

ICS 25.120.30

CCS J 46



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

GB/T 14663-2024

Replacing GB/T 14663-2007

Plastic package moulds - Technical specifications

塑料封装模 技术规范

Issued on: September 29, 2024

Implemented on: April 1, 2025

**Issued by: State Administration for Market Regulation;
Standardization Administration of China**

Table of Contents

- 1 Scope
- 2 Normative references
- 3 Terms and definitions
- 4 Technical requirements
- 4.1 Structure

Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part

1. Structure and drafting rules for standardization documents" Drafting is required. This document replaces GB/T 14663-2007 "Technical Specifications for Plastic Encapsulation Moulds". Compared with GB/T 14663-2007, In addition to logical changes, the main technical changes are as follows: -- Added a chapter on "Technical Requirements", added requirements for "Structure", "Safety" and "Performance" (see 4.1,

4.4 and 4.5), and added the.2007 The contents of the two chapters "Parts Requirements" and "Assembly Requirements" of the.2007 edition have been modified and incorporated into this chapter (see 4.2, 4.3, Chapters 3, Chapter 4); --Added requirements for surface coating of molding inserts and runner inserts (see 4.2.3, 4.2.4); --Added tolerance requirements for cavity size greater than 80 mm (see Table 3, Table 3 of the.2007 edition); --Changed the requirements for cavity position deviation and upper and lower cavity misalignment deviation (see 4.3.2, 4.3, 4.4,

4.5 of the.2007 edition); --Changed the gap requirements for the joints of inlaid structure molds (see 4.3.9,

4.16 of the.2007 edition); --Changed the provisions for overflow clearance, changing the qualitative "plastic fluidity" to the quantitative "resin flow length" (see 4.3.10,.2007 Version 4.18); --Added the relative vacuum degree requirements for vacuum molds (see 4.3.12); -- Added a chapter on "Test Methods" and incorporated the content related to the.2007 edition of the test mold after modification (see Chapter 5,.2007 edition). 5.4); -- Changed the chapter title "Acceptance" to "Inspection Rules", added inspection item requirements and test method corresponding rules (see Chapter 6, Chapter 5 of the.2007 edition); -- Changed the requirements for "marking", "packaging" and "transportation" (see 7.1, 7.2, 7.3,

6.2 of the.2007 edition), and added the requirement for "storage". Request (see 7.4). Please

note that some of the contents of this document may involve patents. The issuing organization of this document does not assume the responsibility for identifying patents. This document is proposed and coordinated by the National Technical Committee for Mould Standardization (SAC/TC 33). This document was drafted by: Tongling Sanjia Yamada Technology Co., Ltd., Chengdu Aviation Vocational and Technical College, Fujian Shipbuilding and Transportation Vocational College Institute, Chengdu Shangming Industrial Co., Ltd., Taizhou Huangyan District Metrology and Product Quality Safety Testing Institute, Ningbo Vocational and Technical College, Ningbo Xingli Automobile Mould Co., Ltd., Shenzhen AVIC Technology Testing Institute Co., Ltd., Shenzhen Yusheng Optoelectronics Co., Ltd., Junyue Technology (Shenzhen) Co., Ltd. Co., Ltd., Shenzhen Jingding Industrial Technology Co., Ltd., Shenzhen Ansheng Mould Co., Ltd., Shenzhen Baihelong Craft Products Co., Ltd. Co., Ltd., Guilin Electric Science Research Institute Co., Ltd., Guangxi Zhongnan Optoelectronics New Energy Co., Ltd., and Ningbo Yongqiang Technology Co., Ltd. The main drafters of this document are. Yang Yu, Bai Fengguang, Zou Zechang, Liu Minghua, Mou Saijie, Xiong Ruibin, Wu Rongwu, Wu Xibo, Chen Feng, He Rongqi, Guo Chao, Liu Yihuan, Fu Xiongcheng, Li Yongfei, Cao Jie, Wang Kesheng, Li Jun, Li Bangsong, Qiang Yuan. The previous versions of this document and the documents it replaces are as follows: --First published in.1993 as GB/T 14663-1993 and GB/T 14664-1993; --First revised in.2007 as GB/T 14663-2007; --This is the second revision.

Plastic packaging mold technical specifications

1 Scope

China's national technical specification for plastic package moulds - the tools used to encapsulate semiconductor devices in epoxy moulding compound, which is how essentially every integrated circuit and discrete component in the world is packaged. It specifies the structure, the parts, the assembly, and the safety and performance requirements of plastic package moulds, describes the corresponding test methods, and sets the inspection rules and the marking, packaging, transport and storage. A package mould is not an ordinary injection tool. It closes on a leadframe or a substrate carrying dies connected by wires a few tens of micrometres across, and it then forces a highly filled, abrasive thermoset compound through runners and gates around them: the compound has to fill every cavity completely and at the same time, without sweeping a bond wire out of position, without leaving a void, and without flashing onto the leads that will later be soldered. The requirements follow from that. The dimensional accuracy and the flatness of the mould faces, because a gap of a few micrometres is flash and a gap slightly larger is resin bleed onto the leads. The runner and gate design and the venting, which determine whether the cavities fill evenly. The materials and the surface treatment, since the moulding compound is filled with silica and is abrasive, and a mould that wears loses its dimensional control. The heating and its uniformity, the ejection, and the clamping. And the maintenance and cleaning provisions, because a package mould is cleaned constantly in production and the way it is cleaned decides its

working life. Issued on 29 September 2024 and in force since 1 April 2025, it replaces GB/T 14663-2007.

This document specifies the structure, parts, assembly, safety and performance requirements of plastic packaging molds, describes the corresponding test methods, and specifies the inspection rules, marking, packaging, transportation and storage. This document applies to the manufacture of plastic packaging molds for integrated circuits and (semiconductor) discrete components.

Note. In order to avoid confusion, the "plastic packaging mold" in this document is referred to as "mold".

2 Normative references

The contents of the following documents constitute the essential clauses of this document through normative references in this document. For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to This document.

GB/T 191 Pictorial markings for packaging and storage

GB/T 196 Basic dimensions of common threads

GB/T 197-2018 General thread tolerances GB/T 825 Eyebolt

GB/T 1184-1996 Shape and position tolerances without tolerance values

GB/T 1804-2000 General tolerances Tolerances of linear and angular dimensions without tolerance indication

GB/T 1958 Product Geometry Technical Specification (GPS) Geometric Tolerance Testing and Verification

GB 2894 Safety signs and their use guidelines

GB/T 3177 Product Geometry Specification (GPS) Inspection of smooth workpiece dimensions

GB/T 5270-2005 Review of test methods for adhesion strength of electrodeposited and chemically deposited metal coatings on metal substrates

GB/T 8845 Mould Terminology

GB/T 9969 General principles for instructions for use of industrial products

GB/T 10610 Product Geometry Specification (GPS) Rules and methods for evaluating surface structure by surface structure profile method

GB/T 11379 Chromium electroplating for metal coatings engineering GB/T 13306 Labels

3 Terms and definitions

The terms and definitions defined in GB/T 8845 apply to this document.

4.1 Structure

4.1.1 The structure of the plastic packaging mold is shown in Figure 1.

chinastandards.org · PREVIEW