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TDA18254AHN

Cable Silicon Tuner

Rev. 4 — 10 May 2011

Product short data sheet

1. General description

The TDA18254AHN is a Silicon Tuner IC designed specifically for high definition multi-tuner cable Set Top Boxes (STB) supporting single streaming and multi-streaming PVR STBs with watch, record, Video-On-Demand (VOD) and in-home video distribution capability.

Used in conjunction with the TDA10024HN (digital channel demodulator), the TDA18254AHN covers all worldwide digital cable standards.

- The TDA18254AHN 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 TDA18254AHN high-performance Silicon Tuner meets today's digital cable TV reception needs with:
 - Same level of performance for master and slave tuners
 - Low power consumption
 - High linearity
 - Low noise figure
- The TDA18254AHN ensures ease of use with:
 - Easy on-board integration
 - Efficient and effective PCB design
 - Reduced external components

2. Features and benefits

- Supports 4 tuner functions specifically aimed for PVR boxes:
 - ◆ 1 × low IF output
 - ◆ 3 × RF outputs to drive slave tuners
- Integrated wideband gain control
- Extended frequency coverage up to 1002 MHz
- Integrated RF tracking filters for rejection of unwanted signals
- Single 3.3 V power supply
- Low power consumption
- Multistandard cable receptions
- Enhanced RF and IF filters to increase selectivity and adjacent channels filtering
- RF loop-through
- Fully integrated IF selectivity, eliminating the need for external SAW filters



- Alignment free
- Fully integrated oscillators:
 - ◆ No external oscillator components for reduced cost
 - ◆ 16 MHz crystal oscillator output buffer for single crystal applications
- 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	51	-	1002	MHz
NF_{tun}	tuner noise figure	maximum gain	-	7.5	8.5	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		55	62	-	dB

4. Ordering information

Table 2. Ordering information

Type number	Package		
	Name	Description	Version
TDA18254AHN/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

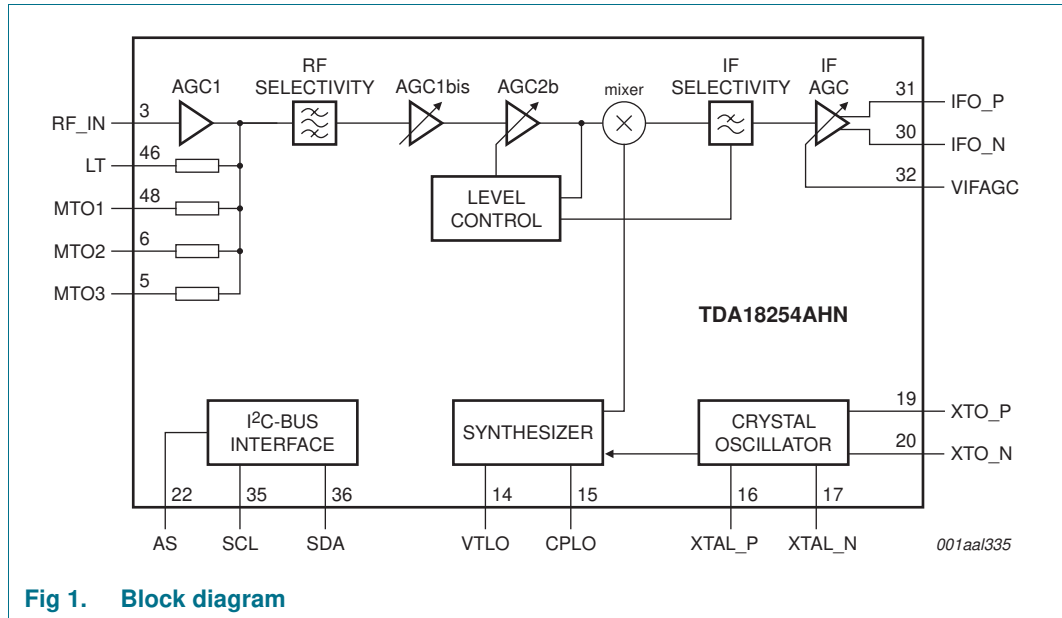


Fig 1. Block diagram

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	$V_{CC} < 3.3\text{ V}$	-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		-	105	°C
V_{ESD}	electrostatic discharge voltage	EIA/JESD22-A114 (human body model)	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
IC	Integrated Circuit
ID	Identity

Table 4. Abbreviations ...continued

Acronym	Description
IF	Intermediate Frequency
JEDEC	Joint Electron Device Engineering Council
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
XTAL	Crystal

8. Revision history

Table 5. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
TDA18254AHN_SDS v.4	20110510	Product short data sheet	-	TDA18254AHN_SDS v.3
Modifications:	<ul style="list-style-type: none"> • Figure 1: updated 			
TDA18254AHN_SDS v.3 ^[1]	20100913	Product short data sheet	-	-

[1] Revisions 1 and 2 are not available.

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".

[3] The product status of device(s) described in this document may have changed since this document was published and may differ in case of multiple devices. The latest product status information is available on the Internet at URL <http://www.nxp.com>.

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