



PRESS RELEASE:

Orbotech's SPTS Technologies Adds Rapier-300S to its Mosaic™ Platform for Plasma Dicing of 300mm Wafers on Taped Frames

Rapier-300S Overcomes Singulation Challenges of Ultra-Small and Ultra-Thin Devices in Volume Production

NEWPORT, UK, July 7, 2016 | SPTS Technologies, an Orbotech company and a supplier of advanced wafer-processing solutions for the global semiconductor and related industries, has introduced the Rapier-300S plasma etch module, the latest addition to its Mosaic™ plasma dicing platform. The Rapier-300S singulates 300mm wafers on 400mm taped frames, and offers significant throughput and yield benefits for manufacturers of ultra-small and ultra-thin devices. Using SPTS's industry leading deep reactive ion etch (DRIE) technology, the Rapier-300S offers the tight process control and fast etch rates necessary to achieve the high yields and throughput required for this cost sensitive step.

"As devices continue to shrink, singulation by plasma etching offers considerable benefits for die quality and strength as compared to traditional dicing solutions," stated Kevin Crofton, President of SPTS Technologies and Corporate Vice President at Orbotech. "With wafer thicknesses trending below 50µm, conventional dicing methods are reaching their limits. Ultra-small and ultra-thin devices like RFID chips or fragile devices like MEMS are more susceptible to damage from the vibration and chipping caused by mechanical saws, or from the heat caused by lasers. Plasma dicing is a purely non-contact chemical process, thus offering a far less damaging method of singulating devices when they are in their most valuable state. With customers already qualifying devices on 300mm, and in volume production on 150mm and 200mm, our plasma dicing solutions are well positioned to be the benchmark technology for fabs seeking to increase throughputs and yields for small or thinned fragile die."

The Rapier-300S is a silicon DRIE module, designed specifically for dicing of 300mm wafers mounted on 400mm frames. It builds on SPTS's experience in plasma singulation of 150mm, 200mm and 300mm wafers. Unique aspects of SPTS's plasma dicing technology include the use of SPTS's patented Claritas™ end-point detection system, which provides the earliest possible detection of the lane clearing, allowing the use of patented "bias pulsing" techniques to prevent lateral damage of the die sidewall.

The Rapier-300S can etch die of any shape with dicing lanes below 10µm and accommodates wafer thicknesses up to and including full wafer thickness. For the smallest die, for example RFID devices (at~0.04mm²), the adoption of narrow dicing lanes could provide up to 80% more die per wafer, at much higher throughputs since all dicing lanes are etched in parallel. Plasma dicing also gives device designers

much greater flexibility with regards to fundamental die position/shape/size, removing guard rings and positioning of die/test groups, to make better use of the wafer area.

SPTS Technologies will be showcasing the Rapier-300S, which has been shortlisted for the [Best of West Awards](#), at [SEMICON West, Booth No. 1417 in South Hall](#), July 12 – 14, Moscone Center, San Francisco, Calif. The “Best of West” awards which are presented annually by Solid State Technology and SEMI at SEMICON West was established to recognize new products moving the industry forward with technological developments in the electronics supply chain.

To learn more about SPTS’s Rapier-300S, the Mosaic plasma dicing platform, and full range of industry leading etch and deposition process solutions, visit us on [Booth #1417 in South Hall](#). To arrange a meeting with a member of our team, email enquiries@spts.com.

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About SPTS Technologies

SPTS Technologies, an Orbotech company, designs, manufactures, sells, and supports etch, PVD, and CVD wafer processing solutions for the MEMS, advanced packaging, LED, high speed RF on GaAs, and power management device markets. With manufacturing facilities in Newport, Wales, and Allentown, Pennsylvania, the company operates across 19 countries in Europe, North America and Asia-Pacific. For more information about SPTS Technologies, please visit www.spts.com

About Orbotech Ltd.

Orbotech Ltd. (NASDAQ:ORBK) is a global innovator of enabling technologies used in the manufacture of the world’s most sophisticated consumer and industrial products throughout the electronics and adjacent industries. The Company is a leading provider of yield enhancement and production solutions for electronics reading, writing and connecting, used by manufacturers of printed circuit boards, flat panel displays, advanced packaging, micro-electro-mechanical systems and other electronic components. Today, virtually every electronic device in the world is produced using Orbotech systems. For more information, visit <http://www.orbotech.com/>.

COMPANY CONTACTS:

Destanie Clarke
Senior Director, Marketing Communications
SPTS Technologies
Tel: +44 7951 203278
Destanie.Clarke@orbotech.com

Tally Kaplan Porat
Head of Corporate Marketing
Orbotech Ltd.
Tel: +972 8 942 3603
Tally.KaplanPorat@orbotech.com