

Karter Dean

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SUMMARY

Associate thermal engineer with four years of experience supporting power products and electronics through **thermal modeling**, CFD simulation, laboratory characterization, and mechanical design. Applies heat transfer and thermal dynamics principles with ANSYS Icepak, FloTHERM, PTC Creo, Pro/ENGINEER, and SolidWorks to assess architectures, identify constraints, and guide practical design decisions. Connects simulation predictions with laboratory evidence through instrumentation review, test planning, and correlation analysis. Partners with **mechanical engineering**, marketing, sales, product teams, leadership, and external engineering stakeholders to translate application requirements into clear analysis plans and actionable recommendations. Familiar with **advanced electronic cooling**, **direct liquid cooling** concepts, EIA standards, UL standards, technical reporting, and customer presentations. Brings a focused record of turning thermal findings into verified design updates and sound product decisions.

EXPERIENCE

Thermal Engineer, Power Electronics

May 2024 - Present

Vector Power Systems

Allentown, PA

- Owns **thermal analysis** and verification for power electronics development, coordinating CFD, CAD, **laboratory testing**, design reviews, and technical communication across engineering and product stakeholders.
- Defined **ANSYS Icepak** and FloTHERM models for **power products**, creating traceable inputs for design reviews.
 - Verified **CFD** assumptions against drawings, requirements, and product data before releasing thermal recommendations.
 - Resolved cross functional thermal constraints with mechanical engineers while protecting system and enclosure intent.
 - Compared laboratory instrumentation results with simulation predictions, identifying model changes that improved correlation quality.
 - Prepared CAD inputs, calculations, technical reports, and presentations for engineering and leadership decisions.
 - Closed thermal findings through design updates, model refinement, test correlation, and peer review.

Thermal Analysis Engineer, Electronics Cooling

July 2023 - April 2024

Blue Ridge Electronics

Bethlehem, PA

- Supported customer electronics cooling programs through **thermal analysis**, application scoping, simulation review, **laboratory characterization**, and communication of feasible product solutions to internal teams.
- Scoped customer cooling applications with documented assumptions, requirements, and engineering inputs for review.
 - Built thermal analyses from drawings and design data, then checked inputs before sharing conclusions.
 - Coordinated mechanical and product stakeholders around thermal constraints affecting customer electronics cooling applications.
 - Reviewed test instrumentation data and compared measured temperatures with analytical predictions during correlation studies.
 - Created technical reports and presentations that connected thermal results with customer application decisions.
 - Resolved open findings through documented design changes, model updates, and engineering peer review.

Mechanical Design Engineer, Power Assemblies

June 2022 - June 2023

ForgePoint Components

Reading, PA

- Designed electronic enclosures and power product assemblies while supporting thermal feasibility, CAD development, verification planning, and cross functional decisions for manufacturable product solutions.
- Defined enclosure and power assembly inputs, assumptions, and requirements for technical design reviews.
 - Developed thermal checks from product drawings and verified analysis inputs against released design data.
 - Adjusted mechanical interfaces after thermal reviews, preserving assembly intent and improving product feasibility.
 - Supported **laboratory testing** by reviewing instrumentation data against predicted thermal behavior and design limits.
 - Prepared **SolidWorks** and **PTC Creo** inputs, calculations, reports, and presentations for design decisions.
 - Documented design updates, analysis refinements, and peer review actions for closed technical findings.

PROJECTS

Liquid Cooling Feasibility Study 📅 2024

Good thermal decisions begin with evidence. Evaluated direct liquid cooling concepts against electronics application needs, connecting feasibility questions with practical design review inputs and customer focused recommendations.

Simulation Correlation Workflow 📅 2023

Reliable product development starts with trust in evidence. Structured a simulation to test correlation approach using CFD assumptions, laboratory measurements, model refinement, and clear engineering documentation.

LEADERSHIP & AWARDS

- Recognized by engineering peers for clear thermal reports connecting CFD results with laboratory evidence.
- Selected to present electronics cooling findings during cross functional product design reviews.
- Received positive stakeholder feedback for closing thermal findings through documented design updates and peer review.

EDUCATION

Bachelor's Degree in Mechanical Engineering

2022

Lehigh University GPA: 0

Bethlehem, PA

Coursework: Heat Transfer, Fluid Mechanics, Thermodynamics, Mechanical Design

CERTIFICATIONS

- ANSYS Icepak Applied Electronics Cooling 2023
- UL Standards Fundamentals for Product Development 2024

TECHNICAL SKILLS

- **CFD Software:** ANSYS Icepak, FloTHERM, CFD simulation
- **CAD Software:** PTC Creo, Pro/ENGINEER, SolidWorks
- **Thermal Engineering:** Heat transfer, thermal dynamics, thermal analysis
- **Electronics Cooling:** Advanced electronic cooling, power electronics cooling, direct liquid cooling
- **Laboratory Testing:** Thermal characterization, instrumentation review, compliance testing
- **Simulation Correlation:** Simulation to test correlation, model validation, prediction review
- **Product Development:** Power products, system architectures, design feasibility
- **Standards:** EIA standards, UL standards, thermal compliance
- **Engineering Documentation:** Technical reports, calculations, traceable inputs
- **Technical Communication:** Design presentations, customer presentations, engineering reviews

SKILLS

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|--------------------|-----------------------|---------------------------|---------------------|
| • CFD | • Electronics cooling | • Design feasibility | • EIA standards |
| • Thermal analysis | • Thermal management | • Technical presentations | • UL standards |
| • Heat transfer | • Laboratory testing | • Customer applications | • Mechanical design |
| • Thermal dynamics | • Test correlation | • Direct liquid cooling | |

PROFESSIONAL AFFILIATIONS

- Mechanical engineering community participant, sharing practical thermal analysis and product design knowledge.
- Thermal engineering practitioner, following electronics cooling, CFD, testing, and compliance developments.

LANGUAGES

- English (Native)
- Spanish (Intermediate)

ADDITIONAL INFORMATION

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

REFERENCES

AVAILABLE ON REQUEST