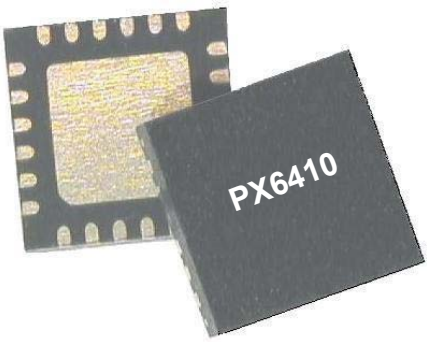
PX6410
Multi-Rate VCSEL Driver
Product Brief

September 2004



Features

- Up to 10.7 Gb/s serial VCSEL driver
- Single +3.3 V supply
- Average power control (APC) provides constant output optical power
- Digital diagnostics provided with bias, photodiode, and temperature monitors
- Independent temperature compensation for VCSEL bias and modulation current
- VCSEL fault protection limits output optical power for laser safety
- Differential CML compatible inputs with on-chip termination
- 4 mm x 4 mm QFN package

Applications

- XFP, XENPAK, X2, XPAC form factors
- 10GbE, 10GFC, 8GFC, 4GFC, OC-192
- Proprietary intra-system optics

Description

The growing use of the Internet has created increasingly higher demand for multi-Gb/s I/O performance. The demand for 10+ 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 PX6410 10 Gb/s serial VCSEL driver is designed for various 10 Gb/s PMD applications. It consists of a DC-coupled amplifier with adjustable modulation and bias currents optimized for driving commercially available VCSEL-based transmit optical sub assemblies (TOSAs) from a single +3.3 V supply.

VCSEL modulation and bias currents can be programmed by a variety of means including external resistors, programmable potentiometers or microcontroller DAC outputs. Selectable current temperature coefficients and APC feedback control allow optical output power and extinction ratio to be maintained over temperature.

Figure 1: Filtered 10.3125 Gb/s PRBS23 optical data pattern

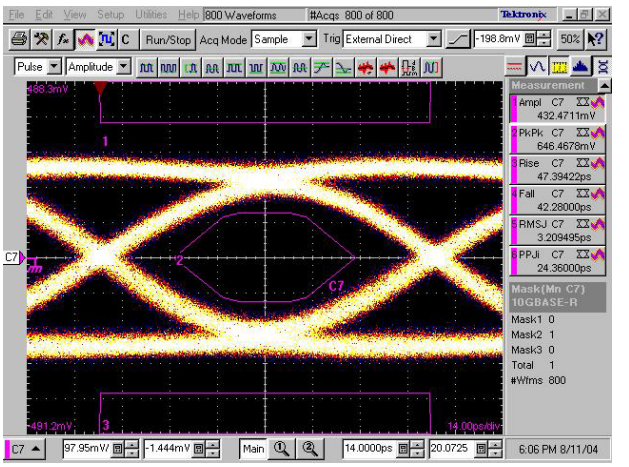


Figure 2: Typical APC closed-loop configuration using TOSA monitor photo diode to provide constant VCSEL output power. Modulation current temperature compensation also enabled to improve extinction ratio across operating temperatures.

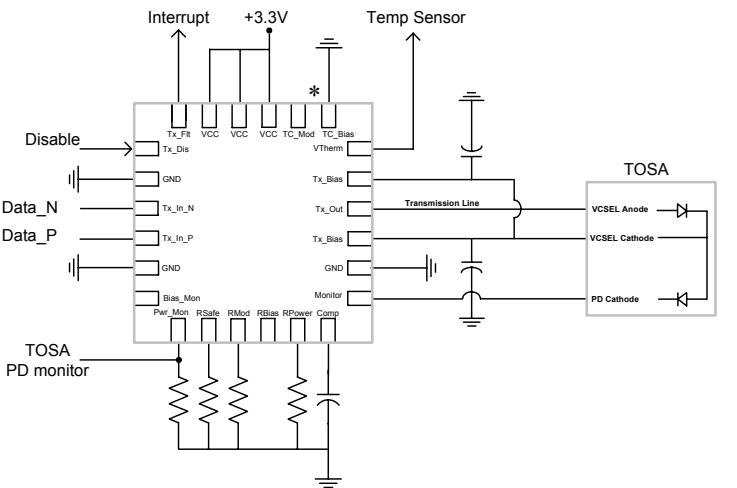
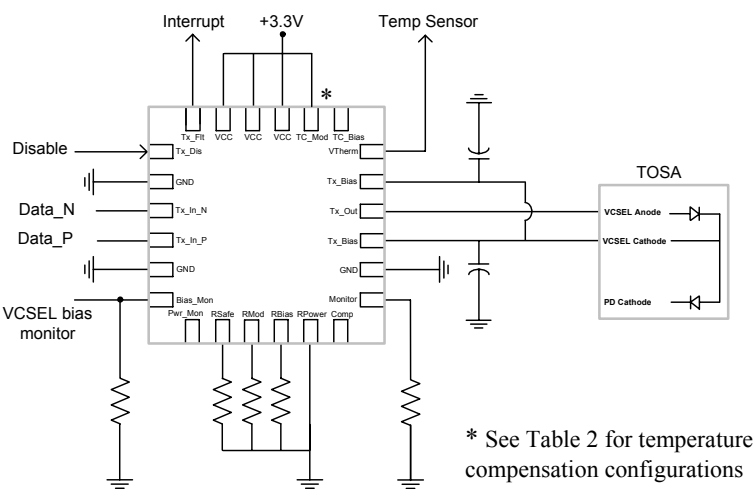


Figure 3: Typical open-loop configuration with internal temperature compensation enabled for bias and modulation currents.



* See Table 2 for temperature compensation configurations

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visit our Web Site at

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