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

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**Micro-electromechanical system(MEMS)technology - Radio
frequency MEMS circulators and isolators**

微机电系统（MEMS）技术 射频MEMS环行器和隔离器

(English Translation)

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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 is equivalent to IEC 62047-41:2021 "Semiconductor devices - Microelectromechanical devices - Part 41: Radio frequency MEMS circulators" and Isolators.

The following minimal editorial changes were made to this document.

--- In order to coordinate with the existing standards, the name of the standard is changed to "Micro-electromechanical Systems (MEMS) Technology - RF MEMS Circulators and Isolators "Leaving Device";

--- Added notes to Figure 1, Figure 2, Figure 3, Figure 4, Figure 5, Figure 6, Figure 7, 5.2.5, 5.3.5, 5.4.5, Figure A.1 and Figure A.2;

---Added symbol explanations in formula (1) to formula (12);

--- To comply with Chinese conventions, the symbol of the center frequency in Table 2 is changed from "fcenter" to "f0", and the title of 6.7 "Bond Strength/Welding "Bond strength test" in Table 3 is changed to "Bond strength or solderability test", and "Bond/weld strength test" in Table 3 is changed to "Bond strength or "Weldability";

--- Corrected the error in the original text, and gave the corresponding characteristic values for "bonding strength or solderability" in Table 3.

1 Scope

This document specifies the terminology, basic ratings and characteristics, and measurement methods for RF MEMS circulators and isolators.

2 Normative references

The contents of the following documents constitute essential clauses of this document through normative references in this document.

For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to this document.

Note: GB/T 17573-1998 Semiconductor devices Discrete devices and integrated circuits Part 1: General (IEC 60747-1:1983, IDT) IEC 60749-10 Mechanical and climatic test methods for semiconductor devices Part 10: Mechanical shock IEC 60749-12 Mechanical and climatic test methods for semiconductor devices Part 12: Swept frequency vibration Note. GB/T 4937.12-2018

Mechanical and climatic test methods for semiconductor devices Part 12: Swept frequency vibration (IEC 60749-12:2002, IDT) Note. GB/T 4937.21-2018 Mechanical and climatic test methods for semiconductor devices Part 21: Solderability (IEC 60749-21:2011, IDT) IEC 60749-22 Mechanical and climatic test methods for semiconductor devices Part 22: Bond strength Note. GB/T 4937.22-2018 Mechanical and climatic test methods for semiconductor devices Part 22: Bond strength (IEC 60749-22:2002, IDT) IEC TS61967-3 Integrated circuit electromagnetic emission measurement Part 3: Radiated emission measurement surface scanning method (Integrated Surfacescanmethod) Note. GB/T 26111-2023 Microelectromechanical Systems (MEMS) Technical Terminology (IEC 62047-1:2016, MOD)

3 Terms and definitions

For the purposes of this document, the terms and definitions defined in IEC 62047-1 and the following apply.

3.1 General terms

3.1.1

Circulator

The incident wave entering any port of the three-port device is transmitted to the next port in the direction determined by the static bias magnetic field.