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SEMICONDUCTOR DEVICES – MICRO-ELECTROMECHANICAL DEVICES –

Part 46: Silicon based MEMS fabrication technology – Measurement method of tensile strength of nanoscale thickness membrane

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Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

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- withdrawn, or
- revised.

SEMICONDUCTOR DEVICES – MICRO-ELECTROMECHANICAL DEVICES –

Part 46: Silicon based MEMS fabrication technology – Measurement method of tensile strength of nanoscale thickness membrane

1 Scope

This part of IEC 62047 specifies the requirements and testing method to measure the tensile strength of membrane with nanoscale thickness (length from 100 μm to 5 000 μm, width from 100 μm to 1 000 μm, thickness from 50 nm to 500 nm) which is fabricated by micromachining technology used in silicon-based micro-electromechanical system (MEMS).

This document is applicable to in-situ tensile strength measurement of nanoscale thickness membrane manufactured by microelectronics technology and related micromachining technology.

With the devices scaling, the tensile strength degradation, induced by defects and contaminations, becomes severer. This document specifies an in-situ testing method of the tensile strength of membrane with nanoscale thickness based on a MEMS technique. This document does not need intricate instruments (such as scanning probe microscopy and nanoindenter) and special test specimens.

Since in-situ on-chip tester in this document and device are fabricated with the same process on the same wafer, this document can give some practical reference for the design part.

2 Normative references

There are no normative references in this document.