



Dual Low-power QPSK Digital Satellite Tuner

CX24133

Conexant's portfolio includes a comprehensive suite of semiconductor solutions for broadband communications and the digital home.

The CX24133 is Conexant's second-generation dual QPSK tuner with improved performance and added features. It is designed with a SiGe BiCMOS process to provide excellent performance while consuming very little power (1 W typically with both channels active).

This highly-integrated complete dual-tuner solution includes all necessary Low Noise Amplifiers (LNAs), Voltage-Controlled Oscillators (VCOs), synthesizers, mixers, and filters required for common applications. The device employs fractional synthesizers that provide excellent phase noise while maintaining a very small step size (typically 160 Hz). An auto tuning machine eliminates the need for software calibration.

The CX24133 offers improved spurious-free dynamic range compared to previous generation dual tuners. This allows compatibility with low-cost 2-layer PCB designs, while providing added margin to 4-layer PCB designs. Integrated wideband RF power detectors have been added to allow estimation of composite input power for optimal gain distribution.

The dual tuner's small size (7 mm x 7 mm) allows system designers to significantly reduce the PCB size and cost, while its single 3.3 V power supply allows a simple, cost-effective power supply design. To further reduce Bill of Material (BOM) cost, a buffered version of the crystal clock is made available to drive companion ICs, such as other Conexant demodulators or tuners. In addition, the single-ended RF inputs eliminate the need for baluns in most applications.

The CX24133 uses a small 7 mm x 7 mm 48-pin lead-free Quad Flat-No Lead (QFN) package. A reference design is available.

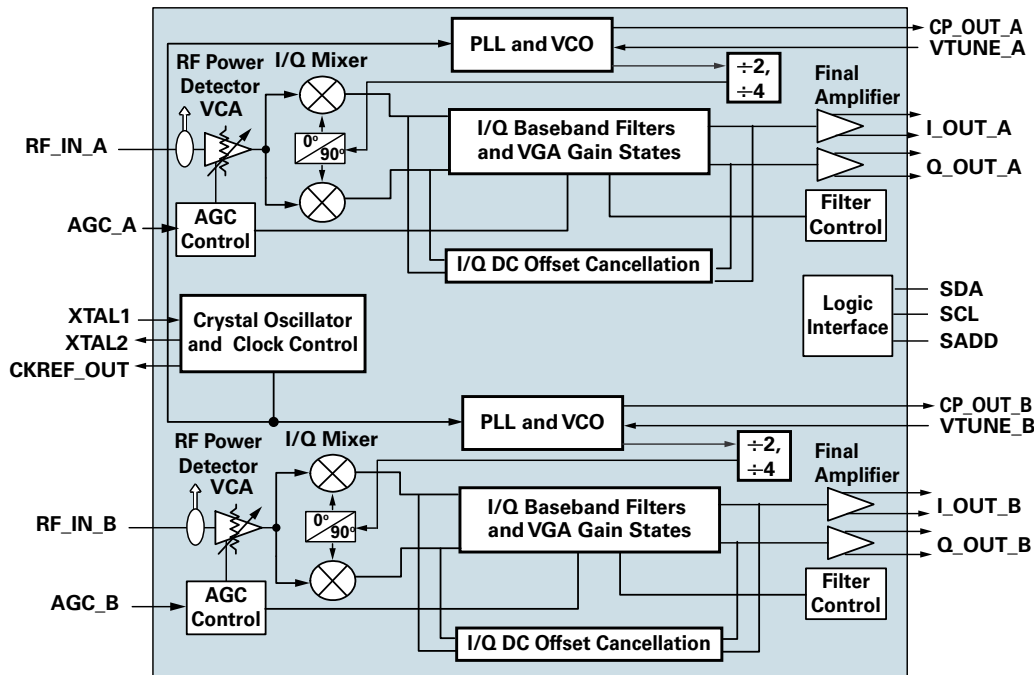


Distinguishing Features

- Complete dual QPSK tuner
- Integrated LNA
- Low power (1 W typical)
- Single 3.3 V power supply
- Superior phase noise (1.02 deg RMS DSB)
- Outstanding noise figure (11 dB typical)
- Exceptional linearity (5 dBm IIP3)
- Excellent spurious-free dynamic range
- 65 dB isolation between channels
- Buffered clock output
- Built in auto-tuning machine
- Wideband RF power detectors
- Single-ended RF inputs

Part Number CX24133

Description Dual Low-power QPSK
Digital Satellite Tuner



CX24133 Functional Block Diagram

Applications

- Low-cost dual- and multiple-input QPSK set-top boxes
 - DVR (Digital Video Recorder)
 - PiP (Picture in Picture)
 - MDU (Multi-dwelling Unit)
- Dual-input PC cards

Product Specifications

- Supported symbol rates: 1-45 MSps
- RF input frequency: 925 to 2175 MHz
- Dynamic range: -23 to -69 dBm
- Small lead-free 7 mm x7 mm 48-pin QFN package

Conexant Product Portfolio

The company's broad portfolio of semiconductor products also includes client-side DSL, cable, and dial-up modem solutions; fiber optic system-on-chips; broadcast video encoders and decoders; and digital set-top box components and systems solutions. Additional products include a complete line of asymmetric and symmetric DSL central office solutions, which are used by service providers worldwide to deliver broadband data, voice, and video over copper telephone lines.

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www.conexant.com
 General Information:
 U.S. and Canada: (888) 855-4562
 International: 1+ (949) 483-3000
 Headquarters
 4000 MacArthur Blvd.
 Newport Beach, CA 92660
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