
FORM 6-K

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

For the month March 2025 No. 2

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

**On March 10, 2025, the Registrant and Innolight Announce
Expansion of their Collaboration and Ramp Volume of Next-
Generation SiPho Solutions for AI and Data Centers**

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 10, 2025

By: /s/ Nati Somekh

Name: Nati Somekh

Title: Corporate Secretary

Tower Semiconductor and Innolight Expand their Collaboration and Ramp Volume of Next-Generation SiPho Solutions for AI and Data Centers

New Technology Halves Laser Requirements for Streamlined, High-Volume Optical Module Production to Meet Growing AI And Data Centers Market Demands

MIGDAL HAEMEK, Israel, March 10, 2025 – Tower Semiconductor (NASDAQ/TASE: TSEM), a leading foundry of high-value analog semiconductor solutions, and Innolight, a global leader in high-speed optical transceivers, today announced their expanded collaboration utilizing Tower’s newest Silicon Photonics (SiPho) platform, now in production and ramping to high volume. This breakthrough technology dramatically reduces the number of external optical components, cutting the number of lasers required per module by half, simplifying optical module design and enhancing cost and supply chain efficiency for AI and data center applications.

With increasing demand for high-speed optical connectivity in AI-driven data centers, Innolight and Tower Semiconductor are strengthening their long-standing partnership to deliver cost-efficient, high-performance solutions that address the needs of 100Gbps per lane (400G/800G), 200Gbps per lane (1.6T) today and 400Gbps per lane (3.2T) optical modules in the future. Leveraging Tower’s new SiPho platform, the solution significantly boosts scalability, performance, and cost-effectiveness for AI-driven data centers and cloud infrastructure.

"Innolight has been leading the high-speed optical module market, and our collaboration with Tower enables us to pioneer new Silicon Photonics solutions for AI and data center applications," said **Dr. Sheng Liu, CEO of Innolight**. "Utilizing Tower’s new SiPho platform, we deliver superior performance, cost, and supply chain resilience for our hyperscale customers. Our partnership with Tower continues to yield best in class offerings."

The next-generation SiPho platform offers industry-leading edge coupling efficiency and higher-performance modulators. These innovations enable the elimination of half of the external lasers per module. Thus, the platform not only reduces cost and complexity but also improves system reliability and supply chain robustness.

"We are honored to deepen our collaboration with Innolight demonstrating the strength of our partnership and our shared commitment to delivering innovative and customized Silicon Photonics solutions," said **Russell Ellwanger, CEO Tower Semiconductor**. "Our continued investment in SiPho technology development and capacity expansion reinforces our leadership and enables our customers to lead in delivering high-performance solutions that meet the evolving needs of AI and data center markets."

For additional information on Tower’s Silicon Photonics technology platform, please visit [here](#).

For additional information on Innolight, please visit the company’s website: www.innolight.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), two in Japan (200mm and 300mm) which it owns through its 51% holdings in TPSCo, 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.

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.

About InnoLight

InnoLight is a world leader in providing a wide range of high-speed optical solutions for optical communication networking, especially for AI and Data Center applications, with global footprints in California, Singapore, Thailand, and Taiwan. For more information, please visit www.innolight.com.

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