PRODUCT BRIEF

XENSIV™ – KP464/KP466 family

Digital barometric air pressure IC family

The Infineon KP46x family is a miniaturized digital barometric air pressure sensor IC based on the capacitive principle realized in surface micromachining technology. The fully monolithic integrated digital signal conditioning circuit is implemented in the latest Infineon chip technology.

The KP46x family provides a SPI interface to enable direct microcontroller connections with a minimum bill of materials. The SPI interface offers high flexibility with a wide range of functions. The user can choose between 10, 12 or 14-bit resolution in the same device. The implemented power-down mode allows the user to even reduce the power consumption of the device. A special reliability feature is the integrated diagnostics, which allows testing the sensor cells as well as the signal path. This diagnosis can run automatically at every device start up, after leaving power down mode or be triggered with a SPI command.

Each KP46x is individually calibrated and temperature compensated, reducing the software complexity by providing a direct readout of the pressure and the temperature. KP46x supports a fast startup time less than 5 ms, KP466P even max. 3 ms, high accuracy of up to 1 kPa and different sensitivities. Combined with the wide operating temperature range of -40 to 125°C, high ESD robustness, and excellent EMC performance, the KP46x sensors are perfectly suited to the harsh environmental conditions prevalent in automotive and industrial applications.

Four different sensor ICs belong to the KP46x family. Each variant has a specific pressure range to fulfill in the most optimum manner the customer applications. KP464 and KP464E are optimized for powertrain applications, KP466 is tailored for standard seat comfort applications whereas KP466P is specifically designed for advanced seat comfort & battery monitoring applications.

The “green” 8 pin DFN package with a very small body size of 4.5 x 4.3 x 1.8 mm^3 is protected by a 5-hole lid for tiny particle protection. The KP46x sensors contributes to save energy to the customer systems with a low current consumption down to 3.5 mA. The KP46x family is of course fully compatible with Infineon’s previous generation of barometric pressure sensors in terms of communication and pinning for minimum integration effort.

Key features

- High accuracy pressure sensing up to ±1 kPa
- Integrated temperature sensor
- Pressure range from 40 to 165 kPa (wider ranges technically possible)
- Wide operating temperature range from -40 to 125 °C
- Low current consumption to 3.5 mA
- Digital SPI Interface
- Up to 14-bit pressure and temperature resolution
- Calibrated and compensated
- Self-diagnosis features
- Fast startup time of less than 5 ms, P-version max. 3 ms
- Green very small 8-pin DFN package

Key applications

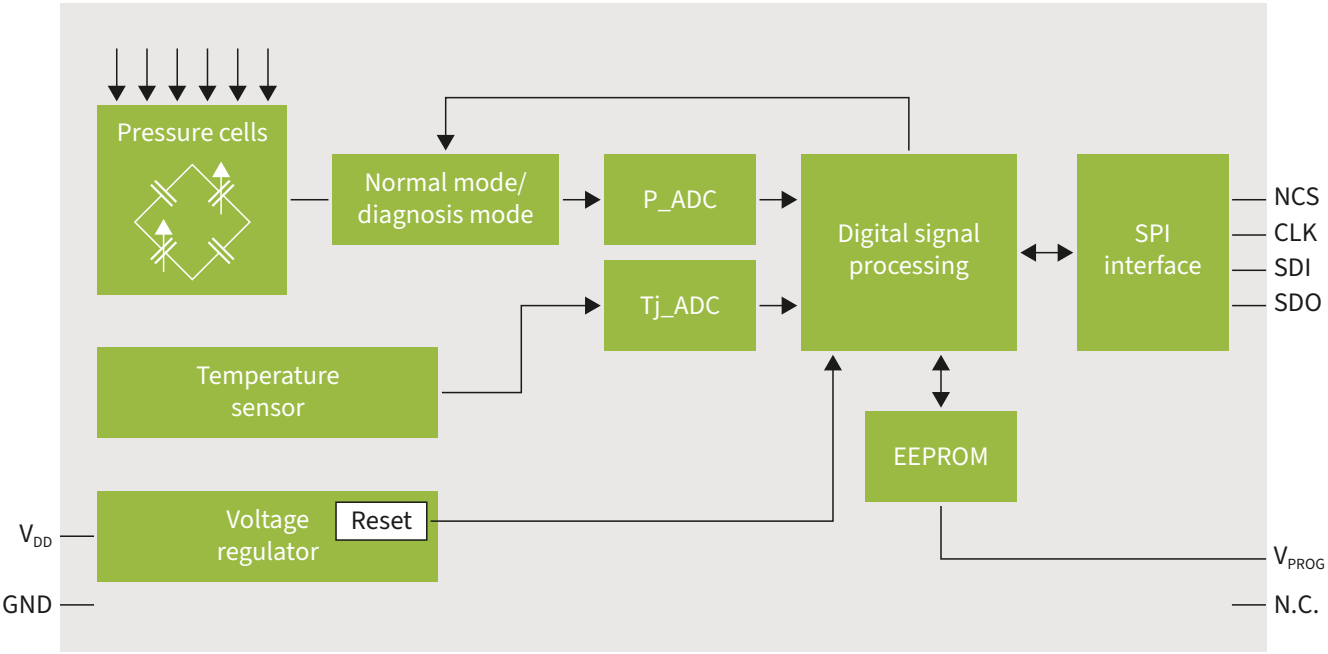
- Automotive engine management
- Seat comfort systems
- Battery management systems (BMS)
- Industrial control
- Smart gas meter
- Altimeter
- Weather station
- Medical





www.infineon.com/bap-map-pressure

Block diagram KP46x



Product table

Product name	Interface	Pressure range [kPa]	Temperature range [°C]	Pressure accuracy [kPa]	Application	Package	Ordering code
KP464	Digital SPI	40 ... 115	-40 to 125	±1	ATV powertrain	PG-DFN-8-1	SP006020290
KP464E	Digital SPI	40 ... 115	-40 to 125	±1	ATV powertrain	PG-DFN-8-1	SP005430839
KP466	Digital SPI	60 ... 165	-40 to 125	±1	ATV seat comfort	PG-DFN-8-1	SP005430044
KP466P[1)]	Digital SPI	60 ... 165	-40 to 125	±1	ATV advanced seat comfort and BMS satellite	PG-DFN-8-1	SP005866675

1) Faster start-up time (3 ms max.), improved accuracy for high and low temperatures

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