

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Mechanical standardization of semiconductor devices –
Part 6-13: Design guideline of open-top-type sockets for Fine-pitch Ball Grid
Array and Fine-pitch Land Grid Array (FBGA/FLGA)**

**Normalisation mécanique des dispositifs à semiconducteurs –
Partie 6-13: Guide de conception pour les supports sans couvercle pour les
boîtiers matriciels à billes et à pas fins et les boîtiers matriciels à zone de
contact plate et à pas fins (FBGA/FLGA)**



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INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

PRICE CODE
CODE PRIX

N

ICS 31.080.01

ISBN 978-2-88910-064-4

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

MECHANICAL STANDARDIZATION OF SEMICONDUCTOR DEVICES –**Part 6-13: Design guideline of open-top-type sockets for Fine-pitch Ball Grid Array and Fine-pitch Land Grid Array (FBGA/FLGA)**

FOREWORD

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International Standard IEC 60191-6-13 has been prepared by subcommittee 47D: Mechanical standardization for semiconductor devices, of IEC technical committee 47: Semiconductor devices.

This bilingual version, published in 2008-09, corresponds to the English version.

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

FDIS	Report on voting
47D/681/FDIS	47D/692/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 French version of this standard has not been voted upon.

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- withdrawn,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
- amended.

Withdrawn

MECHANICAL STANDARDIZATION OF SEMICONDUCTOR DEVICES –

Part 6-13: Design guideline of open-top-type sockets for Fine-pitch Ball Grid Array and Fine-pitch Land Grid Array (FBGA/FLGA)

1 Scope

This part of IEC 60191 gives a design guideline of open-top-type semiconductor sockets for Fine-pitch Ball Grid Array (“FBGA” hereafter) and Fine-pitch Land Grid Array (“FLGA” hereafter). This standard is intended to establish the outline drawings and dimensions of the open-top-type socket out of the test and burn-in sockets applied to FBGA and FLGA.

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 (including any amendments) applies.

IEC 60191-2, *Mechanical standardization of semiconductor devices – Part 2: Dimensions*

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*

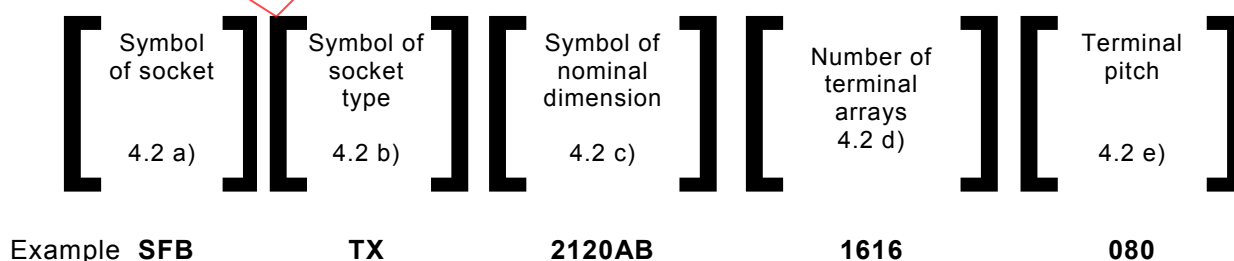
3 Terms and definitions

For the purposes of this document, the terms and definitions of IEC 60191-6 apply.

4 Socket code

4.1 Construction of socket code

A socket code is constructed as follows.



4.2 Symbols

a) Semiconductor sockets symbol

The symbol for socket shall be expressed in 3 characters. The first character, “**S**”, refers to socket and the rest to the package code. FBGA shall be expressed as “**FB**”, FLGA shall be expressed as “**FL**”.

b) Socket type symbol

The symbol for socket type shall be expressed in 2 characters. The first character “**T**” refers to open top type and the rest remains option “**X**”. Clamshell type socket is referred to as “**C**”.

c) Socket nominal dimension symbol

The symbol for nominal dimension shall be expressed in 6 characters, which are 4 numeric characters and 2 alphabetical characters. The first 4 numeric characters comply with nominal dimension E x D which refers to applicable maximum width and length of FBGA/FLGA package.

The last 2 alphabetical characters refer to socket base matrix size either an even or an odd.

It refers to an odd contact row by “**A**” and an even contact row by “**B**” in order socket width direction and next socket length direction.

Namely, it refers to “**AA**” in case row number is an odd both for width and length direction, “**BB**” in case row number is an even both for width and length direction, “**AB**” in case row number is an odd at width direction and an even at length direction and “**BA**” in case row number is an even at width direction and an odd at length direction.

d) Number of terminal arrays

The symbol for number of terminal arrays shall be expressed by 4 numeric characters applying applicable package matrix size in E direction and D direction.

e) Terminal pitch

The symbol for terminal pitch of applicable package shall be expressed in 3 numeric characters. A decimal [.] is omitted.

5 Terminal number

The terminal number is provided in the following manner when the socket is viewed with the angle from topside. The horizontal row nearest to the index corner when the index is placed on the left topside is referred to as A.

As the row moves down, the number changes in the order of B, C, AA, AB.

1 is defined for the vertical row nearest to the index corner. As the row moves rightward, the number is increased 2, 3, The terminal number is combined with these alphabets and numbers and expressed as A1 or B1. I, O, Q, S, X and Z are not used as symbols for a horizontal row.