ERZIA

DATASHEET

High Power Amplifier

ERZ-HPA-2750-3100-46

Main Features:

- Frequency Range: 27.5 to 31 GHz.
- Typical values: Psat 46 dBm, Gain 75 dB
- RF connectors (I/O): 2.92mm (F) / WR28
- TTL ON/OFF Control
- Power, current and temperature monitoring
- Compact aluminum housing
- Hi-reliability and dedicated screening/ environmental tests available under request

ERZ-HPA-2750-3100-46

The ERZ-HPA-2750-3100-46 is a High-Power Amplifier providing an output power of 46 dBm and a gain of 75 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	Min	Typ	Max	Unit
Frequency	27.5	-	31	GHz
Output Power (Psat) @CW	45	46	46.5	dBm
Output Linear Power @ACPR>25dBc (OQPSK Modulation)	-	44	-	dBm
Small Signal Gain	68	75	77	dB
Gain Flatness	-	±3	-	dB
VSWR input	-	1.5:1	1.8:1	-
VSWR output	-	1.5:1	2.8:1	-
DC Voltage	18	24	36	V
Power Consumption @Psat	-	210	240	W
RF Connectors	2.92mm (F) IN / WR28 OUT			-

Specifications at case temperature of 25°C

Tel: +34 942 29 13 42 sales@erzia.com www.erzia.com

Output Power

Figure 1 shows saturated output power measurement as a function of frequency at different temperatures.

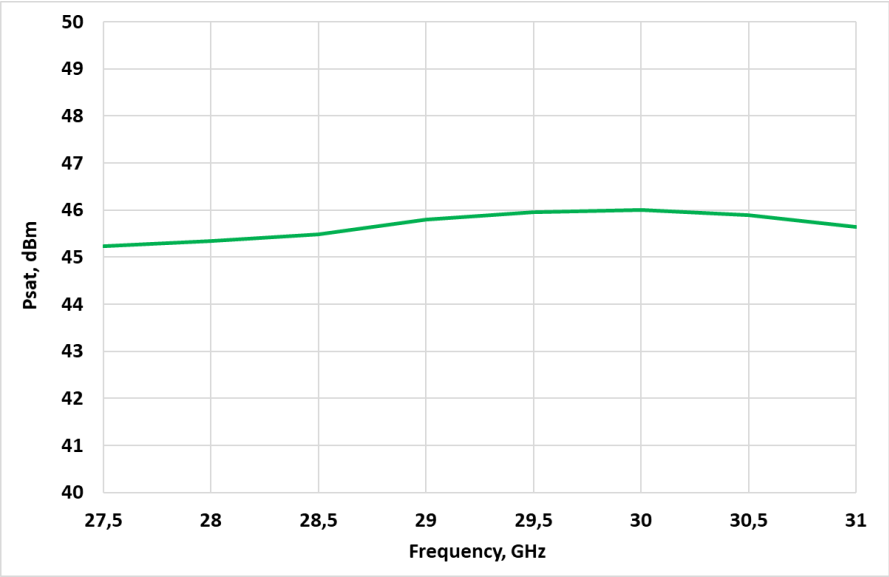


Figure 1: ERZ-HPA-2750-3100-46 Psat

Output Power & Gain Vs Input Power

Figure 2 shows output power and gain measurements as a function of input power at room temperature (25°C).

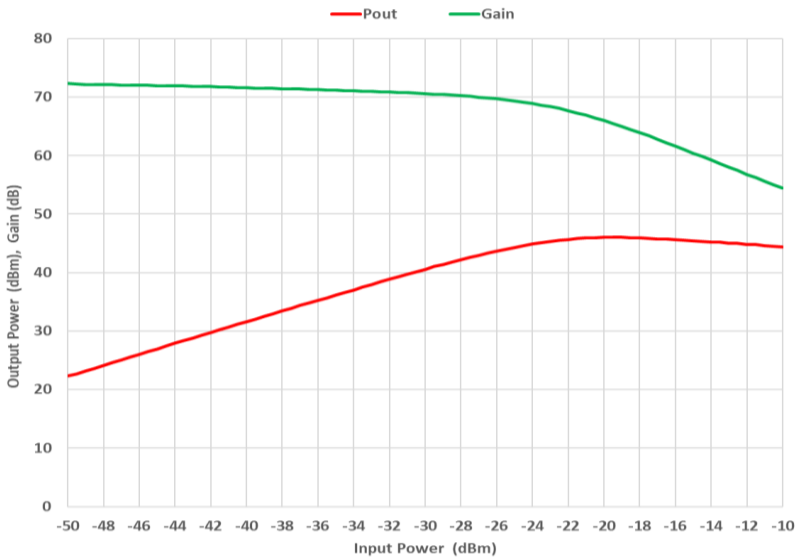


Figure 2: ERZ-HPA-2750-3100-46 Pout & Gain Vs Pin at 29.3 GHz

Small Signal Gain

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

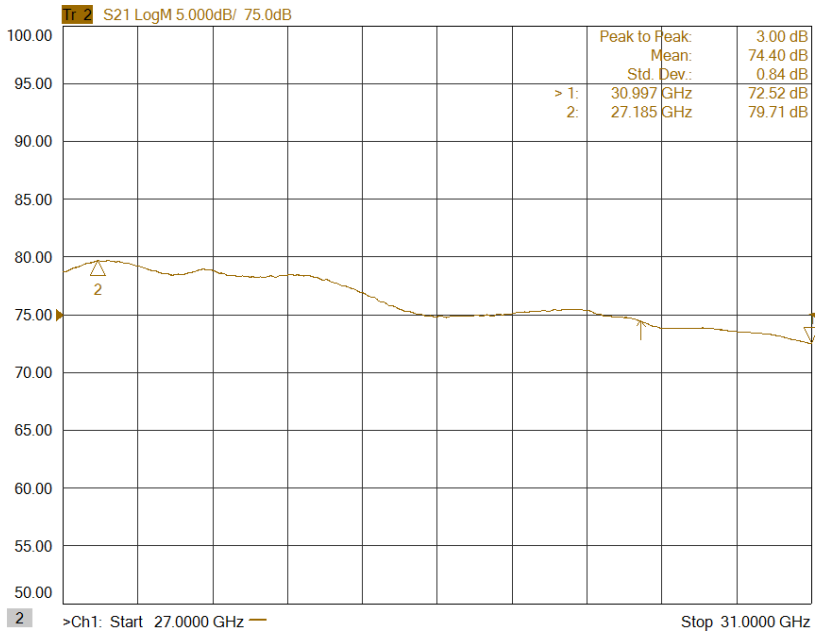


Figure 3: ERZ-HPA-2750-3100-46 Small Signal Gain

Input and Output Matching

Figure 4 and Figure 5 show input and output VSWR as a function of frequency at room temperature (25°C).

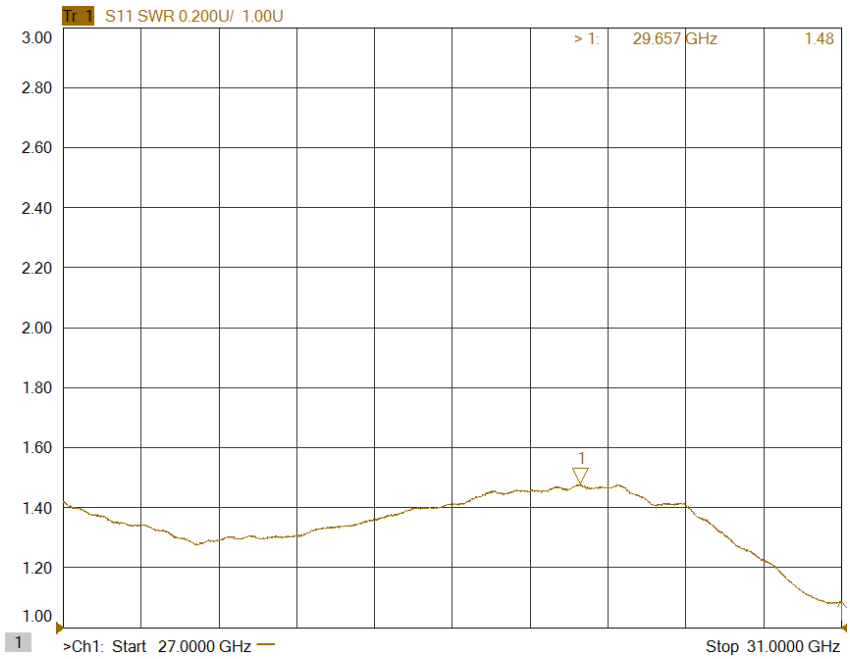


Figure 4: ERZ-HPA-2750-3100-46 Input Matching

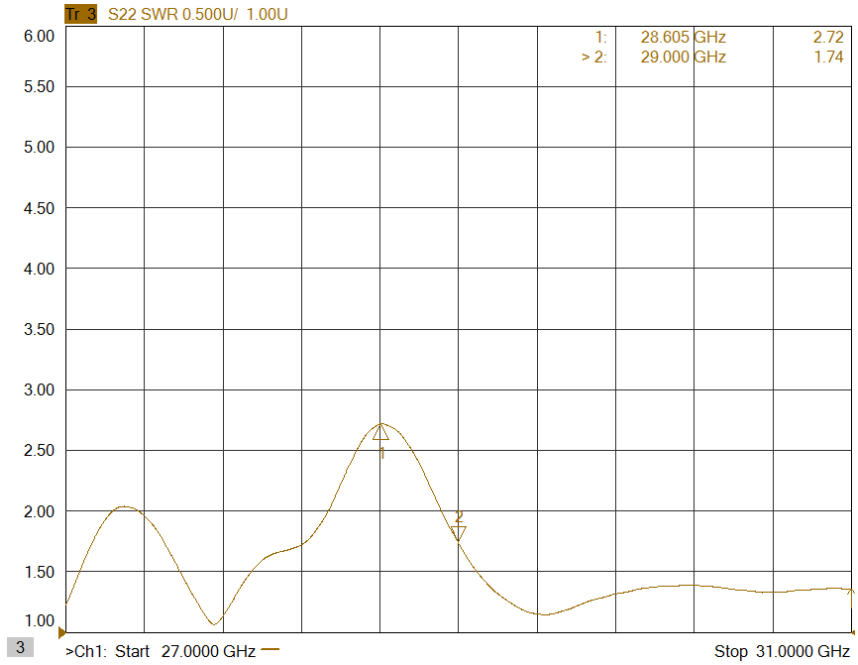


Figure 5: ERZ-HPA-2750-3100-46 Output Matching

Output linear power @ACPR>25dBc

Figure 5 and Figure 6 show output power levels with BPSK and QPSK modulation with an ACPR better than -25 dBc at 29.3 GHz at room temperatura (25°C).

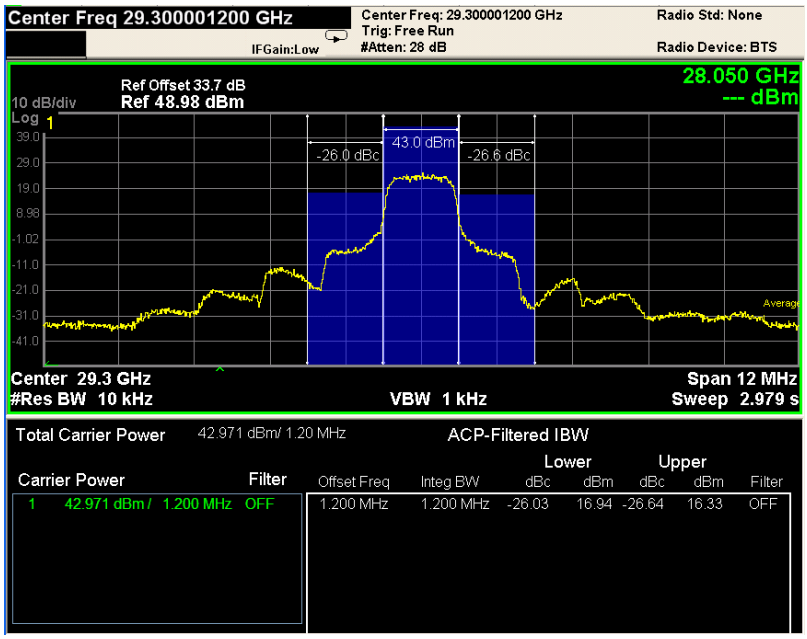


Figure 5: ERZ-HPA-2750-3100-46 BPSK

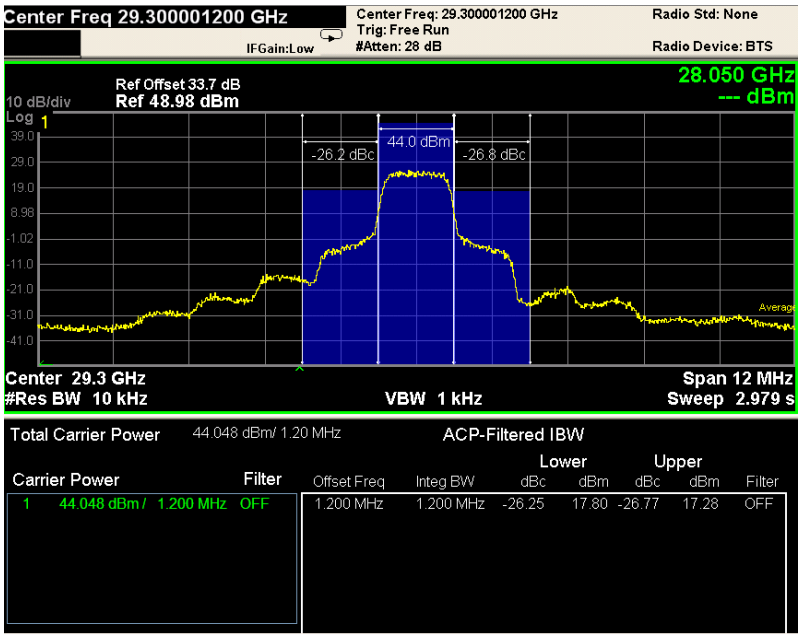
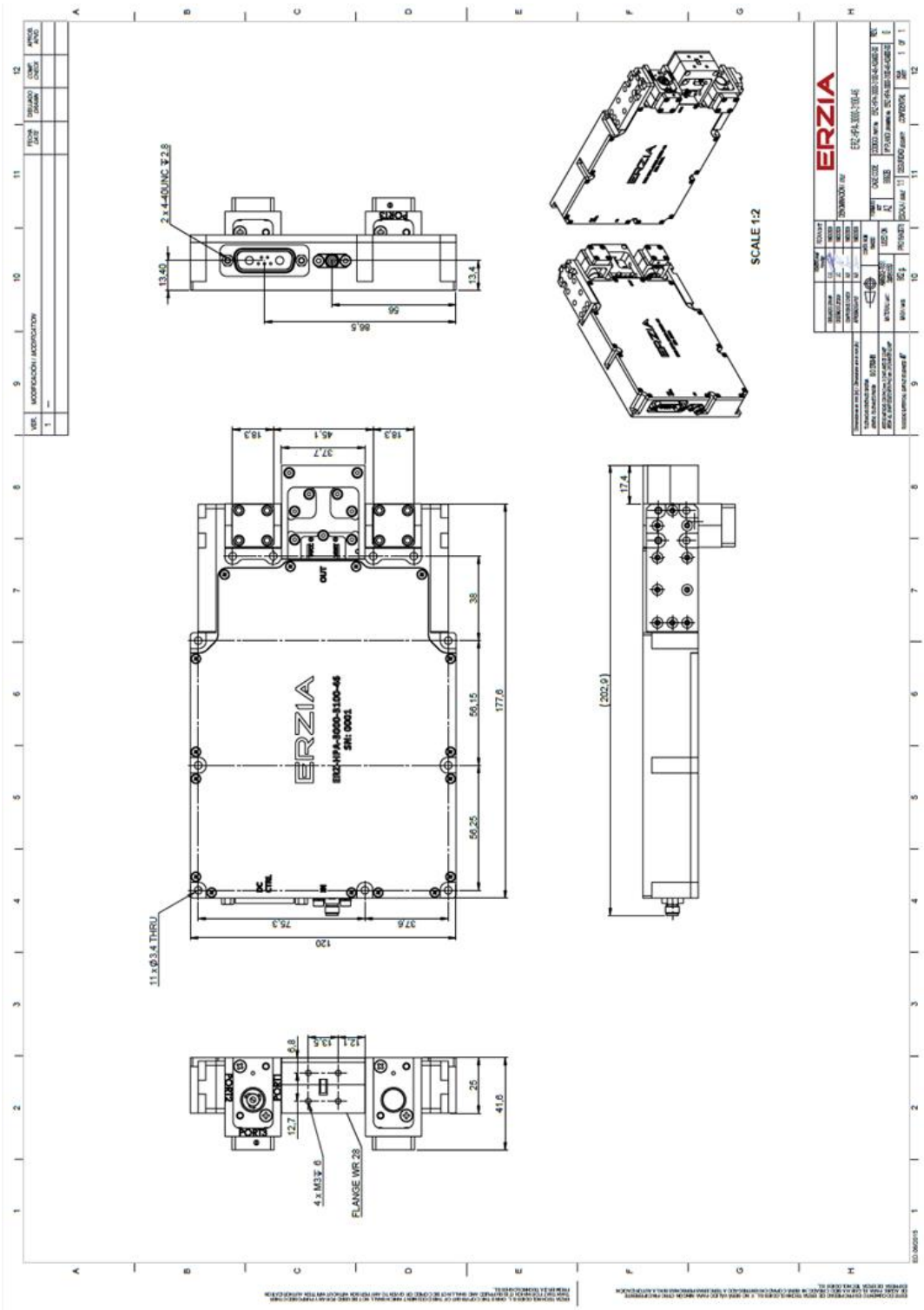


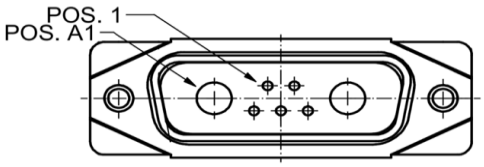
Figure 6: ERZ-HPA-2750-3100-46 QPSK

Mechanics and Housing



External Electrical Interface

- DC and Control: DSUB 7W2 Male type connector
- RF input and output: 2.92mm (F) and WR28 (flat flange)



Pin No.	Label	Function	Description
A1	VDD	VDD	+(18…36) VDC
A2	PGND	Power Ground	Power Ground
1	EN	Enable	TTL Signal OFF (0V to 0.8V); ON (2V to 5.5V))
2	TEMP	Temperature Monitor	Vo = −11.69 mV C × T + 1.8663 V
3	I_SEN	Current Sensor	Vo= 0.1V/A
4	DET	Output Power Detector	See Figure 7
5	GND	Ground	Ground

Dimensions and Weight

- Dimensions: 195x120x25 (41.6) mm
- Weight: 990 grams.

Absolute Maximum Ratings

Condition	Value
DC Voltage	+36 VDC
Maximum Input Power	+10 dBm @CW +20 dBm @Pulse conditions (pulse width: 100us, duty cycle: 10%)
Enable Control Voltage	+5.5 VDC
Operation temperature (at case)	-40 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:	-40 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)

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

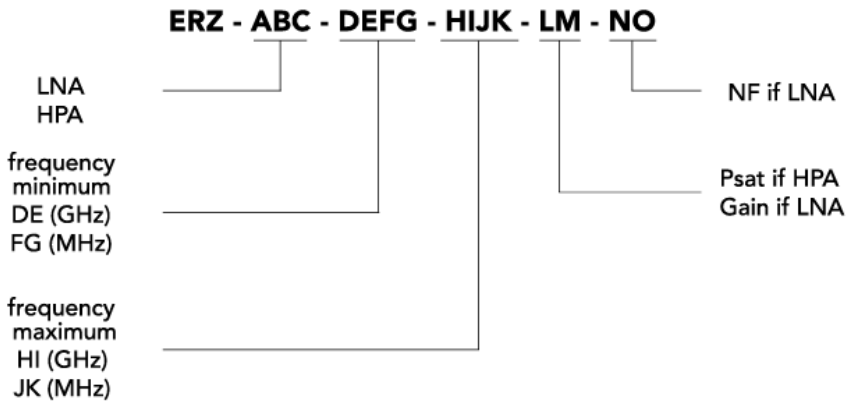
Most of ERZIA´s products are based on rad-hard technologies and can be manufactured and integrated according to MIL / ECSS or specific hi-rel standard-screening for space, aeronautics, military or specific hi-reliability usage.

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



20221025_rev1.0