

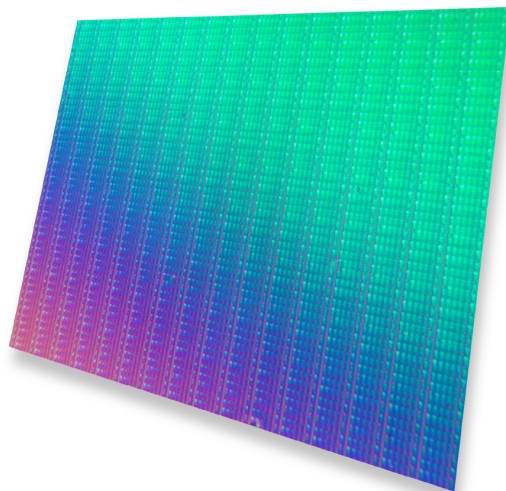
# DIFFRACTIVE OPTICS

## Diffractive Optical Elements (DOE) Splitters

Coherent provides Diffractive Optical Elements (DOEs) for demanding industrial and consumer applications. DOEs are lithographically patterned and offer complete phase control of transmitted light without limitations imposed by refractive optics. A micron-thick active phase-transforming layer is directly etched into chemically inert dielectrics on robust fused silica substrate. An organics-free material platform is characterized by excellent reliability and can withstand harsh environmental conditions, high optical power and temperatures up to 500°C. Coherent DOEs undergo extensive quality assurance, have a proven reliability track record and are competitively priced.

Fabrication is based on robust deep ultraviolet (DUV) photolithography and a reactive ion etch process. Wafer-scale DOE optics are mass-produced using robust volume fabrication methods of the electronic IC industry and is easily scalable to multiple millions of micro-optical devices per year.

Splitters are optical elements that separate an input beam into a number of output beams that may be uniformly or non-uniformly spaced by angle. Coherent splitters may combine splitting, focusing or other waveform transformation functions in the same element. Important parameters of splitters are good transmissivity and high contrast (low background noise).



### FEATURES

- Diffraction limited performance
- Good transmissivity
- Low background scatter
- Customizable design
- Micron-thick active layer
- Etched directly into robust fused silica substrate and chemically inert dielectrics (no organics or polymers)
- Wafer-scale mass production
- Withstand temperatures up to 500°C
- High power handling up to 125 GW/cm<sup>2</sup>
- Excellent long-term reliability.

### APPLICATIONS

- Structured light for 3D sensing (cell phones, consumer electronics, autonomous vehicles)