

TESSERA



DigitalOptics Illumination System Solutions

Optimize Illumination Systems for High-performance Semiconductor Manufacturing and Inspection

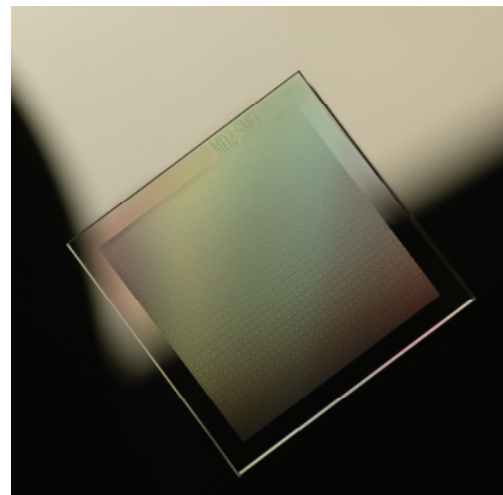
Part of the DigitalOptics™ family of Diffractive Optical Elements (DOEs), Aurora® illumination solutions are photolithography fabricated, controlled-angle diffusers that are used in the illumination systems of high-performance semiconductor manufacturing and inspection tools.

Designed to meet unique customer specifications, DigitalOptics illumination system solutions receive input from a collimated beam. At the element, light is diffracted into a defined angular distribution to create a far field output pattern. The use of controlled-angle diffusers enables optimum illumination of masks—minimizing feature size and maximizing the operating process window for the tool. As a result, semiconductor manufacturers can produce higher performance chips at a higher yield. Tessera® DOEs are also integrated in the illumination systems of process control equipment to shape and control the beam for high accuracy inspection requirements.

Tessera's diffractive optics design process provides tight control of tolerances and alignment. Combined with its state-of-the-art, ISO-certified optics fabrication facility, Tessera delivers high-precision manufacturing for a wide range of innovative products.

Key features include:

- Highly repeatable, “copy-exact”
- Sharp edge profiles
- High angles, high resolution
- Efficiencies up to 90% with anti-reflective coating
- Symmetric and asymmetric designs including top-hat, annular, dipoles and quadrupoles, and free-form pixelated custom illumination with multiple intensity levels
- Low stray light



Tessera provides custom DigitalOptics solutions for DUV scanners, reticle and wafer inspection equipment.

Tessera - Transforming the Future™

Delivering Higher Performance and Higher Yields

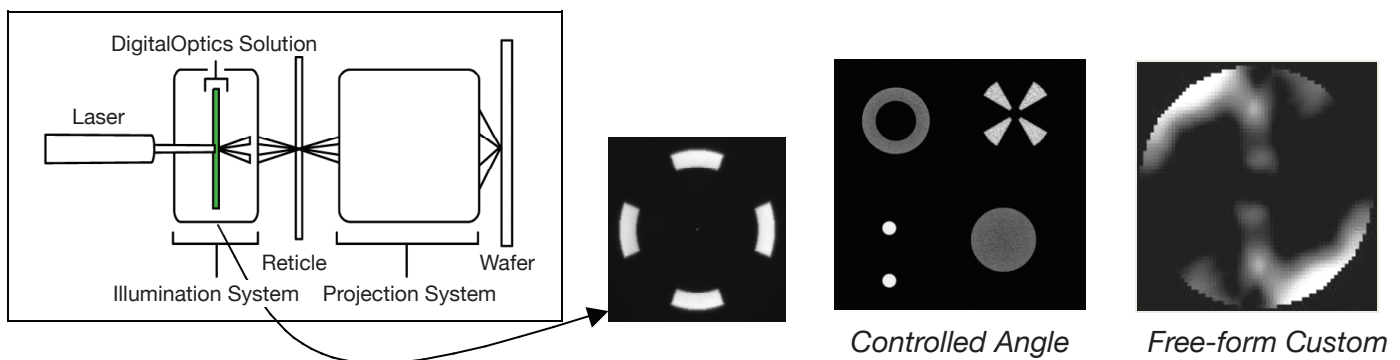
Applications

- Free-form designs for SMO solutions
- Off-axis illumination for DUV scanners
- Reticle and wafer inspection equipment

Products

- Diffractive optical elements (DOEs)
- Diffusers
- Beam Splitters
- Pattern Generators
- Gratings

TECHNICAL SPECIFICATIONS		
	Binary	8 Phase Level
Wavelength	Visible to 193nm	
Zero Order	less than 1%	less than 0.5%
Efficiencies	Up to 80%	Up to 90%
Pole Balance	1% nominal	
Part Size	up to 96mm by 96mm or 130mm dia.	
Angular Range	+/- 30 degrees (248nm, binary)	



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 how DigitalOptics illumination system solutions can deliver higher performance and higher yields for your semiconductor manufacturing process.

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3025 Orchard Parkway • San Jose, CA 95134
 Tel: +1.408.321.6000 • Fax: +1.408.321.8257
www.tessera.com

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