

High frequency FM Receiver module (FSK)

- . Frequency Range: 916.5 MHz
- . Modulate Mode: FSK
- . Circuit Shape: PLL
- . Data Rate: 3K~100 Kbps
- . Sensitivity: -112 dB
- . Channel Spacing: 200 KHz
- . Supply Voltage: 2.7~ 5.5 V
- . High Sensitivity Passive Design
- . Simple To Apply with Low External Count

LAIPAC
RLP 916 F

■ Applications

- . 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

■ Description

The RLP -916F 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 RLP -916F MODULE All critical RF functions are contained in the MODULE, simplifying and speeding design-in. The RLP -916F 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.

CAUTION: Electrostatic Sensitive Device. Observe precautions when handling. Notes:

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 centigrade. Recovery time will increase at higher temperatures, for longer sleep intervals and lower signal levels.

Absolute Maximum Rating:						
Rating				Value	Units	
Power Supply and All Input/Output Pins				-0.3 to +4.0	V	
Non-Operating Case Temperature				-50 to +100	centigrade	
Soldering Temperature (10 seconds)				230	centigrade	
Electrical Characteristics, 200 kbps On-Off Keyed, Low-Current RX Mode						
Characteristic	Sym	Notes	Minimum	Typical	Maximum	Units
Operating Frequency	fO			916.50		MHz
Modulation Type					FSK	
Receiver Performance (OOK @ 2.4 kbps)						kbps2000
					0.9	mA
Input urrent, 3.6 Vdc Supply Input Signal for 10 BER, 25 centigrade Rejection, 30 MHz Sleep to Receive Switch Time (100 ms sleep, -85 dBm signal)	IR	1				-98dBm
	RREJ		55	1		
	tSR	3		200		us
Sleep Mode Current	IS				5	uA
Power Supply Voltage Range	VCC		2.7		5	Vdc

Operating Ambient Temperature	TA		-40		+85	centigrade
Sensitivity					-112	dbm (2400bps)

Electrical Characteristics, 19.2 kbps On-Off Keyed, High-Sensitivity RX Mode

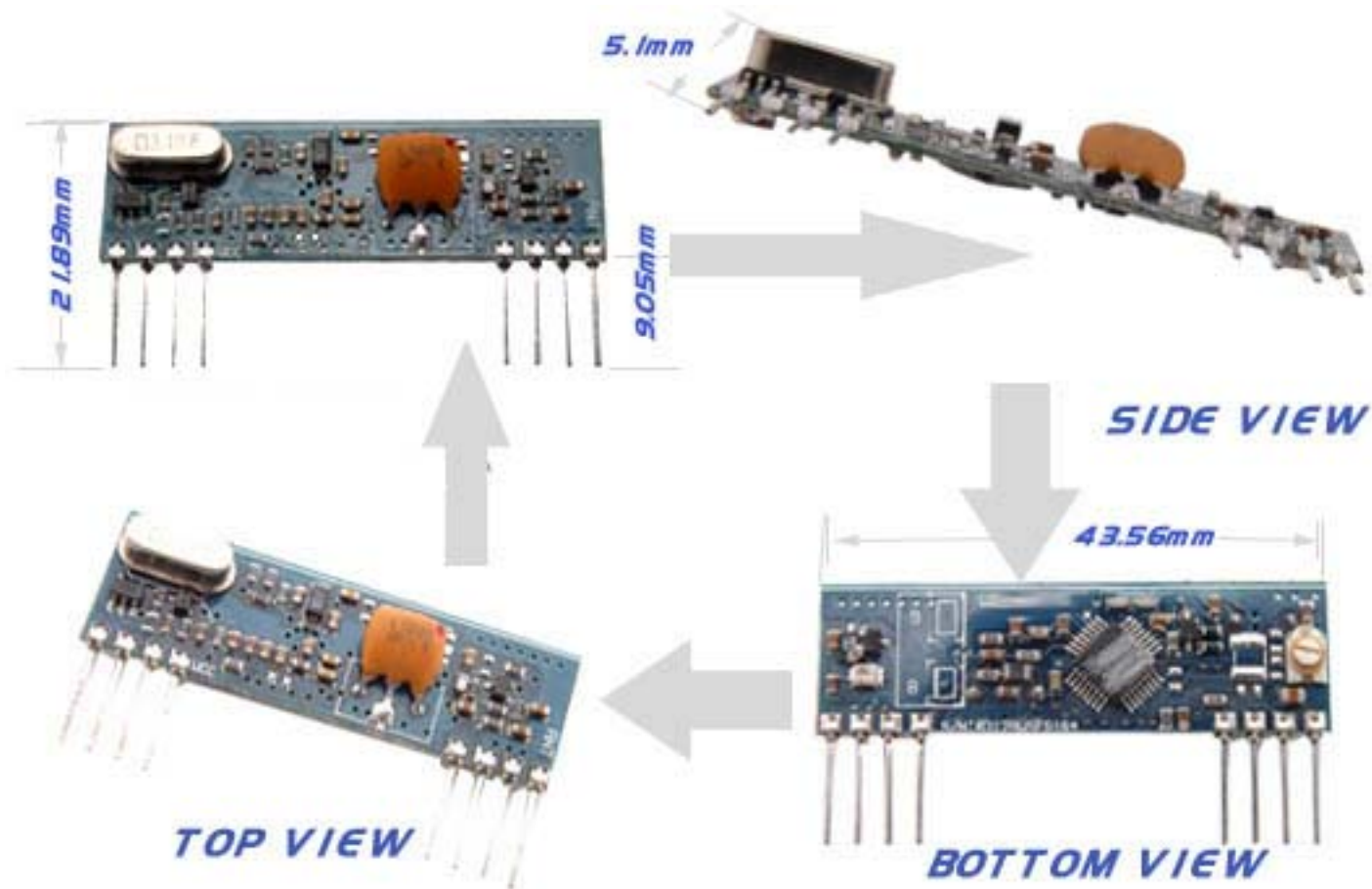
Characteristic	Sym	Notes	Minimum	Typical	Maximum	Units
Operating Frequency	fO		913.80		914.20	MHz
Modulation Type					OOK	
Data Rate					2.4	kbps
		IR			1.8	mA
Input urrent, 3 Vdc Supply Input Signal for 10 BER, 25 centigrade				1		-98dBm
Rejection, 30 MHz Sleep to Receive Switch Time (100 ms sleep, -85 dBm signal)	RREJ		55			dB
	tSR	3		200		us

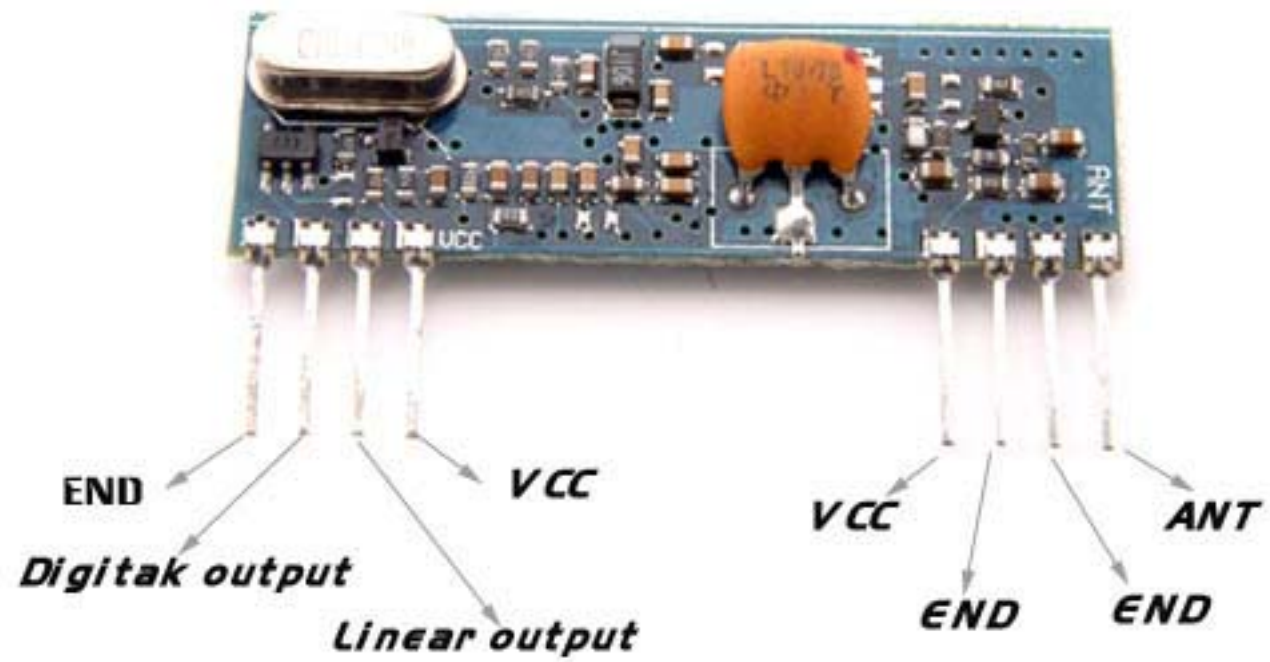
Sleep Mode Current	IS				5	uA
Power Supply Voltage Range	VCC		2.7		3.5	Vdc
Operating Ambient Temperature	TA		-40		+85	centigrade

Electrical Characteristics, 115.2 kbps Amplitude-Shift Keyed, High-Sensitivity RX Mode

Characteristic	Sym	Notes	Minimum	Typical	Maximum	Units
Operating Frequency	fO		913.80		914.20	MHz
Modulation Type					OOK	
Data Rate					2.4	kbps
Input urrent, 3 Vdc Supply Input Signal for 10 BER, 25		IR			1.8	mA

sleep, -85 dBm signal)			tSR	3		200		u s
Sleep Mode Current			IS				5	uA
Power Supply Voltage Range			VCC		2.7		3.5	Vdc
Operating Ambient Temperature			TA		-40		+85	centigrade
Receiver Set-Up, 3.0 Vdc, -40 to +85 centigrade								
Item	Symbol	OOK	OOK	ASK	Units	Notes		
Nominal NRZ Data Rate	DRNOM	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	u F	10% ceramic		
BBOUT Capacitor	CBBO	0.1	0.015	0.0027	u F	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 GND	270 to GND	1000 to VCC	K	5%		
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 Inductor	LESD	100	100	100	nH	50 ohm antenna		





High frequency FM Transmitter module (FSK)

- . Frequency Range:916.5 MHz
- . Modulate Mode:FSK
- . Circuit Shape:PLL
- . Data Rate:4 ~ 40 Kbps
- . Supply Voltage:2.7~ 5.5 V
- . Power Supply and All Input / Output Pins: -0.3 to 4.0 V
- . Non-Operating Case Temperature: -10 to +85 centigrade'
- . Soldering Temperature 230 centigrade(10 Seconds)
- . Simple To Apply with Low External Count
- . High Sensitivity Passive Design.

LAIPAC
TLP 916 F

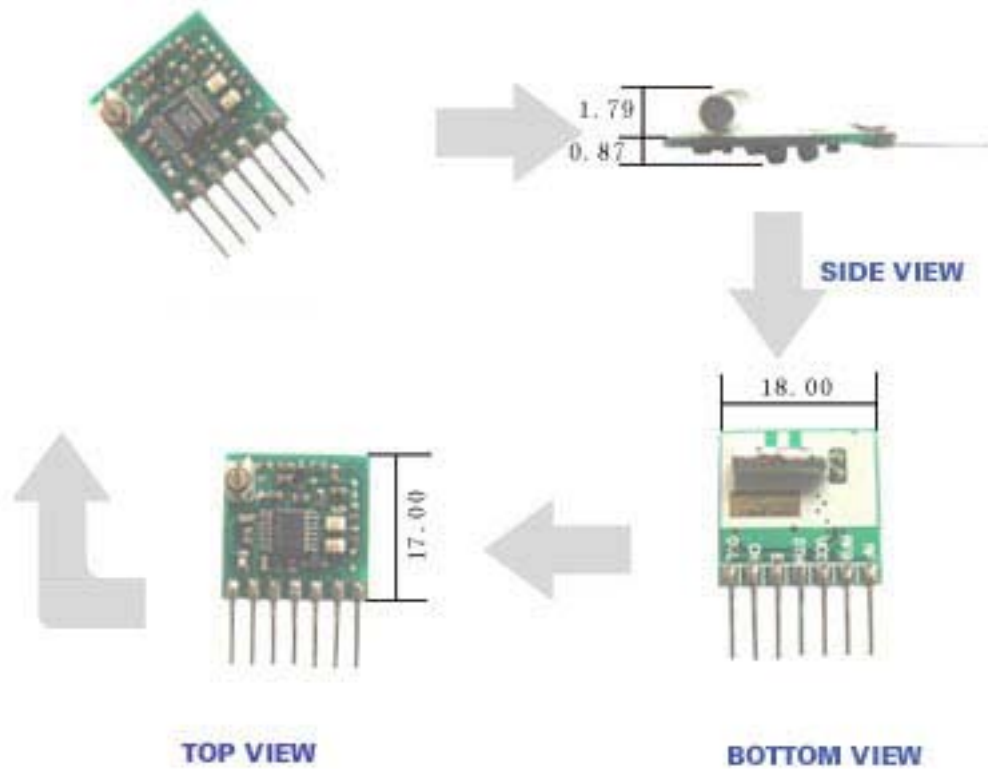
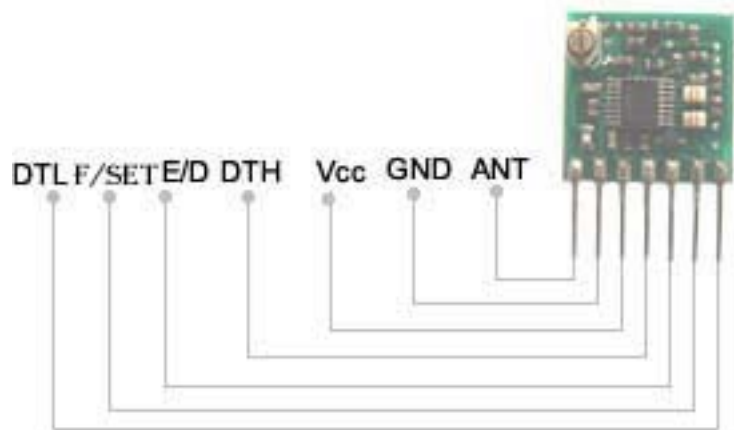
Absolute Maximum Rating:

Rating	Value	Units
Power Supply and All Input/Output Pins	-0.3 to +4.0	V
Non-Operating Case Temperature	-50 to +100	centigrade
Soldering Temperature (10 seconds)	230	centigrade

Elect rical Charact eristics, T=25? , Vcc=3.6v, Freq=916.5MHz

Characteristic	Sym	Notes	Min.	Typ.	Max.	Units
Operating Frequency (200KHz)	Vcc		800		1000	MHz
Data Rate FM			200			Kbps
Transmitter Performance (OOK @ 2.4 kbps)						
Peak Input Current,12 Vdc Supply	ITP				13.5	mA
Peak Output Power	PO			-2.5		mW

Tum On/ Tum Off Time	TON/TOFF		2	4	us
Power Supply Vo Itage Range	Vcc		2.4	5	VDC
Operating Ambient Temperature	TA		-20	+65	?



TLP916 Ap-circuit

Low Speed Date Rate
50bps - 40Kbps

High Speed Date Rate
10Kbps-200Kbps

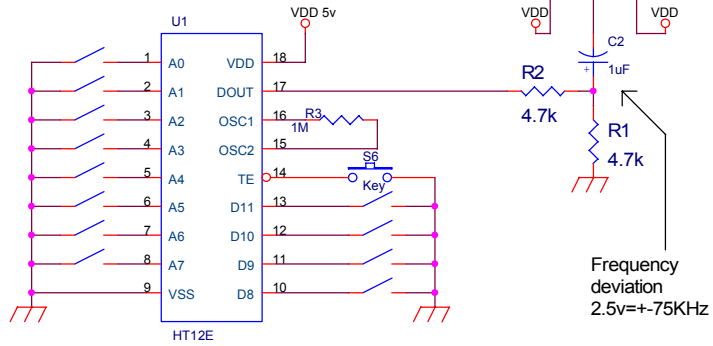
PIN2 F SETUP frequency
LO-916.5MHZ
HI-909.3953MHZ

PIN3 RF ENABEL

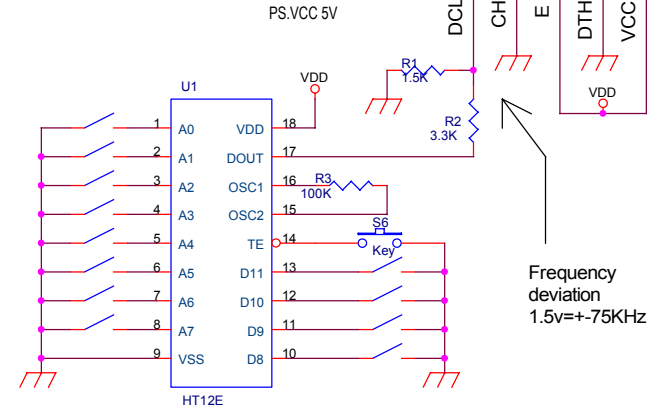
PIN5 VCC 2.7V-5.5V

PIN6 GND

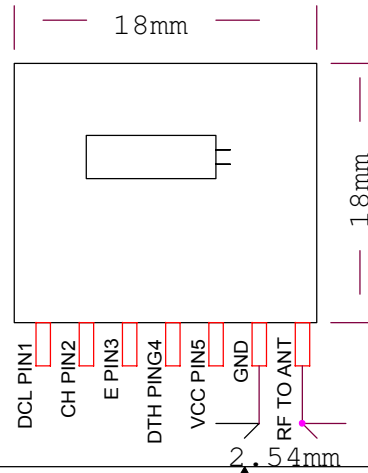
PIN7 RF TO ANT



Frequency deviation
2.5v=+-75KHz



Frequency deviation
1.5v=+-75KHz



Title		
Laipac Technology Inc.		
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