ICS 31.080.01 SLOVENSKÁ TECHNICKÁ NORMA Január 2021

STN	**Polovodičové súčiastky Mechanické a klimatické skúšobné metódy Časť 30: Predpríprava nehermetických súčiastok na povrchovú montáž pred skúšaním spoľahlivosti**	**STN EN IEC 60749-30 35 8799**

Semiconductor devices - Mechanical and climatic test methods - Part 30: Preconditioning of non-hermetic surface mount devices prior to reliability testing

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. 12/20

Obsahuje: EN IEC 60749-30:2020, IEC 60749-30:2020

Oznámením tejto normy sa od 21.09.2023 ruší
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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN IEC 60749-30

September 2020

ICS 31.080.01

Supersedes EN 60749-30:2005 and all of its amendments and corrigenda (if any)

English Version

Semiconductor devices - Mechanical and climatic test methods - Part 30: Preconditioning of non-hermetic surface mount devices prior to reliability testing (IEC 60749-30:2020)

Dispositifs à semiconducteurs - Méthodes d'essais mécaniques et climatiques - Partie 30: Préconditionnement des composants pour montage en surface non hermétiques avant les essais de fiabilité (IEC 60749-30:2020)

Halbleiterbauelemente - Mechanische und klimatische Prüfverfahren - Teil 30: Behandlung nicht hermetisch verkappter oberflächenmontierbarer Bauelemente vor Zuverlässigkeitsprüfungen (IEC 60749-30:2020)

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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

Ref. No. EN IEC 60749-30:2020 E

EN IEC 60749-30:2020 (E)

European foreword

The text of document 47/2633(F)/FDIS, future edition 2 of IEC 60749-30, prepared by IEC/TC 47 “Semiconductor devices” was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60749-30:2020.

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)	2021-06-21
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2023-09-21

This document supersedes EN 60749-30:2005 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.

Endorsement notice

The text of the International Standard IEC 60749-30:2020 was approved by CENELEC as a European Standard without any modification.

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

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.

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

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

Publication	Year	Title	EN/HD	Year
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	-	Semiconductor devices - Mechanical and climatic test methods - Part 5: Steady-state temperature humidity bias life test	EN 60749-5	-
IEC 60749-11	-	Semiconductor devices - Mechanical and climatic test methods - Part 11: Rapid change of temperature - Two-fluid-bath method	EN 60749-11	-
IEC 60749-20	2020	Semiconductor devices - Mechanical and climatic test methods - Part 20: Resistance of plastic encapsulated SMDs to the combined effect of moisture and soldering heat	FprEN 60749-20	2020
IEC 60749-24	-	Semiconductor devices - Mechanical and climatic test methods - Part 24: Accelerated moisture resistance - Unbiased HAST	EN 60749-24	-
IEC 60749-25	2003	Semiconductor devices - Mechanical and climatic test methods - Part 25: Temperature cycling	EN 60749-25	2003
IEC 60749-33	-	Semiconductor devices - Mechanical and climatic test methods - Part 33: Accelerated moisture resistance - Unbiased autoclave	EN 60749-33	-

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INTERNATIONAL STANDARD

NORME INTERNATIONALE

Semiconductor devices – Mechanical and climatic test methods – Part 30: Preconditioning of non-hermetic surface mount devices prior to reliability testing

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SEMICONDUCTOR DEVICES – MECHANICAL AND CLIMATIC TEST METHODS –

Part 30: Preconditioning of non-hermetic surface mount devices prior to reliability testing

FOREWORD

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International Standard IEC 60749-30 has been prepared by IEC technical committee 47: Semiconductor devices.

This second edition cancels and replaces the first edition published in 2005 and Amendment 1:2011. This edition constitutes a technical revision.

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

a) inclusion of new Clause 3;
b) expansion of 6.7 on solder reflow;
c) inclusion of explanatory notes and clarifications.

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

FDIS	Report on voting
47/2633/FDIS	47/2644/RVD

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

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 "http://webstore.iec.ch" in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

SEMICONDUCTOR DEVICES – MECHANICAL AND CLIMATIC TEST METHODS –

Part 30: Preconditioning of non-hermetic surface mount devices prior to reliability testing

1 Scope

This part of IEC 60749 establishes a standard procedure for determining the preconditioning of non-hermetic surface mount devices (SMDs) prior to reliability testing.

The test method defines the preconditioning flow for non-hermetic solid-state SMDs representative of a typical industry multiple solder reflow operation.

These SMDs are subjected to the appropriate preconditioning sequence described in this document prior to being submitted to specific in-house reliability testing (qualification and/or reliability monitoring) in order to evaluate long term reliability (impacted by soldering stress).

NOTE 1 Correlation of moisture-induced stress sensitivity conditions (or moisture sensitivity levels (MSL)) in accordance with IEC 60749-20 and this document and the actual reflow conditions used are dependent upon identical temperature measurement by both the semiconductor manufacturer and the board assembler. Therefore, the temperature at the top of the package on the hottest moisture sensitive SMD during assembly is monitored to ensure that it does not exceed the temperature at which the components are evaluated.

NOTE 2 For the purpose of this document, SMD is restricted to include only plastic-encapsulated SMDs and other packages made with moisture-permeable materials.

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)*

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

IEC 60749-11, *Semiconductor devices – Mechanical and climatic test methods – Part 11: Rapid change of temperature – Two-fluid-bath method*

IEC 60749-20:2020, *Semiconductor devices – Mechanical and climatic test methods – Part 20: Resistance of plastic encapsulated SMDs to the combined effects of moisture and soldering heat*

IEC 60749-24, *Semiconductor devices – Mechanical and climatic test methods – Part 24: Accelerated moisture resistance – Unbiased HAST*

IEC 60749-25:2003, *Semiconductor devices – Mechanical and climatic test methods – Part 25: Temperature cycling*

IEC 60749-33, *Semiconductor devices – Mechanical and climatic test methods – Part 33: Accelerated moisture resistance – Unbiased autoclave.*