Optima — Molded Glass Aspheric Lenses

Diffraction-limited and very cost effective, a precision-molded glass aspheric lens is an attractive compromise between a multi-element lens and a molded plastic lens. The molded glass asphere has two basic advantages over a multi-element lens; first, the aspheric design reduces spherical aberration and coma in a single element; and second, overall light transmission is generally greater with fewer optical surfaces.

As compared with plastic lenses; molded glass aspheric lenses will operate over a much broader temperature and humidity range without performance degrading. Because of these advantages, molded glass lenses are often used in products such as laser printers, optical disc storage devices, and optical communications systems.

New Lens P/N 305-0464-780 — A larger numerical aperture is often very desirable when coupling a collimating lens with a laser diode. The newest molded glass asphere P/N 305-0464-780, has an NA of 0.5 and a focal length of 4mm which is ideally suited for many laser diode applications. With a 0.5 NA, a coupling efficiency over 90% can be achieved with most diodes. Detailed specifications are listed below:

Optima Molded Glass Aspheric Lens Specifications:

PART NUMBER (unmounted lens)	305-0464-780	306-0066-780	305-8040-780	305-8045-780
UNIT PRICE (Qty 1-49 pcs.)	$17.70	$17.20	$24.70	$22.85
DESCRIPTION	Molded Glass Aspheric Lens, Unmounted			
CONJUGATE DISTANCE	Infinite			
DESIGN WAVELENGTH (note 1)	780 nm			
FOCAL LENGTH	4.00 mm	6.25 mm	8 mm	
WORKING / SOURCE DISTANCE	3.942 mm	4.57 mm	5.82 mm	6.60 mm
NUMERICAL APERTURE	0.50	0.40	0.30	0.25
CLEAR APERTURE	4.00 mm	5.00 mm	4.80 mm	4.06 mm
F#	1.00	1.25	1.67	1.97
FIELD SIZE DIAMETER	0.050 mm	0.100 mm	0.100 mm	0.200 mm
AR COATING DESIGN CENTER, MgF2	780 nm			
TRANSMISSION	>97%	>98%	>98%	>96%
COVER GLASS THICKNESS	0.25 mm ~ 0.30 mm			
COVER GLASS INDEX (n)	1.500	1.511	1.511	1.500
TEMPERATURE RANGE	-20°C to +85°C			

Notes: 1) In the specifications listed above, the design wavelength is used to calculate the focal length; however, this does not limit use of the lens to this particular wavelength — these lenses can be used with both near-infrared and visible laser diodes from 635nm through 850nm.

Molded Glass Aspheric Lens with an Extra-fine Pitch Threaded Mount:

The lenses listed in the table below are supplied mounted in an aluminum cell which has an extra fine-pitch thread on the outside diameter. The thread is defined as a 3/8"-64 UNS (or .375-64 UNS in decimal notation). While this is a special thread, there are thread cutting taps available from machine tool suppliers and we stock the taps as well for your convenience, p/n 900-3864-000. These thread taps can be used for prototype work by a skilled machinist however, in a production environment the thread should be machined by single-point turning on a CNC lathe.

Basic optical specifications are the same as the lenses listed in the “unmounted” table above.

PART NUMBER (threaded mount)	307-0464-780	306-0066-780	307-8040-780	307-8045-780
UNIT PRICE (Qty 1-49 pcs.)	$23.70	$22.70	$32.00	$29.10
DIMENSIONS (thread diameter x overall length)	3/8-64 x 3.17 mm		3/8-64 x 4.7 mm	3/8-64 x 4.83 mm

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