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# HDNS-2100

## Solid-State Optical Mouse Lens



### Data Sheet

#### Description

The HDNS-2100 Solid-State Optical Mouse Lens is designed for use with Avago Optical Mouse Sensors and the illumination subsystem provided by the HDNS-2200 or HDNS-2200 #001 LED Assembly Clip and the HLMP-ED80 LED. Together with the LED, the HDNS-2100 provides the directed illumination and optical imaging necessary for proper operation of the Optical Mouse Sensor. The HDNS-2100 is a precision molded optical component and should be handled with care to avoid scratching of the optical surfaces.

#### Ordering Information

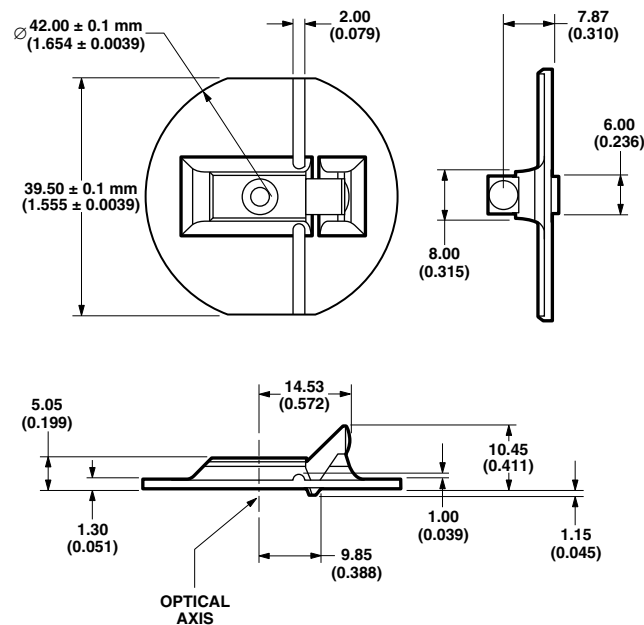
Specify Part Number as follows:

Flange	Part Number
Round	HDNS-2100
Rectangular	HDNS-2100 #001

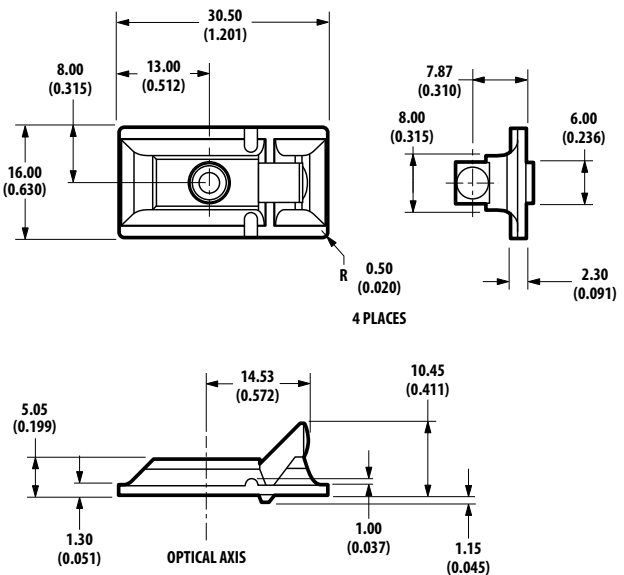
Minimum order quantity of 1000.

#### Outline Drawings

##### HDNS-2100



##### HDNS-2100 #001



#### NOTES:

1. DIMENSIONS IN MILLIMETERS (INCHES).
2. TOLERANCE IS  $\pm 0.2$  mm ( $\pm 0.0079$  IN.) EXCEPT WHERE NOTED.
3. THERE IS ALSO A FLASH TOLERANCE OF  $-0, +0.2$  mm ON THE FLANGE.

## Mechanical Assembly Requirements

All specifications reference Figure 2, Optical System Assembly Diagram.

	Symbol	Min.	Typical	Max.	Units	Conditions
Distance from Object Surface to Lens Reference Plane	A	2.3	2.4	2.5	mm	
Distance from Mouse Sensor Lid Surface to Object Surface	B		7.45		mm	Sensor lid must be in contact with lens housing surface
Lateral Distance from Center of Aperture Stop to Center of Lens Surface	C		0	0.20	mm	Aperture stop should self-center on lens

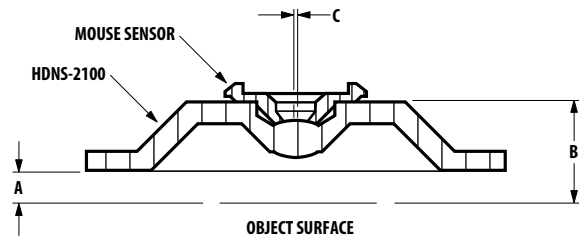


Figure 2. Optical system assembly diagram.

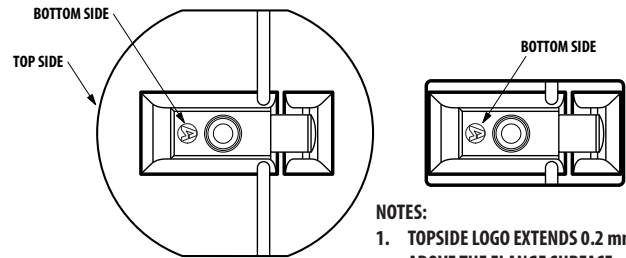


Figure 3. Logo locations.

### NOTES:

1. TOPSIDE LOGO EXTENDS 0.2 mm ABOVE THE FLANGE SURFACE.
2. BOTTOMSIDE LOGO EXTENDS 0.1 mm BELOW THE SURFACE.

## Lens Design Optical Performance Specifications

All specifications are based on the Mechanical Assembly Requirements.

	Symbol	Min.	Typical	Max.	Units	Conditions
Numerical Aperture	NA	0.1	0.13	0.16		
Magnification		0.85	1.00	1.15		Image at nominal location
Design Wavelength	$\lambda$		639		nm	
Object to Image Distance		8.735	8.823	8.911	mm	
Lens Material* Index of Refraction	N	1.5800	1.5818	1.5840		$\lambda = 639$ nm
Depth of Field	DOF		$\pm 0.5$		mm	
Field Coverage Radius			1.00		mm	

\* Lens material is polycarbonate. Cyanoacrylate based adhesives should not be used as they will cause lens material deformation.

## Mounting Instructions for the HDNS-2100 Lens to the Base Plate

An IGES format drawing file with design specifications for mouse base plate features is available. These features are useful in maintaining proper positioning and alignment of the HDNS-2100 when used with the Avago Optical Mouse Sensor. This file can be obtained by contacting your local sales representative.

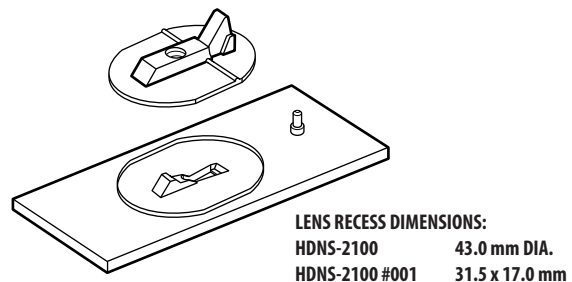


Figure 4. Illustration of base plate mounting features.

For product information and a complete list of distributors, please go to our website: [www.avagotech.com](http://www.avagotech.com)