



SOI & ADVANCED SUBSTRATES NEWS

ACCELERATING INDUSTRY GROWTH | Bi-Weekly Newsletter

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2023 SOI Workshop & Forum - October 24-25

Registration is now open for the [2023 International RF-SOI Workshop](#) that will be held at Pudong Shangri-La hotel in Shanghai on October 24th, 2023. It is organized by VeriSilicon and Simgui, and supported by SEMI China and SOI Industry Consortium. The Workshop will be focused on the application and its opportunity for SOI Industry.

FEATURED IN THIS EDITION

GLOBALFOUNDRIES UNVEILS POWER-EFFICIENT ADVANCEMENTS TO 22FDX® PLATFORM AT ANNUAL TECH SUMMIT

The new features include ultra-low power memory, designed to operate with exceptional energy efficiency, even in the most power-sensitive environments. Additionally, GF's 22FDX® (22nm FD-SOI) platform introduces advanced temperature-resistant capabilities, which are critical for the auto industry.

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DUAL-FREQUENCY PIEZOELECTRIC MICROMACHINED ULTRASOUND TRANSDUCER BASED ON POLARIZATION SWITCHING IN FERROELECTRIC THIN FILMS

A novel approach is presented for generating dual-frequency ultrasound using a ferroelectric piezoelectric micromachined ultrasound transducer (PMUT). To make the manufacturing process easier, the PMUT is made using an SOI wafer, with a silicon device layer acting as the PMUT's passive layer.

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LATERAL PIN PHOTODIODE WITH GERMANIUM AND SILICON LAYER ON SOI WAFERS

The insertion of a germanium layer on top or below a silicon PIN diode designed in SOI technology has been considered. Results showed that different semiconductor characteristics (bandgap, mobility, and absorption coefficients) result in a general improvement in the solar cell performance.

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INVERSE-DESIGNED COUNTER-TAPERED COUPLER BASED BROADBAND AND COMPACT SILICON MODE MULTIPLEXER/DEMULTIPLEXER

A new wide-bandwidth and highly-integrated mode MUX/DeMUX is suggested, which relies on an inverse-designed counter-tapered coupler. The optimized device was manufactured on the SOI platform using two-step etching techniques to create the grating couplers and silicon waveguides separately.

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SOI ECOSYSTEM NEWS

SOITEC OPENS NEW PLANT, POSITIONING SMARTSiC™ AS A FUTURE ELECTRIC-VEHICLE STANDARD

The new plant will have a 2,500 m2 footprint and a final production capacity of 500,000 SmartSiC™ wafers per year. It will contribute to Soitec's strategy of sustainable growth towards a threefold expansion of addressable markets by 2030, reinforcing the company's leadership position in the strategic semiconductor materials market.

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IMEC PRESENTS SIGE BICMOS OPTICAL RECEIVER ACHIEVING GROSS DATA RATE OF 200GBPS

Researchers from IDLab, a team at Ghent University, Belgium from Leuven-based microelectronics research center imec, have presented an optical receiver achieving a gross data rate of 200Gbps. Their approach, combining a SiGe BiCMOS traveling-wave electronics integrated circuit and a silicon photonics germanium photodetector, offers not only speed but also scalability.

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NEXPERIA PARTNERS WITH KYOCERA AVX SALZBURG TO PRODUCE A 650 V SILICON CARBIDE RECTIFIER MODULE FOR POWER APPLICATIONS

Nexperia has partnered with KYOCERA AVX Components (Salzburg) GmbH to jointly produce a new 650 V, 20 A silicon carbide (SiC) rectifier module for high frequency power applications ranging from 3 kW to 11 kW power stack designs, aimed at application like industrial power supplies, EV charging stations, and on-board chargers.

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GE0.92SN0.08/GE MULTI-QUANTUM-WELL LEDS OPERATED AT 2-MM-WAVELENGTH ON A 12-INCH SI SUBSTRATE

Researchers based in Singapore, China and the USA claim the first germanium–tin alloy (GeSn) multiple quantum well (MQW) light-emitting diodes (LEDs) on a 300mm (12-inch)-diameter silicon (Si) wafer. The deployment on the largest-diameter wafers so far increases the potential for mass production and reduces manufacturing costs of complete integrated silicon photonic systems.

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SEMI BLOG

WALL STREET'S CURRENT VIEW OF EDA INDUSTRY WITH JAY VLEESCHHOUWER OF GRIFFIN SECURITIES

Robert Smith, executive director of the ESD Alliance, recently spoke with Jay Vleeschhouwer, managing director of software research at Griffin Securities, for his insights on the state of electronic design automation (EDA), the topic of his presentation at the 2023 Design Automation Conference (DAC).

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SEMI NEWS HIGHLIGHT

MEMS & SENSORS EXECUTIVE CONGRESS 2023 TO SPOTLIGHT SENSORIZATION DRIVING GLOBAL SOLUTIONS

Themed Sensorizing Our World – Driving Global Solutions, the MEMS & Sensors Executive Congress (MSEC 2023) will bring together industry leaders in sensor technology to discuss trends and innovations in sensorization. The conference will focus on applications in various growth markets such as automotive, healthcare, AI, metaverse, PNT, and smart cities. Registration is now open!

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EVENTS



2023 Shanghai SOI Forum
Date: Oct 23 – 24, 2023
Location: Shanghai, China

Mark your calendars now for SOI Forum 2023 & RF-SOI Workshop - October 23-24, 2023 in Shanghai, organized by VeriSilicon Holdings Co., Ltd. and Shanghai Simgui Technology Co., Ltd.

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