

DESCRIPTION

The PT4318 is a low power single chip OOK/ASK super-heterodyne receiver for the 315 MHz and 434 MHz frequency bands. It offers a high level integration and requires few external components.

The PT4318 is composed of a low-noise amplifier (LNA), down-conversion mixer, SAW-based oscillator, auto-tuned on-chip gm-C intermediate frequency (IF) band-pass filter, IF limiting amplifier with received-signal-strength indicator (RSSI), automatic gain control (AGC) circuitry, and analog baseband data recovery circuitry (data filter, peak detector, and data slicer).

The PT4318 is available in the 16-pin SSOP package and operate in a specific temperature range from -40 to $+85^{\circ}\text{C}$.

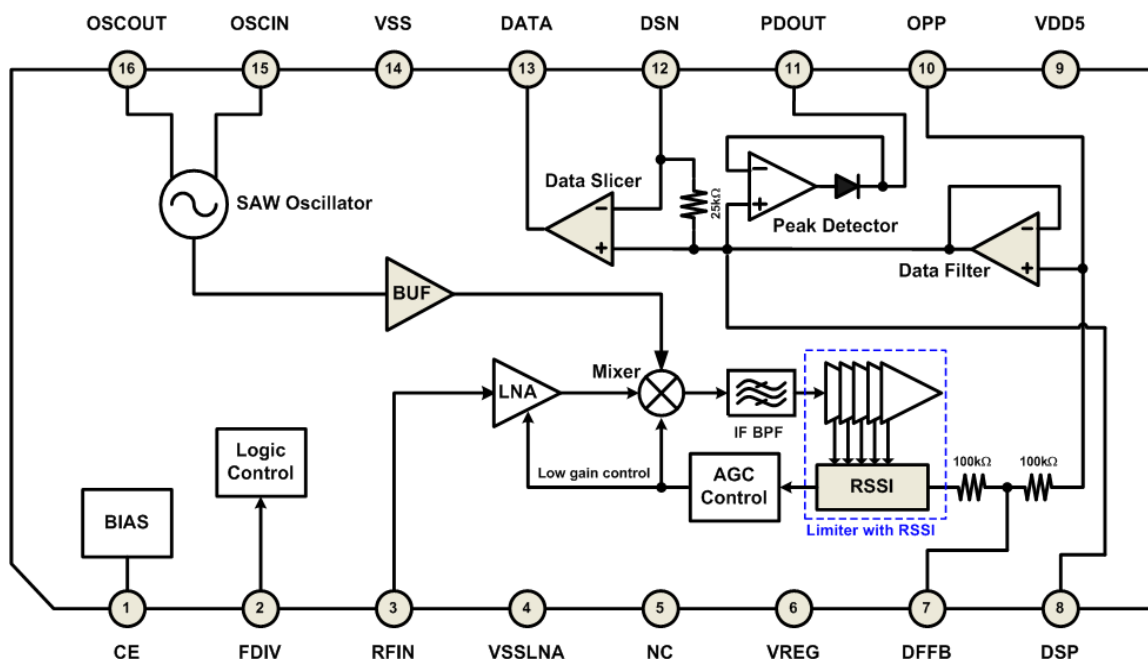
FEATURES

- Wide supply voltage range: 2.4 V to 5.5 V
- Supports 315 MHz / 434 MHz ISM bands
- Low current consumption: 5 mA typ. at 434 MHz
- SAW-based oscillator with low frequency drift
- Automatic gain control (AGC) function
- Auto-tuned on-chip channel select filter
- Supports data rates up to 10 Kb/s
- Requires few external components
- 16-pin SSOP package

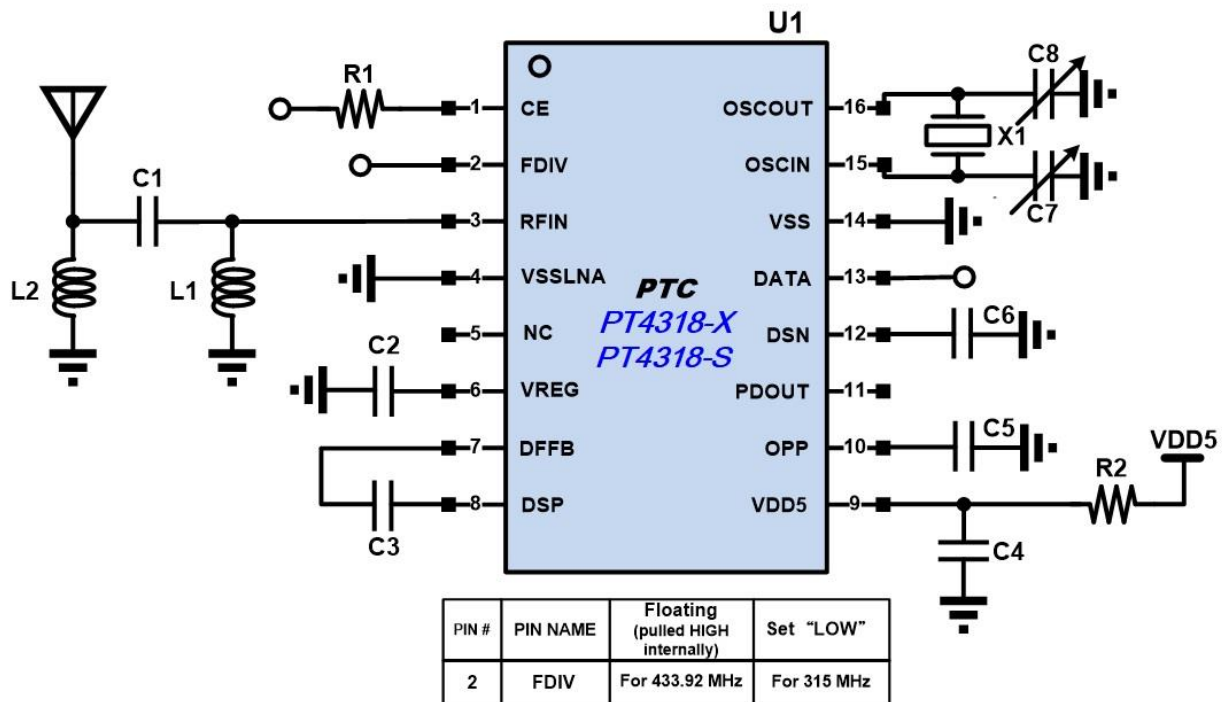
APPLICATIONS

- Remote Keyless Entry (RKE) systems
- Remote control systems
- Garage door openers
- Alarm systems
- Security systems
- Wireless sensors

BLOCK DIAGRAM



APPLICATION CIRCUIT



BILL OF MATERIALS

Part	Value		Unit	Description
	315 MHz	433.92 MHz		
L1	47 n	27 n	H	Antenna input matching, coil inductor
L2	82 n	56 n	H	Antenna ESD protection, coil inductor (optional)
C1	1.8 p	2.2 p	F	Antenna input matching
C2/C4	100 n	100 n	F	Power supply de-coupling capacitor
C3 ¹	470 p	470 p	F	Data filter capacitor.
C5 ¹	150 p	150 p	F	Data filter capacitor.
C6 ¹	22 n	22 n	F	Data slicer threshold charge capacitor.
C7/C8 ²	—	—	F	SAW oscillator frequency trimming capacitors.
R1	10 K	10 K	Ω	MCU interface resistor (option).
R2	10	10		Power supply de-coupling resistor (optional)
X1 ³	316.8	435.72	MHz	SAW oscillator.
U1	PT4318 IC	PT4318 IC	U1	Receiver chip.

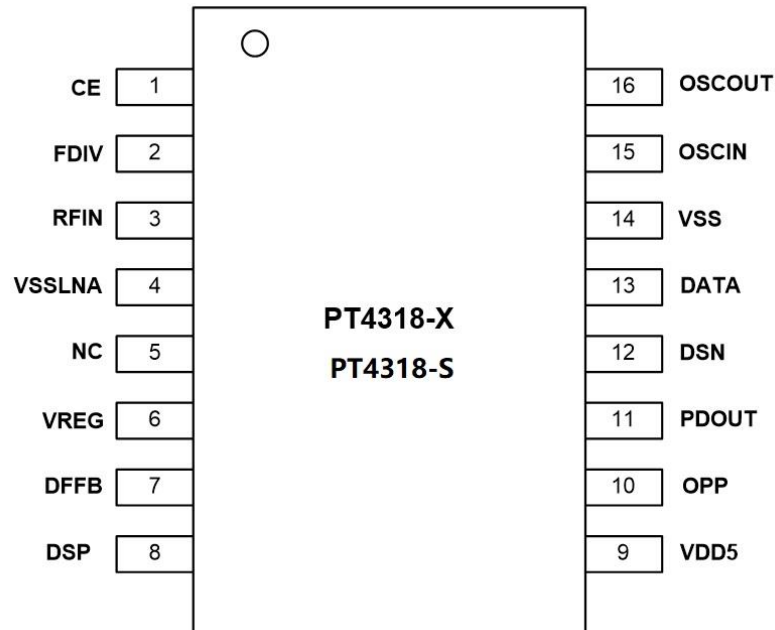
Notes:

1. The data filter and slicer are optimized for 2 Kb/s data rate in this application circuit.
2. The C7 and C8 are trimming capacitors for fine tuning the oscillation frequency of SAW oscillator.
3. X1 is the SAW resonator, and the frequency drift tolerance of ±75 KHz is acceptable.

ORDER INFORMATION

Valid Part Number	Package Type	Top Code
PT4318-X	16 Pins, SSOP, 150 mil	PT4318-X
PT4318-S	16 Pins, SOP, 150 mil	PT4318-S

PIN CONFIGURATION



PIN DESCRIPTION

Pin No.	Pin Name	I/O	Description
1	CE	I	Chip enable
2	FDIV	I	RF frequency band select
3	RFIN	I	RF input
4	VSSLNA	G	Ground for low noise amplifier
5	NC	—	No connection
6	VREG	I/O	Voltage regulator output
7	DFFB	I	Data filter feedback point
8	DSP	I/O	Positive input of data slicer (data filter output)
9	VDD5	P	5 V power supply voltage
10	OPP	I	Non-inverting op-amp input
11	PDOUT	O	Peak detector output
12	DSN	I/O	Negative input of data slicer
13	DATA	O	Data output
14	VSS	G	Ground
15	OSCIN	I	SAW oscillator input
16	OSCOU	O	SAW oscillator output

IMPORTANT NOTICE

Princeton Technology Corporation (PTC) reserves the right to make corrections, modifications, enhancements, improvements, and other changes to its products and to discontinue any product without notice at any time.

PTC cannot assume responsibility for use of any circuitry other than circuitry entirely embodied in a PTC product. No circuit patent licenses are implied.

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