



M I C R O T U N E ®

RF SILICON AND SUBSYSTEMS SOLUTIONS
FOR BROADBAND COMMUNICATIONS AND AUTOMOTIVE ELECTRONICS

MT2067 SINGLE-CHIP AUTOMOTIVE BROADBAND TUNER

PRELIMINARY PRODUCT BRIEF

The MT2067 is an advanced 3.3V single-chip automotive broadband tuner for analog and digital terrestrial standards worldwide



MT2067 Single-Chip Automotive Tuner

PRELIMINARY

The MicroTuner™ MT2067 is an advanced, single-chip tuner, optimized for terrestrial television reception in an automotive environment.

The tuner is capable of receiving frequencies in the 44 MHz to 862 MHz range and supports multiple analog and digital terrestrial television standards including DVB-T, DTMB, ATSC and ISDB-T. A selected channel is down-converted to a standard intermediate frequency (IF) between 30 MHz and 60 MHz.

The MT2067 utilizes an advanced dual-conversion architecture that eliminates 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 MT2067 has a high level of integration to keep the total bill of materials (BOM) low. Offering a programmable buffered reference frequency output the crystal can be shared with the demodulator or another MT2067 in order to support multi-tuner diversity receivers.

In addition, the MT2067 integrates a spur-avoidance technology, which enables high-performance in multi-tuner architectures by preventing interference between the tuners. The integrated LNA ensures excellent system sensitivity and an innovative architecture enables an automatic gain control (AGC) range of more than 100 dB.

The MT2067 is designed for automotive temperature ranges and is qualified in accordance with AEC-Q100.

APPLICATIONS

- Car TV receivers for analog and/or digital terrestrial TV standards

FEATURES

- 44 MHz to 862 MHz input frequency range
- Compatible with DVB-T, DTMB, ISDB-T, ATSC, NTSC, PAL, SECAM and other terrestrial television standards
- 3.3V power supply
- No active external components required
- Standard IF output works seamlessly with analog and digital demodulators
- Dual-conversion architecture with additional power saving modes
- Integrated RF pre-filter (ClearTune™) and first IF filter
- Buffered reference frequency output
- Single-ended RF input reduces BOM by eliminating input balun
- Alignment free
- Integrated loop-through function for background tuner support
- Integrated power level detectors for closed loop RF AGC
- Integrated IF variable gain amplifier for direct connection to digital demodulator
- 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
- Extended operational temperature range
- Designed for qualification according to AEC-Q100 standard
- 48 pin, 7 mm x 7 mm QFN package

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PRELIMINARY PRODUCT BRIEF

RECOMMENDED OPERATING CONDITIONS

PARAMETER	MIN	TYP	MAX	UNIT
Supply voltage (Vcc)	3.15	3.3	3.45	V
Supply voltage ripple			25	mVp-p
Operating junction temperature			125	°C
Operation temperature range	-40		+85	°C
Serial control clock			400	kHz

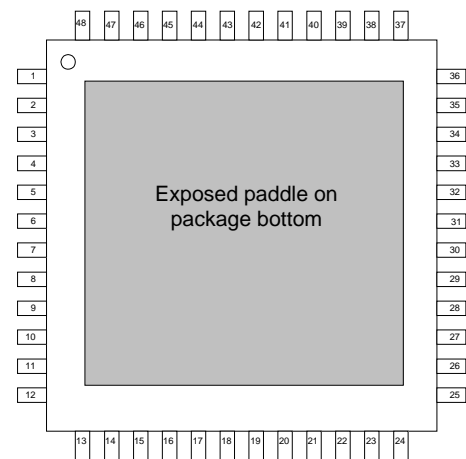
ABSOLUTE MAXIMUM RATINGS

PARAMETER	MIN	MAX	UNIT
Supply voltage (Vcc)		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

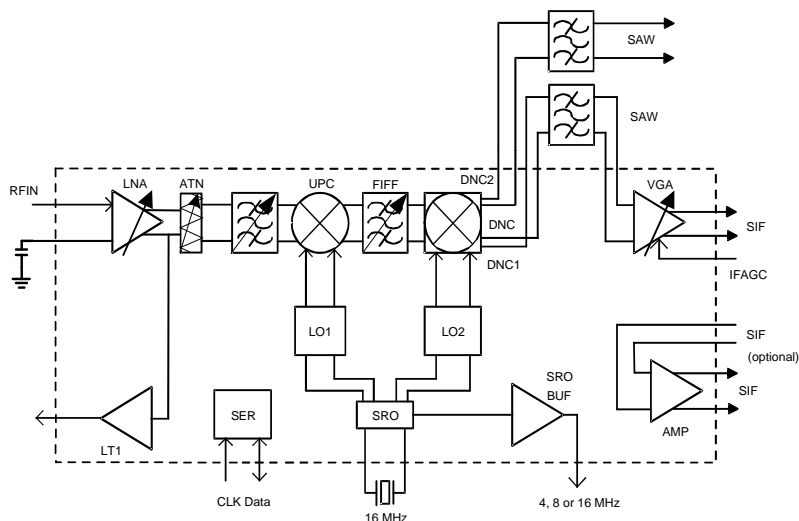
TUNER ELECTRICAL CHARACTERISTICS

PARAMETER	MIN	TYP	MAX	UNIT
Power Supply				
Active current		320		mA
RF Signal Path				
Input frequency range	44		862	MHz
Noise figure		5.5	6	dB
Terminal voltage gain		43		dB
AGC range		60	67	dB
Image rejection	55	70		dBc
LO phase noise (1 kHz)		-80		dBc/Hz
LO phase noise (10 kHz)		-87		dBc/Hz
LO phase noise (100 kHz)		-106		dBc/Hz
LO1/LO2 step size		250/62.5		kHz
IF VGA				
Frequency range	30		60	MHz
Output voltage swing		1.0		Vp-p
Maximum terminal voltage gain		52		dB
Variable Gain Range		40		dB
IF Amp				
Frequency range	30		60	MHz
Output voltage swing		1.0		Vp-p
Maximum terminal voltage gain		11, 17, 23		dB

PRELIMINARY



MT2067 Pin Diagram



MT2067 Block Diagram



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