Optoelectronics Integration on a Silicon Waveguide Platform

Integration of optoelectronic chips on a silicon-on-insulator (SOI) waveguide circuit is well-suited for both prototyping and production in various application fields.

Features
- Highly reliable flip-chip technology
- Suitable for various optoelectronic devices and materials (InP, GaAs, LiNbO3 etc.)
- Alignment accuracy ±100 nm vertically, <1 µm horizontally
- Low-loss passive waveguide circuits (0.1 dB/cm)
- Wavelength ranges between 1.2 and 6 µm
- Spot-size converters and efficient I/O coupling on SOI

Benefits
- Simplified processing for optoelectronic chips (no passives, no solder bumps, no alignment structures, just contact pads)
- Optimised combination of state-of-the-art technologies
- Application-specific circuit and module development
- Silicon-based low-cost packaging options
- Ability to ramp-up from prototypes to production
VTT Technical Research Centre of Finland is a globally networked multitechnological contract research organization. VTT offers access to the cross-disciplinary expertise of 2,900 professionals, unique research infrastructure, and comprehensive partnership networks.

Our internationally recognized competence in electronics includes the entire value chain of semiconductors, electronic materials, integrated circuit design, microelectronics manufacturing, and applications for electronic and optical components, sensors and microsystems in industrial instruments and measurements. VTT’s high level research environment and equipment base are available to our customers for prototyping and production ramp up of new products.

We provide creative solutions combining our own technology with the know-how of our partners. We also exploit the most recent results of basic research at universities and other academic institutions. Through our international networks we provide our customers with access to the solutions and services offered worldwide.

Additional information

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