Mounted MLA Series Microlens Arrays



Description

Thorlabs Mounted Microlens Arrays are best suited for Shack-Hartmann sensor applications. All lenslets are made from fused silica for excellent transmission characteristics from the deep UV to IR and have a plano-convex shape that allows nearly diffraction limited spots.

The lenses are formed using photolithographic techniques based on semiconductor processing technology, which allows for excellent uniformity in the shape and position of each microlens, unlike some microlens arrays produced from molded epoxy.

The MLA150-5C-M has a chrome mask that blocks light from being transmitted unless it goes through a microlens and therefore increases image contrast. The MLA150-7AR-M and MLA300-14AR-M have a broadband AR coating to reduce surface reflections in the 400 – 900 nm spectral region to below 1%.

These arrays are mounted in a Ø1" (25.4 mm) disk that is 3.5 mm (0.14") wide that is compatible with our mounts for Ø1" optics.

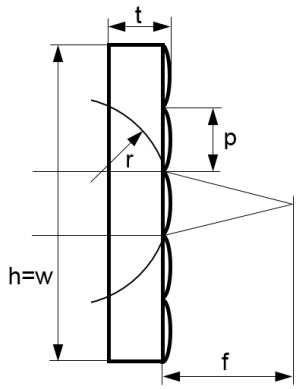
Specifications

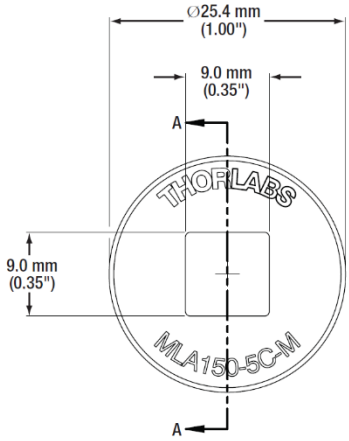
Item#	MLA150-5C-M	MLA150-7AR-M	MLA300-14AR-M
Substrate Material	Fused Silica (Quartz)		
Wavelength Range	300 nm – 1100 nm	400 nm – 900 nm	
Array Size and Type	10 mm x 10 mm, Square Grid		
Lens Type	Round, Refractive, Plano-Convex		Square, Refractive, Plano-Convex
Lenslet Pitch	150 µm		300 µm
Lens Size	Ø140 µm (Cr Mask Hole)	Ø146 µm (Lens Diameter)	295 µm (Square)
Fill Factor (Approximate)[a]	68.4%	74.4%	96.7%
AR Coating	No	Reflectivity <1% for 400 nm – 900 nm	
Chrome Apertures	Yes, Around Microlenses	No	
Geometric Parameters			
h, w	10 mm		
t	1.2 mm		
p	150 µm		300 µm
r	2.54 mm		6.5 mm
f[b]	5.6 mm		14.2 mm
Effective Focal Length[c]	4.1 mm	5.2 mm	14.6 mm

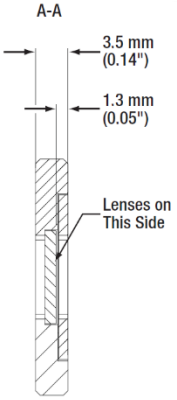
a. The Fill Factor is a measure of the fraction of incident light reaching the detector. For the MLA150-5C and MLA150-7AR, the fill factor is less than the MLA300-14AR value because the round lenses are arranged on a square grid.
b. Nominal value, ±3% tolerance, Note: when built into a WFS, the effective focal length may differ.
c. Effective (optimal) Focal Length When Built into a WFS

Drawings

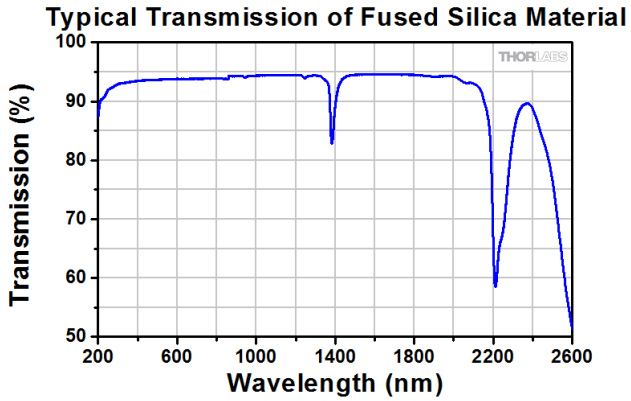
Geometric Parameters of the MLA Series Microlens Arrays.

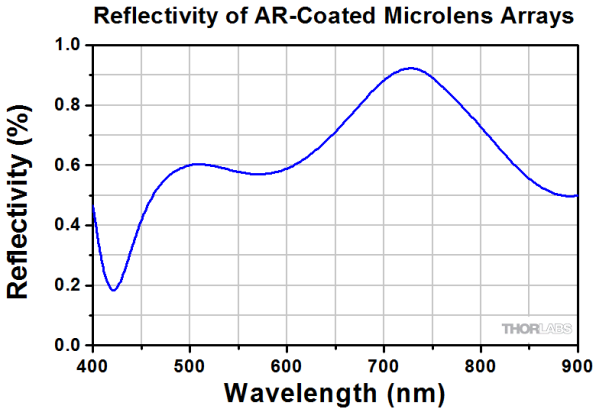






Wavelength Characteristics





Spotfield Derived with the MLA150-5C Microlens Array

