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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 4937.12-2018

Semiconductor devices -- Mechanical and climatic test methods -- Part 12: Vibration, variable frequency

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Foreword

GB/T 4937 "Mechanical and Climatic Test Methods for Semiconductor Devices" consists of the following components.

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This part is the 12th part of GB/T 4937.

This part is drafted in accordance with the rules given in GB/T 1.1-2009.

This section uses the translation method equivalent to IEC 60749-12.2002 "Semiconductor device mechanical and climatic test methods Part 12.

Sweeping vibration.

1 Scope

The purpose of this part of GB/T 4937 is to determine the effect of vibration on the device over a specified frequency range. This test is a destructive test

It is usually used for devices with cavities.

This test is basically the same as GB/T 2423.10-2008, but in view of the special requirements of semiconductor devices, the terms of this part are adopted.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only dated versions apply to this article.

Pieces. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 2423.10-2008 Environmental testing for electric and electronic products - Part 2. Test method test Fc. Vibration (sinusoidal)

(IEC 60068-2-6.1995, IDT)

3 test equipment

The equipment required for this test includes a vibration device capable of sweeping vibration under specified conditions, and the light necessary for measurement after the test.

Learning and electrical equipment.

4 test procedure

The sample should be rigidly mounted on the shaker table and the terminals and cables should be securely secured to avoid introducing additional lead resonance. Should be made

The product is a simple harmonic vibration with a magnitude of twice the amplitude of 1.5 mm (peak-to-peak) or a peak acceleration of.200 m/s2, whichever is smaller. Vibration frequency

The rate is approximately logarithmic in the range of 20 Hz to.2000 Hz. From 20Hz to.2000Hz and back to the entire frequency range of 20Hz

The moving time should not be less than 4 minutes. This cycle was performed 4 times in each of the X, Y, and Z directions (12 times in total).

4.1 Inspection

Visual inspection, electrical performance testing (including electrical parameter testing and functional testing) and sealing inspection (gas) in accordance with the relevant documents

Closed package device).

4.2 Failure criteria

According to the provisions of the relevant documents, if the parameters of the device are out of tolerance, the function is lost under normal or extreme conditions, the sealing device leaks, etc.

In the case, the device is judged to be invalid. Magnify 10 times to 20 times to check if there is package crack, breakage or breakage caused by non-installation or human operation.

When the mechanical damage is caused, the device is judged to be invalid.

5 Description

Relevant documents should specify the following.