

TESSERA



DigitalOptics Parallel Optical Communication Solutions

Increase Capacity and Reliability— Reduce Manufacturing Costs

As network traffic, and the demand for bandwidth, continue to rise, the need for increased data rates and higher fiber density is driving the adoption of parallel optical transceivers. These transceivers are now emerging in the 40 and 100GB Ethernet space, as well as increasing their presence in routing and proprietary backplane applications. Tessera's DigitalOptics™ parallel optical solutions enable these transceivers to support high-speed data communication networks—with improved performance, greater environmental stability and higher functionality.

DigitalOptics parallel optical solutions use patented lens technology to increase bandwidth, minimize back reflection and provide in-line source monitoring. They enhance carrying capability by optimizing the source launch into the highest information-carrying modes of an optical fiber so that high data-rate signals can be transmitted over longer distances.

The lenses project light from the laser source into the optical fibers—while avoiding reflections back into the source—to ensure stable performance. Designed with levels of inserted attenuation from -3dB to -8dB, the lenses also trim laser outputs for optimum system performance or for conformance to laser eye safety standards.

Critical Source Monitoring for High-Speed Networks

Tessera builds patented in-line source monitoring technology into the lens array to ensure consistently high-performance—a necessary feature as data rates move to 40 and 100GB. This sophisticated monitoring technology examines each network channel in real-time to determine changes in performance. In turn, high-speed data channels are efficiently maintained and managed based on active feedback. The source monitoring technology taps off a small part of each laser signal and can deliver it to a detector for real-time monitoring of power levels. These detectors then provide the information necessary to adjust the drive currents for optimal performance.



Tessera's DigitalOptics parallel optical solutions deliver integrated functionality and advanced performance for high-speed data applications.

Tessera - Transforming the Future™

Lithographic Fabrication for Optimal Performance and Environmental Stability

DigitalOptics parallel optical communication solutions provide a consistent, precise and environmentally stable medium for seamless high-speed data communications. These properties are enabled by using glass substrates.

The glass substrate remains stable over a wide range of thermal, chemical and mechanical conditions, making it superior to plastic injection-molded lenses, which can degrade or distort in high-temperature conditions. Because the lenses are made from glass, they are compatible with high-temperature reflow processes.

DigitalOptics parallel optical solutions are designed for a range of applications, including InfiniBand, OIF 40 and 40/100GB Ethernet. They can be customized to accommodate different numbers of launch and receive channels and are currently available in configurations offering from 1 – 24 channels.

Tessera's DigitalOptics parallel optical solutions are available as lens-only solutions or integrated within receptacles. Both options offer significantly

greater cost savings when compared to conventional alternatives. As data rates grow to 100GB Ethernet speeds, these solutions not only deliver substantial value for manufacturers by delivering efficiencies for high-speed networks, but they also offer low component costs and simplified assembly.



Tessera's DigitalOptics parallel optical solutions are designed for a range of applications including InfiniBand, OIF 40 and 40/100 GB Ethernet.

Transforming the Future with Parallel Optical Communication Solutions

Tessera is a total solution provider specializing in the design and manufacture of wafer-based, custom micro-optical components and sub-assemblies. With one of the industry's largest internal teams of optical design and application engineers, and a state-of-the-art ISO certified (9001:2000 & 14,000) optics fabrication facility, the company develops and delivers its DigitalOptics solutions on a variety of substrates, on one or both surfaces of a wafer

and in multi-wafer forms, all using photolithographic techniques.

By investing in technologies that drive new levels of innovation in electronics, optics and imaging, and delivering scalable solutions that enable manufacturers to get the right product to market, at the right time, Tessera's transformational technologies are enabling the next generation of advanced electronics products.

Contact a Tessera sales representative for more information about DigitalOptics parallel optical communication solutions.



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