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MT2081
World-Standard Digital Cable Tuner

The MicroTuner™ MT2081 is an advanced single-chip broadband tuner with integrated RF loop-through.

Product Overview

The MicroTuner MT2081 is a single-chip digital cable tuner with integrated RF loop-through. The MT2081 has been optimized for high-performance set-top boxes which require low composite distortion and noise under challenging digital cable environments. Its high level of on-chip integration enables the design of a set-top box (STB) at a very low cost.

The integrated circuit delivers best-in-class performance for all world-wide standards of digital cable broadcast. The integrated low noise amplifier (LNA) with automatic gain control (AGC) delivers excellent sensitivity. The ClearTune on-chip filtering provides optimal performance in tilted and heavily loaded cable environments.

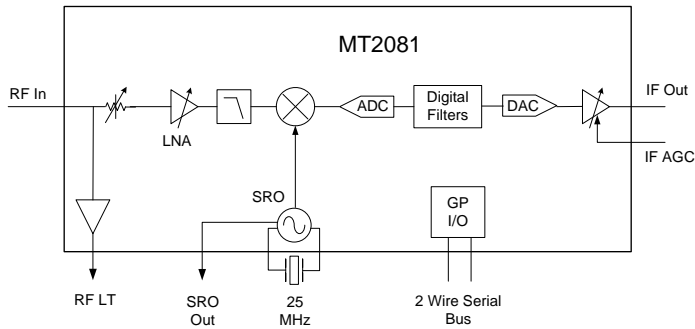
MT2081 Key Features and Performance
Applications

- Digital cable STBs
- Zapper boxes
- DTAs

MT2081 Key Features

- On chip filtering for standard and low IF output (1-60 MHz) providing simple interfacing to QAM demodulators
- Integrated RF loop-through amplifier
- 44 MHz to 1002 MHz frequency tuning range
- Single-ended RF input – no external input balun required
- Integrated RF ClearTune® filtering for optimal performance in tilted cable conditions
- Option to allow loop-through amplifier to operate separately when tuner is in shut down or standby mode
- Compatible with ITU –T J.83 Annex A/B/C cable performance requirements (64/256 QAM)
- Supports NorDig Unified and SARFT GD/J12-2007, RNG/DSG, SCTE40, DOCSIS and EuroDOCSIS digital cable performance requirements
- Excellent multi-tone performance
- Outstanding large signal handling capabilities
- Integrated power detectors for closed loop RF AGC – no input from demodulator required
- System Reference Oscillator (SRO) output for clocking a demodulator or other components in the system
- General-purpose input/output (GPIO) controllable via serial-control interface
- Operates with a low cost 25 MHz crystal
- 2.5 V (analog) and 1.2V (digital) power supply operation
- Small 6 mm x 6 mm 40 pin Quad Flat No-Lead (QFN) package

Block Diagram



Recommended Operating Conditions

Parameter	Min	Typ	Max	Unit
Supply voltage – Analog	2.375	2.5	2.625	V
Supply voltage – Digital	1.14	1.2	1.26	V
Input frequency Range	44		1002	MHz
Intermediate Frequency (programmable)	1		60	MHz
Serial clock frequency			400	kHz

Tuner Performance

Parameter	Condition	Typical	Unit
Input return loss (75 Ω)	Over entire frequency range and AGC range	12	dB
Phase Noise	1 kHz offset	-85	dB/Hz
	10 kHz offset	-85	dB/Hz
	20 kHz offset	-90	dB/Hz
	100 kHz offset	-105	dB/Hz
	1 MHz offset	-125	dB/Hz

Electrical Characteristics

Parameter	Condition	Typical	Unit
Power Supply			
Active Current, Digital		70	mA
Active Current, Analog	Loop-thru disabled	380	mA
Active Current, Analog	Loop-thru enabled	425	mA
Signal Path			
Voltage Gain	$Z_S = 75 \Omega$, $Z_L = 1k\Omega 5pF$, $Pin = -30 dBmV$	77	dB
Image Rejection	Over IF output frequency, calibrated	60	dB

Contact and Ordering Information

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Related Documents

- DS-00137 – MT2081 Data Sheet
- PB-00182 – MT2082 Product Brief
- PB-00183 – MT2084 Product Brief

PB-00185 Rev. 1.0

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