SLOVENSKI STANDARD

SIST EN 62137:2005

september 2005

Okoljsko in vzdržljivostno preskušanje – Preskusne metode za površinsko vgrajene plošče z ohišji s ploskovnimi nizi tipa FBGA, BGA, FLGA, LGA, SON in QFN

Environmental and endurance testing – Test methods for surface-mount boards of area array type packages FBGA, BGA, FLGA, LGA, SON and QFN

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ICS 19.040; 31.190

Referenčna številka
SIST EN 62137:2005(en)

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 62137

August 2004

ICS 31.190

English version

Environmental and endurance testing - Test methods for surface-mount boards of area array type packages FBGA, BGA, FLGA, LGA, SON and QFN
(IEC 62137:2004)

Essai d'environnement et d'endurance - Méthodes d'essai des cartes montées en surface à boîtiers de type FBGA, BGA, FLGA, LGA, SON et QFN
(CEI 62137:2004)

Umwelt- und Dauerprüfung - Prüfverfahren für in Oberflächenmontagetechnik bestückte Leiterplatten mit Area-Array-Bauelementen der Bauformen FBGA, BGA, FLGA, LGA, SON und QFN
(IEC 62137:2004)

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CENELEC
European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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Ref. No. EN 62137:2004 E

Foreword

The text of document 91/444/FDIS, future edition 1 of IEC 62137, prepared by IEC TC 91, Electronics assembly technology, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 62137 on 2004-07-01.

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) 2005-04-01

– latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2007-07-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 62137:2004 was approved by CENELEC as a European Standard without any modification.

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

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IEC 60068-2-44	NOTE	Harmonized as EN 60068-2-44:1995 (not modified).
IEC 60749-1	NOTE	Harmonized as EN 60749-1:2003 (not modified).
IEC 60749-20	NOTE	Harmonized as EN 60749-20:2003 (not modified).
IEC 61189-3	NOTE	Harmonized as EN 61189-3:1997 (not modified).
IEC 61760-1	NOTE	Harmonized as EN 61760-1:1998 (not modified).

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 Where an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Publication	Year	Title	EN/HD	Year
IEC 60068-1	1988	Environmental testing Part 1: General and guidance	EN 60068-1	1994 [1]
IEC 60191-6-2	2001	Mechanical standardization of semiconductor devices Part 6-2: General rules for the preparation of outline drawings of surface mounted semiconductor device packages - Design guide for 1,50 mm, 1,27 mm and 1,00 mm pitch ball and column terminal packages	EN 60191-6-2	2002
IEC 60191-6-5	2001	Part 6-5: General rules for the preparation of outline drawings of surface mounted semiconductor device packages - Design guide for fine-pitch ball grid array (FBGA)	EN 60191-6-5	2001
IEC 61190-1-1	- [2]	Attachment materials for electronic assembly Part 1-1: Requirements for soldering fluxes for high-quality interconnections in electronics assembly	EN 61190-1-1	2002 [3]
IEC 61190-1-2	- [2]	Part 1-2: Requirements for solder pastes for high-quality interconnections in electronics assembly	EN 61190-1-2	2002 [3]
IEC 61190-1-3	- [2]	Part 1-3: Requirements for electronic grade solder alloys and fluxed and non-fluxed solid solders for electronic soldering applications	EN 61190-1-3	2002 [3]
JEITA ETR-7001	1998	Terms and definitions for surface mount device	-	-

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[1] EN 60068-1 includes corrigendum October 1988 + A1:1992 to IEC 60068-1.

[2] Undated reference.

[3] Valid edition at date of issue.

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NORME INTERNATIONALE
INTERNATIONAL STANDARD

CEI
IEC
62137

Première édition
First edition
2004-07

Essais d'environnement et d'endurance – Méthodes d'essai pour les cartes à montage en surface de boîtiers de type matriciel FBGA, BGA, FLGA, LGA, SON et QFN

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Environmental and endurance testing – Test methods for surface-mount boards of area array type packages FBGA, BGA, FLGA, LGA, SON and QFN

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International Electrotechnical Commission
Международная Электротехническая Комиссия

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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ENVIRONMENTAL AND ENDURANCE TESTING – TEST METHODS FOR SURFACE-MOUNT BOARDS OF AREA ARRAY TYPE PACKAGES FBGA, BGA, FLGA, LGA, SON AND QFN[1]

FOREWORD

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International Standard IEC 62137 has been prepared by IEC technical committee 91: Electronics assembly technology.

This bilingual version (2005-02) replaces the English version.

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

FDIS	Report on voting
91/444/FDIS	91/451/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.

____

1 FBGA fine-pitch ball grid array
BGA ball grid array
FLGA fine-pitch land grid array
LGA land grid array
SON small outline non-leaded package
QFN quad flat-pack non-leaded package

The French version of this standard has not been voted upon.

This publication takes into account Corrigendum 1 (2005) relating to the English version.

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

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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ENVIRONMENTAL AND ENDURANCE TESTING – TEST METHODS FOR SURFACE-MOUNT BOARDS OF AREA ARRAY TYPE PACKAGES FBGA, BGA, FLGA, LGA, SON AND QFN

1 Scope

This International Standard specifies the test method and guidelines for evaluating the quality and reliability of boards, solder lands, solder process and solder joints of reflow solder mounted area array type packages and peripheral terminal type packages.

This standard tests for durability against mechanical and thermal stress received during or after the mounting process of discrete semiconductor devices and of integrated circuits (hereinafter both referred to as semiconductor devices) used mainly for industrial and consumer use equipment.

The test method specified in this standard is an integrated one by including the evaluation method of mounting methods, mounting conditions, printed circuit boards, soldering materials, and so on. It does not specify the evaluation method of the individual semiconductor devices.

Mounting conditions, printed wiring boards, soldering materials, and so on significantly affect the result of the test specified in this standard. Therefore, the test specified in this standard shall not be regarded as the one to be used to guarantee the mounting reliability of the semiconductor devices.

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The test method is not necessary if there is no stress (mechanical or others) from any of the tests covered in this standard.

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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 60068-1:1988, *Environmental testing – Part 1: General and guidance*

IEC 60191-6-2:2001, *Mechanical standardization of semiconductor devices – Part 6-2: General rules for the preparation of outline drawings of surface mounted semiconductor device packages – Design guide for 1,50 mm, 1,27 mm and 1,00 mm pitch ball and column terminal packages*

IEC 60191-6-5:2001, *Mechanical standardization of semiconductor devices – Part 6-5: General rules for the preparation of outline drawings of surface mounted semiconductor device packages – Design guide for fine-pitch ball grid array (FBGA)*