

FORM 6-K

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

For the month of August 2009 No. 2

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 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 August 05, 2009, the registrant announces that Dongwoon Anatech Selects Tower Semiconductor as Sole Manufacturing Partner for High Volume LED Lighting 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: August 05, 2009

By: /s/ Nati Somekh Gilboa

Nati Somekh Gilboa
Corporate Secretary

**Dongwoon Anatech Selects Tower Semiconductor as Sole
Manufacturing Partner for High Volume LED Lighting Devices**

*Dongwoon expands from Korea to China, U.S. and Japan markets; LED market is forecast
to exceed \$5 billion in 2012, with estimated CAGR of 28% from 2008 to 2012*

*Samsung and Sony, Dongwoon's major customers, have been shipped 155 million units
over the past 3 years*

SEOUL, South Korea and MIGDAL HA'EMEK, Israel, August 5, 2009 – Dongwoon Anatech, a fast growing analog semiconductor provider, today announced it has selected Tower Semiconductor, Ltd. (Nasdaq: TSEM, TASE: TASE: TSEM), a leading global specialty foundry, as its sole manufacturing partner for high volume, energy saving LED lighting devices used in both home and industrial applications. Tower was chosen for its 20V to 60V scalable LDMOS power management process technology which provides design optimization and the lowest die size at any given breakdown voltage. Due to the high market demand for LED drivers, Dongwoon Anatech is expanding from Korea to China, U.S., and Japan markets, introducing four new devices this year.

iSuppli reports that the LED lighting market is growing at a pace that is estimated to outshine the overall semiconductor market in 2009. Furthermore, according to Strategies Unlimited, the LED market is forecast to exceed \$5 billion in 2012, with an estimated CAGR of 28% from 2008 to 2012. In addition, the Korean government announced LED will be used for all display and lighting starting in 2012. Given the large market potential for LED lighting, Dongwoon Anatech is capitalizing on this opportunity by quickly responding to customer and market needs, recently launching several of their LED lighting IC driver devices to the Korean and Japanese markets.

Dongwoon Anatech's major customers are Samsung and Sony to which they have shipped 155 million units since the company was formed in 2006. Their aggressive approach to the LED lighting market enables them to set technical standards such as their DW8520 device, the first driver in Korea that can adopt both AC & DC power. Dongwoon Anatech anticipates customers' needs and invests faster than its competitors. Besides LED lighting, the company has started developing DC/DC (sync, buck, boost) and an AMOLED power driver, which very few companies are able to achieve.

“We chose Tower’s power management platform for our LED lighting devices because it fully satisfied our requirements for quality, price, die size and best chance of design success,” said Dong Cheol, Kim, CEO and President of Dongwoon Anatech. “We have used many other fabs, but we found Tower to have the best customer support and superb design services, parameter, and modeling accuracy which is an extremely important element for a successful and on-time design.”

Tower’s advanced power management process includes 20V to 60V scalable Rdson NLD MOS/PLD MOS devices as well as advanced CMOS and bipolar NPN devices needed in today’s complex power management ICs. It also includes industry leading RF and Thermal modeling, predictive parasitic extraction switch, high voltage ESD solutions, and extremely dense 5v and 1.8v digital cell libraries for “digital intensive” designs. The nearly released additional options of Deep Trench isolation, NBL and Ultra Low Rdson will push the offering over 100v while providing superior lateral and vertical isolation required for high power applications.

“Dongwoon Anatech works very closely with their customers and conducts a great deal of research to understand what the market needs so they can respond quickly and efficiently with high volume production,” said Michael Song, Tower Korean Country Manager. “We are excited to be their foundry of choice to deliver their leading edge LED drivers and support their expansion into other power management products.”

Dong Cheol, Kim added, “We look forward to maintaining a strong and strategic partnership with Tower for our new opportunities with the same great support and outstanding technology they have shown us so far.”

About Dongwoon Anatech

Dongwoon Anatech is a spin-off from Dongwoon International Co., Ltd. and has become a fast growing analog semiconductor provider and leading supplier in worldwide market share for auto focusing (AF) devices for cell phones and digital cameras. In addition, Dongwoon Anatech is focused on high volume power management products for the LED lighting market. Based in Korea, the company is expanding to China, U.S., and Japan markets, offering energy saving LED driver ICs to be used for both home applications and industrial purposes. Dongwoon Anatech is an emerging company with major customers such as Sony, Samsung and LG Electronics. For more information, visit www.dwanatech.com.

About Tower Semiconductor, Ltd.

Tower Semiconductor Ltd. (NASDAQ: TSEM, TASE: TSEM), a global specialty foundry leader, manufactures integrated circuits with geometries ranging from 1.0 to 0.13-micron and provides complementary technical services and design support. Tower, along with its fully owned U.S. subsidiary, Jazz Semiconductor, Inc., offers a broad range of process technologies including Digital, Mixed-Signal and RFCMOS, HV CMOS, Power Management, Non-Volatile Memory (NVM), Embedded NVM, MEMS, and CMOS Image Sensors. Tower provides world-class customer service and maintains two fabrication facilities in Israel and a fab in Newport Beach, CA, with manufacturing capacity available in China through partnerships with ASMC and HHNEC. For more information, please visit www.towersemi.com and www.jazzsemi.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 and 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. 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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