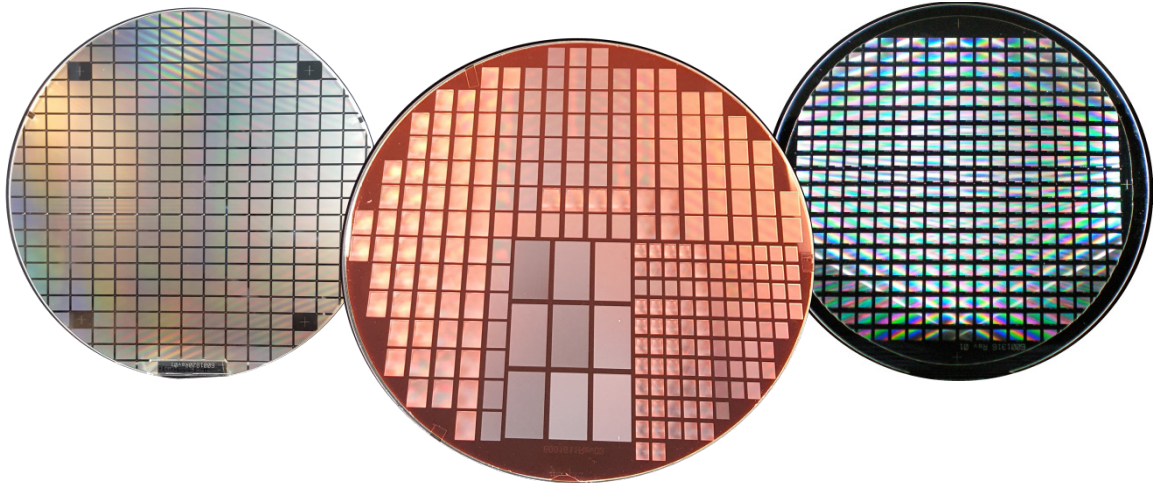


Wafer-Level Optics



Custom Wafer-Level Microlens Arrays and More!

**Your single source for custom optical design,
prototyping and wafer-level manufacturing.**

The Holographix Advantage:

- ▣▣▣▣ **Reliable Supply Chain:** Consolidate your supply chain. Holographix is your single supplier through the entire product build process, from development to diced components.
- ▣▣▣▣ **Cost-Effective Solution:** Our manufacturing technology is compatible with 200mm and 300mm diameter wafer processing.
- ▣▣▣▣ **Repeatable Performance:** The inherent repeatability of our replication process ensures specifications are maintained, wafer-to-wafer, and die-to die.

Capabilities and Resources

Program and Supply Chain Management

Holographix' expertise in managing large, complex development and manufacturing programs, combined with our efficiently managed supply chain enables us to meet aggressive production schedules and cost targets. With a company-wide commitment to customer satisfaction, Holographix has built a reputation for providing unparalleled customer service.

Wafer-Level Optics Master Patterning

Holographix works closely with patterning industry leaders, often pushing the boundaries to create state-of-the-art custom diffraction gratings, microlens arrays, and other surface relief optics. We offer access to a full range of advanced mastering options including greyscale lithography, holography, laser writing, and e-beam writing, ensuring that the proper technology is used for your application.

Quality Assurance

Over the past 25 years, Holographix has earned a reputation for providing our customers with outstanding development and manufacturing services for custom surface relief patterns. Custom binary and blazed gratings, microlens arrays, and diffractive waveguides are our main focus. With a company-wide emphasis on quality, Holographix maintains a rigorous ISO 9001:2008 certified Quality Assurance program.

Standard Wafer-Level Optics Properties

Surface Relief Feature Type:	microlens arrays, blazed or binary gratings, pillar or hole patterns, prisms, and custom features
Minimum Feature Size:	<10 nanometers
Wafer Size:	up to 300mm diameter
Wafer Material:	customer specified
Maximum Transmission:	>99% with AR coating
Transmission Spectrum:	400 to 2200 nm
Temperature Range:	-50° C to 260° C (solder reflow compatible)
Chemical Resistance:	most common solvents
Damage Threshold:	>1 MW/cm ²

Replication Benefits

Our proprietary replication technology provides a cost-effective alternative to competing manufacturing technologies. The inherent repeatability of our replication process provides improved die yields by eliminating process related defects.

Replication Facilities

Production of replicated components and assemblies requires a significant investment in capital equipment. Our 15,000 square foot facility in Marlborough, MA is equipped with:

- ADE and Zygo 4 phase-shift interferometers (Qty 4)
- ADT 7100 Dicing System
- AFM Workshop TT- Atomic Force Microscope (AFM)
- Amray 3600 Scanning Electron Microscope (SEM)
- Cary 500 UV-Vis-NIR Spectrophotometer
- Custom fully automated UV curing stations
- Denton DESK II sputtering systems (Qty 2)
- Denton Infinity 22 thin-film box coater
- Keyence VK-X260K Violet Laser Confocal Microscope
- March Plasma AP-1000 plasma treatment system
- Mitutoyo Vision Systems (Qty 2)

Production Capabilities

Holographix specializes in the manufacture of custom replicated components and assemblies in production quantities. The inherent speed of our cold-forming replication process allows us to offer economical volume pricing without the associated high tooling costs. Whether your production requirements call for 100 individual components or 100,000 wafers, we can offer you a cost-effective solution.

Please contact us via phone, e-mail, or fax with any inquiries you may have regarding our services. We will be happy to assist you!

For a more comprehensive overview of Holographix and our technology, please visit our website below.

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