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CONTENTS

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IEC 62047-45 has been prepared by subcommittee 47F: Microelectromechanical systems, of IEC technical committee 47: Semiconductor devices. It is an International Standard.

The text of this International Standard is based on the following documents:

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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.

A list of all parts in the IEC 62047 series, published under the general title *Semiconductor devices – Micro-electromechanical devices*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

SEMICONDUCTOR DEVICES – MICRO-ELECTROMECHANICAL DEVICES –

Part 45: Silicon based MEMS fabrication technology – Measurement method of impact resistance of nanostructures

1 Scope

This part of IEC 62047 specifies the requirements and testing method to measure the impact resistance of nanostructures which are fabricated by micromachining technology used in silicon-based micro-electromechanical system (MEMS).

This document is applicable to the in-situ impact resistance measurement of nanostructures manufactured by microelectronic technology process and other micromachining technology.

In the production of MEMS devices, due to the micro/nano size, the non-ideal effect of fabrication is greatly amplified compared with the macroscale. Surface defects, line width loss, and residual stress can occur in the fabricated object, resulting in severe fluctuations in the mechanical strength of MEMS devices. This document specifies an in-situ measurement method for the impact resistance of nanostructures based on MEMS technology to extract the impact strength of actual manufactured structures. This test method does not need intricated instruments (such as scanning probe microscopy and nanoindenter) and special test specimens.

Since the in-situ on-chip tester in this document can be implanted in device fabrication as a standard detection pattern, this document can provide a bridge, by which the fabrication part can give some quantitative reference for the design part.

2 Normative references

There are no normative references in this document.