



SOI & ADVANCED SUBSTRATES NEWS

ACCELERATING INDUSTRY GROWTH | Bi-Weekly Newsletter

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A C-SHAPED HINGE FOR DISPLACEMENT MAGNIFICATION IN MEMS ROTATIONAL STRUCTURES

A novel MEMS-based rotational structure is developed, embedding C-shaped symmetrical hinges to provide displacement magnification capability. These were fabricated via a bulk micromachining process with silicon-on-insulator (SOI) wafers.

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COMPACT SOI DUAL-MODE (DE)MULTIPLEXER BASED ON THE LEVEL SET METHOD

This study presents a compact and high-fabrication-tolerance single-connected mode (de)MUX based on the adjoint and level set method with a footprint of $9.4\text{ }\mu\text{m} \times 2.9\text{ }\mu\text{m}$. The (de)MUX is designed on the SOI platform with a top silicon layer thickness of 220 nm.

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ON-CHIP SUB-PICOMETER CONTINUOUS WAVELENGTH FIBER-BRAGG-GRATING INTERROGATOR

Miniaturized fiber-Bragg-grating interrogators are of interest for applications in the areas where weight and size controlling are important, e.g., airplanes and aerospace or in-situ monitoring. An ultra-compact high-precision on-chip interrogator is proposed based on a tailored arrayed waveguide grating on a SOI platform.

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ULTRA-BROADBAND ON-CHIP POWER SPLITTERS FOR ARBITRARY RATIOS ON SILICON-ON-INSULATOR

A complete design methodology based on adiabatic rib waveguides on a silicon photonics platform is presented, which can achieve the characteristics of large operating bandwidth, small size, low loss and large process tolerance. The device is based on SOI platform comprised of a 220 nm core silicon layer, a $2\text{ }\mu\text{m}$ BOX and a $2\text{ }\mu\text{m}$ SiO₂ cladding.

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SOI ECOSYSTEM NEWS

CEA-LETI REPORTS BREAKTHROUGH 3D SEQUENTIAL INTEGRATION (3DSI) OF CMOS OVER CMOS WITH ADVANCED METAL LINES

This breakthrough, detailed in the paper “3D Sequential Integration with Si CMOS Stacked on 28nm Industrial FDSOI with Cu-ULK iBEOL Featuring RO and HDR Pixel”, stems from the demonstration of a monocrystalline CMOS stacked sequentially above an industrial CMOS platform (28nm FDSOI) and four metal levels.

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INFINEON EXPANDS THE MOTIX™ FAMILY WITH 160 V 2-CHANNEL GATE DRIVER ICS FOR BATTERY-POWERED APPLICATIONS

To further expand the advanced product family, Infineon introduces the 2-channel MOTIX gate driver ICs 2ED2742S01G, 2ED2732S01G, 2ED2748S01G, and 2ED2738S01G. The 160 V Silicon-on-Insulator (SOI) gate drivers are small, powerful, and cost-effective gate drive solutions with excellent latch-up immunity.

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A DESIGN OF HIGH-EFFICIENCY: VERTICAL ACCUMULATION MODULATORS BASED ON SILICON PHOTONICS

Photonics modulators exhibiting high modulation efficiency and low insertion loss are highly sought after in numerous critical applications, such as optical phase steering, optical coherent imaging, and optical computing. This paper introduces a novel accumulation-type vertical modulator structure based on a silicon photonics platform.

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SPACE-QUALIFYING SILICON PHOTONIC MODULATORS AND CIRCUITS

Leveraging the manufacturing capability of Si photonic foundries, researchers performed a space test of subwavelength photonic devices by exposing arrays of Si PIC devices and circuits on LEO. Through characterizing arrays of doped WGs with different lengths, the evidence of the heavy ion degradation and damaging trajectories along SOI is observed.

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SEMI BLOG

THE PATH TO SUSTAINABILITY IN THE SEMICONDUCTOR VALUE CHAIN – CAN STARTUPS HELP?

The push towards sustainability is a critical step towards scaling the semiconductor market. To help accelerate additional innovation, more than 10 Corporate Venture Capital (CVC) firms from the semiconductor ecosystem have come together to establish Startups for Sustainable Semiconductors (S3), a program for startup companies with sustainable innovations that can help advance the semiconductor industry in its journey to become greener.

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SEMI NEWS HIGHLIGHT

GLOBAL SEMICONDUCTOR CAPACITY PROJECTED TO REACH RECORD HIGH 30 MILLION WAFERS PER MONTH IN 2024, SEMI REPORTS

Global semiconductor capacity is expected to increase 6.4% in 2024 to top the 30 million wafers per month mark for the first time, SEMI announced in its latest quarterly World Fab Forecast report. The 2024 growth will be driven by capacity increases in leading-edge logic and foundry, applications including generative AI and high-performance computing, and the recovery in end-demand for chips.

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