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Mechanical standardization of semiconductor devices - Part 1: General rules for the preparation of outline drawings of discrete devices

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. 01/19

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NORME EUROPÉENNE
EUROPÄISCHE NORM

EN IEC 60191-1

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Supersedes EN 60191-1:2007

English Version

Mechanical standardization of semiconductor devices - Part 1: General rules for the preparation of outline drawings of discrete devices (IEC 60191-1:2018)

Normalisation mécanique des dispositifs à semi-conducteurs - Partie 1: Règles générales pour la préparation des dessins d'encombrement des dispositifs discrets
(IEC 60191-1:2018)

Mechanische Normung von Halbleiterbauelementen - Teil 1: Allgemeine Regeln für die Erstellung von Gehäusezeichnungen von Einzelhalbleiterbauelementen
(IEC 60191-1:2018)

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Ref. No. EN IEC 60191-1:2018 E

European foreword

The text of document 47D/886/CDV, future edition 3 of IEC 60191-1, prepared by IEC/SC 47D "Semiconductor devices packaging, of IEC technical committee 47: Semiconductor devices" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60191-1:2018.

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)	2018-11-27
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2021-02-27

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

IEC 60191-6 (series)	NOTE	Harmonized as EN 60191-6 (series).
ISO 5459:2011	NOTE	Harmonized as EN ISO 5459:2011 (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.cenelec.eu.

Publication	Year	Title	EN/HD	Year
IEC 60191-2	-	Mechanical standardization of semiconductor devices - Part 2: Dimensions	-	-
IEC 60191-4	-	Mechanical standardization of semiconductor devices - Part 4: Coding system and classification into forms of package outlines for semiconductor device packages	EN 60191-4	-
IEC 60191-6-1	-	Mechanical standardization of semiconductor devices - Part 6-1: General rules for the preparation of outline drawings of surface mounted semiconductor device packages - Design guide for gull-wing lead terminals	EN 60191-6-1	-
IEC 60191-6-3	-	Mechanical standardization of semiconductor devices - Part 6-3: General rules for the preparation of outline drawings of surface mounted semiconductor device packages - Measuring methods for package dimensions of quad flat packs (QFP)	EN 60191-6-3	-
IEC 60191-6-20	-	Mechanical standardization of semiconductor devices - Part 6-20: General rules for the preparation of outline drawings of surface mounted semiconductor device packages - Measuring methods for package dimensions of small outline J-lead packages (SOJ)	EN 60191-6-20	-
IEC 60191-6-21	-	Mechanical standardization of semiconductor devices - Part 6-21: General rules for the preparation of outline drawings of surface mounted semiconductor device packages - Measuring methods for package dimensions of small outline packages (SOP)	EN 60191-6-21	-

IEC 60191-1

Edition 3.0 2018-01

INTERNATIONAL STANDARD

Mechanical standardization of semiconductor devices –
Part 1: General rules for the preparation of outline drawings of discrete devices

IEC 60191-1:2018-01(en)

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IEC 60191-1

Edition 3.0 2018-01

INTERNATIONAL STANDARD

Mechanical standardization of semiconductor devices –
Part 1: General rules for the preparation of outline drawings of discrete devices

INTERNATIONAL
ELECTROTECHNICAL
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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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MECHANICAL STANDARDIZATION OF SEMICONDUCTOR DEVICES –

Part 1: General rules for the preparation of outline drawings of discrete devices

FOREWORD

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International Standard IEC 60191-1 has been prepared by subcommittee 47D: Semiconductor devices packaging, of IEC technical committee 47: Semiconductor devices.

This third edition cancels and replaces the second edition published in 2007. This edition constitutes a technical revision.

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

a) the Scope has been extended to include surface-mounted semiconductor devices with a lead count less than 8;
b) a definition of the term "stand-off" has been added;
c) the methods for locating the datum have been extended to be suitable for SMD-packages;
d) the visual identification of terminal position one for automatic handling has been clarified;
e) the rules for the drawing of terminals have been clarified;

f) Table A.1 has been completed with symbols specifically for SMD-packages;
g) Annex B "Standardization philosophy" has been deleted;
h) a normative Annex with special rules for SMD-packages has been added;
i) the examples of semiconductor device drawings have been aligned to state-of-the-art packages including SMD-packages.

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

CDV	Report on voting
47D/886/CDV	47D/896/RVC

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

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

A list of all parts in the IEC 60191 series, published under the general title *Mechanical standardization of semiconductor devices*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website 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.

MECHANICAL STANDARDIZATION OF SEMICONDUCTOR DEVICES –

Part 1: General rules for the preparation of outline drawings of discrete devices

1 Scope

This part of IEC 60191 gives guidelines on the preparation of outline drawings of discrete devices, including discrete surface-mounted semiconductor devices with lead count less than 8.

For the preparation of outline drawings of surface-mounted discrete devices with a lead count higher or equal to 8, IEC 60191-6 should be referred to as well.

The primary object of these drawings is to indicate the space to be allowed for devices in equipment, together with other dimensional characteristics required to ensure mechanical interchangeability.

Complete interchangeability involves other considerations such as the electrical and thermal characteristics of the semiconductor devices concerned.

The international standardization represented by these drawings therefore encourages the manufacturers of devices to comply with the tolerances shown on the drawings in order to extend their range of customers internationally. It also gives equipment designers an assurance of mechanical interchangeability between the devices obtained from suppliers in different countries, provided they allow the space in their equipment that is indicated by the drawings and take note of the more precise information on bases, studs, etc.

NOTE Additional details of reference letter symbols used in this document are given in Annex A.

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.

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IEC 60191-4, *Mechanical standardization of semiconductor devices – Part 4: Coding system and classification into forms of package outlines for semiconductor device packages*

IEC 60191-6-1, *Mechanical standardization of semiconductor devices – Part 6-1: General rules for the preparation of outline drawings of surface mounted semiconductor device packages – Design guide for gull-wing lead terminals*

IEC 60191-6-3, *Mechanical standardization of semiconductor devices – Part 6-3: General rules for the preparation of outline drawings of surface mounted semiconductor device packages – Measuring methods for package dimensions of quad flat packs (QFP)*

IEC 60191-6-20, *Mechanical standardization of semiconductor devices – Part 6-20: General rules for the preparation of outline drawings of surface mounted semiconductor device packages – Measuring methods for package dimensions of small outline J-lead packages (SOJ)*

IEC 60191-6-21, *Mechanical standardization of semiconductor devices – Part 6-21: General rules for the preparation of outline drawings of surface mounted semiconductor device packages – Measuring methods for package dimensions of small outline packages (SOP)*

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