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CCS H82



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

GB/T 12964-2018

Replacing GB/T 12964-2003

Monocrystalline silicon polished wafers

硅单晶抛光片

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009. This standard replaces GB/T 12964-2003 "Silicon single crystal polishing sheet", compared with GB/T 12964-2003, except editorial modification The technical changes are as follows:

--- Revised the scope of application, "This standard is applicable to silicon polishing prepared by single-side polishing of Czochralski silicon single crystal grinding sheets by corrosion thinning The film is changed to "this standard is applicable to the diameter of the Czochralski method, the suspension zone melting method (including neutron enthalpy doping and gas phase doping). Polished sheet of silicon single crystal of 200 mm. Products are mainly used to make integrated circuits, discrete components, power devices, etc., or as silicon The substrate of the epitaxial wafer" (see Chapter 1, Chapter 1 of the 2003 edition).

--- Revised the normative reference documents, deleted GB/T 1552, GB/T 1554, GB/T 1555, GB/T 1558, GB/T 13387, GB/T 13388, GB/T 14140, GB/T 14143, added GB/T 12965, GB/T 19921 GB/T 24578, GB/T 29507, GB/T 32279, GB/T 32280, YS/T 28, YS/T 679 (see Chapter 2, 2003) Chapter 2 of the annual edition).

--- Deleted the specific terminology in the original standard and changed it to "the terms and definitions defined in GB/T 14264 apply to this document" (see Chapter 3, Chapter 3 of the 2003 edition).

--- Revised the classification of silicon polishing sheets. Removed the "straight pull (CZ) and suspension zone melting (FZ) according to the silicon single crystal growth method, added "By the surface orientation, it is divided into three commonly used {100}, {110}, and {111}" (see 4.2.2,

--- Added "diameter of silicon polishing pad, surface orientation and its deviation, reference surface length (major reference surface diameter), slit size, reference The position of the face and the position of the cut should conform to the provisions of GB/T 12965. If necessary, the supplier will provide the results of the inspections" (see 5.1).

--- Removed the requirements for the length of the primary and secondary reference faces, the diameter of the cut and the main reference surface in Table 1, and revised the allowable

deviation of the diameter, the thickness, and the total thickness. Degree change, warpage, and total flatness requirements, increased bending requirements, and increased silicon polishing discs with a diameter of not less than 125 mm The requirements for local flatness (see Table 1, Table 1 of the.2003 edition).

--- The requirements for crystal integrity are listed in 5.1, and the test results are provided by the supplier (see 5.1,

5.3 of the.2003 edition).

--- Revised the requirements for oxidative induced defects, changed to "the oxidative induced defects of silicon polishing sheets should be no more than 100/cm², or by supply and demand The two sides negotiated to determine" (see 5.4,

5.3.2 of the.2003 edition).

--- Removed the original standard surface orientation, the contents of the benchmark mark (see 5.4,

5.5 of the.2003 edition).

--- Increased surface metal and bulk metal (iron) content requirements for 150mm,.200mm diameter silicon polished sheets (see 5.5, 5.6).

1 Scope

GB/T 12964-2018 is the Chinese national standard on monocrystalline silicon polished wafers, in the field of electrical engineering. The /T suffix marks it as a recommended standard: it is not compulsory by itself, but it becomes binding as soon as a contract, a tender or a customer specification calls it up - which in practice is how most foreign buyers meet it. It was issued on 17 September 2018 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 June 2019. Classification: ICS 29.045, CCS H82. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This standard specifies the grades and classifications, requirements, test methods, inspection rules, signs, packaging, and silicon single crystal polishing sheets (referred to as silicon polishing sheets). Transportation, storage, quality certificate and order form (or contract). This standard is applicable to the diameter of not more than.200mm prepared by the Czochralski method and the suspension zone melting method (including neutron enthalpy doping and gas phase doping). Silicon single crystal polished sheet. Products are mainly used to make integrated circuits, discrete components, power devices, etc., or as a substrate for silicon epitaxial wafers.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only dated versions apply to this article. Pieces. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 1550 Test method for conductivity type of extrinsic semiconductor materials

GB/T 2828.1-2012.Sampling procedures for sampling by sampling - Part 1 . Batch-by-batch inspections by Retrieving Quality of Acceptance (AQL) plan

GB/T 4058 silicon polishing sheet test method for oxidation induced defects

GB/T 6616 Semiconductor silicon wafer resistivity and silicon film sheet resistance test method Non-contact eddy current method

GB/T 6618 silicon wafer thickness and total thickness variation test method

GB/T 6619 silicon wafer bending test method

GB/T 6620 silicon wafer warpage non-contact test method

GB/T 6621 silicon wafer surface flatness test method

GB/T 6624 silicon polishing sheet surface quality visual inspection method

GB/T 11073 Silicon wafer radial resistivity change measurement method

GB/T 12962 silicon single crystal

GB/T 12965 silicon single crystal cutting sheet and abrasive sheet

GB/T 14264 semiconductor material terminology

3 Terms and definitions

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