



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:

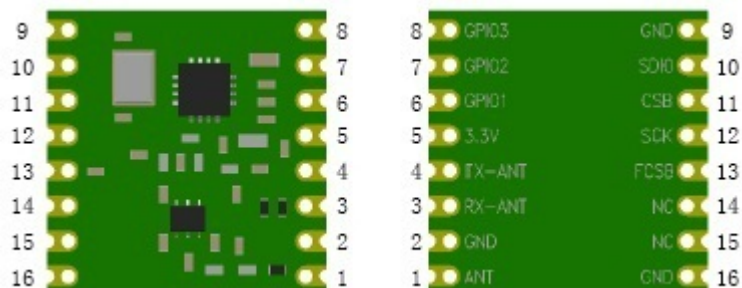


Figure 1. MRF300HW Pin Definition

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 MRF300H is RX state, RX_ANT should be = 0, TX_ANT should be = 1
4	TX-ANT	I/O	Tx Antenna select input pin, When MRF300H 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	°C
Soldering Temperature(10s)	-	+255	°C
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	°C
Supply Voltage Slew Rate	1	-	mV/us

DC characteristic

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


Transmitter AC characteristic

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

6. Typical Application:

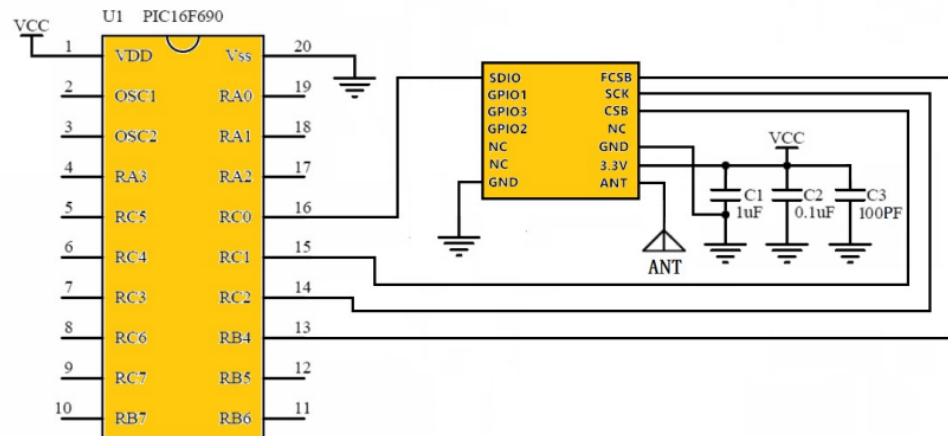


Figure 2. MRF300HW Application

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

(All units in mm)

