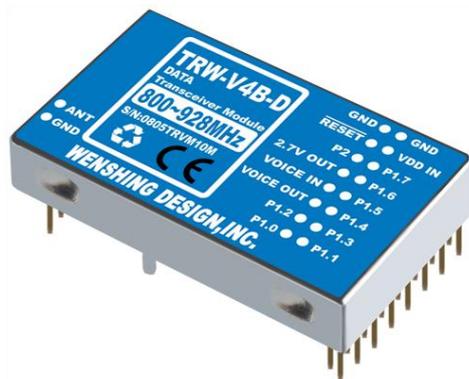


## Wireless Low Power Transceiver RF Module

**Version History**

Version	Date	Changes
V1.01	Dec.16, 2006	1 <sup>st</sup> . Edition
V1.02	Aug.20,2007	2 <sup>nd</sup> . Edition
V1.03	Aug.27,2008	3 <sup>rd</sup> . Edition

## Key Feature

- UHF Wireless Data Transceiver
- RF Output Power up to 10mW
- Sensitivity up to -112dBm
- Low Power Consumption
- Voltage Supply 3.5V to 5.5V
- SPI Micro-Controller Interface
- Transceiver Data Rate: 1.2Kbps~250Kbps

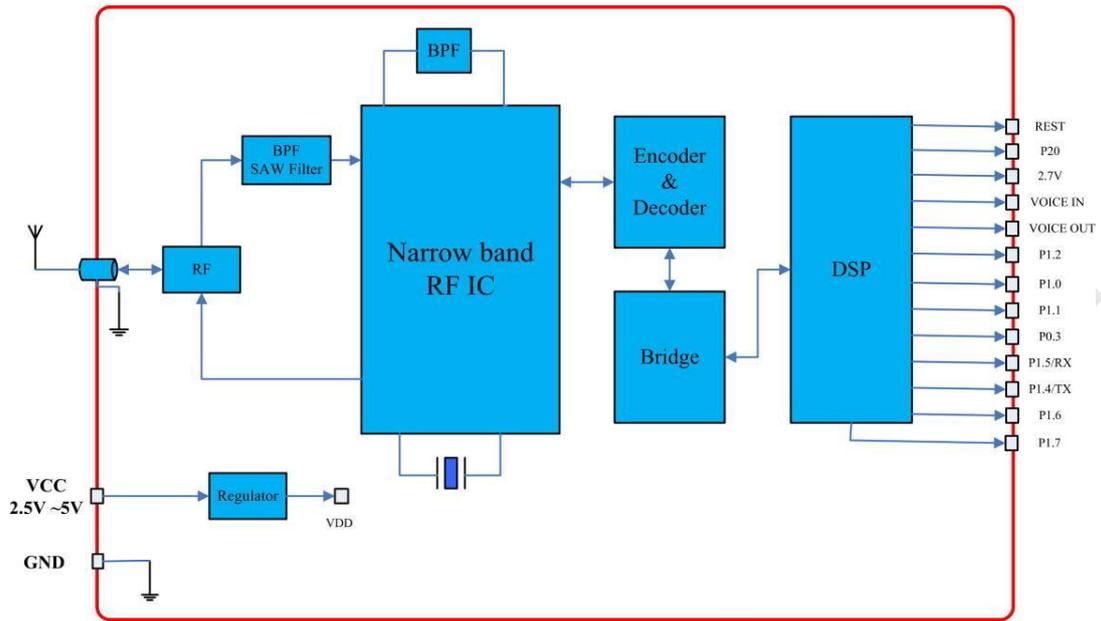
## Applications

- Wireless Networks
- Wireless Remote Control
- Remote Keyless Entry
- Multi-Channel Home Automation Standards
- Wireless RS-232 USB
- Active RFID
- RFID Base Station Transmitter

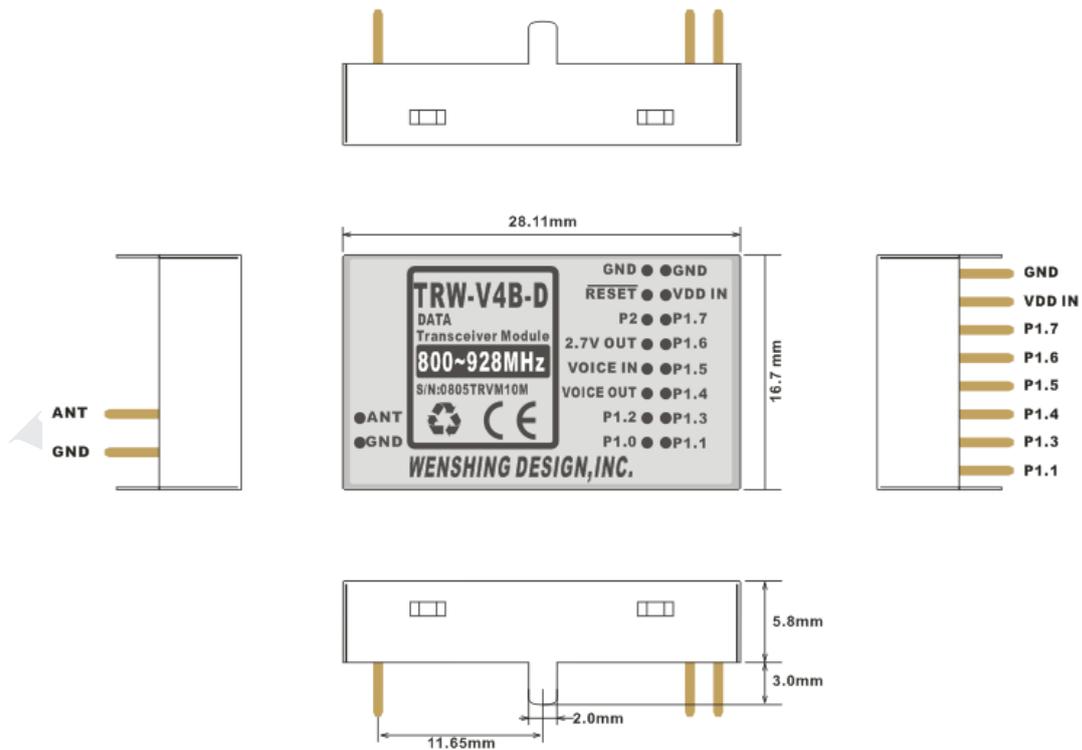
## Characteristic

Parameter	Min	Type	Max	Unit	Condition
<b>Operating Condition</b>					
Operating Temperature Range	-10		+70	°C	
Operating Supply Voltage	3.5		5.5	V	
<b>Current Consumption</b>					
Receiver Mode			21	mA	
Transmitter Mode			24	mA	Vcc 5V
Sleep Mode			2	mA	Vcc 5V
<b>RF Characteristic</b>					
Frequency Range	800		928	MHz	
Data Rate	1.2		250	Kbps	FSK
Transmitter Output Power	0		10	dBm	
Receiver Sensitivity			-112	dBm	
Modulation	FSK		MSK		
<b>Other</b>					
FIFO			64	byte	
ESD			500	V	

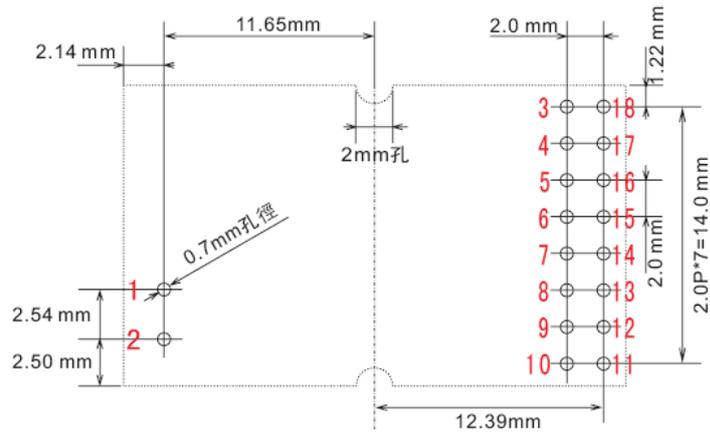
## Block Diagram



## View



## Pin Assignment

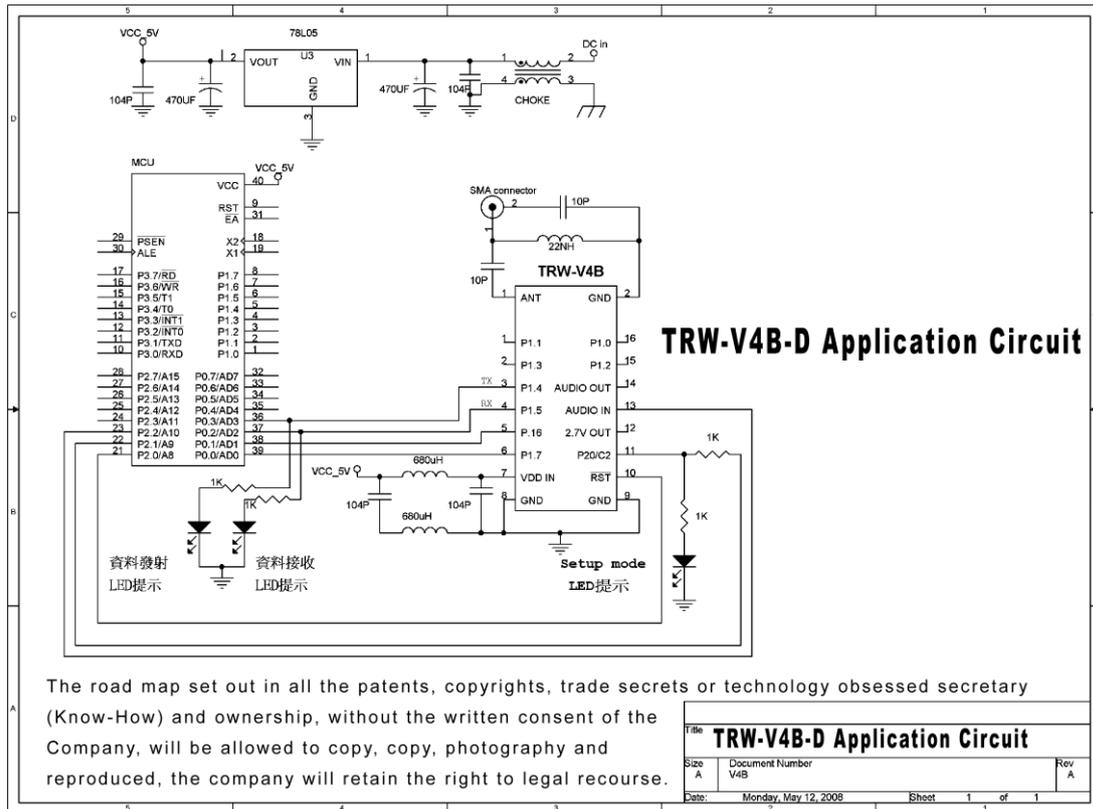


Reference hole position for PCB mounting(Top view)

3 GND                      18 GND  
 4 RESET                    17 VDD IN  
 5 P2                         16 P1.7  
 6 2.7V OUT                15 P1.6  
 7 VOICE IN                14 P1.5  
 8 VOICE OUT              13 P1.4  
 1 ANT                      9 P1.2                      12 P1.3  
 2 GND                      10 P1.0                    11 P1.1

Pin	Function	I/O	Description
1	ANT	ANT	Antenna Interface
2	GND	P	Power Negative
3	GND	P	Power Negative
4	RESET	O	Lo action
5	P2	O	Set
6	2.7V OUT	P	Internal Power Output
7	VOICE IN	O	Serial Rate Choice
8	VOICE OUT	N	
9	P1.2	N	
10	P1.0	N	
11	P1.1	N	
12	P1.3	N	
13	P1.4	I	RF Serial Data Input ( SPI I )
14	P1.5	O	RF Serial Data Output ( SPI O )
15	P1.6	O	Serial Rate Choice
16	P1.7	O	Serial Rate Choice
17	VDD IN	P	Power Cathode
18	GND	P	Power Negative





## Planning Module Approach

The use of negative trigger P2 Pin source and it will set in to the state. P1.4 under instructions to amend wireless transmission frequency and wireless transmission rate. It will be automatically deposited after TRW-V4B-D setting, and it will save the date set by P1.5 return.

## General Mode of Communication

- a. The following table through the adjustment required by the work rate interface:

Voice In	P1.6	P1.7	Rate
1	1	1	1.2Kbps
1	1	0	2.4Kbps
1	0	1	4.8Kbps
1	0	0	9.6Kbps
0	1	1	19.2Kbps
0	1	0	38.4Kbps
0	0	1	56.0Kbps
0	0	0	115.2Kbps

- b. Under normal working conditions, it will automatically update the settings after changing their work rate with TRW-V4B-D.
- c. The use of negative trigger P2 Pin source that is set into the state, all the Group of TRW-V4B-D RF work rate and the frequency set to work, it will not be able to send information. After re-electricity, TRW-V4B-D will automatically call the last set of work rate and frequency, as the current work rate and frequency.
- d. By P1.4 sent information to the TRW-V4B-D, as long as its members in the group receiving can be received within the scope of its information.

### Command Format

Frequency and wireless transmission rate of 0 XABCDEFGHJKLMN written instructions were 7 bytes 16-band 7 bytes. This is not being dealt with the command is less than 7 bytes or two before the byte is not equivalent to 0 x1234.

ABCD leader commands and it is fixed data "1234 H".

E is fixed at 0 H.

F is for the wireless transmission rate settings.

Value	0	1	2	3	4	5	6	7	8
Rate (bps)	1200	2400	4800	9600	19.2K	38.4K	76.8K	100K	250K

Remark: The lower wireless transmission rate will cause farther distance carrier and initial value is for the 9600 Kbps.

GHIJKL is the value of wireless transmission frequency settings, each base to 10KHz.

For example, 868 MHz = 015310H,

922.56MHz=016860H (Initial value is 925MHz)

MN is the ID number for TRW-V4B-D. (the initial value is 0 x00)

### Command Communication Mode

#### 🔘 Read TRW-V4B-D Parameters of Command:

Send value = 0 x1234567868ACFD

Return = 03 01 69 54 02

03 = wireless transmission rate (9600Kbps), 01 69 54 = equipment frequency (925MHz), 02 = ID code

#### 🔘 Read TRW-V4BD RSSI Parameters of Command:

Send value = 0 x1234567868ACFE

Return value = BC

BC = RSSI value

#### 🔘 Sleep Mode Parameters of Command:

Send value = 0 x1234567868ACFF

After sent TRW-V4B-D immediately, it will enter Sleep mode soon. As long as the P1.4 received information, it will be automatically entered Standby mode wake-up call.

#### 🔘 Point-to-Point Transmission Mode Parameters of Command:

Send value = 0 x1234567868AC0000SSTTDDDDDDDDDD

SS-sent is on behalf of the ID number; TT is on behalf of the receiving end for the ID number and DDDD... is on behalf of data (not set this mode, TRW-V4B-D is to broadcast the operation).

### Following is an example of the value

Set the RF transmission rate is 19.2Kbps, operating frequency is: 868.00MHz, ID code is 10.

Send value = 0 x12340301531000

BIT47	BIT46	BIT45	BIT44	BIT43	BIT42	BIT41	BIT40
0	0	0	1	0	0	1	0
Location information instructions A (fixed leader script)				Directive location information B (fixed leader script)			
BIT39	BIT38	BIT37	BIT36	BIT35	BIT34	BIT33	BIT32
0	0	1	1	0	1	0	0
Directive location information C (fixed leader script)				Directive location information D (fixed leader script)			
BIT31	BIT30	BIT29	BIT28	BIT27	BIT26	BIT25	BIT24
0	0	0	0	0	1	0	0
E location information directive				Directive location information F (wireless transmission rate set)			
BIT23	BIT22	BIT21	BIT20	BIT19	BIT18	BIT17	BIT16
0	0	0	0	0	0	0	1
Directive location information G (frequency settings)				Command position information H (frequency settings)			
BIT15	BIT14	BIT13	BIT12	BIT11	BIT10	BIT9	BIT8
0	1	0	1	0	0	1	1
Directive location information I (frequency settings)				Directive location information I (frequency settings)			
BIT7	BIT6	BIT5	BIT4	BIT3	BIT2	BIT1	BIT0
0	0	0	1	0	0	0	0
Directive location information K (frequency settings)				Directive location information L (frequency settings)			
BIT7	BIT6	BIT5	BIT4	BIT3	BIT2	BIT1	BIT0
0	0	0	1	0	0	0	0
Directive location information M(ID)				Directive location information N(ID)			