
DRF1272F
20dBm LoRa Long Range RF Front-end Module

V1.01

Features:

- Frequency Range: 868MHz
- Modulation: FSK/GFSK/MSK/LoRa
- SPI Data Interface
- Sensitivity: -137dBm
- Output Power: +20dBm
- Data Rate: <300 kbps
- 127dB dynamic Range RSSI
- Excellent blocking immunity
- Preamble detection
- Automatic RF sense and CAD monitor
- Built-in bit synchronizer for clock recovery
- Packet engine up to 256 bytes with CRC
- Working Temperature: -40°C ~+80°C
- Build-in temperature sensor
- Standby current: $\leq 1\mu\text{A}$
- Supply voltage: 1.8~3.6V



Applications

- Remote Control
- Smart metering
- Home Automation
- Personal data logger
- Wireless sensor network
- Remote keyless entry
- Wireless PC peripherals

DESCRIPTION

DRF1272F is a type of low cost RF front-end transceiver module based on SX1272 from Semtech Corporation. It keeps the advantages of RFIC SX1272 but simplifies the circuit design. The high sensitivity (-137dBm) in LoRa modulation and 20dBm high power output make the module suitable for low range and low data rate applications.

DRF1272F module consists of RFIC SX1272, thin SMD crystal and antenna matching circuit. The antenna port is well matched to standard 50 Ohm impedance. Users don't need to spend time in RF circuit design and choose suitable antennas for different applications. DRF1272F operates at 1.8~3.6V with extra low standby current which makes it suitable for battery powered-up applications. Because DRF1272F is purely hardware module and it adopts $\pm 10\text{ppm}$ crystal which the resolution of it places a important role in calculating spreading factor, bandwidth, etc. Users need to read the datasheet of SX1272 carefully in order to use the module in the best performance.

DORJI also provides sample codes based on microcontroller and Arduino platform. The customers who buy the modules can contact the sales of DORJI for modifiable copies.

PIN FUNCTIONS

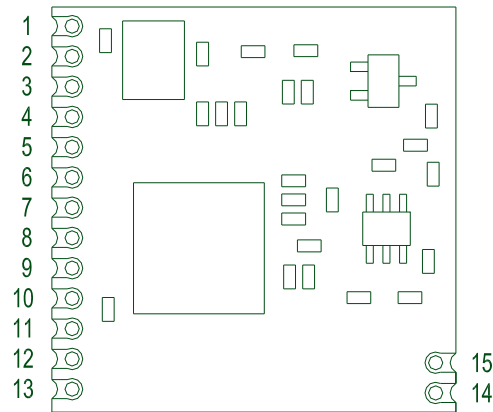


Figure 1: DRF1272F Pin Layout

PIN	Name	Function	Description
1	RESET	Input	Reset
2	DIO0	Input/Output	Digital I/O
3	DIO1	Input/Output	Digital I/O
4	DIO2	Input/Output	Digital I/O
5	DIO3	Input/Output	Digital I/O
6	DIO4	Input/Output	Digital I/O
7	DIO5	Input/Output	Digital I/O
8	VCC	Power	Normal 3.3V
9	GND	Ground	Ground (0V)
10	SCK	Input	SPI clock input
11	MISO	Input	SPI data output
12	MOSI	Input	SPI data input
13	NSS	Output	SPI chip select input
14	GND	Ground	Ground (0V)
15	ANT	Ground	50 Ohm Impedance

Table 1: DRF1272F Pin Functions

ELECTRICAL SPECIFICATIONS

Symbol	Parameter (condition)	Min.	Typ.	Max.	Units
VCC	Supply Voltage	1.8		3.7	V
Temp	Operating temperature range	-40	25	80	°C
Freq	Frequency range	860	869	890	MHz
IDD_R	Current in receive mode		12		mA
IDD_T	Current in transmit mode		125		mA
IDD_S	Current in sleep mode.			1	uA
Pout	Max. output power			20	dBm
Sen	Receiver sensitivity @LoRa 300bps			-137	dBm
ZANT	Antenna Impedance		50		Ohm

Table 2: DRF1272F Electrical Specifications

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Min.	Max.	Units
VCC	Supply Voltage	-0.3	3.7	V
VI	Input voltage	-0.3	VCC+0.3	V
VO	Output voltage	-0.3	VCC+0.3	V
Tst	Storage temperature	-55	125	°C

Table 3: DRF1272F Maximum Ratings

APPLICATION CIRCUIT

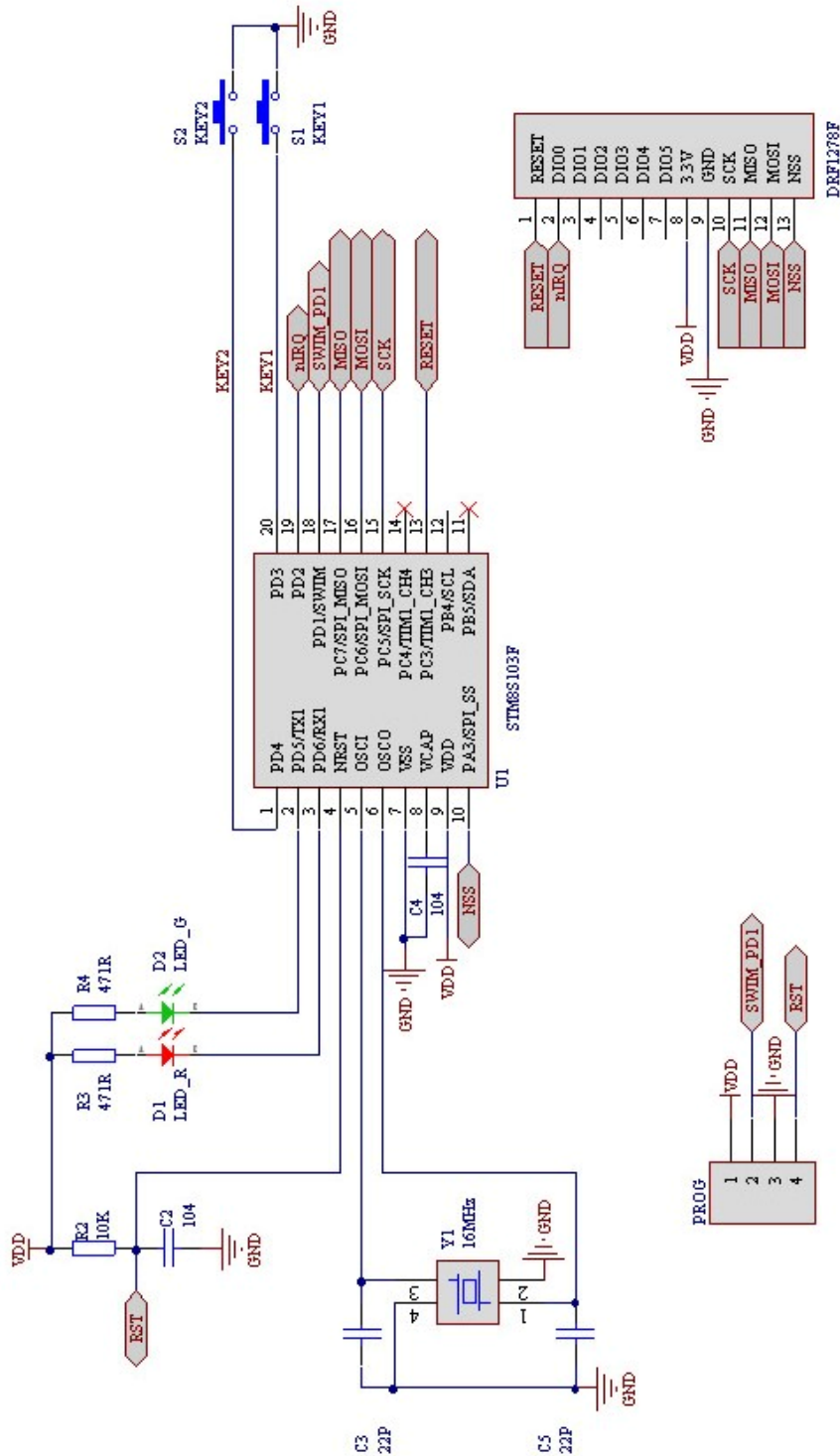


Figure 2: Application Circuit

MECHANICAL DATA

Unit: mm

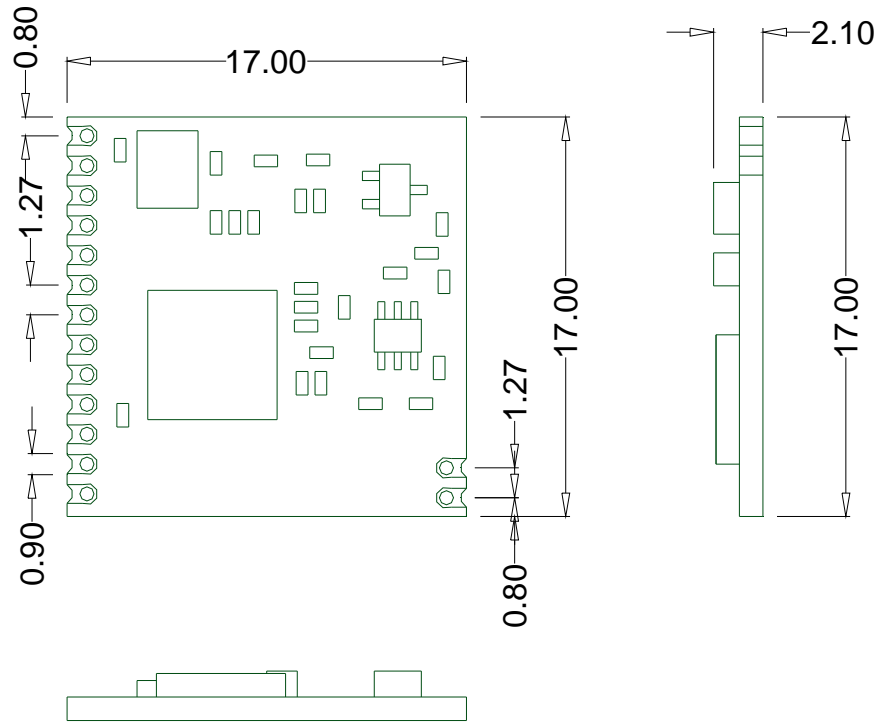


Figure 3: Mechanical Dimension

REFERENCE DOCUMENTS

1. [SX1272 Datasheet](#)
2. [LoRa Calculator](#)
3. [LoRa Low Energy Design Guide](#)
4. [LoRa Modem Designer's Guide](#)
5. [SX1276 Development Kit User Guide](#)

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