



Job Ref: **0054**

Position: **Lead Power Electronics Engineer**

Reports to: **Executive Chief Engineer**

Salary: **45k to 55k**

**Purpose of role:** Lead the work required to specify, design, develop, validate and launch Power Electronic systems used in road going commercial electric vehicles deployed in World markets.

Carry out any other duties as are within the scope, spirit and purpose of the job as requested by the Line Manager or Head of Department /Division. For example training and knowledge sharing with new graduate engineers.

### **Key Result Area:**

#### **New Product Development**

- Specify – Lead the creation of System, Sub-system and component specifications ensuring that the specifications deliver the corporate and regulatory target requirements. Liaise with the Lead Electric Motor Control Software Engineer and Lead Motor Design Engineer to ensure a holistic approach to drivetrain system development.
- Design – Lead the creation of a design driven by the specification. Utilise contemporary CAE applications to simulate system performance. Lead the creation of design and production FMEAs ensuring the design meets the specification.
- Develop – Lead the design development from concept to production ready iterations. Lead and coordinate the fabrication and assembly of prototype systems. Maintain accurate records of revision control, development issues and rectification actions ensuring that design updates are completed efficiently to meet the specification and support programme timing.
- Validate – Lead the validation phase by defining processes, test facilities/equipment, techniques and documentation to ensure system performance meets the specification.
- Launch – Lead the selection, qualification and management of suppliers and manufacturing partners. Lead the manufacturing, production, purchasing, supply and quality stakeholders ensuring that launch of the validated production intent design supports programme timing.
- Lead the work to provide post-launch support within the production and service communities ensuring that all issues are completed in a timely manner and that accurate PDM updates are kept throughout the product life-cycle.
- Maintain and present commercial/technical status ensuring that accurate and reliable information is available at C level. Participate within the broader program teams supporting PMO activities to ensure that corporate cost and timing targets are met.

#### **Current Product Support**

- Lead and perform design reviews of extant power electronic systems, sub-systems and components ensuring that a systems engineering approach is taken where improvements have been recommended.
- Track current technology trends related to power electronic design, technologies, component selection, processes and tools

## Essential Experience

- Demonstrable 5+ Years of Powertrain Electronic Senior Design experience in applications utilising High Current, High Voltage, PFC, Buck/Boost Converter Design, 3-Phase Inverters, Protection, Voltage Isolation Requirements, Thermal Management, DC Bussing, Cabling, Motor Control, Switched Mode Power Supplies, H-Bridge, DC/DC, IGBTs, Gate Drive Circuit Design, Design of Analogue and Digital circuits, Interfacing with Sensors & Embedded Controllers.
- Knowledge and experience of Systems Engineering – demonstrable evidence of delivery of Power Electronic designs from concept to customer.
- Expert knowledge in Modelling, Analysis and Simulation of Power Electronic systems using contemporary design tools such as: Matlab, Simulink, PLECS, PSpice, Mathcad, Pro/Engineer, Solidworks, CFD, Visual Elite, OrCAD.
- Expert knowledge and experience with schematic capture and PCB layout tools (Altium Designer preferred but Cadence/OrCAD/Mentor acceptable).
- Expert knowledge of EMC theory, design, measurement, suppression methods, regulation standards in relation to electronics and how they apply to PCB layout and placement.
- Expert knowledge of component placement and routing of complex, high density, multilayer PCBs. Solid knowledge of board fabrication process both for prototypes and volume production.
- Knowledge and experience of Design and Process FMEA techniques and processes.
- Knowledge of Product Data Management.
- Conversant with ERP Systems like SAP

## Desirable Experience

- Experience of designing electronic products for high reliability and Automotive environments (e.g. EU directive 2004/108/EC, ISO7637, ISO10605, ISO26262).
- Experience with Controller Area Networks – CAN. 2.0B

## Essential Skills and Aptitudes

- Ability to transfer and communicate expert knowledge of Power Electronics into tangible real-world applications.
- Excellent written and verbal communication skills, particularly in the presentation of complex Engineering concepts and the provision of information in the format appropriate to a wide range of circumstances and audiences.
- Expert with electronics and system level debug and the use of standard contemporary tools - multimeter, oscilloscope, soldering tools, current measurement techniques, bus analysers, digital logic analysers and spectrum analysers.
- Expert in the use of Microsoft Applications – Outlook, Word, Excel, Project, PowerPoint, Visio.
- Ability to plan and prioritise the workload to meet tight deadlines.
- Ability to work effectively as an individual and part of a team.



- Strong people skills with the ability to lead and motivate.
- High level of accuracy and attention to detail.
- Proven problem solving and analytical skills.
- Excellent project management skills.

#### **Essential Personal Attributes**

- Highly self-motivated, personable and self-reliant.
- Willingness and ability to undertake occasional foreign travel
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- Positive approach to change.
- Enthusiastic.
- Adaptable.
- Tenacious.