

Reference Designs Speed SiC-Based Traction Inverter Development

[CISSOID's](#) EVK-PLA1060 on-board inverter reference designs reduce time-to-market for R&D engineers in the highly dynamic and rapidly evolving e-mobility arena. Whereas the company's existing bench-top inverter reference designs are suitable for laboratory and bench-based motor testing, these on-board inverter reference designs are far closer to production-ready. They offer a complete solution, conceived for integration into vehicles about to undergo in-vehicle and field testing, drastically reducing the time required for system development, says the vendor.

Featuring a compact and lightweight, yet robust aluminum housing, the EVK-PLA1060 reference designs offer easy vehicle mounting with minimal design effort (see the figure). Furthermore, the motor control software allows customization and configuration by the user for additional process simplification.

Driving the product's functionality is Silicon Mobility's ultra-fast OLEA T222 FPCU (Field Programmable Control Unit). Dedicated to e-motor control, the programmable hardware of this application-specific processor accelerates response times to critical events, off-loads the processor cores and enhances functional safety.

The programmable hardware of the T222 processor enables fast control loops and high switching frequencies, combined with the OLEA APP-T222 INVERTER control software, offering optimizations such as dead-time compensation and advanced modulations, this high-performance, real-time solution is fully configurable for use with various e-motor types.

Both the OLEA T222 processor and OLEA APP-T222 INVERTER software carry ISO26262 ASIL-D and AUTOSAR 4.3 certification, while the ISO26262 certification of CISSOID's ICMs (inverter control modules) is currently in progress.

As highly modular solutions, the EVK-PLA1060 on-board inverter reference designs are configurable and customizable as required. They consist of a power module, the control board, a low ESL (equivalent series inductance) dc-link capacitor, a compact EMC filter and current sensors. The EVK-PLA1060 provides a broad power range of 100 to 350 kW, at a 100- to 850-V operating bus voltage, offering the potential for a power density up to 52 kW per liter. For more information, see the [website](#).

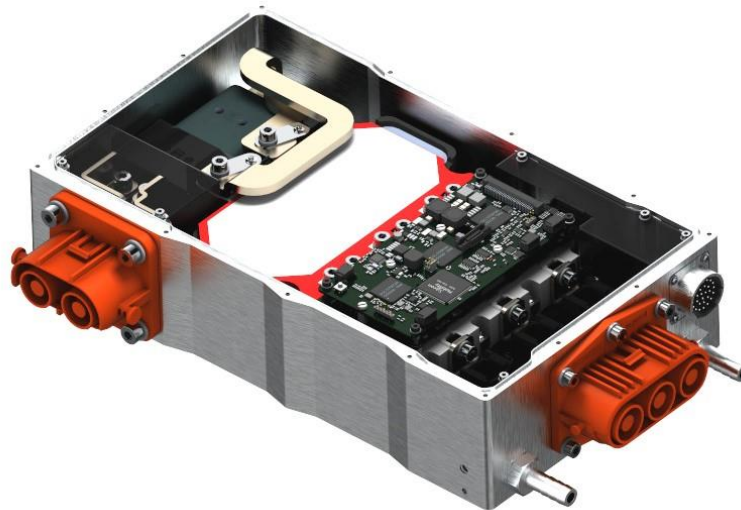


Figure. The EVK-PLA1060 on-board inverter reference designs offer a complete and uniquely modular solution for those seeking further reductions in time-to-market for electric motor drivetrains. These designs were conceived for integration into vehicles about to undergo in-vehicle and field testing.