



## **NEWS ANNOUNCEMENT**

**FOR IMMEDIATE RELEASE**

### **TowerJazz and TPSCo Announce a New State of the Art CMOS Image Sensor Technology based on Stacked Deep Photodiode**

***Targets rising demand for 3D gesture recognition and gesture control solutions in the consumer, security, automotive and industrial sensors growing markets***

**MIGDAL HAEMEK, Israel, and UOZU CITY, Japan, August 23, 2016** — TowerJazz, the global specialty foundry leader, and TowerJazz Panasonic Semiconductor Co., Ltd. (TPSCo), the leading analog foundry in Japan, today announced a new state of the art CMOS Image Sensor (CIS) technology flow based on stacked deep photodiode, allowing customers to achieve very high Near Infrared (NIR) sensitivity and realize extremely low cross-talk while keeping low dark current characteristics, using small pixels and high resolution. Sensors with this pixel structure can perform even in very low light conditions. This new CIS technology will be available in TowerJazz and TPSCo's worldwide fabs, including the companies' advanced 12" fab in Uozu, Japan.

This solution targets 3D gesture recognition and gesture control for the consumer, security, automotive and industrial sensors markets. According to marketsandmarkets.com, the gesture recognition and touchless sensing market is expected to grow from \$5.15 Billion in 2014 to \$23.55 Billion by 2020, at a CAGR of 28.2% between 2015 and 2020.

Near Infrared (NIR) is becoming more and more popular in 3D gesture recognition applications and in automotive active vision applications for better visibility in harsh weather conditions. These applications are using a Near IR laser as a non-visible, coherent light source. Each pixel can accurately measure the time it took for the light to exit the laser, reach the object and reflect back to the sensor, thus allowing calculation of the distance of any object in the scene, creating a 3D image. In general, it is extremely difficult to achieve both high sensitivity (high quantum efficiency) and high resolution (low "cross-talk" between pixels) using Near IR, both of which are the most important requirements for imaging.

Current solutions generally use a thick epi on p-type substrate to achieve high sensitivity, but this creates high cross talk (low resolution) and high dark current values. The novel pixel structure developed by TowerJazz and TPSCo has a stacked deep photodiode, providing both high sensitivity and low cross talk at NIR. This allows very low dark current values, especially at elevated temperatures, required in the automotive market.

“The tremendously fast growth of 3D gesture application in the consumer market such as PC and mobile as well as in the automotive area will allow us to attract many customers with this technology that is the best the market has to offer,” said Dr. Avi Strum, Senior Vice President and General Manager, CMOS Image Sensor Business Unit, TowerJazz.

The process was developed on TPSCo’s 65nm CIS technology on 300mm wafers in its Uozu, Japan fab and is already in production for leading edge automotive and security sensors. It will also be available for new designs in TPSCo’s 110nm fab in Arai, Japan and in TowerJazz’s 180nm fab in Migdal Haemek, Israel.

TowerJazz will present this advanced technology offering at its upcoming Technical Global Symposium ([TGS](#)) [China](#) event on August 24, 2016. For more information on this offering, please contact Dr. Assaf Lahav, Senior Principal Engineer, at [assaf.lahav@towerjazz.com](mailto:assaf.lahav@towerjazz.com) or [info@towerjazz.com](mailto:info@towerjazz.com).

### **About TowerJazz**

Tower Semiconductor Ltd. (NASDAQ: TSEM, TASE: TSEM) and its fully owned U.S. subsidiaries Jazz Semiconductor, Inc. and TowerJazz Texas Inc., operate collectively under the brand name TowerJazz, the global specialty foundry leader. TowerJazz manufactures integrated circuits, offering a broad range of customizable process technologies including: SiGe, BiCMOS, mixed-signal/CMOS, RF CMOS, CMOS image sensor, integrated power management (BCD and 700V), and MEMS. TowerJazz also provides a world-class design enablement platform for a quick and accurate design cycle as well as Transfer Optimization and development Process Services (TOPS) to IDMs and fabless companies that need to expand capacity.

To provide multi-fab sourcing and extended capacity for its customers, TowerJazz operates two manufacturing facilities in Israel (150mm and 200mm), two in the U.S. (200mm) and three additional facilities in Japan (two 200mm and one 300mm) through TowerJazz Panasonic Semiconductor Co. (TPSCo), established with Panasonic Corporation of which TowerJazz has the majority holding. Through TPSCo, TowerJazz provides leading edge 45nm CMOS, 65nm RF CMOS and 65nm 1.12um pixel technologies, including the most advanced image sensor technologies. For more information, please visit [www.towerjazz.com](http://www.towerjazz.com) or [www.tpsemico.com](http://www.tpsemico.com).

### **About TowerJazz Panasonic Semiconductor Co.**

TowerJazz Panasonic Semiconductor Co., Ltd. (TPSCo) was established by Panasonic Corporation (NASDAQ ADS: PCRFY, TYO: 6752), 51% of which was acquired by Tower Semiconductor Ltd. (NASDAQ: TSEM, TASE: TSEM) and 49% of which is now held by Panasonic Semiconductor Solutions Co., Ltd. TPSCo has three manufacturing facilities in Hokuriku, Japan which have been producing large scale integrated circuits for over 30 years.

Areas of process technology focus include: high dynamic range image sensors (CIS and CCD), integrated power devices (BCD, SOI, and LDMOS) and high frequency silicon RFCMOS. With over 120 qualified silicon process flows on 200mm and 300mm wafers from super micron to 45nm as well as internal back end processing, assembly and test services, TPSCo provides both IDMs and fabless companies with unparalleled semiconductor manufacturing quality and technology, including in-house turnkey services. For more information, please visit <https://www.tpsemico.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 TowerJazz'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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