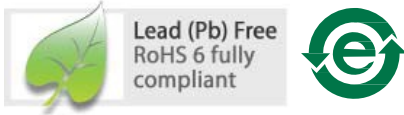# Data Sheet

Lead (Pb) Free
RoHS 6 fully
compliant

Description

The ADNS-5110-001 trim lens is designed for use with certain PixArt Imaging LED mouse sensors. Together with the LED and the sensor, the ADNS-5110-001 trim lens completes the optical navigation system to provide the directed illumination for the optical imaging process necessary for the operation of the optical sensor. The ADNS-5110-001 lens is a precision molded optical component and should be handled with care to avoid scratching and contamination of the optical surfaces.
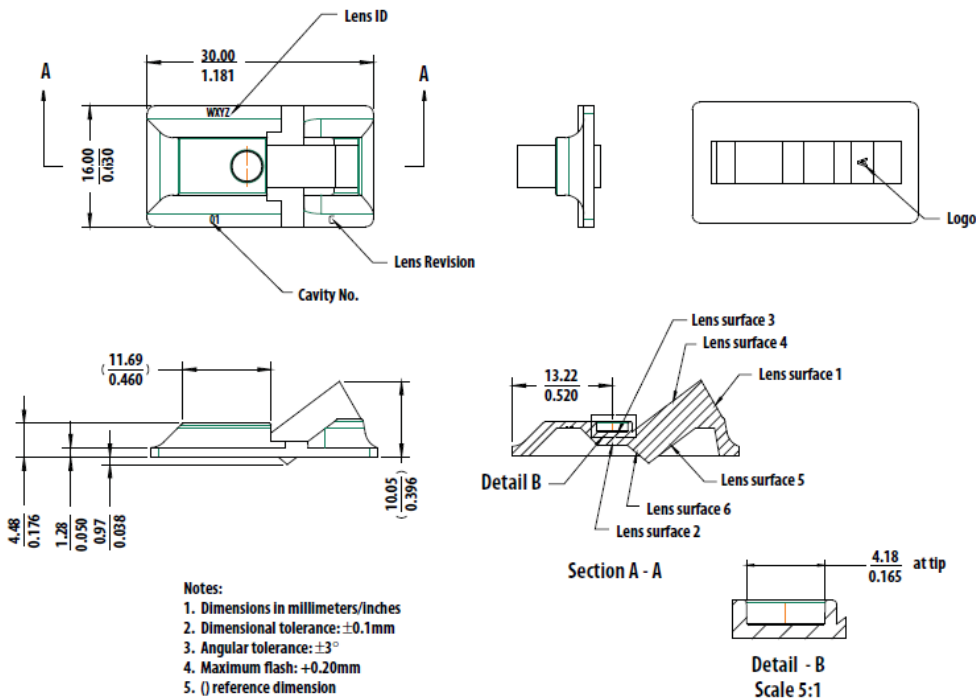

Notes:
1. Dimensions in millimeters/inches
2. Dimensional tolerance: ±0.1mm
3. Angular tolerance: ±3°
4. Maximum flash: +0.20mm
5. () reference dimension

Figure1. ADNS-5110-001 trim lens outline drawings and details.

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ADNS-5110-001 Trim Lens

Mechanical Assembly Requirements

All specifications reference Figure 2, Optical System Assembly Diagram

Parameters	Symbol	Min	Typical	Max	Unit	Conditions
Distance from Object Surface to Lens Reference Plane	A	2.30	2.40	2.50	mm	
Distance from Object Surface to Sensor Reference Plane	B	6.77	6.87	6.97	mm	

Lens Design Optical Performance Specifications

All specifications are based on the Mechanical Assembly Requirements.

Parameters	Symbol	Min	Typical	Max	Unit	Conditions
Magnification		0.72	0.8	0.88		At nominal plane.
Design Wavelength	λ		639-870		nm	Design value
Object to Image Distance		8.34	8.84	9.34	mm	
Lens Material Index of Refraction	N	1.580	1.582	1.584		At 639nm
Optical Depth of Field	DOF		$\pm\,0.3$		mm	
Field Coverage Radius			0.6		mm	Design value

* Lens material is polycarbonate or Polystyrene HH30. Cyanoacrylate based adhesives should not be used as they will cause lens material deformation.
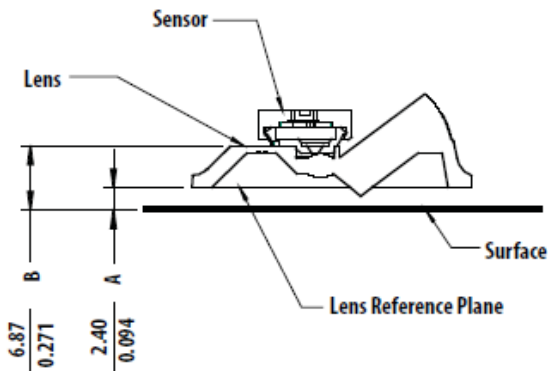
Note:
A – Distance from object surface to lens reference plane
B – Distance from object surface to sensor reference plane

Figure 2. Distance from lens reference plane to tracking surface (Z).

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