High Precision ± 10° Inclination Sensor

1. Features

- Single crystal silicon based
- 2-axis inclination measurement (x and y)
- Ultra low cross axis sensitivity due to HARMS technology
- Over damped frequency response
- Low noise
- Excellent stability over temperature
- Excellent reliability against overload
- no sticking entire try processing

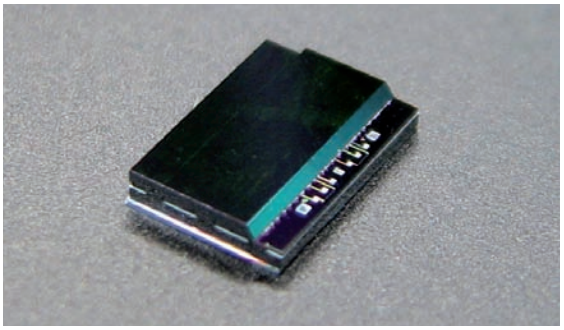

Fig. 1: High precision inclination sensor chips

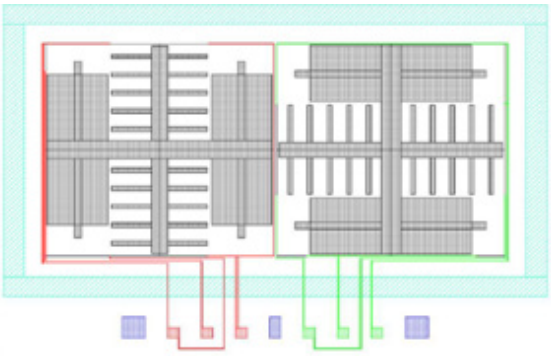

Fig. 2: MEMS Inclination sensor with 0.01° resolution

3. Application

- ASTROSE project – sensor network for condition monitoring of power lines
- Geoengineering
- Leveling instruments
- Platform control and stabilization

2. Major Technical Parameters

Parameter	Condition	Typical	Unit
Measuring Range		± 10	°
Frequency Response	- 3 dB	35	Hz
Capacitive Sensitivity		4.0	fF/mg
Full Scale Capacitive Sensitivity		± 700	fF
Noise Performance	MEMS element	3.9	µg/√Hz
Resolution	measured in combination with 12 bit readout circuit	< 0.01	°
Non-Linearity		0.5	%
Cross-axis sensitivity		700 to 1	
Sensitivity Temperature Dependency	without temperature compensation	0…120	ppm/K
Dimensions	L x W	5 x 3.5	mm

4. Contact

Dr. Andreas Bertz
Phone: +49 371 45001-402
Fax: +49 371 45001-502
Email: andreas.bertz@zfm.tu-chemnitz.de