TDA18291HN

Low power DVB / T tuner

Rev. 01 — 28 August 2007 Product short data sheet

1. General description

The TDA18291HN is a BiCMOS integrated circuit receiver intended for digital TV reception for low power applications (e.g. mobile phone and PDA).

The tuner is designed for the terrestrial digital video broadcast (DVB-T standard) and handheld DVB standard (DVB-H standard). It operates in the VHFIII and UHF band (174 MHz to 230 MHz and 470 MHz to 862 MHz) and contains all the functions needed for a whole receiver chain from (RF) input to baseband IQ outputs: LNA, quadrature mixer, channel filters and a complete RF PLL with a fully integrated VCO. The PLL can operate from a number of reference frequencies, fitting almost any mobile platform.

The tuner has been designed for low power mobile applications. Power consumption has been optimized and a dedicated on-off pin has been added to allow for fast switching, and thus reduce power, in time-sliced applications. To reduce the footprint of the application, the number of external components has been minimized and the tuner is available in a HVQFN32 package (5 mm × 5 mm).

2. Features

- 150 mW power consumption in DVB-T mode
- 4 dB noise figure
- Direct conversion ZIF architecture
- 174 MHz to 230 MHz and 470 MHz to 862 MHz tuning range
- Low noise, wide dynamic receiver
- Fully integrated balanced LNA
- Fully integrated channel filters with built-in self-calibration
- Fully integrated fractional N frequency synthesizer
- Fully integrated VCO
- I^2C-bus controllable
- Dedicated pin for DVB-H time slicing control
- 19.2 MHz, 26 MHz and 38.4 MHz reference frequency compliant
- HVQFN32 package (5 mm × 5 mm)

3. Quick reference data

Table 1. Quick reference data

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V_{CCA}	analog supply voltage		2.6	2.8	3.0	V
V_{CCD}	digital supply voltage		1.6	1.8	2.0	V
I_{CCA}	analog supply current	Normal mode	-	54	-	mA
I_{CCD}	digital supply current		-	0.6	-	mA
$V_{o(dif)(p-p)}$	peak-to-peak differential output voltage		-	1.0	1.4	V
$f_{-3dB(lpf)}$	low-pass filter cut-off frequency		3.8	4.0	4.2	MHz
ΔG_{AGC}	AGC gain range		-	60	-	dB
T_{amb}	ambient temperature		–30	+25	+70	°C

4. Ordering information

Table 2. Ordering information

Type number	Package		
	Name	Description	Version
TDA18291HN/C1	HVQFN32	plastic thermal enhanced very thin quad flat package; no leads; 32 terminals; body $5 \times 5 \times 0.85$ mm	SOT617-1

5. Block diagram

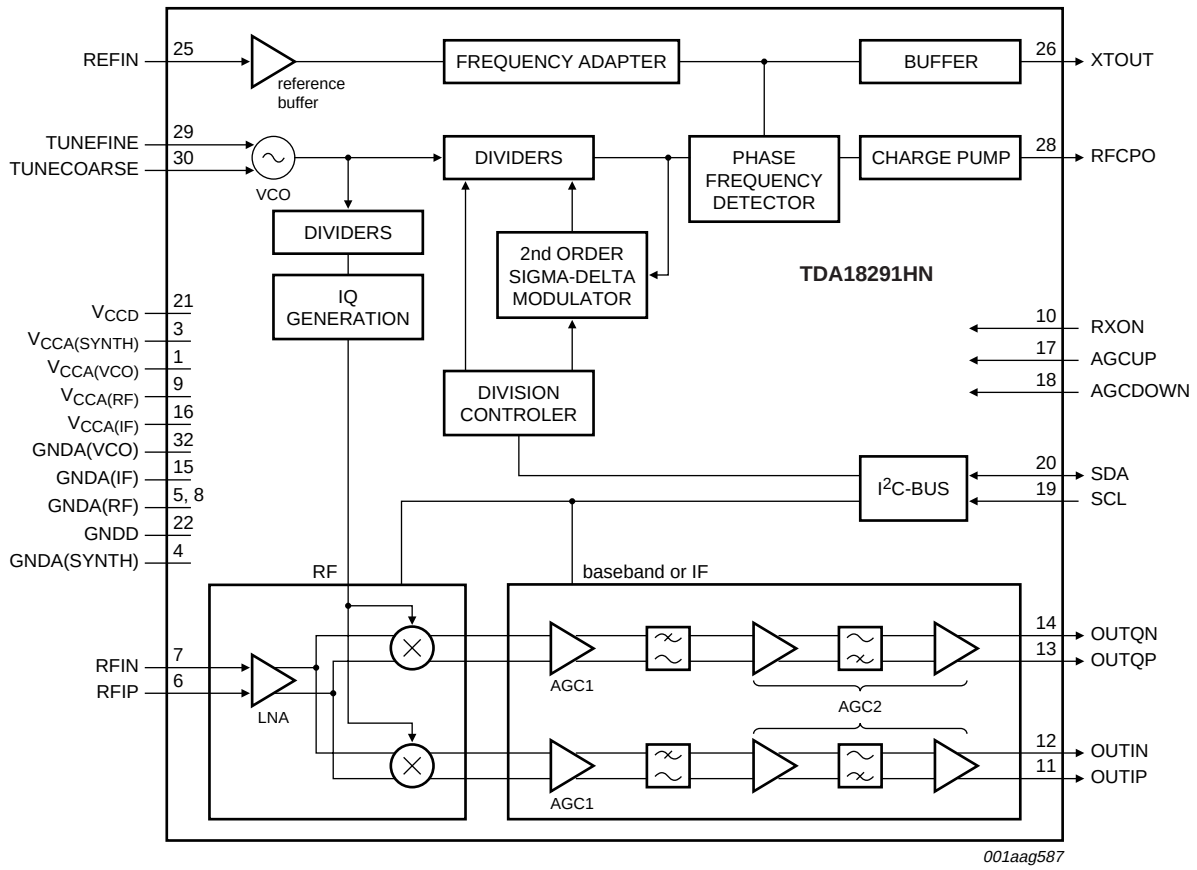

Fig 1. Block diagram

6. Limiting values

Table 3. Limiting values

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

Symbol	Parameter	Conditions		Min	Max	Unit
V_{CCA}	analog supply voltage			-	3.0	V
V_{CCD}	digital supply voltage			-	2.0	V
T_{amb}	ambient temperature			–30	+85	°C
T_{stg}	storage temperature			–55	+150	°C
V_{esd}	electrostatic discharge voltage	HBM	[1]	-	±2000	V
		MM	[2]	-	±200	V

[1] JEDEC Standard JESD22-A114E, ESD sensitivity testing Human Body Model (HBM).

[2] JEDEC Standard JESD22-A115-A, ESD sensitivity testing Machine Model (MM).

7. Abbreviations

Table 4. Abbreviations

Acronym	Description
AGC	Automatic Gain Control
BiCMOS	Bipolar Complementary Metal Oxide Semiconductor
DVB-H	Digital Video Broadcasting - Handheld
DVB-T	Digital Video Broadcasting - Terrestrial
ESD	ElectroStatic Discharge
HBM	Human Body Model
HVQFN	Heatsink Very thin Quad Flat package No leads
IQ	In-phase Quadrature
LNA	Low Noise Amplifier
MM	Machine Model
PDA	Personal Digital Assistant
PLL	Phase-Locked Loop
RF	Radio Frequency
UHF	Ultra High Frequency
VCO	Voltage Controlled Oscillator
ZIF	Zero Intermediate Frequency

8. Revision history

Table 5. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
TDA18291HN_1	20070828	Product short 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".

[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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11. Contents

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