

Keunho Choi

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Education

JEONBUK NATIONAL UNIVERSITY

Bachelor of Science in Chemical Engineering

- Campus Engagement
: Leader of Tennis Club - increased club membership by 30% during tenure, led activities

Jeonju, South Korea

Mar. 2011 – Feb. 2018

RESEARCH & WORK EXPERIENCES

LG INNOTEK; Product & Process Engineer (Dual Roles)

Multi-Layer Core (MLC) Task Team – Developing FC-BGA Substrates for AI infrastructure

Gumi, South Korea

Sep. 2023 – Present

Failure Analysis

- Identified moisture absorption as the root cause of copper-dielectric delamination, and introduced a baking process along with circuit design optimization, reducing delamination rates from 50% to 0%

Yield Improvement for Advanced Highly Layered Substrates

- Set up new equipment and established work standards for the introduction of an Automated Optical Rework process to remove excess copper (preventing short defects) between lines using lasers, reducing short defect rates by 40%
- Introduced a friction-minimizing system to reduce defect rates caused by damage during processing due to high thickness and weight, improving the final yield from 5% to 30%
- Optimized circuit design rules and process parameters to eliminate copper residue, resulting in a 10% improvement in yield
- Optimized dry film photoresist lamination parameters to improve adhesion between the resist and copper on thicker substrates, boosting yield by 15%

Customer Technical Support

- Collaborated with clients such as Broadcom, Nvidia and AMD to develop substrates with low-permittivity dielectrics and multi-layered cores, securing a project to develop next-gen substrates for AI infrastructure products
- Created weekly build reports to present yield improvement plans and updates for client reporting

Package Substrate Manufacturing Technology Team – Improving Lithography Processes

Oct. 2022 – Present

Process Development & Improvement

- Introduced a high-thickness photoresist stripping process capable of removing the photoresist up to six times thicker than the original by implementing a new Stop & Go conveyor system, saving \$2.6M in dedicated equipment costs
- Developed a dedicated etching process by researching optimal etchants to remove copper burrs caused by substrate grinding, improving photoresist stripping effectiveness
- Analyzing microbubbles at the interface of electrolytic and electroless copper in collaboration with chemical manufacturers, with the goal of improving product reliability

Yield Improvement for System-in-Package (SiP) & Flip-Chip Chip-Scale Package (FCCSP)

- Optimized the stripping machine settings to remove photoresist residue, reducing short defects on fine lines by 20%
- Led weekly yield improvement meetings and established a defect monitoring system for the SiP Yield Task, implementing improvement initiatives that surpassed the annual yield goal by 2%

Process Capability Improvement

- Implemented automatic hydrogen peroxide dosing using a spectrophotometer in the Flash Etching process to reduce dimensional variation caused by etchant concentration fluctuations, decreasing etching speed variation by 30%
- Systematized previously unused Statistical Process Control (SPC) by defining clear problem statements and establishing management indicators to improve the stability of processes, reducing the out-of-control rates by 60%
- Led weekly SPC meetings on line width and scale variations across substrates, prepared monthly executive reports, and earned outstanding team member recognition twice

Lithography Process Management

- Led troubleshooting on 100+ issues in one of two factories with field, production, quality, and development teams, resolving critical problems and enhancing process stability
- Evaluated mass production feasibility of 20+ newly developed SiP products through quality assessments, ensuring high

- standards while facilitating a smooth transition to large-scale production without quality issues
- Performed line audits for SiP customers such as Broadcom, Skyworks, and Qorvo
- Managed defect analysis and corrective actions for SiP products in response to customer defect notifications, improving product reliability and customer satisfaction

STEMCO (Samsung & Toray Electro-Mechanics Co.); Process Engineer
Tape Type Substrate (Display Driver IC on Film) Manufacturing Technology Team

Cheongju, South Korea
May 2018 – Sep. 2022

Process Cost Reduction

- Developed the etching process for low-performance PCBs to reduce costs by adjusting etchant concentration, achieving annual cost savings of \$250K (0.5% of revenue)
- Optimized deionized water usage for rinsing across etching and stripping processes, implementing precise flow control and quality verification to reduce water consumption by 50% equivalent to \$75K annual cost savings

Yield Improvement for Tape Type Substrates

- Developed a pretreatment process to prevent unnecessary etching interference by researching the correlation between azole-based inhibitors and short defect rates, achieving a 30% improvement in defect rate

Production Capacity Expansion

- Set up and inspected new etching equipment for production capacity expansion by reviewing P&ID and testing performance, increasing manufacturing capacity by up to 20%
- Researched stripping chemical saturation levels to extend replacement cycles, maintaining quality standards and enhancing stripping process capacity by 10%

Process Capability Improvement

- Implemented an automated 3D microscope measurement in the etching process to reduce human errors, resulting in a 30% improvement in long-term process capability by reducing standard deviation of line width variation

Lithography Process Management

- Led troubleshooting on 700+ issues with field, production, quality, and development teams, resolving critical problems and enhancing process stability
- Directly reported quarterly to the CEO on improvements in the etching and stripping processes, ensuring executive alignment and facilitating strategic decisions to enhance operational efficiency
- Conducted annual line audits for major mobile and TV display manufacturers, such as Apple, Samsung and BOE, ensuring quality compliance and enhancing client trust

ARMY, REPUBLIC OF KOREA; Corporal
8th Mechanized Infantry Division

Cheorwon, South Korea
Jan. 2012 – Oct. 2013

- Represented the mechanized infantry as a squad leader in the Republic of Korea Army's 2013 Firepower Demonstration, earning recognition as the Best Teamwork Squad

AWARDS

- Gold Prize, LG Best Practice Award, 2023 — LG Innotek
Developed and implemented the Stop & Go System to achieve successful stripping of thick photoresist layers, recognized for innovation and process improvement
- Second Place, Capstone Design Competition, 2016 — Jeonbuk National University
Led the development of a counterfeit gasoline detection device using vapor pressure differences, achieving 2nd place university-wide and 1st place within the Department of Chemical Engineering

EXTRA-CURRICULAR ACTIVITIES

- Technical English Translation Assistance, 2017 — Huvis (Polyester Fiber Manufacturer)
: Translated and documented Low Melting Fiber technology transfer materials from Korean to English in collaboration with Indorama Ventures, a PET resin company in Thailand
- Orphanage Volunteer Mentor, 2010 – Local Orphanage
: Conducted facility maintenance and cleaning, and provided mentoring activities to support orphans' personal development.
- Down Syndrome Youth Support Volunteer, 2008 – Local Care Center
: Organized and participated in activities such as cooking and sports day with children with Down syndrome, while also assisting with facility cleaning and meal distribution.

ADDITIONAL INFORMATION

- Languages
: Korean (native fluency), English (professional working proficiency, IELTS: Overall Band Score 7)
- Tool Experience & Technical Skills
: Scanning Electron Microscope, EDX Analysis, JMP, Minitab (Statistical Analysis)