ARF27
7243A & 7245A
User Guide

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GENERAL DESCRIPTION

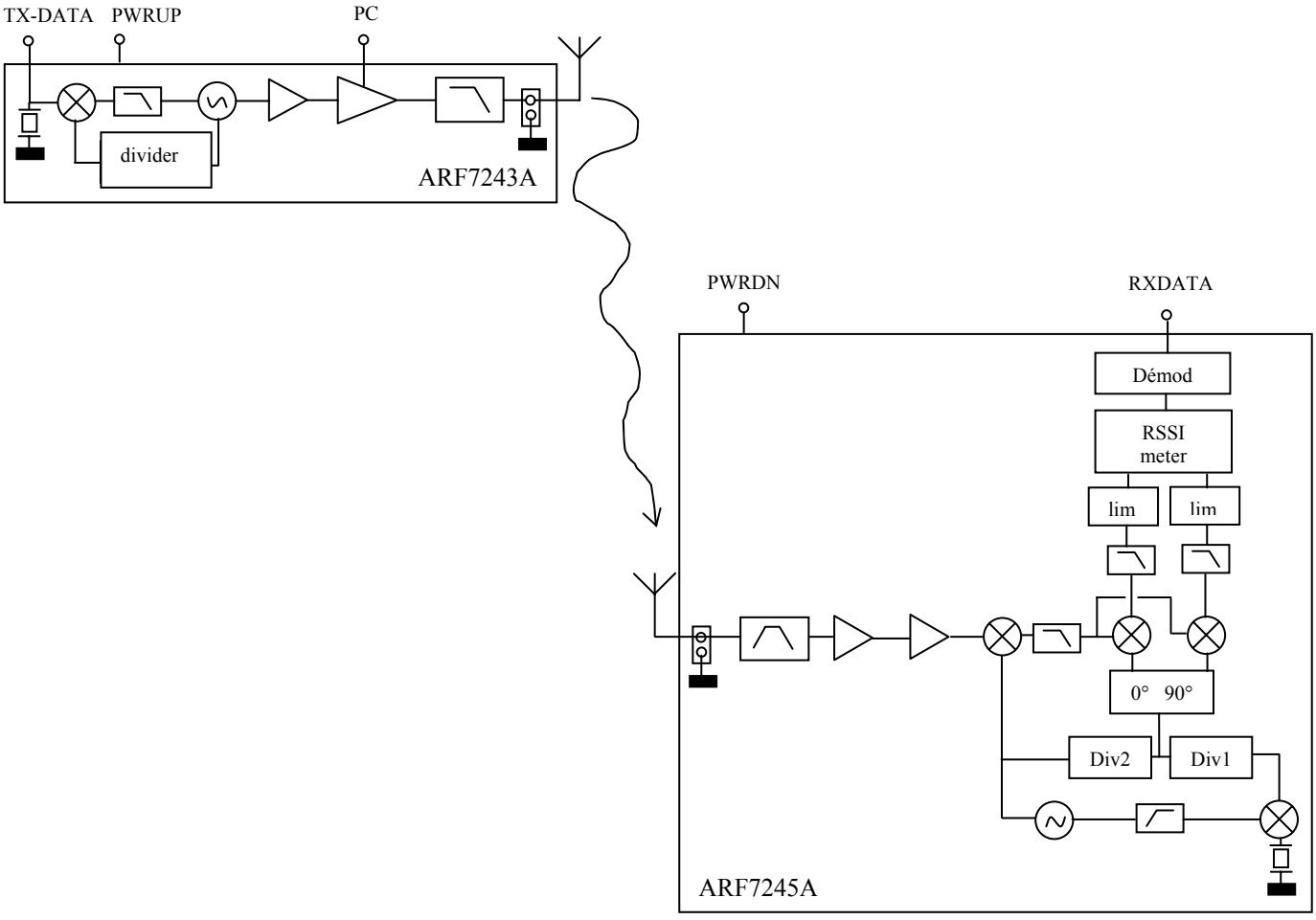
The ARF7243A module is a Xtal based reference 869.525 MHz ASK transmitter. Its power is adjustable with a maximum of 500mW on 50 ohms. This transmitter is compatible with any ASK receiver able to handle 100% modulations as the ARF7245A receiver (description enclosed).

The ARF7245A receiver is a very high sensitivity (0.5µV / -113dBm) ASK single heterodyne.
It could function with all ASK 100% Xtal based transmitter (bandwidth: 100kHz).

These modules are supplied without antenna. To increase the performances, we recommend the use of a « Whip » antenna.

All these modules build rough radio links; bit coding and frame coding has to be process by associated digital controller.
They are all available as subassembly daughter boards to complete an electronic digital motherboard.

SYNOPTICS



SPECIFICATIONS

- **Transmitter**

Parameters	Values	Notes
Operating frequency	869.525 MHz	-
Conducted power	from 25 mW (+14dBm) to 500mW (+27dBm)	at 50 Ohm and 5V
Modulation	ASK	-
Operating voltage (VCC)	from 2.7 to 5V.	
Digital input levels	0 / VCC	-
Electric consumption	from 150 mA to 600mA	-
Standby current	<10 µA	-
Start time	2 ms	-
Pinning	see chapter 4.1	-
Size	24,1 x 30,2 x 7 without antenna	-

- **Receiver**

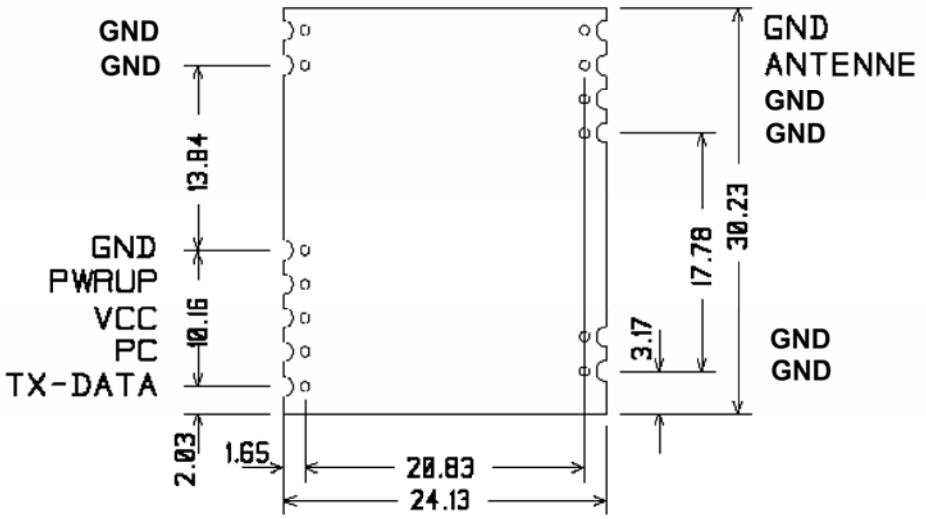
Parameters	Values	Notes
Frequency	869.525 MHz	-
Sensitivity	0.5µV (-113dBm)	on 50 Ohm
Demodulation	ASK	-
Bandwidth	100 kHz	-
Operating voltage (VCC)	from 2.2V to 5V.	nominal: 3V
Serial digital output	0 / VCC	-
Consumption	10 mA	-
Standby current	<1 µA	-
Start time	5 ms	-
Pinning	see chapter 4.2	-
Size	26,4 x 15 x 7 without antenna	-

- **Complete set**

Parameters	Values
Link settling time	2.5ms
Range in open filed	4000m
Binary rate	from 500 to 2400 bps Manchester
Temperature	from -20°C to +70°C
Standards	Radio: EN300220 CEM: EN301489

- **Transmitter**

Size / Electric pin assignment



- PC: Management of the product power.
- TX-DATA: Data input
- PWRUP: power up input

Notes:

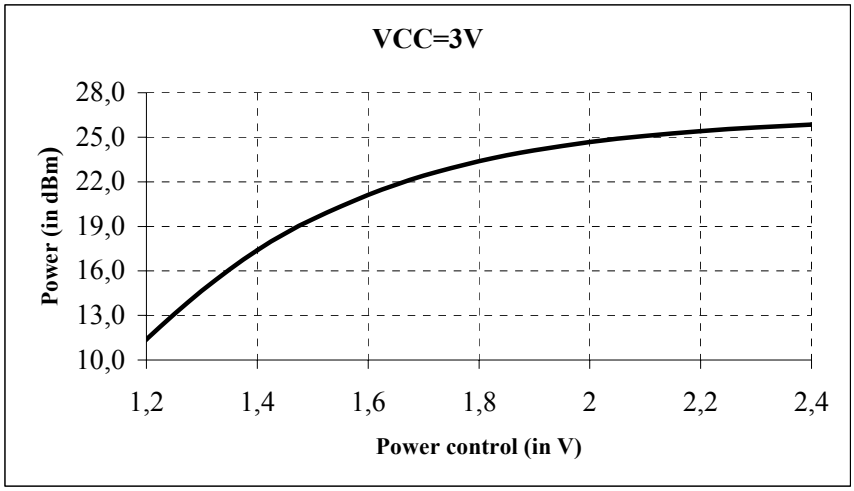
- Dimensions are given in mm
- Antenna & connectors (2.54mm pitch) non-supplied.

- Radio module has to be powered using an external power supply connected between VCC and GND. Operating voltage has to be in the 2 – 5V range.

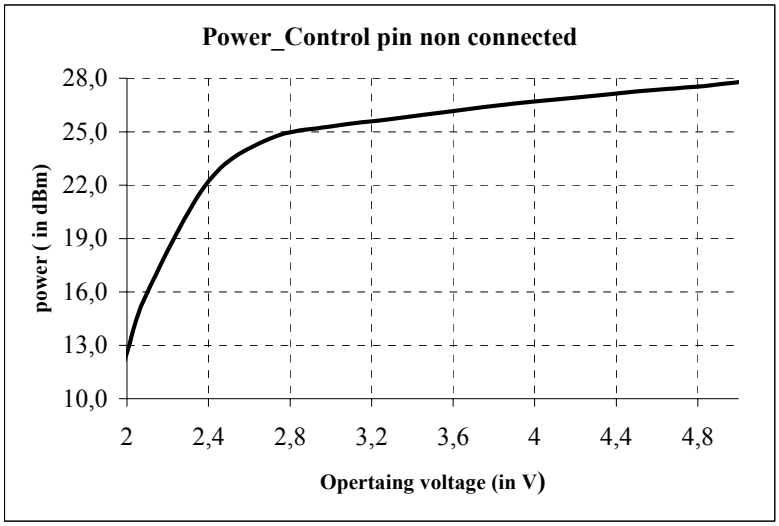
The maximum power is obtained through a 5V operating voltage.

- Power is trigged using the PWRUP pin:
  - PWRUP = "1" → Transmitter on.
  - PWRUP = "0" → Transmitter off.
- When in standby mode, "TX-DATA" pin has also to be logical 0.
- The PC pin (Power_Control) allows the modification of the transmitter power.

The diagram gives a view of the power evolution regarding the operating voltage on the POWER_CONTROL:



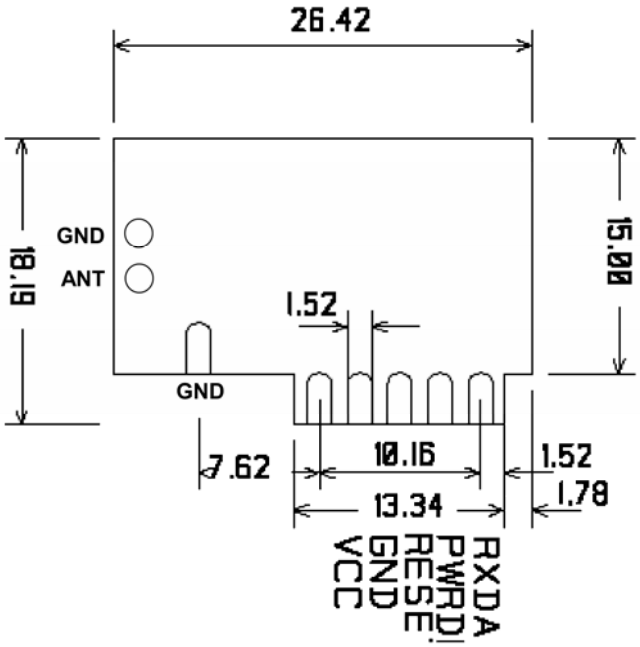
- When the Power_control pin is not connected, the product gives its maximum power (more or less 1dB). The diagram gives a view of the product typical evolution regarding the operating voltage (Power_control pin non connected):



Attention! The product function is not guaranteed for V_{cc}<2.7V.

- **Receiver**

Size / Electric pin assignment



RESET: Not used
PWRDN: Wake-up / standby mode
RXData: data output.

Notes

- Dimensions are given in mm
- SMD pads pitch is 2.54 mm.
- PCB Thickness: 1.6mm

Notes

• A slot in the mother board could be done for the receiver. In this case, soldering has to be done on the opposite side of the radio module.

• Radio module has to be powered using an external power supply connected between VCC and GND. Operating voltage has to be in the 2 – 5V range.

• Power is trigged using the PWRDN pin:
  - PWRDN = ″0″ → Receiver on.
  - PWRDN = ″1″ → Stand-by.

ATTENTION: If using a pull down resistor on PWRDN, its value has to be less than 220 Ohms!

If the receiver stand-by mode is activated immediately after powering up the equipment, please use timings below (for good receiver IC internal Reset).