MEMBER AREA
JOIN US
SEARCH SITE
Search

Business News
- Chip markets
- IC equipment
- End IC applications
- Company news

Manufacturing News
- Foundries & fabs
- IC packaging & test
- Materials

Technology News
- Wafer processing
- Device development

Product News
- Integrated circuits
- Production systems
- IP cores, design tools

Views & features
- Henkel's Chip Alert!
- Cowan Forecast
- Commentaries
- Reporter's Notebook

CLICK HERE TO
Subscribe today
Two weeks free
Try us out at no risk
Corporate plans
4 ways to subscribe

- Archive

semireporter.com
- About the site
- Subscribe
- Update your info
- Staff
- Contact us
- Privacy
- Banner advertising

Home | Public Access | Akrion, Suss, Synovia, and Xradia re . . .

Akrion, Suss, Synovia, and Xradia report equipment sales

The Semiconductor Reporter
June 29, 6:30 p.m. EDT

Synova water-jet laser dices compound semiconductor wafers flawlessly

Synova S.A., a developer of water-jet-guided laser technology, has reported that following several months of test runs and qualification, its LDS 200 A laser dicer has entered full production at a major U.S. chip maker's facility. The customer, a maker of compound semiconductors, is using the Synova Laser MicroJet-based system for dicing wafers containing gallium arsenide ICs.

According to Synova, of Lausanne, Switzerland, the customer adopted the LDS 200 A for its speed, cleanliness, absence of chipping or cracking, small kerfs, and the ability to minimize environmental issues. Synova CEO Bernold Richerzhagen noted, "Having been successfully integrated in precision machining of thin silicon wafers -- both dicing and edge grinding -- Laser MicroJet technology is rapidly gaining in popularity due to its ability to surpass traditional diamond wheel dicing and dry lasers in speed and quality on emerging materials. This revolutionary process now enters the realm of compound semiconductors with the first installation of a fully automatic laser dicing system qualified for cutting GaAs wafers."

The LDS 200 A is equipped with an infrared fiber laser, which the company said offers several advantages in comparison to solid-state lasers, the most important of which are the beam quality and the maintenance-free source. Beam characteristics and pump currents are constant over the entire range of pulse repetition rates. The laser power in fiber lasers is independent of the pulse repetition rate.

Fiber lasers are more stable than solid-state lasers, and there is no gain depletion, Synova said. In comparison to solid-state lasers, fiber lasers are lighter and more compact, and efficiently operate at low power-consumption levels with little need for cooling.

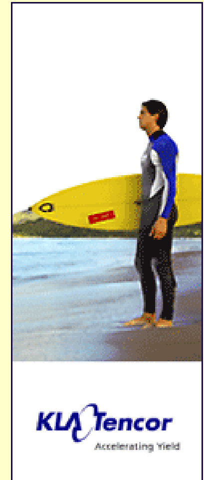
Synova's U.S.-based compound semiconductor customer told it that after 100-micron-thick GaAs wafers were diced using a Laser MicroJet-based LDS 200 A, the chips showed no contamination and the edges and corners were free of chipping and cracks. Clean and constant kerfs of 23 microns were achieved using a fiber laser; through cutting was achieved in a single pass at a speed of 50 mm/s.

Suitable for GaAs

Synova's technique was invented in the early 1990s at the Federal Institute of Technology in Lausanne, and patented by the company's owners. Synova was founded in 1997.

Synova's Laser MicroJet has been used for machining a wide range of materials for various industries. Its main market today is semiconductor processing, and the technology has been successfully applied to silicon, GaAs, indium phosphide, and silicon carbide.

GaAs, in particular, is a brittle, difficult-to-process material that tends to chip and break when subjected to mechanical stress, such as that caused by abrasive sawing, and is also thermally sensitive, making the use of conventional dry lasers nearly impossible. With dry lasers, damage and contamination caused by the emission of toxic gas during dicing cannot be avoided, Synova said. Especially well suited for thin-wafer dicing and edge grinding, the Laser MicroJet yields higher die fracture strength and increases the strength of thin wafers after backgrinding.



SemiReporter Bulletin
Sign up for our FREE daily email service

- Tell a friend

Partner Sites