



RF Power Amplifier

Applications

- RF front end
- 433/868 MHz ISM band systems
- Consumer Electronics
- Wireless audio
- Alarm and security systems
- Home and building automation
- Wireless sensor networks
- Industrial monitoring and control



Product Description

BITxxPA is a very low cost RF power amplifier module designed for medium range wireless applications.

This module is intended for ISM (Industrial, Scientific and Medical) and frequency band @ 433, 868 Mhz:

BIT04PA 431 – 437 MHz

BIT08RT 863 – 875 MHz.

In a typical system **BITxxPA** will be used together with his **BITxxRT** or **BITxxRM** companion.

BITxxPA has a very small package: only 15,3 x 15,3 mm ready for SMT assembly.

Key Features

- Small size (15,3 x 15,3 mm package, 10 pins).
- Frequency bands:
 1. **BIT04PA** 431 – 437 MHz
 2. **BIT08PA** 862 – 876 MHz
- High output power (up to 18 dBm).
- Low insertion loss in RX mode (<1dB).
- Ideal for multi-channel operation.
- Pb-free (RoHS compliant) package.

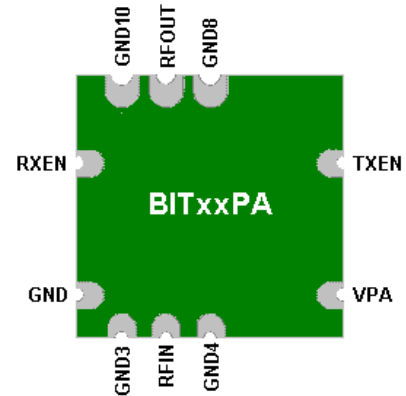


1. Pin-Out

Pin #	Pin Name	Pin Type	Descrizione
P1	RXEN	Digital Input	Receiver enable signal (see Truth Table)
P2	GND	Ground	Ground connection
P3	GND3	Ground	Ground connection for RFIN
P4	RFIN	RF input	RF input signal (max 10 dBm)
P5	GND5	Ground	Ground Connection for RFIN
P6	VPA	Power	2.2V – 12V power supply connection
P7	TXEN	Digital Input	Transmit enable signal (see Truth Table)
P8	GND8	Ground	Ground connection for RFOUT
P9	RFOUT	RF output	RF output signal
P10	GND10	Ground	Ground Connection for RFOUT

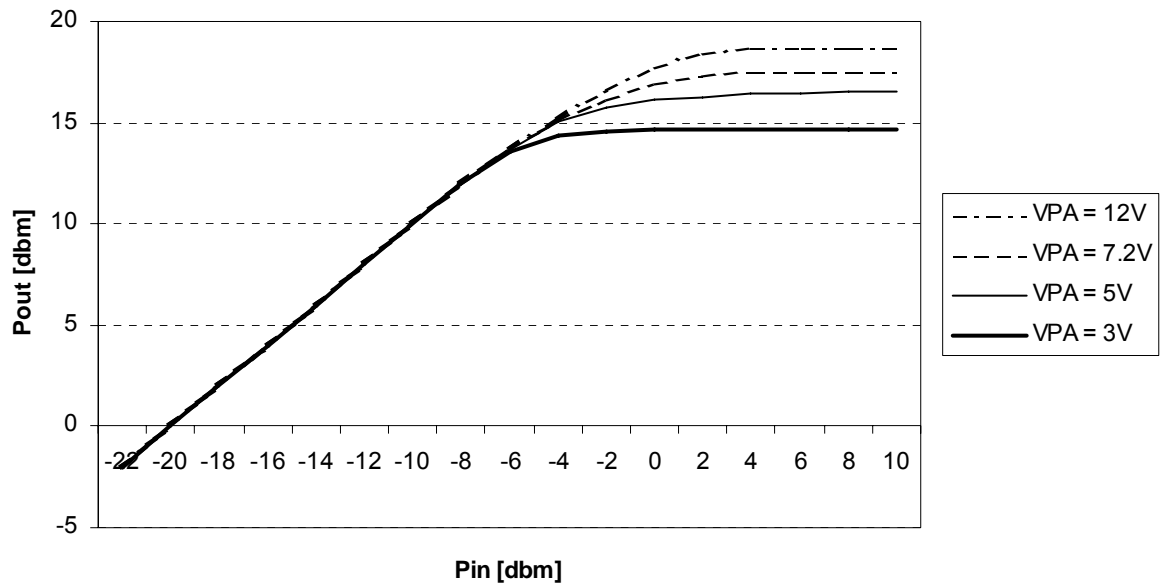
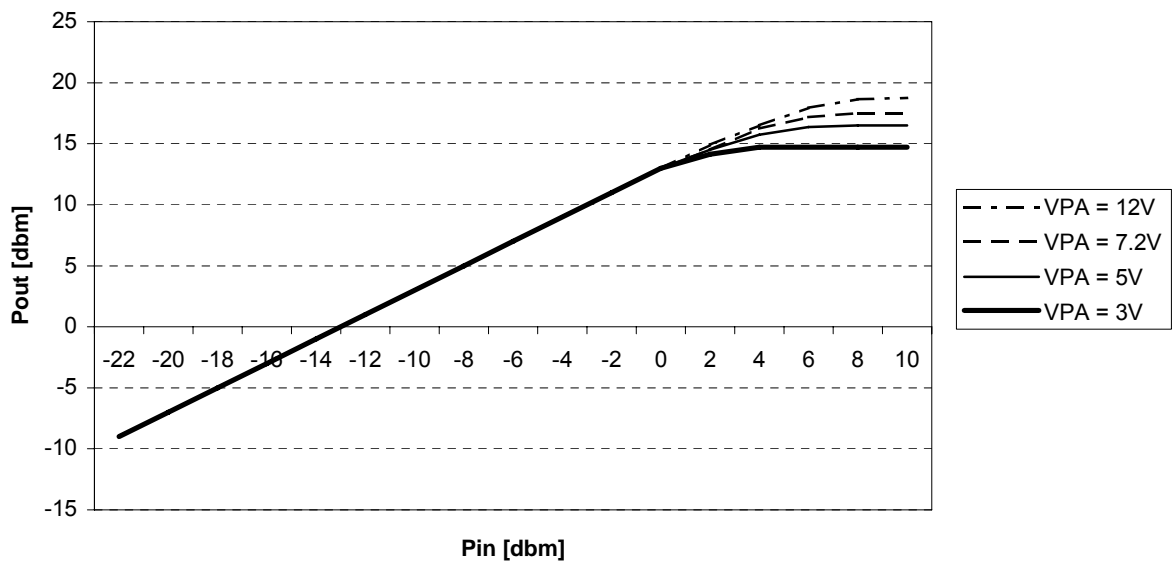
1.1. Truth Table

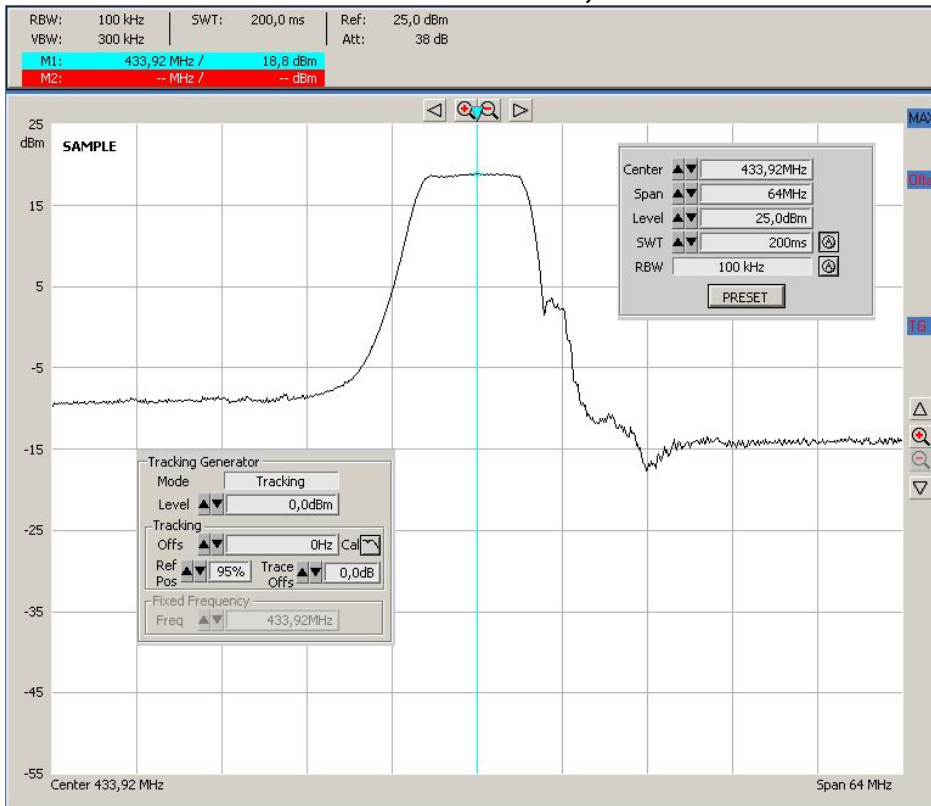
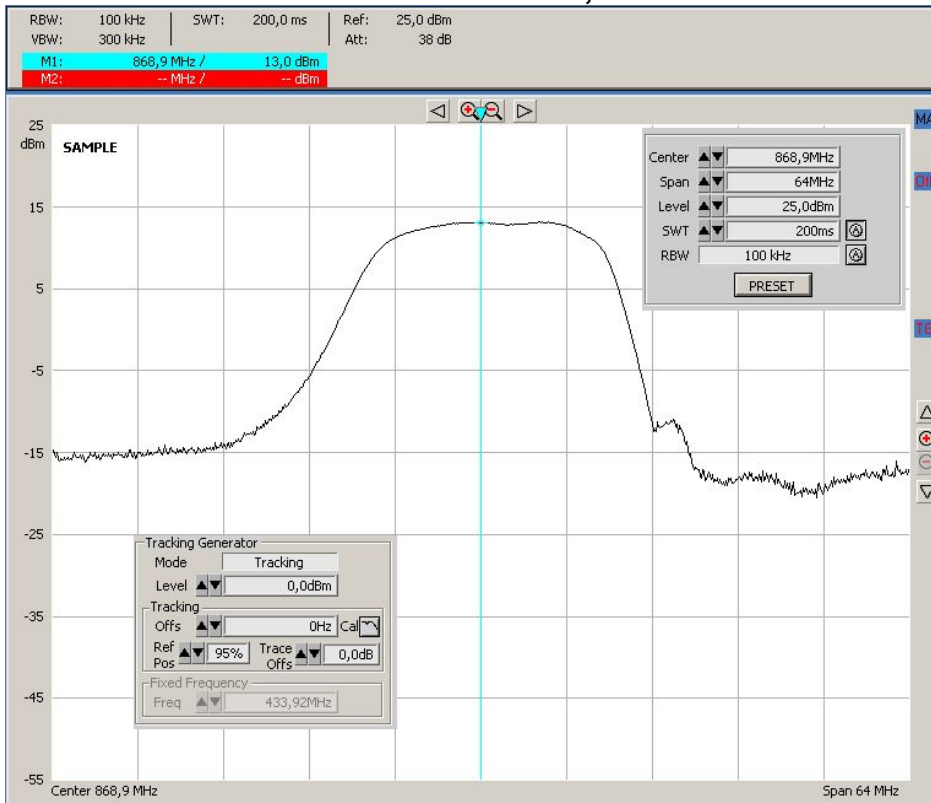
TXEN	RXEN	OPERATING MODE
0 ± 0.2 V	0 ± 0.2 V	StandBy
2,3 to 7.5V	0 ± 0.2 V	Transmit (RFIN to RFOUT)
0 ± 0.2 V	2,3 to 7.5V	Receive (RFOUT to RFIN)



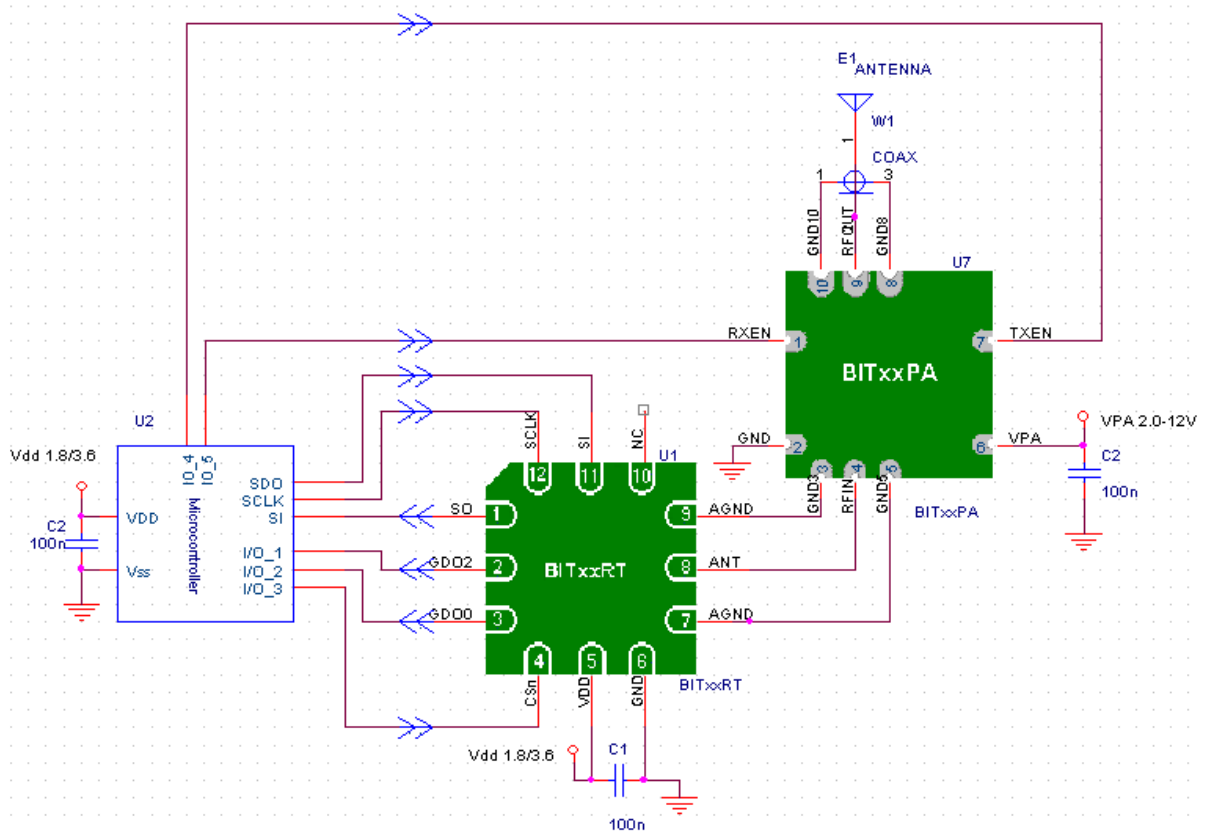
2. Electrical Specification

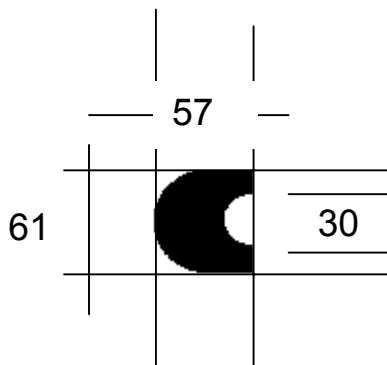
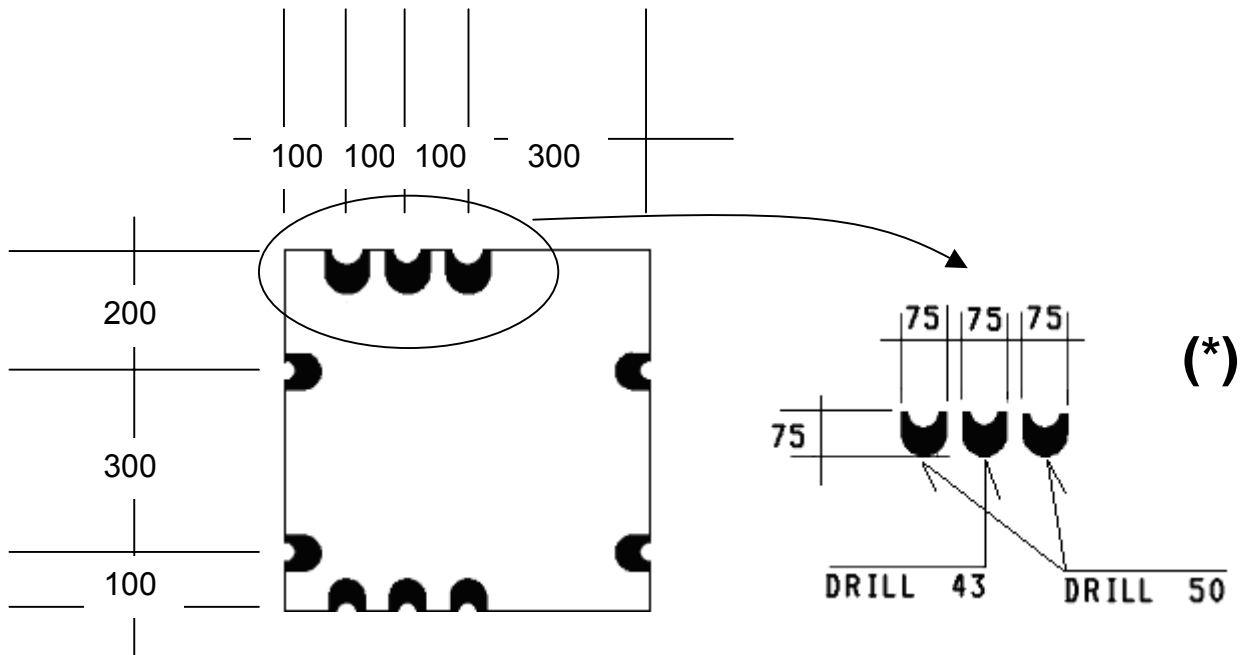
Parameter	Test conditions	Units	Min	Typ	Max
Power Gain	BIT04PA with TXEN = 3V; RXEN = 0V BIT08PA with TXEN = 3V; RXEN = 0V	dB	-	20 13	-
Receive path insertion loss	TXEN = 0V; RXEN = 3V VPA = 3V BIT04PA and BIT08PA	dB	-	0.7	1
P _{IN}		dBm	-	-	10
VPA		V	2.3	-	12
TXEN V _{IL}		V	0	-	0.2
TXEN V _{IH}		V	2.3	-	7.5
RXEN V _{IL}		V	0	-	0.2
RXEN V _{IH}		V	2.3	-	7.5
Current consumption					
▪ Stand-by mode	RXEN = TXEN = 0V	µA	-	0.1	-
▪ RX mode	RXEN = 3V ; TXEN = 0V	µA	-	25	-
▪ TX mode BIT04PA	RXEN = 0V; TXEN = 3V ; VPA = 3V	mA	-	28	-
	RXEN = 0V; TXEN = 3V ; VPA = 5V	mA	-	38	-
	RXEN = 0V; TXEN = 3V ; VPA = 7.2V	mA	-	45	-
	RXEN = 0V; TXEN = 3V ; VPA = 12V	mA	-	51	-
▪ TX mode BIT08PA	RXEN = 0V; TXEN = 3V ; VPA = 3V	mA	-	43	-
	RXEN = 0V; TXEN = 3V ; VPA = 5V	mA	-	53	-
	RXEN = 0V; TXEN = 3V ; VPA = 7.2V	mA	-	60	-
	RXEN = 0V; TXEN = 3V ; VPA = 12V	mA	-	66	-

BIT04PA Power Gain

BIT08PA Power Gain


BIT04PA Bandwidth and Gain VPA = 7,2 V

BIT08PA Bandwidth and Gain VPA = 7,2 V


3. Typical application



4. Package Description (All dimension in mils)


All pins except GNDOUT1, GNDOUT2 and RFOUT (*)

The area underneath the module should be covered with solder resist in order to prevent short circuiting the test pads on the back side of the module. A solid ground plane is preferred.



5. General Information

5.1. Disclaimer

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Compliance with regulations is dependent on complete system performance. It is the customer's responsibility to ensure that the system complies with regulations.

5.2. Life Support Policy

This BIT product is not designed for use in life support appliances, devices, or other systems where malfunction can reasonably be expected to result in significant personal injury to the user, or as a critical component in any life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness. B.I.T. srl customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify B.I.T. srl for any damages resulting from any improper use or sale.



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