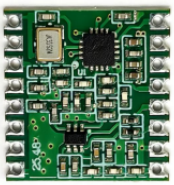
MRF300HW

ISM Transceiver Module With +20dBm(100mW) Output Power

（The purpose of this MRF300HW spec covers mainly for the hardware and RF parameter info of the module, For software info please refer to MRF2300A chipdatasheets ）

MRF300HW



1. General Introduction

MRF300HW module series' design is based on the MRF2300A chip, It operate at 433/868/915MHz ISM band , The low receive sensitivity(–120dBm) coupled with +20dBm MRF300HW output power ensures extended range and improved link performance.

2. Features:

- 140dB maximum link budget.
- Low RX current of 7mA.
- +20 dBm output power
- Programmable bit rate up to 300 kbps@FSK/40 kbps@OOK
- High sensitivity: down to -120dBm.
- FSK, GFSK, and OOK modulation.
- SMD Package (16x16X1.8mm)

3. Application：

- Meter Reading
- Wireless data collection
- Automobile security system
- Home automation and security system

4. Pin Definition：

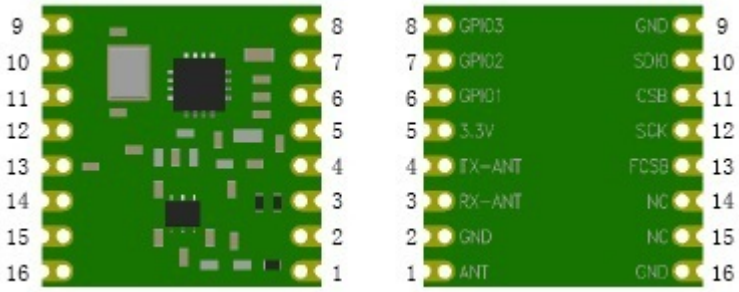


Figure 1. MRF300HW Pin Definition

Number	Definition	Type	Function
1	ANT	AI/AO	RF signal input/output.
2	GND	G	Ground.
3	RX-ANT	I/O	Rx Antenna select input pin, When RFM300H is RX state, RX_ANT should be = 0, TX_ANT should be = 1
4	TX-ANT	I/O	Tx Antenna select input pin, When RFM300H is TX state, TX_ANT should be = 0, RX_ANT should be = 1
5	3.3V(VDD)	PI	Power supply input, 1.8-3.6V.
6	GPIO1	I/O	General Purpose Digital I/O that may be configured through the registers to perform various functions
7	GPIO2		
8	GPIO3		
9	GND	G	Ground.
10	SDIO	I/O	SPI Data input and output.
11	CSB	I	SPI Chip select input, active low.
12	SCK	I	SPI Clock input.
13	FCSB	I	SPI FIFO select input, active low.
14	NC		No Connect.
15	NC		No Connect.
16	GND	G	Ground.

5. Electrical Parameter：

Maximum

parameter	minimum	maximum	Unit
Positive Power Supply	-0.3	+3.6	V
Voltage On Digital Control Inputs	-0.3	VDD + 0.3	V
Voltage On Analog Inputs	-0.3	VDD+ 0.3	V
RX Input Power	-	+10	dBm
Storage Temperature	-55	+125	℃
Soldering Temperature(10s)	-	+255	℃
ESD Rating(Human Body Model)	-2	2	KV

Recommended working range

parameter	minimum	maximum	Unit
Positive Power Supply	+1.8	+3.6	V
Working Temperature	-40	+85	℃
Supply Voltage Slew Rate	1	-	mV/us

DC characteristic

parameter	conditions	minimum	typical	maximum	Unit
MRF300HW	433MHz band, P_{out} =+20dBm	-	75	85	mA
TX Working Current	868MHz band, P_{out} =+20dBm	-	80	90	
	915MHz band, P_{out} =+20dBm	-	85	95	
MRF300HW RX	433MHz band,	-	7	10	mA
Working Current	868MHz band,	-	7.5	10.5	
	915MHz band,	-	7.5	10.5	
MRF300HW	All band	-	-	1	uA
Sleep Current					

Transmitter AC characteristic

parameter	conditions	minimum	typical	maximum	Unit
TX Frequency Range Programmable	433 MHz band, 868 MHz band, 915 MHz band,	413 848 895	- - -	453 888 935	MHz
MRF300HW Output Power	433/868/915MHz band	-	+20		dBm
Symbol Rate, FSK Mode	Programmable	0.1	-	300	kbps
Symbol Rate, OOK Mode	Programmable	0.1	-	40	kbps
Frequency Deviation, FSK	Programmable	1	-	200	KHz
Frequency Resolution		-	24.8	-	Hz

Receiver AC characteristic

parameter	conditions	minimum	typical	maximum	Unit
RX Frequence Range Programmable	433 MHz band, 868 MHz band, 915 MHz band,	413 848 895	- - -	453 888 935	MHz
RX Sensitivity OOK Mode SR = 1.2 kbps,	433MHz 868MHz 915MHz	- - -	-120 -118 -118	- - -	dBm
RX Sensitivity FSK Mode F_{DEV} = 19.2 kHz, SR = 1.2 kbps,	433MHz 868MHz 915MHz	- - -	-118 -116 -116	- - -	dBm
Receiver Bandwidth		50		500	KHz
Blocking Immunity	+/-1MHz offset +/-2MHz offset +/-10MHz offset	- - -	52 74 75	- - -	dB
Image Rejection Ratio	IF=280KHz	-	35	-	dB

6. Typical Application：

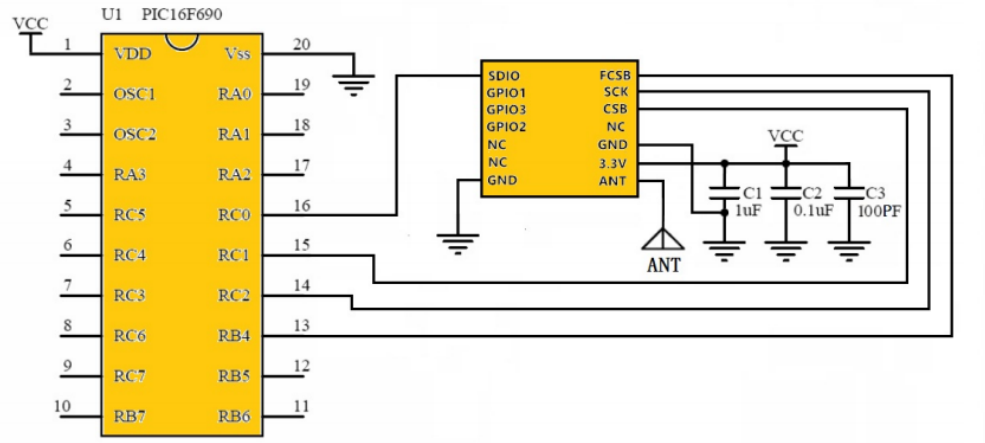


Figure 2. MRF300HW Application

(For software info please refer to MRF2300A chip datasheets and demo program)

7. Mechanical Dimension

（All units in mm）

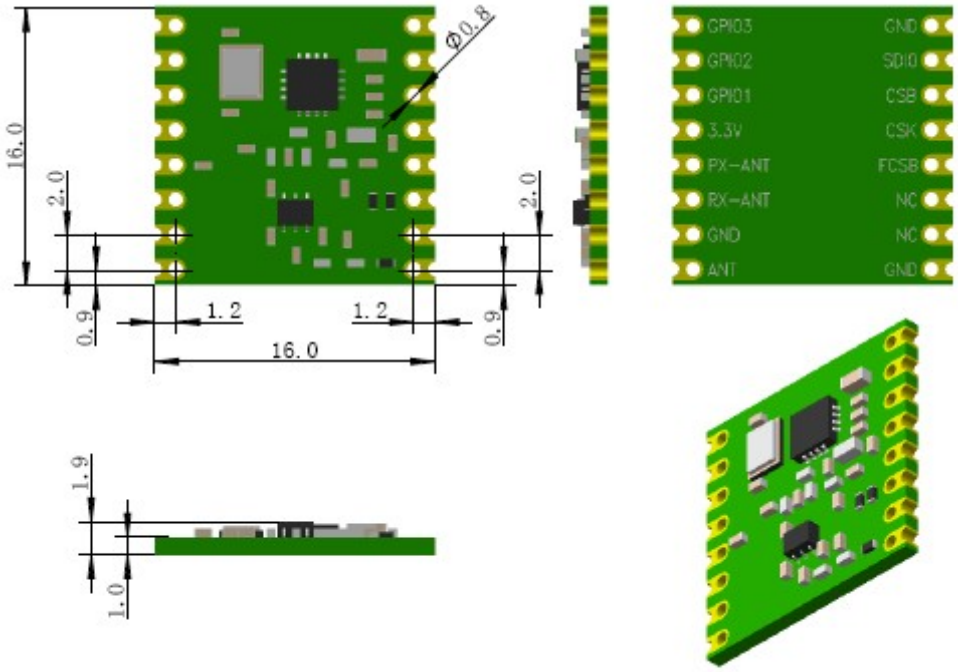


Figure3. MRF300HW Mechanical Dimension