PARALLEL FIBER OPTIC MODULES **ZL60301/4**

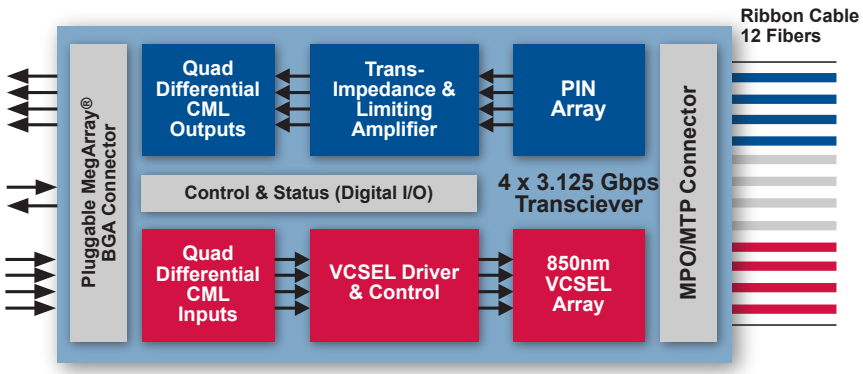
PRODUCT PREVIEW

The ZL60301/4 are 4-channel parallel fiber optic transceivers for very-short reach (VSR) interconnects within and between high-speed routers and switches, as well as within data center and high-performance computing (HPC) equipment.

Based on Zarlink's proven 850nm VCSELs and PIN arrays, the ZL60301/4 modules ensure reliable transmission while operating at a maximum throughput of 10 Gbps and 12.5 Gbps over distances of up to 300 and 90 meters, respectively. The ZL60304 device, operating at up to 3.2 Gbps per channel data rate, is the latest in Zarlink's family of parallel fiber modules to leverage the company's patented self-alignment technology, which simplifies assembly and manufacturing while reducing cost.

The ZL60301/4 comply with the latest requirements of the POP4 multi-source agreement, ensuring pin-to-pin compatibility with other 4-channel transceivers on the market. Compared to these devices, however, the ZL60301/4 consume 25% less current, thereby reducing the power dissipation, lowering operating temperature and improving reliability at the system level.

ZL60301/4 Simplified Diagram



Applications

- InfiniBand® and OC-192 VSR connections
- High-speed switches, cross-connects, routers and transport equipment
- Proprietary backplanes
- Rack-to-rack, shelf-to-shelf, board-to-board and board-to-optical backplane interconnects
- XAUI-based interconnections (ZL60304)
- High performance computing (HPC) clusters

Packaging and availability

- 100-pin BGA MegArray® connector and MPO/MTP® optical connector
- Available now in production quantities

High-Speed, Reliable Links

- Four transmit and four receive channels each operating at up to 3.125 Gbps for a maximum throughput of 12.5 Gbps
- Module designed for interfacing single data rate high speed serial I/O interfaces used in all standard programmable ICs
- Transmission range of 300 meters at 2.5 Gbps
- Channel bit error rate of 10^{-12} optimizes data integrity
- Data I/O is current-mode-logic compatible
- Third generation in-house VCSEL technology
- Excellent reliability and module lifetime of over 15 years
- Ideal as XAUI Optical Extension

Industry's Lowest Power Dissipation

- Power dissipation of 1 Watt with all channels at maximum throughput, driven by a single 3.3 V supply

Ease of Assembly

- Patented self-alignment technology automatically aligns VCSELs to fiber guide pins, simplifying module assembly and manufacturing
- Pluggable MegArray® BGA connector eases assembly, and enables provisioning of bandwidth on demand
- Integrated MPO/MTP® ribbon fiber connector interface
- Available with external heat sink, or with EMI shield and external heat sink

Eye Safety

- TüV certified as a Class 1M Laser product, compliant with IEC 60825-1:2001

Customer Support

The ZLE60300 evaluation board is available now, supplied with test fiber, SMA connectors, switches and necessary documentation. The ZL60301/4 and the ZLE60300 are supported by Zarlink's network of in-house field application and design engineers.

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ZARLINK SEMICONDUCTOR

ZL60301/4 PARALLEL FIBER OPTIC MODULES

APPLICATION

Application:

The ZL60301/4 transceivers address increasing bandwidth and board density requirements of high-end network equipment. Parallel fiber modules are ideal for VSR interconnects, since they enable higher data rates while reducing space, current consumption and cost.

The InfiniBand® interconnect illustrated below is one example of a VSR link implemented as a point-to-point interface or between servers, storage equipment and networking devices. As shown, Zarlink's ZL60301/4 can be used at every InfiniBand interface in the network, including server host channel adaptors (HCAs), switch fabrics, and target channel adaptors (TCAs) in I/O controllers for LAN/WAN and storage equipment. The ZL60304 offers an increased data rate of 3.125 Gbps per channel which allows it to be used directly for XAUI-based interconnection schemes to form the basis of a XAUI Optical Extender.

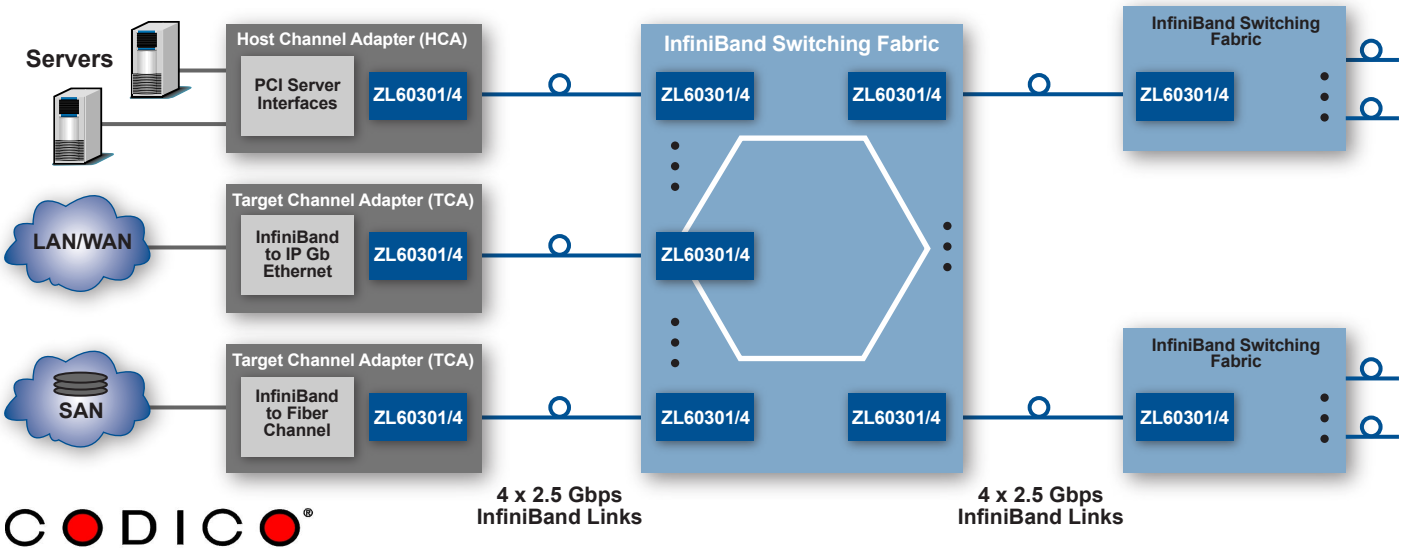
At each interconnect, the receive section of the ZL60301/4 converts parallel optical input signals into electrical output signals via a PIN photodiode array, a transimpedance amplifier and a limiting amplifier. The transmit section converts parallel electrical input signals to optical output signals at a wavelength of 850nm using a laser driver and VCSEL array.

The ZL60301/4 comply with the industry-standard POP4 MSA, ensuring pin-to-pin compatibility with other 4-channel transceivers on the market. Compared to the competition, however, the ZL60301/4 provide OEMs with significant advantages in current consumption, manufacturing and cost.

Operating with all channels at maximum throughput, the ZL60301/4 consume only 1 Watt of power, a reduction of 25% compared to the POP4 specification. By reducing power dissipation, the ZL60301/4 ensure lower operating temperature which means less cooling is required and increased reliability is provided at the system level.

As an option to the standard packaging, Zarlink offers standard and customized EMI shields and external heat sinks to achieve optimal performance at the system level. The transceiver simplifies manufacturing using Zarlink's patented self-alignment optical technology. The technology allows the quad VCSEL and PIN diode arrays to be mounted and aligned to the MPO/MPT connector without manual adjustment or the use of waveguides. This ensures excellent optical coupling, thereby easing assembly and manufacturing, and reducing cost.

InfiniBand Application Example



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