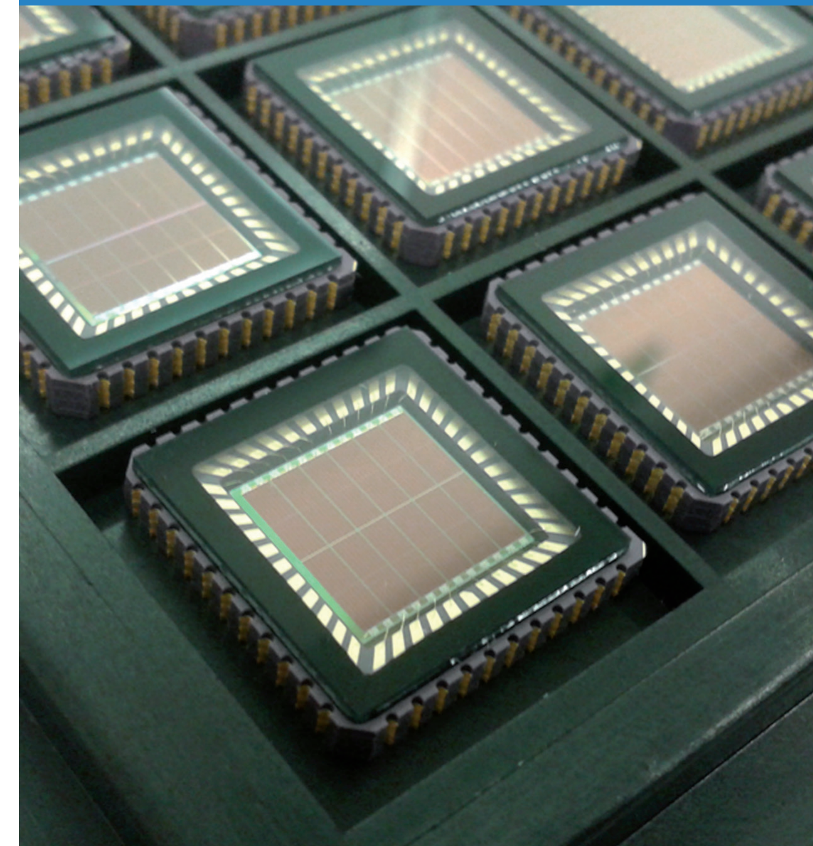
Fraunhofer IMS

FRAUNHOFER INSTITUTE FOR MICROELECTRONIC CIRCUITS AND SYSTEMS IMS

SERVICES AND KNOW-HOW AROUND SILICON



FRAUNHOFER IMS

INNOVATION ON SILICON

Fraunhofer IMS in Duisburg has more than 30 years of experience and proven expertise in microelectronic circuit design and fabrication.

Our silicon solutions can be found in various application areas like satellites, aircraft, medical implants, automotive, industrial, automation and consumer electronics.
Our full supply chain services provide a seamless path from the first idea through development to production according to highest quality and reliability levels. This includes long term support considering our costumer product lifetime requirements.

We offer a wide range of services and production of silicon based devices and systes, and we are certified according to DIN EN ISO 9001 since 1995. The certificate is valid for all divisions of microelectronic circuits, electronic systems, microsystems and sensors as well as consulting in these fields. In addition, our CMOS line is certified according to ISO/TS 16949.

The success of your project is our mission.

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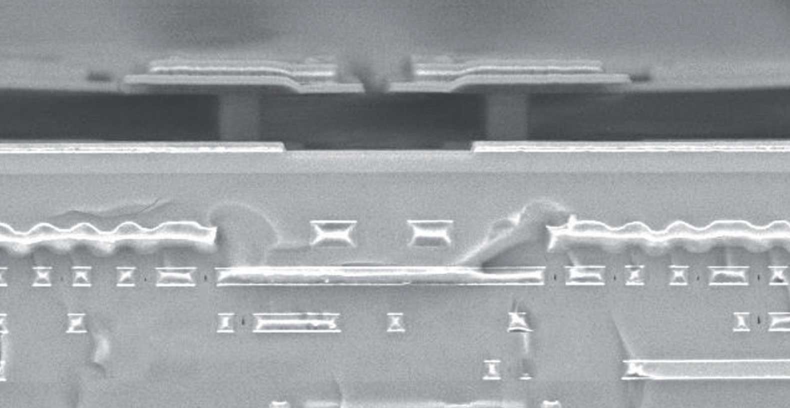

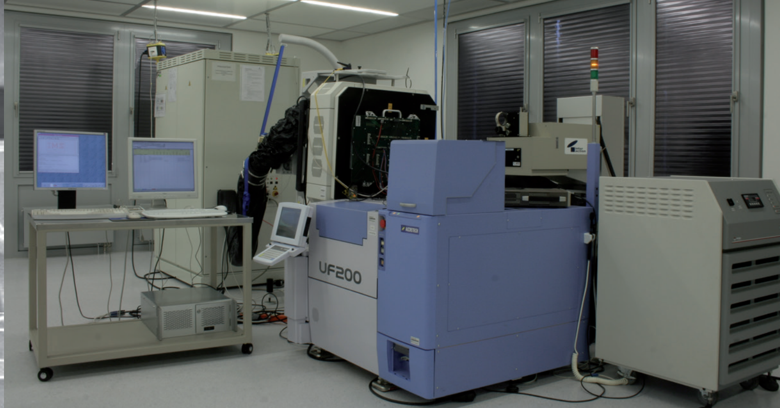

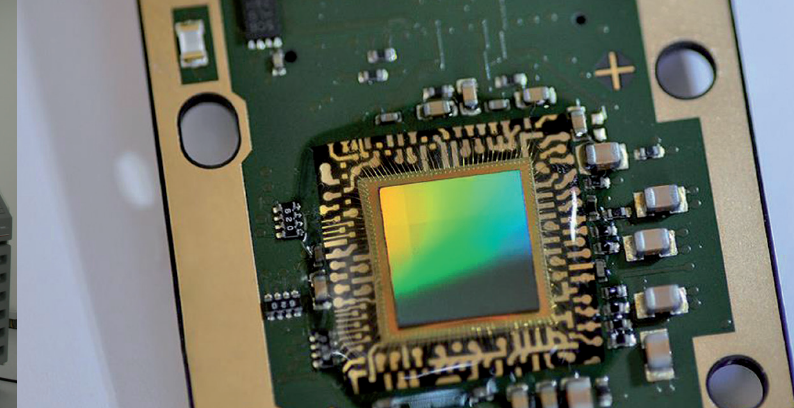

CMOS WAFERS & POST-PROCESSING

Fraunhofer IMS is your professional partner throughout the development of process steps, process modules and complete micro/nano sensor systems. We enable our costumers to get microelectronics from a single source and provide our services and know-how across all industries:

- 0.35 µm CMOS and microsystems-fab with standard CMOS and costumer-.specific processes for 8 inch wafers in class ten cleanrooms.
- MEMS & NEMS technologies, add-on technologies, system integration (including 3D) such as electrodes, color filters and micro lenses.
- Integration of photonic devices and electronics.
- Integration of micro- and nano-sensors into standard CMOS technologies, e.g. pressure and image sensors.
- Post-processing to prepare layers, structures and devices on CMOS wafers to achieve a compact, intelligent micro system, e.g. photo cells, IR-sensors or bio-sensors.
- Single process modules e.g. deposition, diffusion or etching.
- High temperature SOI-CMOS process inculding EEPROM to operate at temperatures up to 250 °C.
- High voltage CMOS process (200 V ... 1200 V) for half- / full bridge drivers to control MOS/IGBT-power-devices.
- ASIC foundry services with CADENE design kit and multi-project wafers.

TEST

Fraunhofer IMS offers the whole development chain from feasibility study across prototyping up to small-scale pilot-production:

- Test program development to reach optimal analogue performance and maximum mixed signal testing efficiency.
- Knowledge and expertise of commercially available Automated Test Equipment (ATE).
- Process parameter characterization automatically and manually operated.
- Automatically mixed signal device test at wafer-level and with assistance to our pick and place tool at packaging level.
- Full automatic wafer and device level test (from hundreds up to several million pieces).
- Special test and calibration equipment (Optical, pressure, infra-red (IR), high-voltage (up to 2 kV).
- Inspection and measurement of step height, sheet resistance, optical thin film, particles on wafer surfaces, optical CD and overlay, and wafer geometry.
- Fault analysis.
- Pull and shear tests.
- Reliability analysis, like temperature change, HAST and pressure chamber, temperature storage as well as aging and life cycling.

ASSEMBLY

Fraunhofer IMS offers new packaging solutions for your sensors, MEMS and advanced ICs:

- Package research and development.
- Demonstrator and prototype assembly services.
- Low to medium pre-production and transfer to mass production.
- High reliability ceramic packaging.
- Plastic packaging in cooperation with a capable and recognized local-based partner (automotive certified).
- Special packaging.
- Chip scale and vacuum packaging.
- Wafer grinding and thinning/polishing; down to 50 µm.
- Customer-specific wafer dicing in a broad range of seizes.
- Chip-on-board including board design.
- Die and wire bonding (temperature range up to 300°C).
- Encapsulation with glob-top or lids solder.
- Outer packaging.
- Wafer level packaging.