

# Autoclavable, custom-designed LEDs

SCHOTT Solidur® LEDs provide hermetic protection for challenging medical and dental applications



## Product Information

SCHOTT has developed fully hermetic LED modules that are able to reliably withstand extremely harsh operating environments. This includes typical sterilization conditions in autoclaves: In 3.500 test cycles at an ambient pressure of 2 bar and a temperature of 134°C, SCHOTT LED modules have proven to remain hermetically sealed with outstanding optical performance.

## Advantages

**Reliable and long-term protection** | The hermetically sealed Solidur® LEDs can withstand high temperatures and pressure, moisture, chemicals or mechanical impact. This not only enables an extremely long lifetime and efficiency of the LEDs but also makes them fully autoclavable.

**Inorganic, non-aging materials** | SCHOTT uses inorganic and therefore non-aging materials that are ideal for highly transmissive UV, VIS and IR applications. The permanent connection of metal and glass can consistently prevent moisture from seeping into the LED housing and a degradation of the LED chip.

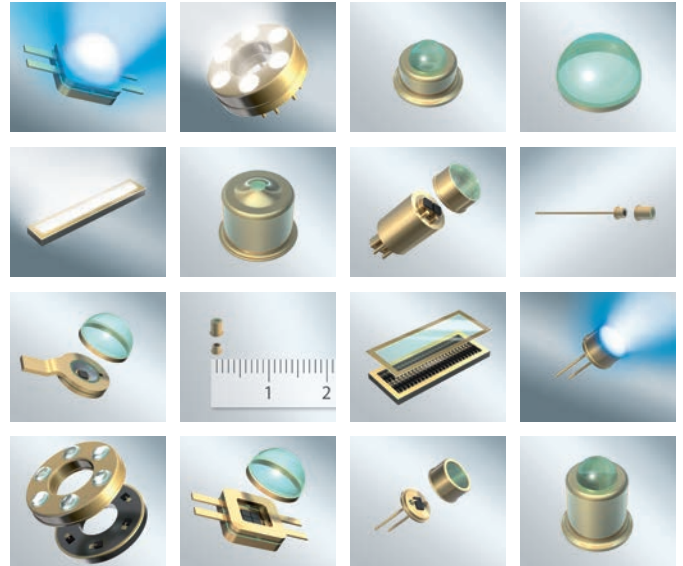
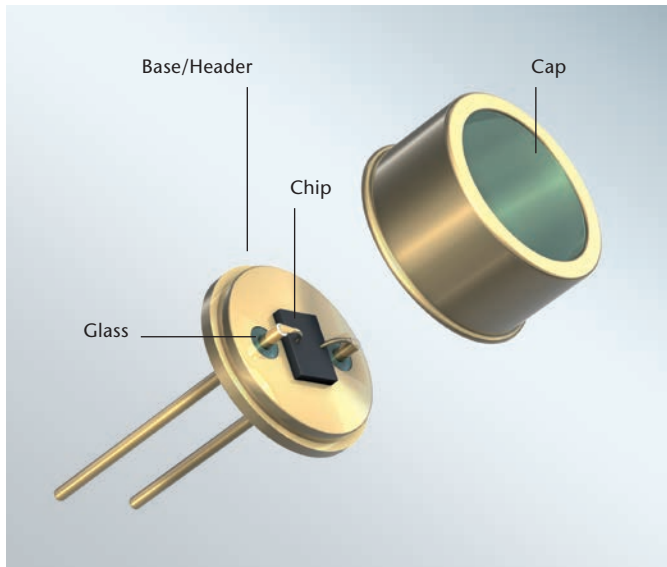
## Superior thermal conductivity and resistance

SCHOTT's unique know-how in creating a hermetic connection between glass and copper (GTCS™ – Glass-to-Copper-Sealing) enables the development of LED modules with superior thermal conductivity and stability, leading to enhanced efficiency and lifetime of the LED.

**Customized designs** | SCHOTT Solidur® LEDs consist of fully customizable bases/ headers and caps or lenses with suitable optics. The large variety of materials, shapes of the header and cap types allows for composing lighting products for any application.

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## Customized designs

- Customized materials, shapes and electrical interfaces:
  - Copper, Kovar or Steel header with SMD or through-hole design
  - Ceramic base with SMD design
- Customized size: Miniaturization down to Ø 2 mm
- Customized surface: Individual surface coatings (Gold, Nickel, Silver)

## Caps/lenses

- Large variety of lens shapes
- High quality primary optics for UV, VIS and IR applications
- Specially adapted UV transparent glasses

## Chip

- Single or multi-chip configuration
- Customized chips: white, UV, VIS and IR

## About SCHOTT Electronic Packaging

SCHOTT Electronic Packaging is a worldwide leading supplier of hermetic packaging solutions for the reliable, long-term protection of sensitive electronic devices. Since the 1930s, we have been developing, manufacturing and optimizing hermetic packaging solutions by using specialized glass, glass-to-metal and today also ceramic-to-metal sealing technology.

### Technical Information

Autoclaving: Proven functionality for	<ul style="list-style-type: none"> <li>• Oils</li> <li>• Steam sterilization (2 bar; 134 °C for 3 minutes; &gt; 3500 cycles tested)</li> </ul>
Temperature stability:	> 260 °C
Gas-tight:	1 x 10 <sup>-8</sup> mbar x l/s
Electric insulation:	> 10 GΩ
Chemical resistance:	High
Thermal shock stability:	- 65 °C to 150 °C for 15 cycles

### Preliminary Specification

Heat conductivity:	400 W · m <sup>-1</sup> · K <sup>-1</sup> (Copper)
Package dimensions:	miniaturization down to 2 mm diameter possible
Refractive Index of glass:	1.48 – 1.85

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**SCHOTT**  
 glass made of ideas