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Semiconductor devices - Mechanical and climatic test methods - Part 21: Solderability

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. 04/26

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English Version

Semiconductor devices - Mechanical and climatic test methods - Part 21: Solderability (IEC 60749-21:2025)

Dispositifs à semiconducteurs - Méthodes d'essais mécaniques et climatiques - Partie 21: Brasabilité
(IEC 60749-21:2025)

Halbleiterbauelemente - Mechanische und klimatische Prüfverfahren - Teil 21: Lötbarkeit
(IEC 60749-21:2025)

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European foreword

The text of document 47/2961/FDIS, future edition 3 of IEC 60749-21, prepared by TC 47 "Semiconductor devices" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60749-21:2026.

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• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2029-01-31

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The text of the International Standard IEC 60749-21:2025 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:

IEC 60068-2-69	NOTE	Approved as EN 60068-2-69
IEC 60749-15	NOTE	Approved as EN IEC 60749-15
IEC 60749-20	NOTE	Approved as EN IEC 60749-20

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.cencenelec.eu.

Publication	Year	Title	EN/HD	Year
IEC 61190-1-2	2014	Attachment materials for electronic assembly - Part 1-2: Requirements for soldering pastes for high-quality interconnects in electronics assembly	EN 61190-1-2	2014
IEC 61190-1-3	2017	Attachment materials for electronic assembly - Part 1-3: Requirements for electronic grade solder alloys and fluxed and non-fluxed solid solder for electronic soldering applications	EN IEC 61190-1-3	2018

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CONTENTS

FOREWORD....3
1 Scope....5
2 Normative references....5
3 Terms and definitions....5
4 Test apparatus and materials....5
  4.1 Solder bath....5
  4.2 Dipping device....5
  4.3 Optical equipment....6
  4.4 Steam ageing equipment....6
  4.5 Lighting equipment....6
  4.6 Materials....6
    4.6.1 Flux....6
    4.6.2 Solder....7
  4.7 SMD reflow equipment....7
    4.7.1 Stencil or screen....7
    4.7.2 Rubber squeegee or metal spatula....7
    4.7.3 Test substrate....8
    4.7.4 Solder paste....8
    4.7.5 Reflow equipment....9
    4.7.6 Flux removal solvent....9
5 Procedures....9
  5.1 Lead-free backward compatibility....9
  5.2 Preconditioning....9
    5.2.1 General....9
    5.2.2 Preconditioning by steam ageing....9
    5.2.3 Preconditioning by high temperature storage....10
  5.3 Dip and look solderability testing....10
    5.3.1 General....10
    5.3.2 Solder dip conditions....11
    5.3.3 Procedure....11
  5.4 Procedure for simulated board mounting reflow solderability testing of SMDs....16
    5.4.1 General....16
    5.4.2 Test equipment set-up....17
    5.4.3 Specimen preparation and surface condition....18
    5.4.4 Visual inspection....19
6 Summary....19
Bibliography....20

Figure 1 – Areas to be inspected for gullwing packages....14
Figure 2 – Areas to be inspected for J-lead packages....15
Figure 3 – Areas to be inspected in rectangular components (SMD method)....15
Figure 4 – Areas to be inspected in SOIC and QFP packages (SMD method)....16
Figure 5 – Flat peak type reflow profile....18

Table 1 – Steam ageing conditions....9

Table 2 – Altitude versus steam temperature 10
Table 3 – Solder dip test conditions 11
Table 4 – Maximum limits of solder bath contaminant 13

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Semiconductor devices - Mechanical and climatic test methods - Part 21: Solderability

FOREWORD

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IEC 60749-21 has been prepared by IEC technical committee 47: Semiconductor devices. It is an International Standard.

This third edition cancels and replaces the second edition published in 2011. This edition constitutes a technical revision.

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

a) revision to certain operating conditions in line with current working practices.

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

Draft	Report on voting
47/2961/FDIS	47/2982/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 a standard procedure for determining the solderability of device package terminations that are intended to be joined to another surface using tin-lead (SnPb) or lead-free (Pb-free) solder for the attachment.

This test method provides a procedure for “dip and look” solderability testing of through hole, axial and surface mount devices (SMDs) as well as an optional procedure for a board mounting solderability test for SMDs for the purpose of allowing simulation of the soldering process to be used in the device application. The test method also provides optional conditions for ageing.

This test is considered destructive unless otherwise detailed in the relevant specification.

NOTE 1 This test method does not assess the effect of thermal stresses which can occur during the soldering process. More details can be found in IEC 60749-15 or IEC 60749-20.

NOTE 2 If a qualitative test method is preferred, the Wetting balance test method can be found in IEC 60068-2-69.

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 61190-1-2:2014, *Attachment materials for electronic assembly - Part 1-2: Requirements for soldering pastes for high-quality interconnects in electronics assembly*

IEC 61190-1-3:2017, *Attachment materials for electronic assembly - Part 1-3: Requirements for electronic grade solder alloys and fluxed and non-fluxed solid solders for electronic soldering applications*