



SEAL SP18 - HPW-ESC HANDLING AND PROCESSING OF ULTRA-/THIN WAFERS BY TRANSFERABLE ELECTRO STATIC CARRIER TECH NOLOGY (T-ESC®)

AT A GLANCE

Assessment of electrostatic carrier technology for handling of ultra-/thin wafers

Optimization of carrier parameters to meet wafer processing requirements

SEAL SP18 – PARTNERS

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Advances in HPW-ESC:

- Achievement of maturity of electrostatic carrier technology for mass production, including automation
- Preparation for future requirements, such as handling of ultra-thin wafer < 50 µm up to diameter of 450 mm
- Optimization of design to get robust carrier, which can be used in various process applications without changing between different carrier types for different processes

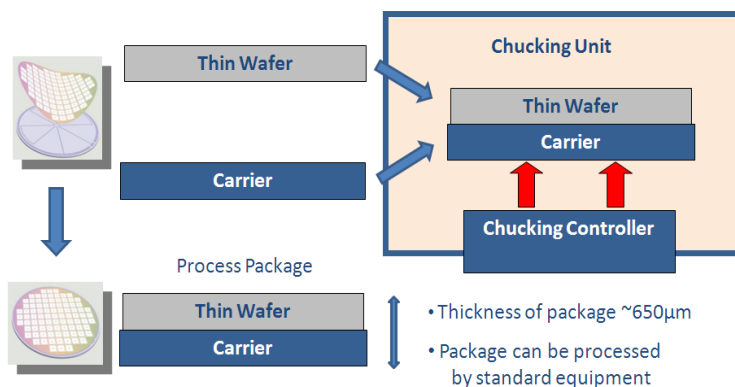


FIGURE 1: HPW-ESC chucking process to fix ultra-/thin wafer onto carrier for secure handling and processing





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Project Results

Many semiconductor applications require the need for handling of ultra-thin wafers. With decrease of the wafer thickness manufacturing challenges arise. New temporary bonding techniques are required to handle less stable and vulnerable for stress ultra-thin wafers. As temporary bonding technique for handling of thin and ultra-thin substrates respectively wafers the electrostatics has proven to be a serious candidate solving current and future problems with wafer handling. The proof of concept was achieved for a considerable number of processes. Within the project the electrostatic carrier technology was optimized and now it can be used in all relevant processes as well in mass production environment, including automation.

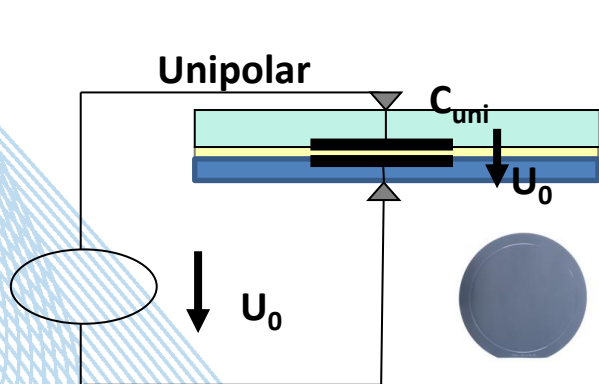


FIGURE 2: HPW-ESC principle and newly developed carrier type Plasma-Resistant High-Temperature T-ESC



FIGURE 3: Newly developed and manufactured fully automated chucking unit ACU 3008

SEAL PROJECT MANAGEMENT

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