



M I C R O T U N E ®

RF SILICON AND SUBSYSTEMS SOLUTIONS
FOR BROADBAND COMMUNICATIONS AND AUTOMOTIVE ELECTRONICS

MT2060 SINGLE-CHIP BROADBAND TUNER

PRODUCT BRIEF

The MT2060 is a low-power 3.3V single-chip broadband tuner with an integrated IF variable gain amplifier.



MT2060 Single-Chip Broadband Tuner

The MicroTuner™ MT2060 is an advanced, low-power single-chip broadband tuner that has been optimized for high-performance cable modems and digital cable set-top boxes that require low composite distortion and noise under digital cable environments.

The MT2060 is capable of receiving frequencies in the 48MHz to 860MHz range and of converting a selected channel to a standard intermediate frequency (IF) between 30MHz and 60MHz.

The MT2060's low close-in phase noise allows it to be used for both digital and analog signals including video, voice and high-speed data. Its dual-conversion architecture, with no requirement for tracking filters, yields the desirable characteristics of traditional cable television tuners: controlled input impedance across the entire input band, low in-band emissions, and outstanding image rejection.

In addition, the MT2060 provides excellent in-band flatness as well as very repeatable gain characteristics across the complete reception band. With minor bill of material (BOM) changes, the MT2060 is capable of supporting multiple output standards.

Provisions have been made to allow the MT2060 tuner to operate in low power modes. These modes are selectable using simple software commands. It reduces current consumption considerably and can effectively be used to extend the operation of battery-powered applications.

APPLICATIONS

- VoIP Telephony Modem
- Cable Modems
- PacketCable™ E-MTA's
- Digital Set-top Boxes
- Home Gateways
- Multimedia Applications
- PC TV
- Flat Panel LCD TVs

FEATURES

- 48MHz to 860MHz input frequency range
- 3.3V power supply
- Works seamlessly with all analog and digital demodulators
- Low-power 1W dual-conversion architecture
- Integrated first IF filter reduces BOM by eliminating first IF SAW filter
- Single-ended RF input reduces BOM by eliminating input balun
- Minimal external components
- No manually tunable parts required
- Integrated IF variable gain amplifier for direct connection to digital demodulators
- Fully compatible with NTSC, PAL, SECAM, DAVIC, DVB-C, DOCSIS 1.0, 1.1, and 2.0, EuroDOCSIS, and other standards
- Capable of driving multiple IF filters
- Multiple power modes to 800mW

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PRODUCT BRIEF

RECOMMENDED OPERATING CONDITIONS

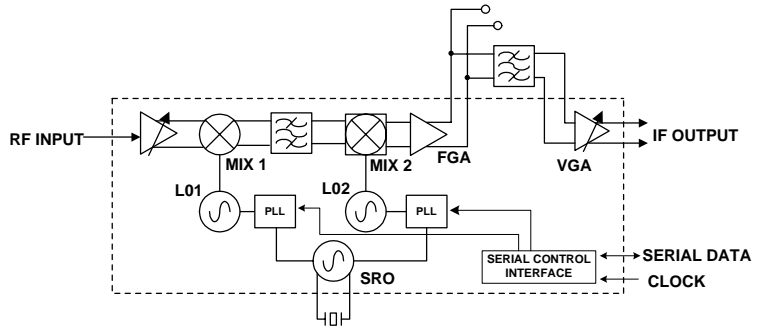
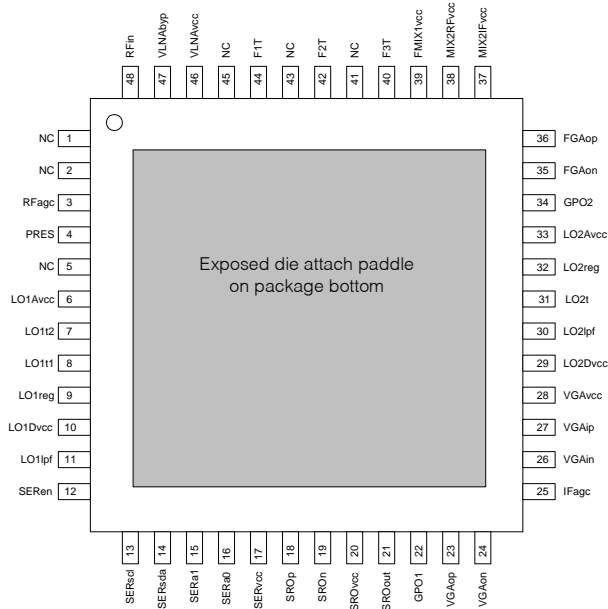
PARAMETER	MIN	TYP	MAX	UNIT
Input frequency range	48		860	MHz
First intermediate center frequency		1220		MHz
Second intermediate center frequency (programmable)	30		60	MHz
Supply voltage	3.15	3.3	3.45	V
Supply voltage ripple			15	mV
Operating junction temperature			100	°C
VGA output load impedance	200			Ω
Serial control clock			400	kHz

ABSOLUTE MAXIMUM RATINGS

PARAMETER	MIN	MAX	UNIT
Supply voltage		3.6	V
Storage temperature range	-40	+150	°C
Lead temperature (soldering 4 seconds)		+245	°C
Input voltage	-0.3	VCC +0.3	V

TUNER ELECTRICAL CHARACTERISTICS

PARAMETER	MIN	TYP	MAX	UNIT
Power Supply				
Active current		300		mA
Shut-down current		14		mA
RF Signal Path				
Input frequency range	48		860	MHz
Return loss		8		dB
Noise figure at max gain		8		dB
Terminal voltage gain		42		dB
RF AGC range	30			dB
Gain variation at any frequency	-3		+3	dB
Image rejection		60		dBc
LO phase noise (10kHz)		-86		dBc/Hz
LO phase noise (100kHz)		-108		dBc/Hz
LO step size	50			kHz
IF VGA				
Frequency range	30		60	MHz
Output voltage			2.0	Vp-p
Terminal voltage gain	10		52	dB
Noise figure at max gain		10		dB
Serial Interface				
Serial clock frequency			400	kHz



MT2060 Block Diagram

MT2060 Pin Diagram



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