Microelectronics Packaging Materials

The Challenge
To ensure optimal performance and reliability, sensitive electronics must be adequately protected by secure packaging. Hermetic lids are necessary for semiconductor, MEMS, medical or optical applications to shield devices from moisture. RF and microwave packages must meet the demand for very low thermal resistance and very low RF loss. Metals and alloys used for the joining of vacuum electronic devices must be free of contamination that could negatively impact performance.

The Solution
When it comes to packaging, we've got you covered! We offer a full range of products.

- Highly reliable hermetic lids for sealing and protection of delicate electronics
- Choice of best-solution materials from precious metal to epoxy-coated ceramic
- “Ultra clean” braze alloys for joints of high integrity and strength
- Innovative ceramic packages for very low thermal resistance and RF loss
- Choice of multiple designs & materials customized for specific applications

BENEFITS
We offer a comprehensive range of packaging materials with these advantages:

- Convenience of operations in N. America, Singapore and the Philippines
- Extensive tooling library with 5000+ stamped preforms & cover lids
- Support for most configurations, applications & volume requirements
- Specialized precious metal alloys to complement all solder applications
- Lead-free braze materials
- Gold & silver alloys providing excellent corrosion resistance
- Variety of alloys offering superior thermal & electrical conductivity
- Wide range of melting temperatures deliver consistent performance
- Support in selecting optical product or assistance fabricating new design
LIDS
We’ve got you covered – hermetic and non-hermetic lids for semiconductor, MEMS, medical or optical requirements:
- Combo-Lid™ Covers – pre-assembled solder preform and lid
- Micro-Lid™ Covers – for packages smaller than .300 in²
- Seam Seal-Lid™ Covers – for sealing heat sensitive electronics
- Solder Reflow-Lid™ Covers – cost alternative to Combo-Lids™
- Visi-Lid™ Covers – for optical packages
- Epo-Lid™ Covers – Epoxy-coated ceramic for non-hermetic uses
- Ceramic Combo-Lid™ Covers – for specialty applications

BRAZE & SOLDER ALLOYS
Materials for microelectronic packaging & high temperature joining:
- AuSn Preforms
- Braze Materials
- SiSeal Materials
- Solder Alloys
- Lead-free Solders

Characteristics
- Customized shapes and forms, including ribbon, wire, preforms and powder
- Precious and non-precious metals and alloys
- Wide range of melting temperatures
- Superior conductivity

CERAMIC PACKAGING
RF & microwave packages for very low thermal resistance & RF loss. Complementary packages and lids:
- BeO Packages
- Cu Packs™ Packages
- Epo-Lid™ Covers
- Air Cavity Packages
- Plated Flanges

Characteristics
- Dozens of open-tooled designs for best cost solutions
- Custom fabrication new designs
- Available in surface mount designs as well as bolt-down versions

Materion... Making Advanced Materials that Improve the World.
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<td>Combo-Lids™ (Flat)</td>
<td>High reliability hermetic packaging</td>
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<td>Kovar or Alloy 42</td>
<td>Gold-Tin or other alloys</td>
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<td>Combo-Lids™ (Drawn)</td>
<td>High reliability hermetic packaging where die height is higher than package cavity depth</td>
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<td>Non-magnetic Metal Combo-Lids™</td>
<td>Medical Imaging and signal noise control</td>
<td></td>
<td>Mo, CuW, Bronze, Cu</td>
<td>Gold-Tin or other alloys</td>
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<tr>
<td>Non-magnetic Metal Combo-Lids™</td>
<td>High Purity non-magnetic combo lids, does not contain Nickel or plating</td>
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<td>Mo, CuW, Bronze, Cu</td>
<td>Gold-Tin or other alloys</td>
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<td>Non-magnetic BeCu Combo-Lids™</td>
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<td>MEMS, Automotive and High reliability hermetic package sealing</td>
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<td>Selectively plated Combo-Lids™</td>
<td>High reliability hermetic package sealing</td>
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<td>Kvar or Al₂O₃</td>
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<td>Getter Tack welded Combo-Lids™</td>
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<td>Kvar with Palladium</td>
<td>Gold-Tin or other alloys</td>
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<tr>
<td>Special Shaped Combo-Lids™</td>
<td>High reliability hermetic package sealing</td>
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<tr>
<td>Epo-Lids™</td>
<td>Ceramic Lid for non-hermetic packages including CuPacks™</td>
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<td>Al₂O₃</td>
<td>MEG-150 or MEG-165 Epoxy</td>
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<td>Ceramic Air Cavity Packages</td>
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<td>Plated Alloy 42 with Ni, NiCo or Au</td>
<td>Alumina ring frames</td>
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<td>Etch Lids for AR Coated Glass</td>
<td>Double preform attached lid for Visi-Lid™ application</td>
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<td>Kvar</td>
<td>Gold-Tin or other alloys</td>
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**MATERION ADVANCED MATERIALS** is a global advanced materials and services company, dedicated to providing solutions that enable our customers' technologies and drive their growth. Our products include precious and non-precious specialty metals, precision optical filters, inorganic chemicals and powders, specialty coatings, specialty-engineered beryllium alloys, beryllium and beryllium composites, and engineered clad and plated metal systems. The Materion business is structured to enhance our ability to provide customers with innovative, best total-cost solutions.