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

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**Electrostatic discharge sensitivity testing - Transmission line
pulse(TLP) - Component level**

静电放电敏感度试验 传输线脉冲 器件级

(English Translation)

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Reference

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.

This document is equivalent to IEC 62615:2010 "Electrostatic discharge sensitivity test transmission line pulse device level".

1 Scope

This document defines a Transmission Line Pulse (TLP) test method for evaluating the voltage and current response of a semiconductor device under test, taking into account Design parameters for electrostatic discharge (ESD) human body model (HBM) protection.

This document establishes a methodology for testing and reporting information related to TLP. The scope and focus of this document pertains to semiconductor devices TLP test technology.

This document is not a replacement for HBM test standards (e.g. IEC 60749-26). The purpose of this document is to establish the TLP method.

This document provides guidelines for correctly extracting HBMESE parameters using TLP. Standard measurements and procedures.

2 Normative references

This document has no normative references.

3 Terms and definitions

The following terms and definitions apply to this document.

Current source method the TLP method (sometimes called a 500ohm resistor) is a method that uses a 500ohm resistor in series with the device under test (DUT) and measures the voltage and current at the DUT.

called constant current method).

Destructive damage

Damage that causes changes in operating electrical characteristics or parameters and cannot be restored to the initial state before the stress was applied.

safe operation area safe operation area; SOA the current and voltage conditions under which a device operates normally without degradation.

Second breakdown

A condition in which a negative resistance state occurs in a device due to thermal processes.

NOTE: This is specified as the voltage trigger point V_{t2} and current I_{t2} , which are usually observed after electrical breakdown (e.g., V_{t1} , I_{t1}).

Thermal instability

A condition where the device is in a negative resistance state due to thermal processes.

The TLP method uses an oscilloscope to measure the incident and reflected waves of the DUT.