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 I²C bus
- i²C bus control (option)
- Four selectable i²C addresses C8,CA,CC,CE

Applications

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

Package

- VFQFPN-16L 3x3x0.85 mm³ with exposed pad down (EPD)

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.
# 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.

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

Table 1. Device summary

<table>
<thead>
<tr>
<th>Order code</th>
<th>Temperature range</th>
<th>Package</th>
<th>Packaging</th>
</tr>
</thead>
<tbody>
<tr>
<td>STVVGLNA</td>
<td>-35 to 85 °C</td>
<td>VFQFPN-16L EPD</td>
<td>Tray</td>
</tr>
<tr>
<td>STVVGLNAT</td>
<td>-35 to 85 °C</td>
<td>VFQFPN-16L EPD</td>
<td>Reel</td>
</tr>
</tbody>
</table>

3 Revision history

Table 2. Document revision history

<table>
<thead>
<tr>
<th>Date</th>
<th>Revision</th>
<th>Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>01-Jun-2011</td>
<td>1</td>
<td>Initial release.</td>
</tr>
</tbody>
</table>
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