FORM 6-K

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

For the month of November 2006 No. 4

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 [_]

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 [X]

On November 6, 2006, Tower Semiconductor announces it launches 0.18-micron high-voltage technology, attached hereto is a copy of the press release.

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: November 6, 2006

By: /s/ Nati Somekh Gilboa

Nati Somekh Gilboa
Corporate Secretary

TOWER SEMICONDUCTOR LAUNCHES 0.18-MICRON HIGH-VOLTAGE TECHNOLOGY

HIGH-VOLTAGE LDMOS TECHNOLOGY WIDELY USED IN CELL PHONE AND HAND-HELD DISPLAYS

MIGDAL HAEMEK, Israel, November 6, 2006 - Tower Semiconductor Ltd. (NASDAQ: TSEM; TASE: TSEM), a pure-play independent specialty foundry, today announced the availability of a Laterally Diffused Metal Oxide Semiconductor (LDMOS) process, its latest addition to the 0.18-micron technology platform. The technology is produced in Tower's advanced Fab2.

High-voltage technology enables designers to integrate high-density logic and mixed-signal circuits together with high-voltage drivers on a single chip. High-voltage LDMOS technology is widely used in LCD drivers for cell phone and other hand-held displays, enabling smaller board area and lower power consumption, while providing the capability to handle high image rates.

Analysts forecasts that cell phone display shipments will amount to 1.3 billion units in 2007, up 4 percent from 1.2 billion cell phone displays in 2006.

Operating at 12V gate and up to 25V source/drain, the new devices can be easily used with Tower's off-the-shelf 0.18-micron devices, such as one-time programmable (OTP) and multi-time programmable (MTP) memory solutions, as well as Tower's rich portfolio of libraries and intellectual property (IP) circuits. Utilizing a highly effective trench isolation scheme, such products exhibit low noise and high immunity to latch-up.

Further development also is being done in order to enhance this offering with 40V source/drain and lower power-on resistance, while reducing mask count. Such offering also addresses the specifications of a wide variety of power-management products.

"The addition of this high-voltage technology offering enables us to provide additional solutions to consumer markets of high demand," said Yossi Netzer, general manager of mixed signal and RF-CMOS product line at Tower Semiconductor. "The process was tuned to meet the unique specifications of portable displays."

The high-voltage technology is also available on Tower's shuttle program for fast and inexpensive design verification and engineering samples.

ABOUT TOWER SEMICONDUCTOR LTD.

Tower Semiconductor Ltd. is a pure-play independent specialty wafer foundry established in 1993. The company manufactures integrated circuits with geometries ranging from 1.0 to 0.13-micron; it also provides complementary technical services and design support. In addition to digital CMOS process technology, Tower offers advanced non-volatile memory solutions, mixed-signal & RF-CMOS, and CMOS image-sensor technologies. To provide world-class customer service, the company maintains two manufacturing facilities: Fab 1 has process technologies from 1.0 to 0.35 micron and can produce up to 16,000 150mm wafers per month. Fab 2 features 0.18 and 0.13-micron, standard and specialized process technologies, and has the current capacity of up to 15,000 200mm wafers per month. Tower's Web site is located at http://www.towersemi.com.

SAFE HARBOR

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 our business is included under the heading "Risk Factors" in our most recent filings on Form 20-F, F-1, F-3 and 6-K, as were filed with the Securities and Exchange Commission and the Israel Securities Authority. We do not intend to update, and expressly disclaim any obligation to update, the information contained in this release.

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