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Direct-Conversion to Low-IF Tuners for Digital Audio Broadcast

MAX2170/MAX2171

General Description

The MAX2170/MAX2171 direct-conversion to low-IF tuners are designed for Digital Audio Broadcast (DAB) and Terrestrial Digital Multimedia Broadcast (T-DMB) applications, covering an input frequency range of 168MHz to 240MHz (VHF-III), 1452MHz to 1492MHz (L-Band), and also 87MHz to 108MHz (FM). The MAX2170/MAX2171 achieve a high level of component integration, allowing low-power, tuner-on-board designs. The direct-conversion to low-IF architecture eliminates the need for an IF-SAW filter while providing a balanced 2.048MHz center frequency baseband output to the demodulator.

The MAX2170 provides a buffered reference clock at the crystal frequency, while the MAX2171 outputs a reference at 1/3rd of the crystal frequency.

A sigma-delta fractional-N synthesizer is incorporated to optimize both close-in and wideband phase noise performances for OFDM applications where sensitivity to both 1kHz phase noise and wideband phase noise related to strong adjacents can be a problem.

The MAX2170/MAX2171 are available in a 40-pin thin QFN package (6mm x 6mm) with an exposed paddle. Electrical performance is guaranteed over the extended -40°C to +85°C temperature range.

Applications

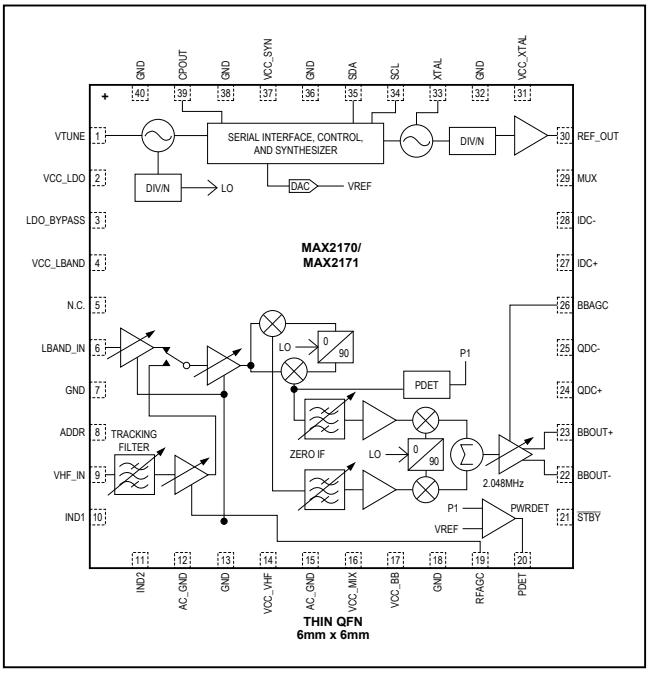
- Fixed and Mobile Digital Audio Broadcast (DAB)
- Terrestrial Digital Multimedia Broadcast (T-DMB)

Features

- +2.7V to +3.5V Supply Voltage Range
- Low-IF Output Eliminates IF-SAW Filter
- Integrated Low-IF Bandpass Filter
- Sigma-Delta Fractional-N Synthesizer
- +45dB Digital ACPR
- 3.5dB Typical Noise Figure for VHF-III (Includes On-Chip Tracking Filter)
- 3.1dB Typical Noise Figure for L-Band
- VHF-III Sensitivity of -100dBm
- L-Band Sensitivity of -99dBm
- Baseband Overload Detector Controls RF AGC

***Typical Application Circuit* appears at end of data sheet.**

Pin Configuration/Functional Diagram



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