SLOVENSKI STANDARD
SIST EN 61191-1:2014

01-maj-2014

Nadomešča:
SIST EN 61191-1:2001

Sestavi plošč tiskanih vezij - 1. del: Rodovna specifikacija - Zahteve za spajkane električne in elektronske sestave, ki uporabljajo tehnologije površinske montaže in sorodne tehnologije (IEC 61191-1:2013)

Printed board assemblies - Part 1: Generic specification - Requirements for soldered electrical and electronic assemblies using surface mount and related assembly technologies

Elektronikaufbauten auf Leiterplatten - Teil 1: Fachgrundspezifikation - Anforderungen an gelötete elektrische und elektronische Baugruppen unter Verwendung der Oberflächenmontage und verwandter Montagetechniken

Ensembles de cartes imprimées - Partie 1: Spécification générique - Exigences relatives aux ensembles électriques ou électroniques brasés utilisant les techniques de montage en surface et associées

Ta slovenski standard je istoveten z: **EN 61191-1:2013**

ICS:

31.180	Tiskana vezja (TIV) in tiskane plošče	Printed circuits and boards

SIST EN 61191-1:2014 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 61191-1

August 2013

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English version

Printed board assemblies - Part 1: Generic specification - Requirements for soldered electrical and electronic assemblies using surface mount and related assembly technologies

(IEC 61191-1:2013)

Ensembles de cartes imprimées - Partie 1: Spécification générique - Exigences relatives aux ensembles électriques ou électroniques brasés utilisant les techniques de montage en surface et associées (CEI 61191-1:2013)

Elektronikaufbauten auf Leiterplatten - Teil 1: Fachgrundspezifikation - Anforderungen an gelötete elektrische und elektronische Baugruppen unter Verwendung der Oberflächenmontage und verwandter Montagetechniken (IEC 61191-1:2013)

This European Standard was approved by CENELEC on 2013-06-25. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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CENELEC

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

CEN-CENELEC Management Centre: Avenue Marnix 17, B - 1000 Brussels

Ref. No. EN 61191-1:2013 E

Foreword

The text of document 91/1089A/FDIS, future edition 2 of IEC 61191-1, prepared by IEC/TC 91 "Electronics assembly technology" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 61191-1:2013.

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)	2014-03-25
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2016-06-25

This document supersedes EN 61191-1:1998.

EN 61191-1:2013 includes the following significant technical changes with respect to EN 61191-1:1998:

- reference standard EN 61192-1 has been replaced by IPC-A-610;
- some of the terminology has been updated;
- references to EN standards have been corrected;
- the use of lead-free alloys in the assembly have been added.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

Endorsement notice

The text of the International Standard IEC 61191-1:2013 was approved by CENELEC as a European Standard without any modification.

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

IEC 60068-2-20:2008	NOTE	Harmonised as EN 60068-2-20:2008 (not modified).
IEC 60068-2-58:2004	NOTE	Harmonised as EN 60068-2-58:2004 (not modified).
IEC 61188-5-1:2002	NOTE	Harmonised as EN 61188-5-1:2002 (not modified).
IEC 61188-5-2:2003	NOTE	Harmonised as EN 61188-5-2:2003 (not modified).
IEC 61188-5-3:2007	NOTE	Harmonised as EN 61188-5-3:2007 (not modified).
IEC 61188-5-4:2007	NOTE	Harmonised as EN 61188-5-4:2007 (not modified).
IEC 61188-5-5:2007	NOTE	Harmonised as EN 61188-5-5:2007 (not modified).
IEC 61188-5-6:2003	NOTE	Harmonised as EN 61188-5-6:2003 (not modified).
IEC 61188-7:2009	NOTE	Harmonised as EN 61188-7:2009 (not modified).
IEC 61189-2:2006	NOTE	Harmonised as EN 61189-2:2006 (not modified).
IEC 61190-1-2:2007	NOTE	Harmonised as EN 61190-1-2:2007 (not modified).
IEC 61193-1:2001	NOTE	Harmonised as EN 61193-1:2002 (not modified).
IEC 61193-3	NOTE	Harmonised as EN 61193-3.
IEC 62326-1:2002	NOTE	Harmonised as EN 62326-1:2002 (not modified).
IEC 62326-4:1996	NOTE	Harmonised as EN 62326-4:1997 (not modified).
IEC 62326-4-1:1996	NOTE	Harmonised as EN 62326-4-1:1997 (not modified).
ISO 9001:2008	NOTE	Harmonised as EN ISO 9001:2008 (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.

Publication	Year	Title	EN/HD	Year
IEC 60194	-	Printed board design, manufacture and assembly - Terms and definitions	EN 60194	-
IEC 60721-3-1	-	Classification of environmental conditions - Part 3: Classification of groups of environmental parameters and their severities - Section 1: Storage	EN 60721-3-1	-
IEC 61188-1-1	-	Printed boards and printed board assemblies - Design and use - Part 1-1: Generic requirements - Flatness considerations for electronic assemblies	EN 61188-1-1	-
IEC 61189-1	-	Test methods for electrical materials, interconnection structures and assemblies - Part 1: General test methods and methodology	EN 61189-1	-
IEC 61189-3	-	Test methods for electrical materials, printed boards and other interconnection structures and assemblies - Part 3: Test methods for interconnection structures (printed boards)	EN 61189-3	-
IEC 61190-1-1	-	Attachment materials for electronic assembly - Part 1-1: Requirements for soldering fluxes for high-quality interconnections in electronics assembly	EN 61190-1-1	-
IEC 61190-1-2	-	Attachment materials for electronic assembly - Part 1-2: Requirements for soldering pastes for high-quality interconnects in electronics assembly	EN 61190-1-2	-
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	EN 61190-1-3	-
IEC 61191-2	-	Printed board assemblies - Part 2: Sectional specification - Requirements for surface mount soldered assemblies	EN 61191-2	-

Publication	Year	Title	EN/HD	Year
IEC 61191-3	-	Printed board assemblies - Part 3: Sectional specification - Requirements for through-hole mount soldered assemblies	EN 61191-3	-
IEC 61191-4	-	Printed board assemblies - Part 4: Sectional specification - Requirements for terminal soldered assemblies	EN 61191-4	-
IEC 61249-8-8	-	Materials for interconnection structures - Part 8: Sectional specification set for non-conductive films and coatings - Section 8: Temporary polymer coatings	EN 61249-8-8	-
IEC 61340-5-1	-	Electrostatics - Part 5-1: Protection of electronic devices from electrostatic phenomena - General requirements	EN 61340-5-1	-
IEC/TR 61340-5-2	-	Electrostatics - Part 5-2: Protection of electronic devices from electrostatic phenomena - User guide	CLC/TR 61340-5-2	-
IEC 61760-2	-	Surface mounting technology - Part 2: Transportation and storage conditions of surface mounting devices (SMD) - Application guide	EN 61760-2	-
IPC-A-610E	2010	Acceptability of Electronic Assemblies	-	-

IEC 61191-1

Edition 2.0 2013-05

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Printed board assemblies –
Part 1: Generic specification – Requirements for soldered electrical and electronic assemblies using surface mount and related assembly technologies

Ensembles de cartes imprimées –
Partie 1: Spécification générique – Exigences relatives aux ensembles électriques et électroniques brasés utilisant les techniques de montage en surface et associées

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CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

PRINTED BOARD ASSEMBLIES –

Part 1: Generic specification – Requirements for soldered electrical and electronic assemblies using surface mount and related assembly technologies

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 61191-1 has been prepared by IEC technical committee 91: Electronics assembly technology.

This second edition cancels and replaces the first edition, published in 1998, and constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

– reference standard IEC 61192-1 has been replaced by IPC-A-610;
– some of the terminology has been updated;
– references to IEC standards have been corrected;
– the use of lead-free alloys in the assembly have been added.

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

FDIS	Report on voting
91/1089A/FDIS	91/1098/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.

A list of all parts of IEC 61191 series, published under the general title *Printed board assemblies* can be found in the IEC website.

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 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.

PRINTED BOARD ASSEMBLIES –

Part 1: Generic specification – Requirements for soldered electrical and electronic assemblies using surface mount and related assembly technologies

1 Scope

This part of IEC 61191 prescribes requirements for materials, methods and verification criteria for producing quality soldered interconnections and assemblies using surface mount and related assembly technologies. This part of IEC 61191 also includes recommendations for good manufacturing processes.

2 Normative references

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.

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

IEC 60721-3-1, *Classification of environmental conditions – Part 3: Classification of groups of environmental parameters and their severities – Section 1: Storage*

IEC 61188-1-1, *Printed boards and printed board assemblies – Design and use – Part 1-1: Generic requirements – Flatness considerations for electronic assemblies*

IEC 61189-1, *Test methods for electrical materials, interconnection structures and assemblies – Part 1: General test methods and methodology*

IEC 61189-3, *Test methods for electrical materials, printed boards and other interconnection structures and assemblies – Part 3: Test methods for interconnection structures (printed boards)*

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

IEC 61190-1-2, *Attachment materials for electronic assembly – Part 1-2: Requirements for soldering pastes for high-quality interconnects 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*

IEC 61191-2, *Printed board assemblies – Part 2: Sectional specification – Requirements for surface mount soldered assemblies*

IEC 61191-3, *Printed board assemblies – Part 3: Sectional specification – Requirements for through-hole mount soldered assemblies*

IEC 61191-4, *Printed board assemblies – Part 4: Sectional specification – Requirements for terminal soldered assemblies*

IEC 61249-8-8, *Materials for interconnection structures – Part 8: Sectional specification set for non-conductive films and coatings – Section 8: Temporary polymer coatings*

IEC 61340-5-1, *Electrostatics – Part 5-1: Protection of electronic devices from electrostatic phenomena – General requirements*

IEC/TR 61340-5-2, *Electrostatics – Part 5-2: Protection of electronic devices from electrostatic phenomena – User guide*

IEC 61760-2, *Surface mounting technology – Part 2: Transportation and storage conditions of surface mounting devices (SMD) – Application guide*

IPC-A-610E:2010, *Acceptability of Electronic Assemblies*

3 Terms and definitions

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

3.1
bow
deviation from flatness of a board characterized by a roughly cylindrical or spherical curvature so that, if the product is rectangular, its four corners are in the same plane

3.2
manufacturer
assembler
individual or company responsible for the procurement of materials and components, as well as all assembly process and verification operations necessary to ensure full compliance of assemblies with this standard

3.3
objective evidence
documentation, agreed to between user and manufacturer

Note 1 to entry: The documentation can be in the form of a hard copy, computer data, computer algorithms, video or other media.

3.4
process indicator
detectable anomaly, other than a defect, that is reflective of material, equipment, personnel, process and/or workmanship variation

3.5
proficiency
capability to perform tasks in accordance with the requirements and verification procedures detailed in this standard

3.6
shadowing
phenomenon where parts create a shadow of leads, lands, or other parts, which obstruct heating at reflow soldering or spreading solder at flow soldering

3.7
supplier
individual or company responsible for assuring, to the manufacturer (assembler), full compliance of components and base materials with the requirements and verification procedures of this standard