microVEGA® FC

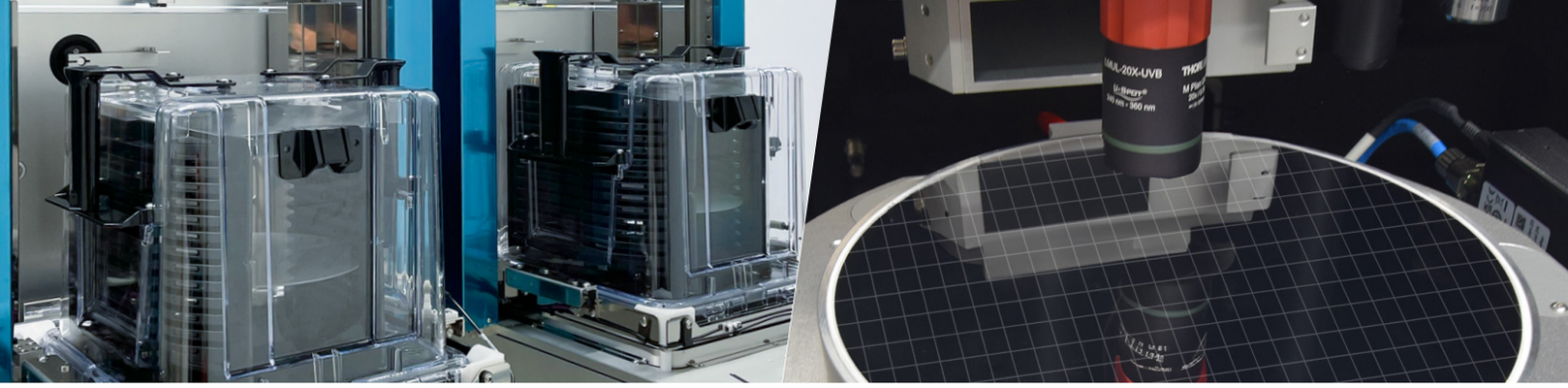
LASER TRIMMING FOR LINK CUTTING ON SEMICONDUCTOR CHIPS

The microVEGA FC system performs high-throughput laser microprocessing for different applications in the semi industry. It can be used to program digital logic circuits, trim digital potentiometers, or repair semiconductor memory on chips. Furthermore, it can enable the removal of failure microLEDs. Thanks to its highly flexible tool configuration, the microVEGA FC can accommodate both 200-mm and 300-mm wafers - making it an ideal production solution in terms of cost, throughput, yield and sensitivity.

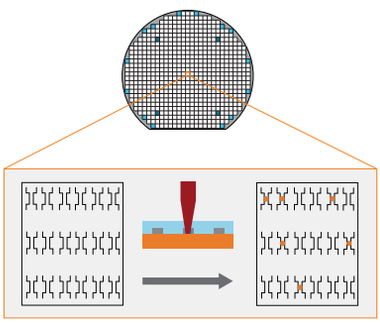
HIGHLIGHTS

- High throughput on-the-fly processing
- Bridge tool functionality allows 8” and 12” wafer processing
- Online process control and monitoring
- Processing speed of up to 400 mm/s
- Laser-spot-to-chip-link positioning accuracy of ±200 nm

3D MICROMAC



microVEGA® FC - SYSTEM CONFIGURATION



The microVEGA FC uses a single-digit micrometer laser spot that moves continuously across the semiconductor wafers. During this motion, the laser selectively processes defined microstructures of multiple chip dies. This trimming process allows the modification of specific chips to enable or disable certain functionalities. The small size of the dies' structures (approximately 1-2 µm) requires a ultra-high three-dimensional positioning accuracy of the laser spot in relation to the structures. Therefore, the microVEGA FC includes an integrated measurement technology to achieve 100 percent process control.

Suitable for	Modification of functionalities of semiconductor chips, on waferlevel e.g.: • Trimming of potentiometers • Programming of digital logic circuits • DRAM memory repair • MicroLED repair • Implementing of security functions
Wafer dimensions	• Wafer sizes up to 300 mm
Accuracy	• System positioning accuracy: ± 200 nm (at 3 Sigma) • Laser spot diameter: freely adjustable from 2 to 6 µm • Climate control 21°C +/- 0.1 K
Laser source and beam path	• ns laser source • Standard wavelength: 1,062 nm • Other wavelengths (532 nm / 355 nm) available • Configurable pulse shape and length
Integrated measurement	• Integrated online energy sensor • Integrated online laser beam analyzer • Insitu camera • All relevant data are saved in log files
Standards	• CE or UL as option • Laser class 1 • ISO class 3 • According to SEMI standard S2/S8

Options	• Automatic wafer handling
	  • Loadport FOUP, SMIF and open cassette
	  • Manual, MGV or AGV loading
	• Prealigner
	• RFID reader
	• SECS/GEM interface
	• Wafer ID reader

System dimensions	• 1,643 mm x 2,540 mm x 4,134 mm (width, height, depth) including automatic wafer handling

Laser Class 1

Rev. 2024-09 Changes in accordance to technical progress are reserved.
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