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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 26111-2023

Micro-electromechanical system technology - Terms

微机电系统 (MEMS) 技术 术语

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Foreword

This document is in accordance with the provisions of GB/T 1:1-2020 "Guidelines for Standardization Work Part 1: Structure and Drafting Rules for Standardization Documents" drafting: This document replaces GB/T 26111-2010 "Micro-Electro-Mechanical Systems (MEMS) Technical Terms", compared with GB/T 26111-2010, In addition to structural adjustments and editorial changes, there are many technical changes: See Appendix A for a list of these technical changes: This document is modified to adopt IEC 62047-1:2016 "Micro-electromechanical devices for semiconductor devices - Part 1: Terms and definitions": Compared with IEC 62047-1:2016, this document has made the following structural adjustments:

--- Added Chapter 2 "Normative References", and the numbering of all terms and entries is extended by one chapter (for example, 3:2:1 in this document corresponds to 2:2:1 of IEC 62047-1:2016);

--- Except for 3:1, the term entry numbers in 3:2~3:8 are consistent with the corresponding parts of Chapter 2 in IEC 62047-1:2016;

--- Deleted Appendix B: The technical differences between this document and IEC 62047-1:2016 and their reasons are as follows:

a) The description about the scope of application of this document has been added to comply with the drafting requirements of our country's standards (see Chapter 1);

b) Added the term "MEMS" and its definition (see 3:1:1): The following editorial changes have been made to this document:

a) In order to coordinate with existing standards, change the name of the standard to "Technical Terms for Micro-Electro-Mechanical Systems (MEMS)";

b) all notes applicable only to the French version of the standard are deleted;

c) Delete the informative appendix A "Position and guidelines for editing this glossary" and informative appendix B in IEC 62047-1:2016 "Cross-references to entries of IEC 62047-1:2005 and IEC 62047-1:2016";

d) Added informative appendix A "Main technical changes of this document compared with GB/T 26111-2010";

e) The corresponding international documents in IEC 62047-1:2016 "References" are replaced by Chinese documents: Please note that some contents of this document may refer to patents: The issuing agency of this document assumes no responsibility for identifying patents: This standard is proposed and managed by the National Micro-Electro-Mechanical Technology Standardization Technical Committee (SAC/TC336): This standard was drafted by: Zhongji Productivity Promotion Center Co., Ltd., Xi'an Zhiwei Sensing Technology Co., Ltd., Soochow University, Peking University Science, Wuxi China Resources Shanghua Technology Co., Ltd., Aerospace Information Innovation Research Institute of the Chinese Academy of Sciences, Beijing University of Aeronautics and Astronautics, Shanghai Jiaotong University, Tianjin University, Beijing Institute of Aerospace Control Instruments, Xi'an Institute of Modern Control Technology, Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences Research Institute, Beijing Chenjing Electronics Co., Ltd., Tianjin Xinzhi Perception Technology Co., Ltd., the Thirteenth Research Institute of China Electronics Technology Group Corporation, China Institute of Microelectronics, National Academy of Sciences, Guangzhou Guangdian Metrology and Testing Co., Ltd., Nanjing Gaohua Technology Co., Ltd., Hangzhou Zuolan Microelectronics Sub-Technology Co., Ltd., Guangzhou Aosong Electronics Co., Ltd., East China Optoelectronics Integrated Devices Research Institute, Jiangsu Punovo Electronics Co., Ltd: Division, Akashi Innovation (Yantai) Micro-nano Sensing Technology Research Institute Co., Ltd: The main drafters of this standard: Gu Feng, Song Xiumin, Li Genzi, Sun Lining, Zhang Dacheng, Xia Changfeng, Xia Shan hong, Dong Quanlin, Zhang Weiping, Hu Xiaodong, Liu Huicong, Xing Chaoyang, Liu Kui, Xiong Bin, Zhang Yongbin, Zhang Wei, Cui Bo, Chen Demin, Wang Weibing, Ming Zhimao, Li Xiaobo, SHUMINZHANG, Zhang Bin, Zhang Shengbing, Yang Fei, Gao Feng: This document was first published in:2010, and this is the first revision: Micro-Electro-Mechanical Systems (MEMS) Technical Terms

1 Scope

GB/T 26111-2023 is the Chinese vocabulary of MEMS technology. MEMS sits between semiconductor processing and mechanical engineering and has borrowed words from both, often with a different meaning: a device that a process engineer calls a membrane a mechanical engineer calls a diaphragm, release and sacrificial etching describe steps that have no analogue in ordinary IC manufacture, and stiction is a failure mode nothing else has. The vocabulary has also had to grow to cover a decade of new devices since the previous edition. The standard defines the general terms and those relating to functional elements, processing technology, bonding and assembly technology, measurement techniques and application technology, with an informative annex listing the main technical changes against GB/T 26111-2010. It took effect on 1 September 2023.

This document defines terms and definitions related to MEMS devices and their production processes: This document is applicable to research, development, evaluation and application in the field of MEMS:

2 Normative references

This document has no normative references:

3 Terms and Definitions

1 General terms and definitions 3:1:1 A system composed of functional structures and devices based on micro-nano manufacturing technology:

Note: Micro-sensors, micro-actuators, micro-fluidic devices, micro-energy sources, etc.; as well as integration with circuits such as signal processing and control: 3:1:

2 Miniaturized devices that integrate sensors, actuators, transducers, resonators, oscillators, mechanical components and/or circuits:

Note: From basic technologies such as design, materials, processing, functional components, system control, energy supply, bonding and assembly, circuits, and evaluation to microscience and engineering, microscopic The basic sciences such as thermodynamics and tribology of the scale, and the related technologies vary greatly: If these devices form a system, usually called MEMS, are 3:1:

3 The technology of obtaining microelectronic, optical and mechanical systems and their components by micromachining:

Note: The term MST is mainly used in Europe: 3:1:

4 Micromachine micromachine 3:1:4:1 micromachine< device> micromachine< device>

Miniaturized devices with component dimensions of a few millimeters or less: NOTE:

Includes various functional devices (such as sensors utilizing micromechanical technology):

3:1:4:2 micromachine< system> micromachine< system> A microsystem integrated by micromechanical devices: NOTE: Includes molecular machines known as nanomachines: