FORM 6-K

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

For the month December 2024 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 December 23, 2024, the Registrant Announces Release of 300mm 65nm 3.3V-Based BCD Power Management Platform

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: December 23, 2024

By: /s/ Nati Somekh
Name: Nati Somekh
Title: Corporate Secretary

Tower Semiconductor Releases 300mm 65nm 3.3V-Based BCD Power Management Platform

Delivering high-efficiency power, high-performance analog, and high-density digital in a single power management platform for mobile, AI, and data center applications

MIGDAL HAEMEK, Israel, December 23, 2024 – Tower Semiconductor (NASDAQ/TASE: TSEM), a leading foundry of high-value analog semiconductor solutions, today announced its new 300mm 65nm 3.3V-based BCD Power management platform, PML, in addition to its successful 5V-based offering already in high-volume production in Japan and that which is being qualified in Albuquerque, New Mexico, USA, manufacturing site. This new, cutting-edge platform addresses the stringent low-voltage requirements of mobile devices and meets the growing demands for high power efficiency and power density in AI and data center applications.

The advanced 300mm BCD PML offering comprises LDMOS devices with ultra-low on-resistance and best-in-class figure-of-merit, achieving highest power conversion efficiency for fast switching converters. In addition, it features power devices with wide voltage range and a nominal 3.3V gate voltage that can be substantially overdriven and underdriven addressing products such as PMIC, Audio IC, and high-power voltage regulators for GPU and CPU. These advantages enable users to achieve outstanding performance in power consumption and extend battery life in battery operated applications.

"Our new PML platform exemplifies Tower Semiconductor's continuous success in providing cutting-edge power management technology solutions," **said Shimon Greenberg, General Manager of Power Management Business Unit.** "Specifically designed for advanced power management applications, this innovation empowers our customers to develop industry-leading products with a competitive edge that address the evolving demands of the strategic mobile, AI, and data center markets".

For additional information on Tower's PM technology platform, please visit here.

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 two 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, shares a 300mm facility in Agrate, Italy, with ST 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 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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