

High-Precision 3-D Measurement



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Abstract

We are developing Micro Electro Mechanical System (MEMS) measurement technology to an accuracy of nanometer order. The commercialization of the acceleration sensor, the optical scanner, and the RF switch, etc. started since MEMS devices were able to be miniaturized, integrated, and achieved excellent productivity. In the development of MEMS devices, there is a demand to observe the dynamic behavior and temperature transformation. Therefore, we are developing technology to measure the dynamic characteristics and temperature characteristics of MEMS devices.

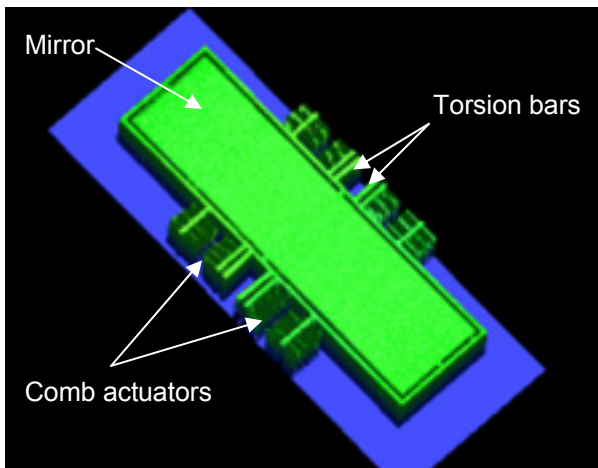
Technology

Measurement technology based on an optical interference method for developing and manufacturing MEMS devices is composed of the following technologies:

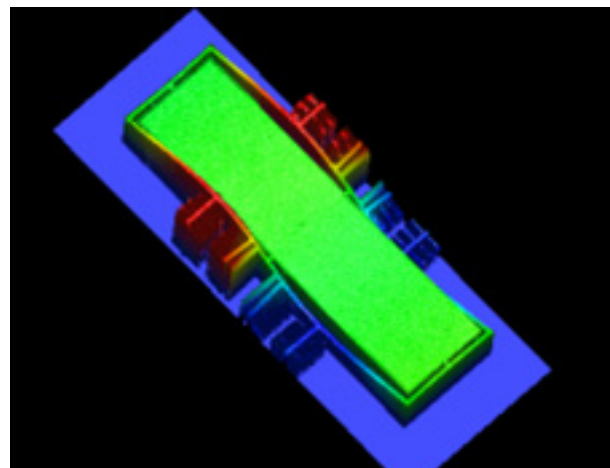
- High-speed dynamic behavior measurement technology by stroboscopic interferometry using a high-power pulse light source
- Optical interference system that measures the MEMS device in a chamber through a glass window
- Fringe analysis method to acquire a height image from one interference image

Application Examples

High-precision three-dimensional measurement technology is used to measure the dynamic characteristic and the temperature characteristics of various MEMS devices.



Static shape



Deformation at maximum acceleration