



# SLOVENSKI STANDARD

## SIST EN 61760-1:2006

01-december-2006

Nadomešča:  
SIST EN 61760-1:2001

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### Tehnologija površinske montaže - 1. del: Standardna metoda za specifikacijo komponent za površinsko montažo (SMDs) (IEC 61760-1:2006)

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 de normalisation pour la spécification des composants montés en surface (CMS)

Ta slovenski standard je istoveten z: EN 61760-1:2006

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#### ICS:

31.020	Elektronske komponente na splošno	Electronic components in general
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SIST EN 61760-1:2006

en

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 61760-1**

July 2006

ICS 31.240

Supersedes EN 61760-1:1998

English version

**Surface mounting technology**  
**Part 1: Standard method for the specification of**  
**surface mounting components (SMDs)**  
(IEC 61760-1:2006)

Technique du montage en surface  
Partie 1: Méthode de normalisation pour  
la spécification des composants montés  
en surface (CMS)  
(CEI 61760-1:2006)

Oberflächenmontagetechnik  
Teil 1: Genormtes Verfahren zur  
Spezifizierung oberflächenmontierbarer  
Bauelemente (SMDs)  
(IEC 61760-1:2006)

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This European Standard was approved by CENELEC on 2006-06-01. 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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Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

**CENELEC**

European Committee for Electrotechnical Standardization  
Comité Européen de Normalisation Electrotechnique  
Europäisches Komitee für Elektrotechnische Normung

**Central Secretariat: rue de Stassart 35, B - 1050 Brussels**

## Foreword

The text of document 91/577/FDIS, future edition 2 of IEC 61760-1, prepared by IEC TC 91, Electronics assembly technology, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61760-1 on 2006-06-01.

This European Standard supersedes EN 61760-1:1998.

The main changes with regard to EN 61760-1:1998 concern:

- requirements related to leadfree soldering;
- extension of the scope to include also components mounted by gluing;
- direct reference to EN 60068-2-58 for requirements on solderability and resistance to soldering heat;
- classification into categories based on the component's ability to withstand resistance to soldering heat has been deleted.

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2007-03-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2009-06-01

Annex ZA has been added by CENELEC.

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**Endorsement notice**

The text of the International Standard IEC 61760-1:2006 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 standards indicated:

- |                |   |
|----------------|---|
| IEC 60068-1    | NOTE Harmonized as EN 60068-1:1994 (not modified).    |
| IEC 60068-2-69 | NOTE Harmonized as EN 60068-2-69:1996 (not modified). |

## Annex ZA (normative)

### Normative references to international publications with their corresponding European publications

The following referenced documents are indispensable for the application 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 When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60062 (mod)	- <sup>1)</sup>	Marking codes for resistors and capacitors	EN 60062	2005 <sup>2)</sup>
IEC 60068	Series	Environmental testing	EN 60068	Series
IEC 60068-2-21	- <sup>1)</sup>	Environmental testing Part 2-21: Tests - Test U: Robustness of terminations and integral mounting devices	EN 60068-2-21	1999 <sup>2)</sup>
IEC 60068-2-45 + A1	1980 1993	Environmental testing Part 2: Tests - Test Xa and guidance: Immersion in cleaning solvents	EN 60068-2-45 + A1	1992 1993
IEC 60068-2-58	- <sup>1)</sup>	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	2004 <sup>2)</sup>
IEC 60068-2-77	- <sup>1)</sup>	Environmental testing Part 2-77: Tests - Test 77: Body strength and impact shock	EN 60068-2-77	1999 <sup>2)</sup>
IEC 60191-6	2004	Mechanical standardization of semiconductor devices Part 6: General rules for the preparation of outline drawings of surface mounted semiconductor device packages	EN 60191-6	2004
IEC 60194	- <sup>1)</sup>	Printed board design, manufacture and assembly - Terms and definitions	EN 60194	2006 <sup>2)</sup>
IEC 60286-3	- <sup>1)</sup>	Packaging of components for automatic handling Part 3: Packaging of surface mount components on continuous tapes	EN 60286-3	1998 <sup>2)</sup>
IEC 60286-4	- <sup>1)</sup>	Packaging of components for automatic handling Part 4: Stick magazines for electronic components encapsulated in packages of form E and G	EN 60286-4	1998 <sup>2)</sup>

<sup>1)</sup> Undated reference.

<sup>2)</sup> Valid edition at date of issue.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60286-5	- <sup>1)</sup>	Packaging of components for automatic handling Part 5: Matrix trays	EN 60286-5	2004 <sup>2)</sup>
IEC 60286-6	- <sup>1)</sup>	Packaging of components for automatic handling Part 6: Bulk case packaging for surface mounting components	EN 60286-6	2004 <sup>2)</sup>
IEC 60749	Series	Semiconductor devices - Mechanical and climatic test methods	EN 60749	Series
IEC 61340-5-1	- <sup>1)</sup>	Electrostatics Part 5-1: Protection of electronic devices from electrostatic phenomena - General requirements	EN 61340-5-1	2001 <sup>2)</sup>
IEC 61760-2	- <sup>1)</sup>	Surface mounting technology Part 2: Transportation and storage conditions of surface mounting devices (SMD) - Application guide	EN 61760-2	1998 <sup>2)</sup>
IEC 62090	- <sup>1)</sup>	Product package labels for electronic components using bar code and two-dimensional symbologies	EN 62090	2003 <sup>2)</sup>
ISO 8601	- <sup>1)</sup>	Data elements and interchange formats - Information interchange - Representation of dates and times	-	-

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# INTERNATIONAL STANDARD

# IEC 61760-1

Second edition  
2006-04

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## Surface mounting technology –

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

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International Electrotechnical Commission, 3, rue de Varembé, PO Box 131, CH-1211 Geneva 20, Switzerland  
Telephone: +41 22 919 02 11 Telefax: +41 22 919 03 00 E-mail: [inmail@iec.ch](mailto:inmail@iec.ch) Web: [www.iec.ch](http://www.iec.ch)



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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

This second edition cancels and replaces the first edition, published in 1998, and constitutes a technical revision.

The main changes with regard to the previous edition concern:

- requirements related to leadfree soldering;
- extension of the scope to include also components mounted by gluing;
- direct reference to IEC 60068-2-58 for requirements on solderability and resistance to soldering heat;
- classification into categories based on the component's ability to withstand resistance to soldering heat has been deleted.

The text of this standard is based on the following documents:

FDIS	Report on voting
91/577/FDIS	91/588/RVD

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

The committee has decided that the contents of this publication will remain unchanged until the maintenance result date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

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

A bilingual version of this publication may be issued at a later date.

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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 overriding condition 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 surface mounting components make it necessary to extend the existing requirements to include those arising from processing during assembly.

Irrespective of the component family involved, all components on one and the same side of a printed circuit board are exposed to the same mounting process (see flow charts in Clause 5).

Nevertheless there exists no harmonized standard that prescribes the content of a component specification. It is the purpose of this standard 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 definition of reference process conditions as representative of a group of assembly conditions are given (Clauses 5 and 6).

In the third step the additional requirements resulting from these reference process conditions are given (Clause 7).

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 standard.