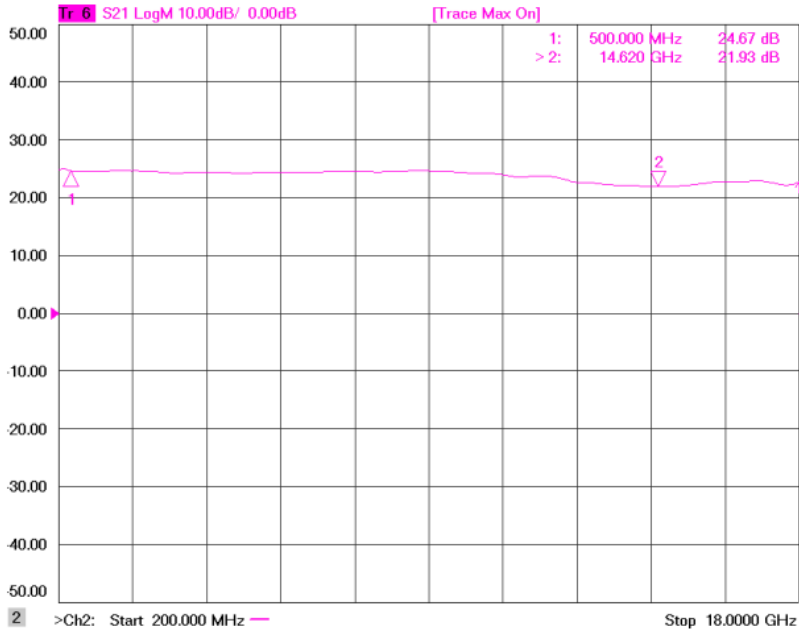


Figure 1: ERZ-LNA-0050-1800-23-8 Small Signal Gain at min att

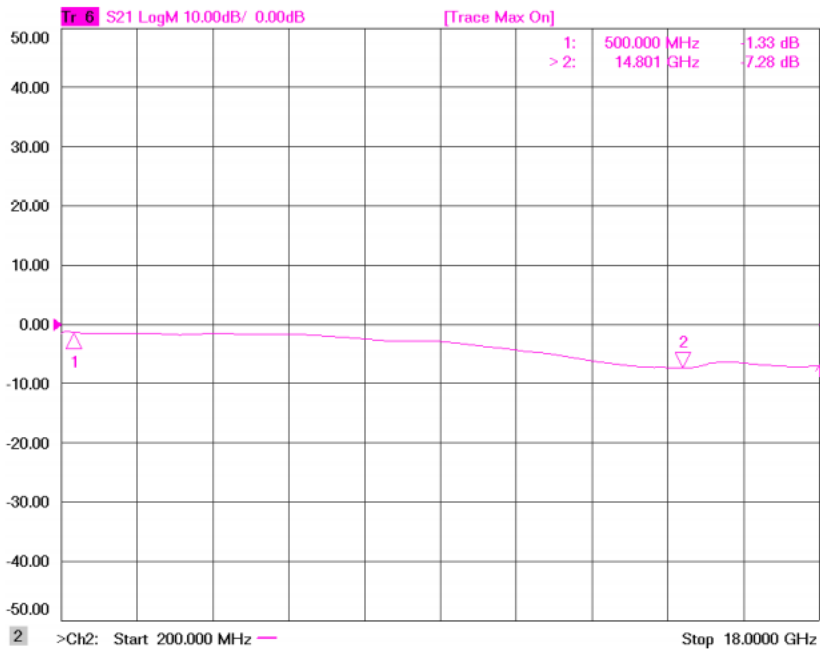


Figure 2: ERZ-LNA-0050-1800-23-8 Small Signal Gain at 25dB att

### Output Power

Figure 3 shows output power at 1 dB compression measurement as a function of frequency at room (25°C) and high temperature.

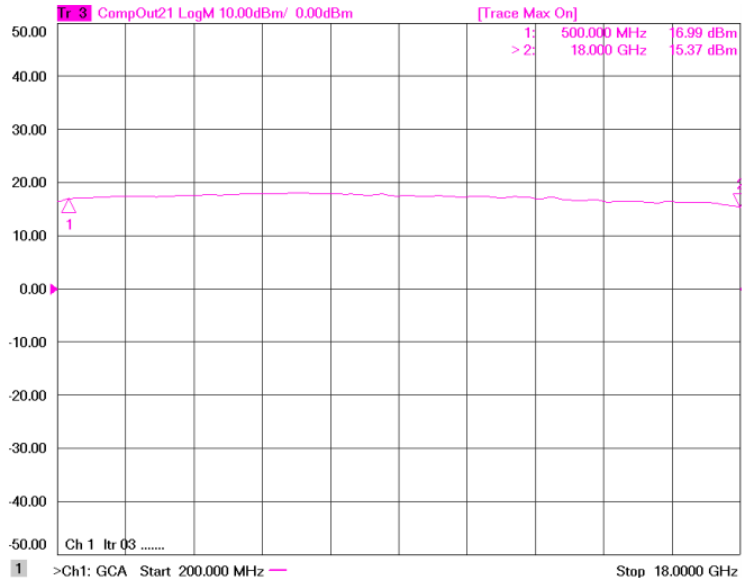


Figure 3: ERZ-LNA-0050-1800-23-8 P1dB

### Noise Figure

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

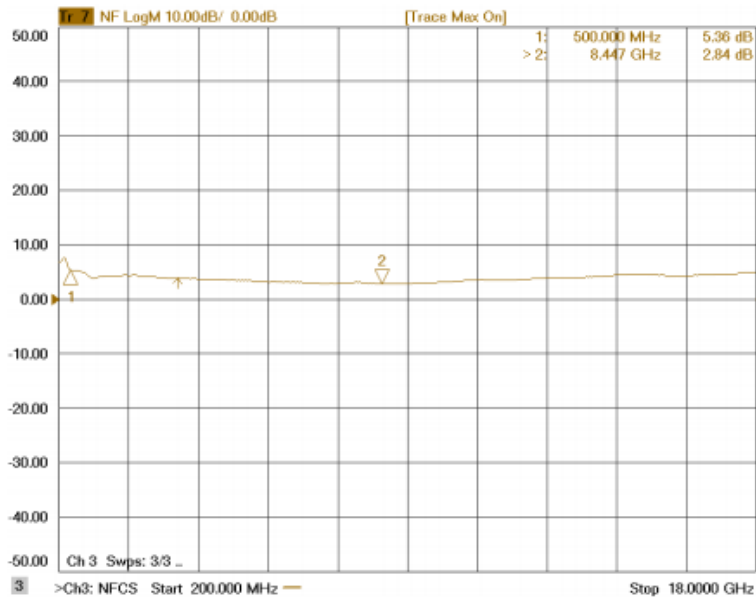


Figure 4: ERZ-LNA-0050-1800-23-8 Noise Figure at min att

### 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).

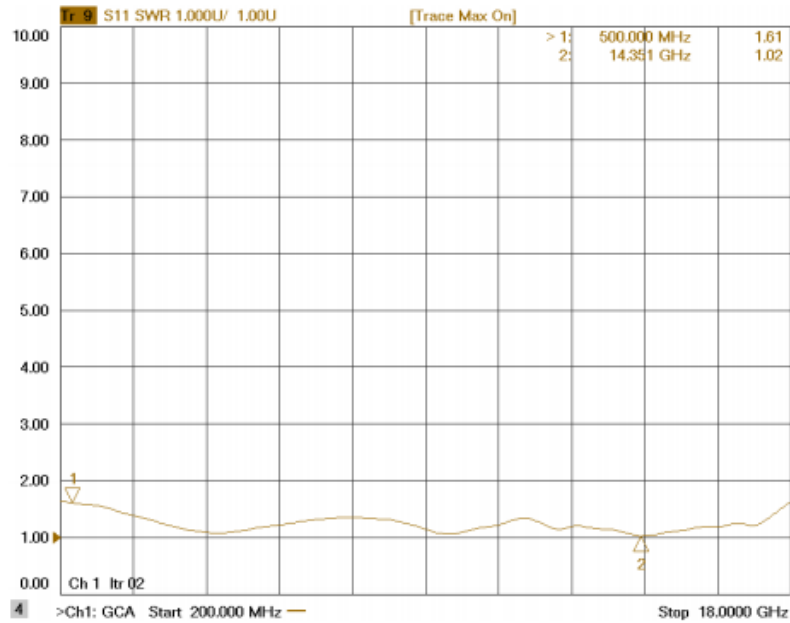


Figure 5: ERZ-LNA-0050-1800-23-8 Input Matching

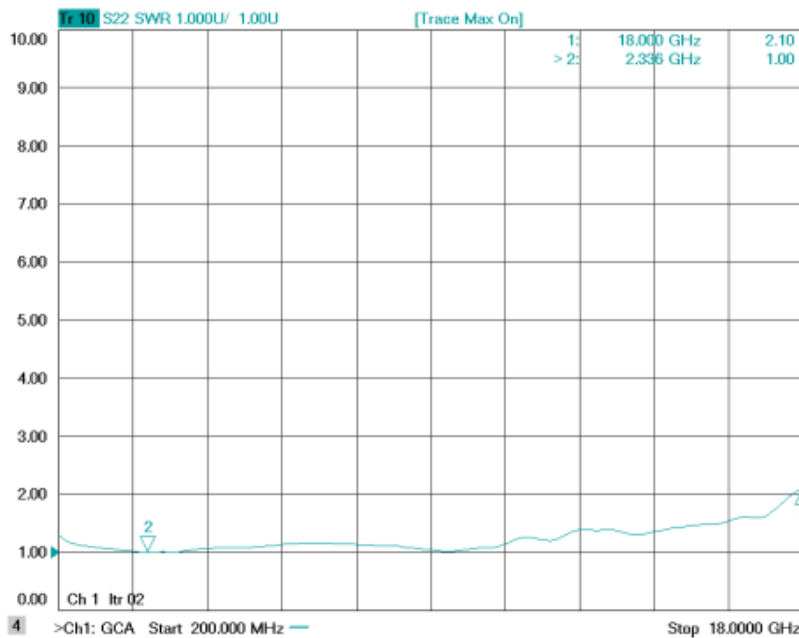
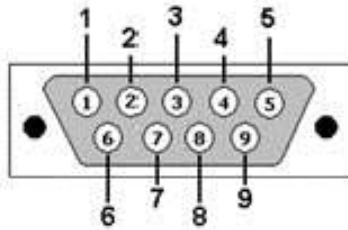


Figure 6: ERZ-LNA-0050-1800-23-8 Output Matching

### Electrical Interfaces

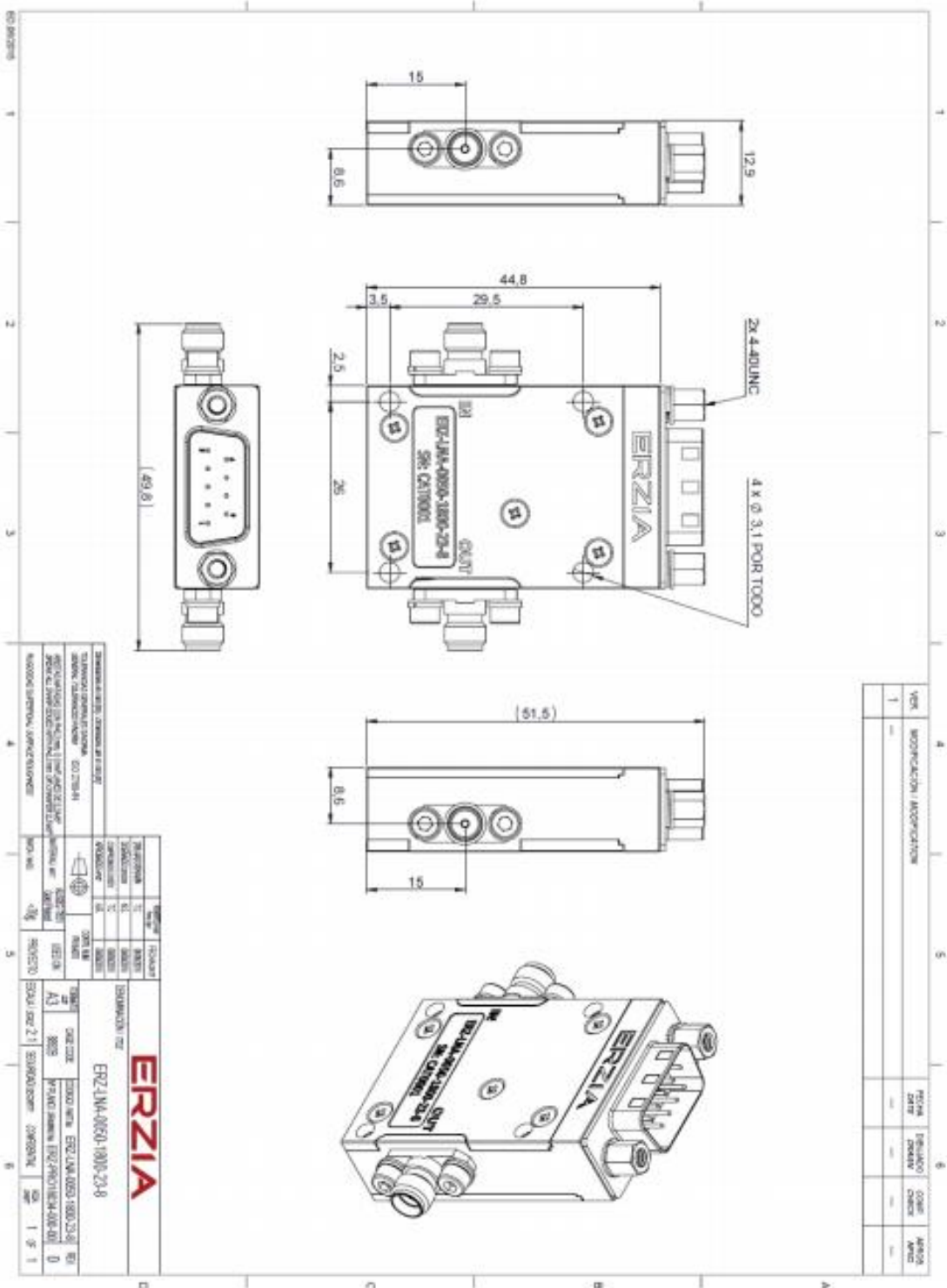
DB9 male connector



*DB9 Male Front View.*

Pin No.	Description	Signal
1	VCC	+12 VDC Power source
2	VCC	+12 VDC Power source
3	DGND	Digital Ground
4	MISO	Master Input Slave Output
5	MOSI	Master Output Slave Input
6	GND	Power Ground
7	GND	Power Ground
8	CS	Chip Select
9	SCLK	Signal Clock

### Mechanics and Housing



GENERAL INFORMATION		REVISIONS	
DESCRIPTION	ERZ-LNA-0050-1800-23-8	REV.	DATE
DESIGNER	AS	REV. 1	21/01/2023
DATE	21/01/2023	REV. 2	21/01/2023
PROJECT	ERZ-LNA-0050-1800-23-8	REV. 3	21/01/2023
CLIENT	ERZIA	REV. 4	21/01/2023
STATUS	DESIGN	REV. 5	21/01/2023
APPROVED BY	AS	REV. 6	21/01/2023
DATE	21/01/2023	REV. 7	21/01/2023
PROJECT MANAGER	ERZIA	REV. 8	21/01/2023
CLIENT MANAGER	ERZIA	REV. 9	21/01/2023
DESIGNER	AS	REV. 10	21/01/2023
DATE	21/01/2023	REV. 11	21/01/2023
PROJECT	ERZ-LNA-0050-1800-23-8	REV. 12	21/01/2023
CLIENT	ERZIA	REV. 13	21/01/2023
STATUS	DESIGN	REV. 14	21/01/2023
APPROVED BY	AS	REV. 15	21/01/2023
DATE	21/01/2023	REV. 16	21/01/2023
PROJECT MANAGER	ERZIA	REV. 17	21/01/2023
CLIENT MANAGER	ERZIA	REV. 18	21/01/2023
DESIGNER	AS	REV. 19	21/01/2023
DATE	21/01/2023	REV. 20	21/01/2023
PROJECT	ERZ-LNA-0050-1800-23-8	REV. 21	21/01/2023
CLIENT	ERZIA	REV. 22	21/01/2023
STATUS	DESIGN	REV. 23	21/01/2023
APPROVED BY	AS	REV. 24	21/01/2023
DATE	21/01/2023	REV. 25	21/01/2023
PROJECT MANAGER	ERZIA	REV. 26	21/01/2023
CLIENT MANAGER	ERZIA	REV. 27	21/01/2023
DESIGNER	AS	REV. 28	21/01/2023
DATE	21/01/2023	REV. 29	21/01/2023
PROJECT	ERZ-LNA-0050-1800-23-8	REV. 30	21/01/2023
CLIENT	ERZIA	REV. 31	21/01/2023
STATUS	DESIGN	REV. 32	21/01/2023
APPROVED BY	AS	REV. 33	21/01/2023
DATE	21/01/2023	REV. 34	21/01/2023
PROJECT MANAGER	ERZIA	REV. 35	21/01/2023
CLIENT MANAGER	ERZIA	REV. 36	21/01/2023
DESIGNER	AS	REV. 37	21/01/2023
DATE	21/01/2023	REV. 38	21/01/2023
PROJECT	ERZ-LNA-0050-1800-23-8	REV. 39	21/01/2023
CLIENT	ERZIA	REV. 40	21/01/2023
STATUS	DESIGN	REV. 41	21/01/2023
APPROVED BY	AS	REV. 42	21/01/2023
DATE	21/01/2023	REV. 43	21/01/2023
PROJECT MANAGER	ERZIA	REV. 44	21/01/2023
CLIENT MANAGER	ERZIA	REV. 45	21/01/2023
DESIGNER	AS	REV. 46	21/01/2023
DATE	21/01/2023	REV. 47	21/01/2023
PROJECT	ERZ-LNA-0050-1800-23-8	REV. 48	21/01/2023
CLIENT	ERZIA	REV. 49	21/01/2023
STATUS	DESIGN	REV. 50	21/01/2023
APPROVED BY	AS	REV. 51	21/01/2023
DATE	21/01/2023	REV. 52	21/01/2023
PROJECT MANAGER	ERZIA	REV. 53	21/01/2023
CLIENT MANAGER	ERZIA	REV. 54	21/01/2023
DESIGNER	AS	REV. 55	21/01/2023
DATE	21/01/2023	REV. 56	21/01/2023
PROJECT	ERZ-LNA-0050-1800-23-8	REV. 57	21/01/2023
CLIENT	ERZIA	REV. 58	21/01/2023
STATUS	DESIGN	REV. 59	21/01/2023
APPROVED BY	AS	REV. 60	21/01/2023
DATE	21/01/2023	REV. 61	21/01/2023
PROJECT MANAGER	ERZIA	REV. 62	21/01/2023
CLIENT MANAGER	ERZIA	REV. 63	21/01/2023
DESIGNER	AS	REV. 64	21/01/2023
DATE	21/01/2023	REV. 65	21/01/2023
PROJECT	ERZ-LNA-0050-1800-23-8	REV. 66	21/01/2023
CLIENT	ERZIA	REV. 67	21/01/2023
STATUS	DESIGN	REV. 68	21/01/2023
APPROVED BY	AS	REV. 69	21/01/2023
DATE	21/01/2023	REV. 70	21/01/2023
PROJECT MANAGER	ERZIA	REV. 71	21/01/2023
CLIENT MANAGER	ERZIA	REV. 72	21/01/2023
DESIGNER	AS	REV. 73	21/01/2023
DATE	21/01/2023	REV. 74	21/01/2023
PROJECT	ERZ-LNA-0050-1800-23-8	REV. 75	21/01/2023
CLIENT	ERZIA	REV. 76	21/01/2023
STATUS	DESIGN	REV. 77	21/01/2023
APPROVED BY	AS	REV. 78	21/01/2023
DATE	21/01/2023	REV. 79	21/01/2023
PROJECT MANAGER	ERZIA	REV. 80	21/01/2023
CLIENT MANAGER	ERZIA	REV. 81	21/01/2023
DESIGNER	AS	REV. 82	21/01/2023
DATE	21/01/2023	REV. 83	21/01/2023
PROJECT	ERZ-LNA-0050-1800-23-8	REV. 84	21/01/2023
CLIENT	ERZIA	REV. 85	21/01/2023
STATUS	DESIGN	REV. 86	21/01/2023
APPROVED BY	AS	REV. 87	21/01/2023
DATE	21/01/2023	REV. 88	21/01/2023
PROJECT MANAGER	ERZIA	REV. 89	21/01/2023
CLIENT MANAGER	ERZIA	REV. 90	21/01/2023
DESIGNER	AS	REV. 91	21/01/2023
DATE	21/01/2023	REV. 92	21/01/2023
PROJECT	ERZ-LNA-0050-1800-23-8	REV. 93	21/01/2023
CLIENT	ERZIA	REV. 94	21/01/2023
STATUS	DESIGN	REV. 95	21/01/2023
APPROVED BY	AS	REV. 96	21/01/2023
DATE	21/01/2023	REV. 97	21/01/2023
PROJECT MANAGER	ERZIA	REV. 98	21/01/2023
CLIENT MANAGER	ERZIA	REV. 99	21/01/2023
DESIGNER	AS	REV. 100	21/01/2023

VER.	MODIFICAZIONE / AGGIORNAMENTO	REVISIONI	REVISIONI	REVISIONI
1				

### Absolute Maximum Ratings

Condition	Value
DC Voltage	+15 VDC
Maximum Input Power (CW)	+15 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.



### 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

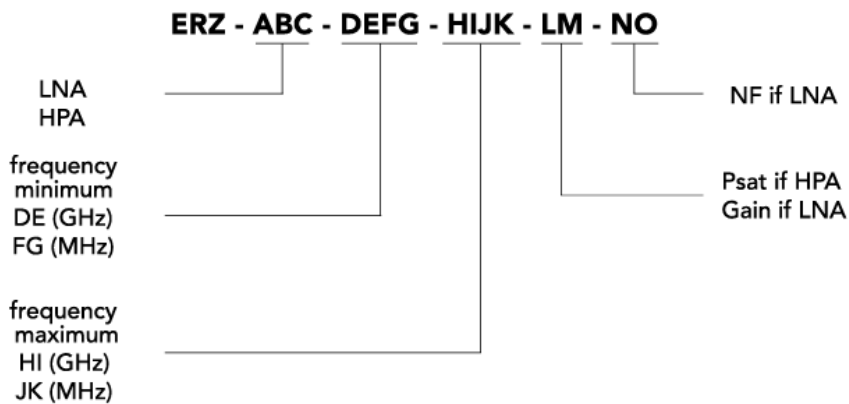
Most of ERZIA's products are based on rad-hard technologies and can be manufactured and integrated according to MIL / ECSS or specific hi-rel standard-screening for space, aeronautics, military or specific hi-reliability usage.

### 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

20200611\_rev1.0

Copyright © 2020 ERZIA Technologies. All rights reserved. This information is commercial and indicative, subject to change without notice

Tel: +34 942 29 13 42

[sales@erzia.com](mailto:sales@erzia.com)

[www.erzia.com](http://www.erzia.com)