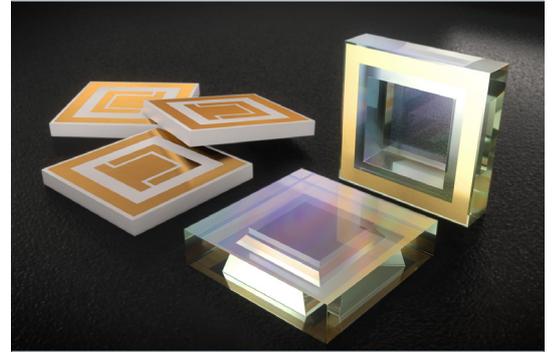


Detector CupLid – Optical Cavity for Photodetectors

Surface-mount Optical Cavity Window for Near and Short Wave Infrared photodetectors 905 nm–1550 nm

For hermetic packaging of Photodiodes and MEMs Materion Balzers Optics has developed Detector CupLids, a space-saving surface mount photonic package. Detector CupLids form a fine-leak hermetic package by solder bonding a window cavity with a flat ceramic submount (alumina or AlN) under vacuum or inert gas atmosphere. Detector CupLids are available with different anti-reflective or filter coatings from UV to Short Wave Infrared and can be shipped fully-furnished with tack-welded solder preforms for easy handling and assembly. For prototyping we provide several reference designs of AlN submounts for either wirebond or flipchip die-attach.



Benefits

- Space-saving surface-mount photonic package for fully automated die attach and PCB assembly
- Fine-leak hermetic package with excellent heat dissipation on AlN ceramic submount
- CupLid cavity window coated with high transmission- and effective out-of-band blocking bandpass filter
- Fully-furnished packaging solution consisting of CupLid cavity window, AuSn or SnSb solder preform & matching AlN submount

Applications

- Automotive LiDAR system (Scanning, Flash, MEMS)
- Aerospace LiDAR System, Wind LiDAR
- Laser Range Finder

Technical Data

Typical Filter Transmission in NIR or SWIR

Passband	Tavg > 90%
	Tabl > 85%

Out of Band Blocking

Average Blocking	OD>3
Absolute Blocking	OD>2

Various narrowband filter characteristics available for wavelengths 905 nm, 940 nm, 1064 nm or 1550 nm

Mechanical Dimensions

Window size	Custom sizes available
Window thickness	0.3–1.5 mm
Spacer height	0.3–0.8 mm

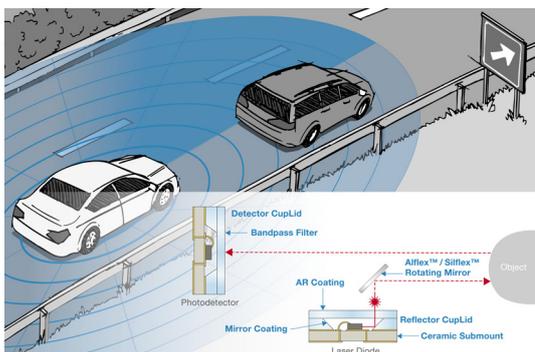
Metallization

Gelot™ as adhesion layer and diffusion barrier

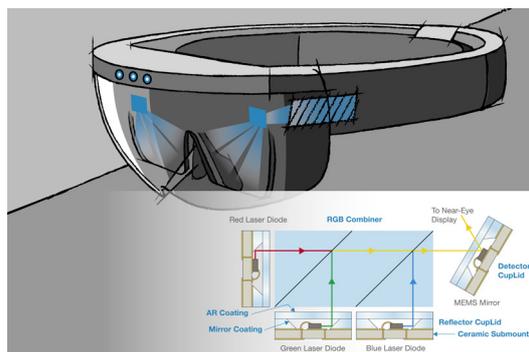
Solder Attachment

AuSn or SnSb solder preform tack welded onto the lip of the CupLid, available on request

Automotive LiDAR



Augmented Reality Smart Glasses

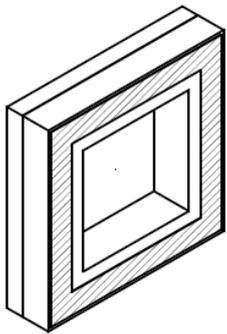
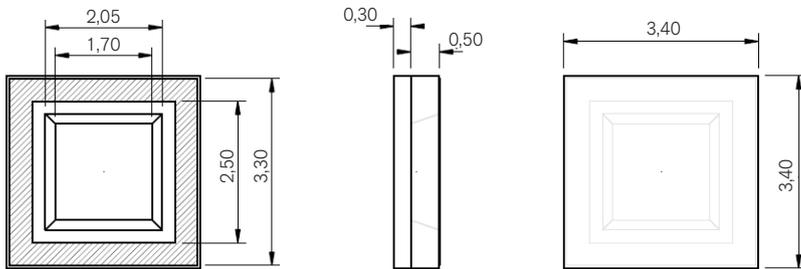




MATERION

// BALZERS OPTICS

Mechanical Drawing of an Example CupLid



Dimensions in millimeters.
Custom window size available on request. Contact us for design guidelines.