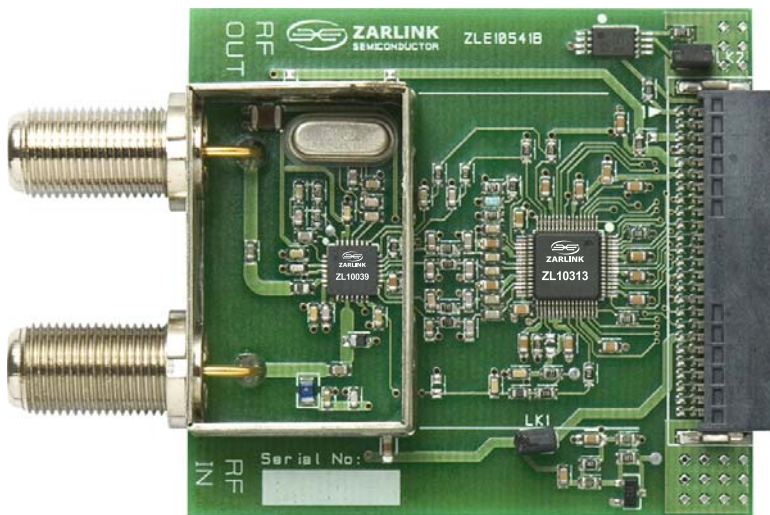


## PRODUCT PREVIEW

The ZLE10541 is a complete front-end reference design for reception of digital satellite TV signals. Targetted primarily at FTA (free-to-air) applications where front-end sensitivity is a priority, the design combines Zarlink's high sensitivity ZL10039 satellite tuner with the ZL10313 digital demodulator.

The ZLE10541 reference design allows customers to quickly and cost effectively evaluate and implement a front end for a DVB-S (digital video broadcast-satellite) satellite receiver. The ZL10039 satellite tuner chip integrates an LNA (low noise amplifier), which means that the sensitivity requirements of FTA receivers can be achieved without the need for an external amplifier. This simplifies the design, making it ideal for implementation directly onto the receiver motherboard.

### ZLE10541 Reference Design



#### ZLE10541 Evaluation Board

- ➔ Compact 2-layer FR4 circuit board with RF input and output, 2-wire serial interface, MPEG and control interface and power supply connectors.
- ➔ Includes serial bus to PC adaptor
- ➔ Active area of design measures 35 mm x 46 mm
- ➔ All components used are available in production quantities

#### Applications

- ➔ 1 – 45 MSps DVB-compliant satellite receivers
- ➔ SMATV (Satellite Master Antenna TV) transmodulators
- ➔ Data and satellite PC implementations

#### A Complete Two-Chip DVB-S Compliant FTA Reference Design

- ➔ High sensitivity tuner for FTA performance without external LNA
- ➔ Easily integrated onto motherboard for maximum cost saving
- ➔ Low power consumption (<1 W maximum)
- ➔ Full software support with minimal host overhead required
- ➔ Very fast blind scan capability
- ➔ Self-contained BERT (bit error rate test)
- ➔ Operation from 1 – 45 MSps for all code rates
- ➔ GUI running under Microsoft Windows 98, 2000, XP and NT
- ➔ Integrated RF loop-through LNB circuitry and interactive DiSEqC 2.x support
- ➔ Fully integrated automatic “power and forget” LOs (local oscillator)
- ➔ Excellent desired/undesired channel performance
- ➔ Hardware and software user guides
- ➔ PCB Gerber files, circuit schematic and measured performance results

#### Customer Support

The ZLE10541 reference design is available for qualified customers, and is supported by Zarlink's network of in-house field application and design engineers.

# ZLE10541 SATELLITE TV FRONT-END

## APPLICATION

### ZLE10541 Satellite Receiver Front-end

The ZLE10541 satellite receiver front-end reference design supports the growing demand for high-performance, cost-effective motherboard-based satellite receiver solutions. Based on Zarlink's ZL10039 satellite tuner and ZL10313 satellite demodulator, the application board gives designers a fast and easy path to a complete satellite front-end for evaluation and integration into a receiver.

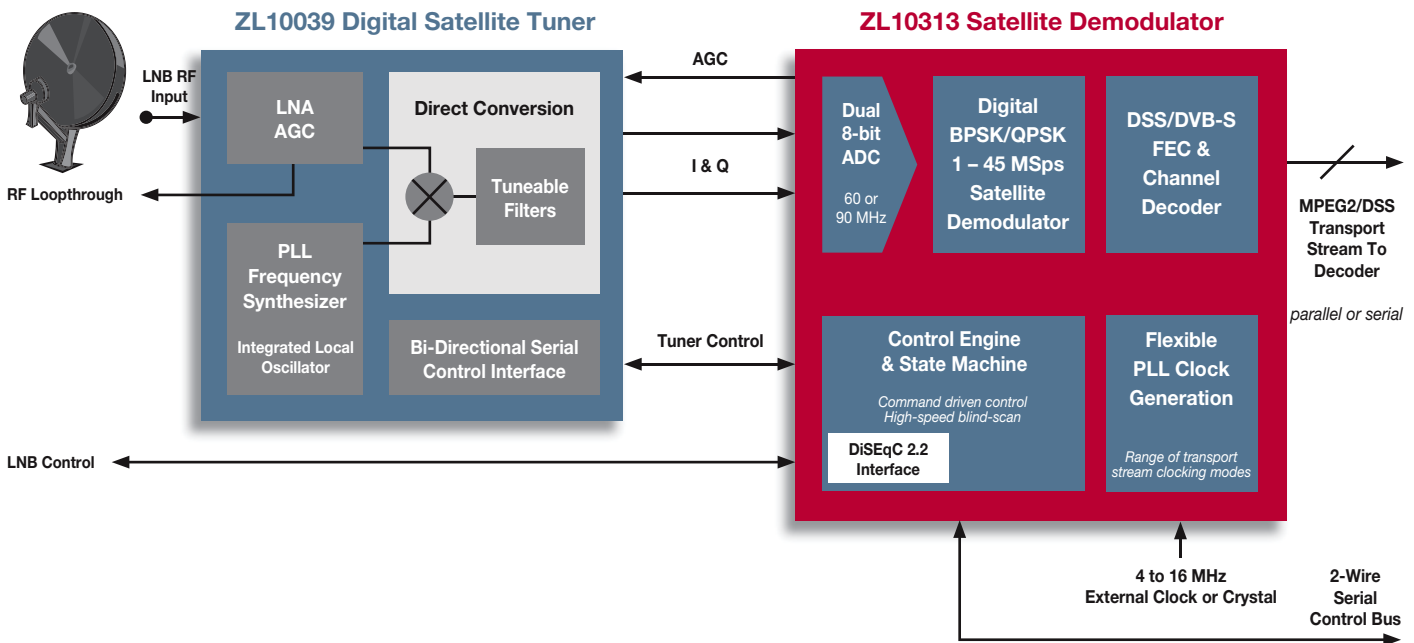
An additional interface board, the ZLE10590, provides an LVDS (low voltage differential signaling) buffered set of MPEG outputs, allowing high-speed MPEG data to be transmitted to test equipment over relatively long leads (>2 m). It also provides DiSEqC controlled voltages for the control of a remote LNB (low noise block), which can be switched for horizontal/vertical polarization, with a superimposed 22 kHz signal for DiSEqC 2.x messaging.

As shown in the simplified diagram below, the ZL10039 satellite tuner with integrated RF loop-through enables scalable tuner design for PVR/DVR STB (set-top box) design and/or

cascaded STB connector. The tuner's "power and forget" integrated LO eliminates the need for time-consuming calibration or alignment. With a high desired/undesired ratio performance, the ZL10039 enables operation in the presence of adjacent channel interferers greater than 18 dB and LNB feed steps in excess of 18 dB positive or negative.

The ZL10313 provides very high speed 1 – 45 MSps auto-scan capability. The high speed scanning mode for blind frequency, symbol rate and code rate acquisition enables STBs to efficiently scan the Astra high band (11.7 to 12.75 GHz) and the 20 – 30 MSps channels in just 22 seconds.

The ZL10313 and ZL10039 together consume less than a watt of power. Both devices are equipped with a sleep pin enabling significant power reduction in stand-by mode. This ultra-low current consumption assists in compliance with ENERGY STAR® requirements.



Information relating to products and services furnished herein by Zarlink Semiconductor Inc. or its subsidiaries is believed to be reliable. The products, their specifications, services and other information appearing in this publication are subject to change by Zarlink without notice.

ZARLINK, ZL, and the Zarlink logo are trademarks of Zarlink Semiconductor Inc. ENERGY STAR is a registered trademark of the U.S. Environmental Protection Agency.

© 2005, Zarlink Semiconductor Inc. All Rights Reserved. Publication Number PP5914



[www.ZARLINK.com](http://www.ZARLINK.com)