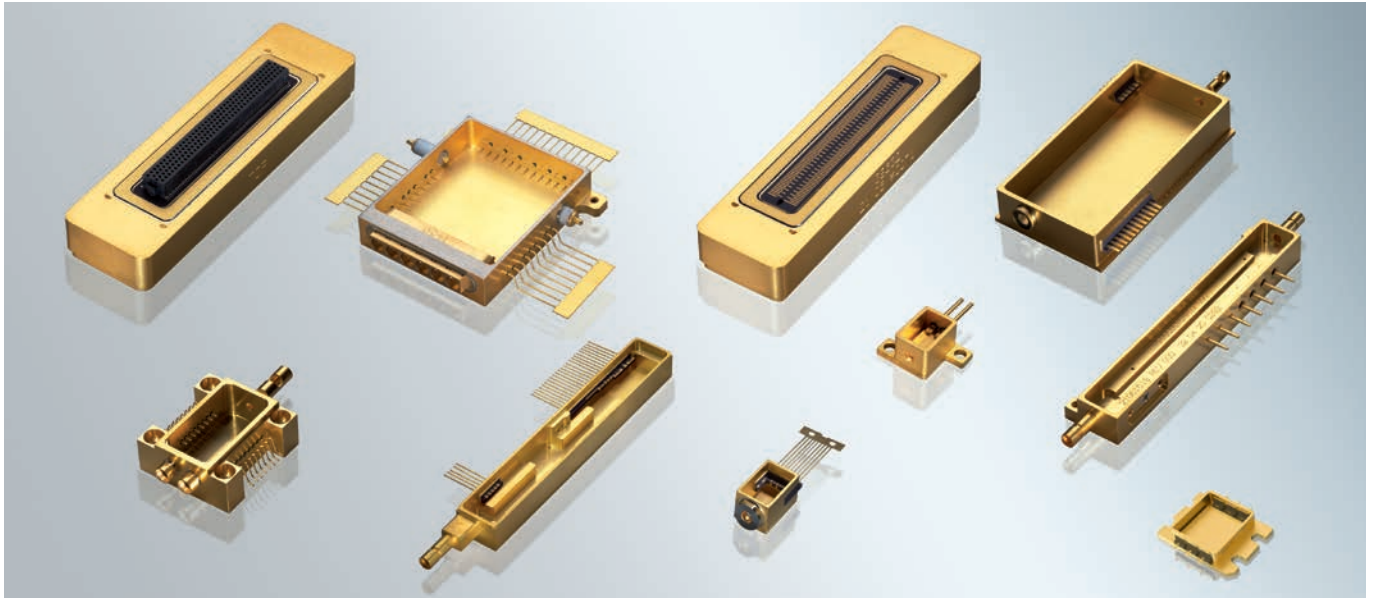# Microelectronic Packages

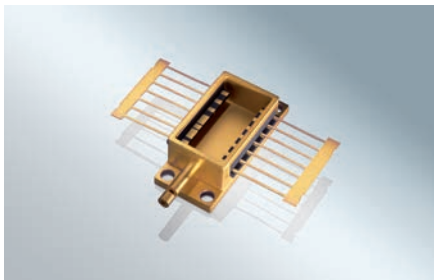with hermetic Glass-to-Metal-Sealing or Ceramic-to-Metal-Sealing technology

General Information

Microelectronic packages house small- to medium-sized batches of fully electronic circuits. They are used in electronic and opto-electronic applications and also increasingly in microelectronic mechanical systems (MEMS). Additional features, such as optical windows, high frequency (RF) feedthroughs, selective plating, temperature heat sinks and high voltage feedthroughs, can also be integrated. Depending on the customer's design and requirements, SCHOTT offers two different sealing technologies which can also be used in combination to integrate all conventional types of contacts within a single hybrid package.
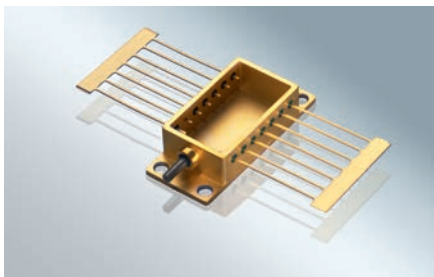
GTMS butterfly package

Glass-to-Metal Seals (GTMS)

The combination of glass and metal is suitable for all applications requiring consistent hermetic sealing.

Advantages
- Effective hermetic sealing, even in harsh or challenging environments
- Long-term efficacy and high reliability
- Manufacturing facilities in Asia, Europe and the US

SCHOTT CerTMS® butterfly package

Ceramic-to-Metal Seals (SCHOTT CerTMS®)

The use of special types of ceramics is suitable for packaging circuits with special design and technical needs, such as partitioning, wiring, throughput quantity and density requirements.

Advantages
- For use in complex integrated circuits and smaller devices
- Increased performance due to larger number of inputs/outputs
- LTCC and HTCC production capabilities available

SCHOTT

glass made of ideas

Microelectronic Packages

with hermetic Glass-to-Metal-Sealing or Ceramic-to-Metal-Sealing technology

Formats available:
- Machined types
  (Customized solution)
- Flatpacks (Stamped solutions)
- Plug-Ins (Stamped solutions)

Available Coatings for Metal Part:
- Electroless/Electrolytic Nickel
- Gold (Soft Au)
- Silver copper

Available Fusing Processes:
- Glass-to-metal sealing
- Low temperature brazing
- High temperature brazing
- Vacuum brazing
- Reflow brazing

Available Material Options:
- Kovar
- Stainless Steel
- Copper
- Aluminium
- Mild steel (Cold rolled steel)
- Titanium
- Copper tungsten (CuW)
- Molybdenum
- Copper molybdenum
- Aluminum Silicon (AlSi)

Applications:
Both GTMS and SCHOTT CerTMS® microelectronic/hybrid packages are widely used in applications such as:

- Data communication
- Medical technology
- Microwave packaging
- Sensor technology
- Industrial lasers
- Power electronics

Technical Information	
Gas-tight:	1×10^{-8} mbar x l/s
Temperature stability:	> 250 °C
Chemical resistance:	High
Thermal shock stability:	– 65 °C to 150 °C for 15 cycles
Autoclaving: Proven functionality for	• Oils • Thermal disinfection (95 °C; 10 minutes) • Steam sterilization (2 bar; 134 °C for 3minutes)

About SCHOTT

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.

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