Radiocrafts
Embedded Wireless Solutions

RC1701HP-WIZE

Wize protocol RF Transceiver Module at 169 MHz

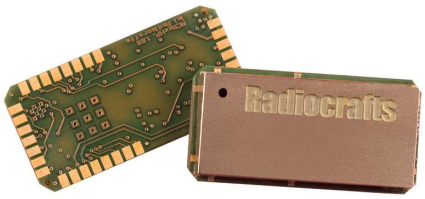
ADVANCE INFORMATION
This document contains information on a new product. Specifications and information herein are subject to change without notice.

Product Description

The RC1701HP-WIZE is part of a compact surface-mounted Wireless M-Bus module family that measures only 12.7 x 25.4 x 3.7 mm. The module contains a communication controller with embedded Wize protocol (v.1.1) as specified by the Wize Alliance based on Wireless M-Bus (EN 13757-4) operating at 169 MHz with 500 mW output power. The module is pre-certified for operation under the European radio regulations.

Applications

- LPWAN
- Smart City
- Industrial IoT
- Utility meters (water, gas, electricity)
- Smart sensors



Note: The number of LGA pads differ from photo, see page 8 for details

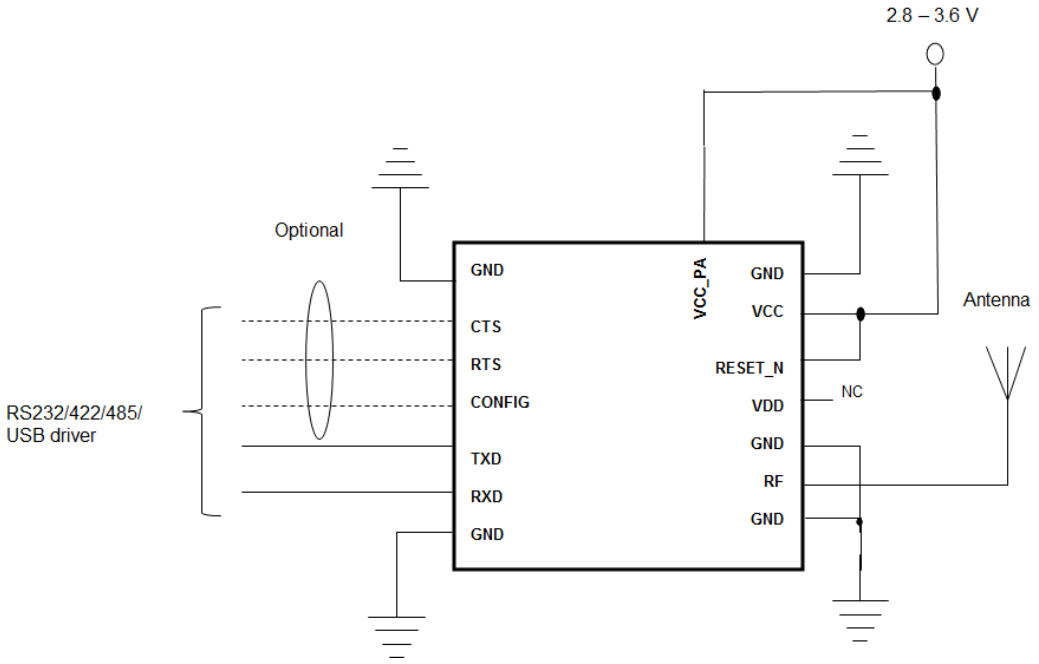
Features

- Embedded Wize protocol
- High power, long range (20 km Line-Of-Sight)
- Pin compatible with the RC1701HP-MBUS4 Wireless M-Bus mode N module
- 12.7 x 25.4 x 3.7 mm compact module for SMD mounting
- Ultra low power modes for extended battery lifetime
- Completely Shielded module for SMD mounting
- No external components except antenna

Quick Reference Data

Parameter	RC1701HP-WIZE	Unit
Frequency bands	169.4 – 169.475	MHz
Number of channels	41	
Data rate	2.4 / 4.8 / 6.4	kbps
Max output power (HP)	+ 27 dBm	dBm
Sensitivity, (2.4)	-119	dBm
Supply voltage	2.8 – 3.6	Volt
Current consumption, RX /IDLE	31,7	mA
Current consumption, TX (+27/30 dBm)	403 / 703	mA
Current consumption, SLEEP	Max 2.0	uA
Temperature range	-30 to +85	°C

Typical application Circuit

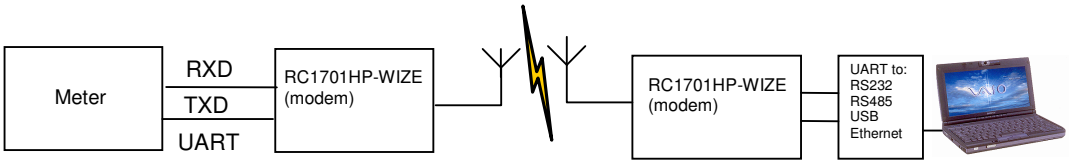


Note that the VCC_PA pin supply the internal power amplifier only while the rest of the internal block runs on VCC. They can be connected together or separated using individual supply.

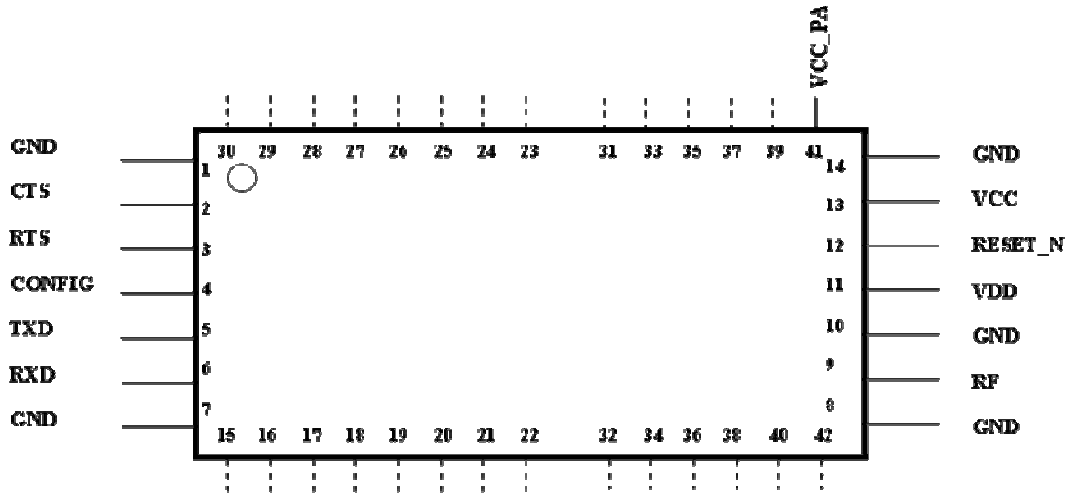
Wize Modem

The RC1701HP-WIZE module acts like a radio modem with a UART interface. The embedded protocol transmits data packets based on application messages from an external host controller over UART. The module is also configured through its UART interface using a simple command set. Configuration parameters are stored in non-volatile memory. The module can be set in Sleep mode with very low current consumption, and wake up on a UART command.

The Wize protocol is based on Wireless M-Bus (EN 13757-4), but defines a new transport and application layer (OSI model layers 6 and 7). In particular it defines a new security scheme using AES based encryption and authentication. The embedded Wize protocol is described in details in the WIZE User Manual.



Pin Assignment

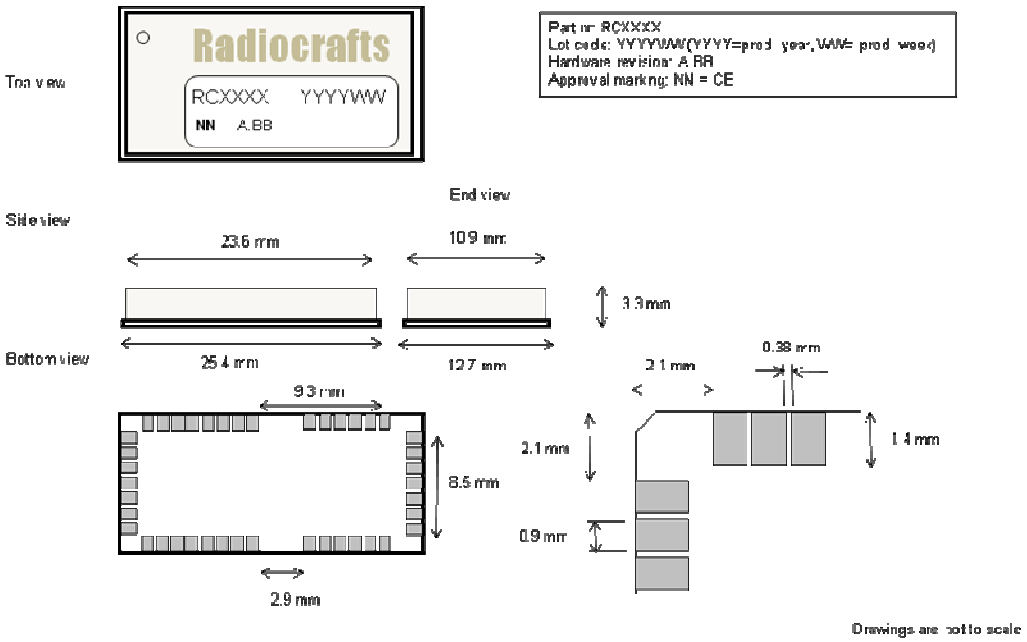


Pins 15-42 connections not shown in the drawing are shown in the table below.

Pin Description

Pin no	Pin name	Description
1	GND	System ground
2	CTS	UART Clear to Send / RXTX control (RS485)
3	RTS	UART Request to Send
4	CONFIG	Configuration Enable. Active low.
5	TXD	UART TX Data
6	RXD	UART RX Data
7	GND	System ground
8	GND	System ground
9	RF	RF I/O connection to antenna
10	GND	System ground
11	VDD	Not Connected, Internal Regulator Output
12	Reset	RESET_N. Active Low
13	VCC	Supply voltage input. Internally regulated.
14	GND	System ground
15-22	I/O	For future use and test status pin. Do not connect
23-28	I/O	For future use and test status pin. Do not connect
29	LED1	LED1 indicator output (optional)
30	LED0	LED0 indicator output (optional)
31-40	I/O	For future use and test status pin. Do not connect
41	VCC_PA	Supply voltage input for Power Amplifier stage. VCC_PA can be connected together with VCC or separated using individual supply.
42	I/O	For future use and test status pin. Do not connect

Mechanical Drawing



Mechanical Dimensions

The module size is 12.7 x 25.4 x 3.7 mm (above drawing to be corrected)

Document Revision History

Document Revision	Changes
0.1	Preliminary release, advance information

Radiocrafts AS, Sandakerveien 64, NO-0484 OSLO, NORWAY
E-mail: sales@radiocrafts.com Web site: www.radiocrafts.com
Phone: (+47) 4000 5195 Fax: (+47) 22 71 29 15