

# Low Power Mobile TV Tuner IC for ISDB-T

# ADMTV201

#### **FEATURES**

Ultralow noise figure: 2.5 dB in maximum gain
UHF (470 MHz ~ 806 MHz) for ISDB-T in Japan and Brazil
Fully compatible with ISDB-T (one segment only)
Operating dynamic range: -99.5 dBm to +10 dBm
Ultralow power consumption: 76 mW

Supply voltage: 1.8 V core and 1.8 V ~ 3.3 V I/O
On-chip LDO option for 1.2 V power supply

On-chip power-on reset

Ultrasmall WLCSP package: 2.14 mm × 2.09 mm

On-chip low phase noise and wide frequency range VCO

On-chip bandwidth-adjustable band-pass filter Integrated IF PGA for direct connection to digital demodulators

Noise/linearity optimization through internal RF RSSI and the IF AGC and RF AGC loops

Reference clock output for demodulator Adjustable take-over points (TOP) I<sup>2</sup>C serial bus interface RoHS-compliant WLCSP package

#### **APPLICATIONS**

ISDB-T (one-segment) digital TV for mobile phone
Low power portable TV, PDA, PMP, car navigation, and USB
applications

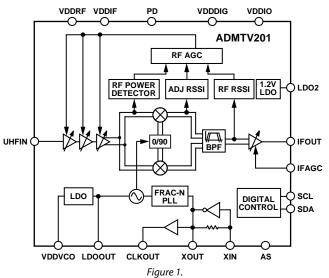
## **GENERAL DESCRIPTION**

The ADMTV201 is a highly integrated, CMOS single-chip, low IF, single-conversion tuner IC for digital mobile TV. It has a single RF input for UHF (470 MHz  $\sim$  806 MHz). It supports one segment of the ISDB-T standard and includes two UHF low noise amplifiers (LNAs), an RF programmable gain amplifier (RF PGA), a downconversion mixer, a complex band-pass filter (CBPF), an IF PGA, a voltage controlled oscillator (VCO), and a fractional-N phase-locked loop (PLL).

The RF PGA is controlled by an internal RF automatic gain control (RF AGC) loop, and the IF PGA is controlled by a demodulator. The PGAs provide >120 dB of gain control range.

The ADMTV201 consumes ultralow power in comparison to conventional tuners. It is appropriate for portable applications that require low power consumption and includes an industry-standard  $\rm I^2C^*$  serial bus interface. The primary application of the ADMTV201 is the portable terrestrial TV receiver, such as the mobile TV phone.

#### **FUNCTIONAL BLOCK DIAGRAM**



## **PRODUCT HIGHLIGHTS**

- Ultralow Noise: 2.5 dB Maximum Gain.
- UHF Frequency Range: 470 MHz ~ 806 MHz for the ISDB-T UHF Band in Japan and Brazil.
- 3. Ultralow Power Consumption: 76 mW.
- 4. Smart Power Control (SPC) for Dynamic Power Savings.
- 5. On-Chip LDO Option for 1.2 V Power Supply.
- 6. Compact WLCSP Package. The ADMTV201 is available in a  $2.14 \text{ mm} \times 2.09 \text{ mm}$  package, with a maximum height of 0.35 mm.

For more information about the ADMTV201, email Analog Devices, Inc., at Mobile\_TV\_support@analog.com.

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ADMTV201	
NOTES	

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