

# INTERNATIONAL STANDARD



**Semiconductor devices – Micro-electromechanical devices –  
Part 28: Performance testing method of vibration driven MEMS electret energy  
harvesting devices**



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INTERNATIONAL  
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COMMISSION

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

**Part 28: Performance testing method of vibration-driven  
MEMS electret energy harvesting devices**

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Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

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## SEMICONDUCTOR DEVICES – MICRO-ELECTROMECHANICAL DEVICES –

### Part 28: Performance testing method of vibration-driven MEMS electret energy harvesting devices

#### 1 Scope

This part of IEC 62047 specifies terms and definitions, and a performance testing method of vibration driven MEMS electret energy harvesting devices to determine the characteristic parameters for consumer, industry or any application.

This document applies to vibration driven electret energy harvesting devices whose electrodes with a gap below 1 000  $\mu\text{m}$  are covered by dielectric material with trapped charges and are fabricated by MEMS processes such as etching, photolithography or deposition.

#### 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.

##### 3.1

##### **vibration frequency**

frequency of the periodic motion of vibration-driven MEMS electret energy harvesting devices

##### 3.2

##### **vibration acceleration**

acceleration applied to the vibration-driven MEMS electret energy harvesting devices

##### 3.3

##### **amplitude**

maximum displacement in movement of the vibration-driven MEMS electret energy harvesting devices

##### 3.4

##### **vibration direction**

direction of vibration applied to the vibration-driven MEMS electret energy harvesting device

#### 4 Vibration testing equipment

##### 4.1 General

Figure 1 provides fundamental configurations consisted of functional blocks or components for vibration testing equipment for MEMS electrets energy harvesting devices at a specified constant frequency and constant acceleration. Details of the functional blocks or components named as the keys are provided in the following 4.2 to 4.5.