SLOVENSKI STANDARD
SIST EN IEC 61760-1:2026

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Nadomešča:
SIST EN IEC 61760-1:2022

Tehnologija površinske montaže - 1. del: Standardna metoda za specifikacijo komponent za površinsko montažo (SMDs)

Surface mounting technology - Part 1: Standard method for the specification of surface mounting components (SMDs).

Oberflächenmontagetechnik - Teil 1: Genormtes Verfahren zur Spezifizierung oberflächenmontierbarer Bauelemente (SMDs)

Technique du montage en surface - Partie 1: Méthode normalisée pour la spécification des composants pour montage en surface (CMS)

Ta slovenski standard je istoveten z: **EN IEC 61760-1:2026**

ICS:

31.190	Sestavljeni elektronski elementi	Electronic component assemblies

SIST EN IEC 61760-1:2026 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN IEC 61760-1

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English Version

Surface mounting technology - Part 1: Standard method for the specification of surface mounting components (SMDs) (IEC 61760-1:2026)

Technologie de montage en surface - Partie 1: Méthode normalisée pour la spécification des composants pour montage en surface (CMS)
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Oberflächenmontagetechnik - Teil 1: Genormtes Verfahren zur Spezifizierung oberflächenmontierbarer Bauelemente (SMDs)
(IEC 61760-1:2026)

This European Standard was approved by CENELEC on 2026-07-28. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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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 91/2103/FDIS, future edition 4 of IEC 61760-1, prepared by TC 91 "Electronics assembly technology" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 61760-1:2026.

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) 2027-08-31
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2029-08-31

This document supersedes EN IEC 61760-1:2020 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 61760-1:2026 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 60664-4	NOTE	Approved as EN 60664-4
IEC 61188-6-2	NOTE	Approved as EN IEC 61188-6-2
IEC 61189-5-504	NOTE	Approved as EN IEC 61189-5-504
IEC 60062	NOTE	Approved as EN 60062
IEC 63378 (series)	NOTE	Approved as EN IEC 63378 (series)
IEC 60068-2-45:1980	NOTE	Approved as EN 60068-2-45:1992 (not modified)
IEC 60068-2-45:1980/A1:1993	NOTE	Approved as EN 60068-2-45:1992/A1:1993 (not modified)

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 60068-2-2	-	Environmental testing - Part 2-2: Tests - Test B: Dry heat	EN IEC 60068-2-2	-
IEC 60068-2-21	-	Environmental testing - Part 2-21: Tests - Test U: Robustness of terminations and integral mounting devices	EN IEC 60068-2-21	-
IEC 60068-2-58	-	Environmental testing - Part 2-58: Tests - Test Td: Test methods for solderability, resistance to dissolution of metallization and to soldering heat of surface mounting devices (SMD)	EN 60068-2-58	-
IEC 60068-2-88	-	Environmental testing - Part 2-88: Tests - Test XD: Resistance of components and assemblies to liquid cleaning media	EN IEC 60068-2-88	-
IEC 60191-6	-	Mechanical standardization of semiconductor devices - Part 6: General rules for the preparation of outline drawings of surface mounted semiconductor device packages	EN 60191-6	-
IEC 60194-2	-	Printed boards design, manufacture and assembly - Vocabulary - Part 2: Common usage in electronic technologies as well as printed board and electronic assembly technologies	-	-
IEC 60286-3	-	Packaging of components for automatic handling - Part 3: Packaging of surface mount components on continuous tapes	EN IEC 60286-3	-
IEC 60286-4	-	Packaging of components for automatic handling - Part 4: Stick magazines for electronic components encapsulated in packages of different forms	EN 60286-4	-
IEC 60286-5	-	Packaging of components for automatic handling - Part 5: Matrix trays	EN IEC 60286-5	-
IEC 60286-6	-	Packaging of components for automatic handling - Part 6: Bulk case packaging for surface mounting components	EN 60286-6	-

Publication	Year	Title	EN/HD	Year
IEC 60664-1	-	Insulation coordination for equipment within low-voltage supply systems - Part 1: Principles, requirements and tests	EN IEC 60664-1	-
IEC 60749-20	-	Semiconductor devices - Mechanical and climatic test methods - Part 20: Resistance of plastic encapsulated SMDs to the combined effect of moisture and soldering heat	EN IEC 60749-20	-
IEC 61188-6-4	-	Printed boards and printed board assemblies - Design and use - Part 6-4: Land pattern design - Generic requirements for dimensional drawings of surface mounted components (SMD) from the viewpoint of land pattern design	EN IEC 61188-6-4	-
IEC 61340-5-1	-	Electrostatics - Part 5-1: Protection of electronic devices from electrostatic phenomena - General requirements	EN IEC 61340-5-1	-
IEC 61340-5-3	-	Electrostatics - Part 5-3: Protection of electronic devices from electrostatic phenomena - Properties and requirements classification for packaging intended for electrostatic discharge sensitive devices	EN IEC 61340-5-3	-
IEC 61760-2	-	Surface mounting technology - Part 2: Transportation and storage conditions of surface mounting devices (SMD) - Application guide	EN IEC 61760-2	-
IEC 61760-4	-	Surface mounting technology - Part 4: Classification, packaging, labelling and handling of moisture sensitive devices	EN IEC 61760-4	-
IEC 62090	-	Product package labels for electronic components using bar code and two-dimensional symbologies	EN 62090	-
IPC/JEDEC J-STD-020	-	Moisture/reflow classification for nonhermetic solid state surface mount devices	-	-
IPC/JEDEC J-STD-033	-	Handling, Packing, Shipping and Use of oisture/Reflow Sensitive Surface Mount Devices	-	-

IEC 61760-1

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INTERNATIONAL STANDARD

Surface mounting technology -
Part 1: Standard method for the specification of surface mounting components (SMDs)

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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Surface mounting technology - Part 1: Standard method for the specification of surface mounting components (SMDs)

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.

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IEC 61760-1 has been prepared by IEC technical committee 91: Electronics assembly technology. It is an International Standard.

This fourth edition cancels and replaces the third published in 2020. This edition constitutes a technical revision.

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

a) added new subclause 4.2 – Classification of electronic assemblies;

b) added new subclause 4.4.8 – Creepage and clearance distances - Insulation coordination;

c) added new subclause 4.9 – Thermal and electrical performance;

d) updated Clause 6 – Soldering: now including requirements related to application of low temperature solders;

e) added new subclause 6.2.2 – Commonly used solder alloys;

f) updated subclause 6.3.6 – Resistance to vacuum during soldering;

g) updated subclause 6.3.7 – Resistance to cleaning media and processes - now includes the tests in IEC 60068-2-88, *Tests – Test XD: Resistance of components and assemblies to liquid cleaning media*;

h) added new subclause 6.3.9 – Rework of soldered components;

i) added new Annex B – Sustainability.

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

FDIS	Report on voting
91/2103/FDIS	91/2113/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 61760 series, published under the general title *Surface mounting technology*, 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, or

– replaced.

INTRODUCTION

Specifications for electronic components have in the past been formulated for each component family. The regulations for environmental tests have been selected from IEC 60068 and other IEC and ISO publications. The intention for this procedure was that all components, once installed in a piece of equipment, had to satisfy certain criteria.

The introduction and increasing use of different mounting processes on one assembly make it essential to extend the existing requirements to include those arising from processing during assembly.

Nevertheless, there existed no harmonized standard that prescribes the content of a component specification before the publication of this document. It is the purpose of this document to define the general requirements for component specifications derived from the assembly processes. This is done in three steps.

In the first step, general requirements for component specifications and component design related to the handling and placement of the component on the substrate are given (Clause 4). In the second step, the requirements related to assembly processes are given (Clause 5). In the third step, additional requirements resulting from specific mounting methods are given (from Clause 6 to Clause 9).

Additional consideration with respect to the through-hole components are crucial to mixed technology boards, i.e. boards containing through-hole components and SMDs. These can be subject to the same requirements as the SMDs. Persons responsible for drafting specifications for "non-surface mounting components" wishing to include a statement on their ability to withstand surface mounting conditions should use the classifications and tests set out in the present document.

1 Scope

This part of IEC 61760 defines requirements for component specifications of electronic components that are intended for usage in surface mounting technology. To this end, it specifies a reference set of process conditions and related test conditions to be considered when compiling component specifications.

The objective of this document is to ensure that a wide variety of SMDs can be subjected to the same placement, mounting and subsequent processes (e.g. cleaning, inspection) during assembly. This document defines tests and requirements that are included in any SMD component's general, sectional or detail specification. In addition, this document provides component users and manufacturers with a reference set of typical process conditions used in surface mounting technology.

Some of the requirements for component specifications in this document are also applicable to components with leads intended for mounting on a circuit board, including solderless interconnection technology. Cases for which this is appropriate are indicated in the relevant subclauses.

NOTE Solderless interconnection technology refers to a mounting method which is not part of the surface-mounting process and the components do not undergo a soldering operation. Such components are included in this document because the mounting of components for solderless interconnection commonly occurs after the mounting of SMDs.

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 60068–2–2, *Environmental testing – Part 2-2: Tests – Test B: Dry heat*

IEC 60068–2–21, *Environmental testing – Part 2-21: Tests – Test U: Robustness of terminations and integral mounting devices*

IEC 60068–2–58, *Environmental testing – Part 2-58: Tests – Test Td: Test methods for solderability, resistance to dissolution of metallization and to soldering heat of surface mounting devices (SMDs)*

IEC 60068-2-88, *Environmental testing - Part 2-88: Tests – Test XD: Resistance of components and assemblies to liquid cleaning media*

IEC 60191–6, *Mechanical standardization of semiconductor devices – Part 6: General rules for the preparation of outline drawings of surface mounted semiconductor device packages*

IEC 60194–2, *Printed boards design, manufacture and assembly – Vocabulary – Part 2: Common usage in electronic technologies as well as printed board and electronic assembly technologies*

IEC 60286-3, *Packaging of components for automatic handling - Part 3: Packaging of surface mount components on continuous tapes*

IEC 60286-4, *Packaging of components for automatic handling - Part 4: Stick magazines for electronic components encapsulated in packages of different forms*

IEC 60286–5, *Packaging of components for automatic handling – Part 5: Matrix trays*

IEC 60286–6, *Packaging of components for automatic handling – Part 6: Bulk case packaging for surface mounting components*

IEC 60664-1, *Insulation coordination for equipment within low-voltage supply systems - Part 1: Principles, requirements and tests*

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

IEC 61188–6–4, *Printed boards and printed board assemblies – Design and use – Part 6-4: Land pattern design – Generic requirements for dimensional drawings of surface mounted components (SMD) from the viewpoint of land pattern design*

IEC 61340–5–1, *Electrostatics – Part 5-1: Protection of electronic devices from electrostatic phenomena – General requirements*

IEC 61340–5–3, *Electrostatics – Part 5-3: Protection of electronic devices from electrostatic phenomena – Properties and requirements classification for packaging intended for electrostatic discharge sensitive devices*

IEC 61760–2, *Surface mounting technology – Part 2: Transportation and storage conditions of surface mounting devices (SMD) – Application guide*

IEC 61760–4, *Surface mounting technology – Part 4: Classification, packaging, labelling and handling of moisture sensitive devices*

IEC 62090, *Product package labels for electronic components using bar code and two-dimensional symbologies*

IPC/JEDEC J-STD-020, *Moisture/Reflow Sensitivity Classification for Non-hermetic Surface Mount Devices (SMDs)*

IPC/JEDEC J-STD-033, *Handling, Packing, Shipping and Use of Moisture/Reflow Sensitive Surface Mount Devices*

3 Terms and definitions

For the purposes of this document, the terms and definitions of IEC 60194–2 and the following apply.

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

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