TECHFLASH

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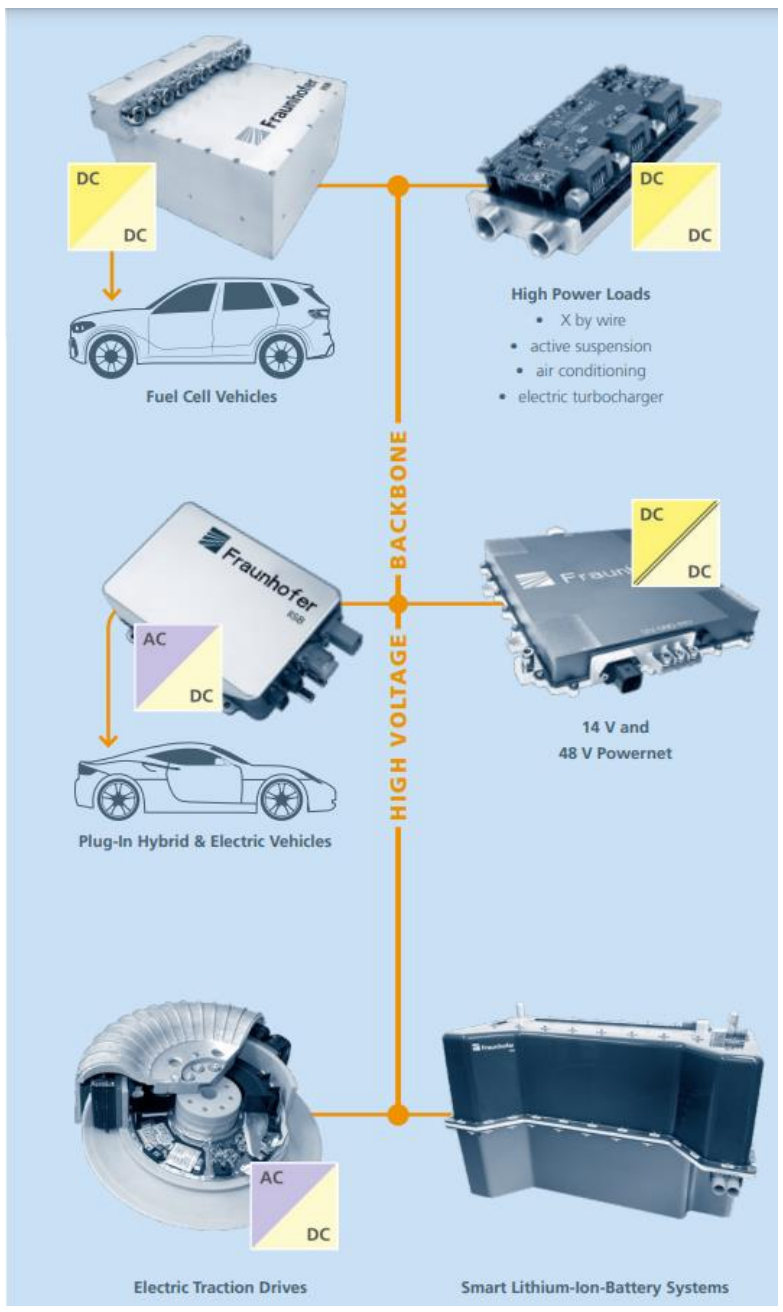
We are pleased to introduce you to Fraunhofer TechFlash - Fraunhofer's Flash News on latest and exciting technologies.
This week's TechFlash is about **"Vehicle Electronics - Electronics with lowest energy consumption".**

Vehicle Electronics - Electronics with lowest energy consumption



The Fraunhofer Institute for Integrated Systems and Device Technology (IISB) conducts applied research and development in the field of electronic systems for application in, e.g., electric mobility, aerospace, Industry 4.0, power grids or energy technology. In this connection, the institute uniquely covers the entire value chain - from basic materials to whole power electronic systems.

Fraunhofer IISB takes a leading position internationally in the field of power electronics for electromobility. This is evident from the numerous development projects with all large automotive manufacturers and suppliers. Many of the results have gained international attention.

Fraunhofer IISB permanently strives to open up new applications and functionalities. The grid integration of electric vehicles for instance will gain more and more importance in the future. For avionic applications the new possibilities of modern power electronics will pave the way towards the "more electric aircraft". This means powering many more actuators electrically in order to improve the overall fuel economy, and to reduce the maintenance efforts associated with hydraulic systems.

Focus Areas of R&D:

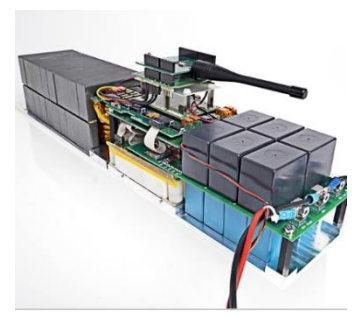
- Drive Inverters & Mechatronics
- Battery Chargers
- DC / DC Convertors
- SIC / GAN Convertors
- Battery Systems
- Aviation Electronics
- Medium Voltage Electronics

Characterization, Integration & Services:

- Vehicle Test Centre
- Inductive Power Transmission
- Device Characterization
- Electromagnetic Compatibility

Project Highlights:

1. **Towards Zero Power Electronics (ZEPOWEL)** - Fraunhofer lighthouse project for electronics with the lowest energy consumption
   As part of the "Towards Zero Power Electronics" project, a technology and methodology platform for the implementation of highly integrated, extremely energy-efficient modules for the "Internet of Things" (IoT) and the associated vision of a highly networked society is being developed. For this purpose, innovations at the component level of radio transceivers, sensors and energy storage devices as well as in the combination into a system (modularization) up to the network technologies used and a holistic methodological approach are used in order to have a lasting influence on the energy and resource requirements of the vision of a networked society. Click here >> www.zero-power-electronic.de



2. **YESvGaN – GaN Vertical Power Transistors at Silicon Cost**
   YESvGaN targets a new low-cost wide-bandgap (WBG) power transistor technology for enabling high-efficiency power electronic systems for electromobility, industrial drives, renewable energies, and data centres. The main objective of the project is to demonstrate innovative vertical gallium nitride (GaN) power transistors fabricated on a low-cost substrate such as silicon. This so-called vertical membrane architecture combines the superior performance of GaN as WBG power transistor material with the advantages of a vertical architecture regarding current and voltage robustness at a price competitive to silicon IGBTs. Within YESvGaN, the entire value chain is addressed – from substrate, epitaxy, process, and interconnect technology to applications in power electronic systems. Click here >> www.yesvgan.eu

YESvGaN
Wide Band Gap Power at Silicon Cost

We are looking forward to hearing of your interest to explore more about Fraunhofer IISB's competencies in Vehicle Electronics

Yes, I am interested

About Fraunhofer-Gesellschaft:

The Fraunhofer-Gesellschaft, headquartered in Germany, is the world's leading applied research organization. With its focus on developing key technologies that are vital for the future and enabling the commercial exploitation of this work by business and industry, Fraunhofer plays a central role in the innovation process. As a pioneer and catalyst for ground-breaking developments and scientific excellence, Fraunhofer helps shape society now and in the future. Founded in 1949, the Fraunhofer-Gesellschaft currently operates 76 institutes and research institutions throughout Germany. The majority of the organization's 30,000 employees are qualified scientists and engineers, who work with an annual research budget of 3 billion euros. Of this sum, 2.5 billion euros is generated through contract research. Our global footprint is very strong, with offices and research centres in the USA, Europe and Asia. Some of our renowned innovations are the MP3 software, white LED's and the smallest of cameras.

Fraunhofer has been a long-time trusted innovation partner in India, collaborating with some of the major players in the field of Material Science, Energy, Environment, Automotive, Electro-mobility, Production Technology and Smart Cities, working with Industry, Government and Public Sector.

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