Director of Process Technology Development

Location: Lehigh Valley (Bethlehem), Pennsylvania

About iDEAL Semiconductor

At iDEAL Semiconductor, we're redefining what silicon can do.
Our proprietary SuperQ™ technology is breaking long-standing performance limits of traditional power MOSFETs—enabling faster switching, higher efficiency, and more compact system designs across applications like AI infrastructure, battery management, motor drives, and fast charging.

We're a fast-moving, highly collaborative team of engineers and innovators focused on solving real-world power challenges.

Silicon. Reinvented.

The Role

The successful candidate will play a key role in shaping the future of our high-voltage power semiconductor technologies by defining and driving the process technology roadmap for discrete MOSFET and IGBT products spanning 60 V to 650 V. Working closely with Device Design, Product Engineering, Reliability, Quality Assurance, Supply Chain, Sales, and Senior Leadership, this individual will ensure technology development efforts are aligned with both technical objectives and business goals. The role includes managing relationships with external foundry and subcontractor partners responsible for advanced high-voltage silicon process flows, while continuously evaluating emerging technologies and industry trends. A critical responsibility will be driving the development and protection of Intellectual Property (IP) through the company's IP Program, identifying innovative technologies and process advancements that strengthen the organization's competitive position. The ideal candidate will proactively identify technology gaps and lead initiatives that advance the organization's capabilities, competitiveness, and alignment with industry best practices and standards.
This position reports to the COO.

Key Responsibilities:

- Technology Strategy: Translate product requirements (performance, cost, reliability) into process development priorities and milestones.
- Foundry Partners: Plan and execute technology development from concept to production. Negotiate technical scope, Acceptance Criteria, KPIs and process control requirements.

- Process Development: Working with the Foundry team, leading development of new process modules and optimization for yield, performance, and reliability.
- Yield, Quality and Reliability: Establish yield improvement programs, root-cause analysis, corrective action, and preventive measures across wafer fab flows. Define and monitor process control metrics, defect density, scrap, and cost-of-quality.
- Data Analysis: Establish methodologies to analyze data to identify trends, troubleshoot problems, and support continuous improvement initiatives.
- Documentation: Oversee the creation and maintain comprehensive process documentation including specifications, procedures, and reports. Ensure compliance with industry standards.
- PTD Leadership: Hire, develop, and maintain a world-class Process Technology Development team.

Required Qualifications:

- Education and Experience:
  - BA/BS Electrical Engineering, Chemical Engineering or Solid State Physics plus a minimum of 20 years of related experience;
  - MS Electrical Engineering, Chemical Engineering or Solid State Physics plus 14 of related experience; or
  - PhD Electrical Engineering, Chemical Engineering or Solid State Physics plus 8 years of related experience
- Proven experience working with foundry engineering team in a process development and integration.
- In depth knowledge and experience in power semiconductor front end processes.
- Proven history of technical accomplishment, leadership, planning & coordinating, and executing on multiple projects simultaneously.
- Proven experience leading a technical team in a product development environment.
- In depth knowledge and experience in power semiconductor device design and process development with an emphasis in high voltage (>300V) class of devices.

Nice to Have

- 20 years minimum experience in power semiconductor technology Development with five years leading foundry-facing programs.
- Multi-generational device design and process development of high voltage (>500V) power semiconductor products.
- Experience with automotive/industrial qualification standards (AEC-Q, ISO standards).
- Experience with power discrete packaging/process interactions.
- Proficient in charge balance/compensated type of devices.

Why Join iDEAL

- Work on next-generation silicon technology redefining performance limits

- Direct impact on products used in high-growth markets
- Collaborative, low-ego culture with high technical depth
- Opportunity to grow with a scaling semiconductor company
- Exposure to global customers and cutting-edge applications
- Opportunity to shape the future of next generation converters

Compensation & Benefits

- Competitive salary + bonus structure
- Equity participation
- Health, dental, and vision insurance
- 401(k), PTO

How to Apply

Submit your resume via Careers - iDEAL Semiconductor