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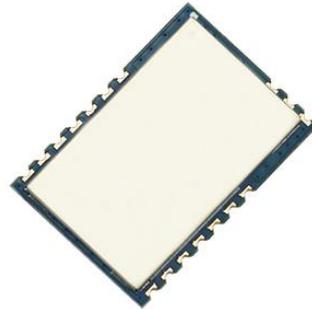
**DRF1268TL**  
**30dBm LoRa Long Range RF Front-end Module**

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**V1.00**

**Features:**

- Frequency Range: 433MHz
- Modulation: FSK/GFSK/MSK/LoRa
- SPI Data Interface
- Sensitivity: -147dBm
- Max.Output Power: +30dBm
- 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 ~+85°C
- Build-in temperature sensor
- Supply voltage: 4~5.5V



**Applications**

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



**DESCRIPTION**

DRF1268TL 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 Max. 30dBm power output make the module suitable for low range applications.

DRF1268TL module consists of RFIC SX1268, TCXO, PA 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. DRF1268TL operates at 4~5V with extra low standby current which makes it suitable for battery powered-up applications. DRF1268TL adopts  $\pm 1\text{ppm}$  high accuracy TCXO which makes it possible to use narrower bandwidth to achieve the high sensitivity up to  $-147\text{dBm}$ . DORJI also provides  $30\text{dBm}$   $433\text{MHz}$  version of sx1262 module DRF1262TL. Users can use the testing kit DAD08 to test the basic function on ST Nucleo-L053R8 or Arduino UNO board.

## PIN FUNCTIONS

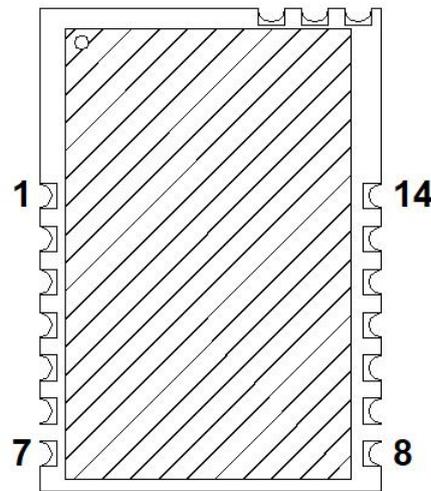


Figure 1: DRF1268TL Pin Layout

PIN	Name	Function	Description
1	SW	Input	One control pin of RF switch
2	GND	Ground	Ground (0V)
3	TXEN	Input	PA enable pin, active low
4	GND	Ground	Ground (0V)
5	GND	Ground	Ground (0V)
6	VDD	Power	4~5.5V
7	VDD	Power	4~5.5V
8	DIO1	Input/Output	Multipurpose digital IO
9	BUSY	Input/Output	Busy indicator
10	RST	Input/Output	Reset signal, active low
11	MISO	Output	SPI slave output
12	MOSI	Input	SPI slave input
13	SCK	Input	SPI clock
14	NSS	Input	SPI Slave Select

15	GND	Ground	Ground (0V)
16	ANT	ANT	50 Ohm Impedance port
17	GND	Ground	Ground (0V)

**Table 1: DRF1268TL Pin Functions**

## ELECTRICAL SPECIFICATIONS

Symbol	Parameter (condition)	Min.	Typ.	Max.	Units
Vdd	Supply Voltage	4	5	5.5	V
Temp	Operating temperature range	-40	25	85	°C
Freq	Frequency range	425	434	450	MHz
IDD_R	Current in receive mode		6		mA
IDD_T	Current in transmit mode @434MHz & Vdd=5V		600		mA
Pout	Max. output power @434Mhz & Vdd=5V		29.5		dBm
	Max. output power @425Mhz & Vdd=5V		30		dBm
Sen	Receiver sensitivity @434MHz			-147	dBm
ZANT	Antenna Impedance		50		Ohm

**Table 2: DRF1268TL Electrical Specifications**

## ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Min.	Max.	Units
VCC	Supply Voltage	-0.3	5.5	V
VI	Input voltage	-0.3	3.6	V
VO	Output voltage	-0.3	3.6	V
TST	Storage temperature	-40	125	°C

**Table 3: DRF1268TL Maximum Ratings**

MODULE SCHEMATIC

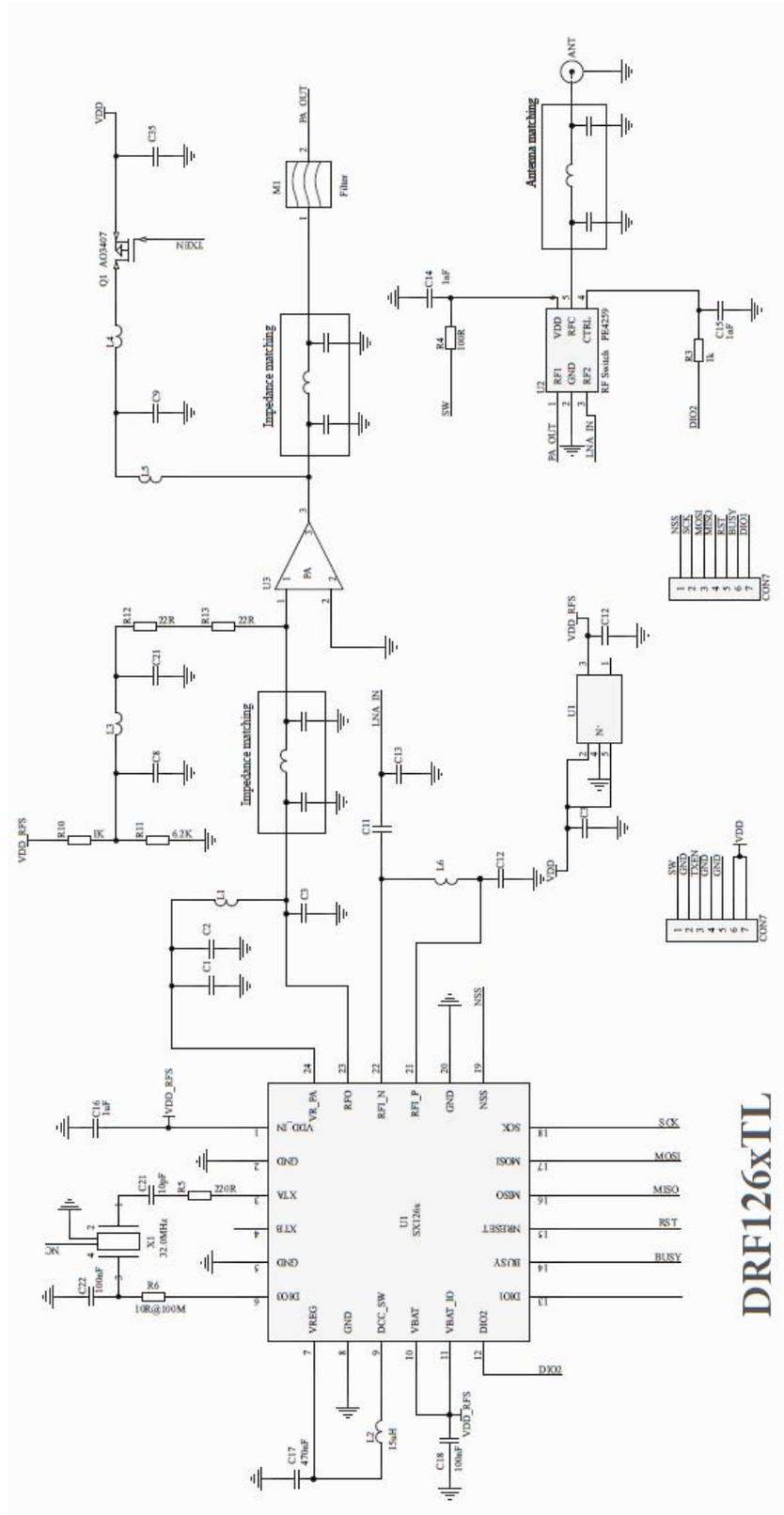
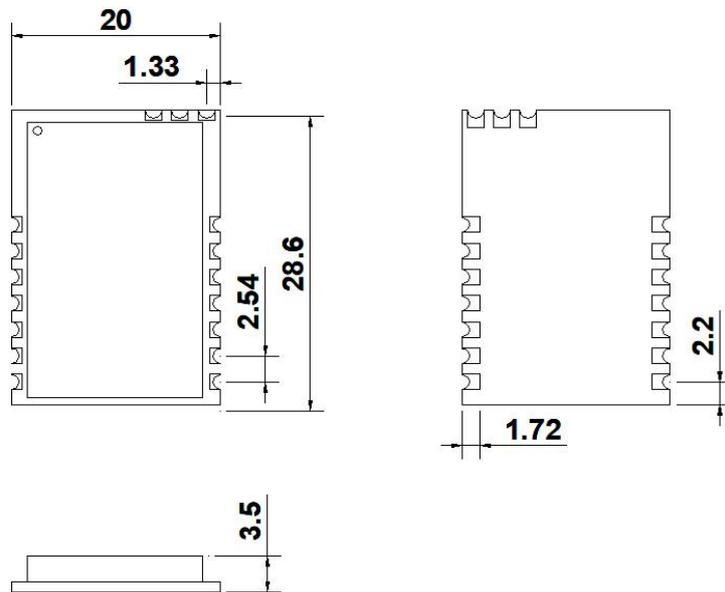


Figure 2: DRF1268TL Schematic

**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. [SX1268 Development Kit User Guide](#)

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