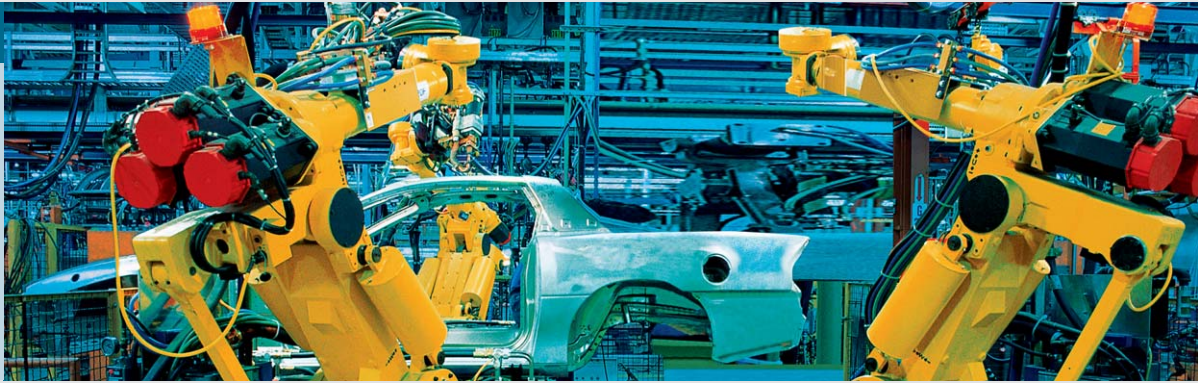
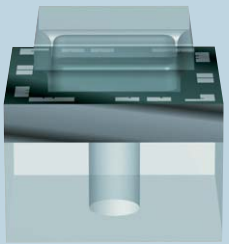




Product Brief 2009



Pressure Sensor Dies

for Industrial, Automotive and Medical Applications

With its new C32 chip family, EPCOS is implementing a compact, precise and flexible sensor die with dimensions of only 1.65 x 1.65 mm. It can be used across a pressure range of 1.6 to 40 bar in state-of-the-art miniaturization applications for pressure measurement technology, especially in the industrial, automotive and medical sectors. The C32 allows typical nonlinearities of only 0.2% FS to be achieved. The chip also has high cycling stability with a divergence of only 0.1% FS under temperature stress and thus represents the ideal basic module for precise and stable transmitter systems. Special attention was paid to the pad design. The chip is provided with optimized bond pads that have dimensionally offset test-pad structures for wafer probers.

Like the successful C28 and C29 product lines, the miniaturized C32 variant allows the use of a glass substrate at chip level on both upper and lower sides. The substrate on the lower side allows low-stress processing of the chip with bonding and adhesive techniques for absolute and relative pressure applications.

For absolute pressure measurements, the reference volume is formed by an additional glass substrate on the upper side. This allows absolute pressure measurements in non-aggressive fluids and gases.

For extreme insertion height requirements, the glass substrate on the lower side can be dispensed with.

Technical Data

Typical applications

Industry

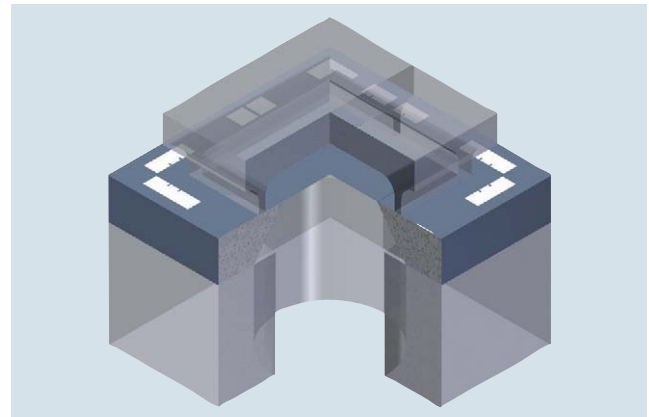
- Hydraulic and pneumatic systems
- Measurement and control technology
- Environmental and climate protection

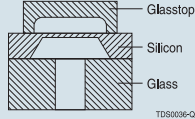
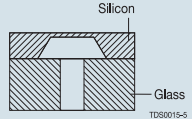
Automotive

- Exhaust recirculation and particle filters
- Braking and air conditioning
- Engine management

Medicine

- Respiration and anesthesia
- Blood pressure monitoring
- Cleaning equipment



| Characteristics | | | | |
|---|---------------|--|---|-----------|
| Pressure measurement | | Absolute | Relative | |
| Measurement media | | Non-aggressive fluids and gases | Non-aggressive fluids and gases | |
| Output signal | | mV, not calibrated, not temperature-compensated | | |
| Pressure from | | Back side | Back side | |
| Construction (media-resistant) | |  |  | |
| Dimensions | | | | |
| Chip size | mm | 1.65 x 1.65 | | |
| Total height | mm | 1.5 | 1.1 | |
| Glass thickness, front | mm | 0.4 | - | |
| | back | 0.8 | 0.8 | |
| Hole diameter | mm | 0.4 | | |
| Maximum ratings | | | | |
| Storage temperature T_{st} | °C | -40 ... +150 | | |
| Operating temperature T_a | °C | -40 ... +135 | | |
| Supply voltage (max.) V_{DD} | V | 10 | | |
| Temperature characteristics $V_{DD} = 5\text{ V}$ | | | | |
| Temperature coefficients (typ.) α_{RS} of the bridge resistance (typ.) β_{RS} | $10^{-3}/K$ | 2.3 | | |
| | $10^{-6}/K^2$ | 5.0 | | |
| Temperature coefficients (typ.) α_S of the sensitivity (typ.) β_S | $10^{-3}/K$ | -2.2 | | |
| | $10^{-6}/K^2$ | +5.0 | | |
| Characteristics $T_a = 25\text{ °C}$, $V_{DD} = 5\text{ V}$ | | | | |
| Bridge resistance (min./max.) R_S | kΩ | 2.6 / 4.0 | | |
| Offset voltage (min./max.) V_0 | mV | -50 / +25 | -35 / +25 | -25 / +25 |
| Nonlinearity (typ.) L | %FS | ±0.2 | | |
| Output span (typ.) V_{SP} | mV | 120 | | |
| Rated pressure $p_r^{1)}$ | bar | 1.6 | 10 | 1.6 |
| Ordering code | | B58600 | B58600 | B58601 |
| | | H8400A037 | H8400A038 | H8000A035 |
| | | | | B58601 |
| | | | | H8000A036 |

¹⁾ Other rated pressures upon request

Important information: Some parts of this publication contain statements about the suitability of our products for certain areas of application. These statements are based on our knowledge of typical requirements that are often placed on our products. We expressly point out that these statements cannot be regarded as binding statements about the suitability of our products for a particular customer application. It is incumbent on the customer to check and decide whether a product is suitable for use in a particular application. This publication is only a brief product survey which may be changed from time to time. Our products are described in detail in our data sheets. The Important Notes (www.epcos.com/ImportantNotes) and the product-specific warnings and cautions must be observed. All relevant information is available through our sales offices.