



# TDA18250HN

## Cable Silicon Tuner

Rev. 6 — 22 December 2011

Product short data sheet

## 1. General description

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The TDA18250 is a silicon tuner IC designed specifically for high definition cable Set-Top Boxes (STB) supporting single streaming.

Used in conjunction with a digital channel demodulator, the TDA18250 covers all worldwide digital cable standards.

- The TDA18250 ensures a low system cost as:
  - Costly components such as low-noise amplifiers, Surface Acoustic Wave (SAW) filters are eliminated from the system BOM
- The TDA18250 high-performance silicon tuner meets today's digital cable TV reception needs with:
  - Low power consumption
  - High linearity
  - Low noise figure
- The TDA18250 ensures ease of use with:
  - Easy on-board integration
  - Efficient and effective PCB design
  - Reduced external components

## 2. Features and benefits

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- RF frequency coverage up to 1002 MHz
- Integrated wideband gain control
- LOW IF (LIF) output
- Single 3.3 V power supply
- Low power consumption
- Multistandard cable receptions
- Fully integrated IF selectivity, eliminating the need for external SAW filters
- RF Loop-Through (LT)
- Enhanced RF and IF filters to increase selectivity and adjacent channels filtering
- Alignment free
- Fully integrated oscillators:
  - ◆ No external oscillator components for reduced cost
  - ◆ 16 MHz crystal oscillator output buffer for single crystal applications
- Supports 2 tuner functions specifically aimed for PVR boxes:
  - ◆ 1 × RF output to drive slave tuner



- I<sup>2</sup>C-bus provides:
  - ◆ 3.3 V microcontroller compatibility
  - ◆ Received Signal Strength Indicator (RSSI) data access
  - ◆ Die temperature sensor data access
- Lead-free (Pb) manufacturing

### 3. Quick reference data

**Table 1. Quick reference data**

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$f_{RF}$	RF frequency	edge	42	-	1002	MHz
$P_{i(max)}$	maximum input power		-	106	-	dB $\mu$ V
$NF_{tun}$	tuner noise figure	maximum gain				
		$f_{RF}$ from 42 MHz to 862 MHz	-	5	6	dB
		$f_{RF} > 862$ MHz	-	5.5	-	dB
$\phi_n$	phase noise	worst case in the RF frequency range				
		10 kHz	-	-85	-	dBc/Hz
		100 kHz	-	-105	-	dBc/Hz
P	power dissipation		-	0.91	-	W
$\alpha_{image}$	image rejection		50	62	-	dB

### 4. Ordering information

**Table 2. Ordering information**

Type number	Package		
	Name	Description	Version
TDA18250HN/C1	HVQFN48	plastic thermal enhanced very thin quad flat package; no leads; 48 terminals; body 7 × 7 × 0.85 mm	SOT619-1

5. Block diagram

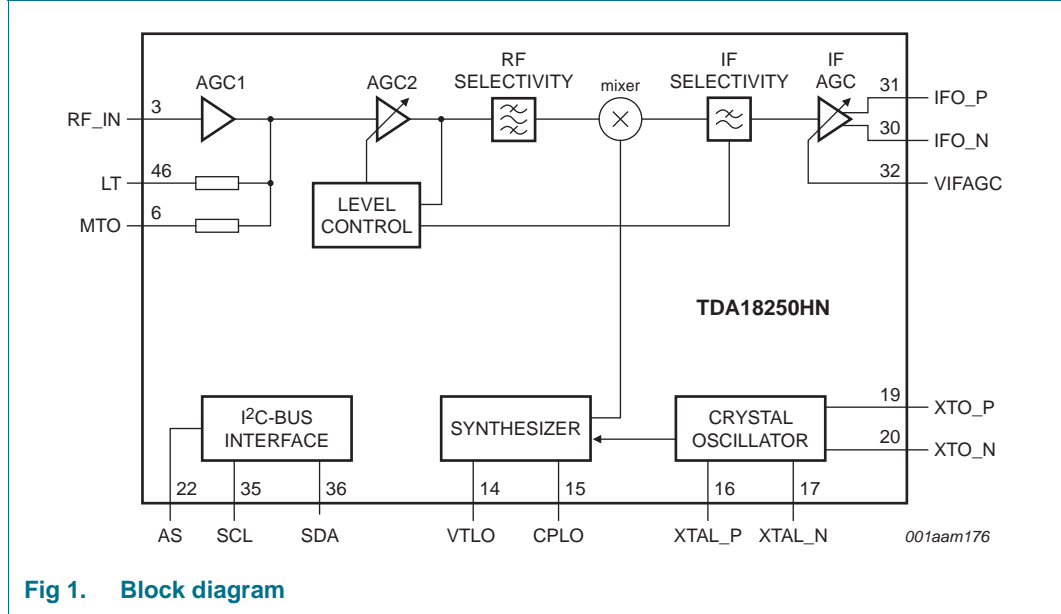


Fig 1. Block diagram

6. Limiting values

Table 3. Limiting values

In accordance with the Absolute Maximum Rating System (IEC 60134).

Symbol	Parameter	Conditions	Min	Max	Unit
V <sub>CC</sub>	supply voltage		-0.3	+3.6	V
V <sub>I</sub>	input voltage	V <sub>CC</sub> < 3.3 V	-0.3	V <sub>CC</sub> + 0.3	V
		V <sub>CC</sub> > 3.3 V	-0.3	+3.6	V
V <sub>ESD</sub>	electrostatic discharge voltage	EIA/JESD22-A114 (HBM)	2	-	kV
		EIA/JESD22-C101-C (FCDM) [1]	1.5	-	kV

[1] It withstands class IV of JEDEC standard.

7. Abbreviations

Table 4. Abbreviations

Acronym	Description
AGC	Automatic Gain Control
BOM	Bill Of Materials
FCDM	Field-induced Charged Device Model
HBM	Human Body Model
IC	Integrated Circuit
IF	Intermediate Frequency
JEDEC	Joint Electron Device Engineering Council
LIF	LOW IF

**Table 4.** Abbreviations ...continued

Acronym	Description
LT	Loop-Through
PCB	Printed-Circuit Board
PVR	Personal Video Recorder
RF	Radio Frequency
RSSI	Received Signal Strength Indicator
SAW	Surface Acoustic Wave
SCL	Serial CLock
SDA	Serial DAta
STB	Set-Top Box

## 8. Revision history

**Table 5.** Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
TDA18250HN_SDS v.6	20111222	Product short data sheet	-	TDA18250HN_SDS v.5
Modifications:	<ul style="list-style-type: none"> <li>• <a href="#">Section 1</a>: updated</li> <li>• <a href="#">Section 2</a>: updated</li> <li>• <a href="#">Table 1</a>: updated</li> </ul>			
TDA18250HN_SDS v.5	20110615	Product short data sheet	-	TDA18250HN_SDS v.4
TDA18250HN_SDS v.4	20110504	Preliminary short data sheet	-	TDA18250HN_SDS v.3
TDA18250HN_SDS v.3	20110413	Preliminary short data sheet	-	TDA18250HN_SDS v.2
TDA18250HN_SDS v.2	20110114	Preliminary short data sheet	-	TDA18250HN_SDS v.1
TDA18250HN_SDS v.1	20100812	Objective short data sheet	-	-

## 9. Legal information

### 9.1 Data sheet status

Document status <sup>[1][2]</sup>	Product status <sup>[3]</sup>	Definition
Objective [short] data sheet	Development	This document contains data from the objective specification for product development.
Preliminary [short] data sheet	Qualification	This document contains data from the preliminary specification.
Product [short] data sheet	Production	This document contains the product specification.

[1] Please consult the most recently issued document before initiating or completing a design.

[2] The term 'short data sheet' is explained in section "Definitions".

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