

DESCRIPTION

The PT4305 is a PLL-tuned FSK receiver for short-range wireless data applications in the 315 MHz and 434 MHz frequency bands. The PT4305 offers a high level of integration and only requires few external components.

The PT4305's receive section includes a low-noise amplifier, image-reject mixer, IF band-pass filter, limiting amplifier, and frequency-shift keying (FSK) demodulator and also includes automatic gain control (AGC). A switched-capacitor data filter further filters the signal after the demodulator before a slicing comparator restores the data to full-swing CMOS logic levels.

The local oscillator sub-system consists of a phase-locked loop (PLL) based on a crystal oscillator reference. The receiver channel frequency is determined by the choice of the crystal frequency.

A built-in voltage regulator provides improved power supply rejection (PSR) and extends the supply voltage range from 2.4 V to 5.5 V.

The PT4305 is available in a 16-pin SSOP package and its operation is specified over the temperature range from -40 to +85 °C.

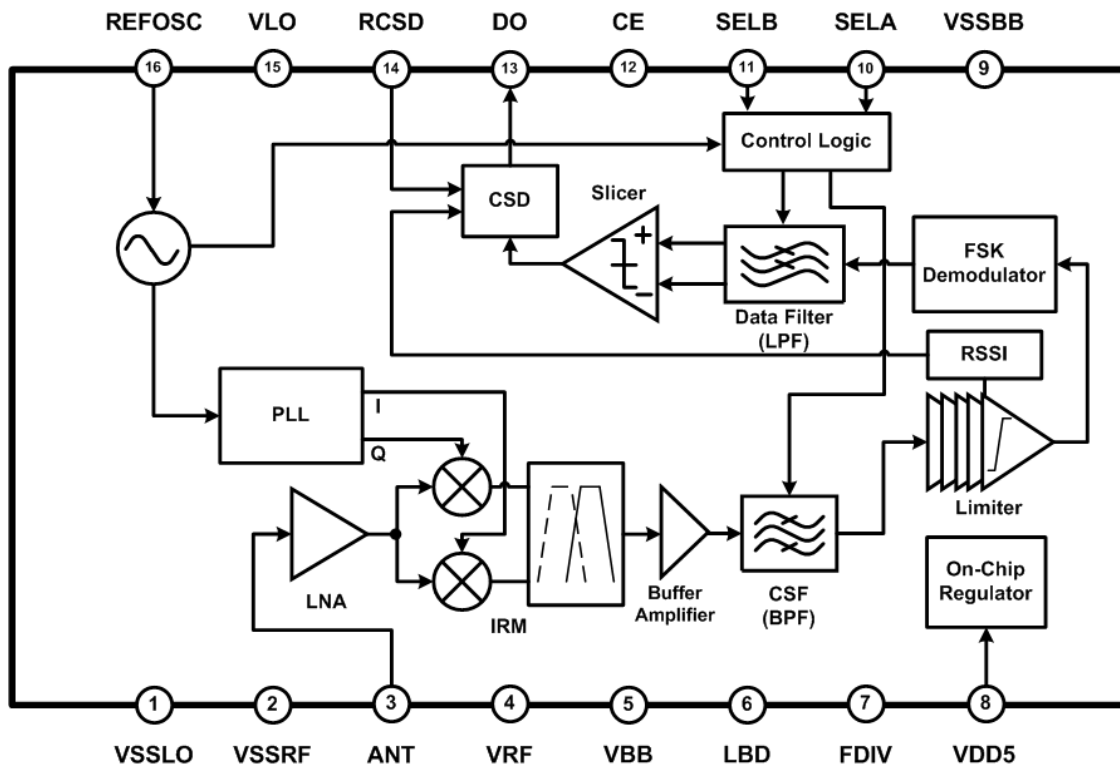
FEATURES

- Supply voltage range: 2.4 V to 5.5 V
- Low current consumption: 5.4 mA (typical) at 433.92 MHz
- Supported data rate range: 1 Kb/s to 10 Kb/s
- Few external components
- Image-reject mixer
- On-chip auto-tuned channel-select band-pass filter
- Received signal strength indicator (RSSI)
- Leader-code detection
- 16-pin SSOP package

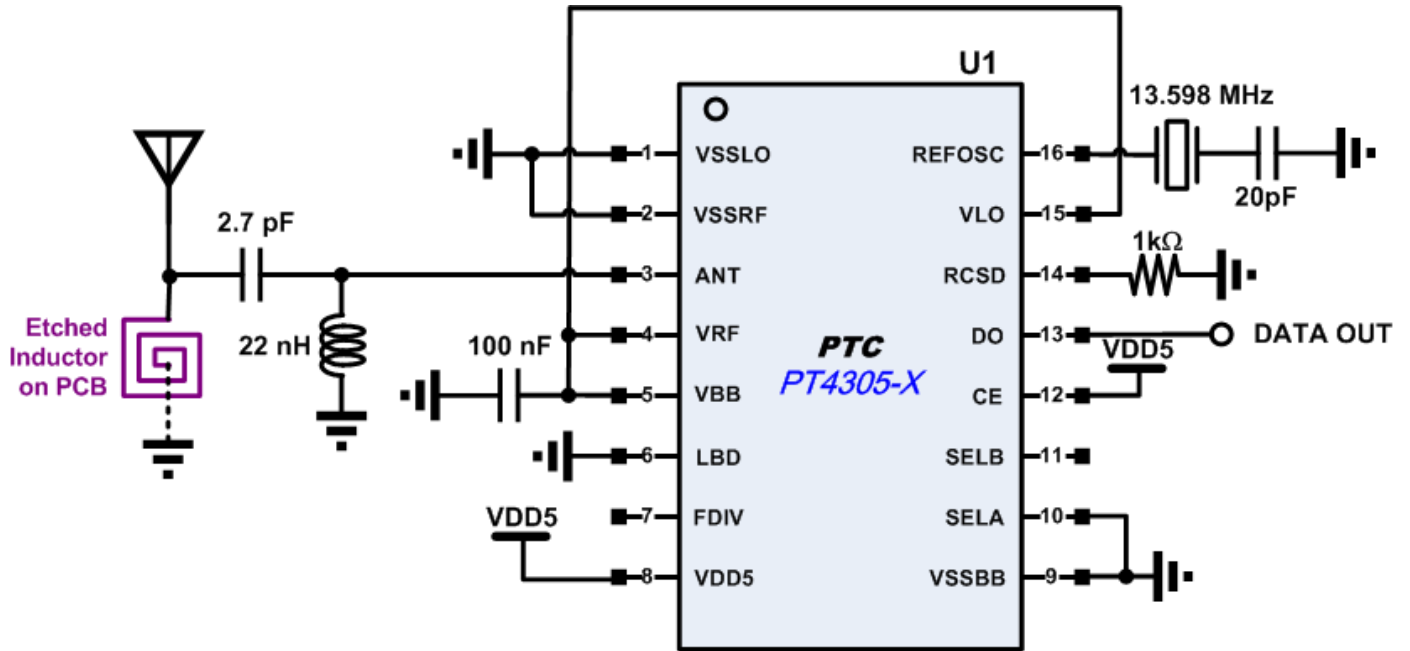
APPLICATIONS

- Remote keyless entry (RKE) systems
- Remote control
- Home security and alarm
- Wireless toy control
- Personal/patient data logging
- Remote automatic meter reading

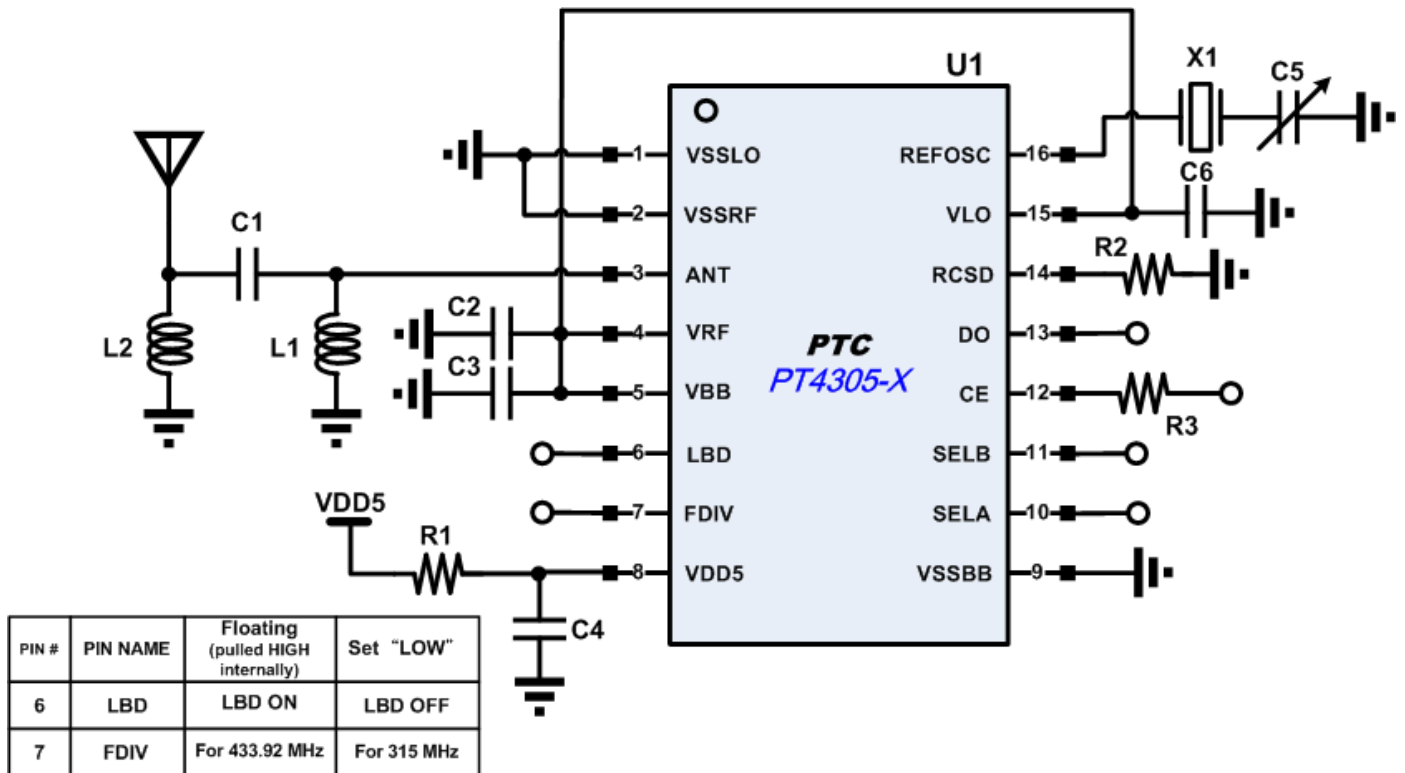
BLOCK DIAGRAM



433.92 MHz APPLICATION EXAMPLE



APPLICATION CIRCUIT



BILL OF MATERIALS

Part	Value		Unit	Description
	315 MHz	433.92 MHz		
L1	47 n	22 n	H	Antenna input matching, coil inductor
L2	82 n	56 n	H	Antenna ESD protection, coil inductor (optional)
C1	1.8 p	2.7 p	F	Antenna input matching
C2/C3/C4/C6	100 n	100 n	F	Power supply de-coupling capacitor
C5	20 p	20 p	F	Dependent upon crystal oscillator vendor; for frequency fine-tuning
R1	10	10	Ω	Power supply de-coupling resistor (optional)
R2	1 K	1 K	Ω	Carrier sense threshold adjustment resistor (optional)
R3	10 K	10 K	Ω	MCU interface resistor (optional)
X1	9.882	13.598	MHz	Crystal with $C_{Load} = 10$ pF, for reference oscillator
U1	PT4305 IC	PT4305 IC	U1	Receiver chip

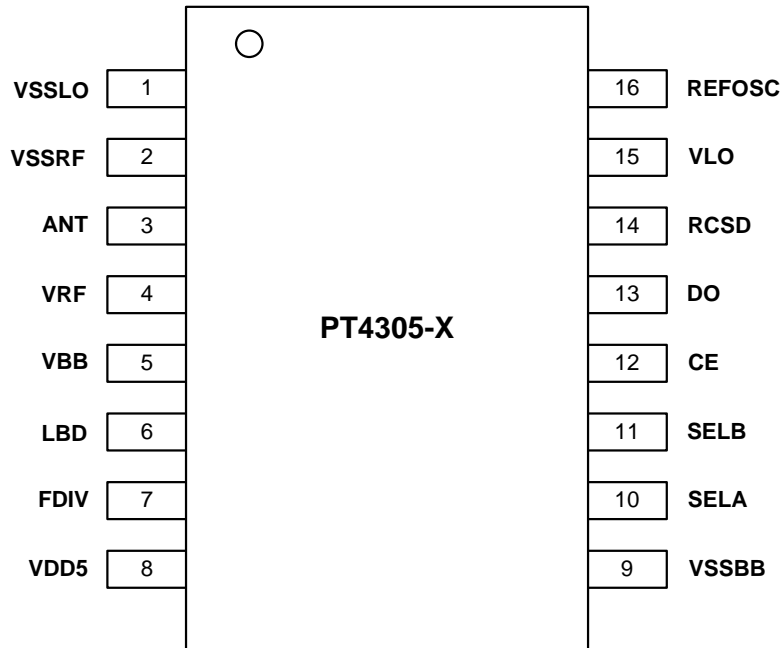
Notes:

- L1 and C1 are the components for input matching network. They may need to be adjusted for different PCB layout and antenna requirements.
- The *optional* components may be used depending upon specific application requirements.
- C5 = 20pF is recommended value, the user can be adjusted to get the accurate oscillating frequency.

ORDER INFORMATION

Valid Part Number	Package Type	Top Code
PT4305-X	16 Pins, SSOP, 150 mil	PT4305-X

PIN CONFIGURATION



PIN DESCRIPTION

Pin Name	I/O	Description	Pin No.
VSSLO	G	Ground for LO sub-system	1
VSSRF	G	Ground for RF front-end	2
ANT	I	RF input connection to antenna via a matching network	3
VRF	P	Supply voltage for RF front-end	4
VBB	P	Supply voltage for baseband chain	5
LBD	I	Leader code detection select, pulled HIGH internally. Tie to LOW to disable leader code detection feature.	6
FDIV	I	RF frequency band select, pulled HIGH internally.	7
VDD5	P	5 V regulator input	8
VSSBB	G	Ground for baseband chain	9
SELA	I	Data filter bandwidth select (pin A), pulled HIGH internally.	10
SELB	I	Data filter bandwidth select (pin B), pulled HIGH internally.	11
CE	I	Chip enable (pull HIGH to enable)	12
DO	O	Data output	13
RCSD	I/O	Carrier sense threshold adjustment resistor pin	14
VLO	P	Supply voltage for LO sub-system	15
REFOSC	I	Reference oscillator input	16

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