



FAST TRACK TO FOUNDRY



VTT Memsfab Ltd is a VTT subsidiary company providing low to medium-volume wafer processing services. We focus on MEMS, photonic components and other micro/nano-electronic devices. Our manufacturing is typically based on established technology platforms co-developed with VTT Technical Research Centre of Finland Ltd. Our services allow you to quickly design and manufacture new components in the same fab, eliminating costly and risky tech-transfer projects.

OUR PLATFORM, YOUR PRODUCT

Our manufacturing utilizes pre-developed technology platforms that can be adapted to help you develop custom products for your specific application needs:

- **Silicon Photonics** solutions based on a novel, low-loss thick SOI platform. Compact photonic integrated circuits using proprietary structures and process flows for optical communication and sensor applications.
- **Hyperspectral components** Mass-producible optical MEMS-based Fabry-Perot for high-volume applications, and piezo-actuated tunable filter structures (Piezo FPI) for customised high-performance PFPI optical instruments.
- **MEMS** Emerging and conventional MEMS platforms including surface MEMS, SOI MEMS and Piezo-MEMS CSOI processing capabilities
- **Silicon-based pixel detectors** based on proprietary processing know-how. Pixel sizes can vary from few microns to large area devices >20mm.
- Quantum devices Superconducting and tunnel-junction devices such as SQUID sensors









Our foundry

WHY MEMSFAB?

Few foundries offer access to the depth of R&D expertise in device and platform development that VTT can offer. We can help you realize your new product ambitions – by leveraging our prior investments in world class facilities and proven technology platforms we can cost effectively develop and manufacture your products allowing you to get to market faster while minimizing R&D risk.

The Micronova facility in Espoo Finland is the largest R&D-to-production Fab in the Nordic countries, housing two cleanrooms that total 2,400 m² in area. The fab offers a diverse range of wafer processing and characterization capabilities. We work primarily on 150 mm wafers but have selected capabilities for 200 mm on certain process flows.

EQUIPMENT AND PROCESSES

Lithography

- line stepper, 5:1, 0.35 μm CD
- Contact/proximity aligners
- Electron-beam writing
- Nanoimprinting (step & stamp)

Etching

- Polysilicon/nitride
- Oxide; thin film and Advanced Oxide Etching
- Metals; Al, Mo, Ti-W, Nb (TCP)
- Deep silicon etching; production and R&D
- Anhydrous HF vapour
- Wet etching, various; critical-point drying
- Ion trimming
- XeF2

Deposition

- Several sputtering tools
- LPCVD of nitride, poly, and oxide (TEOS, LTO)
- PECVD; nitride and oxide
- ALD: aluminium oxide, titanium oxide
- Parylene

Ion implantation

Medium-current; n- or p-type doping of silicon

Plating, spin-coating

- Cu (via or wiring), Ni, Sn-Ag, Sn-Pb,
- In-Sn, Au
- Polyimide, BCB

3D integration

- CMP of Si/oxide or copper
- Direct wafer bonding
- Grinding
- Spin-etching
- Thin-wafer handling

Backend

- Dicing, flip-chip and wire bonding (not available in high volumes)
- Eco-Snow cleaning

WORLD CLASS INFRASTRUCTURE

The VTT Micronova Fab has the facilities and equipment to support R&D and manufacturing across a broad range of materials and processes

ACCESS TO EXPERTS

Over 120 research scientists dedicated to micro-electronics. Extensive IPR and know-how across multiple technologies

PROFESSIONAL FAB OPERATIONS

A dedicated commercial fab operations team to deliver process stability, capability, traceability and minimal downtime

READ MORE ABOUT OUR SOLUTIONS AT

www.vttmemsfab.fi



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