DRF1268T

22dBm LoRa Long Range RF Front-end Module V1.00

Features:

- Frequency Range: 433MHz
- Modulation: FSK/GFSK/MSK/LoRa
- SPI Data Interface
- Sensitivity: -147dBm
- Output Power: +22dBm
- 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: -30°C ~+85°C
- Build-in temperature sensor
- Standby current: ⩽ 1uA
- Supply voltage: 1.8~3.3V

Applications

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

DESCRIPTION

DRF1268T is a type of 433MHz RF front-end transceiver module based on SX1268 from Semtech Corporation. It keeps the advantages of RFIC SX1268 but simplifies the circuit design. The high sensitivity (-147dBm) in LoRa modulation and 22dBm high power output make the module suitable for low range and low data rate applications.

DRF1268T module consists of RFIC SX1268, 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 just choose suitable antennas for different applications. DRF1268T operates at 1.8~3.3V with extra low standby current which makes it suitable for battery powered-up applications. DRF1268T adopts ±1ppm high accuracy TCXO which makes it possible to use narrower bandwidth to achieve the high sensitivity up to -147dBm. DORJI also provides DRF1262T for 868MHz/915MHz TCXO version of sx1262 module. Users can use the testing kit DAD06 to test the basic function on ST Nucleo-L053R8 or Arduino UNO board.

PIN FUNCTIONS

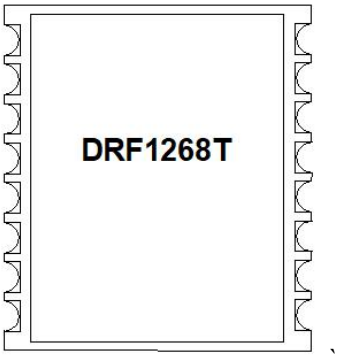

Figure 1: DRF1268T Pin Layout

PIN	Name	Function	Description
1	ANT	ANT	50 Ohm Impedance port
2	GND	Ground	Ground (0V)
3	SW	Input	One control pin of RF switch
4	GND	Ground	Ground (0V)
5	GND	Ground	Ground (0V)
6	GND/NC	TCXO pin	Can be Ground (0V) or NC
7	GND	Ground	Ground (0V)
8	VDD	Power	Normal 3.3V
9	DIO2	Output	It is connected to one control pin of RF switch internally
10	DIO1	Input/Output	Multipurpose digital IO
11	BUSY	Input/Output	Busy indicator
12	RST	Input/Output	Reset signal, active low
13	MISO	Output	SPI slave output
14	MOSI	Input	SPI slave input
15	SCK	Intput	SPI clock
16	NSS	Input	SPI Slave Select

Table 1: DRF1268T Pin Functions

ELECTRICAL SPECIFICATIONS

Symbol	Parameter (condition)	Min.	Typ.	Max.	Units
VCC	Supply Voltage	1.8		3.3	V
Temp	Operating temperature range	-30	25	85	°C
Freq	Frequency range	410	433	460	MHz
I_{DD_R}	Current in receive mode		5.7		mA
I_{DD_T}	Current in transmit mode		108		mA
I_{DD_S}	Current in sleep mode.			1	uA
Pout	Max. output power @915Mhz		20.8		dBm
Sen	Receiver sensitivity @SF=12 &BW=15.36KHz			-147	dBm
Z_{ANT}	Antenna port impedance		50		Ohm

Table 2: DRF1268T Electrical Specifications

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Min.	Max.	Units
VCC	Supply Voltage	-0.3	3.6	V
VI	Input voltage	-0.3	VCC+0.3	V
VO	Output voltage	-0.3	VCC+0.3	V
T_{ST}	Storage temperature	-40	125	°C

Table 3: DRF1268T Maximum Ratings

MODULE SCHEMATIC

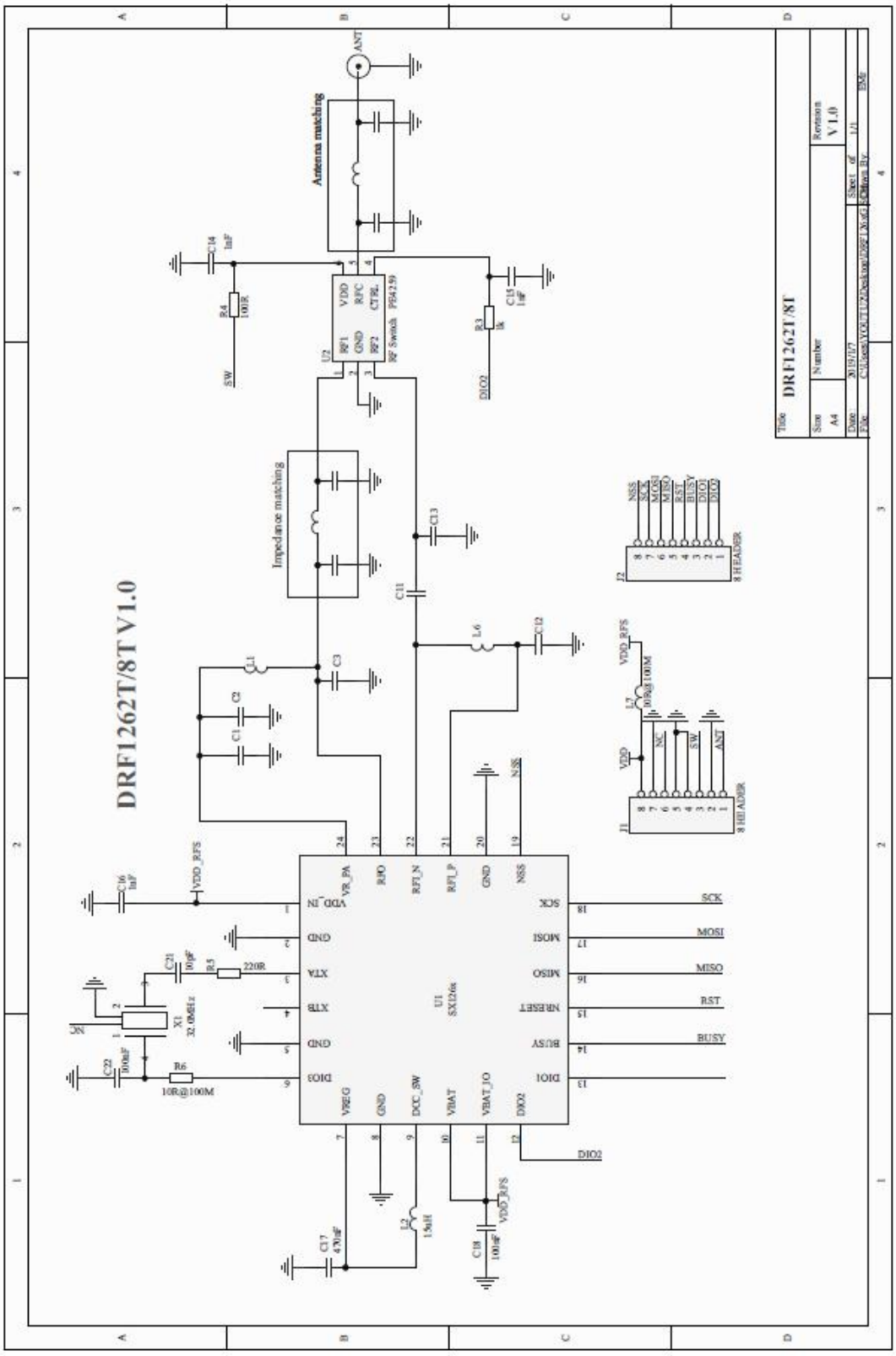

Figure 2: DRF1268T Schematic

MECHANICAL DATA

Unit: mm

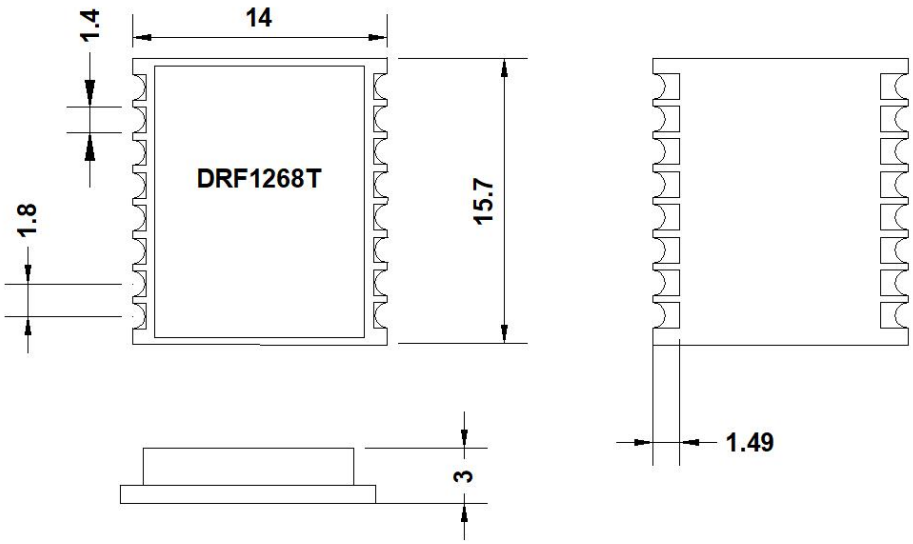

Figure 3: Mechanical Dimension

REFERENCE DOCUMENTS

1. SX1262 Datasheet
2. LoRa Calculator
3. LoRa Low Energy Design Guide
4. LoRa Modem Designer's Guide
5. SX1262 Development Kit User Guide
6. SX1262 SX1268 Testing Kit DAD06

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