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Printed boards and printed board assemblies - Design and use - Part 5-8: Attachment (land/joint) considerations - Area array components (BGA, FBGA, CGA, LGA)

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Leiterplatten und Flachbaugruppen - Konstruktion und Anwendung - Teil 5-8: Betrachtungen zur Montage (Anschlussfläche/Verbindung) - Flächenmatrix-Bauelemente (BGA, FBGA, CGA, LGA)

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Ta slovenski standard je istoveten z: **EN 61188-5-8:2008**

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2003-01.Slovenski inštitut za standardizacijo. Razmnoževanje celote ali delov tega standarda ni dovoljeno.

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English version

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(IEC 61188-5-8:2007)

Cartes imprimées
et cartes imprimées équipées -
Conception et utilisation -
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pistes-soudures -
Composants matriciels
(BGA, FBGA, CGA, LGA)
(CEI 61188-5-8:2007)

Leiterplatten und Flachbaugruppen -
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Flächenmatrix-Bauelemente
(BGA, FBGA, CGA, LGA)
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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.

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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

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Foreword

The text of document 91/705/FDIS, future edition 1 of IEC 61188-5-8, prepared by IEC TC 91, Electronics assembly technology, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61188-5-8 on 2008-02-01.

This European Standard is to be read in conjunction with EN 61188-5-1.

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)	2008-11-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2011-02-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 61188-5-8:2007 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following note has to be added for the standard indicated:

IEC 61191-1 NOTE Harmonized as EN 61191-1:1998 (not modified).

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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 60068-2-58	– [1]	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 + corr. December	2004 [2] 2004
IEC 60191-2	Series	Mechanical standardization of semiconductor devices - Part 2: Dimensions	–	–
IEC 61188-5-1	– [1]	Printed boards and printed board assemblies - Design and use - Part 5-1: Attachment (land/joint) considerations - Generic requirements	EN 61188-5-1	2002 [2]
IEC 62090	– [1]	Product package labels for electronic components using bar code and two-dimensional symbologies	EN 62090	2003 [2]

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[1] Undated reference.

[2] Valid edition at date of issue.

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INTERNATIONAL STANDARD

Printed boards and printed board assemblies – Design and use – Part 5-8: Attachment (land/joint) considerations – Area array components (BGA, FBGA, CGA, LGA)

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PRINTED BOARDS AND PRINTED BOARD ASSEMBLIES – DESIGN AND USE –

Part 5-8: Attachment (land/joint) considerations – Area array components (BGA, FBGA, CGA, LGA)

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International Standard IEC 61188-5-8 has been prepared by IEC technical committee 91: Electronics assembly technology.

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

FDIS	Report on voting
91/705/FDIS	91/737/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.

IEC 61188-5-8 is to be read in conjunction with IEC 61188-5-1.

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A list of all parts of the IEC 61188 series, under the general title *Printed boards and printed board assemblies – Design and use*, 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.

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

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INTRODUCTION

This part of IEC 61188 covers land patterns for area array components which include ball grid array (BGA) parts (rigid, flexible or ceramic substrate); fine pitch ball grid array (FBGA) parts (rigid or flexible substrate); column grid array (CGA) parts (ceramic substrates) and land grid array (LGA) parts (ceramic substrates). Each clause contains information in accordance with the area array family of components and their requirements for appropriate land patterns.

The proposed land pattern dimensions in this standard are based upon the fundamental tolerance calculation combined with the given land geometries and courtyard excesses (see IEC 61188-5-1, Generic requirements). The courtyard includes all issues of the normal manufacturing necessities.

The unaltered land pattern dimensions of this part are generally applicable for the solder paste application plus the reflow soldering process.

Although other standards in the IEC 61188-5 series define three levels of land pattern dimensioning, this standard will only define two levels. One level (level 2) is for non collapsing BGA balls; the other level (level 3) is for those BGA components where the ball does collapse around the land. All land descriptions are non-solder mask defined. Each land pattern has been assigned an identification number to indicate the characteristics of the specific robustness of the land patterns. Users also have the opportunity to organize the information so that it is most useful for their particular design.

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If a user has good reason to use a concept different from that of IEC 61188-5-1, or if the user prefers unusual land geometries, this standard should be used for checking the resulting ball to land relationship.

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It is the responsibility of the user to verify the SMD land patterns used for achieving an undisturbed mounting process including testing and an ensured reliability for the product stress conditions in use. In addition, the size and shape of the proposed land pattern may vary according to the solder resist aperture, the size of the land pattern extension (dog bone), the via within the extension, or if the via is in the land pattern itself.

Dimensions of the components listed in this standard are of those available in the market, and regarded as reference only.