



Dual Low-power 8PSK Digital Satellite Tuner

CX24132

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

The CX24132 is Conexant's second-generation dual 8PSK tuner with improved performance and added features. It is designed with a SiGe BiCMOS process to provide the excellent performance that is required by demanding 8PSK applications, while maintaining low power consumption. 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).

This unique stand-alone dual tuner's small size (7 mm x 7 mm) allows system designers to significantly reduce the PCB size of dual front-ends, especially when used with Conexant's dual DVB-S2 or 8PSK Turbo demodulators.

At 1 W typical with both channels active, the CX24132 (along with other Conexant tuners) offers the lowest per-channel power of any standards compliant 8PSK tuner. In addition, the CX24132 is powered by a single 3.3 V power supply, allowing a low-power, simple, cost-effective power supply design.

The CX24132 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. The device also meets other performance requirements that are necessary in demanding 8PSK applications, as listed in the "Distinguishing Features" section.

The CX24132 includes many features that simplify the design or improve performance. To improve performance, integrated wideband RF power detectors have been added to allow estimation of composite input power for optimal gain distribution. In more complex designs, the power detectors can be used in conjunction with high current General Purpose Outputs (GPOs) to drive external PIN diode attenuators.

In addition to the Bill of Material (BOM) savings that its high level of integration and single 3.3V supply provides, the CX24132 incorporates several other features that lower system BOM cost. In particular, both tuners are clocked from the same crystal and a buffered version of this clock is made available to drive companion ICs, such as Conexant demodulators and tuners. In addition, the RF inputs can be operated single-ended, eliminating the need for baluns in most applications.

The CX24132 uses a small 7 mm x 7 mm 48-pin lead-free Quad Flat-No Lead (QFN) package. Multiple reference designs that include this IC and various Conexant dual demodulators are available.

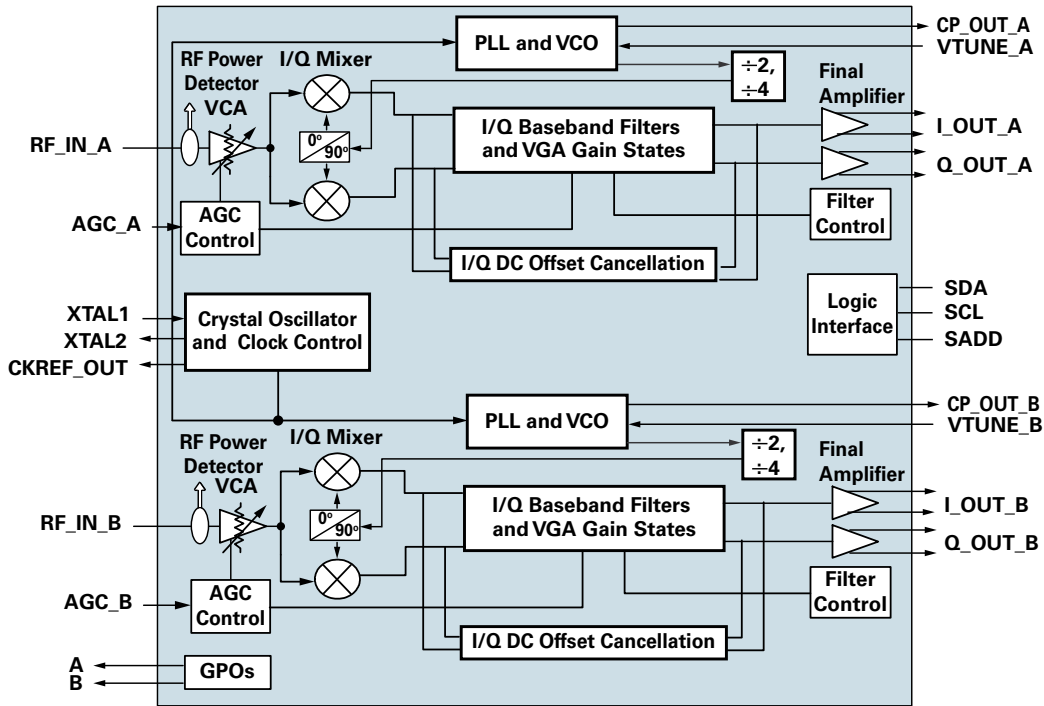


Distinguishing Features

- Complete dual 8PSK tuner
- Integrated LNA
- Low power (1 W typical)
- Single 3.3 V power supply
- Superior phase noise (0.36 deg RMS DSB)
- Outstanding noise figure (10 dB typical)
- Exceptional linearity (9 dBm IIP3)
- Excellent spurious-free dynamic range
- 65 dB isolation between channels
- Buffered clock output
- Single-ended RF inputs
- Built in auto-tuning machine
- High current GPOs
- Wideband RF power detectors

Part Number CX24132

Description Dual Low-power 8PSK Digital Satellite Tuner



CX24132 Functional Block Diagram

Applications

- Dual- and multiple-input advanced modulation set-top boxes
 - o DVR (Digital Video Recorder)
 - o PiP (Picture in Picture)
 - o MDU (Multi-dwelling Unit)
- Dual 8PSK PC cards

Product Specifications

- Supports 8PSK and QPSK modulation formats
- Supported symbol rates: 1-45 MSps
- RF input frequency: 925 to 2175 MHz
- Dynamic range: -23 to -69 dBm
- Small , lead-free 7 mm x 7 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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