

MAX2172

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

High-Performance Digital Radio Tuner Incorporates Fast and Accurate RSSI Function

OVERVIEW

MAX2172: Functional Diagram

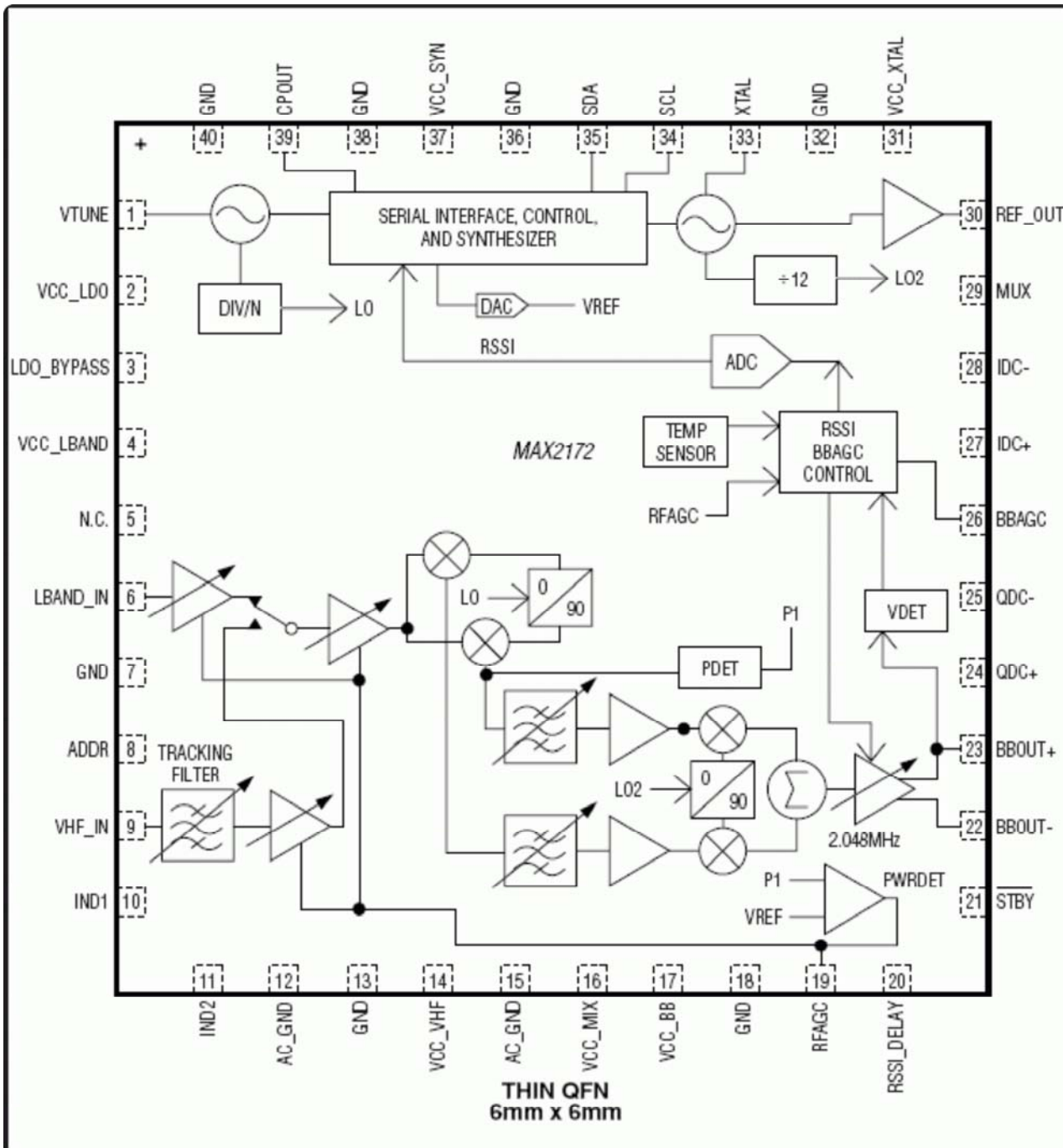
Description

The MAX2172 direct-conversion to low-IF tuner is 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 MAX2172 achieves a high level of component integration, allowing lowpower, 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 MAX2172 provides a buffered reference clock at 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 MAX2172 is available in a 40-pin thin QFN package (6mm x 6mm) with an exposed pad. Electrical performance is guaranteed over the extended -40°C to +85°C temperature range.



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Key Features

- +2.7V to +3.5V Supply Voltage Range
- Low-IF Output Eliminates IF-Saw Filter
- Integrated FM/VHF-III Bandpass Filter
- Integrated Low-IF Bandpass Filter
- Sigma-Delta Fractional-N Synthesizer

Applications/Uses

- Fixed and Mobile Digital Audio Broadcast (DAB, DAB+) with FM

- +45dBc ACPR ($N \pm 1$)
 - 2.9dB Typical Noise Figure for VHF-III (Includes On-Chip Tracking Filter)
 - 3.1dB Typical Noise Figure for L-Band
 - VHF-III Sensitivity of -101dBm
 - L-Band Sensitivity of -101dBm
 - Baseband Overload Detector Controls RF AGC
 - Fast Channel Scan RSSI 5-Bit Output
 - FM $(S+N)/N = 26\text{dB}$ at -111dBm
 - Small 6mm x 6mm Thin QFN Package
- Terrestrial Digital Multimedia Broadcast (T-DMB) with FM