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**FORM 6-K**

**SECURITIES AND EXCHANGE COMMISSION**

Washington, D.C. 20549

For the month March 2025 No. 3

**TOWER SEMICONDUCTOR LTD.**

(Translation of registrant's name into English)

**Ramat Gavriel Industrial Park**  
**P.O. Box 619, Migdal Haemek, Israel 2310502**  
(Address of principal executive offices)

Indicate by check mark whether the registrant files or will file annual reports under cover Form 20-F or Form 40-F.

Form 20-F       Form 40-F

Indicate by check mark whether the registrant by furnishing the information contained in this Form is also thereby furnishing the information to the Commission pursuant to Rule 12g3-2(b) under the Securities Exchange Act of 1934.

Yes       No

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**On March 12, 2025, the Registrant and OpenLight Announce  
Demonstration of 400G/lane Modulators Built on Silicon  
Photonic Wafers for Data Centers and AI Optical Connectivity**

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**SIGNATURES**

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

**TOWER SEMICONDUCTOR LTD.**

Date: March 12, 2025

By: /s/ Nati Somekh

Name: Nati Somekh

Title: Corporate Secretary

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## OpenLight and Tower Semiconductor Demonstrate 400G/lane Modulators Built on Silicon Photonic Wafers for Data Centers and AI Optical Connectivity

*Innovation paves the way for a high-volume, silicon photonics 400G/lane platform to meet next-generation 3.2T optical communication architectures for datacom and AI applications.*

**SANTA CLARA, Calif., and MIGDAL HAEMEK, Israel, March 12, 2025** — OpenLight, the world leader in custom PASIC chip design and manufacturing, and Tower Semiconductor (NASDAQ/TASE: TSEM), the leading foundry of high-value analog semiconductor solutions, today announced the successful demonstration of the 400G/lane modulator on Tower’s commercially available, integrated silicon photonics platform, PH18DA, achieving a better than 3.5db extinction ratio using the industry-standard PAM-4 modulation format and at a drive voltage of 0.6 volts peak-to-peak. The 400G demonstration is built using OpenLight’s IP on Tower’s existing silicon photonics platform already supporting customers at 100G and 200G/lane.

The integrated silicon photonics demonstration is designed to support next-generation 400G/lane optical communication architectures, offering a scalable solution from 100G to 200G to 400G to fill the growing demand for high-speed data transfer in cloud computing, AI and ML applications. Operating at 400G per lane, across all four CWDM (Coarse Wavelength Division Multiplexing) wavelengths, this enables a commercially viable path for both DR8 and FR4 next-generation 3.2Tb solutions and beyond.

Currently, pure silicon-based modulators are unable to support bit rates of 400G, pointing out a clear need for a cost-effective solution in the industry. For datacom and AI applications, including LPO and CPO, heterogeneous integrated based devices deliver significant advantages: small size, high bandwidth, low drive voltage and volume manufacturable on a silicon photonics platform. In addition to the heterogeneous integration of 400G modulators, lasers and optical amplifiers all on a single, compact, cost- and power-efficient photonic integrated circuit (PIC) are available on the platform.

“Our partnership with Tower represents a critical step in the integration of advanced silicon photonics into the datacom landscape. The success of this demonstration sets the stage for groundbreaking advancements in high-speed networking,” said **Dr. Adam Carter, CEO of OpenLight**. “Utilizing our existing 200G heterogeneous modulator design, we have now future-proofed customers’ PASIC designs from 100G to 200G to 400G per lane, minimizing design, layout and time to market, as this 400G modulator is a drop-in replacement for existing 200G modulator PASIC designs. The other added benefit of using the same design is the proven high-reliability performance and the ability to use flip chip processes when packaging into an integrated optical sub-assembly.”

“We’re pleased to collaborate with OpenLight, leveraging their cutting-edge silicon photonics technology to create a cost-effective approach to support 400G/lane. This is an extension of our PH18DA platform currently supporting customers at 100G and 200G/lane and now providing a robust solution for 400G/lane that is immediately ready for customer prototyping. This is a significant step toward providing scalable, reliable, high-performance and manufacturable solutions for the next generation of optical communication technology,” said **Russell Ellwanger, CEO of Tower Semiconductor**. “By utilizing Tower’s PH18DA platform, this collaboration allows OpenLight’s heterogeneous integration technology to provide a secure path to higher speeds without the need for complex and expensive integration alternatives like Thin Film Lithium Niobate (TFLN), BTO or polymers.”

*For more detailed information on this and OpenLight, please visit OpenLight at the [OFC Conference](#) on 1-3 April 2025, **booth# 4231**.*

*For more detailed information on this and Tower Semiconductor’s technology offerings, please visit Tower’s booth at the [OFC Conference](#), 1-3 April 2025, **booth #3222**.*

### About OpenLight

OpenLight is the world leader in custom PASIC design. OpenLight’s PASIC technology integrates all the components of silicon photonics devices, both active and passive components, into one chip. Our executive and engineering teams deliver the world’s first open silicon photonics platform with integrated lasers, amplifiers and modulators to improve the performance, power efficiency and reliability of designs for telecom, datacom, LiDAR, healthcare, HPC, AI and optical computing applications. With over 350 patents, OpenLight is bringing optical solutions to places they have never been before and enabling technologies and innovation that weren’t previously possible. The company is headquartered in Santa Barbara, California, with offices in Silicon Valley. Read more at [www.openlightphotonics.com](http://www.openlightphotonics.com).

### About Tower Semiconductor

Tower Semiconductor Ltd. (NASDAQ/TASE: TSEM), the leading foundry of high-value analog semiconductor solutions, provides technology, development and process platforms for its customers in growing markets such as consumer, industrial, automotive, mobile, infrastructure, medical and aerospace and defense. Tower Semiconductor focuses on creating a 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, displays, integrated power management (BCD and 700V), photonics 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 one operating facility in Israel (200mm), two in the U.S. (200mm), and two in Japan (200mm and 300mm), which it owns through its 51% holdings in TPSCo. It also shares a 300mm facility in Agrate, Italy, with STMicroelectronics as well as has access to a 300mm-capacity corridor in Intel’s New Mexico factory. For more information, please visit [www.towersemi.com](http://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 disclaims any obligation to update, the information contained in this release.

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