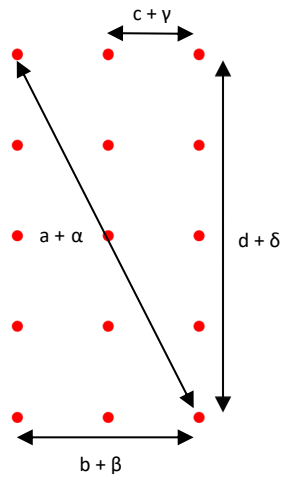
DE 838 Diffractive Optical Element



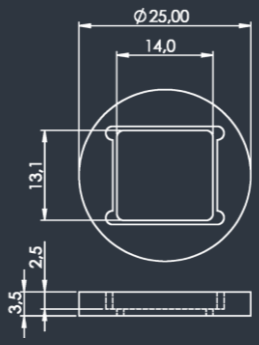
- **Element number: DE 838**
- **Product revision: A**
- Description: matrix 3 x 5 dots
- Substrate material: fused silica
- AR coating on both sides of the substrate: R < 0.5% within recommended wavelength range
- Substrate size: 15.0 mm x 14.1 mm
- Thickness: 2.3 mm
- Design wavelength: 532 nm
- Recommended wavelength range: 488 nm - 532 nm *
- Typ. diffraction efficiency: 80% at design wavelength

Within the recommended wavelength range, the central spot / zeroth order (Z0) has a similar power as the desired off-axis orders of the dot matrix. Pattern size and pattern angles, and the ratio between central spot / zeroth order and desired orders will vary most with the wavelength. Diffraction efficiencies given on this datasheet have been measured using elements of product revision A.

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.

MOUNTED VERSION

For testing or setups under laboratory conditions, we offer a version mounted in a black anodized 25 mm aluminum frame for use with standard laboratory holders.



25 mm anodized aluminum mount with 14.0 x 13.1 mm clear aperture

COLLIMATED / CONVERGING LASER

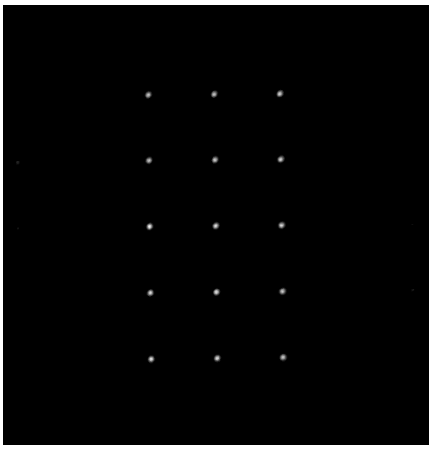
The laser can be collimated for long-range use or converging for a fixed working distance. Please note that the size/thickness of each spot or line depends on the focusing of the laser.

Diffraction angles & efficiencies

Wavelength	Pattern Size @ 100 mm Distance				Pattern Angles			
λ [nm]	a [mm]	b [mm]	c [mm]	d [mm]	α [°]	β [°]	γ [°]	δ [°]
488	5.7	2.6	1.28	5.1	3.3	1.5	0.74	2.9
515	6.1	2.7	1.36	5.4	3.5	1.6	0.78	3.1
532	6.3	2.8	1.40	5.6	3.6	1.6	0.80	3.2

Table 1: Pattern size and pattern angle depending on the wavelength

Orders at 532nm



*the recommended wavelength range is defined with 4.3% ≤ Z0 ≤ 6.3% (mean off axis order ~5.3% ± 1%)

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