

# WAFER PROFILER CVP21

## ECV Measurement of Doping Profiles

Patents: DE-10256821, US-7026255 (further pending)



CVP21 including option FP: Footprint 60\*80cm  
for minimum required clean room space

### Wafer Profiler CVP21: The **COMPLETE** Solution.

#### **COMPLETE** Material Range:

Group IV: Si, Ge, SiC  
Standard III-V: GaAs, InP, ...  
Ternary: AlGaAs, GaInP, ...  
Quaternary: AlGaInP, ...  
Nitrides: GaN, AlGaIn, AlInN, ...  
II-VI: ZnO, CdTe, CdHgTe, ...

#### **COMPLETE** Sample Range:

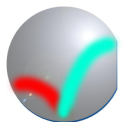
Stacked layers no problem  
No restrictions concerning substrate  
Sample size: 4\*2 mm<sup>2</sup> ... 8" Wafer

#### **COMPLETE** Resolution Range:

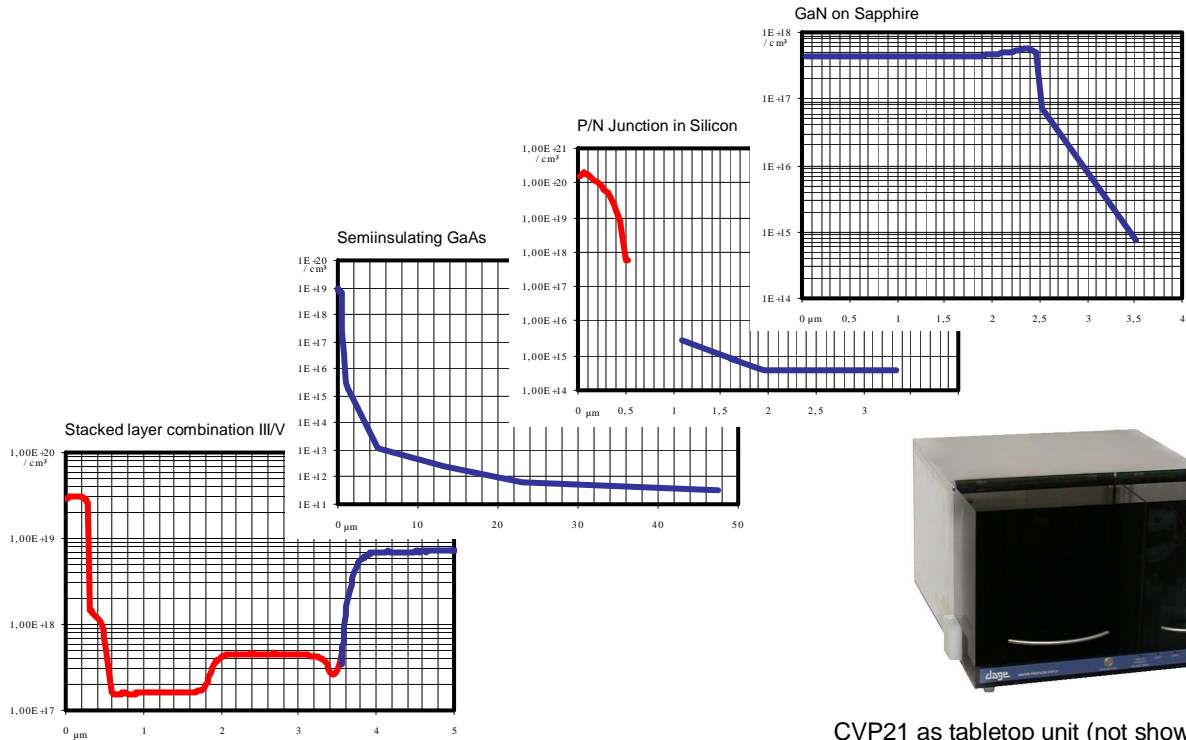
< 10<sup>12</sup> cm<sup>-3</sup> ... > 10<sup>21</sup> cm<sup>-3</sup> (\*)  
1 nm ... 100 μm (\*)  
(\*) may depend on material type/ sample quality.  
Please ask for sample measurements.

#### **COMPLETE** System:

HiRel - Calibration-free - Easy-to-Use  
Wafer-Stepping - Camera-Control  
Recipes - Auto-Load/Unload/Reload  
Manual/SemiAuto/FullAuto



# Typical results:



CVP21 as tabletop unit (not shown: Drain can and PC with monitor and printer)

# ECV Profiling - Solution Advantages:

	Hall	SIMS Secondary Ion Mass Spectroscopy	SRP Spreading Resistance Profiling	ECV Electrochemical CV-Profiling
Monitor the doping concentration	✓	✓	✓	✓
Monitor the electrical activation of dopants, including doping type n/p	✗	✗	✗	✓
Monitor the crystalline quality of the sample	✗	✗	✗	✓
Easy sample preparation	✗	✗	✗	✓
The substrate may be conductive	✗	✓	✓	✓
The thickness of the epi layer may be unknown	✗	✓	✓	✓
The depth profile may be measured with a resolution down to 1nm	✗	✓	✗	✓
Several layers may be measured	✗	✓	✓	✓
A wide range of materials may be analyzed	✓	✓	✗	✓
Concentrations below 10 <sup>14</sup> cm <sup>-3</sup> may be measured	✓	✗	✗	✓
Easy equipment preparation (no tedious calibration required)	✓	✗	✗	✓
Wafer topography may be measured on a complete wafer	✗	✗	✗	✓
PEC etching (Photo-Electrochemical etching) may be evaluated	✗	✗	✗	✓
The surface may be etched/passivated at start of the measurement	✗	✓	✗	✓