

MXD1512 Direct Conversion Tuner for DVB-T

Product Brief

(Version 1.0)



MXD1512 Direct-Conversion DVB-T Tuner

General Description

The MXD1512 fully integrated, direct-conversion TV tuner is designed for digital mobile/terrestrial DVB-T/H TV applications. The low-pass channel filter is programmable for 6/7/8MHz channel bandwidths with auto calibration circuits to compensate for process and temperature variations. The MXD1512 covers 44MHz to 245MHz input frequency range for VHF band, 470MHz to 858MHz frequency range for UHF band.

The MXD1512 direct-conversion tuner is highly integrated, with very few external components for its application. It features double-inputs high performance LNAs, which add design flexibilities for multi-band reception. The single-end RF inputs eliminate external baluns for VHF and UHF band and no extra components are needed for input matching. The integrated on-chip low-pass channel filter provides 40dB adjacent channel rejection. The MXD1512 fully integrates on-chip synthesizer and low-pass channel filter, which eliminate external SAW filters and significantly reduce external components. The MXD1512 implements on-chip LDOs which relax power supply requirements and further reduce system BOM cost, and assures excellent reception performance. MXD1512 integrates on-chip DC offset cancellation to improve second-order distortion performance and AGC robustness.

The MXD1512 features over 58dB RF gain controls, and 54dB baseband gain range. The typical noise figure is 3.0dB over VHF band and 3.5dB over UHF band. The MXD1512 features fractional-N synthesizer with very low in-band phase noise and fine frequency resolution, which allows broad selection of crystals. The superior LO SNR assures excellent analog interference performance.

MXD1512 communicates through I2C interface, and available in 28pin QFN (4mmx4mm) package with exposed paddle. The device operates under single power supply of 2.5V~3.3V. Maximum power consumption is less than 110mW during full operation over all bands.

Applications

Mobile TV
Digital Televisions
Digital Terrestrial Set-Top Boxes
Laptop Televisions
USB Peripherals
Automobile Televisions

Features

- Cover VHF(44~245MHz) and UHF (470~858MHz)
- Less than 110mW power consumption
- Single-ended dual RF inputs provides design flexibilities
- I and Q outputs eliminate all IF-SAW filters
- Single 2.5V~3.3V power supply
- 3.0dB noise figure in VHF band (typical)
- 3.5dB noise figure in UHF band (typical)
- Fractional-N synthesizer with -100dBc/Hz close-in phase noise and fine frequency resolution
- Internal RFAGC with high dynamic range IFVGA enables smooth IF gain control
- On-chip automatic LPF bandwidth calibration to achieve 40dBc adjacent channel rejection
- Low power control interface for mobile
- Multi-mode AGC with fast-settling DC offset cancellation to meet mobile requirements
- Ultra-small, 28-pin, 4x4 QFN package

Pin Configuration /Functional Diagram

