
Wireless Hi Sensitivity Receiver Module (RF FSK)

**Version History**

Version	Date	Changes
V1.01	Dec.24, 2001	1 st . Edition

- Frequency Range: 916.5 MHz
- Modulate Mode: FSK
- Circuit Shape: PLL
- Data Rate: 3K~100 Kbps
- Selectivity: -112 dBm
- Channel Spacing: 200 KHz
- Supply Voltage: 2.7~ 5.5 V
- High Sensitivity Passive Design.
- Simple To Apply with Low External Count.
- Designed for Short-Range Wireless Control and Data Communications
- Supports RF Data Transmission Rates Up to 200 kbps
- 2.4 V, Low Current Operation plus Sleep Mode
- Stable, Easy to Use, Low External Parts Count

The RWS-F916 Module receiver is ideal for short-range wireless control and data applications where robust operation, small size, low power consumption and low cost are required. The RWS-F916 MODULE All critical RF functions are contained in the MODULE, simplifying and speeding design-in. The RWS-F916 is sensitive and stable. A wide dynamic range log detector, in combination with digital RSSI and a compound data slicer , provide robust performance in the presence of on-channel interference or noise. FCC 15.249 and similar regulations.

1. OOK BER measured with no DS1 threshold (DS2 disabled), and data encoded for DC-balance with a run length limited to 4 bit periods.
2. ASK BER measured with a 25 mV DS1 threshold, DS2 threshold 6 dB below peak, and data encoded for DC-balance with a run length limited to 4 bit periods.
3. Sleep to receive recovery time is for the sleep period and signal level indicated, -40 to 60 C.Recovery time will increase at higher temperatures, for longer sleep intervals and lower signal levels.9600BSP to change 100KBPS cut capacitance a.b.c.

Absolute Maximum Rating

Rating	Value	Unit
Power Supply and All Input /Output Pins	-0.3 to +4.0	V
Non-Operating Case Temperature	-10 to +70	°C
Soldering Temperature(10 seconds)	230	°C

Electrical Characteristic, 200 Kbps On-Off Keyed, Low-Current RX Mode

Characteristic	Sym	Note	Min	Type	Max	Unit
Operating Frequency	fo			916.50		MHz
Receiver Performance (OOK @ 2.4 kbps)						ASK
Input Current, 3.6 Vdc Supply	IR				0.9	mA
Input Signal for 10 BER, 25 C		1		-98		dBm

Rejection, 30 MHz	RREJ		55			dB
Sleep to Receive Switch Time (100 ms)	tSR	3		200		us
sleep, -85 dBm signal)						
Sleep Mode Current	IS				5	uA
Power Supply Voltage Range	Vcc		2.7		5	Vdc
Operating Ambient Temperature	TA		-10		+70	°C

Electrical Characteristic, 19.2 Kbps On-Off Keyed, High-Sensitivity RX Mode

Characteristic	Sym	Note	Min	Type	Max	Unit
Operating Frequency		fo	913.80		914.20	MHz
Modulation Type				OOK		
Data Rate			2.4			Kbps
Receiver erformance (OOK @ 2.4 kbps) Input Current, 3 Vdc Supply Input Signal for 10 BER, 25 C Rejection, 30 MHz		IR			1.8	mA
		1		-98	dBm	
	RREJ		55			dBm
Sleep to Receive Switch Time (100 ms sleep, -85 dBm signal)	tSR	3		200		us
Sleep Mode Current	IS				5	uA
Power Supply Voltage Range	Vcc		2.7		3.5	Vdc
Operating Ambient Temperature	TA		-10		+70	°C

Electrical Characteristic, 115.2 Kbps Amplitude-Shift Keyed, High-Sensitivity RX Mode

Characteristic	Sym	Note	Min	Type	Max	Unit
Operating Frequency		fo	913.80		914.20	MHz
Modulation Type				OOK		
Data Rate				2.4		Kbps
Receiver Performance (OOK @ 2.4 kbps) Input Current, 3 Vdc Supply Input Signal for 10 BER, 25 C Rejection, 30 MHz Sleep to Receive Switch Time (100 mssleep, -85 dBm signal)		IR			1.8	mA
			1		+98	dBm
	RREJ		55			dB
	tSR	3		200		us
	Sleep Mode Current	IS				5
Power Supply Voltage Range	Vcc		2.7		3.5	Vdc
Operating Ambient Temperature	TA		-10		+70	°C

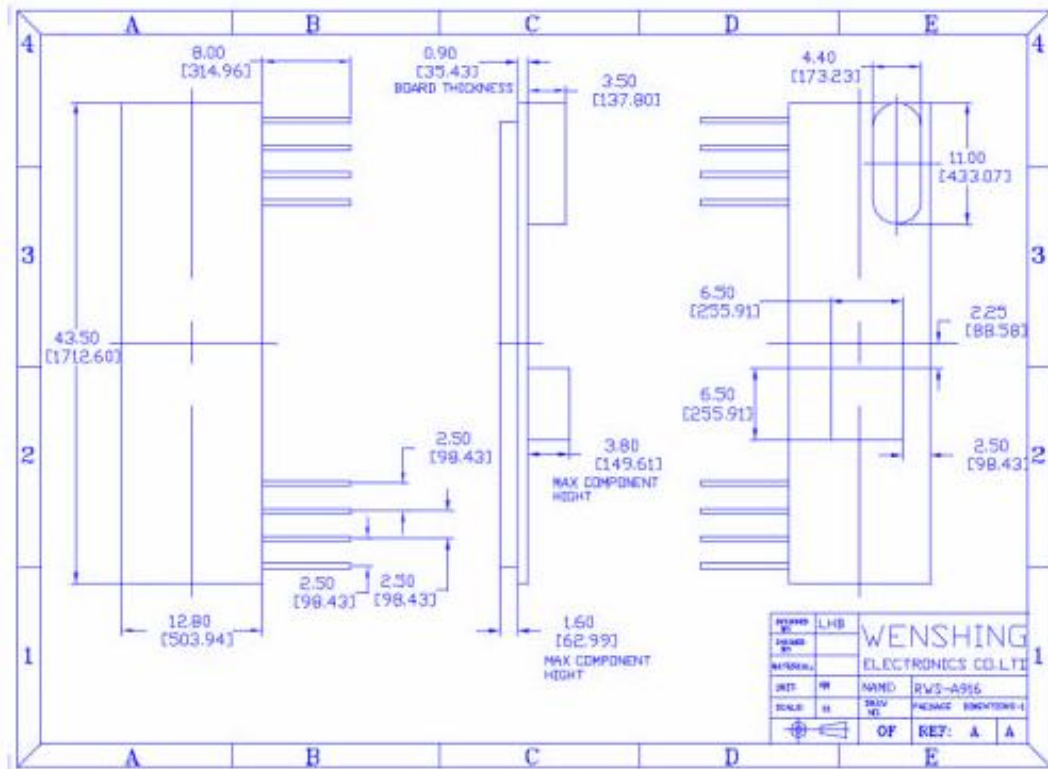
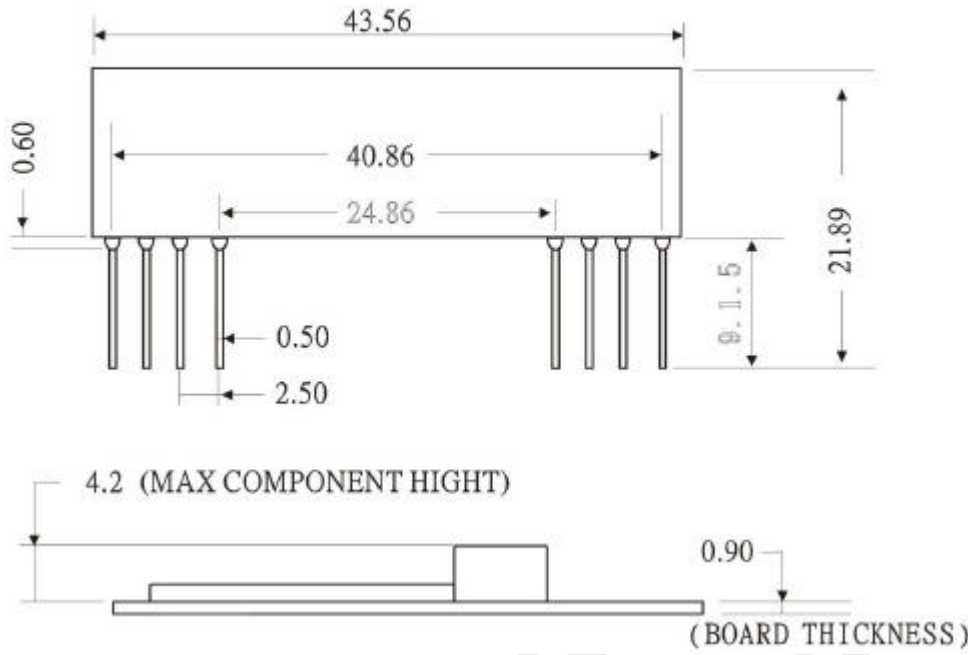
Receiver Set-Up, 3.0 Vdc, -10 to +70

Item	Symbol	OOK	OOK	ASK	Unit	Note
Nominal NRZ Data Rate	DRNO M	2.4	19.2	115.2	Kbps	see pages 1 & 2
Minimum Signal Pulse	SPMIN	416.67	52.08	8.68	us	single bit
Maximum Signal Pulse	SPMAX	1666.68	208.32	34.72	us	4 bits of same value

AGCCAP Capacitor	CAGC	-	-	2200	pF	10% ceramic
PKDET Capacitor	CPKD	-	-	0.001	uF	10% ceramic
BBOUT Capacitor	CBBO	0.1	0.015	0.0027	uF	10% ceramic
LPFADJ Resistor	RLPF	240	30	12	K	5%
RREF Resistor	RREF	100	100	100	K	1%
THLD2 Resistor	RTH2	-	-	100	K	1%, for 6 dB below peak
THLD1 Resistor	RTH1	10	27	100	K	1%, typical values
PRATE Resistor	RPR	1100	330	160	K	5%
PWIDTH Resistor	RPW	270 to	270 to	1000	k	5%
		GND	GND	To Vcc		
DC Bypass Capacitor	CDCB	10	10	10	F	tantalum
RF Bypass Capacitor 1	CRFB1	27	27	27	pF	5% NPO
Antenna Tuning Inductor	LAT	10	10	10	nH	50 ohm antenna
Shunt Tuning/ESD	LESD	100	100	100	nH	50 ohm antenna

Size

UNIT:mm



Demo Circuit

