
FORM 6-K

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

For the month of June 2010 No. 6

TOWER SEMICONDUCTOR LTD.

(Translation of registrant's name into English)

Ramat Gavriel Industrial Park
P.O. Box 619, Migdal Haemek, Israel 23105
(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 x

Form 40-F o

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 o

No x

On June 29, 2010, the registrant announces TowerJazz and Vishay Intertechnology Enhance Business Relationship to Include Planar MOSFET Technologies and Super Junction MOSFET Devices.

This Form 6-K is being incorporated by reference into all effective registration statements filed by us under the Securities Act of 1933.

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: June 29, 2010

By: /s/ Nati Somekh Gilboa

Name: Nati Somekh Gilboa

Title: Corporate Secretary

TowerJazz and Vishay Intertechnology Enhance Business Relationship to Include Planar MOSFET Technologies and Super Junction MOSFET Devices

MIGDAL HAEMEK, Israel and MALVERN, Pennsylvania, June 29, 2010 – TowerJazz, the global specialty foundry leader, and Vishay Intertechnology, Inc. (NYSE: VSH), the Siliconix division of which is the world leader in low-voltage power MOSFETs, today announced that they are expanding their business relationship to include planar MOSFETs and Super Junction MOSFETs. Production of these products under the terms of the expanded relationship between TowerJazz and Vishay is expected to result in tens of millions of dollars in additional yearly revenue. The excellent technical capabilities and the production indices that TowerJazz has achieved during the past years with its Trench technologies motivated Vishay Siliconix to expand its business with TowerJazz. As a result of these additional opportunities, Vishay Siliconix will continue to be one of TowerJazz's top five customers.

New business between the two companies will include increased production of Vishay Siliconix high-voltage power MOSFETs. In addition, TowerJazz will manufacture Vishay Siliconix Super Junction FET Power MOSFETs. These devices, with very low $R_{DS(on)}$, provide lower conduction losses that save energy in power factor correction (PFC) and pulsewidth modulation (PWM) applications in a wide range of electronic systems, including LCD TVs, PCs, servers, switch mode power supplies (SMPS), and telecom systems.

“Along with the announcement of our new 600-V Super Junction FET power MOSFETs, our expanded foundry agreement will enable us to support the very significant demand that we expect for this device,” said Serge Jaunay, Senior Vice President, MOSFET division, Vishay Intertechnology. “The strong support, technical capabilities, and performance of TowerJazz have resulted in our expanded business relationship with the foundry.”

“We are very pleased with the recognition we have received from Vishay Siliconix to further our business together,” said Dr. Itzhak Edrei, Executive Vice President of Business Groups and Business Development, TowerJazz. “With the expansion of our foundry agreements, including the aforementioned new and strongly differentiated product platform families, Vishay Siliconix will remain one of our top customers, continuing to propel our overall first in foundry year-over-year growth. The work that was invested in the last couple of years has now matured to create this important business upside.”

About Vishay Intertechnology

Vishay Intertechnology, Inc., a Fortune 1,000 Company listed on the NYSE (VSH), is one of the world's largest manufacturers of discrete semiconductors (diodes, rectifiers, MOSFETs, optoelectronics, and selected ICs) and passive electronic components (resistors, capacitors, inductors, sensors, and transducers). These components are used in virtually all types of electronic devices and equipment, in the industrial, computing, automotive, consumer, telecommunications, military, aerospace, and medical markets. Its product innovations, successful acquisition strategy, and "one-stop shop" service have made Vishay a global industry leader. Vishay can be found on the Internet at <http://www.vishay.com>.

About TowerJazz

Tower Semiconductor Ltd. (NASDAQ: TSEM, TASE: TSEM), the global specialty foundry leader and its fully owned U.S. subsidiary Jazz Semiconductor, operate collectively under the brand name TowerJazz, manufacturing integrated circuits with geometries ranging from 1.0 to 0.13-micron. TowerJazz provides industry leading design enablement tools to allow complex designs to be achieved quickly and more accurately and offers a broad range of customizable process technologies including SiGe, BiCMOS, Mixed-Signal and RFCMOS, CMOS Image Sensor, Power Management (BCD), and Non-Volatile Memory (NVM) as well as MEMS capabilities. To provide world-class customer service, TowerJazz maintains two manufacturing facilities in Israel and one in the U.S. with additional capacity available in China through manufacturing partnerships. For more information, please visit www.towerjazz.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 and/or Jazz'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 and Jazz's most recent filings on Forms 10-K and 10-Q, as were filed with the SEC, respectively. Tower and Jazz do not intend to update, and expressly disclaim any obligation to update, the information contained in this release.

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