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

GB/T 46809.1-2025

**Semiconductor devices - Part 19-1: Smart sensors - Control
scheme of smart sensors**

半导体器件 第19-1部分：智能传感器 智能传感器的控制方案
(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".

Drafting.

This document is Part 1 of GB/T 46809 "Semiconductor devices - Part 19: Intelligent sensors". GB/T 46809 has been issued.

The following parts were laid out.

---Part 19-1.Intelligent Sensors Control Schemes for Intelligent Sensors this document is equivalent to IEC 60747-19-1:2019 "Semiconductor devices - Part 19-1.Intelligent sensors - Control of intelligent sensors".

Drafting plan.

The following minimal editorial changes have been made to this document.

---Separate section 4.3 into columns a)~d) in order for easier reading and use.

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 proposed by the Ministry of Industry and Information Technology of the People's Republic of China.

This document is under the jurisdiction of the National Semiconductor Device Standardization Technical Committee (SAC/TC78).

Introduction

The intelligent sensing unit comprises three components. an intelligent sensor, a terminal module, and a power supply. However, the control scheme connecting these components and...

Standardization of specifications for each component has not yet been fully established. This issue has led to various problems in the current intelligent sensing units.

The current situation is characterized by low development efficiency. "Semiconductor Devices Part 19: Smart Sensors" is proposed to consist of the following two parts.

---Part 19-1.Control Schemes for Smart Sensors. The purpose is to specify control schemes for smart sensors.

---Part 19-2.Specifications for Low-Power Operation of Smart Sensors and Power Supplies. The purpose is to provide low-power...

The design of intelligent sensing units (including intelligent sensors, terminal modules, and power supplies) is provided as a guide.

Sensor manufacturers incorporate various sensing operation parameters and conditions into sensors to meet diverse user requirements and needs.

Therefore, setting the sensor parameters and conditions and mastering its use is quite difficult for users. This problem...

The lack of control over intelligent sensors has always been a major obstacle in the design of intelligent sensing units and intelligent sensing systems. The formulation of this document will standardize the control scheme of intelligent sensors.

Semiconductor Devices Part 19-1.Smart Sensors Control scheme for intelligent sensors

1 Scope

This document specifies the method for achieving sensing functions and data transmission through bidirectional communication between digital processing units and sensors and external terminal modules.

Control scheme for sensors with processing and data output functions.

2 Normative references

This document has no normative references.

3 Terms and Definitions

The following terms and definitions apply to this document.

The URLs for the terminology databases maintained by ISO and IEC for standardization are as follows.

smart sensor

A sensor device or module that integrates analog-to-digital conversion and digital processing of captured sensing signals.

Smart sensing unit

Composed of a smart sensor, a terminal module, and a power supply, it is a unit that can send the output data of the smart sensor to an external device.

terminal module

Controlling intelligent sensors, receiving their output data, and sending the output data to the outside, forming part of an intelligent sensing unit.

Partial integrated circuit devices or modules.

An integrated circuit device or module that performs digital arithmetic and/or logical operations on data.

register

A local storage area on a digital processing circuit used to store the digital data being processed by the digital processing circuit.

operation mode

The operating type of electronic devices or modules, which is predetermined by the manufacturer or customized by its users.

sleep mode

An energy-saving mode in which all unnecessary components in an electronic device or module are turned off.