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Semiconductor devices – Micro-electromechanical devices – Part 44: Test methods for dynamic performances of MEMS resonant electric-field-sensitive devices



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SEMICONDUCTOR DEVICES – MICRO-ELECTROMECHANICAL DEVICES –

Part 44: Test methods for dynamic performances of MEMS resonant electric-field-sensitive devices

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

Draft	Report on voting
47F/456/FDIS	47F/463/RVD

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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SEMICONDUCTOR DEVICES – MICRO-ELECTROMECHANICAL DEVICES –

Part 44: Test methods for dynamic performances of MEMS resonant electric-field-sensitive devices

1 Scope

This part of IEC 62047 describes terminology, definitions and test methods that are used to evaluate and determine the dynamic performance of MEMS (Micro-Electromechanical Systems) resonant electric-field-sensitive devices. It also specifies sample requirements and test equipment for dynamic performances of MEMS resonant electric-field-sensitive devices. The statements made in this document are also applicable to MEMS resonant electric-field-sensitive devices with various driving mechanisms such as electrostatic, electrothermal, electromagnetic, piezoelectric, etc.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- IEC Electropedia: available at https://www.electropedia.org/
- ISO Online browsing platform: available at https://www.iso.org/obp

3.1
MEMS electric-field-sensitive device
electric-field-sensitive device fabricated by MEMS technology, which can sense the electric field strength and convert it into electrical signal for output

Note 1 to entry: For a detailed description of the MEMS electric-field-sensitive device, see Annex A.

3.2
MEMS resonant electric-field-sensitive device
electric-field-sensitive device fabricated by MEMS technology, which senses the electric field strength by driving its sensitive structure to vibrate in the resonant state

Note 1 to entry: For a detailed description of the MEMS resonant electric-field-sensitive device, see Annex A.

3.3
standard electric field equipment
standard electric field equipment that is composed of parallel metal plate calibration system, shielding cover, high voltage source, etc., and can produce uniform electric field environment

Note 1 to entry: The high voltage source with continuous adjustable voltage is connected with the parallel metal plate calibration system. When the high voltage is loaded on the parallel metal plate calibration system, the uniform electric field can be maintained between the parallel metal plate calibration system.

Note 2 to entry: The electric-field-sensitive devices are placed in the standard electric field for dynamic performance test.