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Mechanical standardization of semiconductor devices - Part 6-18: General rules for the preparation of outline drawings of surface mounted semiconductor device packagers - Design guide for ball grid array (BGA) (IEC 60191-6-18:2010)

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Mechanische Normung von Halbleiterbauelementen - Teil 6-18: Allgemeine Regeln für die Erstellung von Gehäusezeichnungen von SMD-Halbleitergehäusen - Konstruktionsleitfaden für Ball-Grid-Array (BGA) (IEC 60191-6-18:2010)

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Normalisation mécanique des dispositifs à semiconducteurs - Partie 6-18: Règles générales pour la préparation des dessins d'encombrement des dispositifs à semiconducteurs pour montage en surface - Guide de conception pour les boîtiers matriciels à billes (BGA) (CEI 60191-6-18:2010)

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Foreword

The text of document 47D/753A/FDIS, future edition 1 of IEC 60191-6-18, prepared by SC 47D, Mechanical standardization for semiconductor devices, of IEC TC 47, Semiconductor devices, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60191-6-18 on 2010-02-01.

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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)	2010-11-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2013-02-01

Annex ZA has been added by CENELEC.

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IEC 60191-6-2	NOTE Harmonized as EN 60191-6-2.
IEC 60191-6-4	NOTE Harmonized as EN 60191-6-4.
IEC 60191-6-5	NOTE Harmonized as EN 60191-6-5.

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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.

Publication	Year	Title	EN/HD	Year
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	-

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

MECHANICAL STANDARDIZATION OF SEMICONDUCTOR DEVICES –

Part 6-18: General rules for the preparation of outline drawings of surface mounted semiconductor device packages – Design guide for ball grid array (BGA)

FOREWORD

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This standard cancels and replaces IEC/PAS 60191-6-18 published in 2008. This first edition constitutes a technical revision.

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

FDIS	Report on voting
47D/753A/FDIS	47D/758/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.

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

A list of all the parts in the IEC 60191 series, 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 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
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MECHANICAL STANDARDIZATION OF SEMICONDUCTOR DEVICES –

Part 6-18: General rules for the preparation of outline drawings of surface mounted semiconductor device packages – Design guide for ball grid array (BGA)

1 Scope

This part of IEC 60191 provides standard outline drawings, dimensions, and recommended variations for all square ball grid array packages (BGA), whose terminal pitch is 1 mm or larger.

2 Normative references

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 applies.

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

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3 Terms and definitions

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For the purposes of this document, the terms and definitions given IEC 60191 (series) and the following apply.

3.1
ball grid array
BGA
a package that has metal balls attached to one side of a substrate in a matrix of at least three rows and three columns; terminals may be missing from some row-column intersections

NOTE BGA stands for “Ball Grid Array” in compliance with the existing standards (See Annex A).

3.2
plastic ball grid array
P-BGA
BGA with an organic substrate

3.3
tape ball grid array
T-BGA
BGA with a polyimide tape substrate

3.4
ceramic ball grid array
C-BGA
BGA with a ceramic substrate

3.5
P-BGA (Flip chip interconnection)
BGA with an organic substrate and a die bonded to a substrate through metal bumps