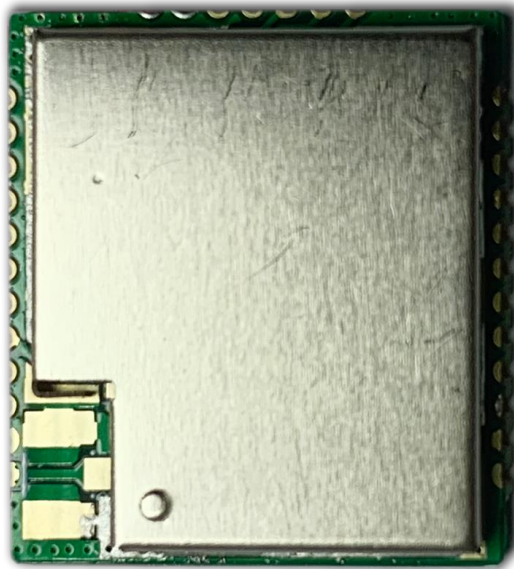


# **LORA Transceiver Module RFM6601W Datasheet**



## 1. Overview

The RFM6601W module includes a general LoRa wireless communication SoC, integrated with a RF transceiver and a 32-bit RISC MCU. The MCU uses ARM Cortex M4, with 48 MHz operation frequency. The RF Transceiver has continuous frequency coverage from 150 MHz to 960 MHz.

The RFM6601W Module provides ultra-long range and ultra-low power communication for LoRa application. RFM6601W can achieve a high sensitivity to -138 dBm and the maximum transmit power is up to +22 dBm. This makes the module suitable to be used in long range LoRa and have high efficiency.

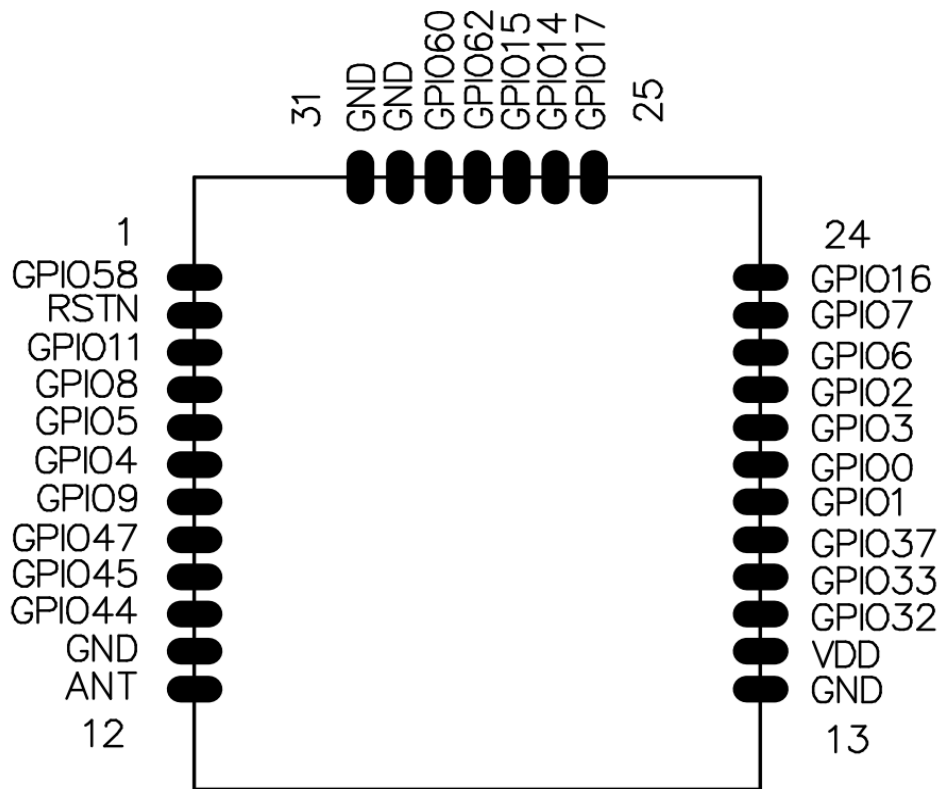
## 2. Features

- Working Voltage: 2.4V - 3.7V
- Working Frequency: 433.92 MHz, 470 MHz, 868 MHz, 915 MHz
- Receiving Sensitivity: -138 dBm @SF=12, BW=125KHz
- Tx Current: 108mA @+22dbm, 433.92MHz
- Rx Current: 10mA @433.92MHz

## 3. Applications

- Smart meters
- Supply chain and logistics
- Building automation
- Agricultural sensors
- Smart cities
- Retail store sensors
- Asset tracking
- Street lights
- Parking sensors
- Environmental sensors
- Healthcare
- Safety and security sensors
- Remote control applications

### 4. Pin Diagram



**Figure 1. Pin Diagram Top View**

**Table 1. RFM6601W Module Pin Description**

<b>Pin</b>	<b>Name</b>	<b>Description</b>
1	GPIO58	MCU GPIO
2	RSTN	Reset signal, active low
3	GPIO11	MCU GPIO
4	GPIO08	MCU GPIO
5	GPIO05	MCU GPIO
6	GPIO04	MCU GPIO
7	GPIO09	MCU GPIO
8	GPIO47	MCU GPIO
9	GPIO45	MCU GPIO
10	GPIO44	MCU GPIO
11, 13, 30, 31	GND	Ground
12	ANT	Antenna port
14	VCC	Input voltage
15	GPIO32	MCU GPIO
16	GPIO33	MCU GPIO
17	GPIO37	MCU GPIO
18	GPIO1	MCU GPIO
19	GPIO0	MCU GPIO
20	GPIO3	MCU GPIO
21	GPIO2	MCU GPIO
22	GPIO6	SWD DATA
23	GPIO7	SWD CLK
24	GPIO16	MCU GPIO
<b>25</b>	<b>GPIO17</b>	<b>MCU GPIO (UART_TXD)</b>
26	GPIO14	MCU GPIO
27	GPIO15	MCU GPIO
<b>28</b>	<b>GPIO62</b>	<b>MCU GPIO (UART_RXD)</b>
29	GPIO60	MCU GPIO

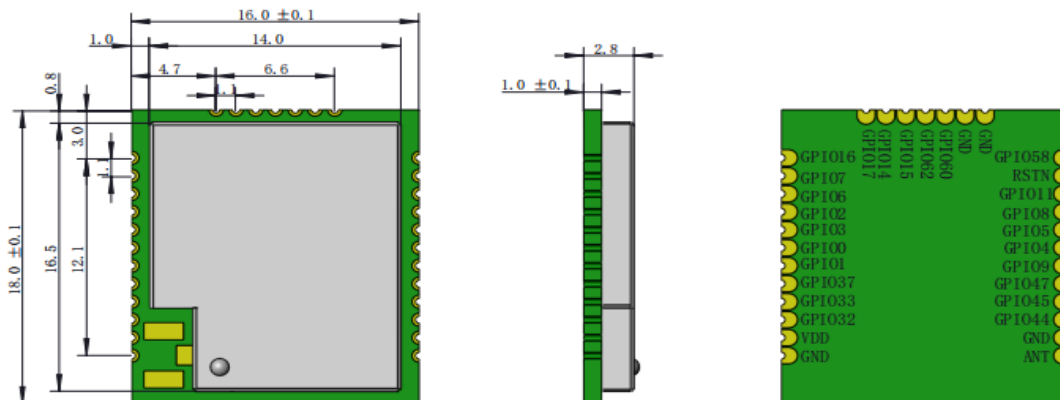
## 5. Electrical Characteristics

Testing Conditions: 3.3V @ 25°C

**Table 2. Electrical Characteristics**

Parameters	Symbol	Conditions	Min.	Typ.	Max.	Unit
Frequency	Fc	RFM6601W-433S2		433.92		MHz
		RFM6601W-470S2		470		MHz
		RFM6601W-868S2		868		MHz
		RFM6601W-915S2		915		MHz
Receiving Sensitivity	S	LORA Mode SF=12, BW=125KHz		-138		dBm
Working Voltage	V <sub>DD</sub>		1.7	3.3	3.7	V
Rx Current	I <sub>RX</sub>	433.92 MHz		10	11	mA
		470 MHz		10	11	mA
		868 MHz		10	11	mA
		915 MHz		10	11	mA
Tx Current	I <sub>TX</sub>	433.92 MHz @+22dbm		108	120	mA
		470 MHz @+22dbm		108	120	mA
		868 MHz @+22dbm		120	135	mA
		915 MHz @+22dbm		120	135	mA
Sleep Current	I <sub>sleep</sub>	Without RF and RTC		1.3	2	uA
Operating Temperature	T <sub>OP</sub>		-40		+85	°C

**6. Dimension (Unit: mm)**



**Figure 2. Module Dimension**

**7. Ordering Information**

Model	Frequency
RFM6601W-433S2	433.92MHz
RFM6601W-470S2	470MHz
RFM6601W-868S2	868MHz
RFM6601W-915S2	915MHz

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