

INTERNATIONAL STANDARD



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



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CONTENTS

| | |
|--|----|
| FOREWORD..... | 4 |
| 1 Scope..... | 6 |
| 2 Normative references | 6 |
| 3 Terms and definitions | 6 |
| 4 Essential ratings and characteristics..... | 7 |
| 4.1 Composition of MEMS resonant electric-field-sensitive devices..... | 7 |
| 4.2 Identification and types | 7 |
| 4.3 Description of application and specification..... | 7 |
| 4.4 Recommended operating conditions | 7 |
| 4.5 Additional information | 8 |
| 5 Dynamic characteristics..... | 8 |
| 5.1 Resonant frequency | 8 |
| 5.2 Quality factor Q | 8 |
| 5.3 Response time..... | 8 |
| 6 Measuring methods | 8 |
| 6.1 General..... | 8 |
| 6.2 Resonant frequency..... | 9 |
| 6.2.1 Purpose..... | 9 |
| 6.2.2 Optical test method..... | 9 |
| 6.2.3 Electrical test method | 11 |
| 6.2.4 Data processing method | 12 |
| 6.2.5 Specified conditions..... | 12 |
| 6.3 Quality factor (Q) | 12 |
| 6.3.1 Purpose..... | 12 |
| 6.3.2 Circuit diagram | 12 |
| 6.3.3 Principle of measurement | 12 |
| 6.3.4 Precaution to be observed..... | 13 |
| 6.3.5 Measurement procedure | 13 |
| 6.3.6 Data processing method | 13 |
| 6.3.7 Specified conditions..... | 13 |
| 6.4 Response time..... | 13 |
| 6.4.1 Purpose..... | 13 |
| 6.4.2 Circuit diagram | 13 |
| 6.4.3 Principle of measurement | 13 |
| 6.4.4 Precaution to be observed..... | 13 |
| 6.4.5 Measurement procedure | 13 |
| 6.4.6 Data processing method | 14 |
| 6.4.7 Specified conditions..... | 14 |
| Annex A (informative) Work principle and general description of MEMS resonant electric-field-sensitive devices | 15 |
| Annex B (informative) Sensitive structure and test of typical MEMS resonant electric-field-sensitive devices | 17 |
| B.1 Electrostatically driven MEMS resonant electric-field-sensitive devices..... | 17 |
| B.2 Thermally driven MEMS resonant electric-field-sensitive devices | 18 |
| B.3 Piezoelectrically driven MEMS resonant electric-field-sensitive devices | 19 |

| | |
|---|----|
| Figure 1 – Terminals of MEMS resonant electric-field-sensitive devices..... | 7 |
| Figure 2 – Diagram of the MEMS resonant electric-field-sensitive device on the parallel plate system | 9 |
| Figure 3 – Test system diagram of optical test method..... | 10 |
| Figure 4 – Test system diagram of electrical test method..... | 11 |
| Figure A.1 – Example for working principle of MEMS resonant electric-field-sensitive device..... | 16 |
| Figure B.1 – Example for electrostatically driven MEMS resonant electric-field-sensitive device | 17 |
| Figure B.2 – Circuit diagram of electrical test system of electrostatic comb type electric-field-sensitive device | 8 |
| Figure B.3 – Example for thermally driven MEMS resonant electric-field-sensitive devices | 18 |
| Figure B.4 – Example for piezoelectrically driven MEMS resonant electric-field-sensitive devices | 19 |

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**SEMICONDUCTOR DEVICES –
MICRO-ELECTROMECHANICAL DEVICES –**

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

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IEC 62047-44 has been prepared by subcommittee 47F: Micro-electromechanical 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:

| 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.

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

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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.