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**MT2082**
**World-Standard Digital Cable Tuner**

**The MicroTuner™ MT2082 is an advanced single-chip broadband tuner with integrated splitter and loop-through.**

**Product Overview**

The MicroTuner MT2082 is a single-chip digital cable tuner with integrated RF splitter and loop-through. The MT2082 has been optimized for high-performance multiple tuner 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 triple tuner 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.

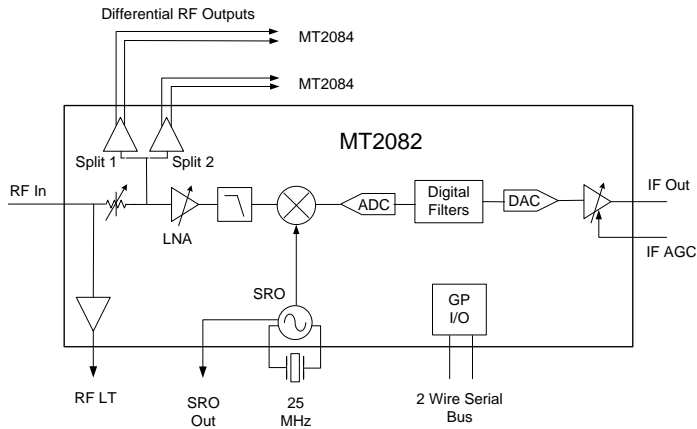
**MT2082 Key Features and Performance**
**Applications**

- Multiple tuner digital cable STBs
- Digital cable STBs with RF loop-through
- Digital cable gateways
- Digital cable DVR/PVRs

**MT2082 Key Features**

- 3-way integrated splitter with two outputs to MT2084 tuners to support triple tuner digital cable STBs
- 44 MHz to 1002 MHz frequency tuning range
- Integrated RF loop-through amplifier
- Simultaneous loop-through output and splitter output
- On chip filtering for standard and low IF output between 1 and 60 MHz providing simple interfacing to QAM demodulators – no external SAWs or filtering required
- 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 the tuner is in shut down or standby mode
- Compatible with ITU-T J.83 Annex A/B/C QAM performance requirements
- Supports NorDig Unifed and SARFT GD/J12-2007, RNG/DSG, SCTE-40, DOCSIS and EuroDOCSIS digital cable performance requirements
- Excellent multi-tone performance
- Outstanding large signal handling capabilities
- Integrated power detectors for autonomous RF AGC – no input from demodulator required
- System Reference Oscillator (SRO) output for driving a demodulator or a MT2084 tuner in a multiple tuner system
- General-purpose input/output (GPIO) controllable via serial-control interface
- 2.5 V (analog) and 1.2V (digital) power supply operation
- Operates with a low cost 25 MHz crystal
- 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	10	dB
Phase Noise	1 kHz offset	-65	dB/Hz
	10 kHz offset	-85	dB/Hz
	20 kHz offset	-89	dB/Hz
	100 kHz offset	-98	dB/Hz
	1 MHz offset	-125	dB/Hz

## Electrical Characteristics

Parameter	Condition	Typical	Unit
<b>Power Supply</b>			
Active Current, Digital		90	mA
Active Current, Analog	Splitters and loop-thru disabled	380	mA
Active Current, Analog	with both splitters enabled	440	mA
<b>Signal Path</b>			
Voltage Gain	$Z_S = 75 \Omega$ , $Z_L = 1k\Omega    5pF$ , $P_{in} = -30$ dBmV	77	dB
Image Rejection	Over IF output frequency, calibrated	60	dB

## Contact and Ordering Information

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## Related Documents

- PB-00183 – MT2084 Product Brief
- PB-00185 – MT2081 Product Brief
- DS-00117– MT2082 Data Sheet
- DS-00124– MT2084 Data Sheet