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

GB/T 46789-2025

**Semiconductor devices - Mobile ion tests for metal-oxide
semiconductor field effect transistors (MOSFETs)**

半导体器件 金属氧化物半导体场效应晶体管 (MOSFETs) 的可动离子试验
(English Translation)

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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".

This document is equivalent to IEC 62417:2010, "Semiconductor devices - Metal-oxide-semiconductor field-effect transistors (MOSFETs)". "Dynamic Ion Test".

This document adds two chapters. "Normative References" and "Terms and Definitions".

1 Scope

This document establishes a method for determining mobile positive charges in the oxide layer of metal-oxide-semiconductor field-effect transistors (MOSFETs). Number of wafer-level testing procedures.

This document applies to active field-effect transistors (FETs) and parasitic field-effect transistors (FETs). Movable charges can cause degradation in semiconductor devices, for example, by altering... The threshold voltage of MOSFETs can be changed or the base of a bipolar transistor can be inverted.

2 Normative references

This document has no normative references.

3 Terms and Definitions

This document does not contain any terms or definitions that need to be defined.

The following symbols and abbreviations apply to this document.

CV. Capacitance-voltage measurement IDs. Drain-source current I_{DS} . Oxide layer thickness t_{ox} . Gate voltage V_g .

Applying bias stress to the test structure at a certain high temperature allows mobile ions to overcome the potential barrier at the interface and ionize the oxide layer.

The sub-mobility is high enough. This document describes two testing methods.

---Bias temperature stress (BTS);

Bias temperature stress testing is performed on the transistor. The threshold voltage is defined as the gate voltage required to allow a fixed drain current to flow through the transistor.

5 Overview

--- Voltage scan (VS).