

1384 SERIES AM/FM TUNER MODULES

AUTOMOTIVE APPLICATIONS

APPLICATIONS

- High-end car radios

FEATURES

AM

- Up/down conversion
- Excellent sensitivity
- Superior selectivity due to highly sophisticated filter technology
- Noise blanker at second IF
- High AGC dynamic range
- AM Stereo output available
- AGC-threshold programmable

FM

- Double down-conversion
- Selective prefilter circuit
- Image reject mixers
- Keyed AGC selectable, AGC-threshold programmable
- Dynamic threshold extension for superior sensitivity selectable
- Outstanding selectivity due to fixed and variable IF filters with hardware "closed-loop" control
- Supports inaudible RDS updating
- Weather band optional

GENERAL

- Available for US, European, and Japanese markets
- I²C bus controlled
- Very fast PLL
- On-board EEPROM supports digital alignment for AM and FM
- IF Counter information available via I²C bus
- Programmable switching output (open collector)



1384 AM/FM Tuner Module

The 1384 Series AM/FM Tuner Modules are high-end custom and semi-custom products specifically designed to meet the demanding performance, market, and pricing targets of automotive customers. The 1384 Series AM/FM Tuners combine the low system integration effort of a standard "plug and play" module with outstanding features and absolute high-end performance.

These tuner modules are designed for different standards in the US, Europe, and Japan, giving them "world" tuner functionality.

The AM section contains an up/down conversion system with an active prestage and an audio output. Features such as sensitivity and large signal performance, together with the functionality of the implemented noise blanker, help ensure that the 1384 Series Tuner Modules produce clear AM reception even in critical situations.

The FM section contains a double down-conversion system with a selective prefilter circuit

and MPX signal as well as RDS-MPX signal output. Using appropriate external signal processing, the stereo signal and the RDS/RBDS data can be derived from these outputs. The dynamic selectivity function evaluates the current receiving situation and the current modulation continuously and controls the optimum IF bandwidth (25 kHz to 155 kHz) automatically. The dynamic threshold extension automatically improves the S/N ratio at low RF input levels. Using these features, the 1384 Series Tuner Modules produce audible signals where standard tuners produce only noise and interference.

The integrated RDS update algorithm controls the down-lined audio processor (special models only) and supports the control of alternative frequency evaluations so that they are absolutely inaudible.

Band selection, tuning, and several tuner functions are controlled via I²C serial bus.

[查询"1384"供应商](#)

OPERATING CHARACTERISTICS

PARAMETER	MIN	TYP	MAX	UNIT
5V Power supply voltage				
Current AM mode	41	42	54	mA
Current FM mode	30	32	40	mA
Voltage	4.75	5	5.25	V
8.5V Power supply voltage				
Current AM mode		62		mA
Current FM mode		62		mA
Voltage	8	8.5	9	V
Operating temperature				
Operating temperature in slowly moving air	-40		+85	°C
Parametric temperature range	-30		+70	°C
Storage temperature	-40		+95	°C

INPUT/OUTPUT CHARACTERISTICS

PARAMETER	MIN	TYP	MAX	UNIT
AF Hold (maximum sink current)	1	1.2	1.4	mA
AF Sample (maximum sink current)	1	1.2	1.4	mA
AM AF Output				
AM Mono load impedance	100			k Ω
AM Mono output resistance			500	Ω
AM Stereo load impedance	10			k Ω
AM Stereo output resistance			500	Ω
Antenna Input				
AM Mode		150		k Ω
FM Mode		50		Ω
Field strength (level) output				
Voltage	0		7	V
FM MPX Output				
Bandwidth	200			kHz
Load capacitance			50	pF
Load resistance	20			Ω
Output resistance			500	Ω
IF Bandwidth flag output				
AM Mode (open collector with 56 k Ω pull-up resistance)	0		5	V
FM Alignment mode	3	3.1	3.4	V
RDS MPX Output				
Bandwidth	200	300		kHz
Load capacitance			50	pF
Load resistance	20			k Ω
Output resistance			500	Ω
Software flag output				
Open collector with 10 k Ω pull-up resistance	0.1		5	V

AM ELECTRICAL CHARACTERISTICS

PARAMETER	MIN	TYP	MAX	UNIT
Receiving frequency range				
AM Mode USA	520		1720	kHz
AM Mode Europe	153		6295	kHz
AM Mode Japan	522		1629	kHz
Sensitivity for S/N = 10 dB		4.0		μ V
S + N/N at high RF input		50		dB
4 kHz Audio roll-off		2.1		dB
THD + N				
Normal condition		0.35		%
RF Input = 104 dB μ V		0.6		%
Image rejection		81		dB
IF Rejection		86		dB
Selectivity		12.5		kHz
Cross modulation		104		dB μ V
In-band mixing		68		dB μ V
Wideband AGC		94		dB μ V
Field strength output (RF In = 60 dB μ V)		2.7		V

FM ELECTRICAL CHARACTERISTICS

PARAMETER	MIN	TYP	MAX	UNIT
Receiving frequency range				
FM Mode USA	87.5		108.1	MHz
FM Mode Europe	87.5		108	MHz
FM Mode Japan	76		90	MHz
Sensitivity for S/N = 30 dB		1.4		μ V
S + N/N (Deviation = 75 kHz)		74		dB
THD + N				
Deviation = 75 kHz		0.1		%
RF Input = 4 μ V, deviation = 75 kHz		1.1		%
Image rejection		58		dB
IF Rejection		108		dB
Channel selectivity (200 kHz)		73		dB
Channel selectivity (400 kHz)		80		dB
Three-signal intermodulation		64		dB
AM Suppression		58		dB
Field strength output (RF In = 60 dB μ V)		2.8		V

MECHANICAL CHARACTERISTICS

PARAMETER	MEASUREMENT	UNIT
Length	56.9	mm
Width	41.9	mm
Height	17.4	mm

World Headquarters • Microtune, Inc., 2201 Tenth Street, Plano, TX 75074 • Tel: 972-673-1600, Fax: 972-673-1602, E-mail: sales@microtune.com, Web site: www.microtune.com

European Headquarters • Microtune GmbH and Co. KG, Marie Curie Strasse 1, 85055 Ingolstadt / Germany • Tel: +49-841-9378-011, Fax: +49-841-9378-010, Sales Tel: +49-841-9378-020, Sales Fax: +49-841-9378-024

Pan-Asian Headquarters • Microtune, Inc. - Hong Kong, Silvercord Tower 1, Room 503, 30 Canton Road, Kowloon, Hong Kong • Tel: +852-2378-8128, Fax: +852-2302-0756

For a detailed list of current sales representatives, visit our Web site at www.microtune.com.

The information in this document is believed to be accurate and reliable. Microtune assumes no responsibility for any consequences arising from the use of this information, nor from any infringement of patents or the rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or other rights of Microtune. The information in this publication replaces and supersedes all information previously supplied, and is subject to change without notice. The customer is responsible for assuring that proper design and operating safeguards are observed to minimize inherent and procedural hazards. Microtune assumes no responsibility for applications assistance or customer product design.

The devices described in this document are not authorized for use in medical, life-support equipment, or any other application involving a potential risk of severe property or environmental damage, personal injury, or death without prior express written approval of Microtune. Any such use is understood to be entirely at the user's risk.

Microtune, MicroTuner, MicroModule, and the Microtune logo are trademarks of Microtune, Inc. All other trademarks belong to their respective companies.

Microtune's products are protected by one or more of the following U.S. patents: 5,625,325; 5,648,744; 5,717,730; 5,737,035; 5,739,730; 5,805,988; 5,847,612; 6,100,761; 6,104,242; 6,144,402; 6,163,684; 6,169,569; 6,177,964; and additional patents pending or filed.

Entire contents Copyright © 2001 Microtune, Inc.

