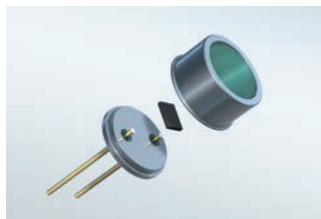
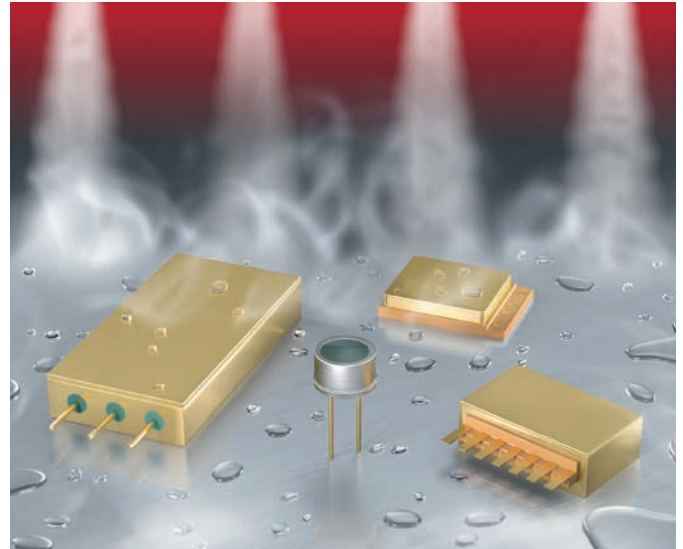


# Autoclavable housings for the reliable encapsulation of medical electronics

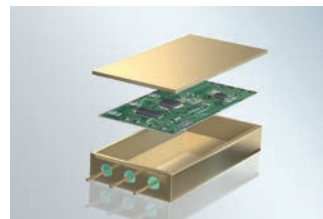
Medical devices, that come into contact with the human body must be able to withstand frequent steam sterilization at temperatures of 134°C without damaging their performance or their lifetime. This is also true for sensitive sensors as well as other electronic and opto-electronic components inside these instruments.

## Product Information

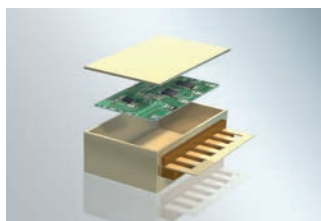
Hermetically-sealed housings and feedthroughs are used to reliably encapsulate these important components. Depending on the requirements of the application, SCHOTT offers suitable housing types ranging from Transistor Outlines (TOs) and Microelectronic housings with gas-tight Glass-to-Metal-Sealing (GTMS) and Ceramic-to-Metal (CerTMS®) housings, as well as full ceramic packages. Customers can choose from a variety of standard housings or can request a fully customized design.



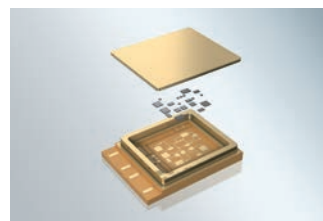
Transistor Outline (TO) header and cap



Microelectronic housing with GTMS



Microelectronic housing with CerTMS®



Full ceramic package

## Advantages

- **Reliable protection of sensitive electronics**  
SCHOTT uses inorganic and therefore non-aging materials to manufacture hermetic housings. The permanent connection of metal and glass or ceramics consistently prevents moisture from seeping into the housing and thus averts the danger of internal corrosion or contamination, as well as a degradation of the electronic components.
- **Extremely robust and autoclavable**  
The vacuum-tight housings and feedthroughs can withstand high temperatures, thermal shock, pressure, moisture, chemicals and mechanical impact, making them fully autoclavable.
- **Broad variety of materials available**  
Apart from the different housing types, SCHOTT offers a large variety of materials, including all of the metals that are typically used in medical technology: stainless steel, titanium and aluminum.

# Gas-tight packages for medical sensors, electronics and optoelectronics

Technical Information	
Gas-tight:	$1 \times 10^{-8}$ mbar x l/s
Temperature stability:	> 250°C
Chemical resistance:	High
Thermal shock stability:	- 65°C to 150°C
Electric insulation:	> 10GΩ
Autoclaving:	Proven functionality for: <ul style="list-style-type: none"><li>• Oils</li><li>• Disinfection with alkaline solutions (55°C)</li><li>• Thermal disinfection (95°C)</li><li>• Steam sterilization (2 bar; 134°C)</li></ul>



## Background information

### Glass-to-Metal Sealing

For more than 70 years, SCHOTT has been developing, manufacturing and perfecting reliably sealed, hermetic housings in which wiring is guided through metal and then insulated using melted glass. Extensive stress tests show that this bond remains intact, even under the most difficult environmental conditions, enabling long lifetimes of even several decades for the enclosed electronic components.

### Ceramic-to-Metal Sealing

In cases whereby increasingly miniaturized hermetic packages are required, the use of multilayer ceramics (H/LTCC, High/Low Temperature Cofired Ceramic) offers significant advantages.

### 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 ceramic-to-metal sealing technology. With 1,500 employees at production sites in Germany, the Czech Republic, Singapore, U.S.A. and Japan, SCHOTT Electronic Packaging is a strong and reliable partner for customers worldwide.

## Applications

Hermetic housings have proven themselves in medical treatment and diagnosis devices, which must be sterilized using an autoclave. Applications which require such devices include:

- Endoscopy
- Dental surgery
- Surgical navigation
- Spectrometry
- Pulse oximetry

## Quality Assurance

- ISO 14001
- ISO 9001

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**SCHOTT**  
glass made of ideas