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**UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION**

Washington, D.C. 20549

**FORM 6-K**

**REPORT OF FOREIGN PRIVATE ISSUER PURSUANT TO RULE 13a-16 OR 15d-16  
OF THE SECURITIES EXCHANGE ACT OF 1934**

For the month of September 2023 No.2

Commission File Number 0-24790

**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 of Form 20-F or Form 40-F.

Form 20-F

Form 40-F

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**On September 7, 2023, the Registrant announced Tower Semiconductor and InnoLight Partner to Develop Multi-Generation Silicon Photonics Based Optical Transceivers**

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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.

Date: September 7, 2023

**TOWER SEMICONDUCTOR LTD.**

By: /s/ Nati Somekh

Name: Nati Somekh

Title: Corporate Secretary

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## **Tower Semiconductor and InnoLight Partner to Develop Multi-Generation Silicon Photonics Based Optical Transceivers**

*400G/800G Transceivers built on Tower's production PH18M Silicon Photonics platform*

*Partnership to deliver solutions for the growing markets of Artificial Intelligence (AI), Datacenter Interconnects and Next-Gen Telecom*

**MIGDAL HAEMEK, Israel, and SUZHOU, China, Sept. 7, 2023** – Tower Semiconductor (NASDAQ/TASE: TSEM), the leader in high-value analog semiconductor foundry solutions, and InnoLight Technology, the leader in data center optics, today announced their collaboration to develop multi-generation high-speed optical transceivers based on Tower's Silicon Photonics process platform (PH18). With production already underway, this strategic partnership is expected to enable cutting-edge solutions to support the growing demands of AI, datacenters, and next-generation telecom networks. According to Yole, a market research firm, the silicon photonic die market is expected to grow at 22% CAGR reaching nearly half-a-billion dollars by 2027.

Dr. Marco Racanelli, Senior Vice President and General Manager of Analog Business Unit at Tower Semiconductor: "We are excited to partner with a leader like InnoLight for the manufacturing of their current and next-generation optical transceiver products. Their significant market presence brings high volumes to our silicon photonics platform turning it into a mainstream solution further establishing our differentiated SiPho platforms as the go to solutions for state-of-the-art optical transceivers in datacenters, AI clusters, as well as for emerging applications such as sensors, automotive LiDAR, and optical computing."

Tower's industry-leading high-volume PH18M SiPho platform offers a rich portfolio of optical components, including ultra-high bandwidth modulators, photodetectors, low-loss waveguides, and light coupling solutions. Combined with a mature design enablement infrastructure, the platform delivers accurate model-to-silicon match that empowers designers to bring disruptive solutions to market on time and with minimal design iterations.

InnoLight has launched multiple 400G and 800G products based on the PH18M SiPho platform. 400G parts are currently in mass production while 800G parts are scheduled to be in volume production in Q4, 2023. InnoLight also developed 400G COSA, which will be used in its 400G DCO coherent transceivers.

Osa Mok, the Chief Marketing Officer of InnoLight, commented on the partnership: "InnoLight has established itself as an industry leader by rapidly developing and delivering high-performance optical transceiver products to the market. Our well-established collaboration with Tower firmly demonstrates that we have found a foundry partner who not only possesses best-in-class silicon photonics technology but is also willing to collaborate closely with us to translate our innovations into silicon. We anticipate a successful journey together."

For additional information about Tower's SiPho technology offerings, please visit [here](#).

For additional information about Tower's RF &HPA technology offerings, please visit [here](#).

For more information about InnoLight technology and product, please visit [here](#).

### **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 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 by STMicroelectronics. For more information, please visit [www.towersemi.com](http://www.towersemi.com).

### **About InnoLight**

InnoLight designs, builds and markets high-speed optical transceivers that enable rapid bandwidth expansion of next generation networks. InnoLight has a global operation, it has production bases in Suzhou, Taiwan, and Thailand, and R&D and Sales offices in the United States, Canada, China, Singapore, and Europe. InnoLight's solutions offer superior technical performance, compelling value proposition, and time to market advantages that are critical for the sustaining growth of the next generation Data Center Networks. For additional information, please visit [www.innolight.com](http://www.innolight.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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**Tower Semiconductor Company Contact:** Orit Shahaar | +972-74-7377440 | [oritsha@towersemi.com](mailto:oritsha@towersemi.com)

**Tower Semiconductor Investor Relations Contact:** Noit Levy | +972-4-604-7066 | [noitle@towersemi.com](mailto:noitle@towersemi.com)

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