SiC Automotive EV-Traction

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**onsemi** is the only supplier of silicon carbide solutions with vertical integration capability including SiC boule growth, substrate, epitaxy, device fabrication, best-in-class integrated modules and discrete package solutions.
VE-Trac™ SiC Bare Die Products Value Proposition

**Best-in-Class Technology optimized for EV-Traction (T)**

SiC Bare Dice
- 750V and 1200V
- Roadmap planar and Trench

**Vertical Integration and Multi-Fab Strategy**

**Smart-Chip Features and flexibility**

- Integrated Temperature Sense
- Layout/Rg/Metallization flexibility
- RDL allows location/size of Gatepad to be flexible w/o full mask redesign and active area reduction
- Short circuit pattern to trade-off Rdson vs SCWT (JTE mask)
- Tunable poly resistor for monolithic Rg adjustment
- Solderable and sinterable Top/Bottom metal (TiNiVAg) different options
- Cu Top/bottom metal

**Comprehensive Methodology to Assure Quality**

- Substrate and in-process defect screenings employed with coordinate tracking and auto classification in place
- All wafers are screened with 100% automated outgoing inspection where visual defects are screened

Full suite of screening tools for SiC Device technology
- Substrate scan
- Epilay
- Post Epil scan
- Water process
- In-process defect scan
- Wafer acceptance test
- Burn-in
- Thinning
- Electrical wafer test
- Outgoing inspection
- Hit-for-defects or electrical failures are excluded

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Wide-bandgap Switches will drive the Energy Efficiency Revolution

Renewable Energy Infrastructure Growth

Source: IEA world energy outlook report 2021
IEA renewable energy market update 2021

xEV > 50% of Vehicle Sales in this Decade

Annual Vehicles (Mln)

% of total Electricity growth

EV
ICE
% EV

Source: EV /IC breakdown Credit Suisse – Mar 26 2021 – Global Semiconductor Sector – Automotive semis – Powering the EV megatrend – Report

Power semiconductors will build the energy network of the 21st century

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