SiC EPITAXY SERVICE

Complete range of SiC Epitaxy

- From R&D epi material to prototype development and pre-volume production
- Flexible specification
- Multi-layer structures
- Epitaxially grown pn-junctions
- Support device design

<table>
<thead>
<tr>
<th>Key Parameters</th>
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<tbody>
<tr>
<td>Wafer size</td>
<td>76, 100, 150 mm</td>
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<tr>
<td>Polytype</td>
<td>4H, 6H, 3C</td>
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<tr>
<td>n-doping</td>
<td>$10^{14} - 10^{19}$ cm$^{-3}$</td>
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<tr>
<td>p-doping</td>
<td>$10^{14} - 10^{20}$ cm$^{-3}$</td>
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<tr>
<td>V-doping</td>
<td>semi-insulating</td>
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<tr>
<td>Ge-doping</td>
<td>resistivity control</td>
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<td>Thickness</td>
<td>0.1 - 250 µm</td>
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SiC Epitaxy Equipment

- Single wafer epitaxy: LPE PE106, Aixtron VP508
- Multi wafer epitaxy: Aixtron VP2400
- Surface polishing: Surface grinding, back-grinding, polishing and CMP
- Characterization: FTIR, CV, Microscope, Candela defect mapping, AFM, SEM

* Available through cooperation with NORSTEL, Sweden

3DSiC®: In process & regrowth epitaxy, multi-layer structures

![Trench MOSFET](image1)

![Multi-Layer](image2)

![Buried Grid](image3)
State of the art SiC epitaxy technology

Record low defect density through efficient buffer layer technology

- Prevent nucleation of crystalline defects at growth start
- BPD to TED conversion rate > 99.8% \( \Rightarrow < 1 \text{ BPD per cm}^2 \)
- Enables bipolar SiC device technology

Best in class layer homogeneity with LPE PE106

- Adjustable lateral gas flows
- High Growth rate of 40µm/h using TCS as silicon precursor
- Thick layer growth up to 250µm thickness and more
- Low doping concentrations of \( \sim 1 \times 10^{14}/\text{cm}^3 \)
- Enables >15kV SiC device technology