



TDA18250HN

Cable Silicon Tuner

Rev. 6 — 22 December 2011

Product short data sheet

1. General description

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

- 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



- I²C-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 μ 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
ϕ_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
α_{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

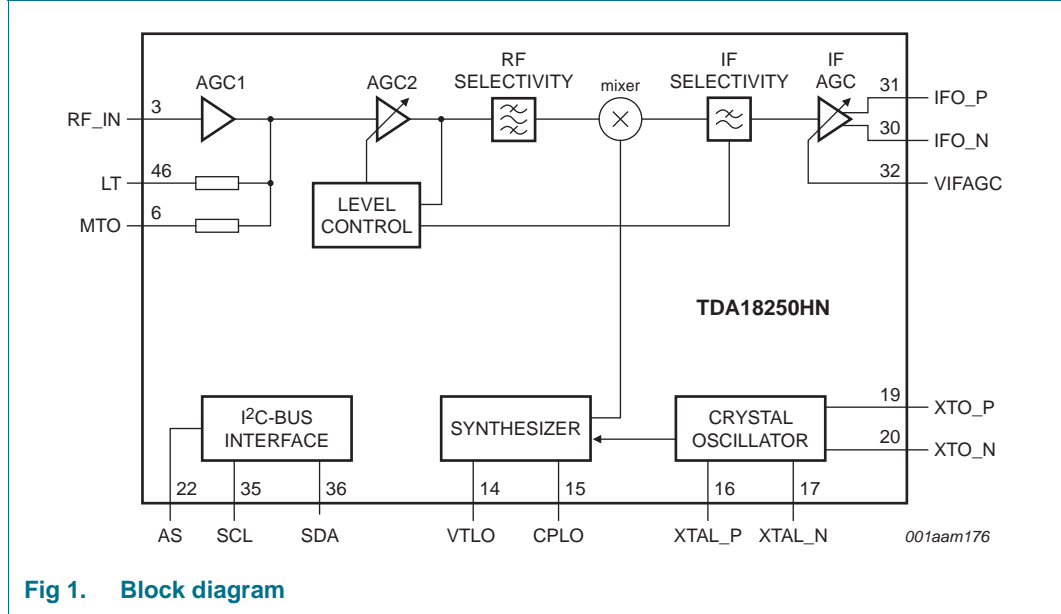


Fig 1. Block diagram

6. Limiting values

Table 3. Limiting values

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

Symbol	Parameter	Conditions	Min	Max	Unit
V_{CC}	supply voltage		-0.3	+3.6	V
V_I	input voltage	$V_{CC} < 3.3\text{ V}$	-0.3	$V_{CC} + 0.3$	V
		$V_{CC} > 3.3\text{ V}$	-0.3	+3.6	V
V_{ESD}	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"> • Section 1: updated • Section 2: updated • Table 1: updated 			
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 ^{[1][2]}	Product status ^[3]	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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11. Tables

Table 1. Quick reference data	2	Table 4. Abbreviations	3
Table 2. Ordering information	2	Table 5. Revision history	4
Table 3. Limiting values	3		

12. Figures

Fig 1. Block diagram	3
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13. Contents

1	General description	1
2	Features and benefits	1
3	Quick reference data	2
4	Ordering information	2
5	Block diagram	3
6	Limiting values	3
7	Abbreviations	3
8	Revision history	4
9	Legal information	5
9.1	Data sheet status	5
9.2	Definitions	5
9.3	Disclaimers	5
9.4	Trademarks	6
10	Contact information	6
11	Tables	7
12	Figures	7
13	Contents	8

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