PX5514

4 x 4 Gb/s VCSEL Driver

Product Brief

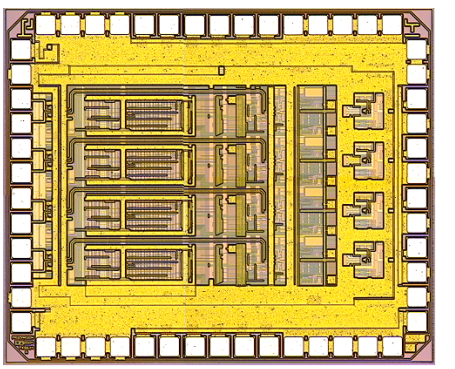
April 2006

Features

- Single +3.3 V supply dissipating 105 mW per channel
- 4-channel VCSEL driver operates from DC to 4.25 Gb/s
- Serial digital interface for global and individual channel control
- Individual channel control for enable, modulation current, bias current, and VCSEL fault control
- Adjustable temperature compensation for VCSEL bias and modulation current
- VCSEL fault detection with autonomous fault handling and interrupt
- Adjustable VCSEL peaking control
- 250-micron channel pitch matches optical ribbon fiber and VCSEL arrays
- Differential CML compatible inputs with on-chip termination

Applications

- 10GbE LX-4 optical modules
- 4-lane 4GFC, OC-48 VSR, Infiniband™ parallel optical modules
- Proprietary parallel optical modules and CWDM
- Proprietary 4-lane intra-system parallel optics



Description

The growing use of the Internet has created increasingly higher demand for multi-Gb/s I/O performance. The demand for 40+ Gb/s WAN bandwidth fuels the growth of short-reach 10 Gb/s infrastructures within high-end telco and datacom routers, switches, servers and other proprietary chassis-to-chassis links.

The Zarlink PX5514 4x4 Gb/s VCSEL Driver is a four-channel VCSEL driver designed for various 4x4 Gb/s parallel optics and CWDM PMD applications. It consists of a DC-coupled amplifier with selectable modulation and bias currents optimized for driving commercially available, common cathode VCSELs from a single +3.3 V supply.

Individual channel settings are used to control the modulation and bias current and their temperature coefficients, allowing the optical output power and extinction ratio to be optimized. Data controlling the PX5514 VCSEL driver settings is loaded by a simple four-wire CMOS compatible serial interface that features read/write and daisy chain capabilities.

Figure 1: Unfiltered 3 Gb/s optical PRBS23 data pattern.

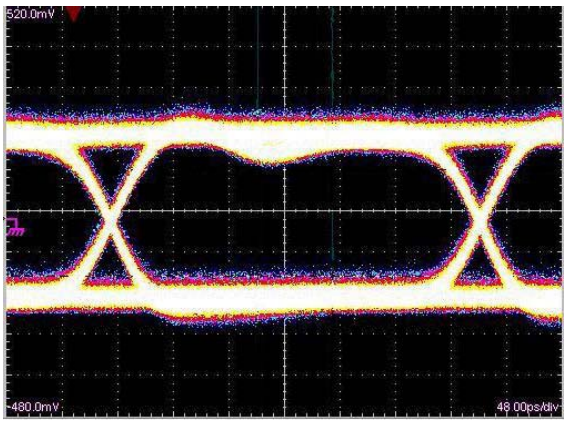
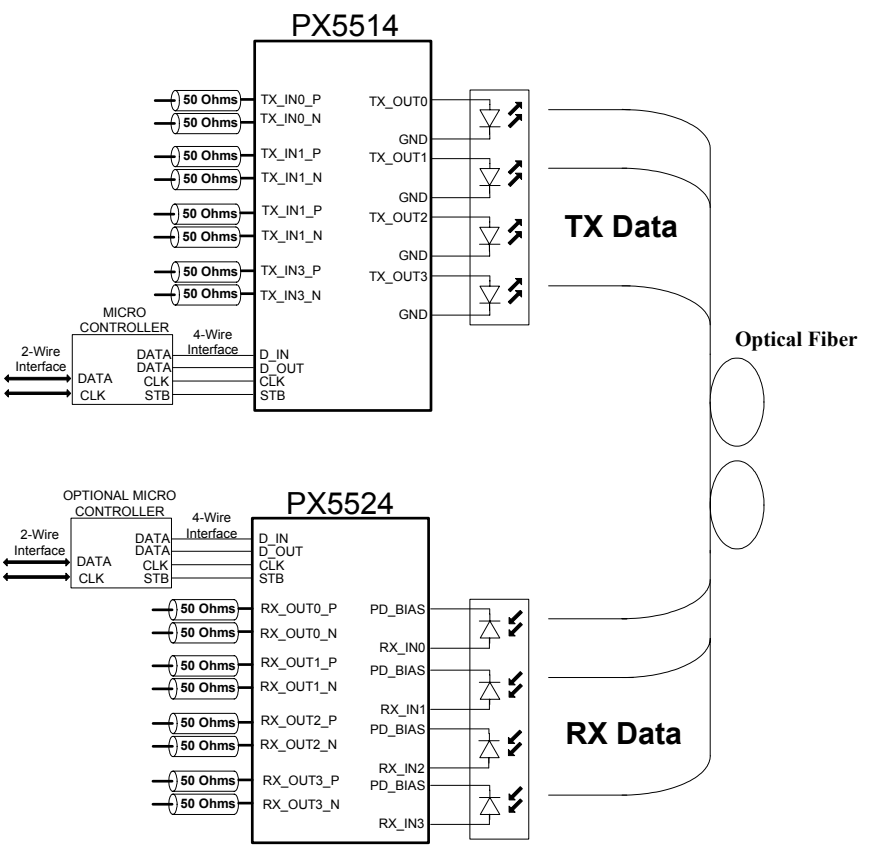


Figure 2: Application block diagram utilizing the PX5514 VCSEL driver and the PX5524 optical receiver.



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