



Main Features:

- Frequency Range: 34 to 36 GHz.
- Typical values: Psat 43 dBm, Gain 45 dB
- RF connectors (I/O): 2.92mm Female
- DB9 connector for DC & Control
- Several mounting options
- Compact aluminum housing
- Hi-reliability and dedicated screening/
environmental tests available under request

ERZ-HPA-3400-3600-43

The ERZ-HPA-3400-3600-43 is a Pulsed Ka Band High Power Amplifier providing an output power of 43 dBm and a gain of 45 dB. Ideal for Radar applications.

Typical applications:

- Radar

Performance

Parameter	Value			Units
	Min	Typ	Max	
Frequency	34	-	36	GHz
Output Power @Psat (PW 40 usec 25% DC)	42	43	45	dBm
Duty Cycle	-	-	50	%
Pulse Width	-	-	50	us
Small Signal Gain	42	45	48	dB
Gain Flatness	-	±1.5	-	dB
Noise Figure	-	8	-	dB
VSWR input	-	-	1.5:1	-
VSWR output	-	-	1.5:1	-
DC Voltage	25	28	31	V
Power Consumption [PW 40 usec 25% DC]	-	165 [40]	-	W
RF 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 different temperatures.

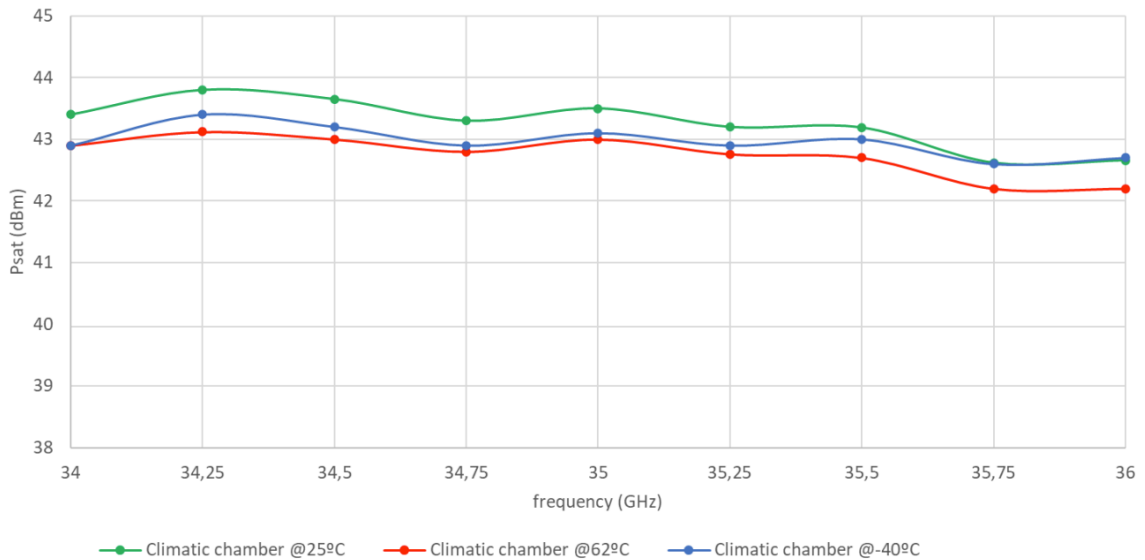


Figure 1: ERZ-HPA-3400-3600-43 P_{sat}

Small Signal Gain

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

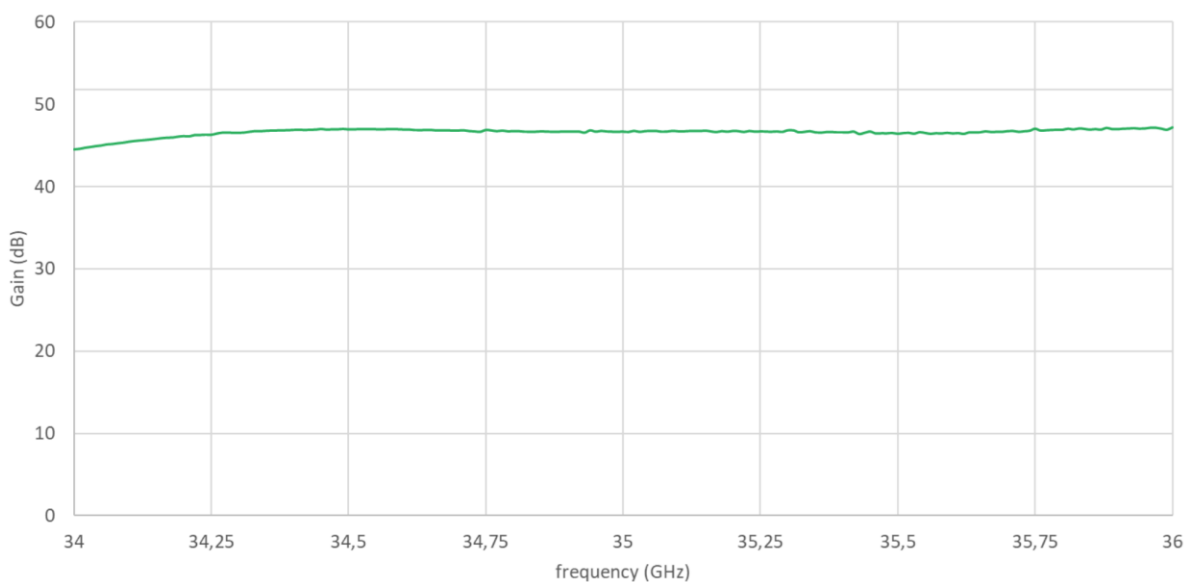


Figure 2: ERZ-HPA-3400-3600-43 Small Signal Gain

Input & Output Matching

Figure 3 and 4 show input (VSWR IN) and output (VSWR OUT) matching measurements as a function of frequency at room temperature (25°C).

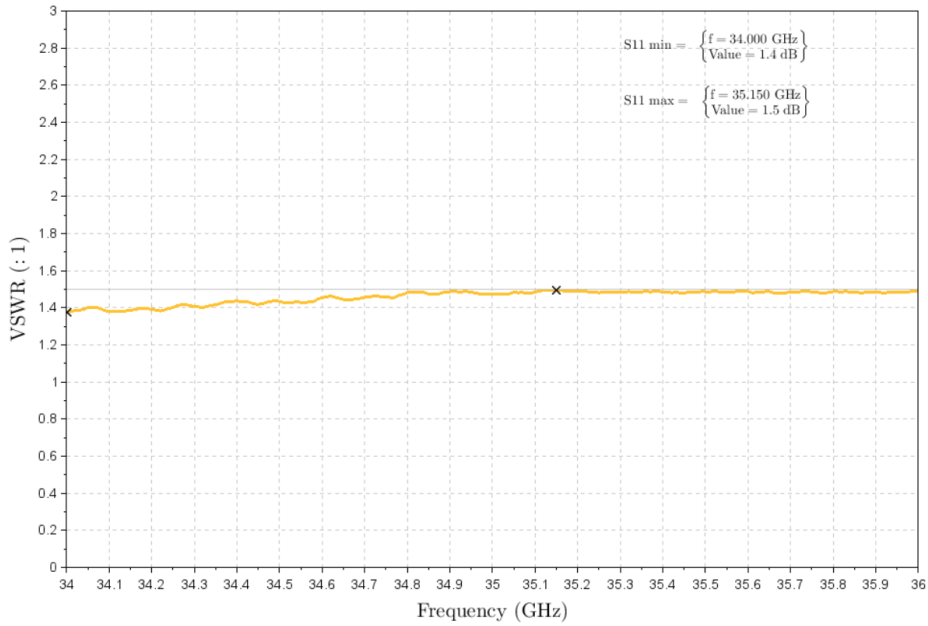


Figure : ERZ-HPA-3400-3600-43 VSWR IN

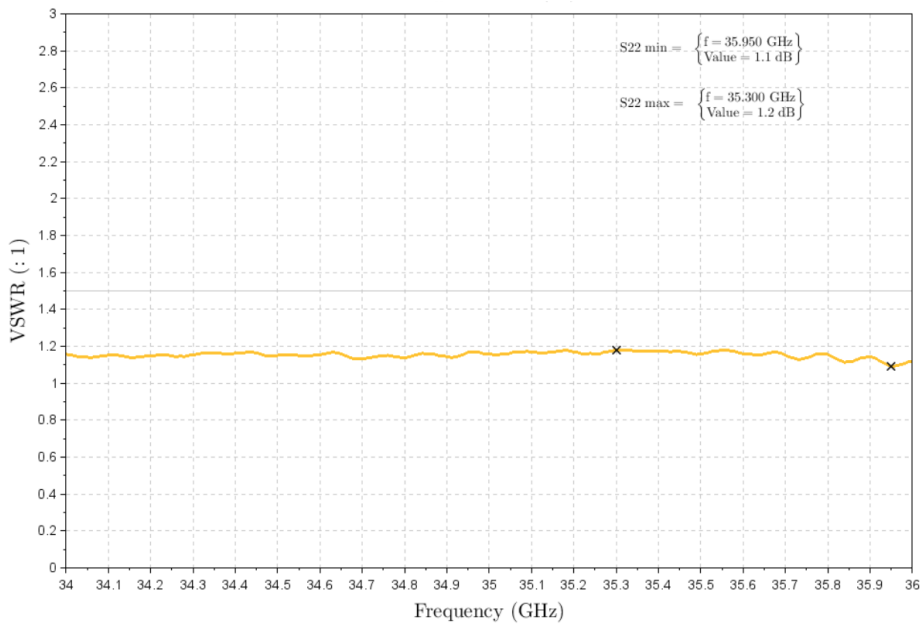


Figure 4: ERZ-HPA-3400-3600-43 VSWR OUT

DC & Control Interface

Power supply characteristics

- Input Voltage: 24 ±4 VDC

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	+28V Power Source	Power Supply
2	VCC	+28V Power Source	Power Supply
3	GND	Ground	Ground
4	EN	TTL Enable	OFF (0V to 0.8V); 0,5 us max ON (2V to 5.5V); 1 us max
5	TEMP	Temperature Monitor	$V_o = -11.69 \text{ mV}/^{\circ}\text{C} \times T + 1.8663 \text{ V}$
6	RFDET	Output RF Detector	0V to 2.5V
7	PGND	Power Ground	Power Ground
8	PGND	Power Ground	Power Ground
9	I_SEN	Current Sense	$V_o = 0.1\text{V/A}$

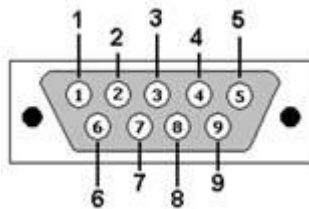
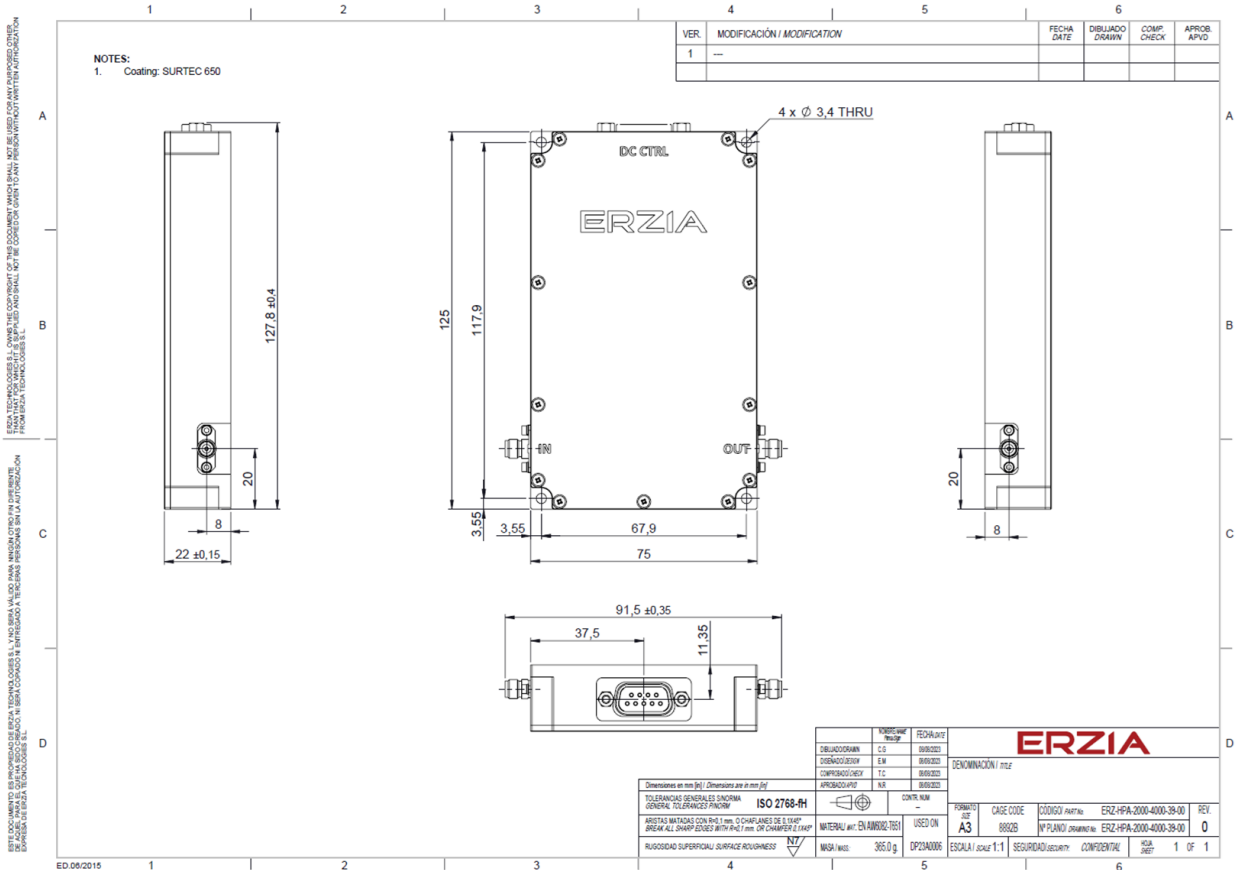


Figure 5: D-sub 9 Connector (Front view)

Mechanics and Housing



Parameter	Value
Size	75x125x22 mm
Weight	350 grams ±10%
RF Input Connector	2.92 mm Female
RF Output Connector	2.92 mm Female
DC&CTRL Connector	D-sub9

Absolute Maximum Ratings

Condition	Value
DC Voltage	31 VDC
Maximum Input Power (CW)	+10 dBm
Operation temperature (at case)	-40 to 62°C
Storage temperature	-55 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)	25° ± 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 +62 °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.



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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