Low-loss silicon photonics technology test report

Overview

In this work, we present the first demonstration of ultra-low losses of 2. 0dB/m in silicon nitride waveguides and ring resonators with Q = 11. 18 million, using a anneal-free process involving ICP-PECVD with deuterated silane as a precursor gas, with a maximum temperature of only. High Speed, High Data Rate, Low Latency requirements. Not Speed but Reducing power consumption! *By 2025, 20%?

SiPh technology is rising star in high speed data transfer. Why Silicon Photonics?

Why Wafer-level Tests?

2016. Low Pressure Chemical Vapor deposited (LPCVD) Silicon Nitride core waveguides, with silicon dioxide upper and lower claddings, are one of the most. How do we screen for known good die?

Test Request: A table where each entry specifies a set of optical and/or electrical ports for a test site. Electrical probes need to be manually lowered/lifted. It is not possible to run. Heterogeneous and monolithic integration of the versatile low loss silicon nitride platform with low temperature materials such as silicon electronics and photonics, III-V compound semiconductors, lithium niobate, organics, and glasses, has been inhibited by the need for high temperature annealing. What is Photonic integration?

Smaller, lighter, power efficient, inexpensive.

Article Content

May 25, 2026

Anneal-free ultra-low loss silicon nitride integrated photonics

In this work we report a significant advance in silicon nitride integrated photonics, achieving the lowest loss to date for an anneal-free silicon nitride waveguide.

May 24, 2026

PIC and Silicon Photonics Testing

PIC and Silicon Photonics Testing Photonic integrated circuits (PICs) are a key enabler driving advances in communications, optical computing, aerospace,

Aug 02, 2025

Roadmapping the next generation of silicon photonics

Silicon photonics has developed into a mainstream technology driven by advances in optical communications. The current generation has led to a proliferation of integrated photonic devices from ...

Apr 15, 2026

A Complete Si Photonics Platform Embedding Ultra-Low Loss

We report ultra-low propagation losses in silicon sub-micrometric waveguides on a 200 mm CMOS compatible photonics platform. We show median losses in C-band (O-band) as low as

Sep 24, 2025

A proposal of Si-photonics for automobile

Cost depends on volume, chip size and assembly Silicon photonics benefits from mature CMOS process The cost of silicon photonics is determined by chip size. A 1-ch silicon photonics transceiver would

Aug 19, 2025

Review of Silicon Photonics Technology and Platform Development

This article reviews advancements in silicon photonics technology and platform development, highlighting its impact on engineering and technology innovation.

Jan 21, 2026

LIGENTEC: Low loss integrated photonics

All Nitride Core Technology: combining the benefits of Silicon Nitride (VIS-IR, low loss, high power) with Silicon Photonics (small chip size, scalability)

Jun 28, 2025

Recent advances in international standardization of Silicon photonics ...

Evidence Contributions – demonstrate complete multimode silicon photonics transceiver assemblies'' suitability to operate in the target environment including link budget, high temperature

Feb 26, 2026

Silicon photonics reliability and qualification standards

Due to explosive growth of internet traffic during past decades, there is an imminent need for scalable technologies that can enable both high-speed and low-power consumption requirements of today''s

Sep 06, 2025

Anneal-free ultra-low loss silicon nitride integrated photonics

We report the lowest loss waveguides and highest Q integrated ring resonators, 1.77 dB m−1loss and 15 mil-lion Q, fabricated with an anneal-free silicon nitride photonic low-temperature process ...

Apr 07, 2026

Fully Automated Integrated Silicon Photonic Wafer Test

Test Request: A table where each entry specifies a set of optical and/or electrical ports for a test site. It also specifies the measurement routine to execute and its parameters.

Apr 20, 2026

Anneal-free ultra-low loss silicon nitride integrated

Heterogeneous and monolithic integration of the versatile low loss silicon nitride platform with low temperature materials such as silicon electronics

Jul 23, 2025

Review of Silicon Photonics Technology and Platform

Silicon photonics leverages the billions of dollars and decades of research poured into silicon semiconductor device processing to enable high

Jul 12, 2025

IRPS 2023 Reliability Challenges for Si Photonics Products

Motivation For Discussion Of Si Photonics Products Reliability Challenges SiP (Silicon Photonics) products are new to market – need to understand and scope out scalability, manufacturability, and

Apr 29, 2026

Silicon Photonics – Challenges & Solutions for Wafer-Level Production Tests

Why Silicon Photonics? Improvements in Thin Film Growth High Quality Ge on Si Excellent Lattice Matching Hi-Speed Ge-on-Si Photodiodes Exploiting Silicon Technologies Low-Cost High-Volume

Dec 05, 2025

Progress in Passive Silicon Photonic Devices: A Review

Silicon photonics has emerged as a critical enabling technology for a diverse range of applications, from high-speed data communication and

Apr 29, 2026

Low-loss silicon nitride photonic ICs for single-photon applications

Abstract: Low-loss photonic integrated circuits (PICs) are the key elements in future quantum technologies, nonlinear photonics and neural networks. The low-loss photonic circuits technology

Jan 20, 2026

250C Process for < 2dB/m Ultra-Low Loss Silicon Nitride Integrated ...

In this work, we present the first demonstration of ultra-low losses of 2.0dB/m in silicon nitride waveguides and ring resonators with Q = 11.18 million, using a anneal-free process involving ICP

Aug 26, 2025

Low-loss amorphous silicon-on-insulator technology for photonic ...

We report the fabrication of low-loss amorphous silicon photonic wires deposited by plasma enhanced chemical vapor deposition. Single mode photonic wi

Oct 18, 2025

Low-loss through silicon Vias (TSVs) and transmission lines for 3D ...

In order to apply the TSV technology to the silicon photonics package, the electrical characteristics of the TSVs and RDLs should be carefully designed and characterized to guarantee

Aug 28, 2025

(PDF) Low-loss silicon nitride photonic ICs for near

Here, we report the labs-scale process optimization and optical characterization of low-loss tunable photonic integrated circuits for single-photon

Sep 27, 2025

Low-Temperature Sputtered Ultralow-Loss Silicon

Here, we report the realization of ultralow-loss Si 3 N 4 photonic devices with high film thickness by reactive sputtering at room temperature. The optical propagation

Aug 15, 2025

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Jun 26, 2026

High-performance lasers for fully integrated silicon nitride photonics

Silicon nitride (SiN) waveguides with ultra-low optical loss enable integrated photonic applications including low noise, narrow linewidth lasers, chip-scale nonlinear photonics, and

Contact Us

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