



M I C R O T U N E ®

RF SILICON AND SUBSYSTEMS SOLUTIONS
FOR BROADBAND COMMUNICATIONS AND AUTOMOTIVE ELECTRONICS

MT2063 SINGLE-CHIP UNIVERSAL TUNER

PRELIMINARY PRODUCT BRIEF

The MT2063 is a low-power 3.3V single-chip universal tuner for analog and digital worldwide terrestrial and cable standards



MT2063 Single-Chip Universal Tuner

The MicroTuner™ MT2063 is an advanced, low-power single-chip tuner, optimized for terrestrial and cable television reception.

The MT2063 is capable of receiving frequencies in the 48 MHz to 1002 MHz range. It can convert a selected channel to a standard intermediate frequency (IF) between 30 MHz and 60 MHz.

The MT2063 dual-conversion architecture yields the desirable characteristics of traditional television tuners without the need for external tracking filters. This is achieved by an integrated pre-selection filter at the RF input, low in-band emissions and outstanding image rejection

The MT2063 has a high level of integration to keep the total Bill of Materials (BOM) low. It supports multiple digital terrestrial television standards including ATSC, DVB-T, DMB-T and ISDB-T. In addition, MT2063 supports 256QAM reception as it is used in world wide digital cable networks and analog NTSC, PAL and SECAM signals. It provides excellent in-band flatness as well as consistent gain characteristics across the complete reception band. The integrated LNA delivers excellent sensitivity. An innovative architecture enables an AGC control range of more than 90 dB. The programmable buffered reference frequency output enables crystal sharing with the demodulator.

APPLICATIONS

- Digital terrestrial reception
- Analog and digital PC-TV
- Digital terrestrial set-top boxes
- Portable TV receivers
- TV Plug-in modules
- Multi-standard PCTV receivers

FEATURES

- 48 MHz to 1002 MHz input frequency range
- Supports off-air terrestrial and cable reception
- No active external components required
- Standard IF output works seamlessly with analog and digital demodulators
- Low-power 1 W dual-conversion architecture with additional power saving modes
- Integrated RF pre-filter and first IF filter
- Single-ended RF input
- Alignment free
- Integrated power detector for closed loop RF AGC
- Integrated IF variable gain amplifier for direct connection to digital demodulators
- Fully compatible with ATSC, DVB-T, DMB-T, ISDB-T, QAM/ DVB-C, NTSC, PAL, SECAM and other terrestrial television standards
- Capable of driving cascaded SAW filters with a built-in fixed gain IF buffer amplifier
- Can drive two IF SAW filters in parallel for hybrid analog/digital applications
- 48 pin, 7 mm x 7 mm QFN package

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RECOMMENDED OPERATING CONDITIONS

PARAMETER	MIN	TYP	MAX	UNIT
Supply voltage	3.15	3.3	3.45	V
Supply voltage ripple			25	mVp-p
Operating junction temperature			100	°C
Serial control clock			400	kHz

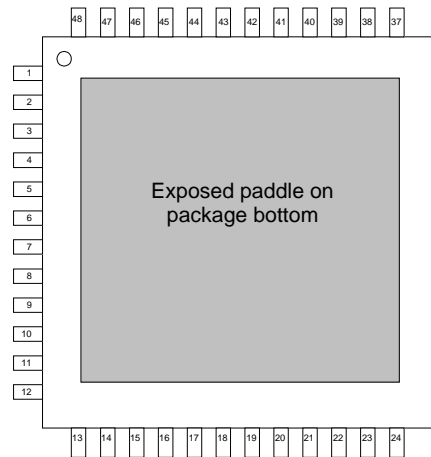
ABSOLUTE MAXIMUM RATINGS

PARAMETER	MIN	MAX	UNIT
Supply voltage		3.6	V
Storage temperature range	-50	+150	°C
Lead-free solder temperature (soldering 5 seconds, x3)		+260	°C
Input voltage	-0.3	VCC +0.3	V

TUNER ELECTRICAL CHARACTERISTICS

PARAMETER	MIN	TYP	MAX	UNIT
Power Supply				
Active current		300		mA
RF Signal Path				
Input frequency range ¹	48		1002	MHz
Noise figure ²		5		dB
Terminal voltage gain		42		dB
RF AGC range		60		dB
Image rejection		70		dBc
LO phase noise (1 kHz)		-80		dBc/Hz
LO phase noise (10 kHz)		-85		dBc/Hz
LO phase noise (100 kHz)		-105		dBc/Hz
LO step size	50			kHz
IF VGA				
Frequency range	30		60	MHz
Output voltage swing			2.0	Vp-p
Maximum terminal voltage gain		46		dB
IF AGC range		30		dB
IF Buffer				
Frequency range	30		60	MHz
Output voltage swing			2.0	Vp-p
Maximum terminal voltage gain		12,18, 24		dB

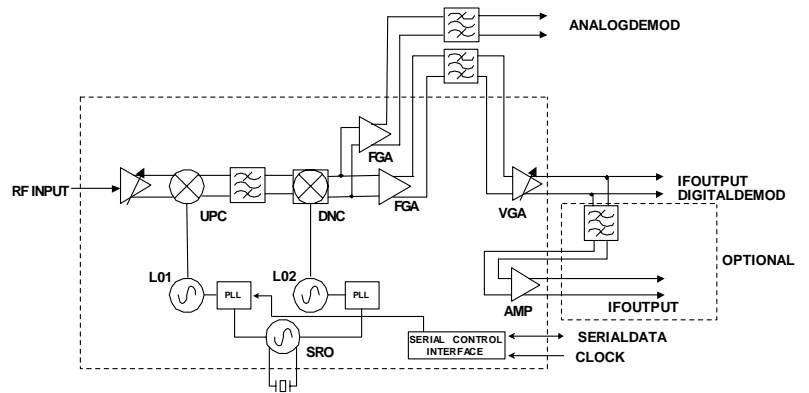
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MT2063 Pin Diagram

Notes:

- 1) in cable reception mode
- 2) in terrestrial reception mode



MT2063 Block Diagram



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