SiC Foundry at the Scale of Silicon

First 6-inch SiC foundry offering

X-FAB has established a 6-inch Silicon Carbide foundry line fully integrated within our 30,000 wafers/month silicon wafer fab located in Lubbock, Texas. With the support of the PowerAmerica Institute, X-FAB’s goal is to accelerate the commercialization of SiC power devices by leveraging the economies of scale, automotive quality system and equipment set that have been established in of its silicon wafer fabrication line.

SiC Process Capabilities

- High Temperature Implant
- High Temperature Implant Anneal
- SiC Wafer Thinning
- Backside Metal Deposition (Ti/Ni/Ag)
- Backside Laser Anneal
- Ni Deposition and Etch

CMOS Tools Converted to Support SiC Processing

- Photolithography
  - Canon i3 Steppers [CD: 0.6um, Align: ± 0.2um]
  - TEL Mark V Coat/Develop Tracks
- Deposition
  - Novellus Concept 1 PECVD [Oxides, BPSG ILD, Nitrides]
  - AMAT Endura PVD [Ti, AlCu, TiW, Ni]
  - Thermco LPCVD Furnace [PolySi]
- Etch
  - Dry Etch: LAM TCP, LAM 45XX
  - Wet Etch: FSI-Mercury
- Implant
  - Species supported: P, B, N2
  - Varian E500 Mid-Current Implanter
  - Axcelis GSD High-Current Implanter
  - Axcelis VHE (Very High Energy) Implanter
- Thermal Processing
  - Mattson 2900 RTP
  - Thermco Horizontal Furnaces

Benefits

- 6-inch SiC processing capabilities
- Leveraging the economies of scale of an existing 6-inch silicon fab
- Automotive quality standards e.g. ISO TS 16949
- Strong focus on IP protection
- Second source solution for IDMs with own SiC manufacturing line

X-FAB is a charter member of the PowerAmerica Institute at NC State University
As the world’s leading independent More-than-Moore foundry, X-FAB creates a clear alternative to typical foundry services by combining solid, specialized expertise in advanced analog and mixed-signal process technologies with excellent service, a high level of responsiveness and first-class technical support.

We offer high-performance modular CMOS and BiCMOS processes in geometries ranging from 1.0 down to 0.13 micrometer as well as specialty foundry technologies such as SOI, BCD, MEMS and SiC processes.