

Senior Process Engineer, Carlsbad, San Diego, CA

About Polaris Electro-Optics

Polaris Electro-Optics is a rapidly growing photonics company developing breakthrough optical interconnect technology for data centers, AI, and high-performance computing. Their proprietary FenGlass™ platform integrates ferroelectric nematic materials into silicon photonics, enabling faster, compact, and more energy-efficient solutions. Located in San Diego and backed by substantial funding, Polaris is scaling to meet demand from hyperscale customers and transceiver suppliers.

Role Overview

Polaris is seeking a hands-on Sr Process Engineer to develop and monitor advanced manufacturing processes. This is a high-impact role supporting multiple prototype and product development efforts across engineering teams. You'll be collaborating closely with optics and electronics engineers to bring concepts to life. Ideal candidates thrive in startup environments, manage multiple priorities with ease, and bring strong process development manufacturing experience to the table.

Key Responsibilities

Develop and optimize processes used in the assembly of Polaris' opto-electronic products.

Design and implement advanced packaging workflows, specifically focusing on Flip Chip assembly and Thermo-Compression Bonding (TCB) for high-density interconnects.

Lead the integration of 2.5D/3D packaging architectures to support next-generation silicon photonics Engines.

Interact with suppliers, subcontractors, and contract manufacturers to ensure process scalability.

Define and conduct Designs of Experiments (DOE) to optimize yield and performance.

Generate Statements of Work (SOW) and detailed project plans for new process development activities.

Responsible for improving, monitoring, and reporting manufacturing process health (yield, failure paretos,etc).

Who You Are (Basic Qualifications)

5+ years of hands-on experience in manufacturing processes and process improvements.

Deep technical expertise in Flip Chip packaging and Thermo-Compression Bonding (TCB).

Proven understanding of 2.5D and 3D packaging technologies and their unique reliability challenges.

Experience with statistical analysis methods (DOE, Gage R&R, etc.) and software (JMP, Minitab, etc.).

Experience with failure modes and effects analysis (FMEA).

Strong understanding of optoelectronic devices and the impact of packaging on overall device reliability.

General knowledge of common packaging processes used in the micro-electronic / photonics industry.

Qualifications

Bachelor's degree in Electrical / Mechanical Engineering, Physics, or a related discipline.

Comfortable in fast-paced, startup environments with shifting priorities.

Excellent communication and collaboration skills.