

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 (ISPS) 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.

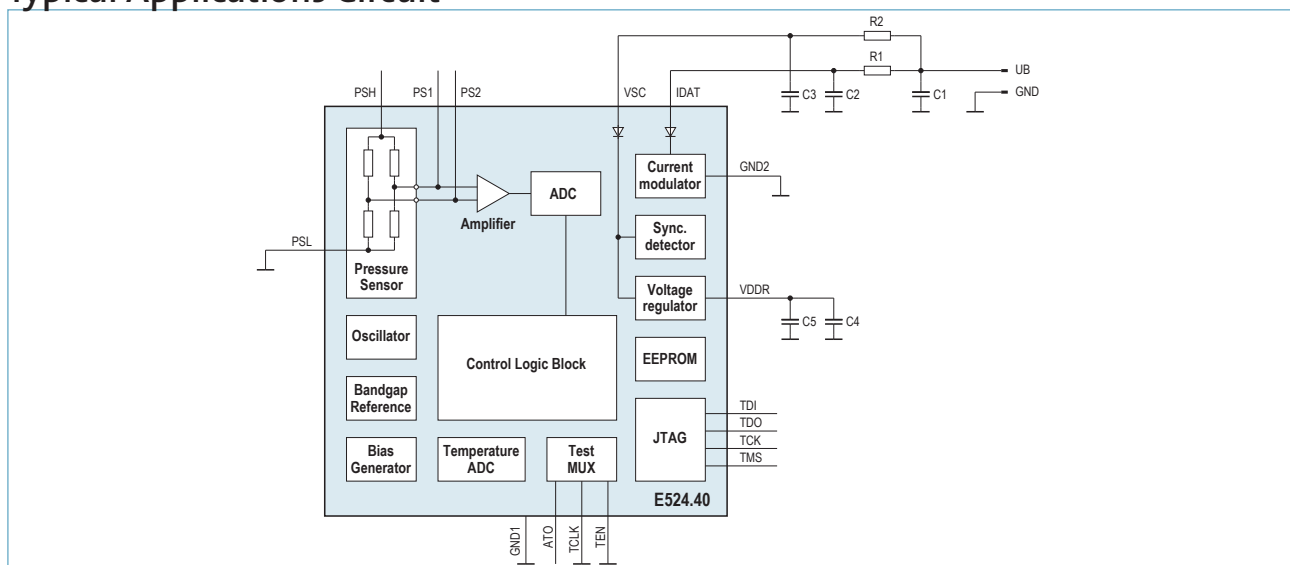
In the ECU ELMOS sensor interface devices E981.07 and E981.08 (dual and quad channel) can be used to support PSI5 communication.

Ordering Information

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

* JEDEC outline with special pressure input

Typical Applications Circuit



This document contains information on a new product. ELMOS Semiconductor AG reserves the right to change specifications and information herein without notice.

ELMOS Support 08/2012

Headquarters

ELMOS Semiconductor AG

Heinrich-Hertz-Str. 1
44227 Dortmund (Germany)
Phone: +49 (0) 231 / 75 49-100
Fax: +49 (0) 231 / 75 49-149
sales@elmos.com
www.elmos.com

Regional Sales and Application Support Office Munich

ELMOS Semiconductor AG

Am Geflügelhof 12
85716 Unterschleißheim/Eching (Germany)
Phone: +49 (0) 89 / 31 83 70-0
Fax: +49 (0) 89 / 31 83 70-31
sales-elmuc@elmos.com

Sales and Application Support Office North America

ELMOS NA. Inc.

32255 Northwestern Highway, Suite 45
Farmington Hills, MI 48334 (United States)
Phone: +1 (0) 248 / 8 65 32 00
elna-sales@elmosna.com

Sales and Application Support Office Korea and Japan

ELMOS Korea

Suite 1907
Park View Office Tower
6 Jeongja-dong, Bundang-gu, Seongnam-si, Kyonggi-do,
463-863 Republic of Korea
Phone: +82 (0)31 / 7 14 11 31
jin-koo.lee@elmos.com

Sales and Application Support Office China

ELMOS Semiconductor Technology (Shanghai) Co., Ltd.

Unit London, 1BF GC Tower,
No. 1088 YuanShen Road,
Pudong New District,
Shanghai, PR China, 200122
Phone: +86 (0) 21 / 5178 5178
sales_china@elmos.com

中国地区销售与应用支持

艾尔默斯半导体技术(上海)有限公司
中国上海浦东新区源深路1088号
葛洲坝大厦1B楼伦敦单元, 200122
电话: +86 (0) 21 / 5178 5178
sales_china@elmos.com

Sales and Application Support Office Singapore

ELMOS Semiconductor Singapore Pte Ltd.

60 Alexandra Terrace
#09-31 The Comtech (Singapore 118502)
Phone: +65 (0) 663 / 5 11 41
Fax: +65 (0) 663 / 5 11 40
sales@elmos.com

Note ELMOS Semiconductor AG (below ELMOS) reserves the right to make changes to the product contained in this publication without notice. ELMOS assumes no responsibility for the use of any circuits described herein, conveys no licence under any patent or other right, and makes no representation that the circuits are free of patent infringement. While the information in this publication has been checked, no responsibility, however, is assumed for inaccuracies. ELMOS does not recommend the use of any of its products in life support applications where the failure or malfunction of the product can reasonably be expected to cause failure of a life-support system or to significantly affect its safety or effectiveness. Products are not authorized for use in such applications.

Copyright © 2012 ELMOS Reproduction, in part or whole, without the prior written consent of ELMOS, is prohibited.