

NXP digital satellite tuner CX24109

Highly integrated, direct down-conversion satellite tuner

Combining extensive experience in broadband systems and mixed-signal integrated circuit design, NXP introduces the CX24109 digital satellite tuner – a highly integrated, direct down-conversion satellite tuner intended for high-volume digital video, audio, and data receivers.

Key features

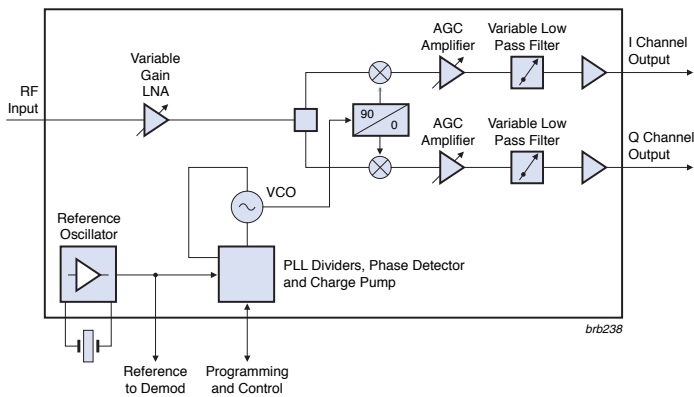
- ▶ DVB/DSS/DCII – compliant
- ▶ Single-chip RF-to-baseband satellite receiver
- ▶ Zero-IF architecture eliminates the need for image-reject filtering
- ▶ Variable baseband filters for optimal interference rejection
- ▶ Integrated LNA and LO with onboard VCO and synthesizer
- ▶ Single +5V supply
- ▶ 48-pin ETQFP

Applications

- ▶ DBS set-top boxes
- ▶ Commercial digital video, audio and data receivers
- ▶ Digital VCRs

The CX24109 consists of an LNA, variable RF attenuator, quadrature downconverter, variable IF gain amplifiers, variable low-pass filters, VCO, and synthesizer. This highly integrated satellite tuner RF IC does not require a balun, therefore simplifying RF layout and reducing the overall BOM cost.

When combined with NXP's CX24123 QPSK demodulator/FEC decoder, the chipset provides a complete broadband satellite front-end solution capable of operating from 1 to 45 Mps in the most demanding satellite environments. The CX24109 and CX24123 provides a streamlined, cost optimized front-end solution offered in a compact design that saves valuable board space and is easy to implement.



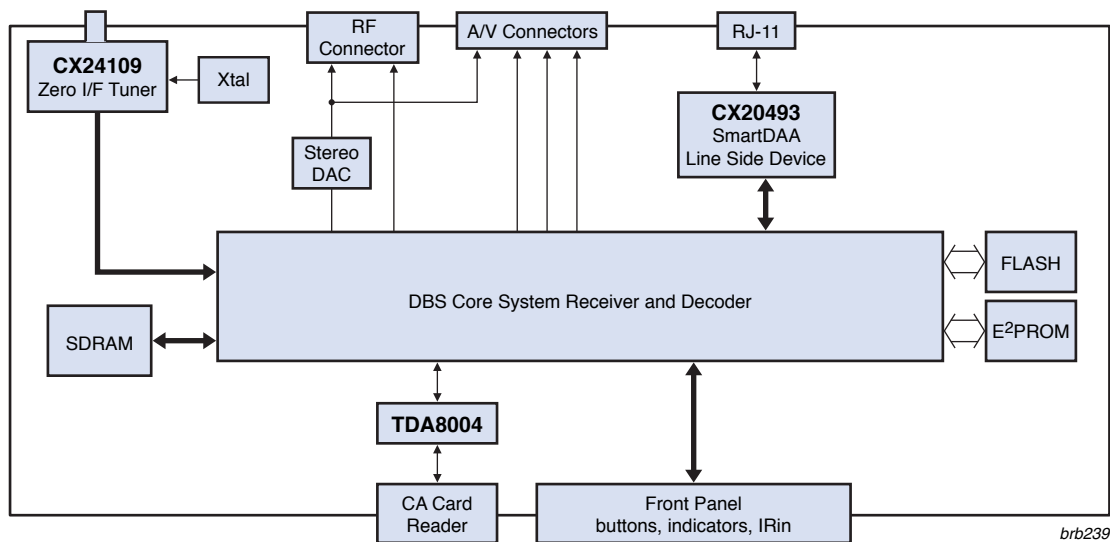
CX24109 Block Diagram

CX24109 product features

- ▶ Single-chip RF-to-baseband satellite receiver
- ▶ Zero-IF architecture eliminates the need for image-reject filtering
- ▶ Integrated LNA
- ▶ Integrated LO with onboard VCO and synthesizer
- ▶ Variable baseband filters for optimal interference rejection
- ▶ Single +5V supply

Product specifications

- ▶ RF input: 950 to 2150 MHz
- ▶ Input power range: -20 to -81 dBm
- ▶ Noise figure: 10 dB, typical
- ▶ Input IP3 at minimum gain: 10 dBm, typical
- ▶ I/Q phase difference: ± 3 degrees, typical
- ▶ I/Q amplitude difference: ± 1.5 dB, typical
- ▶ Filter tune range: 0.5 to 30 MHz
- ▶ Output voltage, $RL \geq 1k\Omega$: 0.5 Vp-p
- ▶ Typical junction temperature: 90° C at room temperature
- ▶ Operating temperature range: 0° to 70° C
- ▶ Package type: 48-pin ETQFP



Complete IC system solution for worldwide DBS platforms