

TDA827x

Based on a revolutionary concept, the TDA827x silicon tuner family frees manufacturers from many of the constraints of traditional RF design. This comprehensive silicon tuner family for cable modem, digital STB and analog PC-TV reception offers the necessary selectivity for all targeted applications.



Applications

- DOCSIS and EuroDOCSIS cable modems
- Digital Set Top Boxes
- Analog TV reception on PCs

Common features

- Real Silicon tuner approach: only 30 SMD components for the Bill of Material (BOM)
- Wideband low noise RF amplifier with AGC
- Integrated and Programmable Selectivity
- RF splitter with 2 separate outputs (-2 / +6 dB)
- RF filter
- Image rejection mixer stage
- Fully integrated VCO
- RSSI signal indicator, +/- 0.5 dB relative accuracy (3 dB absolute value), no calibration needed
- Integrated 16 MHz crystal oscillator and output buffer to channel decoder or other tuner
- I²C bus controlled
- Temperature range: -20 to + 70°C

Silicon Tuner Family

Semiconductors

The TDA827x silicon tuner family offers a very simple tuner solution for cable modem, digital STB and analog PC-TV reception, enabling incredible simplifications in TV design. Its patented technology and highly innovative architecture reduces external component count, providing an extremely cost effective silicon tuner that is easier and quicker to design in than any other comparable solution in today's market.

A giant leap forward in RF integration, the TDA827x features an embedded low noise input amplifier and an image rejection mixer for processing RF signals and downconverting to low IF signals, which are then filtered before being sent to the channel decoder or IF demodulator. It offers optimal partitioning of functions at the system level, removing the need for both SAW filters or IF amplifiers.

This family also features a fully integrated VCO that has no external tank component, an RF splitter with two separate outputs and an RSSI signal indicator embedded on the IC. All this integration results in very low power consumption for the TDA827x, removing the need for an external heat sink and further simplifying design-in efforts.

A complete family

The TDA827x family is a complete range of silicon tuners, featuring dedicated devices for a wide range of applications:

- TDA8270HN: US STB or cable modem applications
- TDA8271HN: Rest of the world STB and cable modem applications
- TDA8274HN: Multi standard STB and cable modem applications*
- TDA8275HN: Terrestrial analog reception for PC-TV application

* This version allows the STB or cable modem manufacturer to build a multi-standard platform able to address the global market.

Power: 3.3V, 1.29 W (typical)

Package: MLF 40 pins 6 x 6 mm HVQFN40

PHILIPS

TDA827x

Silicon Tuner Family



Silicon Tuner reference designs

Together with Philips' channel and video decoder products, the TDA827x silicon tuner family enables manufacturers to create efficient and cost effective solutions for all STB and PC-TV markets across the world. Helping manufacturers get to market fast with new solutions, Philips offers full reference system solutions for the low-end STB market and PC-TV applications.

Low-end STB market

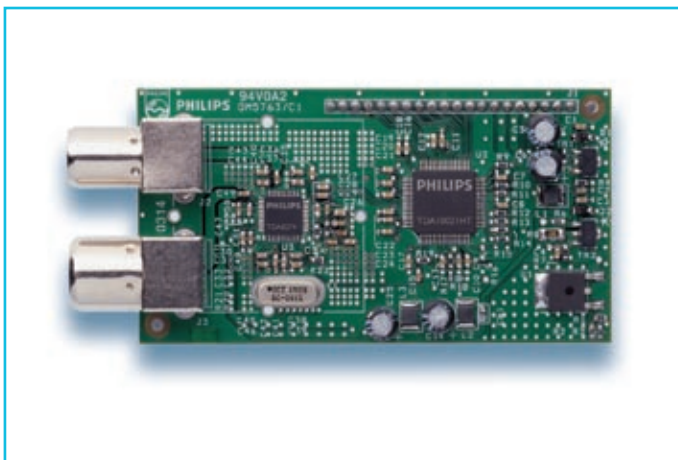
With the expansion of the Chinese and Indian market, low-end cable TV will soon become a mass volume market, where cost and integration will be the key factors in successful designs. Specifically addressing this emerging market, Philips offers two complete reference designs based on four distinct Philips products:

- A multi-standard low-end cable STB reference design: TDA8274HN (6/7/8 MHz Silicon tuner) + TDA10023HT (Demodulator + FEC decoder Annex A/B/C)
- A European / Asian low-end cable STB reference design: TDA8271HN (7/8 MHz Silicon tuner) + TDA10021HT (Demodulator + FEC decoder Annex A/C).

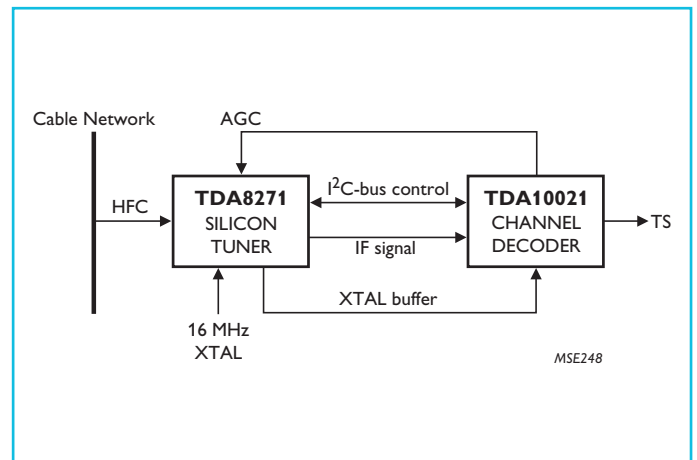
These reference designs integrate all the functionality needed for a low-end STB (complete front end with loop through). They enable manufacturers to easily design highly attractive and fully featured products with a high level of performance, providing them with a significant competitive advantage in today's consumer markets.

Key features

- Two distinct solutions for multi- standard or European/Asian market
- Embedded LNA and loop through
- High Level of performance
 - Required C/N to achieve Quasi Error Free (QEF) reception 31.3 (24.6) dB max in 256 (64) QAM (8MHz bandwidth / Annex A)
- Low BOM delivers cost effective system solution (no SAW filters, only 30 SMD components needed for the silicon tuners)
- Power level indicators allow very fast band scanning



Low-end cable STB reference design

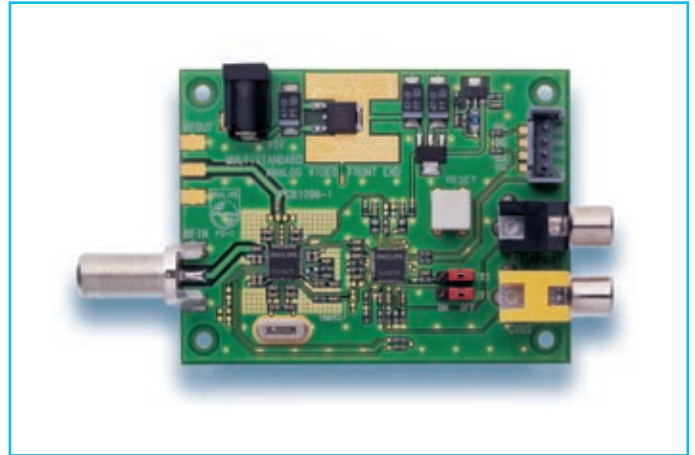


PC TV applications

With the launch of the new Windows XP media center, the market for TV reception on PCs is booming. In comparison with STB designs, significantly higher levels of integration are required for PC TV solutions. With their high level of integration, Philips' silicon tuners are ideal for this market and also enable new applications in the PC world such as integration into notebooks and laptops. In addition, they offer the possibility to build applications with dual or triple tuner functions for PVR systems or multiple channel recorders.

Philips has two complete reference designs tailored specifically for PC TV applications. The first is based on the TDA8275, a silicon tuner developed specifically for this market, in conjunction with the brand new TDA8290 multi-standard IF demodulator. With this chipset, PC and notebook manufacturers have access to an ultra compact front end able to handle all terrestrial analogue standards (NTSC/PAL/SECAM) outputting a conventional CVBS and Sound IF output. Based on an IP developed for cable modems, the TDA8275 implements the RSSI function, which is a fast measurement system of a selected channel. This function allows, by S/W control, a fast scanning of the whole TV band, an automatic selection of a given input power and the elimination of poor or far away transmitters. Unwanted channels will be then blanked to blue screen. Thus the installation process can be drastically shortened (an advantage for portable notebook based applications).

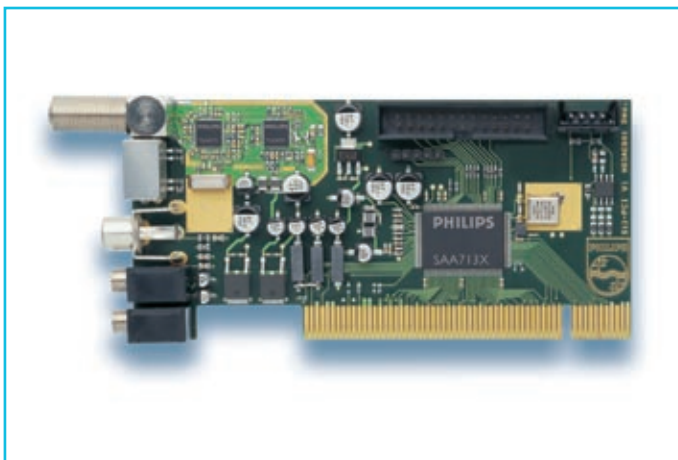
The second is a full reference design for PCI card manufacturers. It combines the TDA8275 and TDA8290 with the SAA7133 video decoder and PCI bridge IC. This full chipset and reference design allows PCI card manufacturers to go rapidly to market with a single ultra competitive card able to cope with all analogue TV standards.



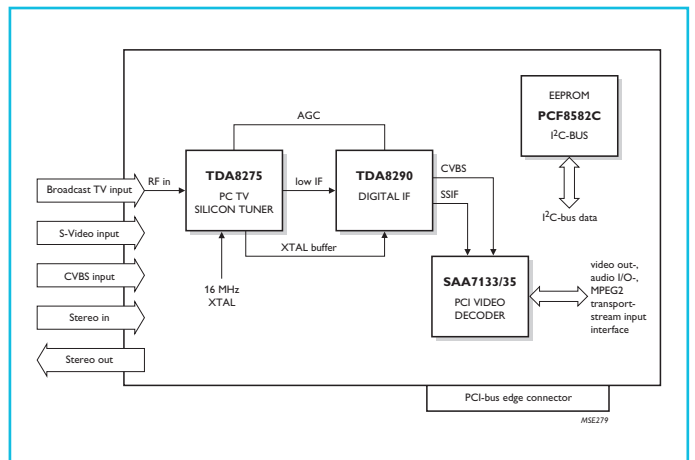
Front end reference design

Key features

- High level of integration allow multiple tuner applications and notebook implementation
- Embedded loop through for PVR applications
- Multi-standard solution programmable by software (no need to change tuner from one region to another)
- Power level indicators allow very fast band scanning
- Cost effective system solution compared to conventional CAN approach
- Low profile (size 50 x 120 mm) possible for PCI board

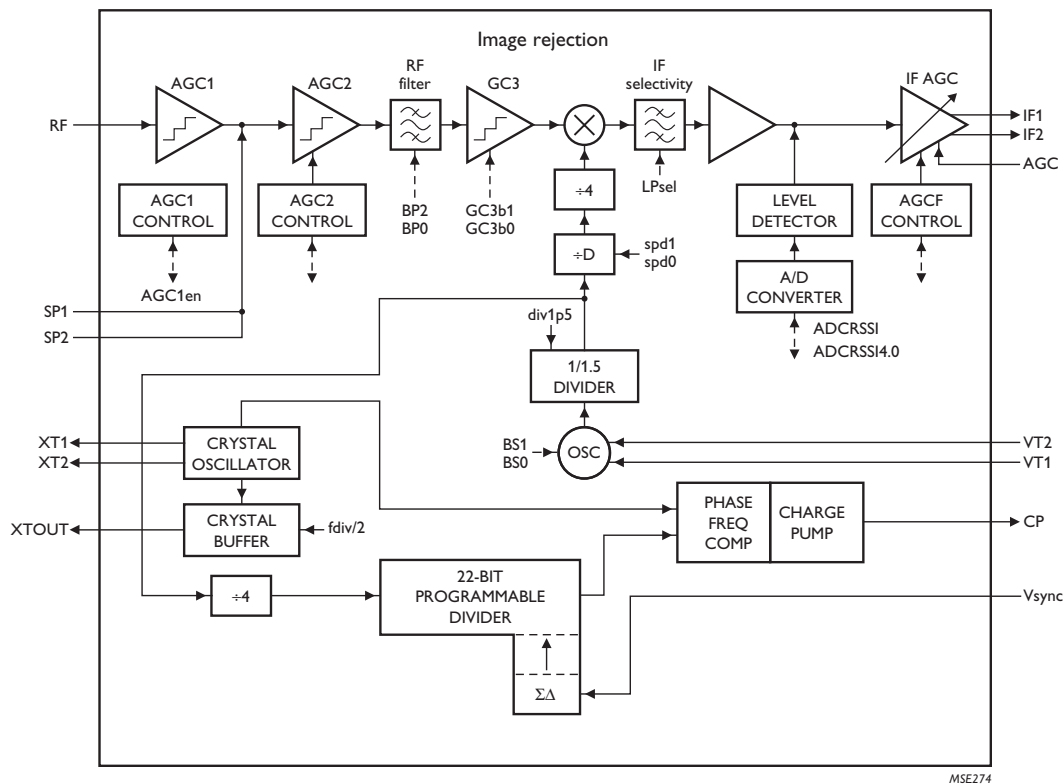


PCI card reference design



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Silicon Tuner Family



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