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Semiconductor devices - Mechanical and climatic test methods - Part 5: Steady-state temperature humidity bias life test

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 03/24

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EUROPEAN STANDARD

EN IEC 60749-5

NORME EUROPÉENNE

EUROPÄISCHE NORM

January 2024

ICS 31.080.01

Supersedes EN 60749-5:2017

English Version

**Semiconductor devices - Mechanical and climatic test methods -
Part 5: Steady-state temperature humidity bias life test
(IEC 60749-5:2023)**

Dispositifs à semiconducteurs - Méthodes d'essais
mécaniques et climatiques - Partie 5: Essai continu de
durée de vie sous température et humidité avec polarisation
(IEC 60749-5:2023)

Halbleiterbauelemente - Mechanische und klimatische
Prüfverfahren - Teil 5: Lebensdauerprüfung bei konstanter
Temperatur und Feuchte unter elektrischer Beanspruchung
(IEC 60749-5:2023)

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Europäisches Komitee für Elektrotechnische Normung

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EN IEC 60749-5:2024 (E)**European foreword**

The text of document 47/2820/FDIS, future edition 3 of IEC 60749-5, prepared by IEC/TC 47 "Semiconductor devices" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60749-5:2024.

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- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2024-10-23
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Annex ZA (normative)

Normative references to international publications with their corresponding European publications

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NOTE 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

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<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60749-4	-	Semiconductor devices - Mechanical and climatic test methods - Part 4: Damp heat, steady state, highly accelerated stress test (HAST)	EN 60749-4	-



IEC 60749-5

Edition 3.0 2023-12

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Semiconductor devices – Mechanical and climatic test methods –
Part 5: Steady-state temperature humidity bias life test**

**Dispositifs à semiconducteurs – Méthodes d'essais mécaniques et climatiques –
Partie 5: Essai continu de durée de vie sous température et humidité avec
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Edition 3.0 2023-12

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Semiconductor devices – Mechanical and climatic test methods –
Part 5: Steady-state temperature humidity bias life test**

**Dispositifs à semiconducteurs – Méthodes d'essais mécaniques et climatiques –
Partie 5: Essai continu de durée de vie sous température et humidité avec
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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**SEMICONDUCTOR DEVICES –
MECHANICAL AND CLIMATIC TEST METHODS –****Part 5: Steady-state temperature humidity bias life test**

FOREWORD

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IEC 60749-5 has been prepared by IEC technical committee 47: Semiconductor devices. It is an International Standard.

This third edition, based on JEDEC document JESD22-A101D.01, cancels and replaces the second edition published in 2017. 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) the specification of the test equipment is changed to require the need to minimize relative humidity gradients and maximize air flow between semiconductor devices under test;

- b) the specification of the test equipment fixtures is changed to require the avoidance of condensation on devices under test and on electrical fixtures connecting the devices to the test equipment;
- c) replacement of references to “virtual junction” with “die”.

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

Draft	Report on voting
47/2820/FDIS	47/2827/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 of the IEC 60749 series, under the general title *Semiconductor devices – Mechanical and climatic test methods*, can be found in 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.

SEMICONDUCTOR DEVICES – MECHANICAL AND CLIMATIC TEST METHODS –

Part 5: Steady-state temperature humidity bias life test

1 Scope

This part of IEC 60749 provides a steady-state temperature and humidity bias life test to evaluate the reliability of non-hermetic packaged semiconductor devices in humid environments.

This test method is considered destructive.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60749-4, *Semiconductor devices – Mechanical and climatic test methods – Part 4: Damp heat, steady-state, highly accelerated stress test (HAST)*