

# Hermetic Housings for Medical Applications

Complete Protection for Sensors and other Autoclavable Electronics

## Product Information

Devices in the medical industry are frequently exposed to extremely harsh environmental conditions but must function perfectly over long periods of time. Thus, sensors and other devices in medical applications are perfectly packaged in glass-to-metal sealed and ceramic-based housings, proven technologies that have been developed over decades of experience in equally demanding opto-electronics, aviation & aerospace and industrial applications.

Our hermetic housing portfolio ranges from microelectronic packages and transistor outlines (TOs) to ceramic-to-metal seals as well as full ceramic packages. We offer a broad range of standard as well as fully customized designs in different shapes and sizes.

## Advantages

- Autoclavable
- Temperature stability
- Hermetic
- High electrical insulation
- Extreme media resistance
- Thermal shock stability
- Lightweight material
- High frequency capabilities
- Broad variety of material choices
- Wide range of possible packaging types

## Quality Assurance

- ISO 14001
- ISO 9001

## Proven Technology

- Long-term usage in dental applications (e.g. packaging of light source on dental drill)
- Well-established in computer-assisted surgeries

## Technical Information

**Autoclaving:** Proven functionality for

- Oils
- Disinfection with alkaline solutions (55 °C; 5 min)
- Thermal disinfection (95 °C; 10 min)
- Steam sterilization (2 bar; 134 °C for 3 min.)

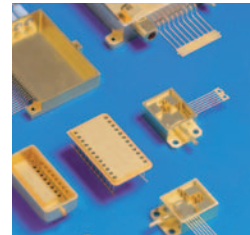
**Temperature stability:** > 250 °C

**Gas-tight:**  $1 \times 10^{-8}$  mbar x l/s

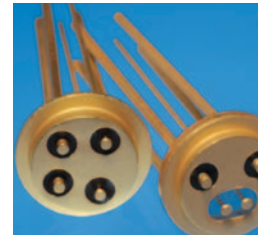
**Electric insulation:** >10GΩ

**Chemical resistance:** High

**Thermal shock stability:**  
- 65 °C to 150 °C for 15 cycles

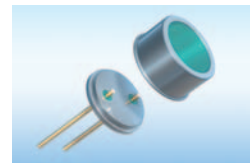


Microelectronic Packages

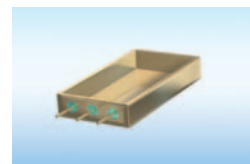
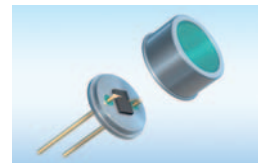


High data rate TOs

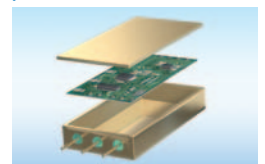
## Packaging types



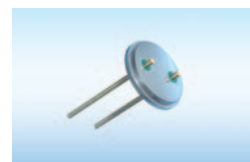
Transistor outline headers + caps



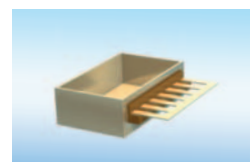
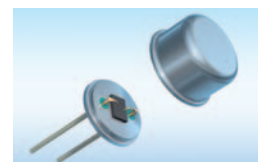
Microelectronic packages



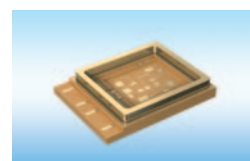
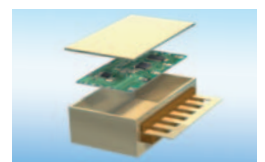
## Material base



Glass-to-metal seals



Ceramic-to-metal seals



Full Ceramic

**SCHOTT**  
glass made of ideas

# Hermetic Housings for Medical Applications

Complete Protection for Sensors and other Autoclavable Electronics

## Hermetically sealed, even in harsh environments

### Glass-to-metal sealing

For more than 70 years, SCHOTT has been developing, manufacturing and perfecting hermetic packaging components in which wiring is guided through metal and then insulated using melted glass. Extensive stress tests show that this bond remains completely sealed, 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 packages are required, the use of multilayer ceramics (H/LTCC, High/Low Temperature Cofired Ceramic) offers significant advantages. To meet these demands, SCHOTT provides small metal packages with an optical interface and one HTCC ceramic feedthrough per long side, for example.

### From small sizes to large scales

SCHOTT Electronic Packaging's technical expertise ranges from miniature hermetic packages to large-scale feedthroughs. Our technique is suited for even the smallest housings that are not much larger than the head of a pin (1.2 millimeters) all the way to high-voltage feedthroughs with diameters up to 600 millimeters.

### 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. More than 600 scientists and engineers are working for and with SCHOTT customers all over the world, while setting the pace by developing new, cutting edge technologies for the requirements of today and tomorrow.

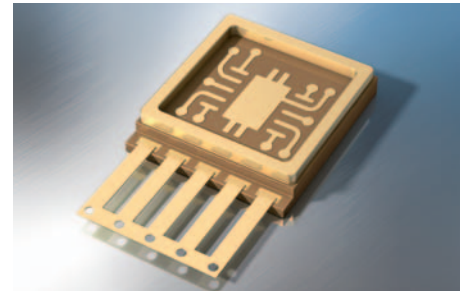
With 1,500 employees at five production locations and a number of competence centers in North America, Europe and Asia, SCHOTT Electronic Packaging is a strong and reliable partner for customers worldwide. More than 5,000 different articles have been developed and are distributed by SCHOTT. These are produced at company sites in Germany, the Czech Republic, Singapore, U.S.A. and Japan.

### For more information:

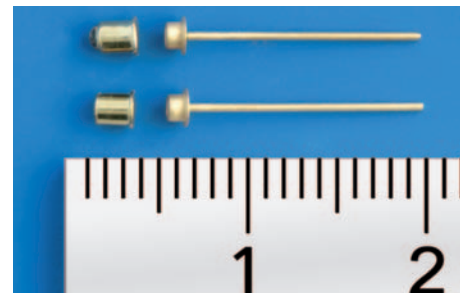
#### SCHOTT Electronic Packaging

A Division of SCHOTT North America, Inc.  
122 Charlton Street  
Southbridge, MA 01550  
USA

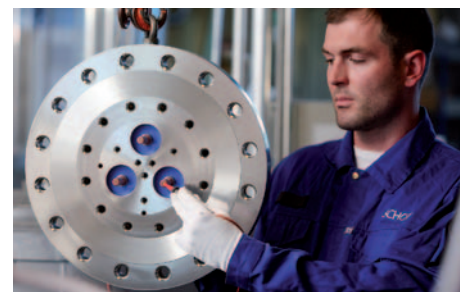
Phone: +1 508 765-3370  
Fax: +1 508 765-3377  
epackaging@us.schott.com  
www.us.schott.com/epackaging



Ceramic package



Small "Pigtail" opto package



Large power feedthrough



Quartz packages

00000 ENGLISH-USA 000000.0 all/xx Printed in Germany  
No responsibility can be taken for the accuracy of this information. Despite the fact that all reasonable care was taken in presenting and keeping this information up to date, SCHOTT neither accepts nor guarantees the completeness, accuracy and up-to-dateness of the information presented here. Date issued: May 2009

**SCHOTT**  
glass made of ideas