GLASS WAFERS FOR PRESSURE SENSOR APPLICATIONS

Sensors and Micro-Electro-Mechanical-Systems (MEMS) have changed the way how we interact with technology and how it interacts with itself and our environment. Without them we would not have smartphones, smart homes or wearable devices as smart watches as well as a huge range of industrial and medical devices that require the functionality provided by MEMS and Sensors.

One of these sensors that has been first developed decades ago is the pressure sensor, which is used in a wide variety of applications. These range from automotive as tire-pressure monitoring systems (TPMS) or oil and gas pressure sensing to healthcare applications as blood-pressure measurement and sensors integrated in the tip of a catheter or smartphones, where pressure sensors are used to enhance GPS navigation or weather forecasting. Furthermore pressure sensors are used for process control in production lines and commercial or industrial buildings.

Plan Optik AG, the leading manufacturer of blank and patterned wafers from glass and quartz supplies companies from start-ups to international large scale manufacturers that are developing and manufacturing MEMS Pressure Sensors.

Blank Glass wafers are used as substrates to manufacture MEMS sensors and membranes whereas patterned wafers with cavities or through holes are used to encapsulate the pressure sensor die. Cavities can be used to encapsulate a reference pressure and through holes connect the membrane to the environment to enable pressure measurement. The encapsulation is done by using a wafer level packaging (WLP) approach. Often anodic bonding between the sensor from Silicon and cap-wafers from glass is used to create a hermetic encapsulation. Therefore Plan Optik uses cte adapted materials. After packaging the dies are separated by dicing the wafer.

Compared to other materials glass offers long term stability as well as chemical and thermal resistance. Its transparent property allows doing in-process inspection of the MEMS die which leads to higher throughput and can help to reduce cost by increase of yield. In addition glass wafers can be marked with laser marking or QR-codes for process traceability.

If you are interested in how glass wafers can be used in your MEMS, Sensor or Semiconductor application get in touch with our engineers by mail at sales@planoptik.com.

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