Semiconductor devices - Mechanical and climatic test methods - Part 26: Electrostatic discharge (ESD) sensitivity testing - Human body model (HBM)

EESTI STANDARDIMIS- JA AKREDITEERIMISKESKUS
ESTONIAN CENTRE FOR STANDARDISATION AND ACCREDITATION

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN IEC 60749-26:2026 sisaldab Euroopa standardi EN IEC 60749-26:2026 ingliskeelset teksti.	This Estonian standard EVS-EN IEC 60749-26:2026 consists of the English text of the European standard EN IEC 60749-26:2026.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 20.02.2026.	Date of Availability of the European standard is 20.02.2026.
Standard on kättesaadav Eesti Standardimis-ja Akrediteerimiskeskusest.	The standard is available from the Estonian Centre for Standardisation and Accreditation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

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EUROPEAN STANDARD

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English Version

Semiconductor devices - Mechanical and climatic test methods - Part 26: Electrostatic discharge (ESD) sensitivity testing - Human body model (HBM) (IEC 60749-26:2025)

Dispositifs à semiconducteurs - Méthodes d'essais mécaniques et climatiques - Partie 26: Essai de sensibilité aux décharges électrostatiques (DES) - Modèle du corps humain (HBM)
(IEC 60749-26:2025)

Halbleiterbauelemente - Mechanische und klimatische Prüfverfahren - Teil 26: Prüfung der Empfindlichkeit gegen elektrostatische Entladungen (ESD) - Human Body Model (HBM)
(IEC 60749-26:2025)

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

European foreword

The text of document 47/2963/FDIS, future edition 5 of IEC 60749-26, prepared by TC 47 "Semiconductor devices" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60749-26:2026.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2027-02-28
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2029-02-28

This document supersedes EN IEC 60749-26:2018 and all of its amendments and corrigenda (if any).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website.

Endorsement notice

The text of the International Standard IEC 60749-26:2025 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standard indicated:

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IEC 60749-27 NOTE Approved as EN 60749-27

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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Semiconductor devices - Mechanical and climatic test methods - Part 26: Electrostatic discharge (ESD) sensitivity testing - Human body model (HBM)

FOREWORD

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IEC 60749-26 has been prepared by IEC technical committee 47: Semiconductor devices in collaboration with technical committee 101: Electrostatics. It is an International Standard.

This fifth edition cancels and replaces the fourth edition published in 2018. This edition constitutes a technical revision. This standard is based upon ANSI/ESDA/JEDEC JS-001-2023. It is used with permission of the copyright holders, ESD Association and JEDEC Solid state Technology Association.

This edition includes the following significant technical changes with respect to the previous edition:

a) new definitions have been added;
b) text has been added to clarify the designation of and allowances resulting from “low parasitics”. The new designation includes the maximum number of pins of a device that can pass the test procedure.

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

Draft	Report on voting
47/2963/FDIS	47/2984/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/publications.

A list of all parts in the IEC 60749 series, published 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 webstore.iec.ch in the data related to the specific document. At this date, the document will be

– reconfirmed,
– withdrawn, or
– revised.

1 Scope

This part of IEC 60749 establishes the procedure for testing, evaluating, and classifying components and microcircuits in accordance with their susceptibility (sensitivity) to damage or degradation by exposure to a defined human body model (HBM) electrostatic discharge (ESD).

The purpose of this document is to establish a test method that will replicate HBM failures and provide reliable, repeatable HBM ESD test results from tester to tester, regardless of component type. Repeatable data will allow accurate classifications and comparisons of HBM ESD sensitivity levels.

ESD testing of semiconductor devices is selected from this test method, the machine model (MM) test method (see IEC 60749-27) or other ESD test methods in the IEC 60749 series. Unless otherwise specified, this test method is the one selected.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

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

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

3.1
above-passivation layer
APL
low-impedance metal plane built on the surface of a die, above the passivation layer, which connects a group of bumps or pins

Note 1 to entry This structure is sometimes referred to as a redistribution layer (RDL). There can be multiple APLs (sometimes referred to as islands) for a power or ground group.

Note 2 to entry: The group of bumps or pins is typically a power group or a ground group.

3.2
cloned non-supply pin
set of input, output or bidirectional pins using the same I/O cell and electrical schematic and sharing the same associated supply pin group(s) including ESD power clamp(s)

3.3
component
item such as a resistor, diode, transistor, integrated circuit (IC) or hybrid circuit

3.4
component failure
condition in which a tested component does not meet one or more specified static or dynamic data sheet parameters