IEC 60749-10

Edition 2.0 2022-04

INTERNATIONAL STANDARD

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inside

Semiconductor devices – Mechanical and climatic test methods –
Part 10: Mechanical shock – Device and subassembly

Dispositifs à semiconducteurs – Méthodes d'essais mécaniques et climatiques –
Partie 10: Chocs mécaniques – Dispositif et sous-ensemble

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ICS 31.080.01

ISBN 978-2-8322-1100-4

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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SEMICONDUCTOR DEVICES –
MECHANICAL AND CLIMATIC TEST METHODS –

Part 10: Mechanical shock – Device and subassembly

FOREWORD

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This standard is based upon JEDEC document JESD22-B110. It is used with permission of the copyright holder, JEDEC Solid State Technology Association.

This edition cancels and replaces the first edition published in 2002. This edition includes the following significant technical changes with respect to the previous edition:

a) covers both unattached components and components attached to printed wiring boards;
b) tolerance limits modified for peak acceleration and pulse duration;
c) mathematical formulae added for velocity change and equivalent drop height.

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The text of this International Standard is based on the following documents:

Draft	Report on voting
47/2752/FDIS	47/2760/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

A list of all the parts of the IEC 60749 series, under the general title *Semiconductor devices – Mechanical and climatic test methods*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific document. At this date, the document will be

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SEMICONDUCTOR DEVICES – MECHANICAL AND CLIMATIC TEST METHODS –

Part 10: Mechanical shock – Device and subassembly

1 Scope

This part of IEC 60749 is intended to evaluate devices in the free state and assembled to printed wiring boards for use in electrical equipment. The method is intended to determine the compatibility of devices and subassemblies to withstand moderately severe shocks. The use of subassemblies is a means to test devices in usage conditions as assembled to printed wiring boards. Mechanical shock due to suddenly applied forces, or abrupt change in motion produced by handling, transportation or field operation can disturb operating characteristics, particularly if the shock pulses are repetitive. This is a destructive test intended for device qualification.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

3.1

component

constituent part of device or subassembly

Note 1 to entry: Examples include source and drain regions as components of transistors, lead frames and dice as components of packaged integrated circuits, resistors and integrated circuits as components of printed circuit boards, motherboards as components of computers, LCD screens as components of monitors, ac and dc components of complex waveforms, and loops and algorithms as components of software programs.

Note 2 to entry: The classification of an item as a device or a component depends upon the intention of the owner at the time of classification.

3.2

dead-bug orientation

orientation of a package with the terminals facing upwards

3.3

device

piece of equipment, mechanism, or other entity designed to serve a special purpose or perform a special function

Note 1 to entry: The term device is often used as an abbreviated reference to the type or types of solid-state devices that are within the scope of those documents. Context could indicate otherwise; e.g., in the phrase ’the device used to hold the device under test‘, the first usage of the word ’device‘ refers to a mechanism; the second to a solid-state device.

Note 2 to entry: The classification of an item as a device or as a component depends upon the intention of the owner at the time of classification.

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