



### Main Features:

- Frequency Range: 26 to 40 GHz.
- Typical values: Psat 33 dBm, Gain 35 dB
- RF connectors (I/O): 2.92mm Female
- D-sub 9 connector for DC & Control
- Several mounting options
- Gold plated compact aluminum housing
- Hi-reliability and dedicated screening/ environmental tests available under request

### ERZ-HPA-2600-4000-33-A

The ERZ-HPA-2600-4000-33-A is a Ka Band High Power Amplifier providing an output power of 33 dBm and gain of 35 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   | 26                   | -     | 40    | GHz   |
| Output Power (Psat)                               | 31                   | 33    | 36    | dBm   |
| Output Power (P1dB)                               | 27                   | 32    | 35    | dBm   |
| OIP3  | 33                   | 37    | 40    | dBm   |
| Small Signal Gain                                 | 29                   | 35    | 41    | dB    |
| Gain Flatness<br>(over frequency and temperature) | -                    | -     | ±5    | dB    |
| Noise Figure                                      | 6                    | 7     | 8.5   | dB    |
| VSWR input  | 1.0:1                | 1.8:1 | 2.5:1 | -     |
| VSWR output                                       | 1.0:1                | 1.8:1 | 2.1:1 | -     |
| DC Voltage  | 9                    | 12    | 15    | V     |
| Power Consumption @Psat                           | -                    | 30    | -     | W     |
| RF Connectors                                     | 2.92mm Female IN/OUT |       |       | -     |

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

### Saturated Output power

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

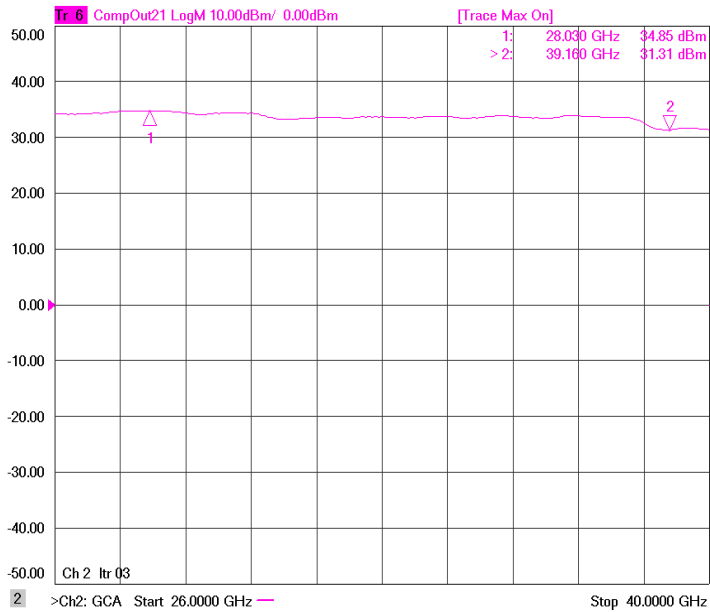


Figure 1: ERZ-HPA-2600-4000-33-A Psat

### Output Power at 1 dB Compression (P1dB)

Figure 2 shows output power (P1dB) measurement as a function of frequency at room temperature (25°C).

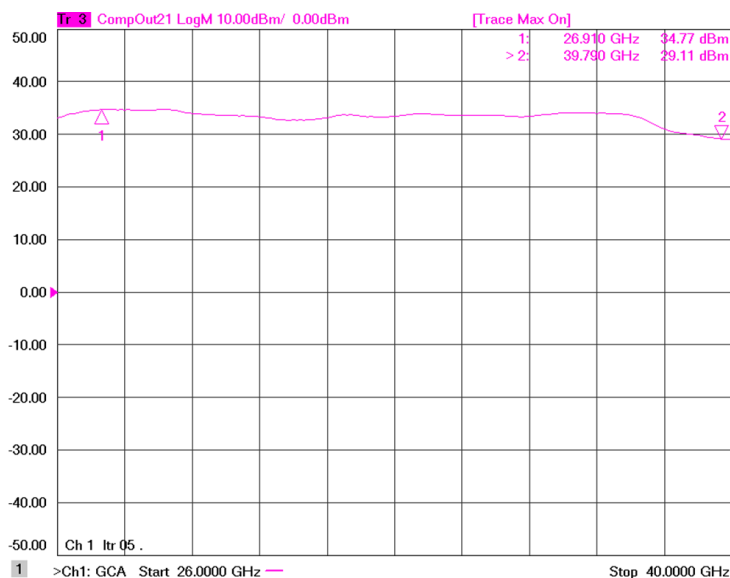


Figure 2: ERZ-HPA-2600-4000-33-A P1dB

### Small Signal Gain

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

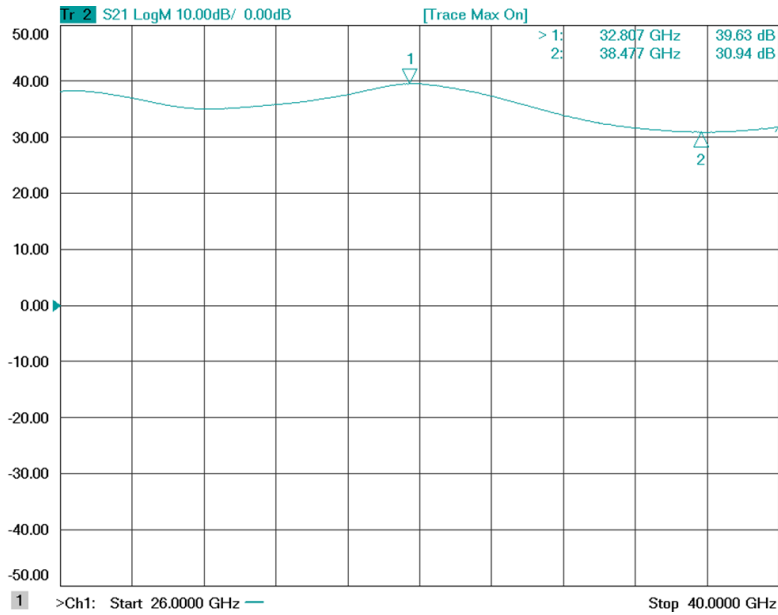


Figure 3: ERZ-HPA-2600-4000-33-A Small Signal Gain

### OIP3

Figure 4 shows the output third-order intercept point measurement as a function of frequency at room temperature (25°C).

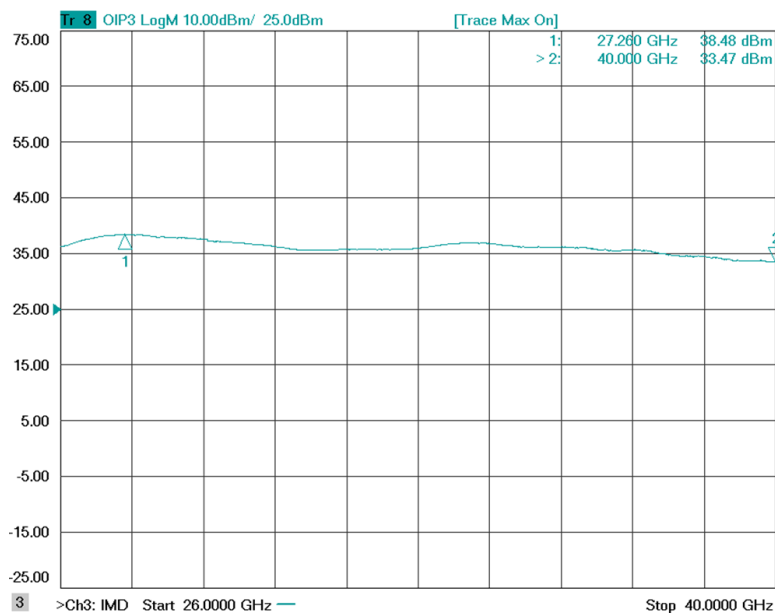


Figure 4: ERZ-HPA-2600-4000-33-A OIP3

### Small Signal Gain flatness

Figure 5 shows small signal gain flatness over frequency and temperature at -45°C, 25°C and 85°C.

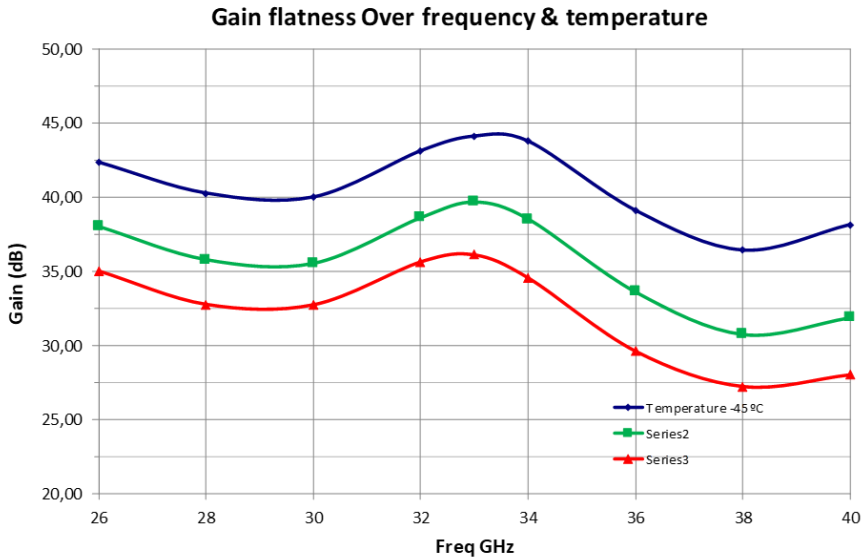


Figure 5: ERZ-HPA-2600-4000-33-A Gain flatness

### Noise Figure

Figure 6 shows noise figure measurement as a function of frequency at room temperature (25°C).

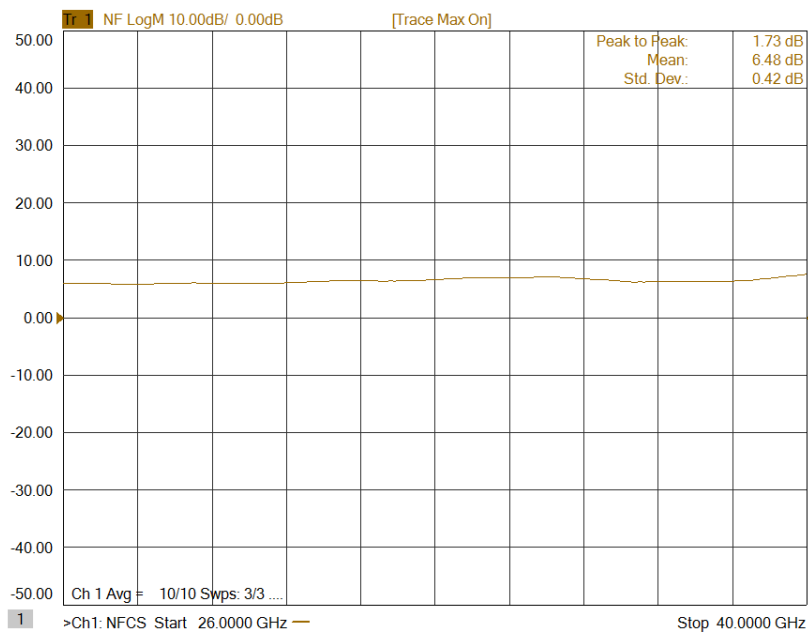


Figure 6: ERZ-HPA-2600-4000-33-A Noise Figure

### Input and Output Matching

Figure 7 and Figure 8 show input (S11) and output (S22) VSWR as a function of frequency at room temperature (25°C).

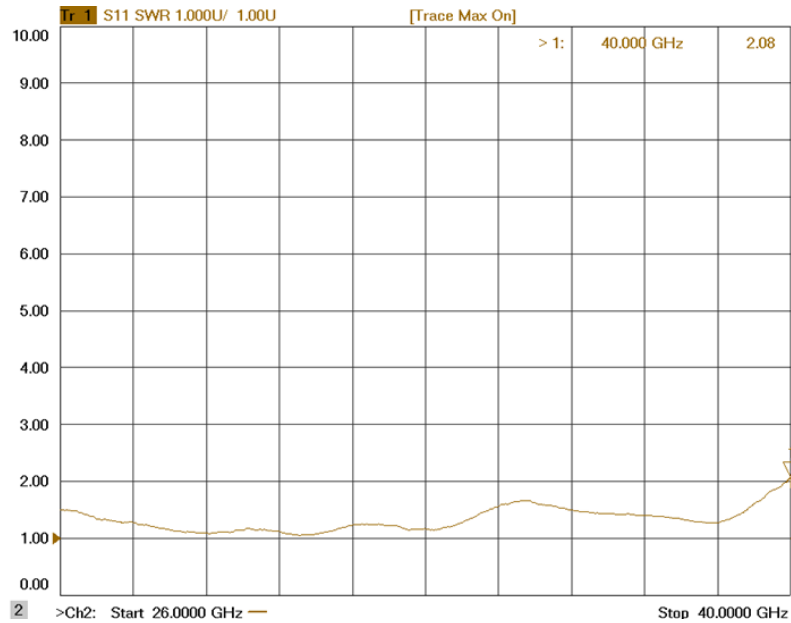


Figure 7: ERZ-HPA-2600-4000-33-A Input Matching

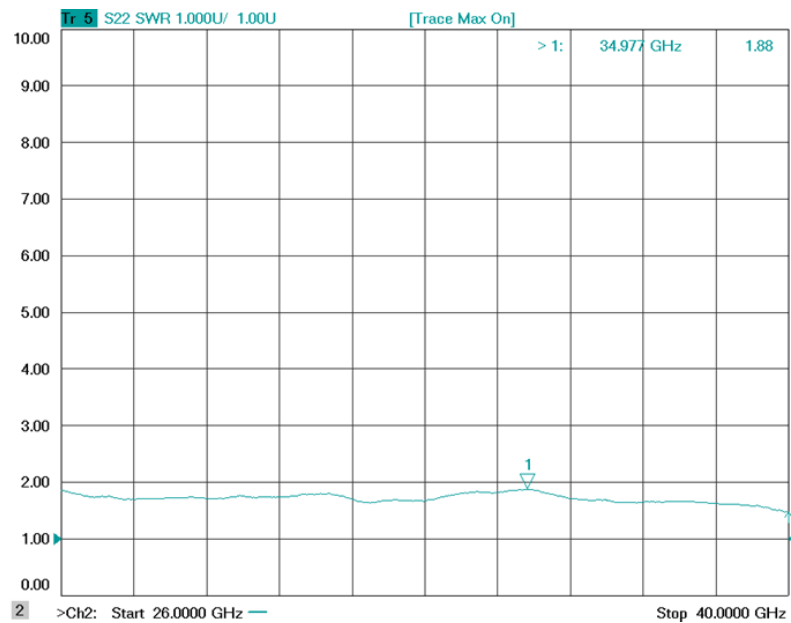


Figure 8: ERZ-HPA-2600-4000-33-A Output Matching

### DC & Control Interface

Power supply characteristics

- Input Voltage: 12 ±3 VDC
- Input Current : 2.5 A

Control characteristics

- TTL command (ON/OFF function). Switching time 1us.
- Temperature & Current monitoring.

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

| PIN | LABEL  | SIGNAL              | DESCRIPTION  |
|-----|--------|---------------------|--|
| 1   | VCC    | +12V Power Source   | Power Supply   |
| 2   | VCC    | +12V Power Source   | Power Supply   |
| 3   | GND    | Ground              | Power Ground   |
| 4   | TA_SEN | Temperature monitor | $V_o = -11.69 \text{ mV}/^\circ\text{C} \times T + 1.8663 \text{ V}$ |
| 5   | I_SEN  | Current monitor     | 0.1V per Amp   |
| 6   | GND    | Power Ground        | Power Ground   |
| 7   | GND    | Power Ground        | Power Ground   |
| 8   | EN     | Active High Enable  | OFF (GND);<br>ON (3.3V to 5V)  |
| 9   | NC     | Not Connected       | -  |

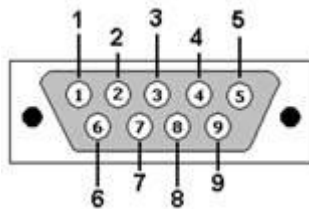


Figure 8: D-sub 9 Connector (Front view)

### 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 |

### Absolute Maximum Ratings

| Condition                       | Value        |
|---------------------------------|--------------|
| DC Voltage                      | 15 VDC       |
| Maximum Input Power (CW)        | 10 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.

### Environmental Specifications (By Design)

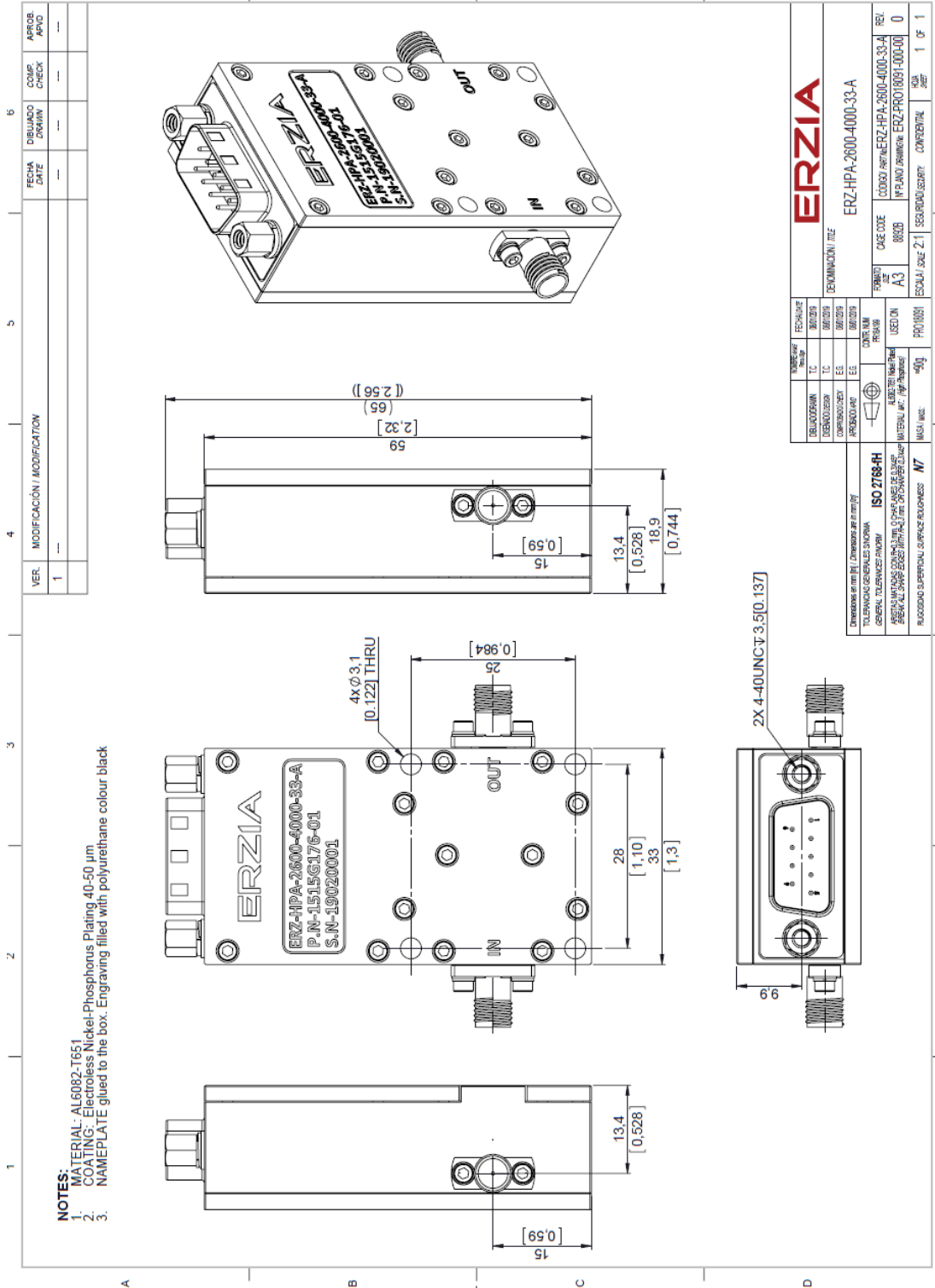
|                        |                      |                              |
|------------------------|----------------------|------------------------------|
| Operating Temperature: | -45 to +85 °C        | (MIL-STD-810F, method 520.2) |
| Storage Temperature:   | -55 to 125 °C        | (MIL-STD-810F, 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





## 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

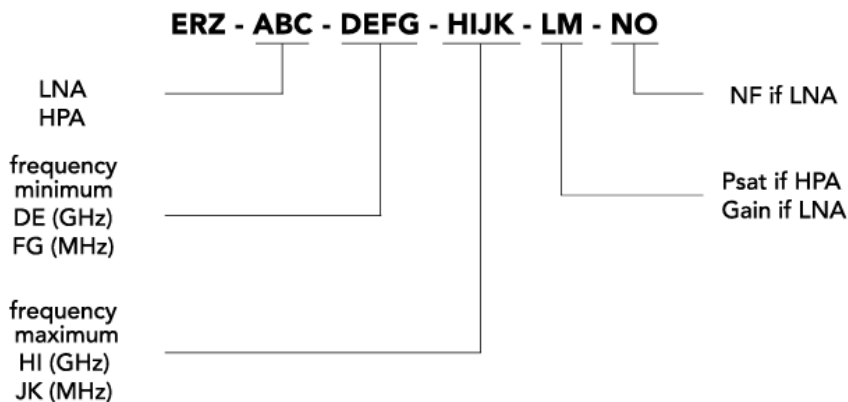
Most of ERZIA's products are based on rad-hard technologies and can be manufactured and integrated according to MIL / ECSS or specific hi-rel standard-screening for space, aeronautics, military or specific hi-reliability usage.

## 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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