**Micro Spectrometer**

- Functional Principle:
  - Two-axis frequency selective accelerometer with integrated preamplifier
  - Fabricated in surface micromachining and packaged
  - Capacitive detection principle
  - Application fields: monitoring of machines, engines, pumps and tools

- Specifications:
  - Measurement range: ±15g
  - Center frequencies: 2.0/3.0/4.5/6.0 kHz
  - Sensitivity: 2 V/g
  - Chip dimensions: 2 × 2 × 3.0 mm

**Vibration Sensor**

- Two-axis frequency selective accelerometer with integrated preamplifier
- Fabricated in surface micromachining and packaged
- Capacitive detection principle
- Application fields: monitoring of machines, engines, pumps and tools

- Specifications:
  - Measurement range: ±10g
  - Center frequencies: 2.0/3.0/4.5/6.0 kHz
  - Sensitivity: 75 mV/mg
  - Chip dimensions: 2.5 x 2.5 mm

**MEMS Mirrors**

**1-Dimensional**

- Mirror size: 6 x 6 mm²
- Maximum deflection: ± 4 deg.
- Warping: < 200 nm
- Roughness: Ra < 10 nm
- Scanning frequency: 0 ... 500 Hz

**2-Dimensional**

- Mirror size: 3 x 3 mm²
- Maximum deflection: ± 8 deg. (at resonance frequency)
- Quality factor: Q = 13
- Frequency: 2.3 kHz

**Polymer MO(E)FS**

- SEM picture of a silicon structure for hot embossing of meandering fluidic channels.
- Structure depths up to 150µm without undercut
- Using 2µm oxide mask depths up to 250µm are possible
- Low sidewall roughness down to Ra<10nm

**FEM Fluidic Channel**

- Fluidic Channel Simulation

**Fraunhofer**

Institut Zuverlässigkeit und Mikrointegration

**NCAST**

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