

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**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)**

**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)**



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IEC 60191-6-18

Edition 1.0 2010-01

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INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

PRICE CODE
CODE PRIX

R

ICS 31.080.01

ISBN 2-8318-1074-0

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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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International Standard IEC 60191-6-18 has been prepared by subcommittee 47D: Mechanical standardization for semiconductor devices, of IEC technical committee 47: Semiconductor devices.

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.

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

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- amended.

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*

3 Terms and definitions

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