Senior Hardware Design Engineer (Gate Driver)

Job title:	Senior Hardware Design Engineer
Department:	Railway Technology Department
Location:	Birmingham
Hours of work:	37 hours a week
Contract:	Permanent
Salary:	Competitive
Working hours:	Hours: 8:00 – 17:00 Mon -Thurs and 08:00 -14:00 on a Fri (1hour lunch).
Reference:	10-7

About Zhuzhou CRRC Times Electric UK Innovation Center

Zhuzhou CRRC Times Electric UK Innovation Centre (TEIC) is a subsidiary of the CRRC Corporation Limited, the world's leading propulsion and control systems provider in the rolling stock industry. Our mission is to design, develop and produce state of the art power electronics systems and components for automotive electric vehicles, rail, and renewable energy sectors. Please Follow us on LinkedIn or visit https://teic.crrczic.cc/ for further details.

Overview of the role:

We are looking for a Senior Hardware Design Engineer to join our railway team at TEIC. This role will be responsible for circuit design, simulation analysis, test verification of the gate driver of power semiconductor devices.

What you will be doing in this role:

- Design and development of gate drive board for power semiconductor devices that the rated voltage of the devices is 1200V or higher
- Complete the schematics of the gate driver board independently including the design of the power, driving circuit and protection circuit
- Ensure hardware solutions, detailed technical design and PCB design meet technical specifications
- Hardware circuit analysis, including FMEDAs, FTAs, and diagnostic coverage analysis, DFMEA, DRBFM reliability analysis, etc., define technical specifications and complete work reports
- Hardware design simulation calculations, including tolerance, worst case, derating, EMC, thermal simulation, etc., define technical specifications and prepare work reports
- Circuit testing, validation and calibration work, and complete test specifications and reports
- Electronic material management, PCB package library management
- Summary and validation of design experience/criteria
- Complete reliability testing and coordinate with system engineers for integration testing
- Work with project managers and manufacturing departments or contractors to ensure timely and cost-effective prototypes are produced at the expected cost
- Responsible for electronic circuit test fixture preparation

We would like you to have:

- First class degree or upper 2nd in Engineering, Electronics, Physics or other relevant field (or equivalent experience).
- Familiar with power electronics semiconductor module applications
- 5 years working experience on power electronics product design

- Ideally you have two-level or three-level driver application experience. The bus voltage of the inverter is 600V or higher. The rated power of the inverter is 200KW or higher
- Ideally you have rich experiences in gate driver board debugging and double-pulse testing
- Alternatively, you have rich experience of the power supply design, especially the Push-Pull power supply, Flyback power supply and LLC power supply. Excellent experience in transformer design and analog circuit design.
- Able to produce schematics of the gate driver board independently, including the design of the power, driving circuit and protection circuit.
- Good at Altium Designer, Cadence or similar software
- Previous experience in HALT, quantitative ALT life test would be desirable

Benefits

TEIC is a great place to work with opportunities for professional and personal development. Our benefits include:

- 25 days holiday + 8 bank holidays
- Holiday allowance increase with length of service
- Bupa healthcare
- Healthcare vouchers
- Free on-site car parking
- Free lunch Monday to Friday
- Contributory Pension
- Life assurance
- Cycle to work scheme
- Company sick pay
- Professional Membership fees paid e.g. CIPD, IEEE
- Family Friendly policies
- An Independent 24-hour confidential counseling service

To find out more about TEIC visit www.teic.crrczic.cc.