HEXAGON
Throwing a double in power device applications

Evatec's CLUSTERLINE® family of 200 and 300mm have a worldwide reputation as flexible, secure production solutions across a wide range of front and backside processes in power applications. But we like to stay ahead of the game especially when it comes to driving down cost of ownership. Read on as Product Marketing Manager, ***Fabian Kramer*** & Senior Process Engineer, ***Gerald Feistritzer*** give us an idea how HEXAGON could double your throughput in selected power device applications.

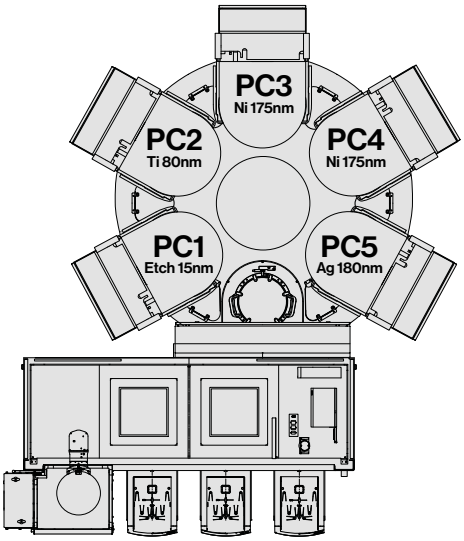
The challenge

Backside metallization has always been a sensitive market when it comes to cost of ownership. Evatec has been delivering solutions on silicon using CLUSTERLINE® for many years where secure thin wafer handling and management of stress are vital for the best process reliability and wafer yields. The market for applications using wide band gap (WBG) materials is also now developing strongly, so it's time to look at how we can help our customers develop the best production solutions for devices based on these new materials.

The new generation HEXAGON is already also known by many of our customers for delivering industry leading throughput and process performance in Advanced Packaging applications like FOWLP. Its "inline" configuration offering high speed wafer transfer and fast pumping offers a new approach for increasing throughput and driving down cost of ownership in selected power applications too, so lets take a look at some typical examples for processes for bonded or unbonded SiC wafers.

Case study 1: Thin SiC wafer – direct handling without carrier

Tool configuration

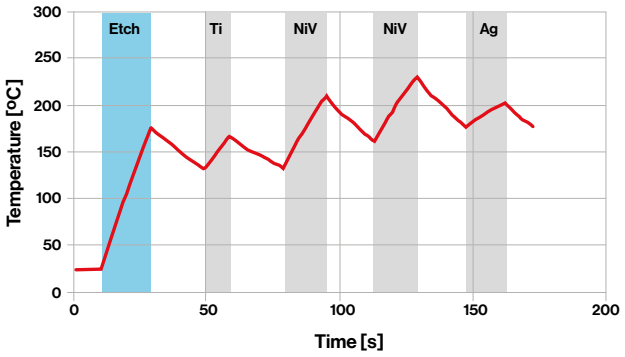


Results

Throughputs of up to 80 wafer per hour could be achieved. This is thanks to the short transfer times, rapid pump down, gas stabilization and pump clean steps inherent in HEXAGON architecture. Processing temperatures are also within the normal range compared with conventional processing on CLUSTERLINE®.

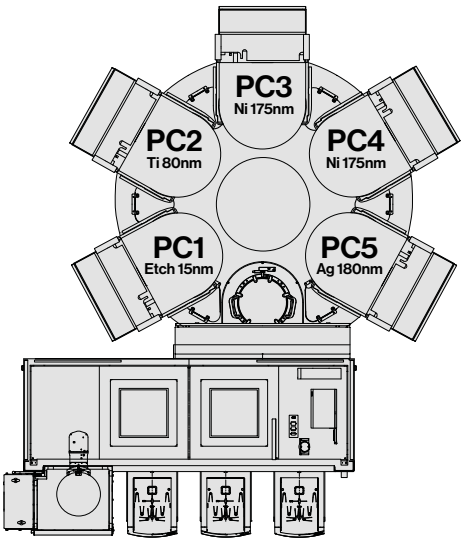
Assumptions

- Etch 15nm / Ti 80nm / NiV 350nm / Ag 180nm
- Thin SiC 250µm
- No T-limit



Case study 2: Thin SiC wafer bonded on glass carrier

Tool configuration

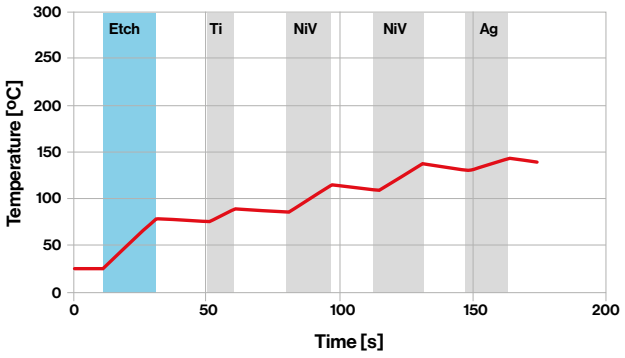


Results

Just like the first case study, the short transfer, pump down, stabilization and pump clean times give HEXAGON an immediate advantage but still enable process temperature to be controlled within the restricted range allowed for bonded wafers of 150°C in this specific case. Throughputs >75 wafer per hour were achieved.

Assumptions:

- Etch 15nm / Ti 80nm / NiV 350nm / Ag 180nm
- Thin SiC 100µm bonded on glass carrier 900µm
- 150°C T-limit



HEXAGON – the solution for everything?

Of course not! CLUSTERLINE® along with its configuration for up to 6 cathodes, complete range of chuck options including clamping and reputation for the ultimate in temperature and therefore bow control still provides the most flexible solution in the market, but if HEXAGON can fulfill your process specs its undoubtedly a winning throw of the dice.

Find out if HEXAGON is the right tool for you

Our process team would love to talk to you and explore if HEXAGON could be the perfect fit for your application. Scan the QR code now to contact us to take the first step.