



SOI & ADVANCED SUBSTRATES NEWS

ACCELERATING INDUSTRY GROWTH | Bi-Weekly Newsletter

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Mark your calendars for the return of the popular Shanghai SOI Workshop & Forum covering both FD-SOI and RF-SOI, hosted by Simgui and Verisilicon, and supported by SEMI SOIIC – October 23-24, 2023 at the Pudong Shangri-La Hotel. More information to come!

FEATURED IN THIS EDITION

GLOBALFOUNDRIES ANNOUNCES 9SW RFSOI TECHNOLOGY FOR NEXT-GENERATION MOBILE AND 5G APPLICATIONS

As GF's most advanced RF solution, GF's 9SW **RFSOI** technology will offer significant improvements in performance, integration and area advantages in front-end modules (FEMs) for today's 5G operating frequencies, as well as future 5G mobile and wireless communication applications.

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BRAINCHIP RECEIVES FIRST SHIPMENT OF AKD1500 CHIPS IN SILICON FROM TECHNOLOGY PARTNER GLOBALFOUNDRIES

Leveraging GlobalFoundries' advanced 22nm fully depleted silicon-on-insulator (**FD-SOI**) 22FDX® technology, the AKD1500 is fully functional at first silicon and furthers the growth of neuromorphic computing at the edge and highlights the portability of BrainChip's Akida™ architecture.

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INTEL FOUNDRY SERVICES AND TOWER SEMICONDUCTOR ANNOUNCE NEW US FOUNDRY AGREEMENT

It is noted that both companies have alluded to utilizing other production nodes at Intel's Fab 11X, including 65 nm radio frequency silicon-on-insulator (**RF SOI**), which would be the first time when Intel will use SOI of any kind.

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INVESTIGATION OF LIMITATIONS IN THE DETECTION OF ANTIBODY + ANTIGEN COMPLEXES USING THE SILICON-ON-INSULATOR FIELD-EFFECT TRANSISTOR BIOSENSOR

The **SOI-FET** biosensor shows potential for virus detection in various fields but faces challenges that require improvement, including sensor design and technological limitations. This study focuses on the theoretical investigation of the detection process for the "antibody + antigen" complex using a **SOI-FET** biosensor.

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SOI ECOSYSTEM NEWS

BORGWARNER TO INTEGRATE STMICROELECTRONICS' SILICON-CARBIDE TECHNOLOGY

STMicroelectronics will supply BorgWarner with the latest third generation 750V silicon carbide (SiC) power MOSFETs dice for their proprietary Viper-based power module. This power module is used in BorgWarner's traction inverter platforms for several current and future Volvo Cars electric vehicles.

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BOSCH STARTS PRODUCTION OF 800-VOLT SiC TECHNOLOGY FOR ELECTRIC VEHICLES

Bosch is starting the production of new powertrain solutions based on 800-volt technology. This will make recharging faster and provide a further boost for electromobility. The 800-volt version of the inverter is based on silicon carbide semiconductors.

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TOSHIBA RELEASES 3RD GENERATION SILICON CARBIDE MOSFETS WITH REDUCED SWITCHING LOSSES

Toshiba has launched the TWxxxZxxxC series of ten silicon carbide (SiC) MOSFETs based upon their third-generation technology. Devices in the TWxxxZxxxC series are the first Toshiba SiC products to be housed in a TO-247-4L(X) package with a fourth pin.

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REALIZING TIGHT-BINDING HAMILTONIANS USING SITE-CONTROLLED COUPLED CAVITY ARRAYS

Using a silicon photonic coupled cavity array made up of 8 high quality factor resonators and equipped with specially designed thermo-optic island heaters for independent control of cavities, the study demonstrates a programmable photonic cavity array in the telecom regime.

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SEMI NEWS HIGHLIGHT

NEW PLASMA POWER TECHNOLOGIES FOR NEXT-GEN SEMICONDUCTOR MANUFACTURING

As chip designs push the limits of speed, size and complexity, the semiconductor industry has set its sights on angstrom-scale device features. High-speed, precise and repeatable plasma power delivery with sophisticated controls is fundamental to process and device improvements. These factors support inflection points in technologies from chip-scale packaging through advanced front-end technologies, including gate-all-around (GAA) transistors, backside power delivery (BPD) and the path to 3D DRAM.

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SEMI SOI INDUSTRY CONSORTIUM ELECTS NEW LEADERSHIP AND GOVERNING COUNCIL AND ANNOUNCES UPCOMING EVENTS

SOI Industry Consortium (SOIIC), a SEMI Technology Community, announced new leadership, Governing Council members and upcoming educational events for the ecosystem of chip designers, developers, and equipment and materials providers in the silicon on insulator ecosystem.

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EVENTS

Dynamic Control of ALD Films for Fast & Efficient MEMS Manufacturing

MEMS Manufacturing Webinar Series

Webinar
October 11, 2023
8:00-9:00 am PT

 

DYNAMIC CONTROL OF ALD FILMS FOR FAST & EFFICIENT MEMS MANUFACTURING

Date: October 11, 2023
Location: Virtual

In this webinar, Forge Nano will present how to use Atomic Layer Deposition (ALD) to tune a few different thin film properties such as electrical barrier performance, gas diffusion barrier behavior, and internal film stress. This approach overcomes the perception of ALD as a barrier to high-volume manufacturing and as a material intensive process. Join Paul Carey and Matt Weimer of Forge Nano to explore a new approach.

[Learn More](#)

Childcare in the CHIPS ACT: Resources and Solutions

SEMI FOUNDATION

Webinar
Sept. 19, 2023
11am - 12pm PT



CHILDCARE IN THE CHIPS ACT: RESOURCES AND SOLUTIONS

Date: Sept 19, 2023
Location: Zoom, United States

Join us to hear directly from the CHIPS office and representatives from local and national childcare providers about this issue and to participate in a robust Q&A session to help you shape your childcare strategy.

[Learn More](#)

 

Using Aptamers for Targeted Electrochemical Sensing

Flexible Electronics Course #15

Virtual
10:00 AM - 12:00 Noon PT
November 2, 2023

FUNDAMENTALS OF ELECTROCHEMICAL, APTAMERIC-BASED SENSORS

Date: Nov 2, 2023
Location: Virtual

Recognition methodologies for electrochemical sensing of specific analytes have been developing over many years. Creating specificity over similar analytes has been a goal, as often similar shaped molecules can bind to the sensor alongside the targeted analyte. One of the cutting-edge ways to enable targeted electrochemical sensing is to use single strand DNA or RNA molecules, also known as aptamers, as the biorecognition elements (BRE).

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