



Tower Semiconductor Announces World's First Heterogeneous Integration of Quantum Dot Lasers on its Popular SiPho Foundry Platform PH18

March 2, 2023

Integrates a GaAs QD laser on Tower's versatile high-volume SiPho Foundry platform

MIGDAL HAEMEK, Israel – March 2, 2023 – [Tower Semiconductor](#) (NASDAQ/TASE: TSEM), the leading foundry of high-value analog semiconductor solutions, in collaboration with [Quintessent, Inc.](#), today announced the world's first heterogeneous integration of GaAs quantum dot (QD) lasers and a foundry silicon photonics platform (PH18DB). This PH18DB platform is targeted for optical transceiver modules in datacenters and telecom networks, as well as new emerging applications in artificial intelligence (AI), machine learning, LiDAR and other sensors. According to the market research firm LightCounting, the silicon photonics transceiver market is expected to grow at a CAGR of 24% reaching a TAM of \$9B in 2025.

The new PH18DB platform offers GaAs based quantum dot lasers and semiconductor optical amplifier (SOA) built on Tower's high-volume base PH18M silicon photonics foundry technology, that includes low loss waveguides, photodetectors, and modulators heterogeneously integrated on a single silicon chip. This platform will enable dense photonic integrated circuits (PICs) that can support higher-channel count in small form factor. Open foundry availability of this 220nm SOI platform will provide access to a broad array of product development teams, to simplify their PIC design through use of laser and SOA pcells, in addition to the feature rich baseline PH18 process.

Initial process design kits (PDK) for PH18DB have been made available in partnership with DARPA under the Lasers for Universal Microscale Optical Systems (LUMOS) program, which aims to bring high-performance lasers to advanced photonics platforms for commercial and defense applications, and MPWs are planned for 2023 and 2024.

This PH18DB platform complements Tower's previously announced, and now prototyping, PH18DA platform that offers heterogeneously integrated InP lasers, modulators and detectors.

These two heterogeneously integrated SiPho foundry platforms offer a rich set of devices and options to designers across the broad spectrum of leading edge applications. Tower continues to offer its silicon-only PH18MA platform, now in high volume production, for applications that do not require heterogeneous integration of III-V active elements.

Tower will be presenting its broad Optical technology offerings at the upcoming Optical Fiber Conference (OFC), March 7-9, 2023, in the San Diego Convention Center, CA. To learn more about the new technology announced and other manufacturing solutions, visit Tower's engineering team at the Company's booth #5317. For more details about the conference and presentation schedule, visit [here](#).

For additional information on the PDK and MPW shuttle schedules for PH18DB, PH18DA and PH18M platforms, please visit [here](#).

For additional information about Tower's silicon photonics platform, please visit [here](#).

This work was funded, in part, by the U.S. Government under the DARPA LUMOS program. The views and conclusions contained in this document are those of the authors and should not be interpreted as representing the official policies, either expressed or implied, of the U.S. Government.

About Tower Semiconductor

Tower Semiconductor Ltd. (NASDAQ: TSEM, TASE: TSEM), the leading foundry of high value analog semiconductor solutions, provides technology and manufacturing platforms for integrated circuits (ICs) in growing markets such as consumer, industrial, automotive, mobile, infrastructure, medical and aerospace and defense. Tower Semiconductor focuses on creating positive and sustainable impact on the world through long term partnerships and its advanced and innovative analog technology offering, comprised of a broad range of customizable process platforms such as SiGe, BiCMOS, mixed-signal/CMOS, RF CMOS, CMOS image sensor, non-imaging sensors, integrated power management (BCD and 700V), and MEMS. Tower Semiconductor also provides world-class design enablement for a quick and accurate design cycle as well as process transfer services including development, transfer, and optimization, to IDMs and fabless companies. To provide multi-fab sourcing and extended capacity for its customers, Tower Semiconductor owns two manufacturing facilities in Israel (150mm and 200mm), two in the U.S. (200mm), two facilities in Japan (200mm and 300mm) which it owns through its 51% holdings in TPSCo and is sharing a 300mm manufacturing facility being established in Italy with ST. For more information, please visit: www.towersemi.com.

Safe Harbor Regarding Forward-Looking Statements

This press release includes forward-looking statements, which are subject to risks and uncertainties. Actual results may vary from those projected or implied by such forward-looking statements. A complete discussion of risks and uncertainties that may affect the accuracy of forward-looking statements included in this press release or which may otherwise affect Tower's business is included under the heading "Risk Factors" in Tower's most recent filings on Forms 20-F, F-3, F-4 and 6-K, as were filed with the Securities and Exchange Commission (the "SEC") and the Israel Securities Authority. Tower does not intend to update, and expressly disclaim any obligation to update, the information contained in this release.

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Attachment

- [OFC Tower GaAs laser foundry PR_FINAL 03022023](#)



Source: Tower Semiconductor