



Conference 2024

Collaboration
in a technology
rich era

Gaydon | 11th July 2024

Automotive Power Semiconductors & Control Systems (PECS)

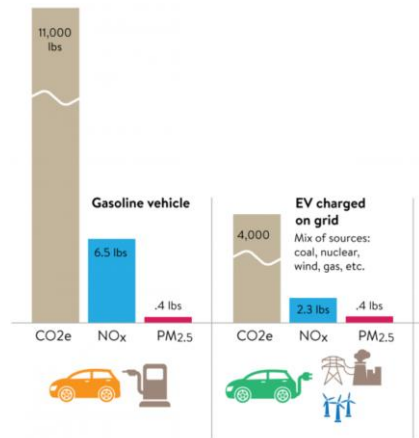
Power Electronic & Control Systems (PECS) SIG

- ▶ Bring together Automotive PECS community
- ▶ Leverage knowledge from:
 - ▶ OEMs and their supply chains
 - ▶ University Research
 - ▶ Regulatory Organisations
- ▶ Collaborate with existing organisations
 - ▶ Techworks / PEUK
 - ▶ APC / Automotive Council UK
- ▶ Work together on common issues of design, manufacture, industry awareness



Megatrends : Automotive EV Semiconductors

Emissions Reduction

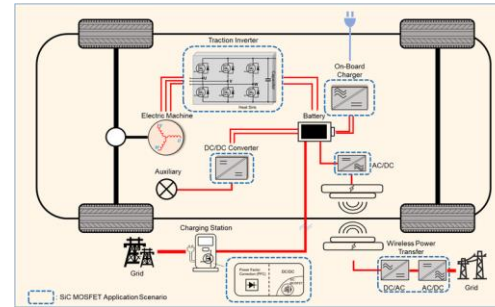


Source : Minnesota Pollution Control Agency

Powertrain Development & Control

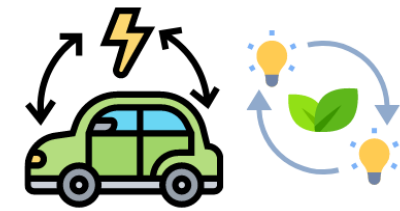


Semiconductor Innovation



Source : ResearchGate

Sustainability Reliability



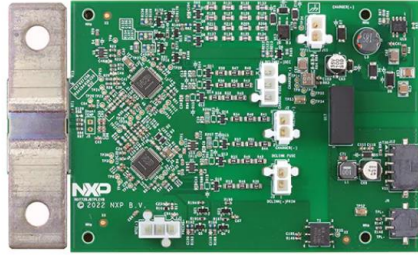
Application Areas for AESIN Members

- ▶ Power Electronics, Machines and Drives (PEMD)
- ▶ Battery Management Systems
- ▶ Converters and Inverters
- ▶ On-Board Chargers
- ▶ Vehicle Networks, Software Defined Vehicles
- ▶ Test Processes
- ▶ LifeCycle Management
- ▶ Tools, methods and processes



Battery Cell Management : Courtesy ST

BEV Modules dependent on Power Semiconductors



HV BMS



Electric Motor 



Power Inverter Module (PIM)



EV Battery



On Board Charger

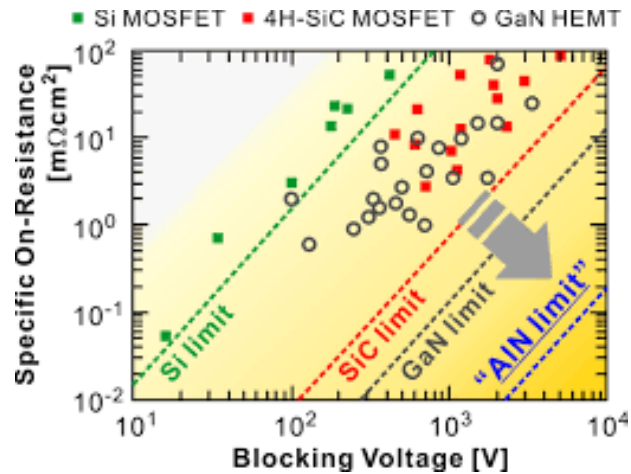


Characteristics of WBG Materials for Automotive

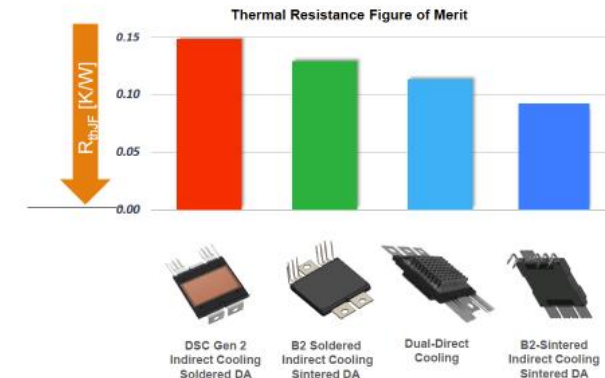
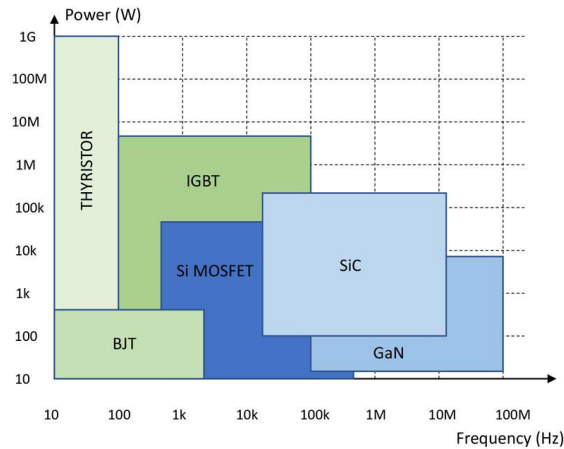
- Efficiency Improvements
- Higher Working Voltages

- Improved switching speeds
- Reduction in switch losses

- Efficient Packaging
- Better Thermal Conductivity



Source InRel Npower



Source : OnSemi

Current Research : Optimizing Manufacturability, Reliability, Aging Effects

Today

Paolo Bargiacchi
Head of Products & Engineering



Simon Stacey
Chief Operating Officer



Dr. Ingo Lüdtko
Head of Power Electronics





AEE SIN
AUTOMOTIVE ELECTRONICS INNOVATION

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