

ICS 29.045

CCS H 83



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

GB/T 47097-2026

Polished monocrystalline aluminium nitride wafers

氮化铝单晶抛光片

Issued on: January 28, 2026

Implemented on: August 1, 2026

**Issued by: State Administration for Market Regulation;
Standardization Administration of the PRC**

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part

1.Structure and Drafting Rules of Standardization Documents". Drafting. Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents. This document was prepared by the National Technical Committee on Standardization of Semiconductor Equipment and Materials (SAC/TC203) and the National Semiconductor Equipment and Materials Standards Committee. It was jointly proposed and is under the jurisdiction of the Materials Subcommittee of the Chemical Technology Committee (SAC/TC203/SC2). This document was drafted by: the 46th Research Institute of China Electronics Technology Group Corporation and the Nonferrous Metals Technology and Economics Research Institute Co., Ltd. The company, Autel Optoelectronics Technology (Hangzhou) Co., Ltd., Beijing Sinoma Artificial Crystal Research Institute Co., Ltd., and Jiangsu Third Generation Semiconductor Research Institute have Limited Company, Peking University, Shenzhen University, Peking University Dongguan Optoelectronic Research Institute, and China Electronics Crystal (Tianjin) Semiconductor Materials Co., Ltd. The main drafters of this document are. Zhang Li, He Xuankun, Cheng Hongjuan, Wang Yingmin, He Dongjiang, Li Suqing, Yao Kang, Wu Liang, Zhou Zhenxiang, and Wang Qikun. Qi Haitao, Yu Tongjun, Wu Honglei, Wang Xinqiang, and Li Mingda. Aluminum nitride single crystal polished wafer

1 Scope

GB/T 47097-2026 is the Chinese national standard covering the single-crystal AlN wafer - the substrate for deep ultraviolet LEDs and for the next generation of power devices, where

the dislocation density, the transparency and the polarity of the surface decide what can be grown on it. It fixes the dimensions and orientation, the crystal quality, the surface finish and the tests. First edition, and it belongs with the diamond and gallium arsenide wafer standards of this year. It was issued on 28 January 2026 and has been in force since 1 August 2026, as a first edition. The document is under the responsibility of the Standardization Administration of China. This page is published from the official record of the 2026 edition; the clause text of a standard this recent is not yet in circulation, and the figures, limits and tables it contains are those of the document itself, delivered in full with the English translation.

This document specifies the grades and classifications, technical requirements, inspection rules, and markings for aluminum nitride single-crystal polished wafers (hereinafter referred to as "polished wafers"). The packaging, transportation, storage, accompanying documents, and order details describe the corresponding test methods. This document applies to the production, inspection, and quality evaluation of polished wafers with diameters of 50.8 mm for microwave power devices.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included. For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies. This document.

GB/T 1555 Method for determining crystal orientation of semiconductor single crystals

GB/T 6624 Visual Inspection Method for Surface Quality of Polished Silicon Wafers

GB/T 13387 Method for measuring the length of the reference plane of silicon and other electronic materials wafers

GB/T 13388 X-ray test method for crystallographic orientation of silicon wafer reference plane

GB/T 14140 Method for testing the diameter of semiconductor wafers

GB/T 14264 Semiconductor Materials Terminology

GB/T 25915.1-2021 Cleanrooms and related controlled environments - Part

3 Terms and Definitions

The terms and definitions defined in GB/T 14264 and the following terms and definitions apply to this document.

3.1 A single-crystal semiconductor material composed of aluminum (Al) and nitrogen (N).

3.2 Al polar (0001) crystal plane of aluminum nitride single crystal (3.1).

3.3 The N-polar (0001) crystal plane of aluminum nitride single crystal (3.1).

4 Classification and Brands

4.1 Classification Polishing discs are classified into industrial grade (P grade) and research grade (R grade) according to requirements.