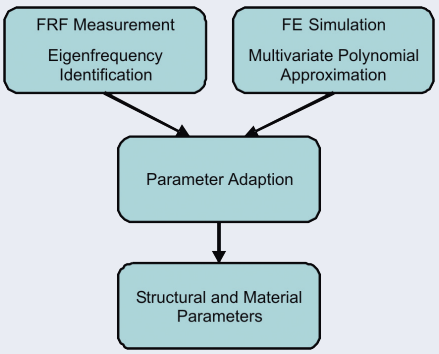
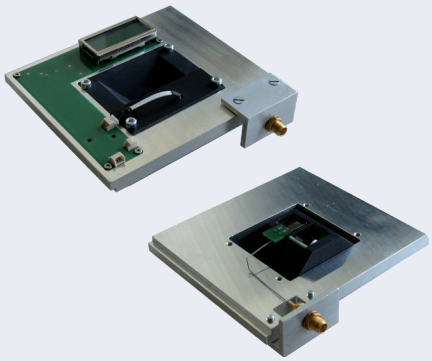
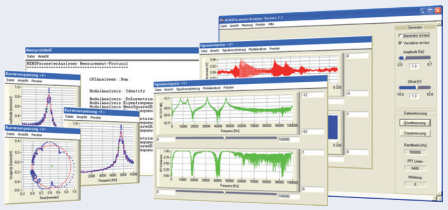
MEMS PARAMETER IDENTIFICATION



Model of MEMS parameter identification method



Probe card including optical distance measurement and indium tin oxide excitation electrode



Screenshot of parameter identification software

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General Description

MEMS parameter identification is a test procedure providing fast, contactless and non-destructive determination of structural and material parameters of micromechanical mass-spring-damper systems. It is particularly suitable for wafer level testing of large quantities, process and quality controlling applications. The method is based on an inverse identification algorithm using measured frequency response function (FRF) data and FEM analysis results. Robust probe cards for electrostatic excitation of the structures are available. The fringing electrostatic field is generated by transparent indium tin oxide electrodes. The probe cards include precise optical or mechanical electrode to wafer distance measurement. A Laser Doppler Vibrometer determines the FRF optically. The test procedure is implemented in an easy to use software application suitable for manual or automatic testing of MEMS.

Features

- Probe card including optical or mechanical distance measurement (electrode to wafer)
- Transparent indium tin oxide excitation electrode
- MEMS parameter identification software

Suggested Applications

- MEMS Wafer Level Test
- Process and quality control
- Determination of structural and material parameters

Characteristics

Parameter	Value	Unit
FRF measurement range	0 – 1	MHz
Probe card size	12.3 x 11.4 x 3.4	cm
Distance measurement range	0 – 100	µm
Distance resolution	1.5	µm
ITO electrode size	1.3 x 0.9	cm
Excitation voltage	0 – 400	V

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