

Ayden Logan

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SUMMARY

Senior Staff ESD Engineer with 10 years of semiconductor experience across **High Voltage BCD**, analog, **power management**, and **mixed signal ICs**. Leads ESD and Latch Up design reviews, protection structure development, library qualification, risk assessment, and design sign off for automotive and industrial products. Applies **ESD device physics**, isolation techniques, HBM, CDM, TLP, silicon characterization, reliability analysis, and failure analysis to solve difficult product issues. Works closely with foundries, technology development teams, product designers, customers, and engineering groups in Japan and Asia. Uses Cadence analog IC development flows and Calibre PERC verification to connect device behavior with layout decisions. Clear technical writing and practical IEC EMC awareness support sound decisions, dependable qualification, and productive global collaboration.

EXPERIENCE

Senior Staff ESD Engineer

January 2023 - Present

Solstice Microdevices

Phoenix, AZ

Leads ESD and **Latch Up** engineering for High Voltage BCD analog, power, and mixed signal products. Owns protection architecture, design reviews, qualification planning, silicon debug, library release, risk assessment, and sign off. Connects internal designers, foundries, customers, and global engineering reviewers through clear technical evidence.

- Led **High Voltage BCD** reviews, resolving isolation risks before analog product sign off
- Designed protection structures for power domains and sensitive interfaces, preserving reliable current paths
- Directed **HBM**, **CDM**, and TLP characterization, turning lab evidence into design guidance
- Traced silicon failures through electrical data and physical evidence, clarifying corrective actions
- Qualified reusable **ESD libraries** through Cadence flows and **Calibre PERC** checks before adoption
- Presented product risk assessments to designers, foundries, customers, and global reviewers

Principal ESD Design Engineer

June 2020 - December 2022

Mesa Analog Semiconductor

Tempe, AZ

Owned ESD device development for power management and mixed signal products using High Voltage BCD processes. Guided clamp evaluation, technology reviews, design rule authorship, failure investigations, and collaboration with process teams. Supported **system level ESD** discussions when IEC EMC stress affected device protection choices.

- Developed **High Voltage BCD** protection devices for **power management** and mixed signal products
- Evaluated clamp triggers and current paths through **TLP** characterization, exposing isolation interactions
- Authored design rules and review checklists linking device physics with **reliability** constraints
- Partnered with process teams during technology changes, updating qualified protection options
- Investigated silicon failures, documenting root causes, corrective actions, and residual product risk
- Supported **IEC EMC** discussions where system stress shaped device level protection strategy

Senior ESD Engineer

July 2018 - May 2020

Copper Ridge Integrated Circuits

Chandler, AZ

Owned ESD verification for analog and power IC programs from schematic review through silicon characterization. Managed protection requirements, verification planning, lab result interpretation, designer resolution, technical reporting, and customer discussion support. Balanced parasitics, leakage, area, high voltage operation, and qualification targets.

- Owned **ESD** verification from schematic review through **silicon characterization** for analog programs
- Applied HBM and CDM requirements across pad structures, power clamps, and internal paths
- Used Cadence and **Calibre PERC** to identify protection rule issues before tapeout
- Built characterization plans, comparing laboratory results with qualification targets and failure signatures
- Resolved parasitic and leakage conflicts with designers during high voltage layout reviews
- Produced technical reports supporting **design reviews**, qualification decisions, and customer discussions

ESD Design Engineer

June 2016 - June 2018

Desert Peak Semiconductors

Scottsdale, AZ

Supported device design and characterization for analog and mixed signal products under senior engineering review. Executed HBM, CDM, and TLP plans, organized silicon evidence, prepared Cadence review data, and contributed failure analysis for technology development and design teams.

- Supported **ESD** device design and characterization for analog and mixed signal products
- Executed HBM, CDM, and TLP plans under senior engineering review and organized findings
- Analyzed protection paths and isolation structures using device physics fundamentals

- Prepared Cadence review data and applied rule based verification before tapeout
- Contributed **failure analysis** evidence during reviews of damaged protection structures
- Documented characterization methods and findings for design and **technology development teams**

PROJECTS

High Voltage BCD Library Qualification 📅 2024

Built a reusable qualification approach for ESD libraries, connecting Calibre PERC checks, silicon evidence, and design review decisions. Shared findings with designers and global reviewers to support confident product adoption.

Mixed Signal Silicon Failure Analysis 📅 2022

Investigated protection failures across mixed signal silicon using electrical characterization, TLP evidence, and physical findings. Converted root cause conclusions into corrective actions and clearer product risk decisions.

LEADERSHIP & AWARDS

- Recognized by design leadership for dependable High Voltage BCD ESD sign off across complex product reviews.
- Selected as a trusted technical reviewer for silicon failure analysis and protection library qualification.
- Led cross regional technical discussions that connected engineering teams in Japan, Asia, and North America.

EDUCATION

Master of Science in Electrical Engineering

2016

Arizona State University GPA: 4.0

Tempe, AZ

Coursework: ESD device physics, analog IC design, semiconductor reliability, electrical characterization

CERTIFICATIONS

- Cadence Analog IC Design Flow Continuing Education 📅 2024
- ESD Association Device Testing Fundamentals Training 📅 2022

TECHNICAL SKILLS

- **ESD Testing:** HBM, CDM, TLP
- **ESD Design:** Protection Structures, ESD Libraries, Device Limits
- **High Voltage Devices:** High Voltage BCD, Analog Devices, Power Devices
- **Reliability Engineering:** Latch Up, Reliability Analysis, Risk Assessment
- **Silicon Analysis:** Silicon Characterization, Silicon Debug, Failure Analysis
- **IC Design Tools:** Cadence, Calibre PERC, Analog IC Flow
- **Isolation Design:** Isolation Structures, Isolation Boundaries, Current Paths
- **IC Product Types:** Analog ICs, Power Management, Mixed Signal ICs
- **Design Governance:** Design Reviews, Design Guidelines, Design Sign Off
- **System ESD:** IEC EMC, System Level ESD, Electromagnetic Compatibility
- **Documentation:** Technical Writing, Technical Reports, Review Checklists
- **Engineering Collaboration:** Foundries, Technology Development, Customer Reviews

SKILLS

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|--------------------|--------------------|------------------------|----------------------------|
| • ESD | • CDM | • Mixed Signal ICs | • Silicon Characterization |
| • Latch Up | • TLP | • ESD Device Physics | • Failure Analysis |
| • High Voltage BCD | • Analog ICs | • Isolation Techniques | • Technical Writing |
| • HBM | • Power Management | • Reliability Analysis | |

PROFESSIONAL AFFILIATIONS

- Active participant in semiconductor reliability and ESD engineering communities.
- Collaborates with foundry and technology development partners on protection methods and qualification evidence.

LANGUAGES

- English (Native)
- Japanese (Beginner)

ADDITIONAL INFORMATION

Work Status : Authorized to work in United States. No sponsorship required.

REFERENCES

AVAILABLE ON REQUEST