

**SCHOTT**  
glass made of ideas

## Automotive Electronics

Hermetic housing solutions for  
safety, sensors and e-mobility





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SCHOTT is an international technology group with more than 125 years of experience in the areas of specialty glasses and materials and advanced technologies. With our high-quality products and intelligent solutions, we contribute to our customers' success and make SCHOTT part of everyone's life.

For several decades our Automotive Products Division has been a leading developer and manufacturer of customized glass-to-metal sealed housings for highly sensitive automotive electronic components. Our products provide long-term protection in harsh environments and contribute to the safety and comfort of vehicle passengers. With many years of extensive experience in this area, we can meet the automotive industry's strict targets and delivery requirements.

# Safety

## Reliable protection for safety-relevant devices

### Safety leaves no room for compromise

The safety of vehicle passengers is the most important aspect of automotive engineering. SCHOTT has been working closely with leading automotive companies to continuously provide technological innovations that improve automotive safety. Today our customers benefit from a broad range of protective hermetic feedthroughs as housings that reliably encapsulate highly sensitive electronic components.

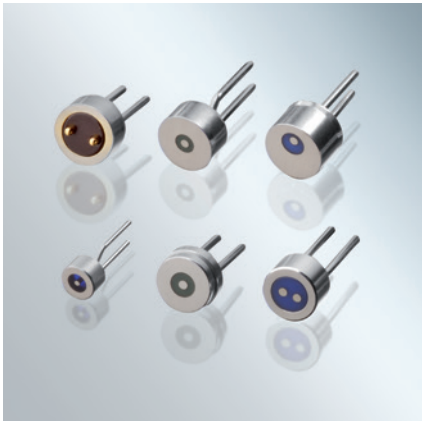
### Glass-to-metal sealing offers the most reliable protection

Airbags and seatbelt pretensioners are the most well-known among safety devices. In the event of a collision, crash sensors transmit an electrical signal to the inflator, which then ignites the initiator charge. To ensure that these vital components will continue to maintain functionality even after many years, it is highly important that the initiator charge is protected long-term from any external influences.

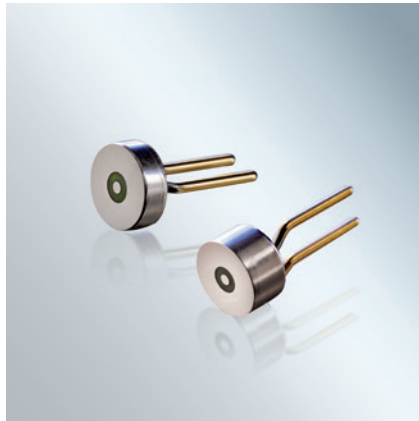
Extensive stress tests show that the glass-to-metal package remains completely sealed, even under the most difficult environmental conditions such as temperature fluctuations, pressure and aggressive substances, enabling a lifetime of many years for the enclosed explosive materials.

### Standard or customized solutions

Thanks to the know-how of the construction techniques used in this field, SCHOTT offers a broad range of largely standardized housing solutions. All designs can be adapted to meet individual customer requirements. The new SCHOTT Optimized Headers SOH and SOHXL provide enhanced overall performance in terms of robustness and efficiency.



Standard housings for airbag ignitors and seatbelt pretensioners



New SCHOTT Optimized Header







## Sensors

Custom solutions for the highest requirements

### Hermetic housings for a large variety of automotive sensors

Housing components and feedthroughs with glass-to-metal-sealing technology provide the most reliable protection for sensitive electronics. The use of purely inorganic and therefore non-aging materials means that our products remain hermetically sealed and totally isolated from their surroundings – even when exposed to extremely harsh operating environments, such as high temperature fluctuations, vibrations or other physical and chemical influences. Therefore, in automotive engineering our housings and feedthroughs are therefore used for the protection of a wide variety of sensors that can be found in engine management, in-car climate modulation, and vehicle stability control.

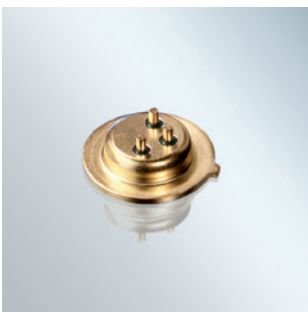




### Sensors contribute to reduced fuel consumption and help save lives

In the area of engine management, SCHOTT develops and manufactures housings for humidity, gas and flow rate sensors, as well as flex-fuel sensors and diesel injection systems that provide long-lasting support in saving energy. In addition, reliable tire pressure monitoring truly improves passenger safety and comfort.

Hermetically sealed gyro, crash and torque sensors that measure and control power and forces inside a vehicle contribute towards safe and comfortable driving.







## E-mobility

Innovative technology solutions for fully electric, hybrid and fuel cell-powered vehicles

### Enhanced lifetime and safety of electric vehicle batteries and capacitors

Based on more than 20 years of experience in producing hermetically sealed feedthroughs for primary batteries, our new glass-to-aluminium sealed lid systems for lithium ion batteries and capacitors are expected to have a significant impact on improving the lifetime and long-term hermeticity of these devices. SCHOTT also offers thermal protection devices that prevent battery packs from catching fire in case of an accident. Our thermal fuses are specifically designed to protect electrical equipment by sensing overheating and cutting off the electrical circuit immediately.

### Protecting air conditioning compressors

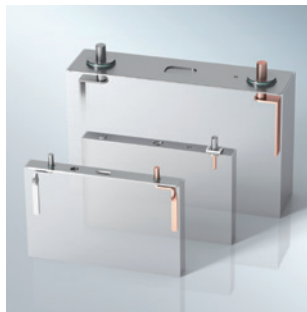
SCHOTT's high quality power feedthroughs used in air conditioning compressors allow the reliable transmittance of electrical power into the hermetically sealed system.

### Sealing materials for Solid Oxide Fuel Cells

Our glasses and glass-ceramics can be specially formulated for use as sealing materials in Solid Oxide Fuel Cells, as the glass can withstand the harsh environments and high temperatures the cells operate in.



SCHOTT GTAS® – Lid systems for cylindrical lithium ion batteries



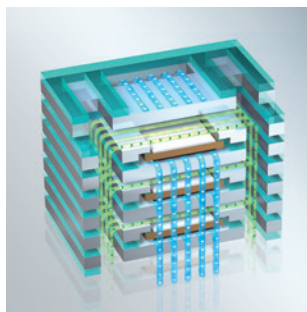
SCHOTT GTAS® – Lid systems for prismatic lithium ion batteries



SCHOTT GTAS® – Lid systems for capacitors



Compressor feedthroughs for air conditioning



Glass-ceramic sealants for Solid Oxide Fuel Cells



## Quality assurance

Electronic Packaging endeavors to provide reliable products of the highest standards and therefore maintains a comprehensive quality management system that has been certified according to DIN EN ISO 9001 : 2008 since 1992.

As a high-volume production supplier to the automotive industry since 1939, all our automotive production sites are furthermore certified according to TS 16949 (QS 9000 / VDA 6.1). Constant commitment to the environment is demonstrated by SCHOTT in holding ISO 14001 certification and adhering to the requirements of international directives, such as 2002/95/EC (Restriction of Hazardous Substances Directive (RoHS)).



## Globally trusted supplier

Customer satisfaction is at the core of the business of Electronic Packaging

Since our products can be produced at production facilities in Germany, the Czech Republic, the United States, Singapore, Japan and Thailand, as well as competence centers and sales offices around the world, we can provide first-class service on a local basis. Through worldwide technology and know-how transfer SCHOTT is able to offer consistently high quality across all production sites.

Close cooperations with our customers enable us to develop perfectly optimized solutions according to specific product requirements. Thanks to a flexible production set-up and technology expertise we can offer products on a small scale as well as a mass production level – from prototype level through to series production.

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