



SOI & ADVANCED SUBSTRATES NEWS

ACCELERATING INDUSTRY GROWTH | Bi-Weekly Newsletter

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SOI MARKET & TECHNOLOGY SYMPOSIUM

15 EXPERT SPEAKERS | APPLICATION BREAKTHROUGHS
SEMICON WEST | SAN FRANCISCO | JULY 13

HEAR THE LATEST & NETWORK WITH THE LEADERS IN THE INDUSTRY:

- YOLE
- SOITEC
- GLOBALFOUNDRIES
- SYNOPSYS
- CEA-LETI
- NXP
- STMICROELECTRONICS
- DOLPHIN
- UC SAN DIEGO
- and more

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FEATURED IN THIS EDITION

CEA-LETI DETAILS MOVE TO 10NM, 7NM FD-SOI PROCESS IN EUROPE

CEA-Leti is setting up a cleanroom to develop modules for a 10nm low power process technology using fully depleted silicon on insulator (**FD-SOI**) that will move to 7nm in the future. The process will use planar transistors to be compatible with existing designs at 18, 22 and 28nm and will also include embedded non-volatile memory (eNVM).

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DIRECT ELECTRIFICATION OF SILICON MICROFLUIDICS FOR ELECTRIC FIELD APPLICATIONS

To overcome the barriers for using silicon in optical and electrical microfluidic devices, silicon-on-insulator (**SOI**) technology is introduced in microfluidic applications for the first time. The SOI-based devices were further shown to have excellent mechanical rigidity and compliance as well as high chemical compatibility toward corrosive solvents, leading to unprecedented long-term stability and novel applications.

[Read More](#)

RF-SOI LOW-NOISE AMPLIFIER USING RC FEEDBACK AND SERIES INDUCTIVE-PEAKING TECHNIQUES FOR 5G NEW RADIO APPLICATION

A low-noise amplifier design using an optimum RC feedback and inductive peaking technique is presented for the N79 band, covering a frequency range of 4.4 GHz to 5.0 GHz using the RF Silicon on Insulator (**RF-SOI**) process.

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SINGLE-CHARGE TUNNELING IN CODOPED SILICON NANODEVICES

SOI substrates provide the most suitable platform to explore the effects of codoping on nanoscale devices because the top Si layer can be scaled down in all three dimensions. This work overviews results obtained from different types of codoped devices, but the **SOI** platform and the basic fabrication steps are common to all.

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SOI ECOSYSTEM NEWS

AIRBUS AND STMICROELECTRONICS TO DEVELOP SILICON CARBIDE POWER ELECTRONICS FOR AIRCRAFT

Silicon Carbide (SiC) semiconductors are becoming key in the automotive sector as car manufacturers seek to increase the performance of electric vehicles. The R&D partnership between Airbus and STMicroelectronics will seek to leverage the materials in the same way.

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UNLOCKING THE MONOLITHIC INTEGRATION SCENARIO: OPTICAL COUPLING BETWEEN GASB DIODE LASERS EPITAXIALLY GROWN ON PATTERNED SI SUBSTRATES AND PASSIVE SIN WAVEGUIDES

Researchers based in France, Italy and Ireland claim the first demonstration of III-V semiconductor lasers grown on a patterned silicon photonics platform with light coupled into a waveguide, which may pave the way for future low-cost, large-scale, fully integrated photonic chips.

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SAMSUNG ELECTRONICS UNVEILS FOUNDRY VISION IN THE AI ERA AT SAMSUNG FOUNDRY FORUM 2023

At the event, Samsung announced detailed plans for the mass production of its 2nm process, as well as performance levels. From 2025, Samsung will begin foundry services for 8-inch gallium nitride (GaN) power semiconductors targeting consumer, data center and automotive applications.

[Read More](#)

DESIGN OF AN ULTRA-LOW MODE VOLUME PIEZO-OPTOMECHANICAL QUANTUM TRANSDUCER

Coherent transduction of quantum states from the microwave to the optical domain can play a key role in quantum networking and distributed quantum computing. This study presents the design of a piezo-optomechanical device formed in a hybrid lithium niobate on silicon platform, that is suitable for microwave-to-optical quantum transduction.

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SEMI NEWS HIGHLIGHT

IT WILL TAKE A VILLAGE TO SOLVE MULTIPHYSICS

"We need a Multiphysics platform that interoperates with a chip design platform that interoperates with the manufacturing platform, and so forth. Physics, platforms, and partnerships are the 3Ps that are important to solve", said John Lee, GM and VP of Ansys and a member of the ESD Alliance Governing Council, who recently reinforced his advocacy of open extensible platforms as a workable model for the industry.

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REGISTERED APPRENTICESHIPS: A PROVEN WAY TO DEVELOP TALENT

There are many strategies to growing a diverse workforce, but one rises to the top as the gold standard for both employers and employees: Registered Apprenticeships. The SEMI Foundation is also investing in apprenticeships. The SEMI Career and Apprenticeship Network offers customized training programs for employers and workers to help broaden and diversify the semiconductor industry workforce and assist companies in developing talent.

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EVENTS



SOI MARKETS & TECH SYMPOSIUM

Date: July 13, 2023

Location: Moscone Center, San Francisco, US

This is a single day event exploring applications, design and success stories for SOI wafers used in RF, Edge IOT, Automotive and design and manufacturing updates. Industry experts will provide updates on FD-SOI and RF-SOI and their complete ecosystems. Open forum opportunities will allow engagement time with experts and all speakers from the fabless, foundry and EDA/IP communities. Anyone needing an update or considering the benefits which SOI technology brings to semiconductor performance should attend.

[Learn More](#)



ADVANCED PACKAGING SUMMIT 2023

Date: Sept 5, 2023

Location: Suwon Convention Center, South Korea

The summit brings together leading experts, researchers, and industry professionals to share their insights and experiences on advanced packaging solutions that enable high-density, high-bandwidth, and low-latency interconnects for HPC systems.

[Learn More](#)



SEMICON TAIWAN 2023

Date: Sept 6 – 8, 2023

Location: TaiNEX 1&2 Taipei, Taiwan

With the key focus of "Inspire Innovation. Empower Sustainability.", the exhibition will gather more participants from major companies than ever before, including 850 exhibitors, covering 3,000 booths, and attracting over 50,000 visitors!

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