



SOI & ADVANCED SUBSTRATES NEWS

ACCELERATING INDUSTRY GROWTH | Bi-Weekly Newsletter

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FINWAVE SEMICONDUCTOR AND GLOBALFOUNDRIES PARTNER ON RF GAN-ON-SI TECHNOLOGY FOR CELLULAR HANDSET APPLICATIONS

This partnership merges Finwave's cutting-edge GaN-on-Si technology with GF's U.S.-based high-volume manufacturing capabilities and long legacy of RF innovation including industry-leading RF Silicon-On-Insulator (SOI) and Silicon-Germanium solutions.

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EFFICIENT TO BUILD ULTRA-LOW POWER MRAM PROCESSOR ON GF 22FDX

Efficient is already working with select customers for early access and sampling on the GF 22nm low power silicon on insulator (SOI) process with MRAM memory is expected by summer 2025. The partnership will combine the Fabric processor architecture developed by Efficient with GF's US manufacturing and global reach for low power edge devices.

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28 NM FDSOI EMBEDDED PCM EXHIBITING NEAR ZERO DRIFT AT 12 K FOR CRYOGENIC SNNS

The embedded PCM technology considered in the study is a chalcogenide ternary alloy Ge-rich Ge₂Sb₂Te₅ cointegrated with advanced CMOS technology based on a 28 nm Fully Depleted Silicon on Insulator (FD-SOI) substrate manufactured by STMicroelectronics.

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ASYNCHRONOUS DELTA-SIGMA MODULATOR IN 28 NM FDSOI TECHNOLOGY

A novel first-order asynchronous delta-sigma modulator (ADSM) designed in the 28 nm FD-SOI technology is presented in this study. Employing the FD-SOI technology enables designers to produce improved rail-to-rail transconductor and hysteresis comparator structures.

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SOI ECOSYSTEM NEWS

VIS AND NXP ANNOUNCE ESTABLISHMENT OF VSMC JOINT VENTURE

With an expected output of 55,000 300mm wafers per month in 2029, the joint venture will create approximately 1,500 jobs while contributing to the development of the upstream and downstream supply chains, contributing to Singapore and the global semiconductor ecosystem.

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ROHM AND UAES SIGN SiC POWER DEVICE AGREEMENT

This long-term supply agreement ensures UAES sufficient access to SiC power devices to meet the growing demand for SiC-based inverter modules. Going forward, both companies will deepen their collaboration, contributing to technological innovation in the automotive sector by accelerating the development of cutting-edge silicon carbide power technology for EVs.

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COHERENT UNVEILS HIGH-EFFICIENCY LASERS FOR SILICON PHOTONICS TRANSCEIVERS

Coherent announced the launch of new high-efficiency continuous wave distributed feedback lasers. Specifically engineered for silicon photonics transceiver modules, this innovative laser family represents a leap forward in indium phosphide (InP) laser technology.

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EXPERIMENTAL DEMONSTRATION OF THE HIGH ALIGNMENT-TOLERANT BEHAVIOR OF A MID-INFRARED WAVEGUIDE PLATFORM FOR EVANESCENT FIELD SENSING

In this work, researchers demonstrate the alignment tolerant behavior of a germanium-on-silicon trench waveguide platform with monolithically integrated microlenses using backside coupling of an expanded beam for evanescent field sensing between 6.5 and 7.5 μm.

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COMPOUND SEMICONDUCTOR

300MM WAFER FOR GAN DEVICES

Shin-Etsu Chemical has created a 300mm (12in) substrate for GaN epitaxial growth and recently started supplying samples. The QST 300mm wafer from Shin-Etsu have the same coefficient of thermal expansion (CTE) as that of GaN, avoiding warping and cracks on the GaN epitaxial layer and boosting yield.

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GAN TRANSISTORS AND HIGH-POWER AMPLIFIERS FOR MILLIMETER WAVE SATELLITE COMMUNICATIONS

Researchers at Fraunhofer for Applied Solid State Physics IAF have announced that they are coordinating a project to develop novel efficient GaN transistors and high-power amplifiers for LEO and GEO communication satellites by 2027.

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ROOM-TEMPERATURE DBR-FREE VCSEL OPERATION ON AN INGAN/GAN THIN-FILM PLATFORM WITH A MONOLITHIC SURFACE GRATING

Researchers at University of Hong Kong report on a thin-film indium gallium nitride (InGaN) vertical-cavity surface-emitting laser (VCSEL) structure using high-contrast gratings rather than distributed Bragg reflectors (DBRs) to confine the vertical electromagnetic radiation modes.

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GROWTH AND CHARACTERIZATION OF MICRO-LED BASED ON GAN SUBSTRATE

The team developed an optimized indium gallium nitride (InGaN) multiple quantum well structure with improved performance at lower current injection and lower driving voltages as suitable for the advanced micro-displays used in augmented (AR) and virtual reality (VR) setups.

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SEMI BLOG

FLEX 2024: THE HYBRID ELECTRONICS SUPPLY CHAIN MATURES

Presentations at this year's FLEX Conference illustrated the ongoing development of manufacturing tools and processes, materials, and test and reliability evaluation techniques for the growing field of hybrid electronics, which includes printed electronics and flexible hybrid electronics (FHE). Additionally, the field includes the use of additive manufacturing processes for electronics packaging and system assembly, from die attach to flexible printed circuits.

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SEMI NEWS HIGHLIGHT

Q2 2024 GLOBAL SEMICONDUCTOR EQUIPMENT BILLINGS INCREASED 4% YEAR-OVER-YEAR, SEMI REPORTS

Global semiconductor equipment billings increased 4% year-over-year to US\$26.8 billion in the second quarter of 2024, while quarter-over-quarter billings edged up 1% during the same period, SEMI announced in its Worldwide Semiconductor Equipment Market Statistics (WWSEMS) Report.

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