microDICE™

Enabling TLS-Dicing™ System for Separation of SiC Wafers

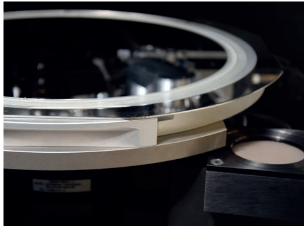
3D-Micromac's high-performance microDICE™ laser dicing system separates wafers into dies using TLS-Dicing™ technology (Thermal-Laser-Separation). microDICE™ significantly reduces the dicing cost per wafer compared to traditional separation technologies. At the same time, cleaving with microDICE™ provides outstanding edge quality while increasing yield and process throughput. This is particularly true for silicon carbide (SiC) substrates, which are hard and brittle.

microDICE™ offers:

- Significant higher throughput due to dicing speed up to 300 mm/s
- Minimal cost of ownership
- The ability to produce more dies per wafer by reducing street width

3D MICROMAC

microDICE™ - System Configuration



The microDICE™ standard system configuration consists of:

- Cleaving function
- Soft scribe function
- Micro stretching function

Available options:

- Automated wafer handling
- Second unit for scribing
- SECS/GEM interface
- Filter fan unit
- Drying unit

Wafer size	▪ Up to 300 mm (12") wafer size
Laser sources	▪ Two integrated long lifetime, low maintenance fiber laser sources ▪ One fiber laser source for cleaving process ▪ One fiber laser source for soft scribing process
Positioning system	▪ Direct driven XY-gantry system ▪ Rotation axis with vacuum chuck ▪ Z positioning system for laser optics and cameras ▪ Position accuracy X axis: ± 0.0018 mm, repeatability: ± 0.00075 mm ▪ Position accuracy Y axis: ± 0.001 mm, repeatability: ± 0.0004 mm
Wafer chuck	▪ Vacuum chuck up to 300 mm wafer size (tape and frame) ▪ Integrated patented micro stretching function for edge protection
Software microMMI	▪ Control of all components and parameters ▪ Different user levels supported (administrator, supervisor, operator)
Standards	▪ Compatible with common SEMI standards ▪ Laser safety class 1 ▪ Clean room class 6
Consumables	▪ Cooling water, compressed air, electrical power ▪ Only 600 ml DI-water for 1 h active dicing time
Machine dimensions	▪ 2005 x 2000 x 2090 mm^3 (W x H x D) incl. automatic handling

Changes in accordance to technical progress are reserved.

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