Semiconductor devices - Mechanical and climatic test methods - Part 23: High temperature operating life

EESTI STANDARDIMIS- JA AKREDITEERIMISKESKUS
ESTONIAN CENTRE FOR STANDARDISATION AND ACCREDITATION

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN IEC 60749-23:2026 sisaldab Euroopa standardi EN IEC 60749-23:2026 ingliskeelset teksti.	This Estonian standard EVS-EN IEC 60749-23:2026 consists of the English text of the European standard EN IEC 60749-23:2026.
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 30.01.2026.	Date of Availability of the European standard is 30.01.2026.
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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EN IEC 60749-23

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English Version

Semiconductor devices - Mechanical and climatic test methods - Part 23: High temperature operating life (IEC 60749-23:2025)

Dispositifs à semiconducteurs - Méthodes d'essais mécaniques et climatiques - Partie 23 : Durée de vie en fonctionnement à haute température (IEC 60749-23:2025)

Halbleiterbauelemente - Mechanische und klimatische Prüfverfahren - Teil 23: Lebensdauer bei hoher Temperatur (IEC 60749-23:2025)

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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

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European foreword

The text of document 47/2962/FDIS, future edition 2 of IEC 60749-23, prepared by TC 47 "Semiconductor devices" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60749-23:2026.

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) 2027-01-31
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2029-01-31

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In the official version, for Bibliography, the following note has to be added for the standard indicated:

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INTERNATIONAL STANDARD

NORME INTERNATIONALE

Semiconductor devices - Mechanical and climatic test methods - Part 23: High temperature operating life

Dispositifs à semiconducteurs - Méthodes d'essais mécaniques et climatiques - Partie 23: Durée de vie en fonctionnement à haute température

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Semiconductor devices - Mechanical and climatic test methods - Part 23: High temperature operating life

FOREWORD

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IEC 60749-23 has been prepared by IEC technical committee 47: Semiconductor devices. It is an International Standard.

This second edition cancels and replaces the first edition published in 2004 and Amendment 1:2011. It is based on JEDEC JESD22-A108G. It is used with permission of the copyright holder, JEDEC Solid State Technology Association. This edition constitutes a technical revision.

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

a) absolute stress test definitions and resultant test durations have been updated.

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

Draft	Report on voting
47/2962/FDIS	47/2983/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 specifies the test used to determine the effects of bias conditions and temperature on solid state devices over time. It simulates the device operating condition in an accelerated way and is primarily for device qualification and reliability monitoring. A form of high temperature bias life using a short duration, popularly known as "burn-in", can be used to screen for infant-mortality related failures. The detailed use and application of burn-in is outside the scope of this document.

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
maximum operating voltage
maximum supply voltage at which a device is specified to operate in compliance with the applicable device specification or data sheet

3.2
absolute maximum rated voltage
maximum voltage that can be applied to a device, beyond which damage (latent or otherwise) is likely to occur

Note 1 to entry: It is frequently specified by device manufacturers for a specific device or technology, or both.

3.3
absolute maximum rated junction temperature
maximum junction temperature of an operating device beyond which damage (latent or otherwise) will likely occur

Note 1 to entry: It is frequently specified by device manufacturers for a specific device or technology, or both.

Note 2 to entry: Manufacturers can also specify maximum case temperatures for specific packages.

4 Test apparatus

4.1 Testing requirements

The performance of this test requires equipment that is capable of providing the particular stress conditions to which the test samples will be subjected.

4.2 Circuitry

The circuitry through which the samples will be biased shall be designed to take into account several considerations, as outlined below.