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Integrated circuit 3D packaging-Requirement for bumping-wafer-sawing process and evaluation

集成电路三维封装 带凸点圆片划片工艺过程和评价要求

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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.

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

This document is under the jurisdiction of the National Technical Committee for Standardization of Integrated Circuits (SAC/TC599).

This document was drafted by the 58th Research Institute of China Electronics Technology Group Corporation and Shenzhou Loongson Intelligent Technology Co., Ltd.

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Integrated circuit 3D packaging wafer with bumps scribing process Process and evaluation requirements

1 Scope

This document specifies the scribing process for 12in and below integrated circuit 3D packaged bump wafers (hereinafter referred to as scribing process).

General requirements, detailed requirements and evaluation requirements. Note. 1 in = 2.54 cm.

This document is applicable to the scribing process of bumped wafers for integrated circuit 3D packaging with a size of 12 inches or less.

2 Normative references

GB/T 25915.1-2021

3 Terms and Definitions

The following terms and definitions apply to this document.

3.1 Bumpwafer

The external lead ends of the chip are wafers with bumps.

3.2 wafer-sawing

The process of separating the chip from the wafer by physical means.

4.1 Equipment, instruments and fixtures

The equipment and instruments required for the dicing process should be regularly inspected and calibrated. The fixtures should be intact and clean, and the specifications and dimensions should be consistent with the process requirements.

In order to adapt to the requirements, commonly used equipment, instruments and fixtures should meet the requirements of Table 1.

Table 1 Commonly used equipment, instruments and fixtures Serial No. Name Main Technical Requirements Application

1 Dicing Machine

Slicing size. 12in and below bump wafer Cutting speed. 0.1mm/s~300mm/s Spindle speed. 6000r/min~60000r/min Cumulative error. Scribing length >= 310mm, cumulative error <= 5μm Cutting accuracy. ±5μm