TDA18250HN

Cable Silicon Tuner

Rev. 1 — 12 August 2010 Objective data sheet

1. General description

The TDA18250HN is a Silicon Tuner IC designed specifically for high definition cable Set Top Boxes (STB) supporting single streaming.

Used in conjunction with the TDA10024HN (digital channel demodulator), the TDA18250HN covers all worldwide digital cable standards.

- The TDA18250HN 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 TDA18250HN high-performance Silicon Tuner meets today's digital cable TV reception needs with:
  - Low power consumption
  - High linearity
  - Low noise figure
- The TDA18250HN 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 860 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
- I^2C-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	-	862	MHz
$P_{i(max)}$	maximum input power		-	106	-	dBμV
NF_{tun}	tuner noise figure	maximum gain	-	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		52	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

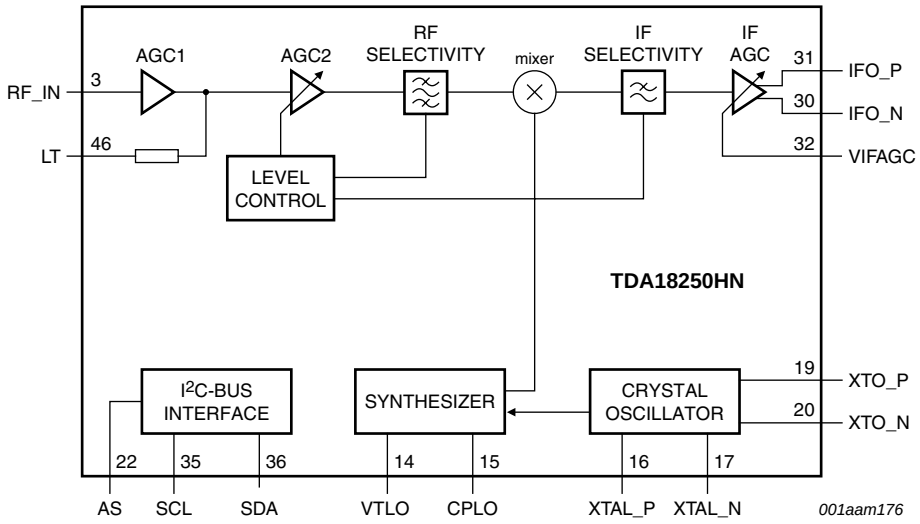

Fig 1. Block diagram

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	+3.60	V
V_I	input voltage	V_{CC} < 3.3 V		–0.3	V_{CC} + 0.3	V
		V_{CC} > 3.3 V		–0.3	+3.6	V
T_{stg}	storage temperature			–40	+150	°C
T_j	junction temperature			-	115	°C
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 Charge Device Model
HBM	Human Body Model
IC	Integrated Circuit
IF	Intermediate Frequency

Table 4. Abbreviations *...continued*

Acronym	Description
JEDEC	Joint Electron Device Engineering Council
LIF	LOW IF
PCB	Printed Circuit Board
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.1	20100812	Objective 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

12. Figures

13. Contents

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Date of release: 12 August 2010
Document identifier: TDA18250HN_SDS