KEYLINK Technology

Job Description: Power Electronics Engineer

Position: Electronics Engineer

Department: R&D / Engineering

Location: Wenzhou, China

Type: Full-Time

Role Overview

We are seeking an experienced **Power Electronics Engineer** to design, develop, and optimize advanced **power supply systems**, including AC-DC, DC-DC, and high-frequency converter architectures. The ideal candidate has hands-on experience in power electronics design cycles—from concept and simulation through prototyping, testing, and mass-production support.

Key Responsibilities

Design & Development

- Design AC-DC, DC-DC converters, SMPS, and high-power/high-efficiency supply modules.
- Develop power stages including PFC, LLC resonant converters, isolated and non-isolated topologies.
- Perform schematic design, component selection, derating analysis, and magnetic design (transformers, inductors).
- Design control loops (analog/digital) such as PID, current-mode control, CRM, or resonant control.

Simulation & Analysis

- Model and simulate power circuits using tools like LTspice, PLECS, PSIM, MATLAB/Simulink.
- Conduct loss analysis, efficiency optimization, and thermal modeling.
- Validate EMI/EMC behavior and assist with pre-compliance testing.

Prototyping & Testing

- Build prototype circuits, evaluate performance, and troubleshoot power stages.
- Conduct reliability tests: thermal cycling, load transients, short-circuit behavior, surge/ESD immunity, etc.
- Use lab equipment: oscilloscopes, power analyzers, electronic loads, LCR meters, and spectrum analyzers.

Documentation & Production Support

- Create design documentation: schematics, BoM, design reports, test plans, and validation reports.
- Work with PCB layout teams to optimize high-current, high-frequency routing.
- Support DFM/DFT, production ramp-up, and cost-down engineering.

Cross-Functional Collaboration

- Coordinate with mechanical, firmware, and manufacturing teams.
- Work with suppliers for component selection, magnetics development, and custom hardware.
- Provide technical expertise during customer discussions and design reviews.

Qualifications

Education & Experience

- Bachelor's or Master's degree in Electrical/Electronics Engineering or related field.
- 3–8+ years experience in power electronics or switched-mode power supply (SMPS) development.

Technical Skills

- Strong knowledge of power converter topologies: Buck/Boost, Flyback, Forward, LLC, PFC, etc.
- Experience with high-frequency switching (20 kHz – 1 MHz).
- Familiarity with GaN/SiC devices, gate drivers, thermal management, and protection circuits.
- Hands-on experience with magnetic component design.
- Understanding of safety and compliance standards: UL, CE, IEC/EN 62368, 61000-EMC, etc.

Soft Skills

- Strong analytical and problem-solving abilities.
- Ability to work independently and manage multiple projects simultaneously.

- Clear communication, documentation, and teamwork skills.

Preferred (Nice to Have)

- Experience with digital power control (MCU/DSP-based).
- Knowledge of battery management, high-power chargers, or energy storage systems.
- Experience in high-volume manufacturing environments.
- Familiarity with reliability standards (HALT/HASS) and FMEA.