

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.

PX6410 Product Brief

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

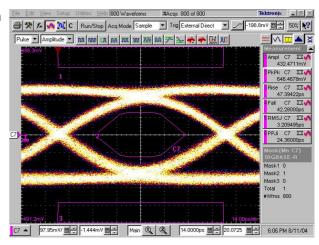


Figure 2: Typical APC closed-loop configuration using TOSA monitor photo diode to provide constant VCSEL output power. Modulation current temperature compensation also enabled to improve extinction ratio across operating temperatures.

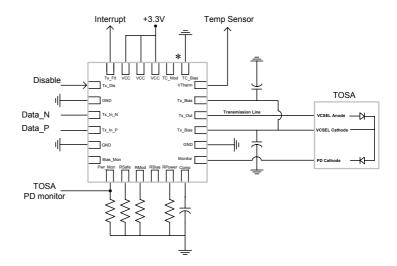
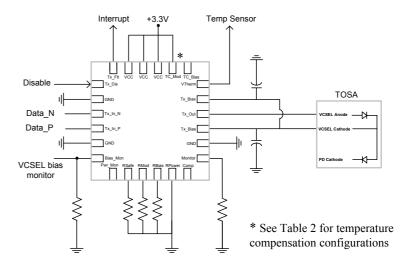


Figure 3: Typical open-loop configuration with internal temperature compensation enabled for bias and modulation currents.





For more information about all Zarlink products visit our Web Site at www.zarlink.com

Information relating to products and services furnished herein by Zarlink Semiconductor Inc. or its subsidiaries (collectively "Zarlink") is believed to be reliable. However, Zarlink assumes no liability for errors that may appear in this publication, or for liability otherwise arising from the application or use of any such information, product or service or for any infringement of patents or other intellectual property rights owned by third parties which may result from such application or use. Neither the supply of such information or purchase of product or service conveys any license, either express or implied, under patents or other intellectual property rights owned by Zarlink or licensed from third parties by Zarlink, whatsoever. Purchasers of products are also hereby notified that the use of product in certain ways or in combination with Zarlink, or non-Zarlink furnished goods or services may infringe patents or other intellectual property rights owned by Zarlink.

This publication is issued to provide information only and (unless agreed by Zarlink in writing) may not be used, applied or reproduced for any purpose nor form part of any order or contract nor to be regarded as a representation relating to the products or services concerned. The products, their specifications, services and other information appearing in this publication are subject to change by Zarlink without notice. No warranty or guarantee express or implied is made regarding the capability, performance or suitability of any product or service. Information concerning possible methods of use is provided as a guide only and does not constitute any guarantee that such methods of use will be satisfactory in a specific piece of equipment. It is the user's responsibility to fully determine the performance and suitability of any equipment using such information and to ensure that any publication or data used is up to date and has not been superseded. Manufacturing does not necessarily include testing of all functions or parameters. These products are not suitable for use in any medical products whose failure to perform may result in significant injury or death to the user. All products and materials are sold and services provided subject to Zarlink's conditions of sale which are available on request.

Purchase of Zarlink's I²C components conveys a licence under the Philips I²C Patent rights to use these components in and I²C System, provided that the system conforms to the I²C Standard Specification as defined by Philips.

Zarlink, ZL and the Zarlink Semiconductor logo are trademarks of Zarlink Semiconductor Inc.

Copyright Zarlink Semiconductor Inc. All Rights Reserved.

TECHNICAL DOCUMENTATION - NOT FOR RESALE