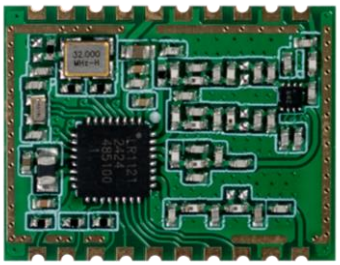
RFM92LRW

RFM92LRW - Low Power Long Range Multi-Band Transceiver Module

General Description



RFM92LRW Appearance

RFM92LRW is an ultra-low power, long range LoRa® transceiver that provides support for terrestrial ISM band communications in the sub-GHz and global 2.4GHz spectrum, as well as S-Band support for satellite connectivity. The RFM92LRW supports LoRa and (G)FSK modulation on both sub-GHz and 2.4GHz bands, as well as Sigfox® modulation on sub-GHz bands, and Long Range Frequency Hopping Spread Spectrum (LR-FHSS) on sub-GHz, 1.9-2.1GHz Satellite, and 2.4GHz ISM bands.

It is designed for long battery life with just 8mA of active receive current consumption. It can transmit up to +22dBm with highly efficient integrated power amplifiers.

These devices support LoRa® modulation for LPWAN use cases and (G)FSK modulation for legacy use cases. The devices are highly configurable to meet different application requirements utilizing the global LoRaWAN™ standard or proprietary protocols. The devices are designed to comply with the physical layer requirements of the LoRaWAN™ specification released by the LoRa Alliance™.

KEY PRODUCT FEATURES

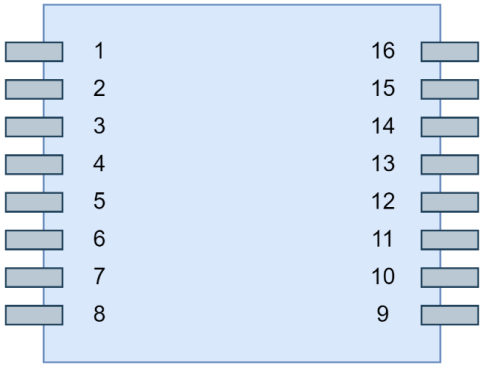
- LoRa™ Modem.
- +22dBm RF output for sub-GHz.
- +13dBm for 2.4GHz ISM band and S-Band.
- Programmable bit rate up to 300kbps(FSK)/62.5K(LORA).
- High sensitivity: down to -137dBm@LoRa BW 125KHz , SF12; -106dBm @FSK, 38.4kbps.
- Excellent blocking immunity.
- Low RX current of 8mA
- (G)FSK, (G)MSK, LoRa™ modulation.

Applications

The level of integration and the low consumption within RFM92LRW enable a new generation of Internet of Things 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

Pin Diagram



Picture 2: RFM92LRW Pin Diagram (Top View)

Pin Description

NO.	Name	Description
1	ANT1	ANT_LoRa_Sub_G
2	GND	Ground
3	NSS	SPI slave Select
4	SCK	SPI clock
5	MOSI	SPI slave input
6	MISO	SPI slave output
7	NRESET	Reset
8	BUSY	DIO0/Busy indicator
9	DIO5	I/O
10	DIO6	I/O
11	VCC	Power supply
12	GND	Ground
13	DIO7	I/O
14	DIO8	I/O
15	DIO9	I/O
16	ANT2	ANT_LoRa_2.4G

Electrical Characteristics

- **Absolute Maximum Ratings**

Symbol	Descriptio	Min	Max	Unit
VDDmr	Supply Voltage	-0.5	3.9	V
Tmr	Temperature	-55	+125	° C

- **Operating Range**

Symbol	Descriptio	Min	Max	Unit
VDD	Supply voltage	1.8	3.7	V
Temperature	Operational temperature range	-40	+85	°C
CL	Load capacitance on digital ports	-	20	pF

- **Transmitter Specifications, Sub-G Path**

Specification	Condition	Min	Typical	Max	Unit
Tx Power	HP PA	-	+22	-	dBm
Tx Drop	LP PA operating under DC-DC or LDO HP PA, operating under battery (1.8-3.7V)	- -	0.5 6	- -	dB
IDDTX	915MHz&+22dBm	-	118	-	mA

- **Transmitter Specifications, 2.4G Path**

Specification	Condition	Min	Typical	Max	Unit
Tx Power	HP PA	-	+11.5	-	dBm
Tx Drop	LP PA operating under DC-DC or LDO	-	0.5	-	dB
IDDTX	2.4G&+13dBm	-	29	-	mA

- **Receive Mode Specifications**

Specification	Condition	Min	Typical	Max	Unit
Sensitivity	FSK: Rate=38.4kbps,FDA=40KHz 915MHz	-	-106	-	dBm
	LoRa: SF=12,BW=125KHz 915MHz band	-	-136	-	dBm
IDDRX	FSK: Rate=4.8kbps LoRa: SF=12, BW=125KHz	- -	7.5 6.7	- -	mA

Liability Disclaimer

Shenzhen Hope Microelectronics Co., Ltd reserves the right to make changes without further notice to the product to improve reliability, function or design. Shenzhen Hope Microelectronics Co., Ltd does not assume any liability arising out of the application or use of any product or circuits described herein.

Life Support Applications

Shenzhen Hope Microelectronics Co., Ltd's products are not designed for use in life support appliances, devices, or systems where malfunction of these products can reasonably be expected to result in personal injury. Shenzhen Hope Microelectronics Co., Ltd customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Shenzhen Hope Microelectronics Co., Ltd for any damages resulting from such improper use or sale.

Contact Information

Shenzhen Hope Microelectronics Co., Ltd.
Address: 30th floor of 8th Building, C Zone, Vanke Cloud City, Xili Sub-district, Nanshan, Shenzhen, GD, P.R. China
Tel: +86-755-82973805
Post Code: 518055
Email: sales@hoperf.com
Website: www.hoperf.com