HARISHA L

Mechanical Design and Analysis Engineer

Bengaluru, Karnataka, India
+91 9741042357
harishharishl124@gmail.com
LinkedIn:
www.linkedin.com/in/harisha-l-912605299/

Mechanical Design Engineer with **4 years** of experience in Space and Defence grade electronics industry. Responsible for designing and developing innovative mechanical systems. Adept at utilizing CAD software for New Product Development (NPD) and ensuring precision in design and manufacturing.

EXPERIENCE

Centum Electronics Ltd, Bangalore, Karnataka
Mechanical Design & Analysis Engineer **Oct 2021** - Present

Job Responsibilities:

- Design and development of Specific and customized Mechanical Packaging design for RF, Power and Digital and supportive on subsystem level design for end user.
- Design and development of product to BTP & BTS specifications & NPD.
- Creating feasibility design, Specifications Compliance Documents, Bill Of Materials for Request For Quotations proposed by the customers
- Selection of necessary materials and surface treatment of the parts as well as standard mechanical components to meet the performance requirements
- Basic hand calculation to determine the natural frequency of PCBs, thermal conductivity of PCBs.
- Design high- performance cold plate for thermal management and Basic hand calculation to determine the outlet temperature and surface temperature of cold plate.
- Design of sink for natural convection, forced convection, conduction and radiation.
- Collaborated with cross-functional teams to ensure project milestones and deadlines were met.
- Conducted FEA simulations to validate designs and optimize product performance.
- Performing Thermal & structural analysis as per customer inputs and involvement in thermal and structural analysis, verifying report.
- Designing of products to meet EMI/EMC requirements.
- Preparation of Preliminary Design Review documents.
- Clarifying the doubts of Manufacturers whenever it is necessary by direct involvement with them.
- Performing DFA, DFM and DFMEA during designing of product.
- Product testing & Qualification testing of products as per customer requirements for design qualification.(JSS55555,MIL STD, ISRO standard)
- Documentation of all drawings & engineering documents.
- Releasing of Engineering Drawing & ECR/ECN documentations.
- Creating improvements following the Kaizen model for technical or quality enhancement, cost and time saving
- Design of heat sink for natural convection, forced convection, conduction and radiation and selection of fans and blower based on the thermal requirement.
- Conducting ESS tests such as thermal cycling, Thermal shock, Damp heat, Salt corrosion & blowing sand, dust tests on items ranging from electrical & electronic components & modules as per customer requirements and (JSS55555, MIL STD).
  Design the fixture for vibration, shock, thermal and burn-in test
- Conceptual and basic knowledge of hybrid micro circuit (HMC) mechanical package design
- Working with Clients: BEL, DRDO, ISRO-SAC & VSSC,OLF, HVF, SSPL

SKILLS

Solid Works, AutoCAD, Solid Edge, CATIA,

Design for Manufacturability, Design for Assembly, DFMEA.

Geometric Dimensioning & Tolerance (GD&T),

Sheet Metal Design

3D Printing, Injection molding

Basic Manufacturing and Machining Knowledge,

Cold Plate Design

Tolerance Stack up analysis.

HMC mechanical package

Excel, PowerPoint, Word

EDUCATION

BE in Mechanical Engineering

Dr. Ambedkar institute of technology- Bangalore

CGPA:- 8.5

PUC

M.E.S college- Bangalore

85%

SSLC

GHS- Bangalore

91%

LANGUAGES

English
Kannada

PROJECTS:

- **Power unit (customer: OLF, Dehradun)**
  The Power Unit is a part of T-90 tank operating electronics. The project is a reverse engineering requirement and it is Developed to be manufactured with domestic equivalent materials while retaining its original specifications. The Product has qualified the Tank trials and will be subject to mass production.

- **Gan based X- band plank unit 32 channel (customer: LRDE, Bengaluru)**
  The 10 GHz GaN Based 32 channel RF package is designed to meet Naval environmental conditions. The product has thermal, manufacturing and testing challenges and heatsink plus manual RF Test set up is designed to do functional testing in-house. The conduction cooled RF packages are designed to accommodate carrier plates, RF Shields and are subject to EMI/EMC, vibration and thermal testing. The system has passed the tests and is delivered to the customer

- **TTD Based X-Band Plank Unit (customer: LRDE, Bengaluru)**
  The TTD Based X-Band Plank Unit is a 10 GHz RF package which consists of two modules and a cold plate. The design is approved by the customer and parts are under manufacturing. Which is used in uttam radar

- **Gyrostabilizer (customer: OLF, Dehradun)**
  The gyrostabilizer unit is a part T90 tank and it is used for control system that reduce the tilting movement of gun barrel, the project is a reverse engineering requirement. Designed and developed the gyro stabilizer with precision tolerance (like 0.1micro) and static balancing for each sub assembly in electronic company without machining facility and unit qualified all the test in customer place and it is in tank trail test.

- **0.1 to 18GHz mini quad supplier heterodyne receiver (customer: BEL, Hyderabad)**
  The TTD Based X-Band Plank Unit is a 10 GHz RF package which consists of two modules and a cold plate. The design is approved by the customer and parts are under manufacturing.

- **2K high voltage power supplier (customer: BEL, Hyderabad)**
  Designed and developed the mechanical housing and structural components for a 2K high voltage power supply system, ensuring safety, durability, and optimal thermal management

- **GSAT-7R CXS & SXC frequency convertor (customer: SAC-ISRO)**
  Customer: Space Application Centre - Indian Space Research Organization
  CXS & SXC package used in GSAT-7R payload and c-band (6463-6467MHz) to s-band (2513-2512MHz).The product has qualified all the tests and it is delivered to the customer.

- **ELINT payload-PSMs (customer: DLRL, Hyderabad)**
  PSMs are DC-DC convertor designed for converting the satellite bus dc voltage (34V _ 42V) to the required voltage for individual subsystems and PSM are designed with built in EMI/EMC filter to meet the EMI/EMC requirement as per MIL-STD_461G

- **VCSEL die (SSPL-New Delhi)**
  VCSEL is a semiconductor laser, more specifically laser diode with a monolithic laser resonator, It has ability to Perform high- speed modulation and can be used in long distance, high speed optical fiber communication systems.

- **Integrated power and pyro relay unit with test jig (customer: ASL, Hyderabad)**
  IPPRU it is compact and multifunction electronic devise which is used in underground missile system. Design and developed with Conducted vibration, shock, and impact testing on the unit to ensure durability under extreme operating conditions.

- **8X8 tile array radar unit (customer: LRDE, Bengaluru)**
  The 8x8 tile array radar unit is commonly part of AAAU array antenna systems used in advanced AESA radar and Communication applications, such as satellites and CubeSats. Designing liquid cooled cold plate for 8x8 tile to Dissipate 500W of heat in compact package (size: 125x150x10) including defining performance requirement, Selecting material, design the fluid paths and ensure the thermal and flow performance. It is currently in final stage of Design for customer display

- **Digital tunable filter (customer: BEL, Punchkula)**
  Designed and developed small sheet metal components, utilizing CAD software. Applied principles of sheet metal design, including bend allowances, tolerances, and material thickness, to ensure the components met mechanical and aesthetic requirements.