



SOI & ADVANCED SUBSTRATES NEWS

ACCELERATING INDUSTRY GROWTH | Bi-Weekly Newsletter

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Special Announcement

Just Announced: October 23: Shanghai FD-SOI Forum 2024 & October 24: 2024 International RF-SOI Workshop – both at the Pudong Shangri-La, Shanghai. Plan now to participation and watch this space for more details!

FEATURED IN THIS EDITION

SYNERGISTIC EFFECTS OF TOTAL IONIZING DOSE AND SINGLE-EVENT UPSET IN 130 NM 7T SILICON-ON-INSULATOR STATIC RANDOM ACCESS MEMORY

To enhance the single-event effect (SEE) resistance of static random access memory (SRAM) during the course of a space mission, a team of scientists from the Institute of Microelectronics, Chinese Academy of Sciences, devised a 130 nm 7T silicon-on-insulator (SOI) SRAM based on a CMOS process.

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MODULATION OF POST-FRACTURE ROUGHNESS WITH INDUCED SHEAR STRESS IN THE SMART CUT PROCESS

Fracture understanding and control is a key step in the maturity of the Smart Cut™ technology for silicon-on-insulator (SOI) production. A new approach is explored in this study to introduce shear stresses prior to fracture annealing, using the hetero-temperature surface activated bonding (HT-SAB) process, aiming to determine the influence of stresses on SOI surface roughness.

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COMPACT HIGH EXTINCTION RATIO HIGH-ORDER MODE PASS FILTER BASED ON INVERSE-DESIGNED ULTRA-COMPACT UNIDIRECTIONAL MODE CONVERTER

This study introduced a high-order mode pass filter (HOMPF) designed for silicon-on-insulator (SOI) platform, which effectively obstructs low-order modes while facilitating the transmission of higher-order modes with minimal loss.

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SUBWAVELENGTH GRATING CASCADED MICRORING RESONATOR BIOCHEMICAL SENSORS WITH RECORD-HIGH SENSITIVITY

A novel and compact biochemical sensor is designed in this work, integrating subwavelength grating cascaded microring resonators and multibox subwavelength grating straight waveguides on a silicon-on-insulator (SOI) platform.

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SOI ECOSYSTEM NEWS

NAVITAS POWERS AI AND EVS WITH GEN-3 'FAST' SIC IN ROBUST TOLL PACKAGE

Navitas Semiconductor announced the extension of its new portfolio of Gen-3 'Fast' (G3F) 650 V SiC MOSFETs into a thermally-enhanced, rugged, high-speed, surface-mount TOLL (Transistor Outline Leadless) package designed for demanding, high-power, high-reliability applications.

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INFINEON INTRODUCES NEW COOLGAN™ DRIVE PRODUCT FAMILY OF INTEGRATED SINGLE SWITCHES AND HALF-BRIDGES WITH INTEGRATED DRIVERS

Infineon Technologies AG expands its GaN portfolio with the CoolGaN™ Drive product family, which enables improved efficiency, reduced system size, and overall cost savings. This makes the devices suitable for longer-range e-bikes, portable power tools, and lighter-weight household appliances.

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LITHIUM NIOBATE/LITHIUM TANTALATE SINGLE-CRYSTAL THIN FILMS FOR POST-MOORE ERA CHIP APPLICATIONS

With the advent of the post-Moore era of integrated circuit technology, Lithium niobate (LiNbO3) and lithium tantalate (LiTaO3) thin film also shows great potential and advantages in new concept chip applications.

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DESIGN AND FABRICATION OF HIGH-PERFORMANCE PIEZOELECTRIC MICROMACHINED ULTRASONIC TRANSDUCERS BASED ON ALUMINUM NITRIDE THIN FILMS

A series of piezoelectric micromachined ultrasonic transducer (PMUT) devices were designed in this study to assess the influence of shape on the emission efficacy. Conventional microelectromechanical systems (MEMS) techniques were used to fabricate an array of PMUTs based on aluminum nitride (AlN) films.

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COMPOUND SEMICONDUCTOR

HONG KONG KICKED-OFF CONSTRUCTION OF THE FIRST GAN EPI-WAFER PILOT LINE

To jointly promote the development of Hong Kong's microelectronics industry, Hong Kong Science and Technology Parks Corporation and MassPhoton (Hong Kong) held a launch ceremony for Hong Kong's first ultra-high vacuum "Third-Generation Semiconductor Gallium Nitride Epitaxial Wafer Pilot Line".

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GERMAN RESEARCHERS DEMO PRACTICAL IMPLEMENTATION OF ALN-BASED VALUE CHAIN FOR POWER SEMICONDUCTORS

To make AlN technology accessible to industry in the medium term, the related existing activities in Germany have been combined in a strategic cluster. For the first time, The consortium has now successfully demonstrated the practical implementation of a value chain for AlN devices in Germany and Europe.

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VISIC, HERAEUS AND PINK TEAM UP ON GAN POWER MODULES FOR EVS

Three global leaders in gallium nitride (GaN) tech have signed an agreement to co-develop a power module that will deliver "unprecedented reliability and performance for battery electric vehicles."

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ANALYSIS, RECENT CHALLENGES AND CAPABILITIES OF SPIN-PHOTON INTERFACES IN SILICON CARBIDE-ON-INSULATOR

This work provides a review on key properties of spin-photon interface components for future deployment on the SiC-on-insulator platform with detailed insights provided for available color centers as well as integrated photonic circuits.

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SEMI BLOG

SECURING SUPPLY CHAINS KEYNOTE AND PODCAST:

Jose Fernandez, U.S. Under Secretary of State for Economic Growth, Energy, and the Environment, sat down with Joe Stockunas, President of SEMI Americas, for a fireside chat on the CEO Summit keynote stage at SEMICON West 2024. In the discussion, Fernandez emphasized the need to form partnerships to address vulnerabilities as the key to creating stable supply chains.

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SEMI NEWS HIGHLIGHT

WORLDWIDE SILICON WAFER SHIPMENTS INCREASE 7% IN Q2 2024, SEMI REPORTS

Worldwide silicon wafer shipments increased 7.1% quarter-over-quarter to 3,035 million square inches (MSI) in the second quarter of 2024, but saw an 8.9% decline from the 3,331 million square inches recorded during the same quarter last year, the SEMI Silicon Manufacturers Group (SMG) reported in its quarterly analysis of the silicon wafer industry.

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EVENTS



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