

Embedded Motor Control with our HVC 4x Family

Smart Actuator Solutions for Automotive Applications



SmartHVC
Technology



BLDC



EMBEDDED
CONTROLLER



STEPPER



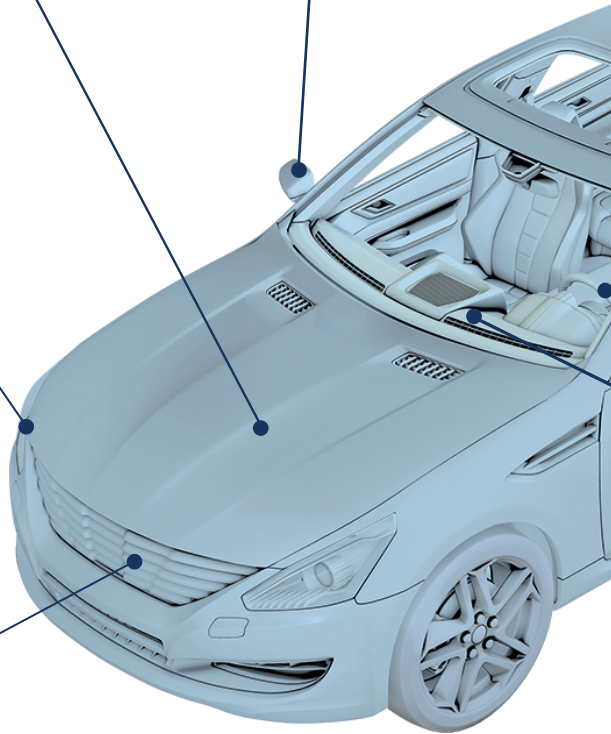
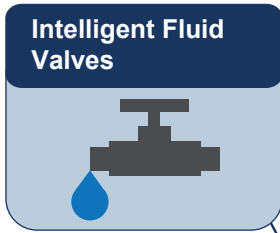
DIAGNOSTICS



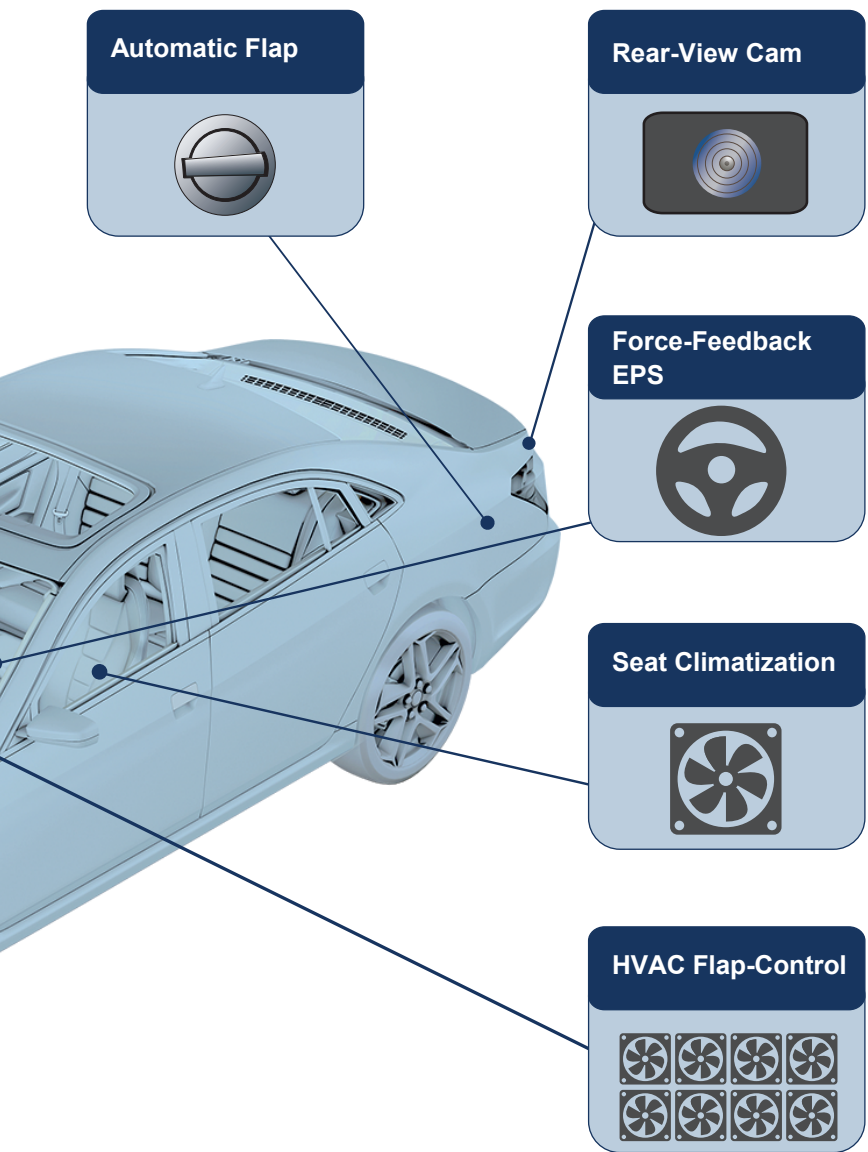
MEMORY



Typical Motor Control Applications



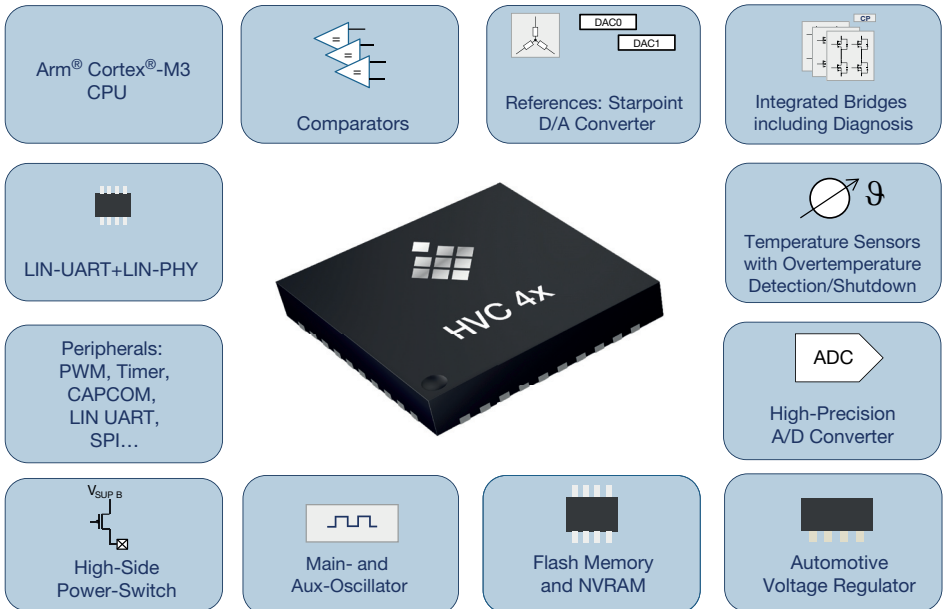
in a Car with HVC 4x



HVC 4x Family

Embedded Motor Control for Direct Control of Electric Motors (Stepper / BLDC / BDC)

- Enables cost-effective realization of powerful and compact DC motor control
- Economically addresses growing challenges in the automotive market and beyond (industrial, consumer, instrumentation, etc.)
- Powered by a 32-bit CPU core (Arm® Cortex®-M3) and integrating high-performance analog functions
- Flexible peripherals provide all means to directly control brush-type, stepper (bipolar or three phase), or brushless direct current (BLDC) motors via integrated high-performance half-bridges without the need for external components
- HVC 4422F offers extended memory size to address the OEM diagnostics requirements and allows operation in high-temperature environments up to 160 °C with fully guaranteed parameters. An integrated memory protection unit (MPU) supports RTOS requirements.

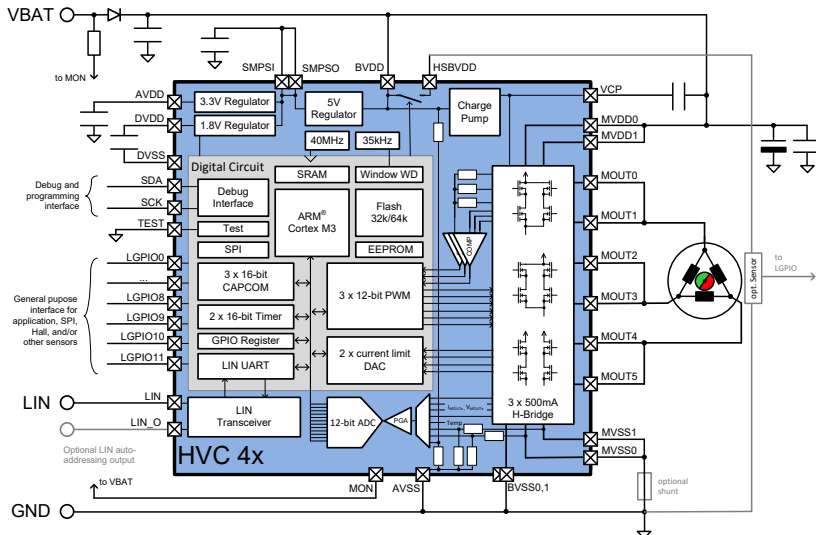


Functional Safety Support, ISO-Pulses, AEC-Q100, LIN 2.x conform, EMC conformity according to worldwide OEM Specifications, ESD (8 kV @ LIN Port), -40 °C ≤ T_J ≤ +150 °C/160 °C*)

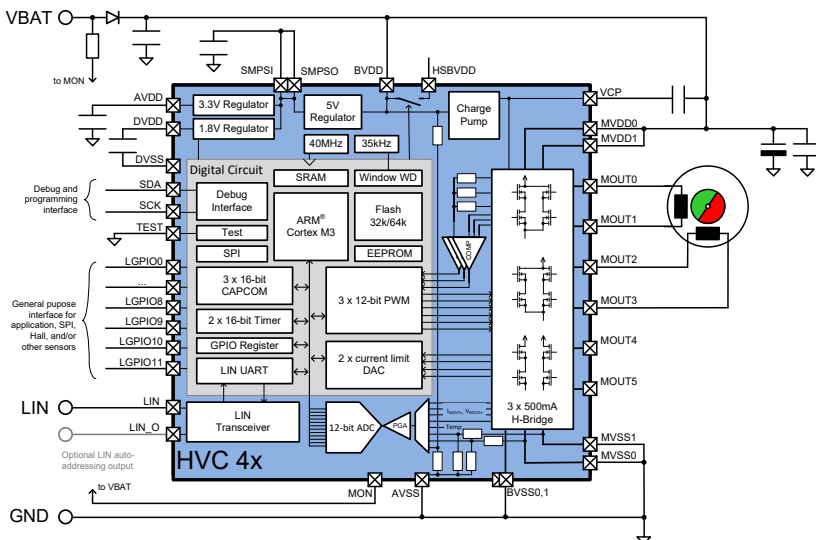
*) high-temperature versions

Examples for HVC Motor Control

Sensor-Controlled Block/Six-Step Commutation or Sensor-Controlled Space Vector Modulation.
Motor currents driven by internal MOSFET bridge. For continuous motor currents up to 1000 mA.



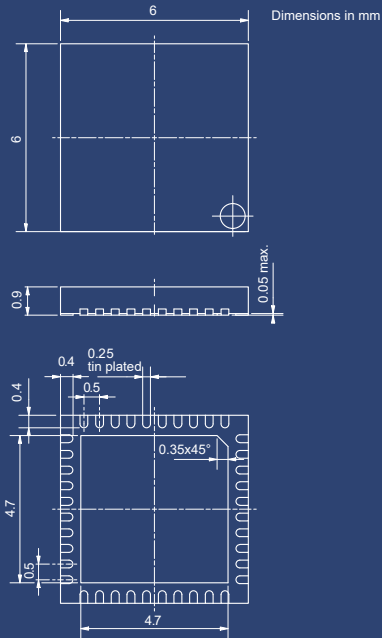
Stepper Motor Current Control. Motor currents driven by internal MOSFET bridge.
For continuous motor currents up to 500 mA.




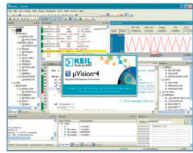
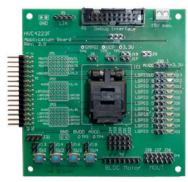
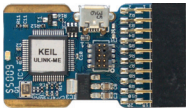
Product Versions

Device	Motor Outputs	Max. Current [A]	Flash Size [kByte]	GPIOs	LIN*	Temp. Grade	ISO 26262 (ASIL Level)	Production
HVC 4223F	6	0.5	32	11	2.x	1	A	now
HVC 4420F	6	0.5	64	11	2.x	1	B	now
HVC 4222F	6	0.5	32	11	2.x	1+	A	now
HVC 4422F	6	0.5	64	11	2.x	1+	B	now

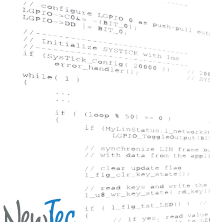
Package Information



Development Tools and Compiler

	Small Demo Board - I (SDB-I) First steps with HVC 4223F and HVC 4420F to evaluate the small yet "all-onboard" solution.
	KEIL MDK for Arm® Cortex®-M3 Complete software development environment Ask for free evaluation version.
	Application Board (APB) Full access to all I/O pins and motor connections. Flexible due to onboard programming socket.
	ULINK-ME Debug adapter via JTAG or SWD

Application Support

	3rd-Party Firmware Package Professional, Automotive AS-PICE and Functional- Safety supporting firmware package available for buy-out. Various target platforms available by easy adaptation. Running standard- and sophisticated motor-control routines for BLDC and stepper motors.
	Segger Flasher Arm In-circuit programmer via JTAG or SWD

TDK-Micronas Contact

Contact	Information available
www.micronas.tdk.com	General
service.micronas.com (registration needed)	Data sheets, application notes, programming guides, software...
mic-product-support@tdk.com	Technical support

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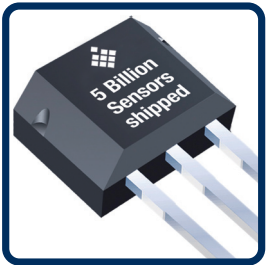
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www.micronas.tdk.com

TDK-Micronas Company Profile

TDK-Micronas is the center of competence for magnetic-field sensors and CMOS integration within the TDK group. TDK-Micronas has gained operational excellence for sensors and actuators production in over 25 years of in-house manufacturing. It has been the first company to integrate a Hall-effect based sensor into CMOS technology in 1993. Since then, TDK-Micronas has shipped over five billion Hall sensors to the automotive and industrial market. The operational headquarters are located in Freiburg im Breisgau (Germany). Currently, TDK-Micronas employs around 1,000 people.



Global Presence



● Production + R&D ● Marketing, Sales, FAE



Design-Centers

Freiburg – Germany
Munich – Germany

Production Site

Freiburg – Germany

