



NXP dual-conversion tuner IC CX24210

Highly integrated, dual-conversion tuner IC supporting worldwide digital and analog cable and terrestrial standards

The CX24210 is a highly-integrated, dual-conversion tuner IC that supports worldwide digital and analog terrestrial standards, including DVB-T, ATSC, PAL, NTSC, and SECAM, and cable standards, including DOCSIS® 2.0 (Euro and US) and DVB-cable (DVB-C). No external BOM changes are required to switch between these standards.

Key features

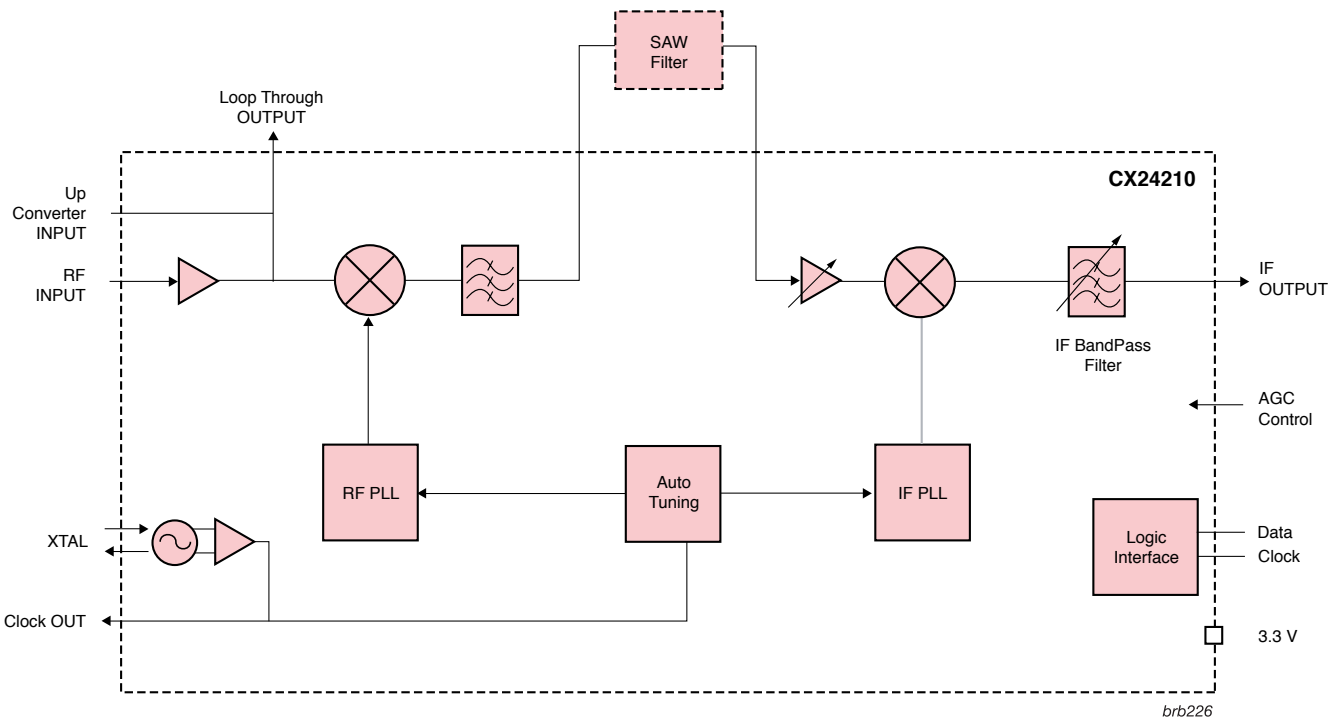
- ▶ Support for worldwide digital and analog terrestrial standards, including DVB-T, ATSC, NTSC, PAL, and SECAM
- ▶ Support for cable standards DOCSIS 2.0 and DVB-C
- ▶ Integrated loopthrough circuitry
- ▶ Multi-tuner input port
- ▶ Internal, adjustable band-pass filter
- ▶ High image rejection
- ▶ Fully integrated VCOs, synthesizers, LNA, and loopthrough
- ▶ Built in auto-tuning machine
- ▶ Single-ended RF input
- ▶ Buffered crystal clock output
- ▶ Wide input frequency range: 44 MHz to 1002 MHz
- ▶ Small 48-pin QFN package
- ▶ Single 3.3 V power supply
- ▶ Standard 2-wire serial programming interface

Applications

- ▶ DVB-T, ATSC and Cable set-top boxes
- ▶ DVD recorders
- ▶ Digital televisions
- ▶ Cable modems

The tuner includes an active loopthrough as well as a second input port that is optimized for use with an active external splitter in multi-tuner applications (three or more).

The CX24210's highly-integrated architecture is designed with the overall system BOM cost in mind, integrating all VCOs and synthesizers, LNA, and loopthrough circuitry. The internal, adjustable band-pass filter allows standard-specific optimization, and eliminates the need for a second IF SAW filter, while the image rejection architecture eliminates the need for tracking filters. Other BOM reduction features include the single-ended RF input that eliminates the need for a balun, and the buffered crystal clock output can be used to drive a partner IC, eliminating one additional crystal.



The CX24210 offers excellent IIP3, noise figure, phase noise, image rejection, and adjacent channel rejection. The chip includes a cognitive sensor that facilitates optimization of different input power scenarios as well as the spurious free dynamic range. It also includes a VCO auto-tuning machine that allows fast acquisition with no need for software calibration.

The CX24210 has been optimized for use with other NXP products, including the CX2445X family of DOCSIS 2.0 front-end cable modem chips, the CX2388X family of PCIe audio/video decoders, and the CX24230 DVB-T demodulator.

The tuner can be put into lower power operation when the highest level of performance is not required, and the loopthrough circuitry can be powered down when not needed. During standby operation, the entire device can be placed into sleep mode.

The CX24210 comes in a small 48-pin QFN package and requires only a single 3.3 V power supply.