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# DATA SHEET



## AWM666H RX MODULE

### 5.8 GHz Wideband FM Receiver

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#### AIRWAVE TECHNOLOGIES INC.

**Revision History**

Version	Item	Change	Reason	Date
1			new	2013-06-14

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## 1. Descriptions:

Airwave 5.8GHz Audio/Video wireless RF module contains one Transmitter and one Receiver. Using of the most popular 5.8GHz ISM band and being designed with high reliability, Airwave RF module is compliance with the criteria of FCC and R&TTE which can transmit/receive a wide band audio & video signals up to 300 feet in open area. AWM666H RX is the receiver module and designed to convert 5.8GHz RF Signal down to 480 MHz IF signal. The IF signal is then demodulated for base band audio and video signals using wideband PLL FM demodulation scheme. All required functions of AWM666H RX are implemented with a single highly integrated IC, AWI5822.

## 2. Feature:

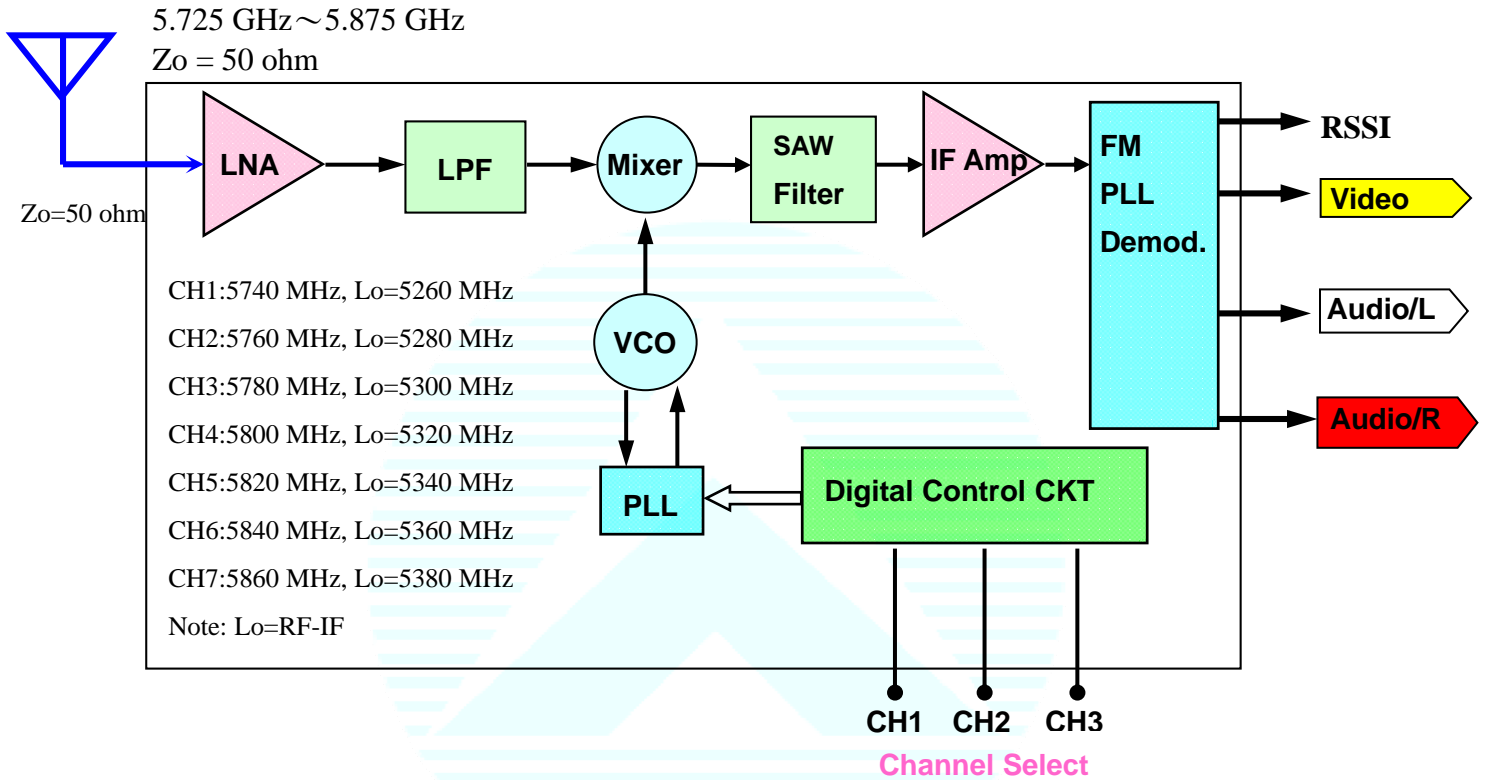
- Worldwide 5.8GHz ISM band (5725 MHz~5875 MHz).
- Conformity with R&TTE & FCC stipulation.
- Compatible with both NTSC and PAL video formats.
- Compact size and low power consumption.
- Highly efficient FM-FM modulation/demodulation scheme.
- Integration of baseband Audio/Video into a single module.
- 7 selectable RF channels.
- Received signal strength indicator (RSSI).

## 3. Application:

- AV Sender
- Baby Monitor
- Surveillance
- Wireless Camera

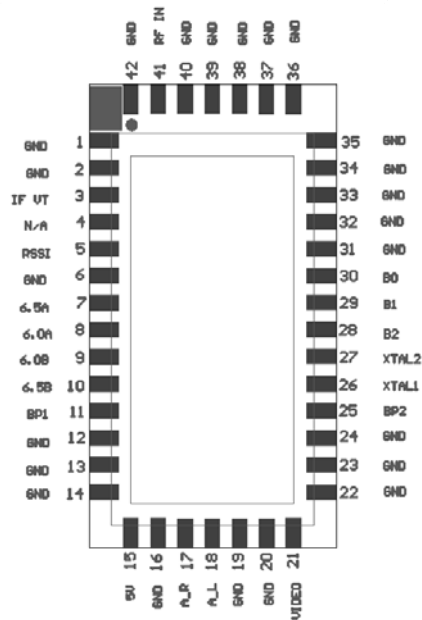
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**4. Function block:**



**5. PIN define**

Top view



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**6. PIN descriptions:**

PIN	NAME	Descriptions
1	GND	Ground.
2	GND	Ground.
3	IF_VT	480MHz VCO Tuning Voltage Control Input : Typical range of Vt is 0.9~1.3V
4	N/A	No connect
5	RSSI	Inversely proportional input signal strength : Typical range of Vt is 0.3~1.9V
6	GND	Ground.
7	6.5A	6.5MHz filter input
8	6.0A	6.0MHz filter input
9	6.0B	6.0MHz filter output
10	6.5B	6.5MHz filter output
11	BP1	Bypass capacitor. (1000 uf /16V)
12	GND	Ground.
13	GND	Ground.
14	GND	Ground.
15	5V	DC +5V power supply in
16	GND	Ground.
17	A_R	Right sound signal output.
18	A_L	Left sound signal output.
19	GND	Ground.
20	GND	Ground.
21	Video	Video signal output.
22	GND	Ground.
23	GND	Ground.
24	GND	Ground.
25	BP2	Bypass capacitor. (22 uf /16V)
26	XTAL1	External crystal connection pin 1
27	XTAL2	External crystal connection pin 2
28	B2	Channel select.
29	B1	Channel select.
30	B0	Channel select.
31	GND	Ground.
32	GND	Ground.
33	GND	Ground.
34	GND	Ground.
35	GND	Ground.
36	GND	Ground.
37	GND	Ground.
38	GND	Ground.
39	GND	Ground.
40	GND	Ground.
41	ANT	RF received signal input
42	GND	Ground.

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Channel selection are seven channels by Pin27, Pin28 and Pin 29 for dip SW mode As shown below :

Table1:

Pin27	Pin28	Pin29	Descriptions	Receiver Frequency
B2	B1	B0		
0	0	0	Pin 27, Pin 28, Pin 29 connect to GND.	5740MHz (CH1)
0	0	1	Pin 27 and Pin 28 connect to GND, Pin 29 OPEN.	5760MHz (CH2)
0	1	0	Pin 27 and Pin 29 connect to GND, Pin 28 OPEN.	5780MHz (CH3)
0	1	1	Pin 27 connect to GND, Pin 28 and Pin 29 OPEN.	5800MHz (CH4)
1	0	0	Pin 28 and Pin 29 connect to GND, Pin 27 OPEN.	5820MHz (CH5)
1	0	1	Pin 28 connect to GND, Pin 27 and Pin 29 OPEN.	5840MHz (CH6)
1	1	0	Pin 29 connect to GND, Pin 27 and Pin 28 OPEN.	5860MHz (CH7)

### Channel setting voltage

High voltage	2.5V ~ 3.6V
Low voltage	< 1.0V

### Minimum settling time

< 50ms

## 7. Absolute maximum ratings:

RF/ DC Parameters		Min.	Typ.	Max.	Unit
Storage Temperature Range		-25	-	85	°C
Supply voltage		4.5	-	5.5	V

The maximum rating must not be exceeded at any time. Do not operate the device under conditions outside the above.

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**8. DC/AC Electrical characteristic:**

(VCC=DC +5V, 25°C)

RF/ DC Parameters	Min.	Typ.	Max.	Unit
Supply voltage	4.95	5	5.05	V
Supply current	195	205	215	mA
RF Input Level	-87		-16	dBm
Operating temperature	-10	-	60	°C
Operation Frequency Range	5725		5875	MHz
Channel Selection	PLL Synthesizer, 7CH (See Tab11)			
Channel Frequency	CH1 : 5740 MHz, CH2 : 5760 MHz CH3 : 5780 MHz, CH4 : 5800 MHz CH5 : 5820 MHz, CH6 : 5840 MHz CH7 : 5820 MHz.			
Video-Audio Modulation/Demodulation Type	FM-FM			
<b>Video</b>				
Output Signal Level	1V <sub>P-P</sub> , typ. (+/-0.2V)			
Frequency Response	+/-5 dB, max. 50Hz~5.5MHz			
S/N Ratio (100KHz, 1V <sub>P-P</sub> Sine Wave)	40dB, min.			
<b>Audio</b>				
Output Frequency Range	50Hz ~ 20KHz			
Output Signal Level (Modulation Signal : 1kHz Sine Wave)	1V <sub>p-p</sub>			
<b>RSSI</b>				
RSSI output voltage (RF input -30dBm~-90dBm)	0.3~1.9V			
<b>Module Flatness (Difference between max. and min. PCB heights above a flat surface)</b>				
PCB bending	0.35mm, max.			

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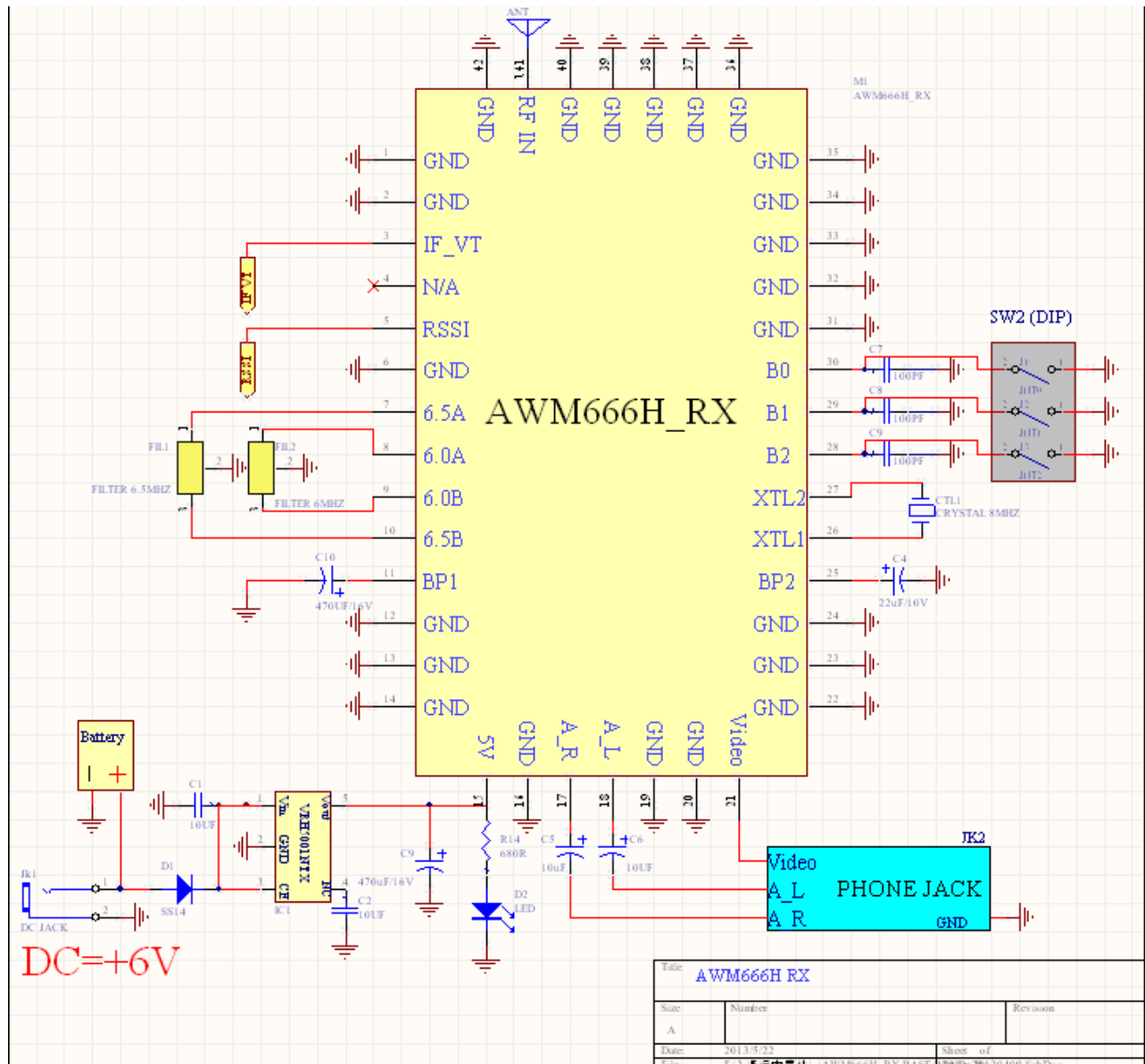
## 9. BOM of Demo Board

### AWM666H\_RX Demo Board part list

Part Type & Description	Quantity	Designator	Notes
0402, 100PF	3	C7 C8 C3	
0805, 10UF	4	C1 C2 C5 C6	
0805, 22UF	1	C4	
E/CAP 470UF(10V)	2	C10 C9	
CERAMIC FILTER (DIP LTSH6.5MCB)	1	FIL1	友桂
CERAMIC FILTER (DIP LTSH6.0MCB)	1	FIL2	友桂
AT-39, CRYSTAL 8MHZ	1	CTL1	友桂
DIP SWITCH 指撥開關(DPL-04)	1	SW2	
VRH5001NTX(SOT23-5)	1	IC1	ANASEM
SCHOTTKY DIODE(SS14)	1	D1	
DIP LED	1	D2	
0603, 680R	1	R14	
STERO PHONE JACK(TSH3724)	1	JK2	
POWER JACK DS-413	1	JK1	
AWM666H	1	M1	AIRWAVE

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### 10. Demo Board circuit schematic



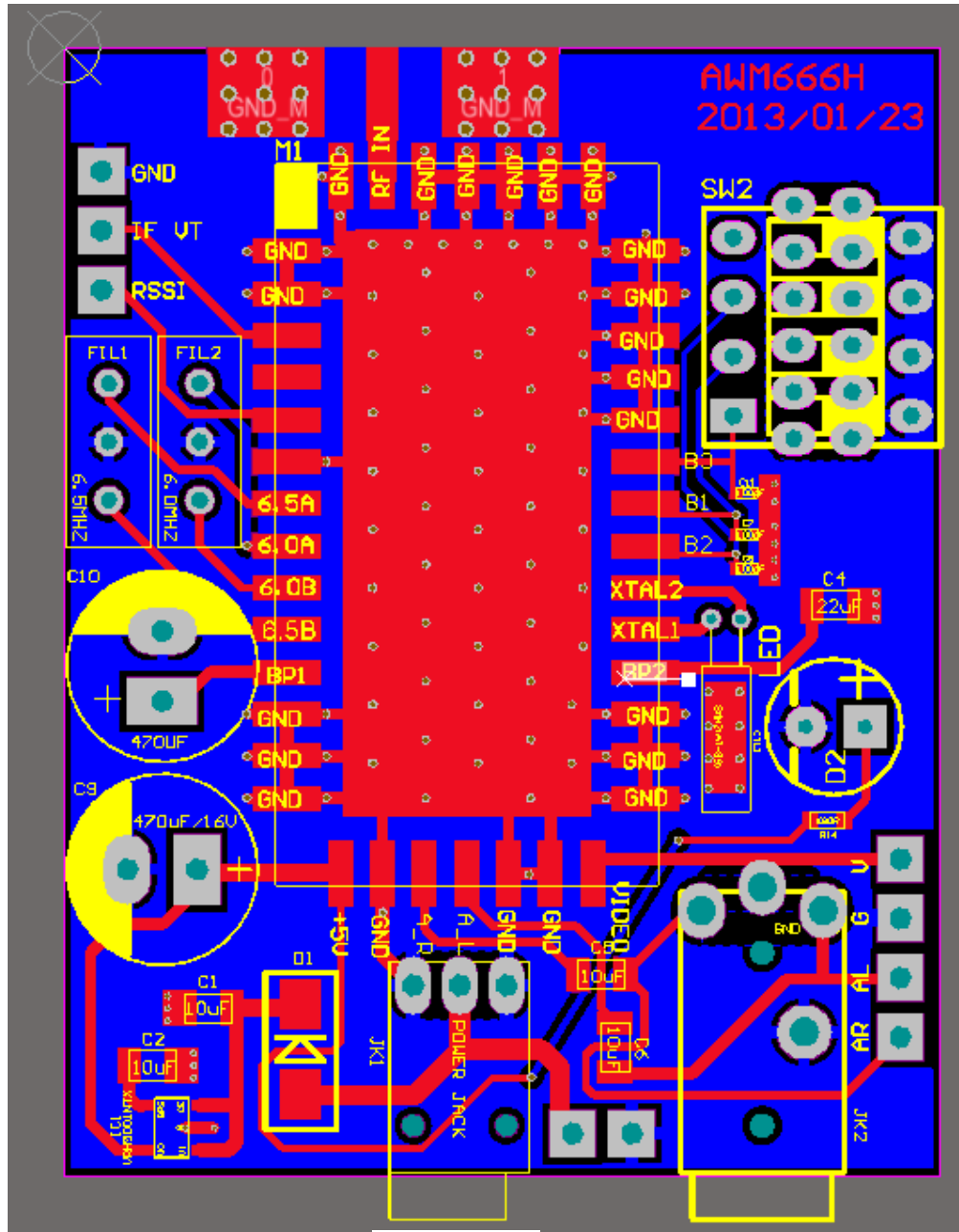
Notes :

Very low noise voltage regulator, such as 7805 or VRH5001NTX\_SOT23-5 is required for IC1 ;otherwise a bypass with a value of at least 1000uF must be used for C9

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# 11. BB PCB layout design guide

## View of demo board PCB



DC= +6V

