



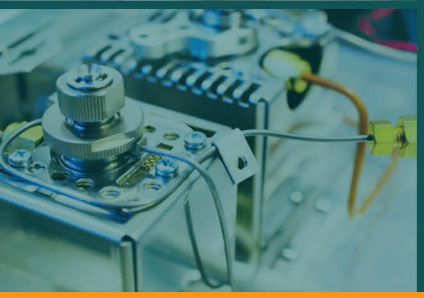


Radiocrafts

Embedded Wireless Solutions

AN004: RF MODULES WITH EXTERNAL POWER AMPLIFIER

APPLICATION NOTE

We Make Embedded Wireless
Easy to Use

RF Modules with external Power Amplifier

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Keywords

- Radiocrafts RF modules with control signals for external PA and SPDT
- Possible solutions for external PA and SPDT for different frequency ranges

Introduction

The RC1xx0 and RC2x00 series of RF Modules with integrated protocol offers easy adaptation of wireless communication utilizing a simple UART serial interface. In their standard versions without any required configuration the modules offer two pins for controlling PA, LNA and SPDTs for signal switching. Two SPDTs are required since it is only one RF pin on the Radiocrafts modules.

Operation at 432-435 MHz

Below is shown a sketch of the required components for achieving an output power of +27 dBm (500mW). The RC1240 is configured with lowered output power from its default value. Parameter RF_POWER = 0x03, which will give about +26 dBm output power with 590 mA current consumption from +3.0V. The PA and SPDTs are all connected to the same VCC=3.0V supply.

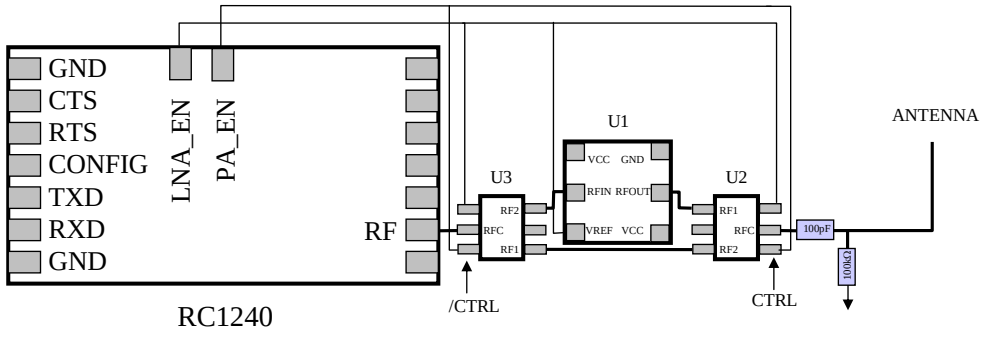
VCC on AWT6136 and RC1240 is +3.0V
VREF on ATW6136 is tied to VCC for continous operation or to PA_EN for TX-switching

100pF NP0 decoupling capacitors on VREF, CNTRL and /CNTRL signals, a total of 5 capacitors, close to respective packages.

All GNDS connected directly to ground with shortest possible traces.

4.7uF Ceramic capacitors on both VCC pins on AWT6136, close to pins.

All shown capacitors are 100pF NP0



Bill of materials:

RC1240 standard version

U1 = Anadigics AWT6136

U2 = Peregrine PE4259

Layout considerations

The PA and SPDTs shall be placed in a straight line from the RF-pin on the RC12x0 or RC2x00 module. RF routing shall be done on the outer layer with a trace width close to 50 ohm. All grounding-vias to ground layer(s) shall be placed as close as possible to the GND-pins. Decoupling capacitors shall also be placed closest possible to their component pins.

Document Revision History

Document Revision	Changes
1.0	First release
1.1	Design Update

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