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^2C-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 Ω source; maximum gain	-	4.0	4.6	dB
φ_{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
α_{image}	image rejection	worst case for image rejection, at 4 MHz IF frequency and for image levels above 60 dBμV		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 ≤ 550 MHz		-	–65	–60	dBc
		worst interferer over RF frequency with respect to wanted carrier for frequency > 550 MHz		-	-	–55	dBc
ICP_{1dB}	1 dB input compression point	at tuner input and minimum gain		122	-	-	dBμV

[1] Channel loading assumptions: 129 channels at 75 dBμV 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

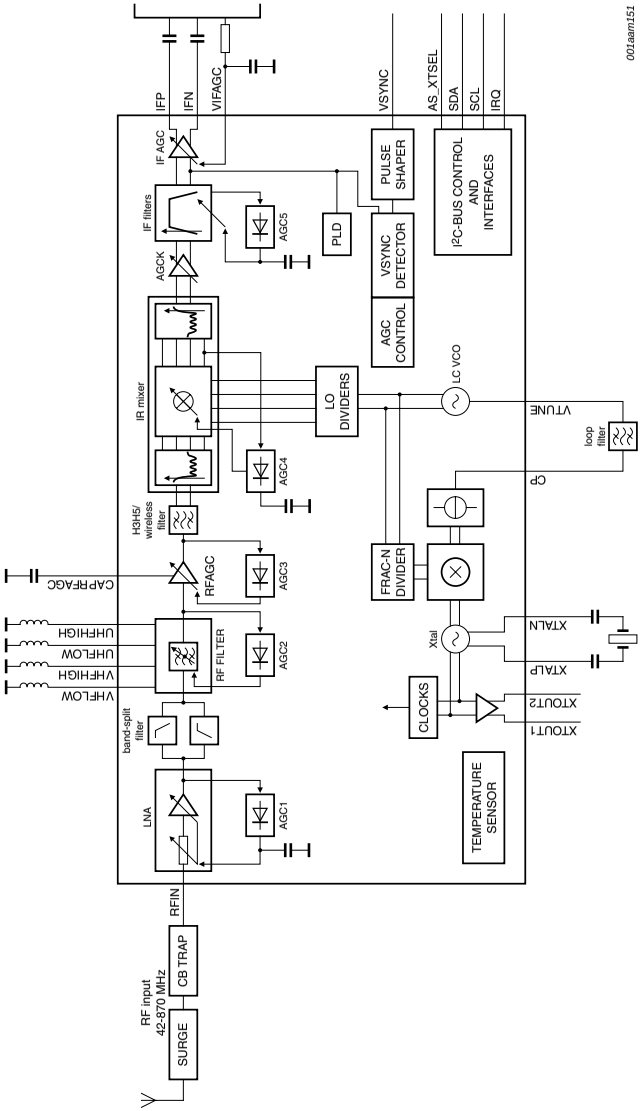

Fig 1. Block diagram

6. Limiting values

Table 3. Limiting values

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

Symbol	Parameter	Conditions	Min	Max	Unit
V_{CC}	supply voltage		−0.3	+3.6	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		-	125	°C
T_{amb}	ambient temperature		−20	[1]	°C
V_{ESD}	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 $T_{amb(max)}$ 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^2C-bus. The junction temperature: $T_j = T_{amb} + \Delta T_{j-c}$. where ΔT_{j-c} = power × R_{th}.

[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[1]	20101215	Preliminary short data sheet	-	-

[1] Revision 1 is 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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Date of release: 10 May 2011
Document identifier: TDA18273HN_SDS