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

GB/T 14028-2018

Replacing GB/T 14028-1992

**Semiconductor integrated circuits - Measuring method of
analogue switch**

半导体集成电路 模拟开关测试方法

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Quarantine of the People's Republic of China;
Standardization Administration of China**

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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 14028-1992 "Basic Principles of Analog Switch Test Methods for Semiconductor Integrated Circuits" and GB/T 14028- Compared to.1992, major technological changes are as follows:

--- Increased on-resistance path ratio, on-resistance temperature drift rate, channel conversion invalid output time, charge injection amount of 4 tests Methods (see 5.16, 5.17, 5.18, 5.19);

--- Revised the description of the test rules in Chapter 4;

--- Revised the form of representation of full-text diagrams and tables;

--- Modify the "channel conversion time" test method conversion object "i 1" to "j";

--- Added test descriptions for multiple analog switches not defined in the "off-state drain leakage current" test method;

--- Revised 10% meaning of ambiguity in the "Channel Conversion Time Test Method" test method. Please note that some of the contents of this document may involve patents. The issuing agency of this document does not assume responsibility for identifying these patents. This standard was proposed by the Ministry of Industry and Information Technology of the People's Republic of China. This standard is under the jurisdiction of the National Semiconductor Device Standardization Technical Committee (SAC/TC78). This standard was drafted. China National Aerospace Technology Corporation No. 771 Research Institute, Shengbang Microelectronics (Beijing) Co., Ltd. Company, Northwestern Polytechnical University. The main drafters of this standard. Zhang Bing, Li Lei, Chen Zhiwei, Yan Hui, Zhu Hua, Huang Dedong. Semiconductor integrated circuit Analog switch test method

1 Scope

GB/T 14028-2018 is the Chinese national standard on semiconductor integrated circuits - measuring method of analogue switch, in the field of electronics. 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 15 March 2018 by the General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China; Standardization Administration of China, and has been in force since 1 August 2018. Classification: ICS 31.200, CCS L56. 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 bipolar, MOS, and junction type field-effect semiconductor integrated circuit analog switch (hereafter referred to as device) parameter test methods. This standard applies to analog switches for semiconductor integrated circuits and also applies to the testing of multiplex converter parameters.

2 Normative references

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

GB/T 17940-2000 semiconductor device integrated circuit part 3. analog integrated circuit

3 Terms and definitions

The following terms and definitions apply to this document.

3.1 Analog voltage operating range The analog switch delivers a voltage range when the on current is rated.

3.2 On-resistance When the analog switch turns on, the resistance between the two ends of the switch.

3.3 On resistance path difference For devices with multiple analog switches or analog multiplexers, the maximum difference between the on-resistance of each switch.

3.4 Off-state drain leakage current When the analog switch is off, the current flowing through the drain of the analog switch flows.

3.5 Off-state source leakage current When the analog switch is off, the current flowing through the analog switch source.

3.6 On-state leakage current The leakage current between the conduction path of the analog switch and the rest of the circuit.

3.7 Switch ontime The time required for the analog switch to turn on under the control signal.

3.8 Shutdown time switchofftime Under the action of the control signal, the time required for the analog switch to be turned off is tested.

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