

TESSERA



DigitalOptics MUX/DEMUX Optical Communication Solutions

Miniaturization, Precision and Reduced Manufacturing Costs

The demand for faster, more efficient communication, collaboration, media and entertainment creates several challenges for today's optical networks. To satisfy these demands, technologies must be implemented to deliver greater performance with reduced form factors and lower operating costs. Tessera meets these challenges with its DigitalOptics™ multiplexing / demultiplexing (MUX / DEMUX) optical communication solutions designed for space-conscious applications and high data-rate systems—with greater reliability and lower costs than conventional alternatives.

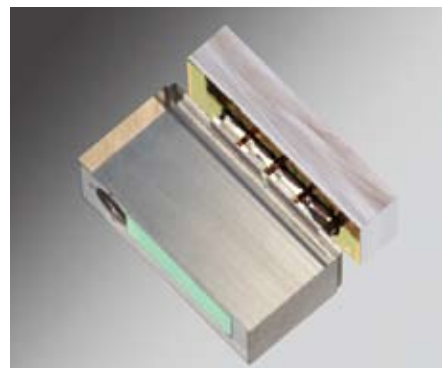
Tessera DigitalOptics MUX / DEMUX micro-optic elements integrate multiple independent wavelength channels in fully passive, highly durable devices. The single-module solutions enable efficient, high-speed transmission and offer several advantages to manufacturers of ROSA and TOSA modules:

- Small form factor / miniaturization
- Consistent and precise lens dimensions and tolerances
- Superior environmental and thermal stability
- Effective crosstalk suppression
- Fully commercialized

DigitalOptics MUX / DEMUX solutions are designed for low insertion loss and high suppression of crosstalk between channels as signals combine and separate.

Lithographic Fabrication for Optimal Performance

Fabricated using lithographically etched silica and silicon lenses, DigitalOptics MUX / DEMUX elements provide a consistent and precise medium for seamless optical communication and environmental resistance. Tessera's fabrication materials ensure thermal, mechanical and chemical stability and critical performance in a wide range of environments. As opposed to plastic alternatives, which can not withstand high-temperature manufacturing processes, Tessera's Digital Optics MUX / DEMUX modules are compatible with solder reflow manufacturing processes. In addition, the precise tolerances held in the glass lenses provide for more rapid and precise alignment with other components during assembly compared to MUX / DEMUX alternatives.



Tessera's DigitalOptics MUX / DEMUX solutions are ideal for applications involving high temperature conditions.

Tessera - Transforming the Future™

Cost-Efficient, Volume-Proven, Integrated Solutions

DigitalOptics MUX / DEMUX solutions reduce costs and enable greater efficiency when compared to conventional solutions. In addition to eliminating costs associated with maintaining multiple physical channels and enabling the transmission of substantially more information, they simplify manufacturing processes to reduce assembly costs.

Tessera's patented multiplexing / demultiplexing technology is volume-proven. Tens of thousands of components are produced each year, providing a valuable integrated solution for the optical communications industry.

Integrated DigitalOptics MUX / DEMUX modules are designed to address a wide range of applications that require small form factors, high transmission performance and low manufacturing costs. Typical applications include wafer-scale manufacturing, micro-optics testing, hybrid integration with thin filters and enabled passive alignment between MUX / DEMUX and PD / LD arrays. Each of these applications combines superior reliability and precision to meet the demands of next-generation optical communication systems.

Custom Components Designed and Built for Your Application

Today's optical communication manufacturers require unique solutions for specific applications. Tessera works with companies of all sizes to develop customized solutions that meet their design, volume and cost requirements.



LX4 DEMUX

LX4 DEMUX Specifications (Example)	
Dimension	3.0mm x 2.4mm x 1.20mm
Pitch	500µm
Wavelengths	1275nm, 1300nm, 1325nm, 1350nm

Transforming the Future with Innovative Micro-Optic 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 MUX / DEMUX solutions for optical communication systems.



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