



# TDA18252HN

## Cable Silicon Tuner

Rev. 3 — 16 August 2010

Product data sheet

## 1. General description

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The TDA18252HN is a single-chip direct conversion Silicon Tuner IC designed for digital-only cable applications.

The TDA18252HN integrates a loop-through feature that enables the RF input signal to be used as an output for another downconverter. This feature simplifies the application and reduces the Bill Of Materials (BOM).

- The TDA18252HN ensures a low system cost as:
  - Costly components such as low-noise amplifiers, Surface Acoustic Wave (SAW) filters and incremental crystal oscillators are eliminated from the system BOM
- The TDA18252HN high-performance Silicon Tuner meets today's digital cable TV reception needs with:
  - Low power consumption
  - High linearity
  - Low noise figure
- The TDA18252HN 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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- Single 3.3 V power supply
- Low power consumption
- Extended frequency coverage of up to 1002 MHz
- Digital cable reception for STB
- RF loop-through
- Fully integrated IF selectivity; eliminating the need for external SAW filters
- Alignment free
- Fully integrated oscillator with no external components
- Integrated wideband gain control
- Crystal oscillator output buffer (16 MHz) for single crystal applications
- I<sup>2</sup>C-bus provides:
  - ◆ 3.3 V and 5 V microcontroller compatibility
  - ◆ Received Signal Strength Indicator (RSSI) data access
  - ◆ Die temperature sensor data access



- ◆ Addressing of up to four tuners in a system
- Lead-free manufacturing

### 3. Quick reference data

Table 1. Quick reference data

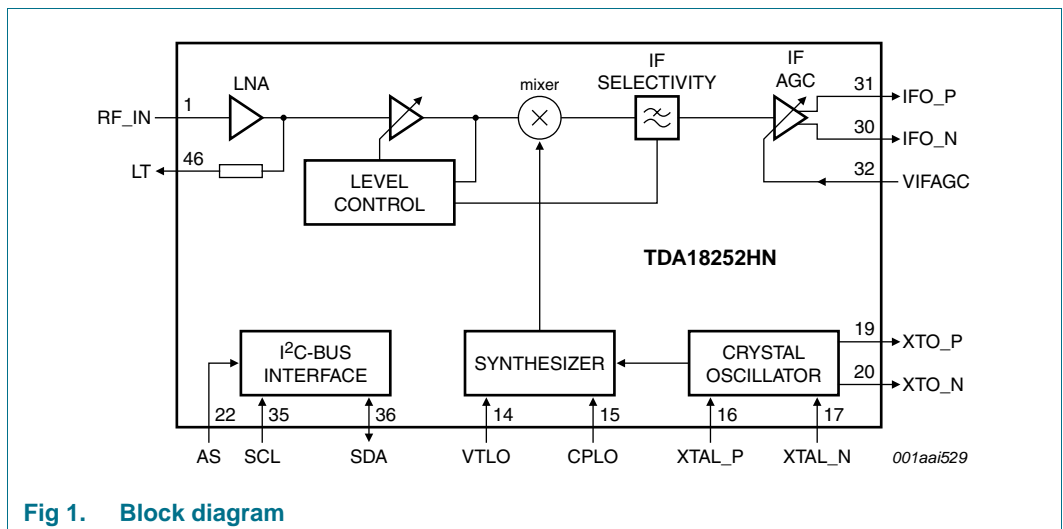
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$f_{RF}$	RF frequency	center of channel	54	-	1002	MHz
$NF_{tun}$	tuner noise figure	maximum gain; normal mode	-	7	8.5	dB
$\phi_n$	phase noise	worst-case in the RF frequency range				
		10 kHz	-	-85	-	dBc/Hz
		100 kHz	-	-105	-	dBc/Hz
P	power dissipation	normal mode	-	750	-	mW
$\alpha_{image}$	image rejection	normal mode	55	62	-	dB

### 4. Ordering information

Table 2. Ordering information

Type number	Package		Version
	Name	Description	
TDA18252HN/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



## 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	pins SDA and SCL	-0.3	+5.5	V
		all other pins			
		$V_{CC} < 3.3\text{ V}$	-0.3	$V_{CC} + 0.3$	V
		$V_{CC} > 3.3\text{ V}$	-0.3	+3.6	V
$T_{stg}$	storage temperature		-40	+150	°C
$T_j$	junction temperature		-	95	°C
$V_{ESD}$	electrostatic discharge voltage	EIA/JESD22-A114 (human body model)	2	-	kV
		EIA/JESD22-A115 (machine model)	200	-	V

## 7. Abbreviations

**Table 4. Abbreviations**

Acronym	Description
AGC	Automatic Gain Control
IC	Integrated Circuit
ID	Identity
IF	Intermediate Frequency
LNA	Low-Noise Amplifier
PCB	Printed-Circuit Board
RF	Radio Frequency
SAW	Surface Acoustic Wave
STB	Set-Top Box

## 8. Revision history

**Table 5. Revision history**

Document ID	Release date	Data sheet status	Change notice	Supersedes
TDA18252HN_SDS v.3 <sup>[1]</sup>	20100816	Product data sheet	-	-

[1] Revisions 1 and 2 are not available.

## 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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