



Dual Stream QPSK/BPSK Demodulator IC

CX24130

High-Performance, Low-Power Broadband Satellite Dual Independent Front-End Solution

Conexant's CX24130 is the industry's first single-chip dual-stream QPSK/BPSK demodulator designed for satellite receiver systems. The device is ideal for applications such as personal video recorders (PVRs) that process dual incoming video streams to simultaneously play and record two different television programs. Other applications include digital video broadcasting/digital satellite system (DVB/DSS) set-top and PC receivers, and residential gateways. In addition, when combined with the CX24108 Satellite Tuner RF ICs, the CX24130 provides a complete dual broadband satellite front-end solution capable of operating from 10 to 30 Msp.

With the CX24130, Conexant has significantly reduced product size and component requirements by replacing two 100-pin demodulators with one 80-pin IC. Key features include superior bit error rate (BER) performance, low power dissipation, and small form factor. The device is compliant with DVB (ETS 300-421) and DSS specifications for satellite transmission, and provides digital derotation, digital filtering, equalization and Viterbi/Reed-Solomon forward error correction (FEC). A variety of advanced features enhance overall system performance, including automatic correction for external quadrature gain/phase imbalances and DC offsets, and automatic gain control (AGC) to compensate for input signal level variations.

A robust carrier-tracking loop corrects for frequency offsets due to inexpensive low noise block down-converters (LNBS), and a unique automatic acquisition algorithm searches and acquires the carrier during initial acquisition, and performs a smart search to reacquire the carrier during fade conditions. In addition, the CX24130 features integrated signal-to-noise-ratio (SNR) and bit-error-rate (BER) monitors that facilitate channel-performance measurements. The CX24130 demodulator is manufactured using proven 0.18-micron CMOS process technology. Conexant provides a complete reference design package that allows designers to rapidly bring innovative new products to market.



CX24130 Distinguishing Features

- Dual Stream QPSK/BPSK demodulation paths
- DVB/DSS compliant
- Symbol rates: 10 to 30 Msp
- Automatic acquisition
- Adaptive (FIR) equalizer
- Internal Viterbi and Reed-Solomon FEC
- Internal SNR and BER monitors
- DiSEqC™ Level 1.1 LNB control

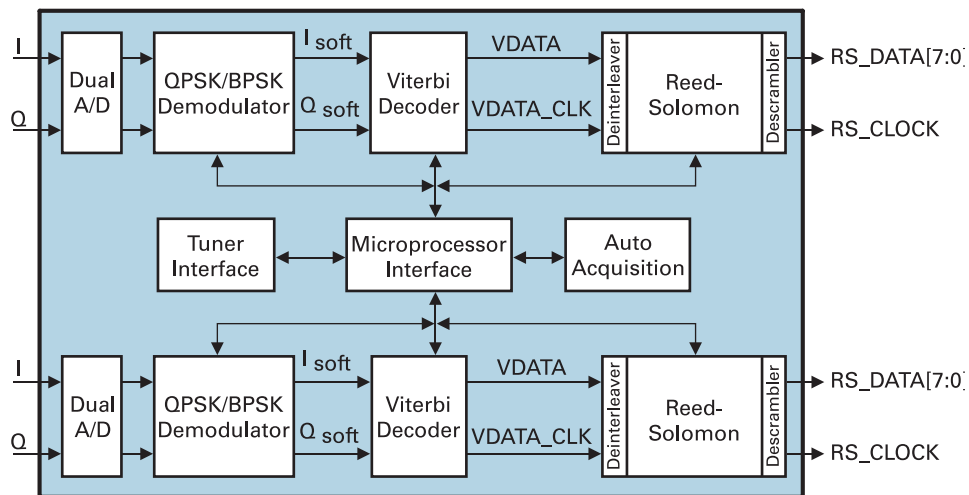
Part Number CX24130

Description Dual Stream Demodulator IC



CX24130 Features

- QPSK/BPSK demodulation
- DVB/DSS compliant
- Symbol rates: 10 to 30 Msps
- Automatic acquisition
- Adaptive (FIR) equalizer
- Internal carrier and bit timing recovery
- Internal Viterbi and Reed-Solomon FEC
- Internal SNR and BER monitors
- DiSEqC™ Level 1.1 LNB control
- 3.3V signaling, 5V tolerant interface
- Support for three status LEDs
- 144-pin LQFP package
- External crystal frequency: 10 MHz
- Sampling frequency: 45, 60, 90 MHz
- Carrier tracking: \pm sample frequency/8
- Quadrature equalization compensation: ± 3 dB gain, $\pm 13^\circ$ phase
- Viterbi decoding rates: 1/2, 2/3, 3/4, 4/5, 5/6, 6/7, and 7/8
- Output data interface: serial or parallel
- Supply voltage: +3.3V, +1.8V



CX24130 block diagram

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Order# 101615B

