STVVGLNA

General-purpose, variable-gain, low-noise, RF amplifier for broadcast receiver applications

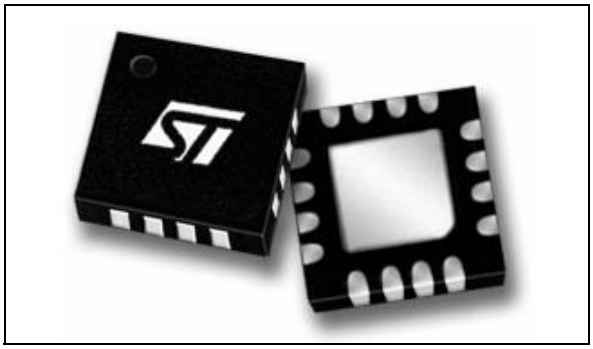
Data brief

Features

- 75-Ω single-ended input impedance
- 75-Ω single-ended or 150-Ω differential output impedance
- Dual differential or single-ended outputs
- Single 3.3-V DC supply
- Input frequency range 50 to 2150 MHz
- Fully integrated RF AGC with power monitoring
- Low external component count
- Low power consumption (145 mW typical)
- Temperature range -35 °C to 85 °C
- Compatible with 5-V and 3.3-V I^2C bus
- I^2C bus control (option)
- Four selectable I^2C addresses C8,CA,CC,CE

Applications

- Satellite set-top boxes
- SMATV RF accessories
- LNBs
- DVB-T active indoor antennas



Package

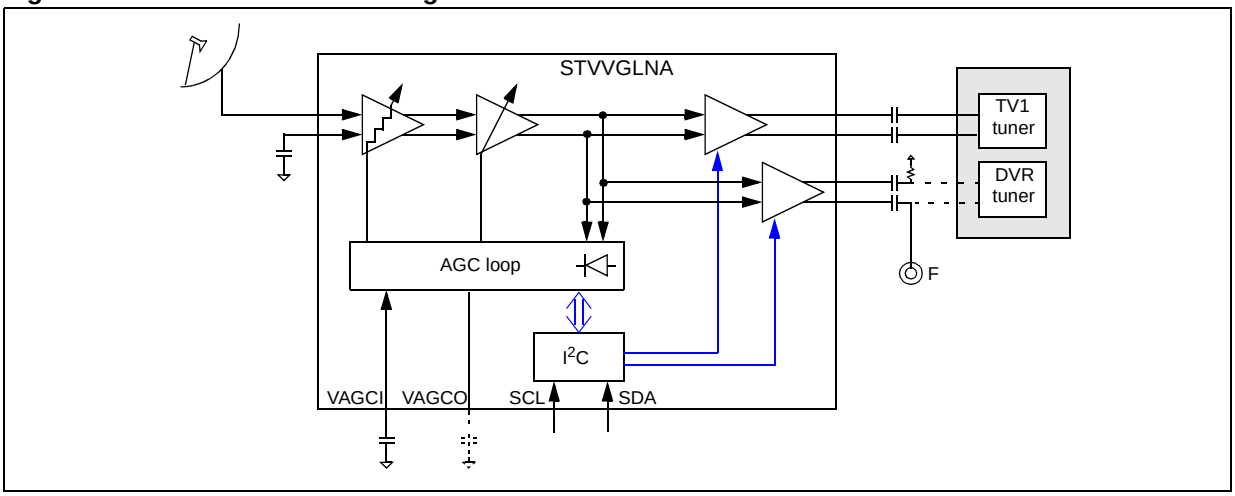
- VFQFPN-16L 3x3x0.85 mm^3 with exposed pad down (EPD)
- Environmentally friendly packaging, RoHS (2002/95/EC) compliant.

Description

The STVVGLNA is a general-purpose, low-noise amplifier with a gain range of -17 dB to +15 dB. Its gain is regulated either autonomously by an integrated AGC loop or by software control.

It can be used, for example, as an input amplifier for a satellite set-top box.

Figure 1. STVVGLNA block diagram



1 Introduction

The STVVGLNA is a front-stage amplifier designed for set-top boxes. It has high input power dynamic range to allow the optimization of sensitivity and linearity requirements.

The STVVGLNA has several operating modes suitable for different signal conditions:

- automatic wide-band mode, internal AGC (the default mode)
- semi-automatic wide-band mode, internal AGC
- fixed gain mode, no AGC
- variable gain with external AGC (driven by demodulator, for example)

The mode of operation is programmable via the I^2C bus.

The STVVGLNA also provides a RF-signal-level indication which may be interrogated via the I^2C bus. This is useful for installation and status information.

At power-on, the STVVGLNA starts in automatic and autonomous AGC mode so that it can operate in satellite set-top boxes, LNBs or SMATV accessories without any software assistance.

Features	Benefits
Active amplitude compensation and balanced/differential operation.	Simplified RF layout and increased robustness to interference.
Four AGC/Gain programmable operating modes.	Flexible AGC strategy.
Programmable via I2C bus.	The device can be µP controlled.
Wide range of input frequencies.	Applications range from satellite receivers down to VHF antenna amplifiers.
Low component count plus tiny package with exposed pad.	Small BOM and minimal use of PCB area.
Pre programmed automatic wide-band internal AGC mode.	No micro processor is required if the STVVGLNA is to be used in default mode.

2 Ordering information

Table 1. Device summary

Order code	Temperature range	Package	Packaging
STVVGLNA	-35 to 85 °C	VFQFPN-16L EPD	Tray
STVVGLNAT	-35 to 85 °C	VFQFPN-16L EPD	Reel

3 Revision history

Table 2. Document revision history

Date	Revision	Changes
01-Jun-2011	1	Initial release.

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