

## Wize protocol RF Transceiver Module at 169 MHz

### ADVANCE INFORMATION

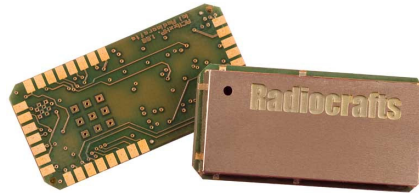
This document contains information on a new product. Specifications and information herein are subject to change without notice.

### 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



### Features

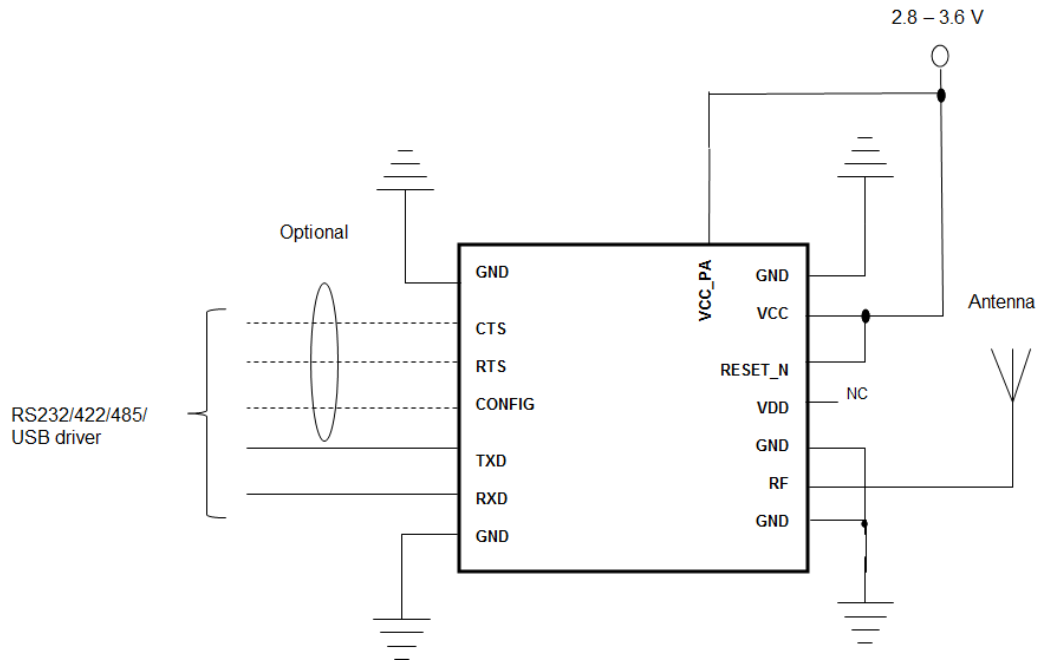
- Embedded Wize protocol
- High power, long range (20 km Line-Of-Sight)
- Pin compatible with the RC1701HP-MBUS4 Wireless M-Bus mode N module
- 12.7 x 25.4 x 3.7 mm compact module for SMD mounting
- Ultra low power modes for extended battery lifetime
- Completely Shielded module for SMD mounting
- No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

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

### 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

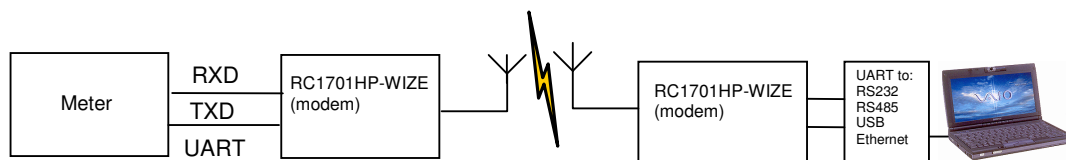


Note that the VCC\_PA pin supply the internal power amplifier only while the rest of the internal block runs on VCC. They can be connected together or separated using individual supply.

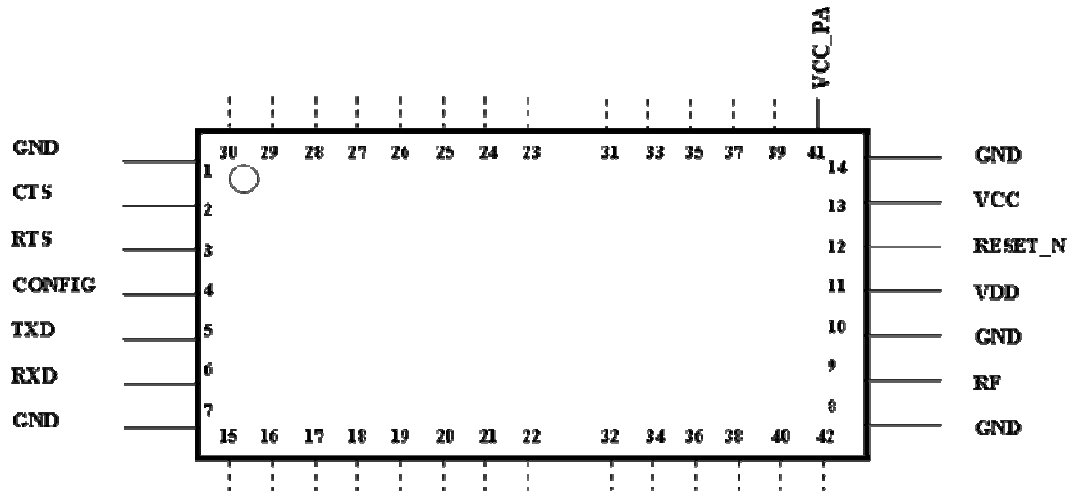
### Wize Modem

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

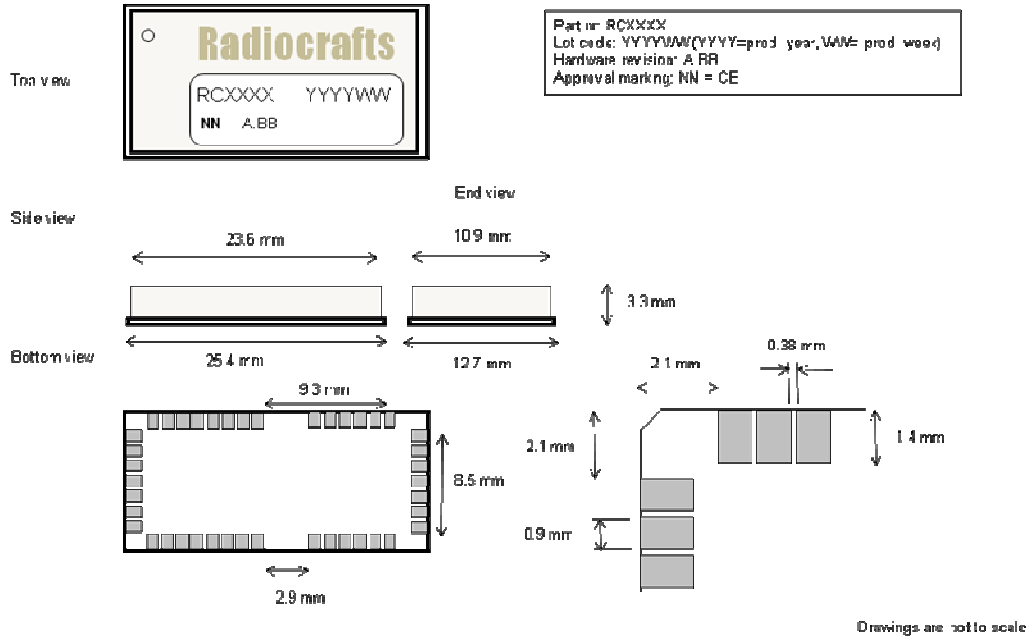


Pins 15-42 connections not shown in the drawing are shown in the table below.

## 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

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