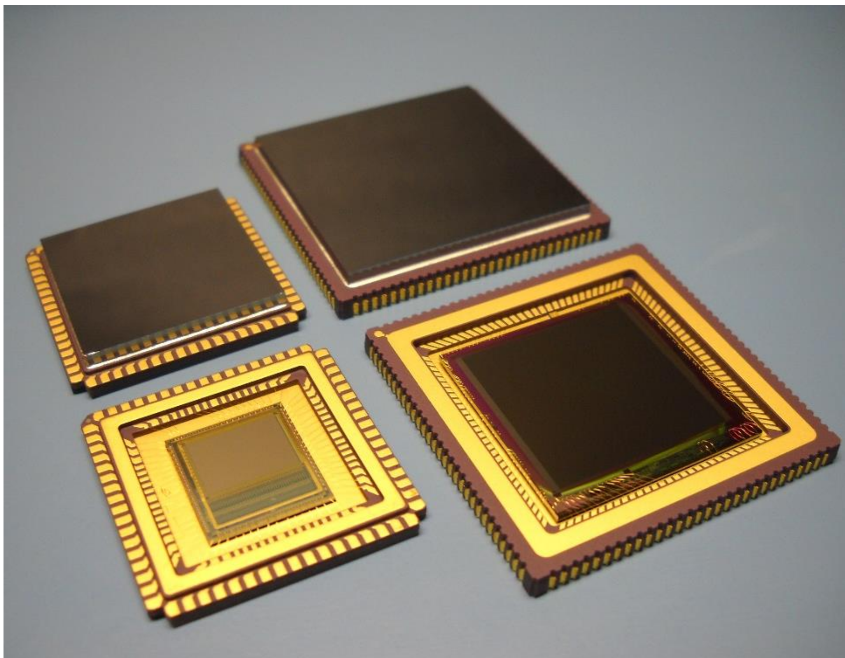
HERMETIC VACUUM PACKAGING

Ceramic LCC Packages

INO has developed a number of hermetic vacuum packaging technologies for MEMS devices based on metallic and ceramic headers. Processes are performed in state-of-the-art semi-automated vacuum furnaces and systems that allow for activation of thin film getters. The ceramic LCC vacuum packaging technology can accommodate uncooled bolometric detectors and other MEMS devices that require a vacuum environment below 10 mTorr. For temperature-sensitive devices, a low temperature process can be used (<175°C). INO's solid expertise in vacuum technology allows to adapt the vacuum sealing technology to specific device requirements. INO also offers short-series production and technology transfers.

CERAMIC LCC PACKAGES



Ceramic LCC Package 68 pins | **Ceramic LCC Package 116 pins**

APPLICATIONS

- LWIR imagers and sensors
- Various MEMS devices such as:
  - Accelerometers
  - Resonators
  - Micromirrors

BENEFITS

- High productivity due to batch processing
- Low-cost
- Compact size
- Fluxless technology
- Compatible with temperature sensitive devices
- Flexibility in package geometry, window materials and solder alloys
- Integrated pressure sensors for cavity pressure monitoring

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TYPICAL SPECIFICATIONS

CHARACTERISTICS	CERAMIC LCC 68	CERAMIC LCC 116
Package	Leadless Chip Carrier (LCC)	Leadless Chip Carrier (LCC)
Footprint	External size: 24 x 24 mm Cavity size: 15.8 x 15.8 mm Cavity depth: 1.3 mm	External size: 32.3 x 32.3 mm Cavity size: 23.2 x23.2 mm Cavity depth: 1.52 mm
Number of pins	68	116
Window	Germanium, Silicon and N-BK7 (Antireflection Coating on request) (Antireflection coating on request)	
Getter	SAES PaGeLid	
Pressure	<10 mTorr	
Max. process temperature	175°C or 285°C	
Throughput	12 packages/run	9 packages/run
Hermeticity yield	> 90%	
Package reliability*	Shock: MIL-STD-810 method 516 Vibration: MIL-STD-810 method 516 Thermal cycling: MIL-STD-810 method 501 Temperature/humidity: GR-1209-CORE	In progress: Shock: MIL-STD-810 method 516 Vibration: MIL-STD-810 method 516 Thermal cycling: MIL-STD-810 method 501 Temperature/humidity: GR-1209-CORE

*175 °C bonding process reliability under progress

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