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

GB/T 20870.5-2023

**Semiconductor devices - Part 16-5: Microwave integrated
circuits - Oscillators**

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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 5 of GB/T 20870 "Semiconductor Devices". GB/T 20870 has released the following parts.

---Part 16-1. Microwave integrated circuit amplifier;

---Part 16-2. Microwave integrated circuit prescaler;

---Part 16-5. Microwave integrated circuit oscillators;

---Part 16-10. Monolithic microwave integrated circuit technology receivable procedures.

This document is equivalent to IEC 60747-16-5:2020 "Semiconductor Devices Part 16-5. Microwave Integrated Circuit Oscillators".

Please note that some content in this document may be subject to patents. The publisher of this document assumes no responsibility for identifying patents.

Introduction

Semiconductor devices are common basic products in the electronics industry chain and are the most basic units in electronic systems. GB/T 20870 "Semiconductors"

"Integrated Device" is a microwave integrated circuit product standard. It is a basic and universal standard for the development, production and inspection of microwave integrated circuits.

Evaluating and assessing the quality and reliability of microwave integrated circuits plays an important role and is planned to consist of 10 parts.

---Part 16-1. Microwave integrated circuit amplifier. The purpose is to specify the

terminology, basic ratings of microwave integrated circuit amplifiers

Values, properties, and test methods.

---Part 16-2.Microwave integrated circuit prescaler. The purpose is to specify the terms and letters of microwave integrated circuit prescalers.

Symbols, basic ratings, characteristics, and test methods.

---Part 16-3.Microwave integrated circuit frequency converter. The purpose is to specify the terminology and basic ratings of microwave integrated circuit inverters.

Values, properties, and test methods.

---Part 16-4.Microwave integrated circuit switches. The purpose is to specify the terminology, basic ratings, characteristics of microwave integrated circuit switches properties and testing methods.

---Part 16-5.Microwave integrated circuit oscillators. The purpose is to specify the terminology, basic ratings of microwave integrated circuit oscillators

Values, properties, and test methods.

---Part 16-6.Microwave integrated circuit frequency multiplier. The purpose is to specify the terminology and basic ratings of microwave integrated circuit frequency multipliers.

Values, properties, and test methods.

---Part 16-7.Microwave integrated circuit attenuators. The purpose is to specify the terminology, basic ratings of microwave integrated circuit attenuators

Values, properties, and test methods.

---Part 16-8.Microwave integrated circuit limiter. The purpose is to specify the terminology, basic ratings of microwave integrated circuit limiters

Values, properties, and test methods.

---Part 16-9.Microwave integrated circuit phase shifters. The purpose is to specify the terminology, basic ratings of microwave integrated circuit phase shifters

Values, properties, and test methods.

---Part 16-10.Monolithic microwave integrated circuit technology receivable procedures. The purpose is to specify the design,

Terminology, definitions, symbols, quality systems, testing, evaluation, verification methods and other requirements for manufacturing and delivery.

This series of standards is equivalent to the IEC 60747-16 series of standards, ensuring that microwave integrated circuit product standards are consistent with international

standards, achieving

Microwave integrated circuit product standards are in line with international standards. Through the formulation of this series of standards, the terminology definitions and basic specifications of microwave integrated circuit products are unified.

The fixed values, characteristics and test methods are of great significance to the research, production, inspection and use of microwave integrated circuits, and at the same time complement and improve the semiconductor

The integrated circuit standard system plays a guiding role in the development of the microwave integrated circuit industry.

Semiconductor device

Part 16-5.Microwave integrated circuit oscillators

1 Scope

This document specifies the terminology, basic ratings, characteristics, and test methods for microwave integrated circuit oscillators.

This document applies to fixed frequency oscillators and microwave voltage controlled oscillators, except for oscillator modules that require an external controller (such as synthesizers).

Note. This document does not apply to quartz crystal oscillators specified in IEC 60679-1.

2 Normative reference documents

The contents of the following documents constitute essential provisions of this document through normative references in the text. Among them, the dated quotations

For undated referenced documents, only the version corresponding to that date applies to this document; for undated referenced documents, the latest version (including all amendments) applies to

this document.

Note. GB/T 4728 (all parts) Graphical symbols for electrical diagrams [IEC 60617 (all parts)]

IEC 60747-1.2006/AMD1.2010

Note. GB/T 17573-1998 Semiconductor devices Discrete devices and integrated circuits Part 1.General provisions (IEC 60747-1.1993, IDT)

IEC 60747-4.2007 Semiconductor devices Discrete devices Part 4.Microwave diodes and transistors (Semiconductorde-

IEC 60747-4.2007/AMD1.2017

Note. GB/T 20516-2006 Semiconductor devices Discrete devices Part 4.Microwave devices (IEC 60747-4.2001, IDT)

IEC 60747-16-3.2002 Semiconductor devices Part 16-3.Microwave integrated circuit frequency converter (Semiconductor

IEC 60747-16-3.2002/AMD1.2009

IEC 60747-16-3.2002/AMD2.2017

IEC 61340-5-1 Electrostatics Part 5-1.Basic requirements for electrostatic protection of electronic devices (Electrostatics-Part 5-1.

IEC /T R61340-5-2 Electrostatics Part 5-2.User Guide for Electrostatic Protection of Electronic Devices (Electrostatics-Part

3 Terms and definitions

The following terms and definitions apply to this document.

3.1

oscillation frequencyoscilationfrequency

The frequency measured at the output.