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# TDA18273HN

Hybrid (analog and digital) Silicon Tuner for terrestrial and cable TV reception

Rev. 3 — 10 May 2011

Product short data sheet

## 1. General description

The TDA18273HN is a high performance Silicon Tuner designed for terrestrial and cable TV reception for both analog and digital signals.

The TDA18273HN supports all analog and digital TV standards and delivers a LOW IF (LIF) signal to a demodulator for analog TV and/or a channel demodulator for digital TV.

## 2. Features and benefits

- Fully integrated IF selectivity; eliminating the need for external SAW filters
- Worldwide multistandard terrestrial and cable
- Fully integrated oscillators
- Alignment free
- Single 3.3 V supply voltage
- Power level detector
- Integrated wideband gain control
- Crystal oscillator output buffer (16 MHz) for single crystal applications
- I<sup>2</sup>C-bus interface compatible with 3.3 V microcontrollers
- Self AGC synchronization mode (VSYNC)
- Very fast tuning time
- LIF channel center frequency output ranging from 3 MHz to 5 MHz
- 1.7 MHz, 6 MHz, 7 MHz, 8 MHz and 10 MHz channel bandwidths
- Ready for DVB-T2 and DVB-C2
- RoHS compliant
- Strong immunity to spurious and field interferences

## 3. Quick reference data

Table 1. Quick reference data

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$f_{RF}$	RF frequency	full range of RF input	42	-	870	MHz
$NF_{tun}$	tuner noise figure	75 $\Omega$ source; maximum gain	-	4.0	4.6	dB
$\phi_{jit}$	phase jitter	UHF; integrated from 250 Hz to 4 MHz	-	0.4	0.6	degree



Table 1. Quick reference data ...continued

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$\alpha_{\text{image}}$	image rejection	worst case for image rejection, at 4 MHz IF frequency and for image levels above 60 dB $\mu$ V	57.5	63	-	dB
CSO	composite second-order distortion	worst interferer over RF frequency with respect to wanted carrier	[1]	-	-60	-55 dBc
CTB	composite triple beat	worst interferer over RF frequency with respect to wanted carrier for frequency $\leq$ 550 MHz	-	-65	-60	dBc
		worst interferer over RF frequency with respect to wanted carrier for frequency $>$ 550 MHz	-	-	-55	dBc
ICP <sub>1dB</sub>	1 dB input compression point	at tuner input and minimum gain	122	-	-	dB $\mu$ V

[1] Channel loading assumptions: 129 channels at 75 dB $\mu$ V each.

## 4. Ordering information

Table 2. Ordering information

Type number	Package		
	Name	Description	Version
TDA18273HN/C1	HVQFN40	plastic thermal enhanced very thin quad flat package; no leads; 40 terminals; body 6 × 6 × 0.85 mm	SOT618-1

5. Block diagram

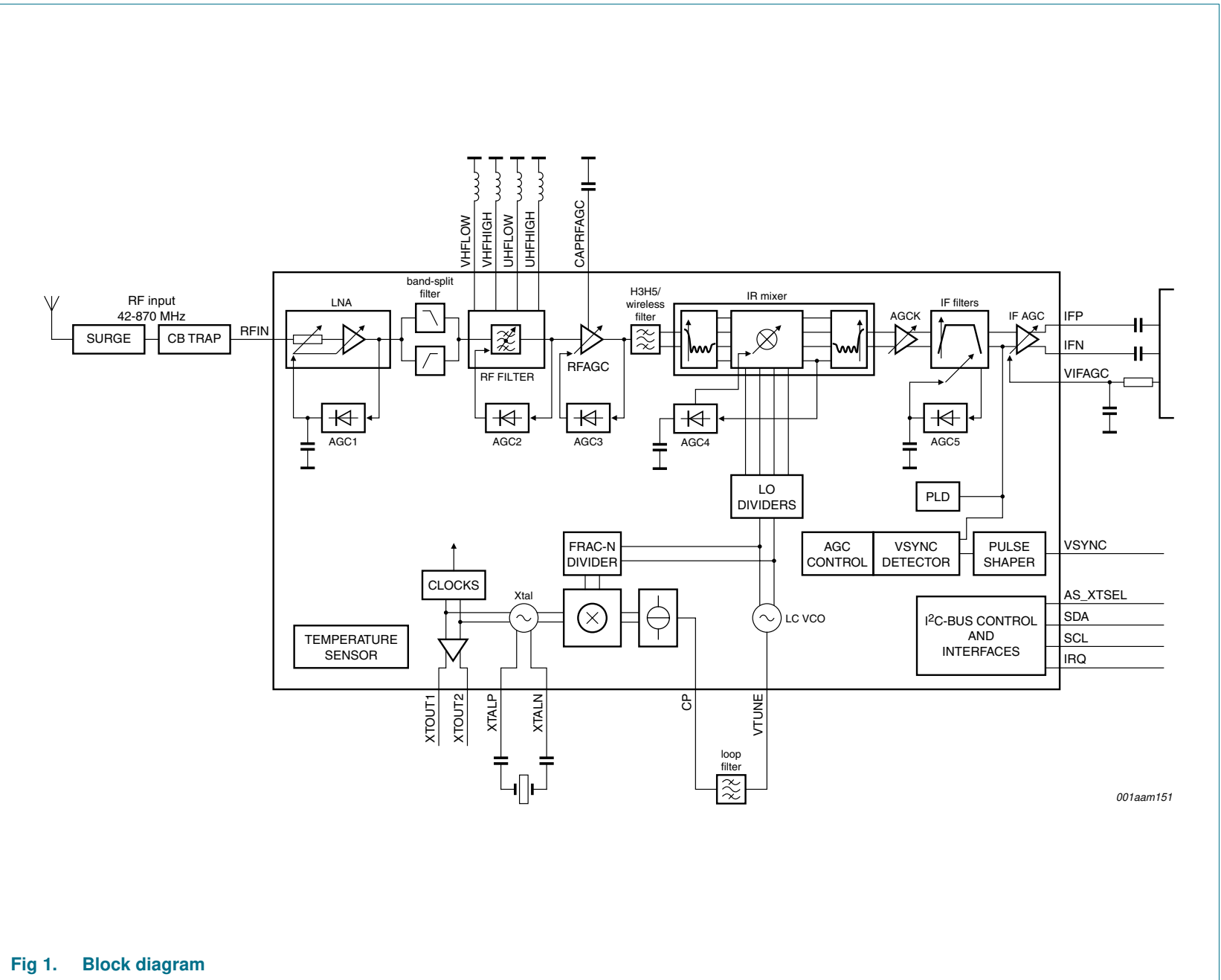


Fig 1. Block diagram

## 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
T <sub>stg</sub>	storage temperature		-40	+150	°C
T <sub>j</sub>	junction temperature		-	125	°C
T <sub>amb</sub>	ambient temperature		-20	[1]	°C
V <sub>ESD</sub>	electrostatic discharge voltage	EIA/JESD22-A114 (HBM)	-2	+2	kV
		EIA/JESD22-C101-C (FCDM) class III[2]	750	-	V

[1] The maximum allowed ambient temperature T<sub>amb(max)</sub> depends on the assembly conditions of the package and especially on the design of the Printed-Circuit Board (PCB) and die connection. The application mounting must be done in such a way that the maximum junction temperature is never exceeded. The junction temperature can be obtained by reading the temperature sensor bit via I<sup>2</sup>C-bus. The junction temperature: T<sub>j</sub> = T<sub>amb</sub> + ΔT<sub>j-c</sub>, where ΔT<sub>j-c</sub> = power × R<sub>th</sub>.

[2] Class III: 500 V to 1000 V.

## 7. Abbreviations

**Table 4. Abbreviations**

Acronym	Description
AGC	Automatic Gain Control
AGCK	Automatic Gain Control step Killer
CB	Citizen Band
DVB	Digital Video Broadcasting
DVB-T/T2/C/C2/H	DVB-Terrestrial/Terrestrial second generation/Cable/Handheld
FCDM	Field-induced Charged-Device Model
FRAC-N	Fractional-N
HBM	Human Body Model
IF	Intermediate Frequency
IR	Image Rejection
LC-VCO	Inductors and Capacitors - Voltage Controlled Oscillator
LNA	Low-Noise Amplifier
LO	Local Oscillator
PCB	Printed-Circuit Board
PLD	Power Level Detector
RF	Radio Frequency
RoHS	Restriction of Hazardous Substances
SAW	Surface Acoustic Wave
UHF	Ultra High Frequency

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

Acronym	Description
VHF	Very High Frequency
VSYNC	Vertical SYNChronization
Xtal	Crystal

## 8. Revision history

Table 5. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
TDA18273HN_SDS v.3	20110510	Product short data sheet	-	TDA18273HN_SDS v.2
TDA18273HN_SDS v.2 <sup>[1]</sup>	20101215	Preliminary short data sheet	-	-

[1] Revision 1 is 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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