Radiocrafts
Embedded Wireless Solutions

RC11x0-MPC1
RC1701HP-MPC1

Wireless M-Bus RF Transceiver Module (EN 13757-4:2013) with Pulse Counter inputs

Product Description

The MPC1 Wireless M-Bus module is a stand-alone Wireless M-Bus module with Pulse counter, Tamper and Install inputs. The module communicates with the Radiocrafts MBUS3/MBUS4 modules and automatically at configurable intervals, transmit EN13757-4:2013 packets containing pulse counter values. The MPC1 module automatically wakes up from sleep, detects and counts pulses from the two pulse inputs. The module also support Over The Air (OTA) configuration for easy configuration of a stand-alone module not having a host controller connected to the UART.

Applications

- Water, gas, electricity meters with pulse output

Features



- 2 pulse inputs with programmable pull-up.
- Tamper input
- Install input
- OTA (Over The Air configuration)
- Encryption
- Configurable TX intervals
- Embedded Wireless M-Bus protocol supporting EN13757-4:2013
- Mode T (868 MHz, -MBUS3)
- Mode N (169 MHz, -MBUS4), prepared for prEN13757-4:2018
- 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

Quick module overview

The MPC1 protocol is running in same module as RC1701HP-MBUS4 for 169 MHz or RC11x0-MBUS3 for other supporting frequencies.

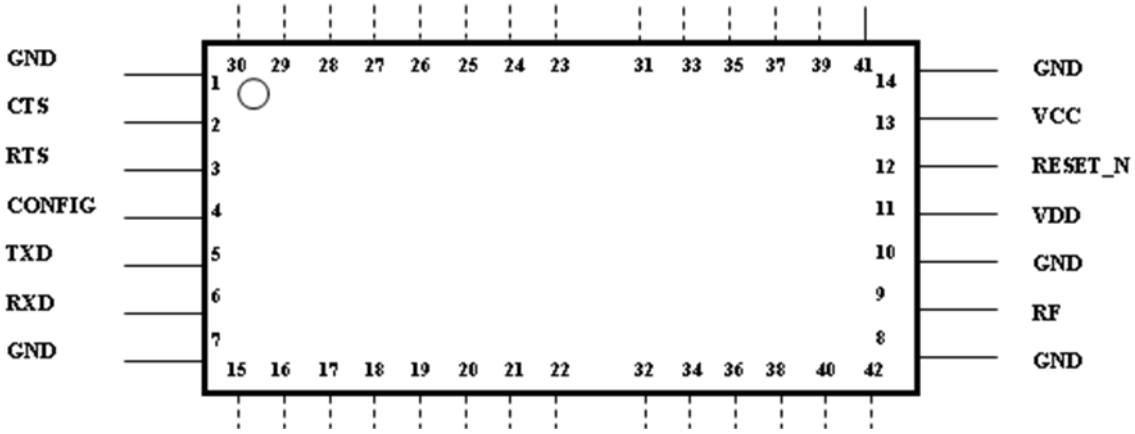
For hardware and RF performance details – please see RC1701HP-MBUS4/RC11x0-MBUS3 data sheet.

Module	Frequency band	Max output Power
RC1140-MPC1	433 MHz	+10 dBm
RC1160-MPC1	868MHz	+10 dBm
RC1170-MPC1	865 MHz	+10 dBm
RC1180-MPC1	868 MHz	+10 dBm
RC1701HP-MPC1	169 MHz	+27 dBm

MPC1 Embedded Protocol

The MPC1 protocol is described in details in the MPC1 User Manual.

Pin Assignment

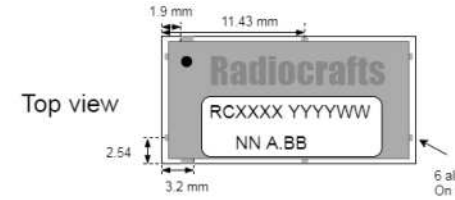


Pin 31-42 is not available for RC11xx-MPC1.

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
17	INSTALL	Pull to ground to start installation message transmission
18	TAMPER	Tamper input
27	PULSE1	Interrupt pulse counter
28	PULSE2	Interrupt pulse counter
29	STATUS LED1	LED output for status
30	STATUS LED0	LED output for status
41	VCC_PA	Supply voltage for high power variant (RC1701HP-MPC1).
15-16	I/O	For future use and test status pin, Do not connect
19-26	I/O	For future use and test status pin, Do not connect
31-40	I/O	For future use and test status pin, Do not connect
42	I/O	For future use and test status pin, Do not connect

Mechanical Drawing, RC11x0

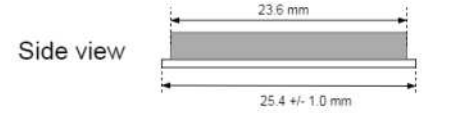


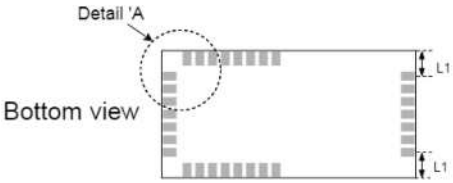
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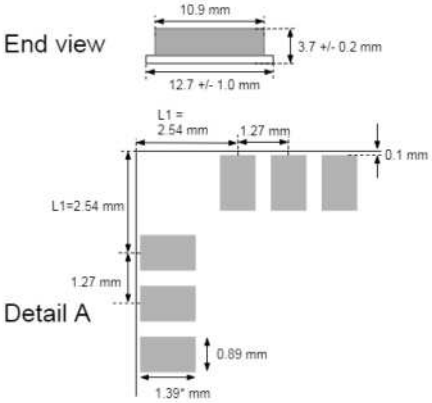
Lot code: YYYYWW (YYYY=prod. year, WW=prod. week)

Hardware revision: A.BB

Approval marking: NN = CE, FCC or others

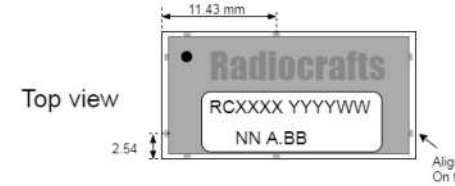






*The pads might be slightly shorter than 1.39 mm due to PCB processing. The reduction will come from pad being pulled away from edge with up to 0.12 mm. This leaves a minimum pad lenght of 1.27 mm. The 0.1 mm distance to board edge is increase with the same number.

Mechanical Drawing, RC1701HP

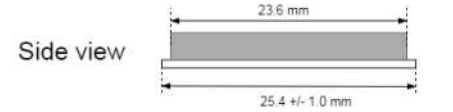


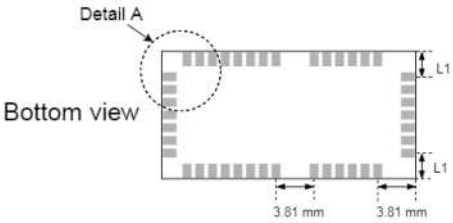
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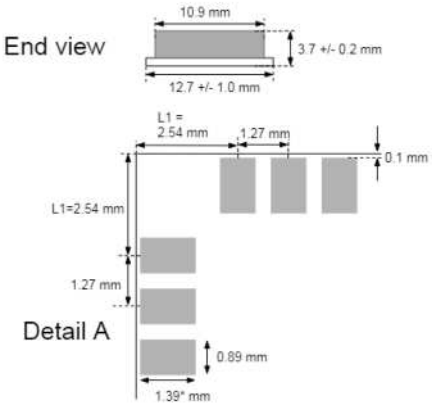
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