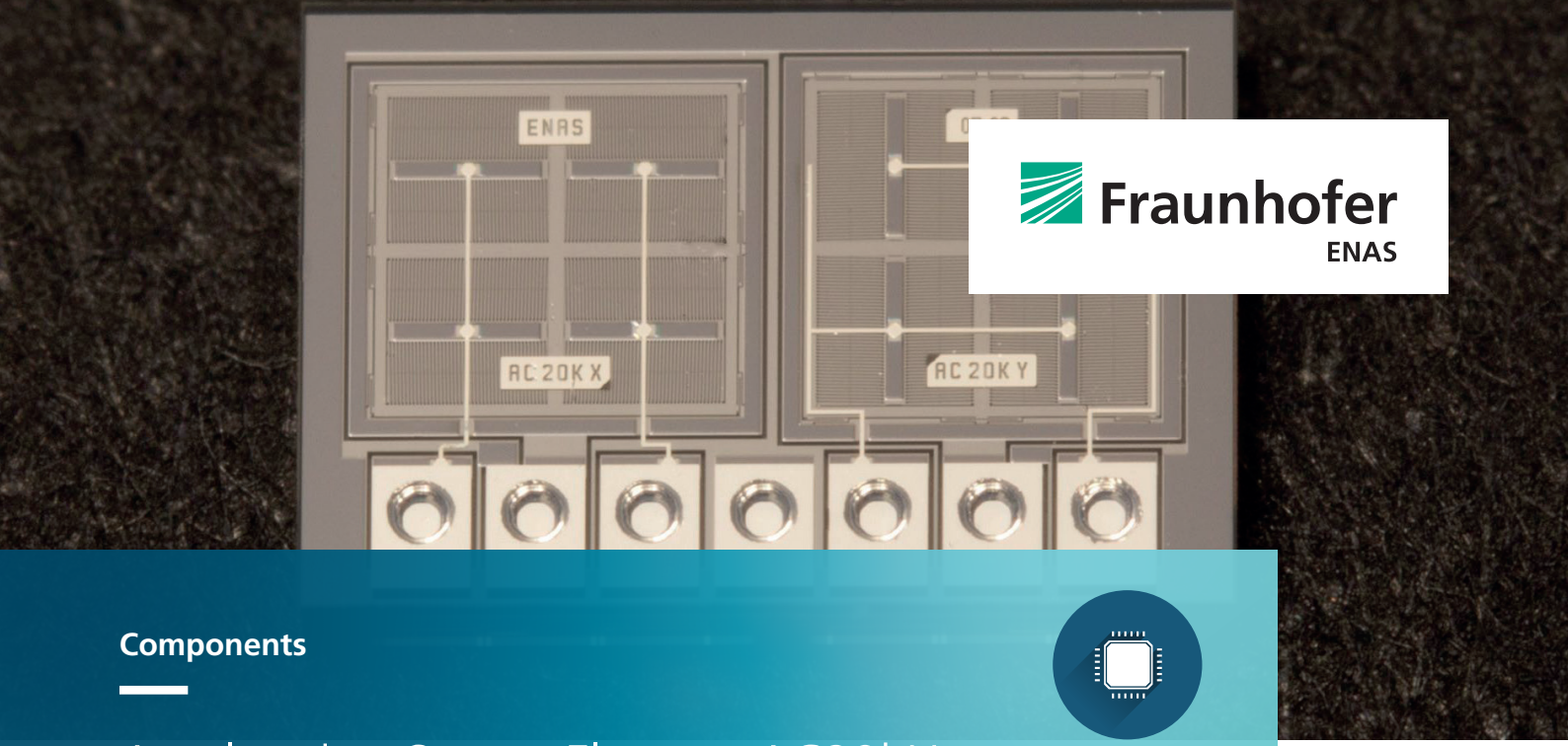

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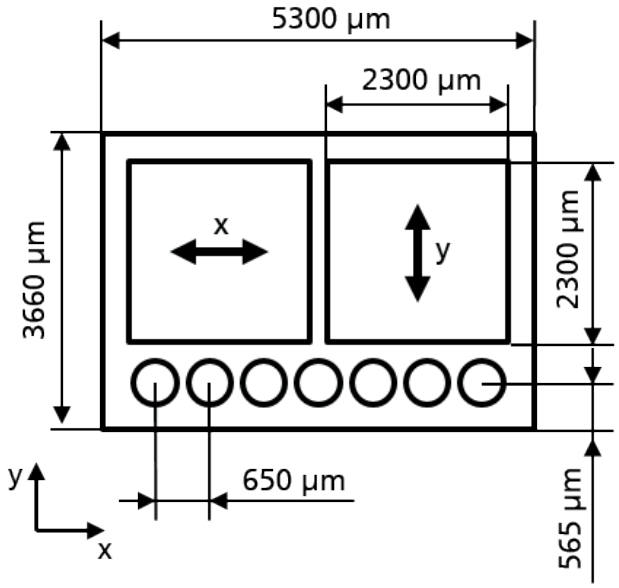
Components

Acceleration Sensor Element AC20kHz

Fast Facts

- High bandwidth
- High sensitivity
- 2-axis
- Capacitive principle



Chip dimensions.

General Description

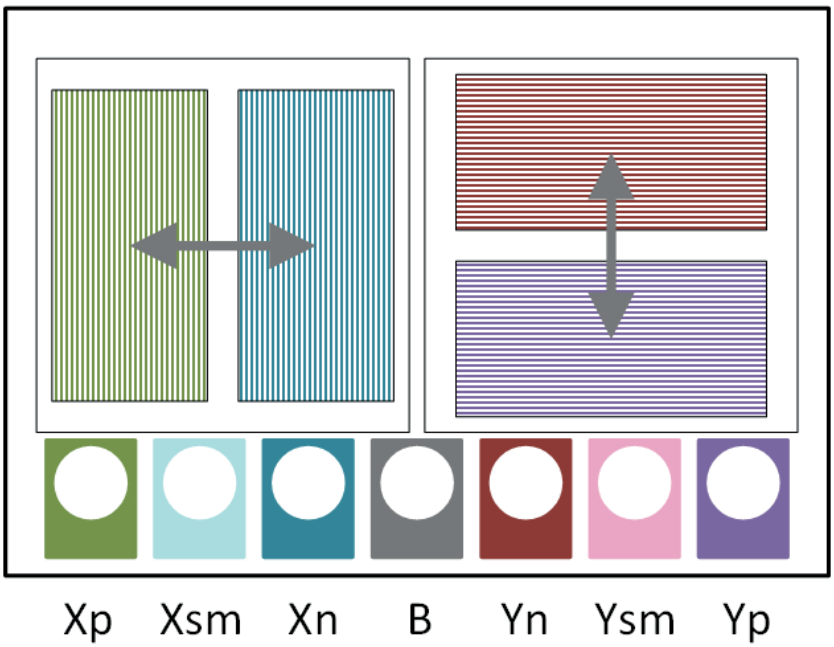
The AC20kHz is a micromechanical sensor element for the measurement of linear accelerations in two directions. The MEMS sensor element consists of two mechanical structures for detection of acceleration in x- and y-directions. The working principle is based on a capacitance change. The MEMS itself is a Glass-Si-Glass stack with a height of approx. 750 µm.

Parameters

- Highly doped silicon (0.01 ... 0.05 Ωcm)
- Sensitive to linear accelerations in x and y directions
- Eigenfrequency 21 kHz
- Damping ratio < 1
- Base capacitance per electrode ≈25 pF
- Capacitive sensitivity per electrode ≈5 fF/g
- Open-loop input range ± 350 g

Suggested Applications

- Smart systems
- Condition monitoring



Connection scheme:

Xp	*Electrode in positive x-direction*
Xsm	*Connection for seismic mass of x-sensing element*
Xn	*Electrode in negative x-direction*
B	*Bulk connection*
Yn	*Electrode in positive y-direction*
Ysm	*Connection for seismic mass of y-sensing element*
Yp	*Electrode in negative y-direction*

In cooperation with

ZfM Zentrum für Mikrotechnologien

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Fraunhofer ENAS is part of

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