Lithoglas®
Think glass!

Welcome to MSG Lithoglas

Specialist in advanced opto-electronic packaging

– wafer level, reliable, competitive

Company Profile

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MSG Lithoglas GmbH

Founded in 2006 as MBO of Schott, #1 German Glassmaker

Headquarters and Production in Dresden, Germany

Production and R&D Location in Berlin, Germany

ISO 9001 certified

Worldwide services

Products

Lithoglas – Specialist in advanced opto-electronic packaging

- Enabling Miniaturized, Hermetic, SMD-compatible Packages
- Enhancing Optical Performance
- Excellent precision due to semiconductor processing techniques
- High scalability by wafer-level processing
- Focus on Emitter and Sensor Packaging for:

UV-LED Packaging

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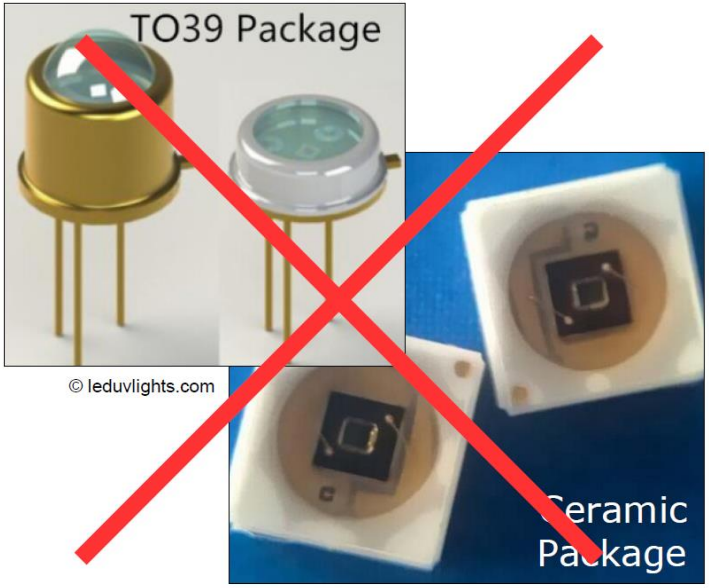
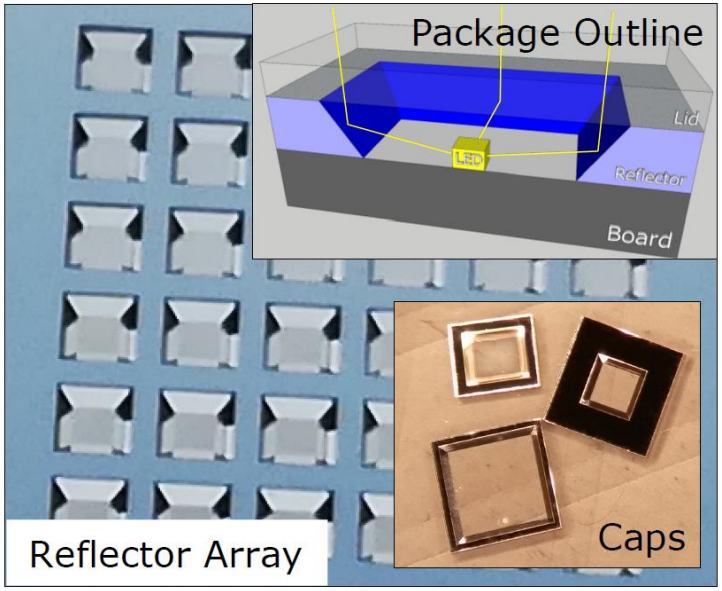
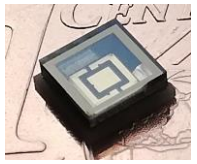
Conventional Packages



Lithoglas Package





Discrete Glass-Metal Packages or 3D-Ceramic Packages

- Inefficient, UV-light emitted to the side is lost (turned to heat)
- High assembly effort
- Array packaging not feasible

Lithoglas® DUV-Caps

- Integrated reflector recovers side emitted light!
- Hermetic, inorganic materials for SMD-Packaging
- Small outline, standard type 3535 available
- Arrays with multiple reflectors for very high power devices

High Power ● Miniaturization ● SMD ● Hermetic ● Array Packaging

Laser Diode Packaging

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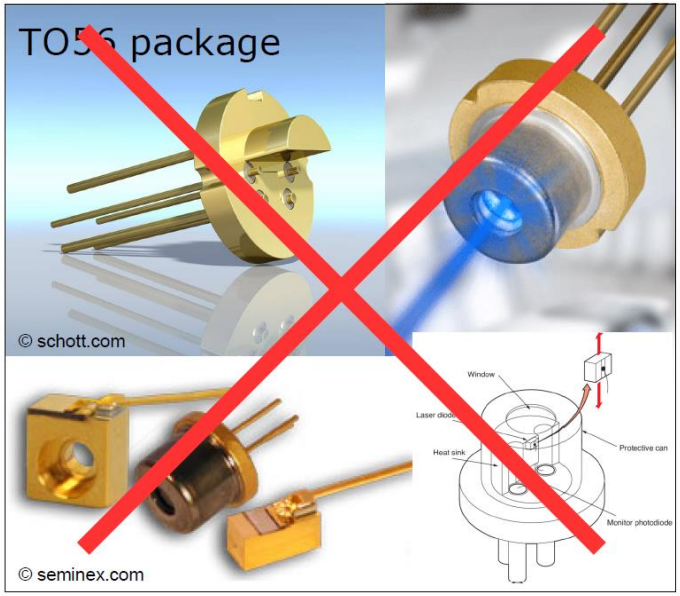
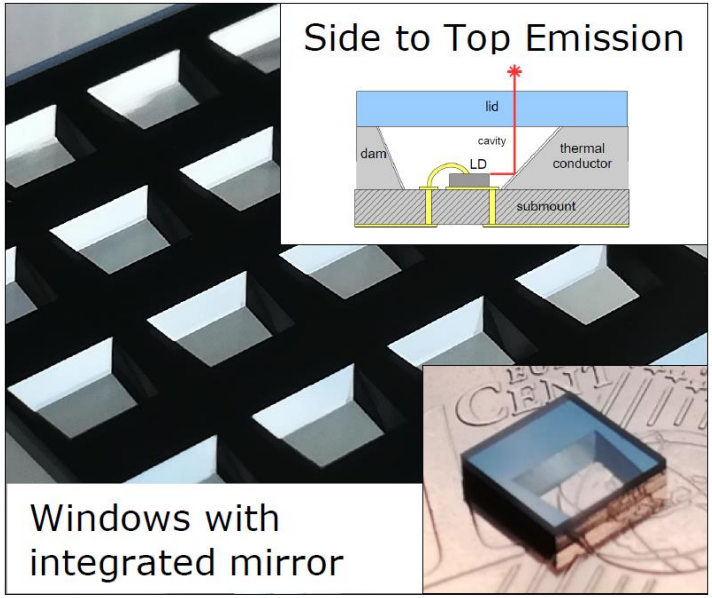
Conventional Packages



Lithoglas Package



Think Laser Diode

Discrete Glass-Metal Packages

- High assembly effort
- Large and bulky package, not SMD-compatible
- Array packaging not feasible

Lithoglas® Laser Diode Caps

- Small outline with integrated mirror (for top emission)
- Excellent mirror efficiency by optimized coatings
- Glass lid with antireflective coatings
- Solder Attachment to submount by metallization (Standard: Ni/Au)

Miniaturization ● SMD ● Hermetic ● Wafer Level Packaging

Opto Sensor Packaging

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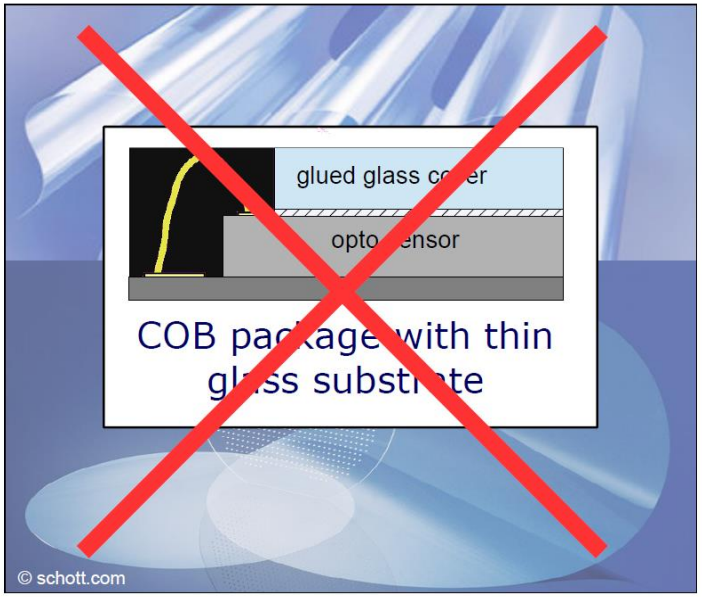
Conventional Packages



Lithoglas Package

Think Opto Sensor

Attachment of thin glass cover

- Glue in optical path (discoloration risk, bubbles formation)
- Tedious substrate handling (yield loss)
- Backend packaging with higher particle contamination risks

Lithoglas® Thin Film Passivation

- Excellent optical performance (very thin glass, no glue)
- Highly precise structuring by lithography
- Excellent manufacturing yields
- Small COB device with high reliability

Optical Performance ● High Yield ● Tight Tolerances ● Reliability

Opto Sensor Packaging

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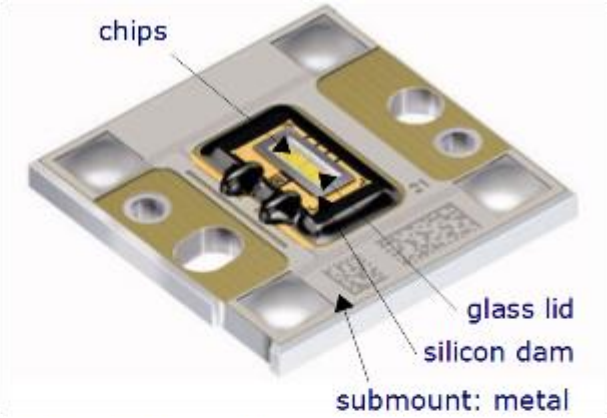
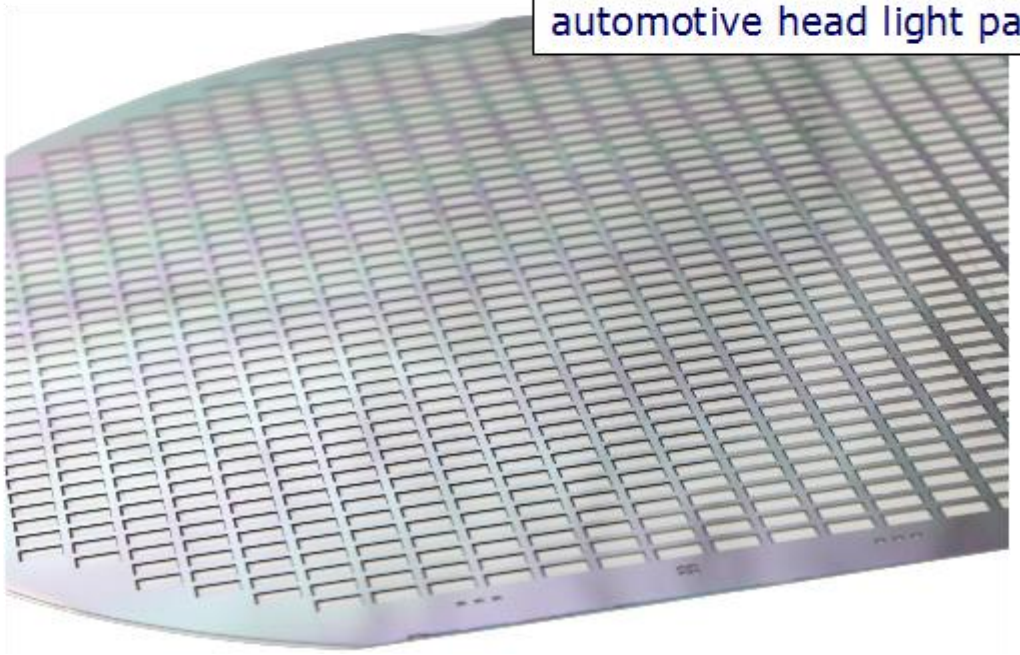
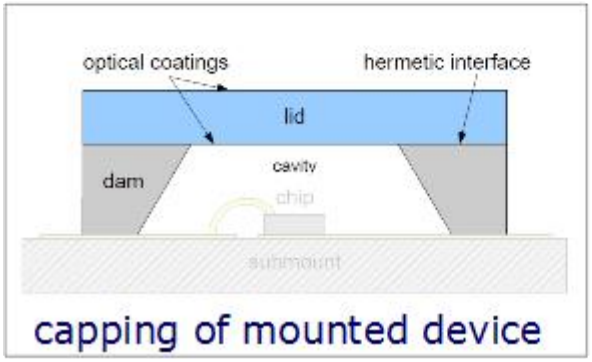
Opto Cap Wafers – Lithoglas® Substrates

- hermetic optical cap
- cavity heights of several 100 µm typical
- optical coatings like AR, IR, apertures feasible
- typ. appl.: detectors, LED



automotive head light package





capping of mounted device

Image Sensor Packaging

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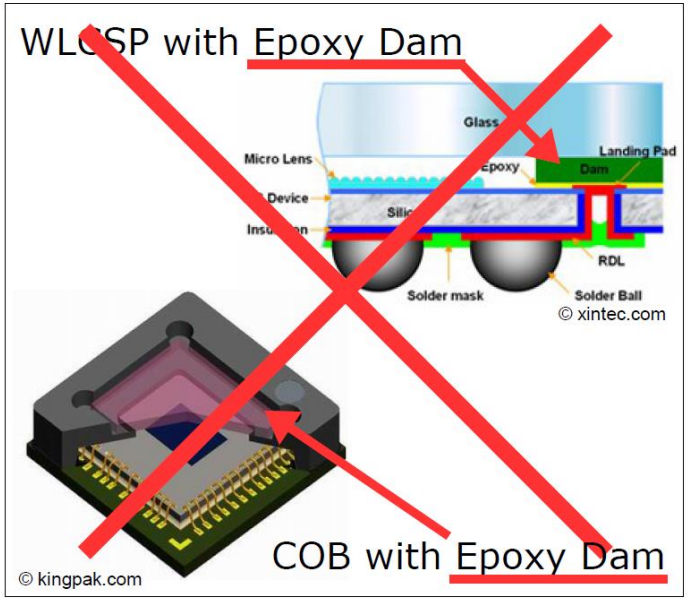
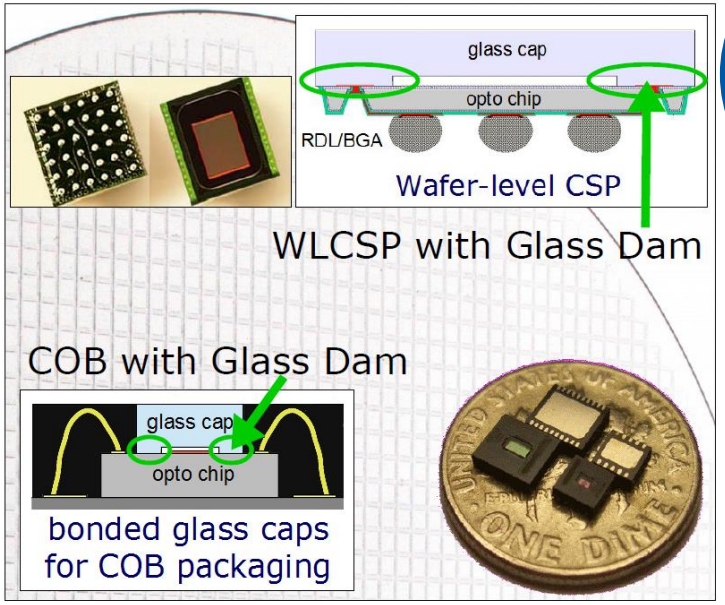
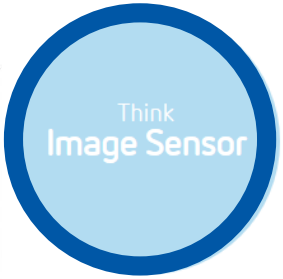
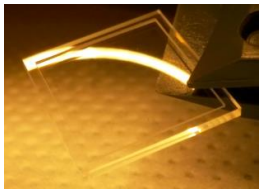
Conventional Packages



Lithoglas Package







Packages with Epoxy Dam

- Reliability problems for large devices (due to CTE mismatch of materials)
- Thick epoxy allows moisture penetration over time

Lithoglas® Imager Cavity Window

- Matched CTE of dam, glass lid and silicon device
- Very large dimensions of image sensor caps possible
- Usable in Wafer-Level- or Chip-On-Board-Packaging
- Improved reliability due to mainly inorganic materials

CSP or COB Package ● High Reliability ● High Yield

Optical Window Overview

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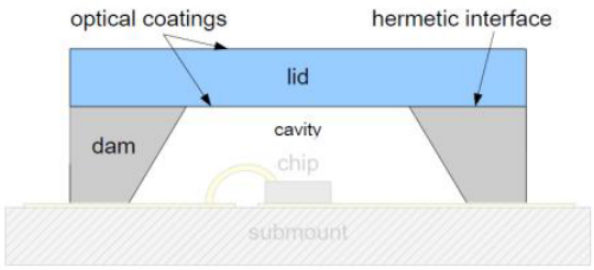
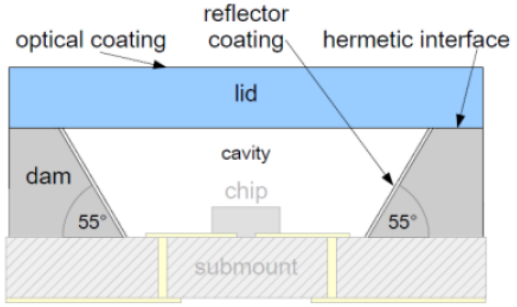
High Cavity Window (Silicon-Glass)



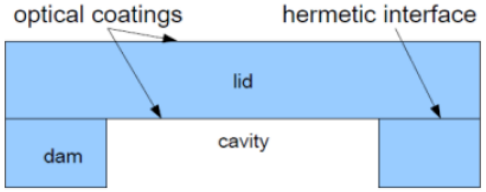
typ. applications: HB-/UV-LED or optical detector packaging

Reflector Cavity Window (UV-LED)



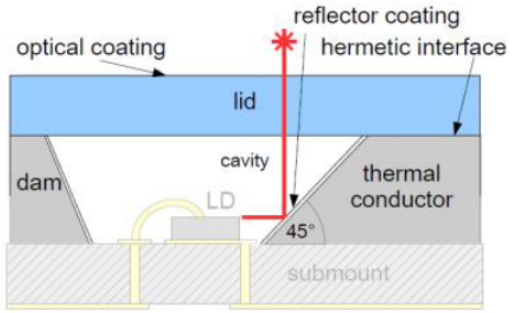
typ. applications: UV-LED packaging

High Cavity Window (Glass-Glass)



typ. applications: Opto sensor packaging (Die- or Wafer-Level)

Reflector Cavity Window (Laser Diodes)



typ. applications: Laser diode packaging

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