MINALOGIC

Phileas: Integrated, Reliable, Advanced Vacuum Packaging on Silicon

Background

The Phileas project concerns the vacuum packaging used for uncooled infrared detectors and inertial sensors—both of which require low vacuum pressures (of $<10^{-3}$ Torr) to function. Current vacuum packaging technologies are too expensive for use with infrared detectors for automotive and home automation applications, or with inertial sensors for the European aerospace industry.

Innovation

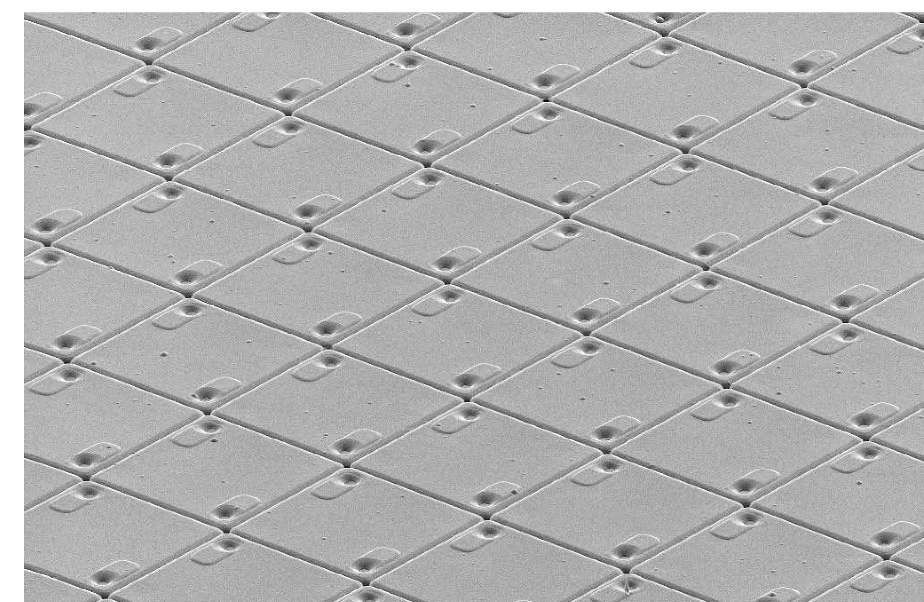
CEA-LETI has patented an innovative thin-film packaging technology that can create a vacuum at the chip level—therefore eliminating the need for a vacuum package—while using conventional packaging technologies. Furthermore, the new technology does not require an infrared window to be added for infrared detectors. This wafer-wafer packaging using direct silicon-on-silicon sealing performs particularly well in inertial sensors. The project will also develop getter technology that can improve vacuum quality after sealing.

Partners

Corporate
Ulis

SME
Tronics Microsystems

Research laboratories
CEA-Leti · ONERA



Key figures

Budget: €12.12 million
Duration: 36 months
Human resources allocated: 59.76 FTE