ECV 和其他方法比较表

ECV-Profiling 是一种半导体分析重要和方便的工具，下表详细对比说明电化学 ECV 与其他技术的特点比较：

Hall: 霍尔效应测量　　SIMS:二次离子质谱　　SRP:扩展电阻探针技术

Application requirement 应用需求	Hall	SIMS	SRP	ECV
Monitor the doping concentration 监控掺杂浓度	√	√	√	√
Monitor the concentration of electrically activated dopants 监控电学活性掺杂浓度	√	×	√	√
Monitor the doping type (n or p) 监控掺杂类型(N 型或 P 型)	√	×	×	√
Monitor the crystalline quality of the sample 监控样品结晶质量	×	×	×	√
Easy sample preparation 样品准备是否容易	×	√	×	√
Easy equipment preparation (no calibration or standard samples required) 设备使用容易程度(是否要校准或标准样品)	√	×	×	√
Easy contact preparation 接触准备是否容易	×	√	√	√
Substrate may be conductive 基底是否可以导电	×	√	√	√
Thickness of the epi layer may be unknown 外延膜厚度可否为未知	×	√	√	√
Depth Profile may be measured 剖面深度可否测量	×	√	√	√
Depth resolution in the 1nm range possible 深度分辨率打到 1 纳米水平	×	√	×	√

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Several layers may be resolved 多层薄膜的测量数据可否分离	×	√	√	√
A broad range of semiconductors may be measured 宽范围的半导体材料均可测量	√	√	×	√
Concentrations below 10^{14} cm^{-3} may be measured *) 载流子浓度低于 10^{14} cm^{-3}可以测量	√	×	×	√
Wafer topography may be analyzed 晶圆形貌可以分析	×	√	×	√
Measurement without prior mechanical or lithographic preprocessing 制样方便，无须预先机械或蚀刻准备	×	√	×	√
Photo-Electro-Chemical (PEC) etching may be evaluated 可以评估光电化学蚀刻(Photo-Electro-Chemical etching)	×	×	×	√
The surface may be etched/ passivated on start of the measurement 测量开始后，样品表面可以蚀刻/钝化	×	√	×	√

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Application requirement	Hall	SIMS	SRP	ECV
Monitor the doping concentration	√	√	√	√
Monitor the concentration of electrically activated dopants	√	×	√	√
Monitor the doping type (n or p)	√	×	×	√
Monitor the crystalline quality of the sample	×	×	×	√
Easy sample preparation	×	√	×	√
Easy equipment preparation (no calibration or standard samples required)	√	×	×	√
Easy contact preparation	×	√	√	√
Substrate may be conductive	×	√	√	√
Thickness of the epi layer may be unknown	×	√	√	√
Depth Profile may be measured	×	√	√	√
Depth resolution in the 1nm range possible	×	√	×	√
Several layers may be resolved	×	√	√	√
A broad range of semiconductors may be measured	√	√	×	√
Concentrations below 10^{14} cm^{-3} may be measured *)	√	×	×	√
Wafer topography may be analyzed	×	√	×	√
Measurement without prior mechanical or lithographic preprocessing	×	√	×	√
Photo-Electro-Chemical (PEC) etching may be evaluated	×	×	×	√
The surface may be etched/ passivated on start of the measurement	×	√	×	√

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