Surface mounting technology - Environmental and endurance test methods for surface mount solder joint -- Part 1-2: Shear strength test

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EESTI STANDARDI EESSÕNA **NATIONAL FOREWORD**

Käesolev Eesti standard EVS-EN 62137-1-2:2007 sisaldab Euroopa standardi EN 62137-1-2:2007 ingliskeelset teksti. Käesolev dokument on jõustatud 23.11.2007 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes. Standard on kättesaadav Eesti standardiorganisatsioonist.	This Estonian standard EVS-EN 62137-1-2:2007 consists of the English text of the European standard EN 62137-1-2:2007. This document is endorsed on 23.11.2007 with the notification being published in the official publication of the Estonian national standardisation organisation. The standard is available from Estonian standardisation organisation.

Käsitlusala: The test method described in this part of IEC 62137 is applicable to leadless surface mounting components and surface mounting connectors to which pull test is not applicable. It is not applicable to multi-lead components and gull-wing leads. The method is designed to test and evaluate the endurance of the solder joint between component terminals and lands on a substrate, by means of a shear type mechanical stress. This test is applicable to evaluate the effects of repeated temperature change on the strength of the solder joints between terminals and lands on a substrate.	**Scope:** The test method described in this part of IEC 62137 is applicable to leadless surface mounting components and surface mounting connectors to which pull test is not applicable. It is not applicable to multi-lead components and gull-wing leads. The method is designed to test and evaluate the endurance of the solder joint between component terminals and lands on a substrate, by means of a shear type mechanical stress. This test is applicable to evaluate the effects of repeated temperature change on the strength of the solder joints between terminals and lands on a substrate.

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EN 62137-1-2

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English version

Surface mounting technology - Environmental and endurance test methods for surface mount solder joint - Part 1-2: Shear strength test

(IEC 62137-1-2:2007)

Technique du montage en surface - Méthodes d'essai d'environnement et d'endurance des joints de soudure pour montage en surface - Partie 1-2: Essai de résistance au cisaillement (CEI 62137-1-2:2007)

Oberflächenmontage-Technik - Verfahren zur Prüfung auf Umgebungseinflüsse und zur Prüfung der Haltbarkeit von Oberflächen-Lötverbindungen - Teil 1-2: Scherfestigkeitsprüfung (IEC 62137-1-2:2007)

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

Ref. No. EN 62137-1-2:2007 E

Foreword

The text of document 91/683/FDIS, future edition 1 of IEC 62137-1-2, prepared by IEC TC 91, Electronics assembly technology, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 62137-1-2 on 2007-08-01.

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)	2008-05-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2010-08-01

Annex ZA has been added by CENELEC.

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Endorsement notice

The text of the International Standard IEC 62137-1-2:2007 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 60068-2-21 NOTE Harmonized as EN 60068-2-21:2006 (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 60068-1	-[1)]	Environmental testing - Part 1: General and guidance	EN 60068-1	1994[2)]
IEC 60068-2-14	-[1)]	Environmental testing - Part 2: Tests - Test N: Change of temperature	EN 60068-2-14	1999[2)]
IEC 60194	-[1)]	Printed board design, manufacture and assembly - Terms and definitions	EN 60194	2006[2)]
IEC 61188-5-2	-[1)]	Printed boards and printed board assemblies - Design and use - Part 5-2: Attachment (land/joint) considerations - Discrete components	EN 61188-5-2	2003[2)]
IEC 61188-5-5	200X[3)]	Printed boards and printed board assemblies - Design and use - Part 5-5: Attachment (land/joint) considerations - Components with gull-wing leads on four sides	-	-
IEC 61190-1-2	-[1)]	Attachment materials for electronic assembly - Part 1-2: Requirements for soldering pastes for high-quality interconnects in electronics assembly	EN 61190-1-2	2007[2)]
IEC 61190-1-3	-[1)]	Attachment materials for electronic assembly - Part 1-3: Requirements for electronic grade solder alloys and fluxed and non-fluxed solid solders for electronic soldering applications	EN 61190-1-3	2007[2)]
IEC 61249-2-7	-[1)]	Materials for printed boards and other interconnecting structures - Part 2-7: Reinforced base materials, clad and unclad - Epoxide woven E-glass laminated sheet of defined flammability (vertical burning test), copper-clad	EN 61249-2-7 + corr. September	2002[2)] 2005

[1)] Undated reference.

[2)] Valid edtion at date of issue.

[3)] At draft stage.

Publication	Year	Title	EN/HD	Year
IEC 61760-1	-[1)]	Surface mounting technology - Part 1: Standard method for the specification of surface mounting components (SMDs)	EN 61760-1	2006[2)]

INTERNATIONAL STANDARD

IEC 62137-1-2

First edition
2007-07

Surface mounting technology – Environmental and endurance test methods for surface mount solder joint –

Part 1-2: Shear strength test

Reference number
IEC 62137-1-2:2007(E)

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Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

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CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

SURFACE MOUNTING TECHNOLOGY – ENVIRONMENTAL AND ENDURANCE TEST METHODS FOR SURFACE MOUNT SOLDER JOINT –

Part 1-2: Shear strength test

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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International Standard IEC 62137-1-2 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
91/683/FDIS	91/699/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 62137 series, under the general title *Surface mounting technology – Environmental and endurance test methods for surface mount solder joint*, 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.

SURFACE MOUNTING TECHNOLOGY – ENVIRONMENTAL AND ENDURANCE TEST METHODS FOR SURFACE MOUNT SOLDER JOINT –

Part 1-2: Shear strength test

1 Scope

The test method described in this part of IEC 62137 is applicable to leadless surface mounting components and surface mounting connectors to which pull test is not applicable. It is not applicable to multi-lead components and gull-wing leads.

The method is designed to test and evaluate the endurance of the solder joint between component terminals and lands on a substrate, by means of a shear type mechanical stress. This test is applicable to evaluate the effects of repeated temperature change on the strength of the solder joints between terminals and lands on a substrate.

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, *Environmental testing – Part 1: General and guidance*

IEC 60068-2-14, *Environmental testing – Part 2-14: Test N: Change of temperature*

IEC 60194, *Printed board design, manufacture and assembly – Terms and definitions*

IEC 61188-5-2, *Printed boards and printed board assemblies – Design and use – Part 5-2: Attachment (land/joint) considerations – Discrete components*

IEC 61760-1, *Surface mounting technology – Part 1: Standard method for the specification of surface mounting components (SMDs)*

IEC 61188-5-5, *Printed boards and printed board assemblies – Design and use – Part 5-5: Sectional requirements - Attachment (land/joint) considerations – Components with gull-wing leads on four sides*[1]

IEC 61249-2-7, *Materials for printed boards and other interconnecting structures – Part 2-7: Reinforced base materials clad and unclad – Epoxide woven E-glass laminated sheet of defined flammability (vertical burning test), copper-clad*

IEC 61190-1-2, *Attachment materials for electronic assembly – Part 1-2: Requirements for solder pastes for high-quality interconnections in electronics assembly*

IEC 61190-1-3, *Attachment materials for electronic assembly – Part 1-3: Requirements for electronic grade solder alloys and fluxed and non-fluxed solid solders for electronic soldering applications*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

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1 In preparation.