
Tehnologija elektronskega sestavljanja - 3. del: Napotki za izbiro metod za preskušanje vplivov na okolje in vzdržljivosti s kositrom spajkanih spojev

Electronics assembly technology - Part 3: Selection guidance of environmental and endurance test methods for solder joints

Montageverfahren für elektronische Baugruppen - Teil 3: Leitfaden für die Auswahl von Umwelt- und (Lebens)dauerprüfungen für Lötverbindungen

Techniques d'assemblage des composants électroniques - Guide de choix des méthodes d'essai d'environnement et d'endurance des joints brasés

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**Electronics assembly technology -
Part 3: Selection guidance of environmental and endurance test methods
for solder joints
(IEC 62137-3:2011)**

Techniques d'assemblage des
composants électroniques -
Partie 3: Guide de choix des méthodes
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Lötverbindungen
(IEC 62137-3:2011)

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

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Foreword

The text of document 91/986/FDIS, future edition 1 of IEC 62137-3, prepared by IEC/TC 91 "Electronics assembly technology" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62137-3:2012.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2012-09-13
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2014-12-13

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

IEC 60068-1:1988 + A1:1992	NOTE Harmonized as EN 60068-1:1994 (not modified).
IEC 60068-2-2	NOTE Harmonized as EN 60068-2-2.
IEC 60068-2-14	NOTE Harmonized as EN 60068-2-14.
IEC 60068-2-78	NOTE Harmonized as EN 60068-2-78.
IEC 61760-1	NOTE Harmonized as EN 61760-1.
IEC 62137:2004	NOTE Harmonized as EN 62137:2004 (not modified).

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60194	-	Printed board design, manufacture and assembly - Terms and definitions	EN 60194	-
IEC 61188-5	Series	Printed boards and printed board assemblies - Design and use - Part 5: Attachment (land/joint) considerations	EN 61188-5	Series
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	EN 61249-2-7	-
IEC 62137-1-1	2007	Surface mounting technology - Environmental and endurance test methods for surface mount solder joint - Part 1-1: Pull strength test	EN 62137-1-1	2007
IEC 62137-1-2	2007	Surface mounting technology - Environmental and endurance test methods for surface mount solder joint - Part 1-2: Shear strength test	EN 62137-1-2	2007
IEC 62137-1-3	2008	Surface mounting technology - Environmental and endurance test methods for surface mount solder joint - Part 1-3: Cyclic drop test	EN 62137-1-3	2009
IEC 62137-1-4	2009	Surface mounting technology - Environmental and endurance test methods for surface mount solder joint - Part 1-4: Cyclic bending test	EN 62137-1-4	2009
IEC 62137-1-5	2009	Surface mounting technology - Environmental and endurance test methods for surface mount solder joint - Part 1-5: Mechanical shear fatigue test	EN 62137-1-5	2009

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**Electronics assembly technology –
Part 3: Selection guidance of environmental and endurance test methods for
solder joints**

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Partie 3: Guide de choix des méthodes d'essai d'environnement et d'endurance
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INTERNATIONAL ELECTROTECHNICAL COMMISSION

ELECTRONICS ASSEMBLY TECHNOLOGY –

Part 3: Selection guidance of environmental and endurance test methods for solder joints

FOREWORD

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International Standard IEC 62137-3 has been prepared by IEC technical committee 91: Electronics assembly technology.

This first edition cancels and replaces IEC/PAS 62137-3, published in 2008, and includes some editorial revisions. The main changes with respect to the PAS include the following:

- no technical changes;
- some editorial changes and corrections;
- for the sake of convenience some constitutive changes.

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

FDIS	Report on voting
91/986/FDIS	91/1011/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 parts of IEC 62137 under the general title *Electronics assembly technology* can be found in the IEC website.

Future standards in this series will carry the new general title as cited above. Titles of existing standards in this series will be updated at the time of the next edition.

The committee has decided that the contents of this publication will remain unchanged until the stability 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.

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ELECTRONICS ASSEMBLY TECHNOLOGY –

Part 3: Selection guidance of environmental and endurance test methods for solder joints

1 Scope

This part of IEC 62137 describes the selection methodology of an appropriate test method for a reliability test for solder joints of various shapes and types of surface mount devices (SMD), array type devices and leaded devices, and lead insertion type devices using various types of solder material alloys.

2 Normative references

The following referenced documents are indispensable for the application of this document. For a dated reference, only the edition cited applies. For an undated reference, the latest edition of the referenced document (including any amendment) applies.

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

IEC 61188-5 (all parts), *Printed boards and printed board assemblies – Design and use*

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

IEC 62137-1-1:2007, *Surface mounting technology – Environmental and endurance test methods for surface mount solder joint – Part 1-1: Pull strength test*

IEC 62137-1-2:2007, *Surface mounting technology – Environmental and endurance test methods for surface mount solder joint – Part 1-2: Shear strength test*

IEC 62137-1-3:2008, *Surface mounting technology – Environmental and endurance test methods for surface mount solder joint – Part 1-3: Cyclic drop test*

IEC 62137-1-4:2009, *Surface mounting technology – Environmental and endurance test methods for surface mount solder joint – Part 1-4: Cyclic bending test*

IEC 62137-1-5:2009, *Surface mounting technology – Environmental and endurance test methods for surface mount solder joints – Part 1-5: Mechanical shear fatigue test*

3 Terms and definitions

For the purposes of this document, the terms and definitions in IEC 60194, as well as the following, apply.

3.1

pull strength for SMD

maximum force to break the joint of a lead to substrate when a gull-wing lead of a surface mount device is pulled using a pulling tool at an angle of 45° to the substrate surface

[IEC 62137-1-1:2007, modified]