



Main Features:

- Frequency Range: 32 to 38 GHz.
- Typical values: Psat 40 dBm, Gain 49 dB
- RF connectors (I/O): 2.92mm Female
- DB9 connector for DC & Control connection
- Several mounting options
- Gold plated compact aluminum housing
- Hi-reliability and dedicated screening/ environmental tests available under request

ERZ-HPA-3200-3800-40

The ERZ-HPA-3200-3800-40 is a Ka Band High Power Amplifier providing an output power of 40 dBm and a gain of 49 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 | 32 | - | 38 | GHz |
| Output Power (Psat) | 39 | 40 | 41 | dBm |
| Small Signal Gain | 44 | 49 | 53 | dB |
| Gain Flatness | - | ± 4 | - | dB |
| Noise Figure | - | 9 | - | dB |
| VSWR input | 1.1:1 | 1.2:1 | 1.5:1 | - |
| VSWR output | 1.1:1 | 1.3:1 | 2.0:1 | - |
| DC Voltage | 20 | 24 | 28 | V |
| Power Consumption | - | 30 @ Lineal 80 @ Psat | - | W |
| Connectors | 2.92mm Female IN/OUT | | | - |

Specifications at a case temperature of 25°C

Saturated output power

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

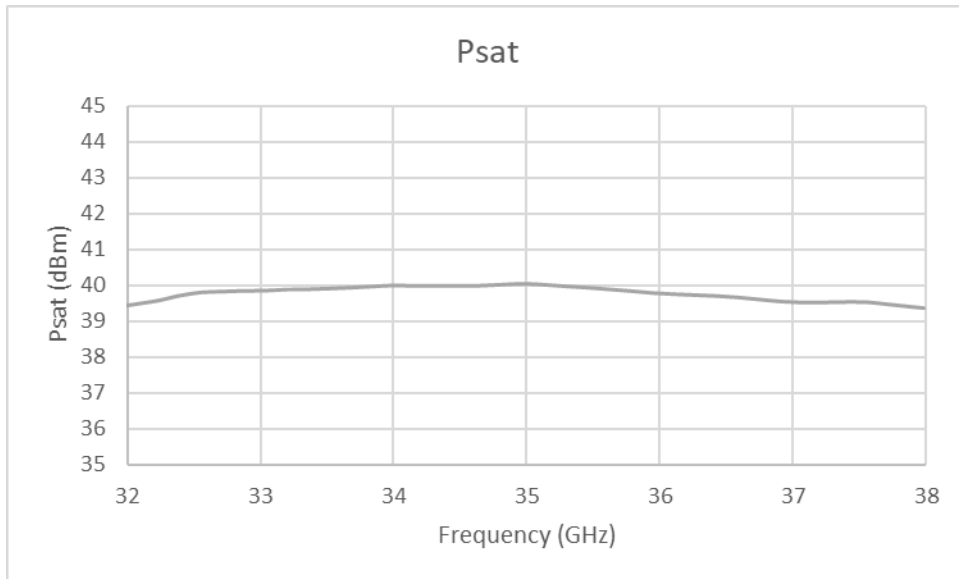


Figure 1: ERZ-HPA-3200-3800-40 P_{sat}

Small Signal Gain

Figure 2 shows the small signal gain measurement as a function of frequency at room temperature (25°C).

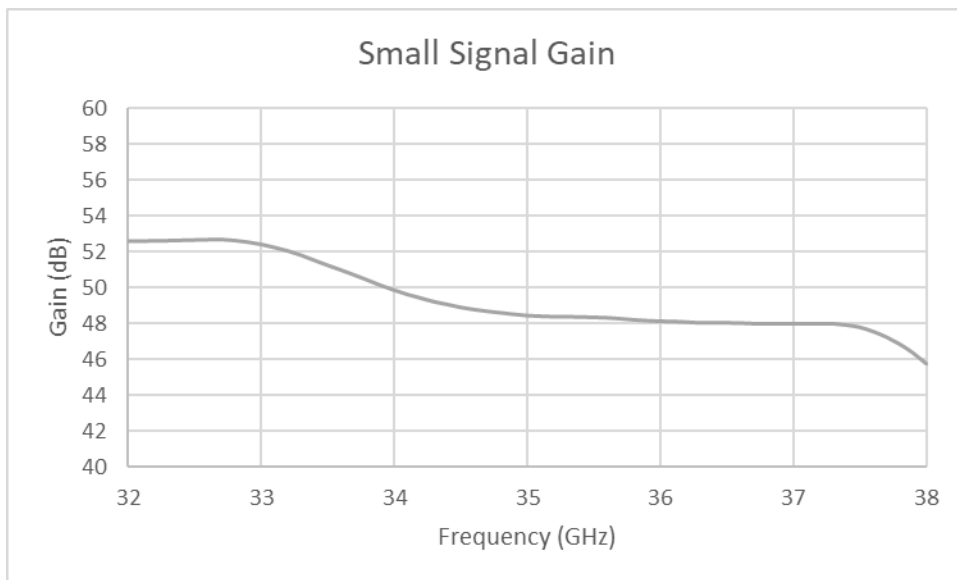


Figure 2: ERZ-HPA-3200-3800-40 Small Signal Gain

Input and Output Matching

Figure 3 shows input reflection coefficients (S11) as a function of frequency at room temperature (25°C).

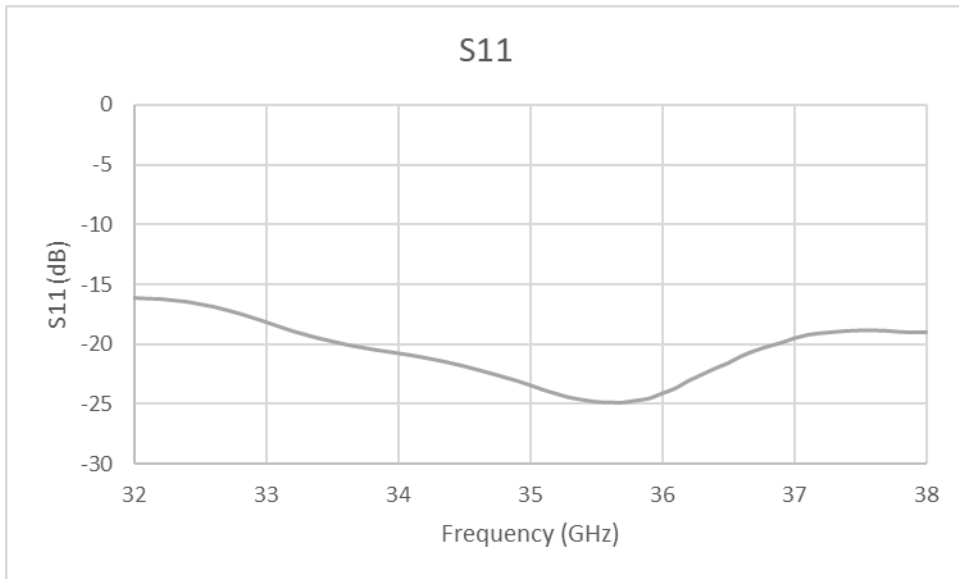


Figure 3: ERZ-HPA-3200-3800-40 S11

Figure 4 shows output reflection coefficients (S22) as a function of frequency at room temperature (25°C).

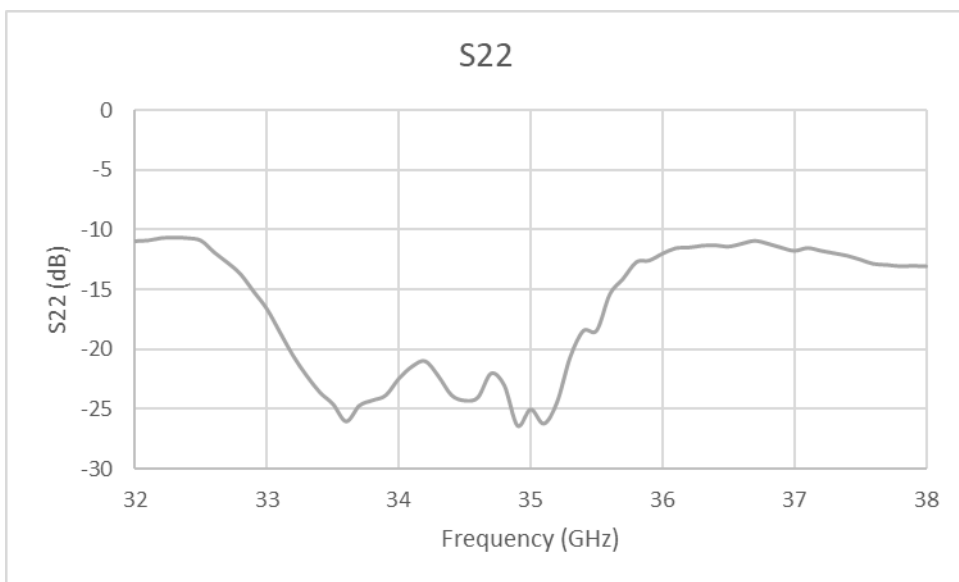


Figure 4: ERZ-HPA-3200-3800-40 S22

Absolute Maximum Ratings

| Condition | Value |
|---------------------------------|-------------|
| DC Voltage | 28 VDC |
| Maximum Input Power (CW) | -5 dBm |
| Operation temperature (at case) | -35 to 70°C |
| Storage temperature | -45 to 85°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) | -35°C, 25°C, 70°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) | -35°C to 70°C |

Environmental Specifications (By Design)

| | | |
|------------------------|----------------------|------------------------------|
| Operating Temperature: | -35 to +70 °C | (MIL-STD-810F, method 520.2) |
| Storage Temperature: | -45 to 85 °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.



DC & Control Interface

Power supply characteristics

- Input Voltage: 24 ±4 VDC
- Input Current : 3.3 A

Control characteristics

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

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

| PIN | LABEL | SIGNAL | DESCRIPTION |
|-----|-------|---------------------|--|
| 1 | VCC | +24V Power Source | Power Supply |
| 2 | VCC | +24V Power Source | Power Supply |
| 3 | GND | Ground | Ground |
| 4 | EN | LVTTTL 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 | $V_o = 0.1\text{V/A}$ |

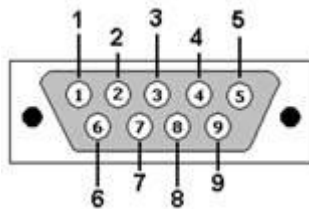
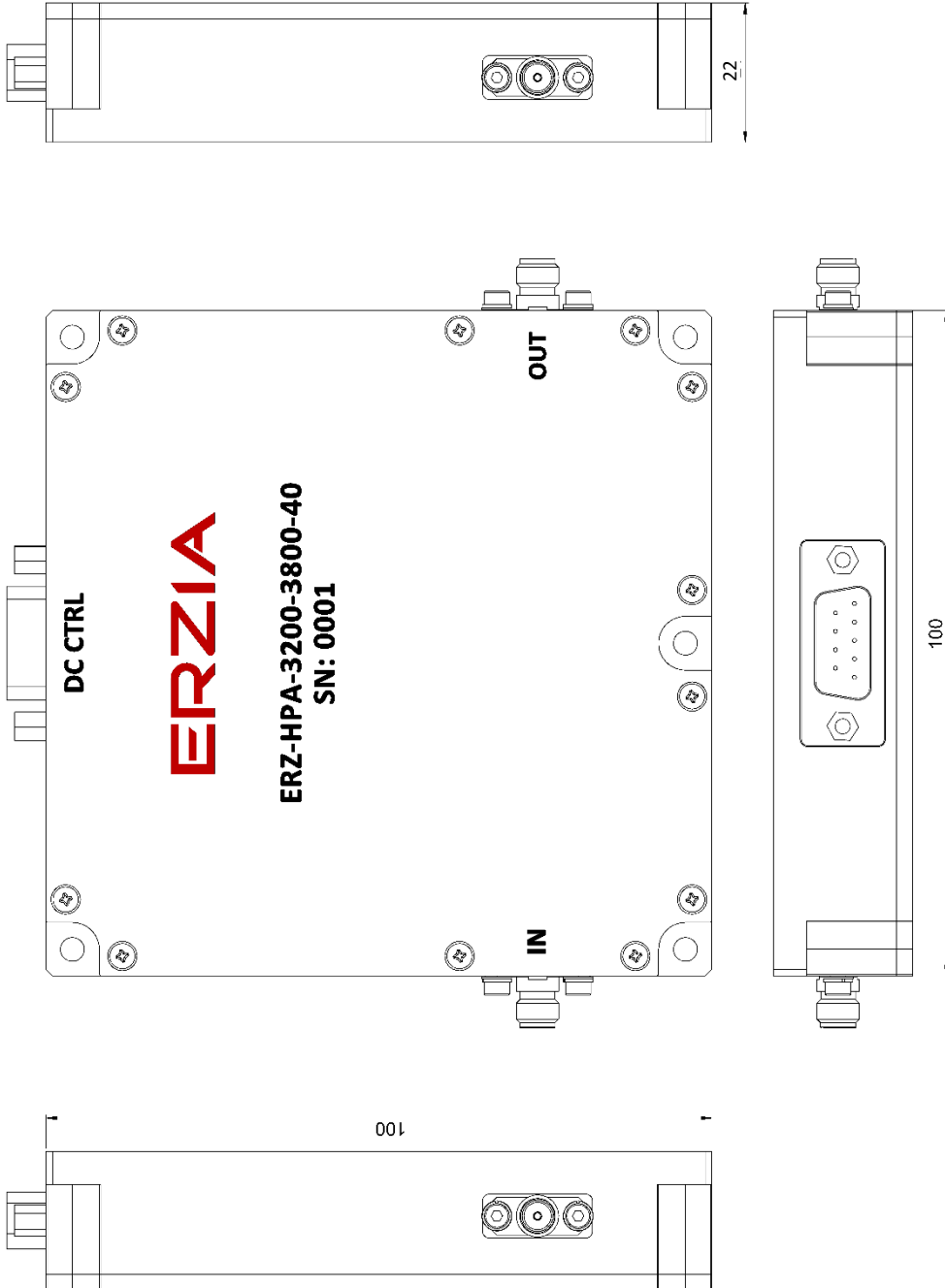


Figure 5: D-sub 9 Connector (Front view)

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

20200305_rev1.1

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