

DESCRIPTION

The PT4304 is a fully integrated OOK/ASK receiver for the 315 / 433.92 MHz frequency bands requiring few external components. The PT4304 receiver chain consists of a low-noise amplifier (LNA), image-rejection mixer (IRM), built-in channel-select filter (CSF), OOK/ASK demodulator, data filter, and data slicing comparator. The local oscillator (LO) sub-system incorporates a monolithic VCO, $\div 32$ feedback divider, loop filter and fast start-up reference oscillator to form a complete phase-locked loop-based frequency synthesizer for single channel applications. The PT4304 also includes an on-chip voltage regulator.

The PT4304 is available in a 16-pin SSOP package and is specified over the temperature range from -40 to $+85$ °C.

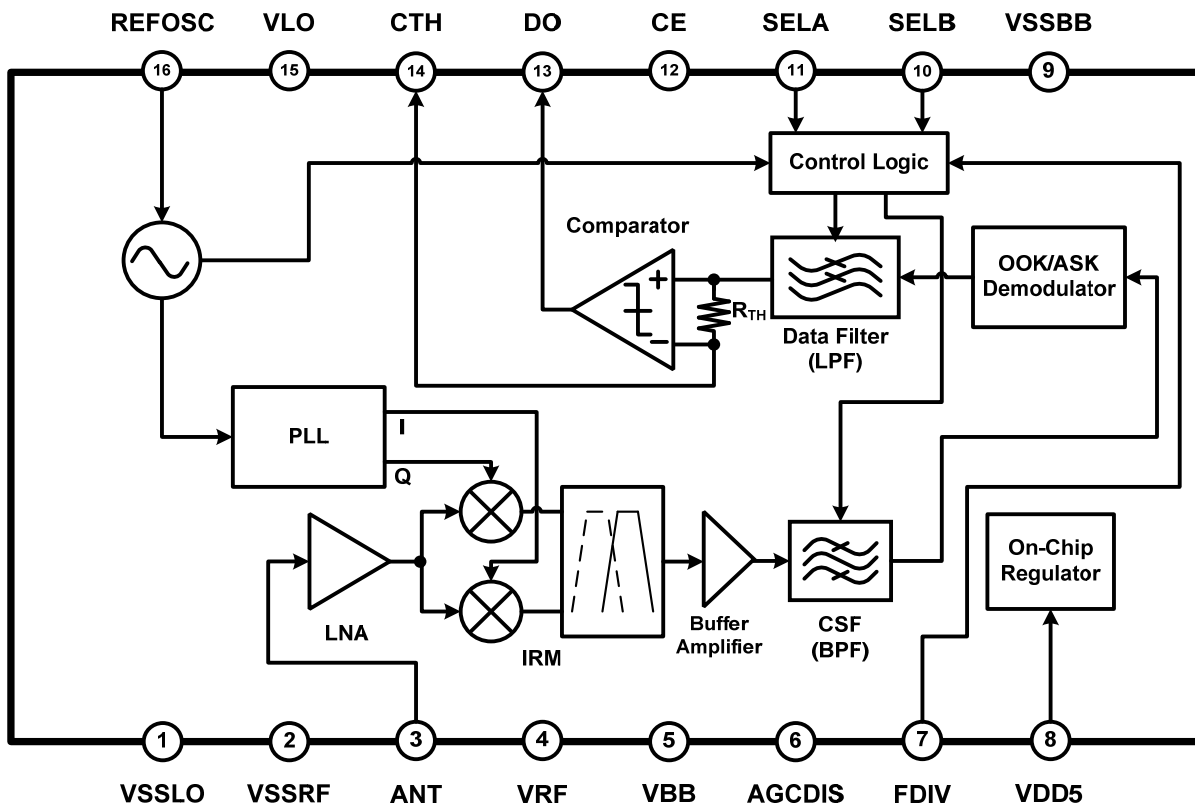
FEATURES

- Covers 315 and 433.92 MHz frequency bands
- Low power consumption: 4.5 mA for 315 MHz band and 4.8 mA for 433.92 MHz band under normal operating conditions
- Requires few external components
- Achieves excellent sensitivity on the order of -114 dBm for 315 MHz band and -112 dBm for 433.92 MHz band (peak ASK signal level)
- Supply voltage range: 2.4 to 5.5 V
- Supports data rates up to 10 Kb/s
- Wide input dynamic range with automatic gain control handling

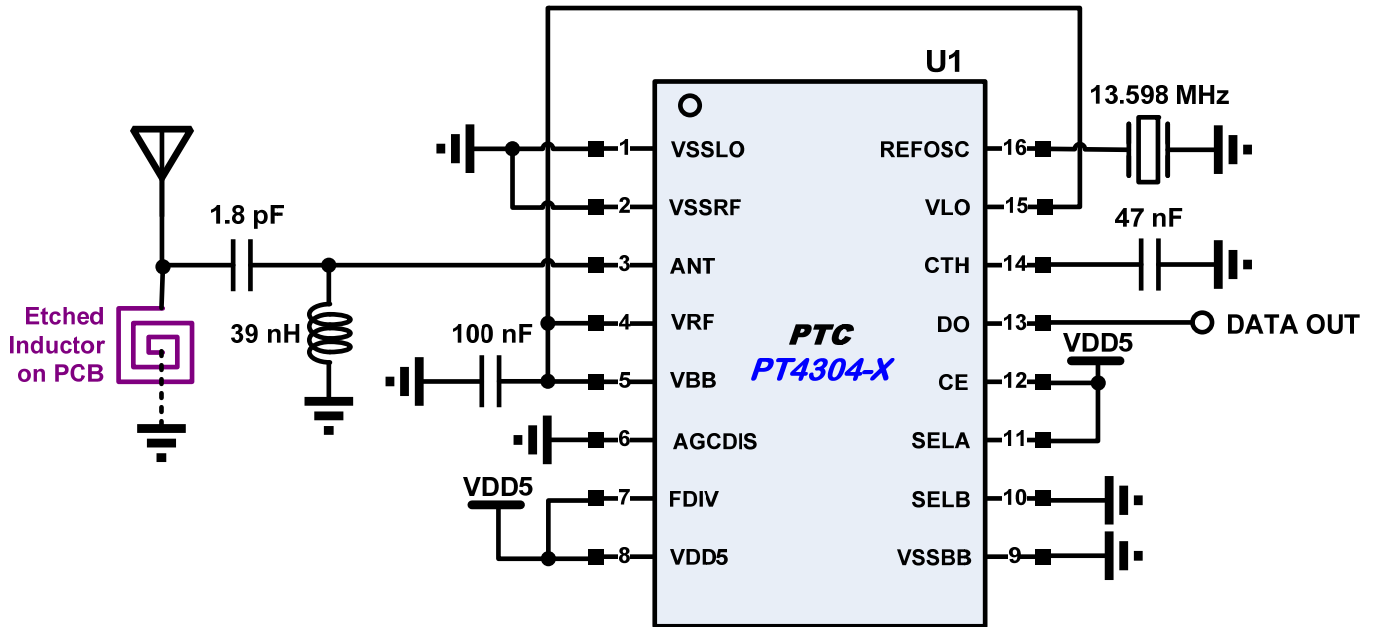
APPLICATIONS

- Automotive Remote Keyless Entry (RKE)
- Remote control
- Garage door and gate openers
- Suitable for applications that must adhere to either the European ETSI-300-220 or the North American FCC (Part 15) regulatory standards

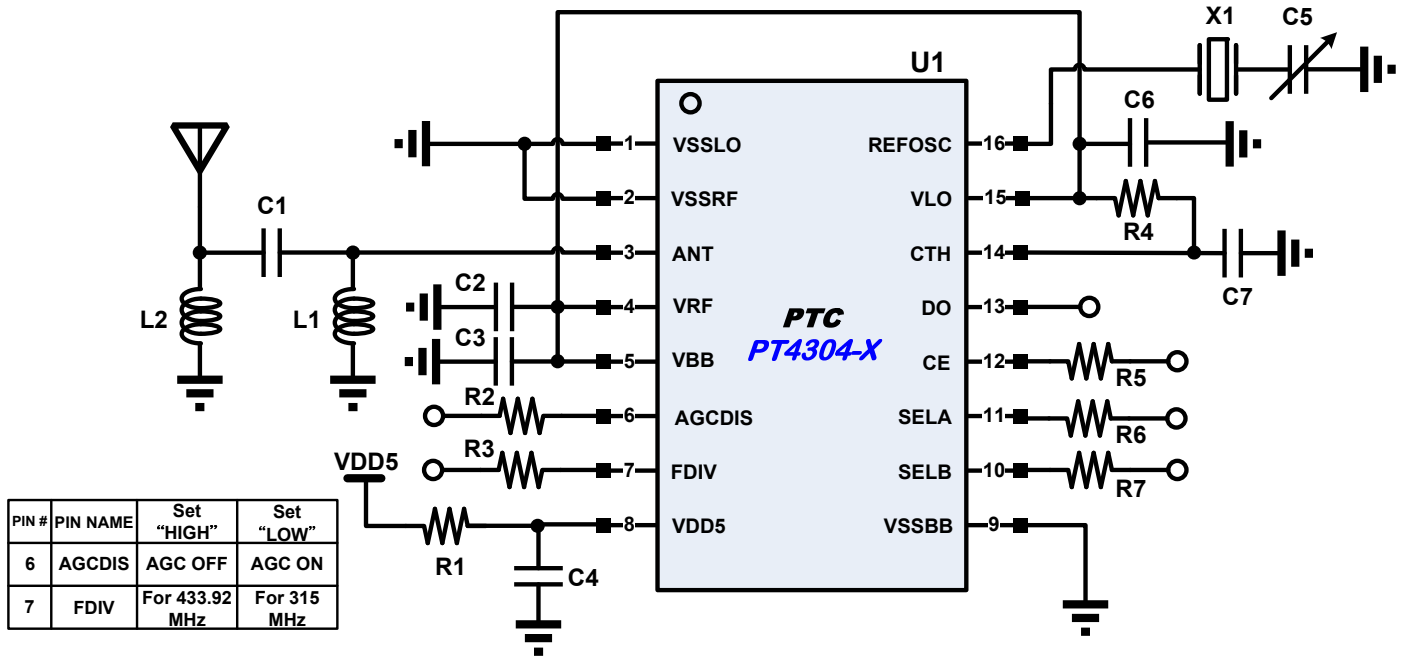
BLOCK DIAGRAM



433.92 MHZ APPLICATION EXAMPLE



EVALUATION BOARD SCHEMATIC



BILL OF MATERIALS

Part	Value		Unit	Description
	315 MHz	433.92 MHz		
L1	68 n	39 n	H	Antenna input matching, coil inductor
L2	39 n	27 n	H	Antenna ESD protection, coil inductor (optional)
C1	1.8 p	1.5 p	F	Antenna input matching
C2/C3/C4/C6	100 n	100 n	F	Power supply de-coupling capacitor
C5	220 p	220 p	F	Dependent upon crystal oscillator vendor; for frequency fine-tuning (optional)
C7	47 n	47 n	F	C _{TH} , affects coding type and start-up time
R1	10	10		Power supply de-coupling resistor (optional)
R2/R3/R5/R6/R7	10 K	10 K		MCU interface resistor (optional)
R4	8.2 M	8.2 M		For reducing data output noise (optional)
X1	9.882	13.598	MHz	Crystal with C _{Load} = 10 pF, for reference oscillator
U1	PT4304 IC	PT4304 IC	U1	Receiver chip

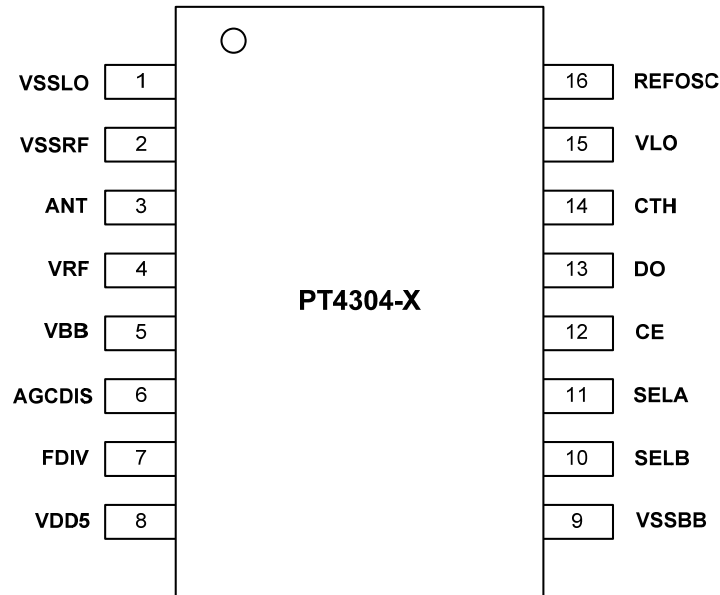
Notes:

- L1 and C1 are the components for input matching network. They may need to be adjusted for different PCB layout and antenna requirements.
- The value of C7 depends upon the data rate and coding pattern.
- The *optional* components may be used depending upon specific application requirements.

ORDER INFORMATION

Valid Part Number	Package Type	Top Code
PT4304-X	16 Pins, SSOP, 150 mil	PT4304-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 connected to antenna via a matching network	3
VRF	P	Supply voltage for RF front-end	4
VBB	P	Supply voltage for baseband chain	5
AGCDIS	I	AGC control pin (pull high to disable AGC)	6
FDIV	I	RF frequency band select	7
VDD5	P	5 V regulator input	8
VSSBB	G	Ground for baseband chain	9
SELB	I	Data filter bandwidth select (pin B)	10
SELA	I	Data filter bandwidth select (pin A)	11
CE	I	Chip enable (pull high to enable)	12
DO	O	Data output	13
CTH	I/O	Connection for data slicing threshold capacitor	14
VLO	P	Supply voltage for LO sub-system	15
REFOSC	I	Reference oscillator input	16