

Features

- ▶ Standard pressure sensor for crash detection according to specification AK-LV29 (VDA)
- ▶ PSI5 data interface using synchronous or asynchronous transmission modes
- ▶ Pressure sensor cell integrated with the signal processing IC in a modified SOIC20 package
- ▶ Input precision amplifier and signal chain trimmed for two pressure ranges:
Range1: 400...1500 hPa; Range2: 400...1900 hPa
- ▶ DSP for linearization, digital filtering for average ambient air pressure and calculation of relative dynamic pressure
- ▶ Transmission of chip temperature
- ▶ On-chip EEPROM for calibration coefficients, unique device-ID, and user programmable data
- ▶ Self test functions for pressure sensor and IC internal circuits
- ▶ Developed for functional safety requirements according to ISO26262

Applications

- ▶ Crash pressure sensor for passive safety
- ▶ Active pedestrian protection safety systems

General Description

The Integrated Safety Pressure Sensor (IPSP) E524.40 is designed to detect sudden changes in pressure, virtually independent from average ambient air pressure. Its main applications are in the car safety area such as side impact detection in the side door and active pedestrian protection.

A pressure sensor cell and a signal conditioning IC are used to determine the dynamic pressure change $\Delta p/p_0$ (p_0 : average ambient pressure). The output data $\Delta p/p_0$ are transmitted digitally using the PSI5 protocol together with diagnostic data of sensor and IC which reflect the state-of-health of the device. Self-test procedures are performed for diagnosis, after power-up and during operation to detect faults in the sensor as well as the IC (analog part, DSP, and ROM, EEPROM).

An on-chip EEPROM stores calibration coefficients for the pressure measurement, a unique device ID, and user programmable data.

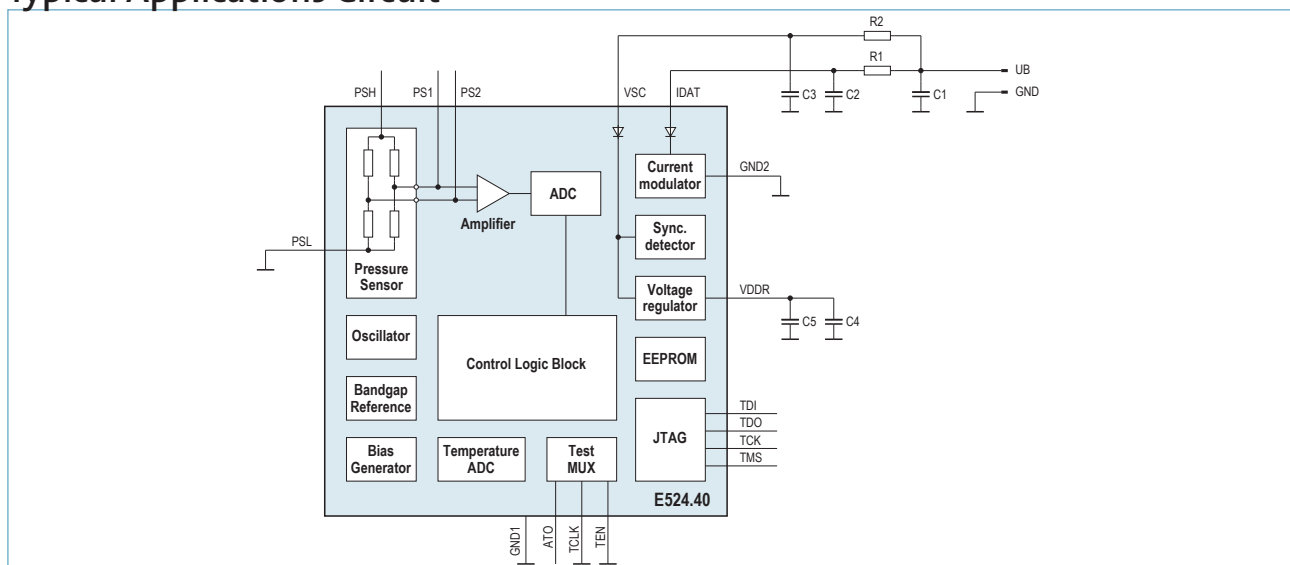
In the ECU ELMOS sensor interface devices E981.07 and E981.08 (dual and quad channel) can be used to support PSI5 communication.

Ordering Information

Product ID	Temp. Range	Package
E524.40	-40°C to +125°C	SOIC20*

* JEDEC outline with special pressure input

Typical Applications Circuit



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