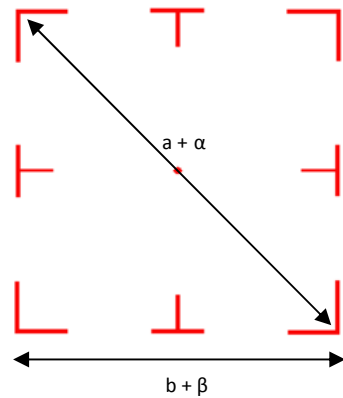


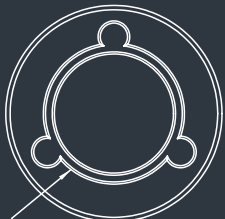
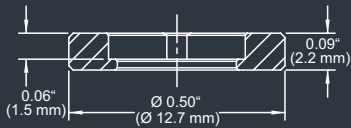
# DE-R 234 Diffractive Optical Element



- **Element Number:** DE-R 234
- **Current Product Revision:** B
- **Description:** Viewfinder (Square)
- **Substrate material:** Polycarbonate (PC)
- **Size (Ø x Thickness):** 8 x 1.2 mm
- **Design wavelengths:** 633 nm
- **Recommended wavelength range:** 590-730 nm
- **Minimum recommended beam diameter:** 2-3 mm

## MOUNTED VERSION

For testing or setups under laboratory conditions we offer a version mounted in 12.7 mm stainless steel frame for use with standard laboratory holders.



## COLLIMATED / CONVERGING LASER

The laser can be collimated for long range use or converging for a fixed working distance.

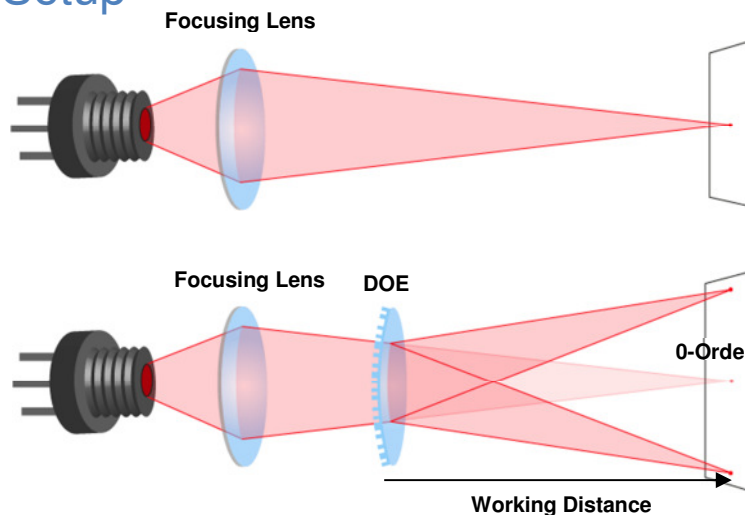
Please note that the size/thickness of each spot or line depends on the focusing of the laser.

Within the recommended wavelength range, the zeroth order central spot is not visible on the line. This Large-angle pattern is subject to geometrical distortion due to its symmetry properties, if the DOE is used at laser wavelengths significantly different ( $\Delta\lambda > 50\text{nm}$ ) from the design wavelength. Pattern size and pattern angles and the intensity in the undiffracted central spot ('zero order intensity', see reverse page) will vary most with the wavelength. Diffraction efficiencies given on this datasheet have been measured using elements of product revision B.

## Geometry and Diffraction Angles

Wavelength	Pattern Size @ 100 mm Distance		Pattern Angles	
	a	b	$\alpha$	$\beta$
488 nm	64 mm	46 mm	35°	26°
543 nm	72 mm	51 mm	40°	29°
594 nm	80 mm	57 mm	43°	32°
635 nm	86 mm	61 mm	47°	34°
650 nm	89 mm	63 mm	48°	35°
730 nm	102 mm	71 mm	54°	39°
780 nm	111 mm	77 mm	58°	42°
808 nm	116 mm	80 mm	60°	44°

## Setup



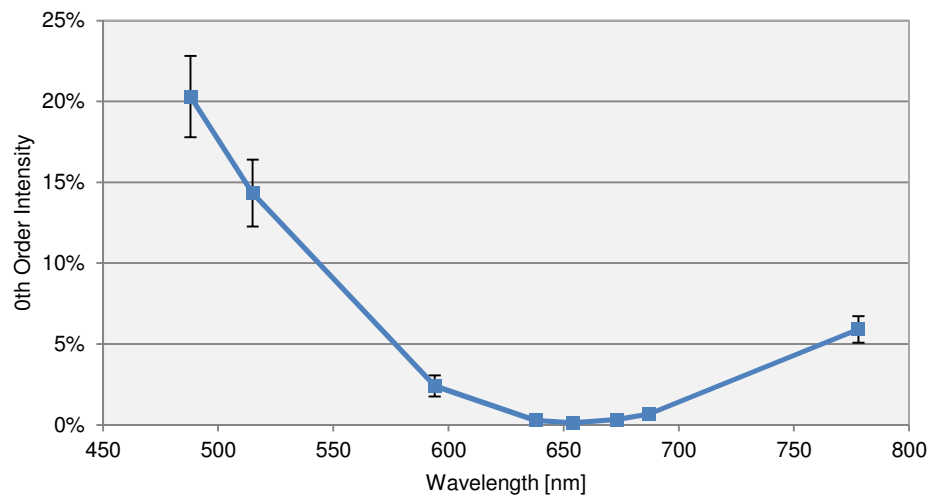
Laser diodes are the most common light source to be used with diffractive optical elements, but other laser light sources may also be used.

The DOEs are best used with collimated or convergent laser sources. The microstructure surface should be oriented towards the laser.

The 0-order spot is equivalent in size and shape to the original beam, but its power is attenuated.

## Diffraction Zero Order Intensity:

Wavelength	0-Order Intensity
488	20.3%
515	14.3%
594	2.4%
638	0.3%
654	0.1%
673	0.3%
687	0.7%
778	5.9%



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