

FORM 6-K

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

For the month of September 2006, No. 5

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 September 25 2006, the Registrant announced that International Rectifier signs foundry agreement with Tower Semiconductor for wafer production, 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: September 25, 2006

By: /s/ Nati Somekh Gilboa

Nati Somekh Gilboa
Corporate Secretary

INTERNATIONAL RECTIFIER SIGNS FOUNDRY AGREEMENT WITH TOWER
SEMICONDUCTOR FOR WAFER PRODUCTION

MIGDAL HAEMEK, ISRAEL - September 25, 2006 - Tower Semiconductor Ltd. (Nasdaq: TSEM; TASE: TSEM), a pure-play independent specialty foundry, today announced that it has signed a definitive long-term foundry agreement with International Rectifier (IR) (NYSE:IRF) to produce semiconductor wafers for IR at Tower's most advanced facility, Fab2, utilizing IR's proprietary technology. The agreement is for high-volume wafer manufacturing.

"We chose Tower as a foundry partner following a rigorous evaluation process," said Dr. Alex Lidow, International Rectifier's CEO. "Tower's experience in successful technology transfers, combined with a can-do attitude and great engineering talent, made it the best choice for us. We are confident this foundry partnership will further strengthen our leading position in the market."

"We are thrilled that IR, the world leader in power management, chose Tower as a foundry partner," said Russell Ellwanger, Tower's CEO. "Such a decision from a premier company in the semiconductor industry validates the capabilities of Tower's engineering and manufacturing teams. We look forward to many years of partnership and mutual success."

ABOUT INTERNATIONAL RECTIFIER

International Rectifier (NYSE:IRF) is a world leader in power management technology. IR's digital, analog and mixed signal ICs, advanced circuit devices, integrated power systems and components enable high performance computing and reduce energy waste in motors, the world's single largest consumer of electricity. Leading manufacturers of computers, energy efficient appliances, lighting, automobiles, satellites, aircraft, and defense systems rely on IR's power management benchmarks to power their next generation products. For more information, go to: www.irf.com.

ABOUT TOWER SEMICONDUCTOR LTD.

Tower Semiconductor Ltd. is a pure-play independent 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 embedded 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: 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 Annual Report on Form 20-F, Forms F-1, F-3 and 6-K, as were filed with the Securities and Exchange Commission and the Israel Securities Authority, and in International Rectifier's filings with the Securities and Exchange Commission, including its most recent Annual Report on Form 10-K and quarterly report on Form 10-Q. We do not intend to update, and expressly disclaim any obligation to update, the information contained in this release.

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