

## **TOK Joins CEA-Leti IMAGINE Program to Develop Multiple E-Beam Lithography Sub-20nm Resists and Processes**

KAWASAKI, Japan, and GRENOBLE, France – Jan. 17, 2011 – TOK and CEA-Leti today announced that TOK will join the new industry/research multi-partner program IMAGINE that is developing maskless lithography for IC manufacturing.

The three-year project is led by CEA-Leti, a research center committed to creating and commercializing innovation in micro- and nanotechnologies, and also includes semiconductor manufacturers TSMC and STMicroelectronics. It is evaluating a maskless lithography infrastructure and the use of MAPPER Lithography tools for high throughput. The multiple e-beam-lithography program covers a global approach to the technology, including tool assessment, patterning and process integration, data handling, prototyping and cost analysis.

“TOK’s material development beyond the 20nm node covers a broad range of technology-platform and lithography-process candidates, such as EUVL, ML2, and DSA. The IMAGINE program at CEA-Leti, which focuses on multiple e-beam lithography, is a very attractive program especially for understanding the fundamental RLS (resolution, line edge roughness and sensitivity) issue in photoresist development,” said Kazufumi Sato, TOK R&D general manager. “TOK will contribute to the program by providing a materials perspective based on our deep knowledge of the electron-beam resist and recent discoveries from the EUV resist development.”

“The development of new chemically amplified resist platforms achieving resolution below 20nm with a line-edge roughness in the nanometer range is one of the main challenges for next-generation lithography,” said Serge Tedesco, CEA-Leti program manager. “We have already built a long and fruitful collaboration with TOK by working together at the introduction of e-beam lithography at the STMicroelectronics Crolles Line. We are very pleased to continue this relationship with a worldwide leader in resist technology, ensuring a boost for the IMAGINE program and reinforcing the semiconductor industry’s commitment to introduce ML2 in manufacturing.”

### **About TOK**

TOK is a world’s leading supplier of photoresists inevitably required for semiconductor and flat panel display. TOK has always been at the forefront of the leading edge microprocessing technologies based on photolithography as its core technology. And TOK also expands its business, applying the microprocessing technologies developed in semiconductor manufacturing into the fields such as LCD display, semiconductor packaging and other related sectors.

In addition to the above, as proposing new fields with innovative fabrication technologies, TOK is vigorously developing the Through Silicon Via (TSV) system which connects between the frontend and backend process in semiconductor manufacturing as well as deploying materials applied for solar cells paid a lot of attention as an energy resource. Additional information about TOK is available at <http://www.tok.co.jp/en/>.

### **About CEA-Leti**

CEA is a French research and technology public organization, with activities in four main areas: energy, information technologies, healthcare technologies and defence and

security. Within CEA, the Laboratory for Electronics & Information Technology (CEA-Leti) works with companies in order to increase their competitiveness through technological innovation and transfers. CEA-Leti is focused on micro and nanotechnologies and their applications, from wireless devices and systems, to biology and healthcare or photonics. Nanoelectronics and microsystems (MEMS) are at the core of its activities. As a major player in MINATEC campus, CEA-Leti operates 8,000-m<sup>2</sup> state-of-the-art clean rooms, on 24/7 mode, on 200mm and 300mm wafer standards. With 1,200 employees, CEA-Leti trains more than 150 Ph.D. students and hosts 200 assignees from partner companies. Strongly committed to the creation of value for the industry, CEA-Leti puts a strong emphasis on intellectual property and owns more than 1,500 patent families. For more information, visit [www.leti.fr](http://www.leti.fr).

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