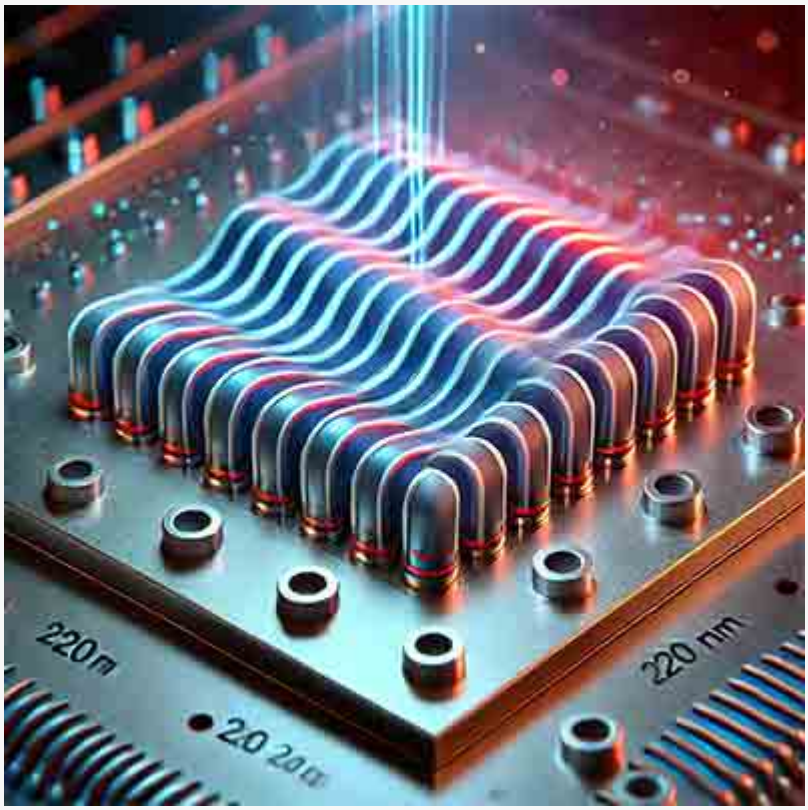
UniversityWafer, Inc. Announces 220nm Device Layer SOI Wafers for Cutting-Edge Integrated Photonic Applications

SOUTH BOSTON, MA, UNITED STATES, February 24, 2025 /EINPresswire.com/ -- Boston, MA – UniversityWafer, Inc., a leading global supplier of high-quality semiconductor substrates, is proud to announce the availability of its industry-standard 220nm device layer Silicon-on-Insulator (SOI) wafers. These specialized wafers have become the cornerstone of integrated photonic circuits, enabling the development of advanced optical communication systems, data transmission solutions, and next-generation photonic devices.



integrated photonic device on a silicon-on-insulator (SOI) wafer.

Meeting the Growing Demand for Integrated PhotonicsThe demand for high-speed, low-loss optical communication systems has never been greater. As data centers, telecommunications networks, and computing systems strive to increase performance while reducing energy consumption, integrated photonics has emerged as a transformative technology. At the heart of this revolution is the 220nm device layer SOI wafer — a critical substrate that facilitates the fabrication of compact, high-performance photonic components.

Why 220nm SOI Wafers Are Essential for PhotonicsThe 220nm device layer thickness has been established as the industry standard for integrated photonic applications for several compelling reasons:

Single-Mode Waveguide Operation: The 220nm thickness supports single-mode light propagation in the near-infrared wavelength range (1300nm to 1600nm), a crucial requirement

for minimizing signal distortion and ensuring efficient data transmission.

High Refractive Index Contrast: The SOI structure, comprising a silicon device layer (n ≈ 3.48) and a buried oxide (BOX) layer (n ≈ 1.44), creates a high refractive index contrast. This allows for tight optical confinement, enabling the fabrication of compact waveguides and minimizing propagation losses.

Low-Loss Optical Transmission: The precision 220nm device layer minimizes optical propagation loss, making it ideal for the development of photonic integrated circuits (PICs) that demand high signal integrity over extended distances.

Compatibility with CMOS Fabrication: The 220nm device layer SOI wafer aligns seamlessly with standard CMOS processing technologies, allowing researchers and manufacturers to leverage existing semiconductor infrastructure to produce photonic components cost-effectively.

Enabling Photonic Components: The 220nm thickness is particularly well-suited for key photonic components, including ring resonators, Mach-Zehnder interferometers, directional couplers, and grating couplers, all of which play vital roles in optical signal processing and light manipulation.

UniversityWafer, Inc.: Supporting Innovation in PhotonicsUniversityWafer, Inc. has been a trusted supplier of silicon substrates for academic institutions, research laboratories, and industrial manufacturers for over two decades. With a commitment to quality, precision, and customer satisfaction, UniversityWafer, Inc. is uniquely positioned to support the expanding photonics sector.

“Our 220nm SOI wafers represent the gold standard for integrated photonic applications,” said a spokesperson for UniversityWafer, Inc. “We understand the critical role these substrates play in enabling innovations in optical communication, data processing, and sensing technologies. By providing researchers and manufacturers with reliable, high-quality SOI wafers, we are helping drive the future of photonic integration.”

Technical Specifications:UniversityWafer, Inc.'s 220nm SOI wafers are available in various configurations to meet the diverse needs of the photonics community. Standard specifications include:

Device Layer Thickness: 220nm (nominal)

Device Layer Material: High-quality crystalline silicon

Buried Oxide (BOX) Layer Thickness: Typically 2 µm

Substrate: Silicon Handle Wafer

Diameter Options: 100mm, 150mm, and 200mm

Customization: Available upon request

Applications of 220nm SOI Wafers:

Optical Interconnects

Data Center Communication Systems

High-Speed Optical Switching

On-Chip Optical Sensors

Quantum Photonic Devices

Bio-Optical Sensing Platforms

Next-Generation Computing Architectures

Driving the Future of Integrated PhotonicsIntegrated photonics is rapidly reshaping the landscape of data transmission, computing, and sensing technologies. As the industry continues to push the boundaries of performance and miniaturization, the demand for reliable, high-performance SOI substrates will only increase. UniversityWafer, Inc. remains committed to supporting this growth by providing the photonics community with best-in-class 220nm SOI wafers.

About UniversityWafer, Inc.:Founded in 2000, UniversityWafer, Inc. is a leading supplier of semiconductor materials, specializing in silicon wafers, SOI substrates, and other advanced materials. Serving researchers, universities, and industrial clients worldwide, UniversityWafer, Inc. is renowned for its extensive inventory, fast delivery, and commitment to customer satisfaction.

For more information about UniversityWafer, Inc.'s 220nm SOI wafers and other products, please visit www.universitywafer.com or contact:

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