PT4303
Low Power Super-heterodyne OOK/ASK Receiver

DESCRIPTION

The PT4303 is a low power superheterodyne OOK/ASK receiver for the 315/433.92 MHz frequency bands. It offers a high level of integration and requires only few external components. The PT4303 consists of a low-noise amplifier (LNA), a down-conversion mixer, an on-chip phase-locked loop (PLL) with integrated voltage-controlled oscillator (VCO) and loop filter, an OOK/ASK demodulator, a data filter, a data slicing comparator and an on-chip regulator. The PT4303 also implements a discrete one-step automatic gain control (AGC) to extend the dynamic range of the received RF signal.

The PT4303 is available in a 14-pin SOP package and is specified over the extended temperature range (–40 to +85°C).

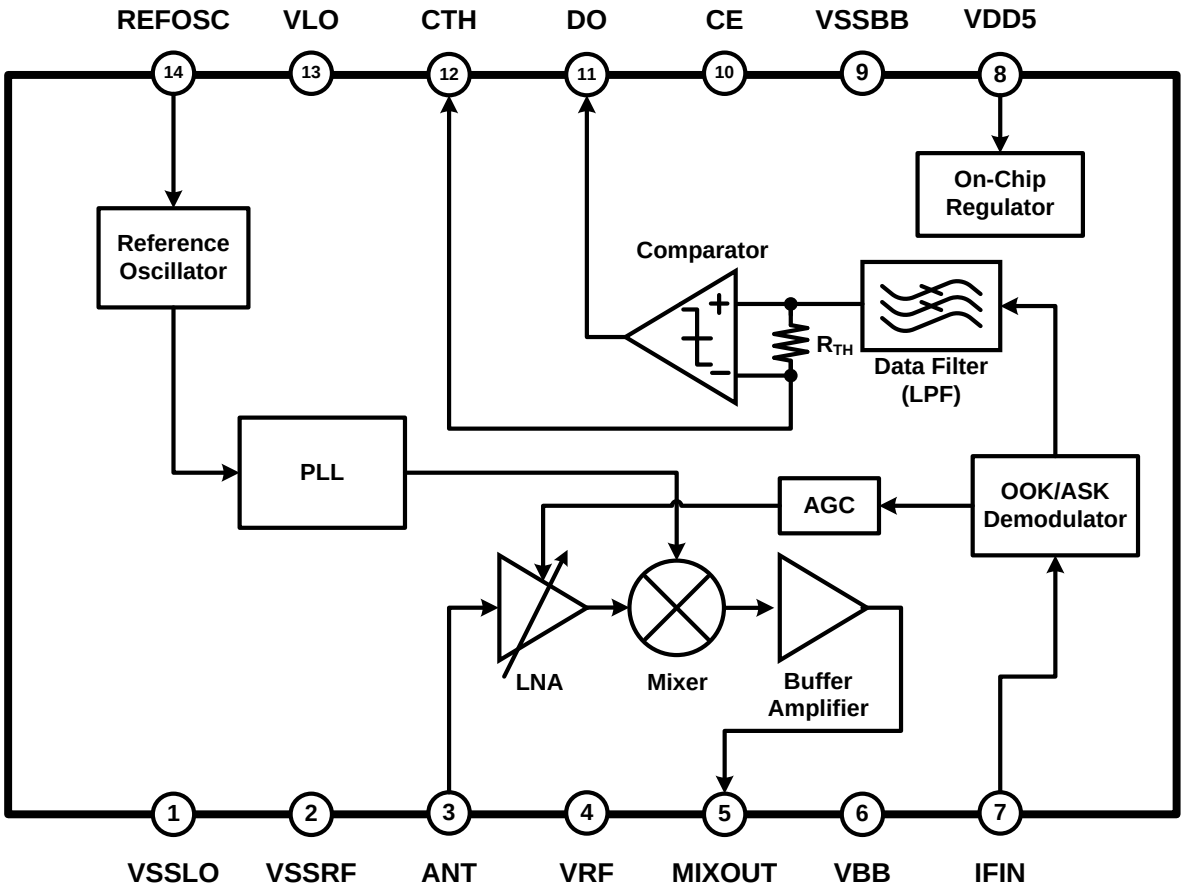
FEATURES

- Ultra-low power consumption: 2.7 mA for full operation (315 MHz)
- Few external components
- Excellent sensitivity on the order of –110 dBm (peak ASK signal level at 315 MHz)
- 2.4 V to 5.5 V supply voltage range
- 250 MHz to 500 MHz frequency range
- Data rate up to 10 Kb/s

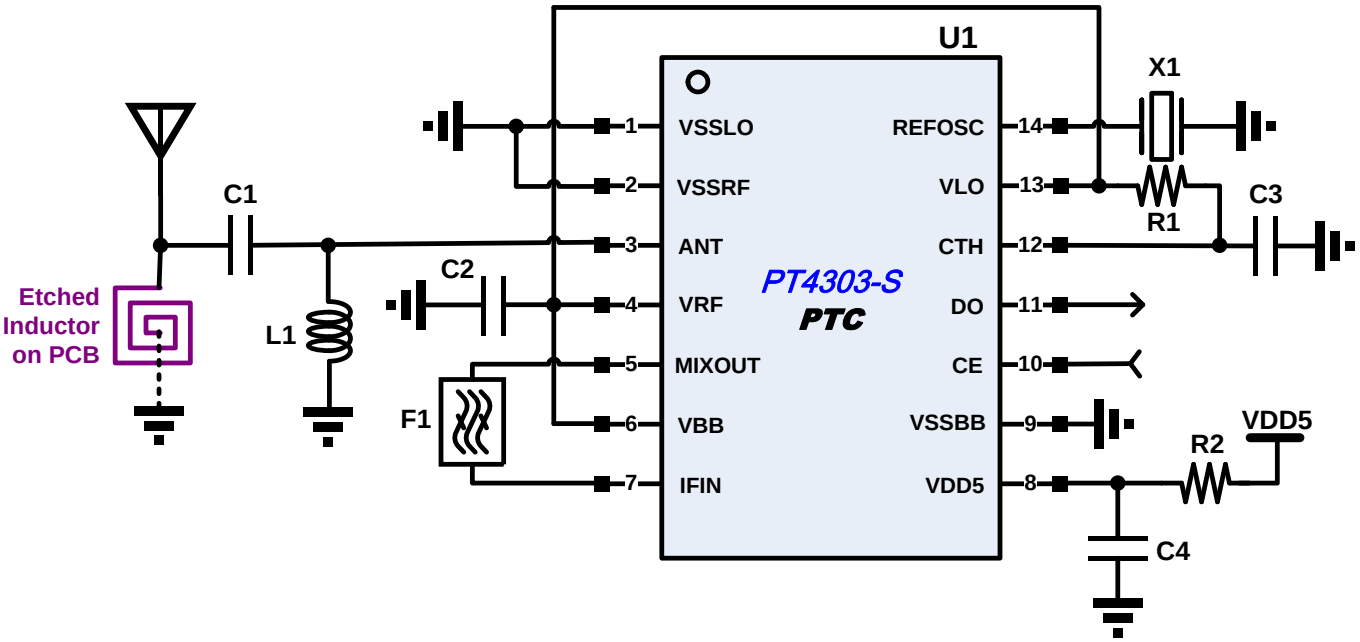
APPLICATIONS

- Automotive remote keyless entry (RKE)
- Remote control
- Garage door and gate openers
- Suitable for applications that meet either the European ETSI-300-220 or the North American FCC (Part 15) regulatory standards

BLOCK DIAGRAM



APPLICATION CIRCUIT



BILL OF MATERIALS

Part	Value		Unit	Description
	315 MHz	433.92 MHz		
L1	82 n	47 n	H	Antenna input matching, coil inductor
C1	1.8 p	1.0 p	F	Antenna input matching
C2/C4	100 n	100 n	F	Power supply de-coupling capacitor
C3	470 n	470 n	F	C_{TH} (affects coding type and start-up time)
R1	8.2 M	8.2 M	Ω	For reducing data output noise (optional)
R2	10	10	Ω	Power supply de-coupling resistor
F1	10.7	10.7	MHz	Band-pass filter
X1	9.509	13.226	MHz	Reference crystal oscillator
U1	PT4303 IC	PT4303 IC	U1	Receiver chip

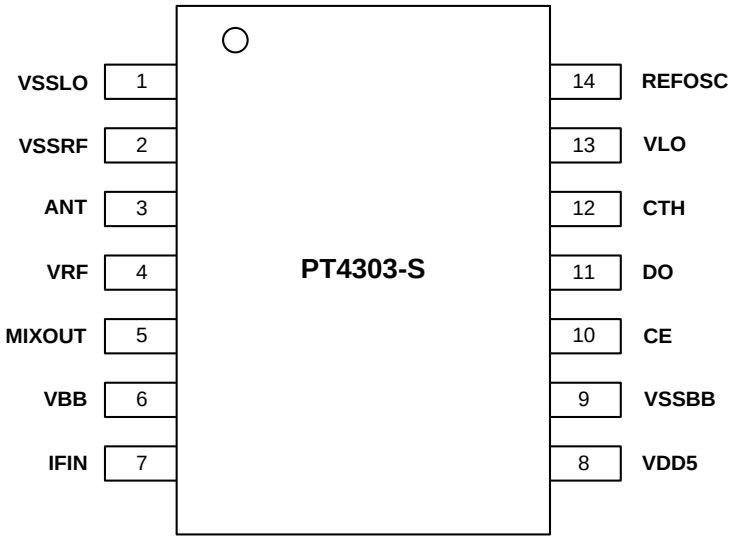
Notes:

1. L1 and C1 are the components for input matching network. Their values may need to be adjusted depending upon different PCB layout and antenna requirements.
2. The value of C3 depends upon the data rate and coding pattern.
3. F1 is the 10.7 MHz ceramic filter. The recommended part number is Murata SFELA10M7HA00-B0.
4. The “optional” components are based on application requirements.

ORDER INFORMATION

Valid Part Number	Package Type	Top Code
PT4303-S	14 Pins, SOP, 150 mil	PT4303-S

PIN CONFIGURATION



PIN DESCRIPTION

Pin Name	I/O	Description	Pin No.
VSSLO	G	Ground for LO portion	1
VSSRF	G	Ground for RF portion	2
ANT	I	RF input connection to antenna by a matching network	3
VRF	P	Supply voltage for RF portion	4
MIXOUT	O	Mixer IF output	5
VBB	P	Supply voltage for baseband chain	6
IFIN	I	IF stage input	7
VDD5	P	5 V supply voltage input	8
VSSBB	G	Ground for baseband chain	9
CE	I	Chip enable pin (pull HIGH to enable the chip)	10
DO	O	Data output	11
CTH	I/O	Data slicing threshold capacitor connection	12
VLO	P	Supply voltage for LO portion	13
REFOSC	I	Reference oscillator input pin	14

IMPORTANT NOTICE

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