

# PICOSUN™ P-300F

The PICOSUN™ P-300F ALD system is specially designed for production of IC components such as microprocessors, memories, and hard drives, and manufacturing of power electronics, mixed signal, and MEMS devices such as print heads, sensors, and microphones.



## Technical Features

The PICOSUN™ P-300 ALD systems have become the new standard in high volume ALD manufacturing. By integrating our patented hot-wall design with fully separated inlets, we can create the highest quality ALD films with excellent yield, low particle levels, and superior electrical and optical performance. The agile design with easy and fast maintenance ensures minimum system downtime and lowest cost-of-ownership in the market. Our proprietary Picoflow™ diffusion enhancer technology enables highly conformal coatings on ultra-high aspect ratio substrates with production-proven processes.

The PICOSUN™ P-300F ALD system represents the cutting-edge of industrial ALD. The system is designed for fully automated handling of wafer batches in combination with industry standard single wafer vacuum cluster platforms. The SEMI S2/S8 certified P-300F ALD systems can be integrated to factory automation via SECS/GEM option.

The PICOSUN™ P-300F is the ALD system of choice for innovation driven industries in IC!

**Please feel free to contact us for more information or a quotation!**

\* < 10s cycle time

\*\* < 1% non-uniformity

### Typical substrate size and type

- 200 mm wafers in batches up to 50 pcs
- 150 mm wafers in batches up to 50 pcs
- 100 mm wafers in batches up to 50 pcs
- High aspect ratio samples (up to 1:2500)
- Substrate materials: Si, glass, quartz, SiC, GaN, GaAs, LiNbO<sub>3</sub>, LiTaO<sub>3</sub>, InP

### Processing temperature and capacity

- 50 – 300°C
- Up to 1000 wafers / 24 hours @ 15 nm Al<sub>2</sub>O<sub>3</sub> thickness

### Typical processes

- Batch processes available with cycle times down to single digit seconds\*
- Al<sub>2</sub>O<sub>3</sub>, SiO<sub>2</sub>, Ta<sub>2</sub>O<sub>5</sub>, HfO<sub>2</sub>, ZnO, TiO<sub>2</sub>, ZrO<sub>2</sub>, and metals
- Down to <1% 1σ non-uniformity in a batch (Al<sub>2</sub>O<sub>3</sub>, WIW, WTW, B2B, 49 pts, 5mm EE)\*\*

### Substrate loading

- Fully automatic loading with vacuum cluster tool combined with vertical flip function
- Cassette to cassette batch loading through Picoplatform™ 200 vacuum cluster system
- Optional SMIF station

### Precursors

- Liquid, solid, gas, ozone
- Level sensors, cleaning and refill service
- Up to 12 sources with 6 separate inlets

## THE PRINCIPLE OF ALD



Introduction of molecules  
containing element A.



Adsorption of the molecules  
on the surface.



Introduction of molecules  
containing element B and  
reaction with element A on  
the surface.



Completion of one  
monolayer of compound AB.

Repeat cycle till desired film  
thickness is reached.

**picosun**  
AGILE ALD

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