

Rudolph Receives First Order for its StepFAST Solution for Fan-out Panel-level Packaging

Order includes a repeat JetStep System sale as OSAT moves to HVM

Wilmington, Mass. (May 9, 2019)—Rudolph Technologies, Inc. (NYSE: RTEC) today announced that a leading outsourced assembly and test facility (OSAT) has ordered Rudolph's exclusive [StepFAST™ Solution](#) for panel-level packaging production, which includes a repeat order for the [JetStep® panel lithography system](#). Rudolph's StepFAST Solution is a feed-forward adaptive shot technology that addresses process variations, die placement errors and dimensionally unstable materials that are common in existing and next-generation advanced packaging technologies. The elements included in the StepFAST Solution are Rudolph's Firefly™ system for die position metrology, Discover® software for advanced analytics, and the JetStep system for exposure.

"Uneven die placement on reconstituted panels, followed by die shift from the compression molding process, is a critical challenge for [fan-out panel-level packaging](#)," said Alex Chow, vice president of strategic marketing. "Measuring the die placement prior to exposure is necessary to achieve overlay and yield thresholds, but measurement is not enough. Rudolph's StepFAST Solution utilizes Discover software to analyze the error components and generate the appropriate correction file and exposure map for the JetStep lithography system to execute. Discover software automatically determines the optimal field size for exposure based on the overlay specifications and actual die placement error."

"We are extremely grateful to have collaborated with this customer as they developed their ground-breaking panel packaging line using their first JetStep panel lithography system," said Rich Rogoff, vice president and general manager of Rudolph's Lithography Systems Group. "Their repeat order for a second JetStep panel system, which includes our StepFAST Solution, is a verification that our customers need complete solutions that provide a competitive advantage in the marketplace."

The StepFAST Solution is exclusive to Rudolph Technologies and can double lithography throughput while providing 90% improvement on registration with feed-forward advanced process control. The Firefly system performs 2D defect inspection and die position metrology in a single

pass, feeding critical metrology data to the Discover software engine to initiate the StepFAST Solution process. The method also provides a means to balance productivity (throughput) against yield, adding an extra dimension of flexibility for optimizing profitability. Systems and software are expected to ship in the fourth quarter.

For more information about StepFAST Solution, visit www.rudolphtech.com.

About Rudolph Technologies

Rudolph Technologies, Inc. is a leader in the design, development, manufacture and support of defect inspection, lithography, process control metrology, and process control software used by semiconductor and advanced packaging device manufacturers worldwide. Rudolph delivers comprehensive solutions throughout the fab with its families of proprietary products that provide critical yield-enhancing information, enabling microelectronic device manufacturers to drive down costs and time to market of their devices. Headquartered in Wilmington, Massachusetts, Rudolph supports its customers with a worldwide sales and service organization. Additional information can be found on the Company's website at www.rudolphtech.com.

Safe Harbor Statement

This press release contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995 (the "Act") which include the benefit to customers of Rudolph's products, Rudolph's business momentum and future growth and the market demand for semiconductors generally as well as other matters that are not purely historical data. Rudolph wishes to take advantage of the "safe harbor" provided for by the Act and cautions that actual results may differ materially from those projected as a result of various factors, including risks and uncertainties, many of which are beyond Rudolph's control. Such factors include, but are not limited to, Rudolph's ability to plan and manage its resources and production capability, including its supply chain and fluctuations in customer capital spending. Additional information and considerations regarding the risks faced by Rudolph are available in Rudolph's Form 10-K report for the year ended December 31, 2018 and other filings with the Securities and Exchange Commission. As the forward-looking statements are based on Rudolph's current expectations, the company cannot guarantee any related future results, levels of activity, performance or achievements. Rudolph does not assume any obligation to update the forward-looking information contained in this press release.

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