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BR37 Sx

SRD **RX** **ISM 433.050 – 434.790 MHz**

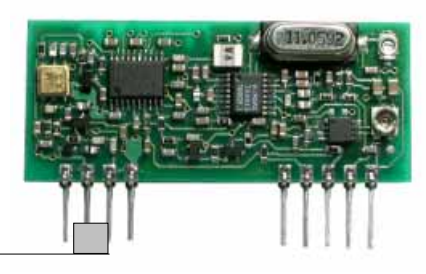

Table 1 – BR37S versions			
BR37S3-F4	433,225 Mhz	3 VDC	
BR37S3-F18	433,925 Mhz	3 VDC	
BR37S3-F23	433,175 Mhz	3 VDC	
BR37S5-F4	433,225 Mhz	5 VDC	
BR37S5-F18	433,925 Mhz	5 VDC	
BR37S5-F23	433,175 Mhz	5 VDC	

- XTAL CONTROLLED ON 35 CHANNELS.
- SUPERETHERODYNE WITH "SAW" FILTER.
- FM-FSK MODULATION.
- -108 dBm SENSITIVITY.
- HIGH SELECTIVITY (± 20 KHz).
- FAST DATA RATE (19.2 KB).

DESCRIPTION :

The BR37S module is a complete FM Superhet Receiver with a precision, low noise, crystal controlled "PLL" local oscillator.
The module operates on the "SRD" 433.05 – 434.79 MHz band with a selectivity of ±20 KHz allowing the use of 35 different frequency channels and greatly reducing the in –band interferences from RF signals or broadband noise.
A "SAW" filter in the receiver front-end is employed to attenuate image and out of band signals.
The module needs a single 5VDC supply (BR37S5) or a 3VDC supply (BR37S3) and has three outputs: [1] a digital data output (RXD) from a self centering comparator / data slicer controlled by an adjustable (RV1) level squelch circuit, [2] a linear analogue output (MON) for monitor and test purposes, [3] a received signal strength indicator (RSI) output.

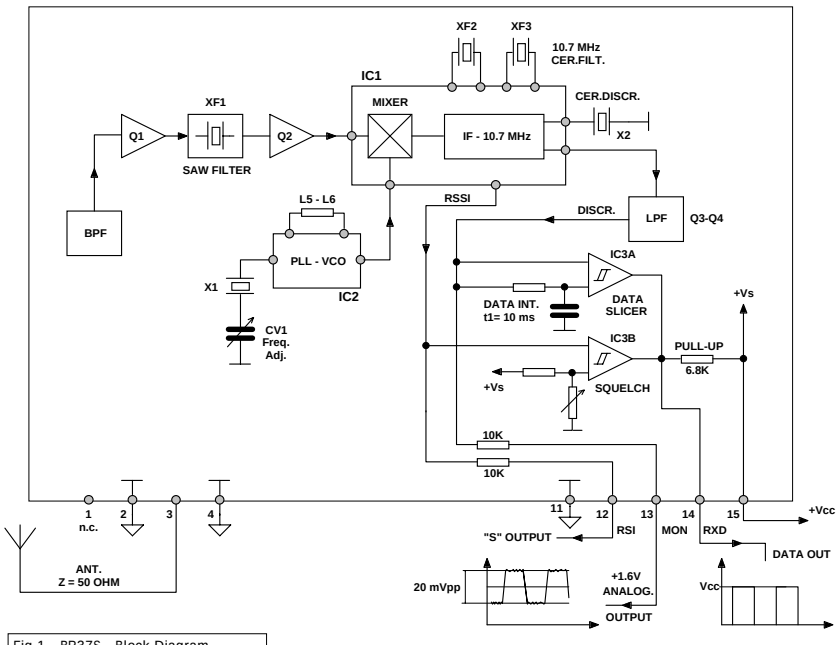

Fig.1 – BR37S – Block Diagram.

PIN DESCRIPTION		
PIN1	N.C.	
PIN2	GND	Rf ground
PIN3	ANT	Rf input
PIN4	GND	Rf ground
PIN11	GND	Ground
PIN12	RSI	Rec. Sign. Strength
PIN13	MON	Analog output
PIN14	RXD	Data output
PIN15	VCC	Dc supply

BR37S - PERFORMANCE DATA

	Min	Typ	Max	Units	Notes
▪ FREQUENCY	433.05		434.79	MHz	(1)
▪ SENSITIVITY	-104	-109		dBm	(2)
▪ SELECTIVITY		±20	±25	KHz	
▪ FREQUENCY ACCURACY		±3	±5	KHz	(3)
▪ DYNAMIC RANGE	90	100		dB	
▪ SPURIOUS EMISSION		-70	-60	dBm	
▪ IMAGE REJECTION		30		dB	
▪ IMPEDANCE		50		Ω	
▪ SQUELCH THRESHOLD		-110		dBm	(4)
▪ DATA RATE	100		19200	Baud	(5)
▪ DATA MARK/SPACE	30		70	%	(6)
▪ START-UP TIME		30		ms	(7)
▪					
▪ SUPPLY VOLTAGE: BR38S3	2.75	3	3.6	V	
BR38S5	4.5	5	5.5	V	
▪ SUPPLY CURRENT		17	21	mA	
▪ OPERATING TEMPERATURE	-20		+60	°C	

NOTE:
(1) CHANNEL SEPARATION = 50 KHz.
(2) 4.8 Kb - BER 1 %.
(3) OVER OPERATING TEMPERATURE RANGE.
(4) Adj. –70, -115 dBm.
(5) 50/50 MARK/SPACE DATA PATTERN.
(6) DATA PULSE TIME: Min. 50µs - Max. = 20 ms.
(7) PULSED – FROM POWER-UP TO VALID DATA.

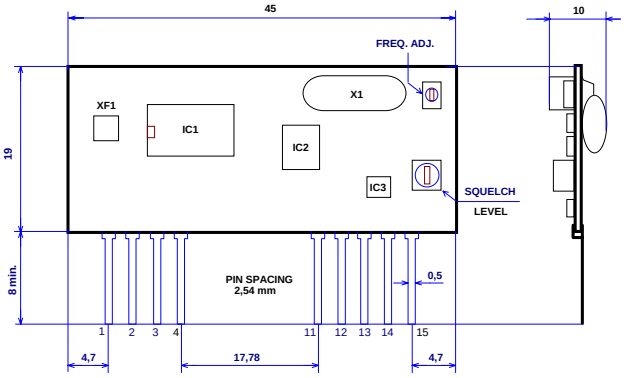

Fig.2 – BR37S – Physical dimensions.

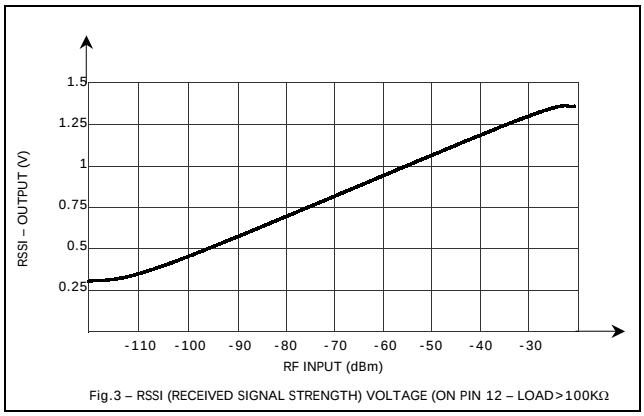

Fig.3 – RSSI (RECEIVED SIGNAL STRENGTH) VOLTAGE (ON PIN 12 – LOAD>100KΩ

APPLICATION NOTE:

Data transmission protocol must take into account that the receiver slicer is optimised for data waveforms with 50/50 duty cycle averaged on a 10 ms period.

Bi-phase “RZ” data encoding (Manchester or differential bi-phase) is recommended to maintain symmetry. Other encoding systems (for example the popular 1/3, 2/3 pulse width modulation) can be employed with reduced performances.

The message must start with an appropriate “preamble” of at least 5 ms (a square wave) to allow for data slicer to stabilize: after a start BIT or BYTE, data message can follow. “Gaps” between successive data blocks must be avoided.

The Squelch system threshold is factory adjusted to a received signal level of about –115 dBm: for different levels adjustments (RV1) please contact factory.

Should be clear that, in absence of a Tx carrier, an high sensitivity receiver has an high probability to output noise (or interferences) random pulses.

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