

STN	Technológia povrchovej montáže Časť 1: Normalizovaná metóda špecifikácie súčiastok na povrchovú montáž (SMDs)	STN EN IEC 61760-1 34 6517
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Surface mounting technology - Part 1: Standard method for the specification of surface mounting components (SMDs)

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

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Supersedes EN 61760-1:2006 and all of its amendments
and corrigenda (if any)

English Version

**Surface mounting technology - Part 1: Standard method for the
specification of surface mounting components (SMDs)
(IEC 61760-1:2020)**

Technique du montage en surface - Partie 1: Méthode
normalisée pour la spécification des composants montés en
surface (CMS)
(IEC 61760-1:2020)

Oberflächenmontagetechnik - Teil 1: Genormtes Verfahren
zur Spezifizierung oberflächenmontierbarer Bauelemente
(SMDs)
(IEC 61760-1:2020)

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EN IEC 61760-1:2020 (E)**European foreword**

The text of document 91/1648/FDIS, future edition 3 of IEC 61760-1, prepared by IEC/TC 91 "Electronics assembly technology" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 61760-1:2020.

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) 2021-05-18
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2023-08-18

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In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60062	NOTE	Harmonized as EN 60062
IEC 60068-1	NOTE	Harmonized as EN 60068-1
IEC 60068-2-20	NOTE	Harmonized as EN 60068-2-20
IEC 60068-2-69	NOTE	Harmonized as EN 60068-2-69
IEC 60191-6-19	NOTE	Harmonized as EN 60191-6-19
IEC 60352-5	NOTE	Harmonized as EN 60352-5
IEC 60749 (series)	NOTE	Harmonized as EN 60749 (series)
IEC 61188-5-1	NOTE	Harmonized as EN 61188-5-1
IEC 61189-5-504	NOTE	Harmonized as EN IEC 61189-5-504
IEC 62474	NOTE	Harmonized as EN IEC 62474

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.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60068	-	Environmental testing	-	-
IEC 60068-2-2	-	Environmental testing - Part 2-2: Tests - Test B: Dry heat	EN 60068-2-2	-
IEC 60068-2-21	-	Environmental testing - Part 2-21: Tests - Test U: Robustness of terminations and integral mounting devices	-	-
IEC 60068-2-45	1980	Basic environmental testing procedures - Part 2-45: Tests - Test XA and guidance: Immersion in cleaning solvents	EN 60068-2-45	1992
+ A1	1993		+ A1	1993
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 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	-

EN IEC 61760-1:2020 (E)

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
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	-
IEC 60749-20	2008	Semiconductor devices - Mechanical and climatic test methods - Part 20: Resistance of plastic encapsulated SMDs to the combined effect of moisture and soldering heat	EN 60749-20	2009
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 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 61340-5-3	-
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	EN 61760-4	-
IEC 62090	-	Product package labels for electronic components using bar code and twodimensional symbologies	EN 62090	-
IPC/JEDEC J-STD-020E	-	Moisture/Reflow Sensitivity Classification for Nonhermetic Solid State Surface Mount Devices	-	-
IPC/JEDEC J-STD-033B	-	Handling, Packing, Shipping and Use of Moisture/Reflow Sensitive Surface Mount Devices	-	-



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INTERNATIONAL STANDARD

NORME INTERNATIONALE



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

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



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**Technique du montage en surface –
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surface (CMS)**

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

SURFACE MOUNTING TECHNOLOGY –**Part 1: Standard method for the specification
of surface mounting components (SMDs)**

FOREWORD

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International Standard IEC 61760-1 has been prepared by IEC technical committee 91: Surface mounting technology.

This third edition cancels and replaces the second edition published in 2006. This edition constitutes a technical revision.

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

- a) inclusion of additional mounting methods: conductive glue bonding, sintering and solderless interconnection.

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

FDIS	Report on voting
91/1648/FDIS	91/1653/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 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,
- replaced by a revised edition, or
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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 necessary 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 IEC 61760-1. 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 (Clauses 6 to 9).

Mixed technology boards, i.e. boards containing through-hole components and SMDs, require additional consideration with respect to the through-hole components. These may 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.

SURFACE MOUNTING TECHNOLOGY –

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

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 need to be part of 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. Cases for which this is appropriate are indicated in the relevant subclauses.

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 (all parts), *Environmental testing*

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 60068-2-45:1980, *Basic environmental testing procedures – Part 2-45: Tests – Test XA and guidance: Immersion in cleaning solvents*
IEC 60068-2-45:1980/AMD1:1993

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 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*

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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 60749-20:2008, *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*

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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*

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IPC/JEDEC J-STD-020, *Moisture/Reflow Sensitivity Classification for Nonhermetic Solid State Devices*

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

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