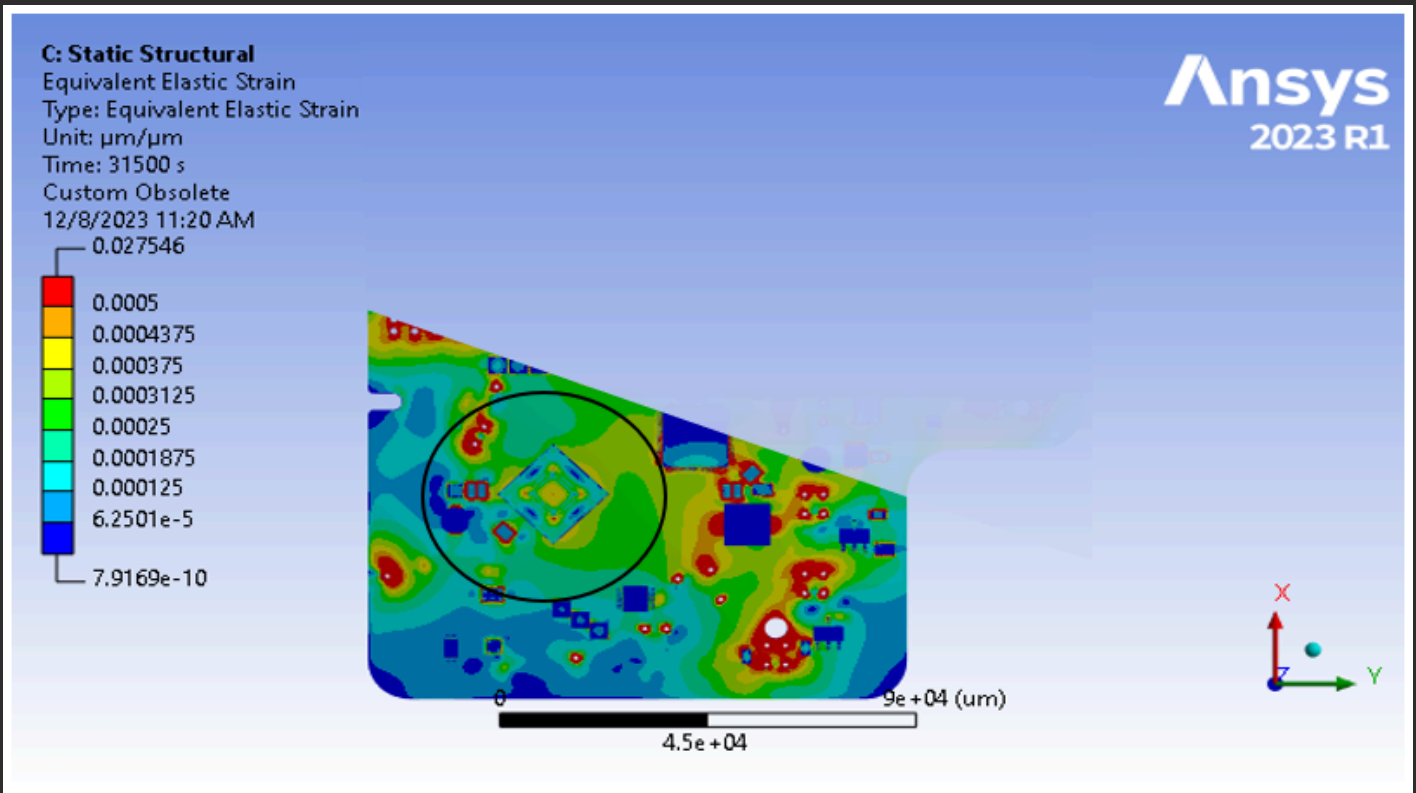


# FEV Romania

Using Ansys Advanced Electronic Component Reliability



Pic. 1: Ansys Sherlock allowed development team to identify the need to increase the pad size by in order to fulfill customer requirements and avoid solder joint cracking of the BGA ball. 0.4mm outer row pad is preferred over 0.35mm for Aurix TC38 to improve the solder fatigue life

## Description

FEV faced significant challenges in predicting the lifetime and ensuring the robustness of electronic components used in automotive applications. Traditional methods involved lengthy and costly "test-fail-fix-repeat" cycles that were no longer competitive in the fast-paced

automotive industry. FEV sought a more efficient and reliable solution to simulate and analyze the performance of its electronic components under various environmental conditions in the early stages of design.

# FEV Romania

## Using Ansys Advanced Electronic Component Reliability

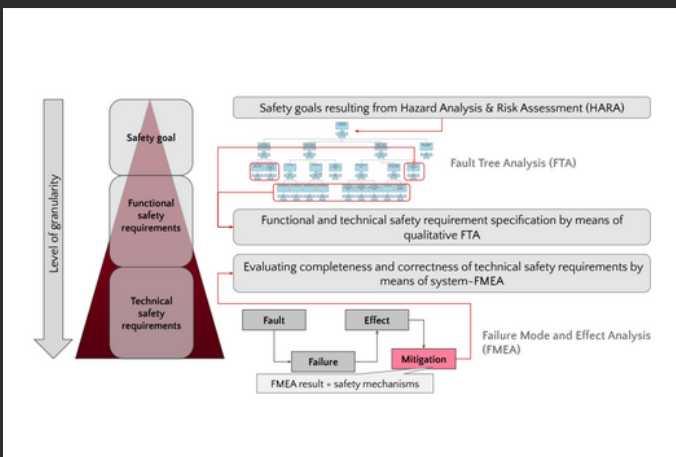
### Solution

**Ansys Sherlock:** This tool provided fast and accurate lifetime predictions for electronic hardware at the component, board, and system levels. By simulating the performance of silicon-metal layers, semiconductor packaging, printed circuit boards, and assemblies, FEV was able to predict failure risks due to thermal, mechanical, and manufacturing stressors well before prototyping.

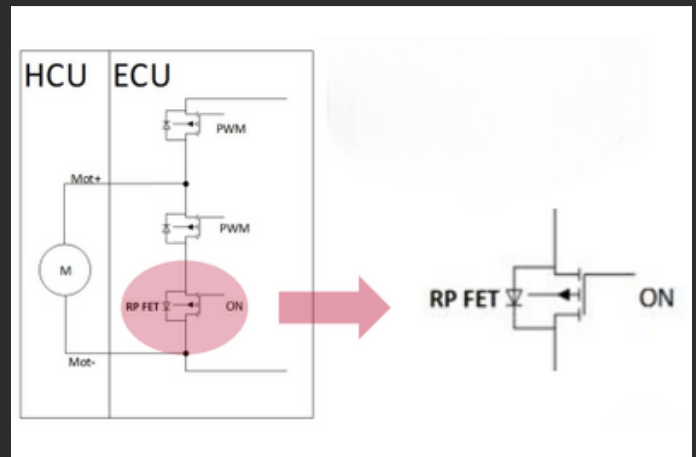
**Ansys Medini Analyze:** This tool supported the safety analysis of safety-critical electrical and electronic systems, ensuring compliance with industry standards such as ISO 26262. It enabled FEV to perform comprehensive safety analyses, including Single Point Fault Metric (SPFM) and Latent Fault Metric (LFM), Design Failure Mode and Effect Analysis (DFMEA), and Fault Tree Analysis (FTA). This ensured that all safety requirements were thoroughly evaluated and met.

### Benefits

- **Operational Efficiency:** By using Ansys Sherlock, FEV achieved a 30% reduction in development time, enabling faster design iterations and improved product quality.
- **Cost Savings:** FEV realized a 25% reduction in development costs by minimizing the need for physical prototypes and rework.
- **Improved safety and reliability:** Compliance with safety regulations resulted in a 40% reduction in safety-related recalls and problems.
- **Increased Competitiveness:** The collaboration with Ansys improved FEV's time-to-market by 20%, providing a technological advantage that supported their goal of efficient vehicle development.



Pic. 2: Ansys Medini Analyze ISO26262 process flow



Pic. 3: Ansys Medini Analyze SPFM/LFM example

### FEV Romania

The company offers a comprehensive range of services, including powertrain development, vehicle engineering, software and electronics, and energy technologies. With a strong emphasis on research and development, FEV Romania is committed to advancing

automotive technologies and supporting the transition towards sustainable mobility. Their highly skilled team, state-of-the-art facilities, and robust partnership network make FEV Romania a trusted partner for automotive OEMs and suppliers worldwide.