Global Power SiC Epitaxial Wafer Group is committed to providing high quality Silicon Carbide epitaxial material for power electronic devices in a cost competitive manner to provide an advantage to our customers.
Global Power SiC Epitaxial Wafer
The Choice for High Quality Silicon Carbide Epitaxial Wafers

- High Volume Multi Cassette Production Silicon Carbide Epitaxy Reactor Technology
- Epitaxy available on 100 mm (4 inch) and 150 mm (6 inch) SiC substrates
- Tool capable of growth on 200 mm (8 inch) and 300 mm (12 inch) substrates
- World Class Epitaxial Team
- Class 10 operating space with for epiwafer loading and epitaxial characterization tools
- Access to a wide variety of additional characterization techniques with our partners
SiC Epitaxy Characterization Tools

**Imaging System For Defect Analysis**

Defect Inspection Tool
- Can measure 100 mm & 150 mm wafers
- High Resolution Imaging Microscope Collects Thousands of Images for Defect Analysis
- Microscope pictures linked to defect map for easy location of images
- Software mapping easy to set up
- Provides full wafer color defect maps
- Measurement speed
  - 100 mm wafer 2000+ pictures ~ 20 minutes
  - 150 mm wafer 4500+ pictures ~ 45 minutes
- Defect analysis data exportable to csv

**Spectral Reflectance for Epi Thickness Measurements**

- Spectral Reflectance is Faster, Cheaper and More Reliable Than FTIR
- High Point Density Wafer Mapping Capability With Rapid Throughput

**Capacitance Voltage for Epi Doping Measurements**

- State of the Art CV Tool Uses Hg Based Contacts for Measurement
- Wafer Mapping Capability With No Permanent Contacts on Wafer Surface

Example of a Detected Defect (Triangle)
Manufacturing Data (100 mm Substrates)
GPTG’s Epiwafers Beat the Competition

- GPTG epiwafer technology verses a leading Competitor’s epiwafers
  - Thickness Uniformity is Comparable
  - Doping Uniformity is Superior!
  - Defect Control is Comparable*

*Note: Competitor yield is based on counts of what they refer to as “Killer Defects”. GPTG yield is based on all observable defects on the epiwafer surface.
150 mm Epi Growth Runs
GPTG’s 150 mm Epiwafers

- GPTG epiwafer technology expandable to 150 mm SiC Substrates and beyond
- Comparable results to 100 mm diameter epiwafers are achieved
- No competitor epiwafer data available on 150 mm substrates
200 mm SiC Substrates
200 mm SiC substrates are under active development at II-VI

200mm Substrate Development

GPTGs epitaxy tool can grow on 200 mm substrates today!
Summary

• GPTGs epitaxy reactor is in production on 100 mm SiC substrates today.
• Doping uniformity, in particular, is better than commercially available epitaxy.
• Sampling customers on 150 mm substrate epitaxy material now and can move to production as soon as the market is ready.
• We can leap ahead of the market using 200 mm SiC substrates and above with the right partner.