
Printed boards and printed board assemblies - Design and use - Part 5-1:
Attachment (land/joint) considerations - Generic requirements

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EUROPEAN STANDARD

EN 61188-5-1

NORME EUROPÉENNE

EUROPÄISCHE NORM

October 2002

ICS 31.180; 31.190

English version

**Printed boards and printed board assemblies -
Design and use
Part 5-1: Attachment (land/joint) considerations -
Generic requirements
(IEC 61188-5-1:2002)**

Cartes imprimées et cartes imprimées
équipées -
Conception et utilisation
Partie 5-1: Considérations sur les liaisons
pistes-soudures -
Prescriptions génériques
(CEI 61188-5-1:2002)

Leiterplatten und Flachbaugruppen -
Konstruktion und Anwendung
Teil 5-1: Betrachtungen zur Montage
(Anschlußfläche/Verbindung) -
Allgemeine Anforderungen
(IEC 61188-5-1:2002)

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This European Standard was approved by CENELEC on 2002-10-01. 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 Central Secretariat 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 Central Secretariat 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

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

The text of document 91/292/FDIS, future edition 1 of IEC 61188-5-1, prepared by IEC TC 91, Electronics assembly technology, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61188-5-1 on 2002-10-01.

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) 2003-07-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2005-10-01

Annexes designated "normative" are part of the body of the standard.
Annexes designated "informative" are given for information only.
In this standard, annex ZA is normative and annexes A and B are informative.
Annex ZA has been added by CENELEC.

Endorsement notice

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The text of the International Standard IEC 61188-5-1:2002 was approved by CENELEC as a European Standard without any modification.

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Annex ZA (normative)

Normative references to international publications with their corresponding European publications

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

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 60097	- ¹⁾	Grid systems for printed circuits	EN 60097	1993 ²⁾
IEC 60194	- ¹⁾	Printed board design, manufacture and assembly - Terms and definitions	-	-
IEC 61188-1-1	- ¹⁾	Printed boards and printed board assemblies - Design and use Part 1-1: Generic requirements - Flatness considerations for electronic assemblies	EN 61188-1-1	1997 ²⁾
IEC 61191-1	- ¹⁾	Printed board assemblies Part 1: Generic specification Requirements for soldered electrical and electronic assemblies using surface mount and related assembly technologies	EN 61191-1	1998 ²⁾
IEC 61191-2	- ¹⁾	Part 2: Sectional specification - Requirements for surface mount soldered assemblies	EN 61191-2	1998 ²⁾
IEC 61192-1	- ³⁾	Soldered electronic assemblies Part 1: Workmanship requirements – General	-	-
IEC 61192-2	- ³⁾	Part 2: Workmanship requirements – Surface mounted assemblies	-	-
IEC 61760-1	- ¹⁾	Surface mounting technology Part 1: Standard method for the specification of surface mounting components (SMDs)	EN 61760-1	1998 ²⁾
IEC 62326	Series	Printed boards	EN 62326	Series

¹⁾ Undated reference.

²⁾ Valid edition at date of issue.

³⁾ To be published.

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NORME
INTERNATIONALE
INTERNATIONAL
STANDARD

CEI
IEC

61188-5-1

Première édition
First edition
2002-07

**Cartes imprimées et cartes imprimées équipées –
Conception et utilisation –**

**Partie 5-1:
Considérations sur les liaisons pistes-soudures –
Prescriptions génériques**

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**Part 5-1:
Attachment (land/joint) considerations –
Generic requirements**

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Международная Электротехническая Комиссия

CODE PRIX
PRICE CODE XB

Pour prix, voir catalogue en vigueur
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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**PRINTED BOARDS AND PRINTED BOARD ASSEMBLIES –
DESIGN AND USE –**
**Part 5-1: Attachment (land/joint) considerations –
Generic requirements**

FOREWORD

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the IEC is to promote international cooperation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, the IEC publishes International Standards. 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. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of the IEC on technical matters express, as nearly as possible, an international consensus of opinion on relevant subjects since each technical committee has representation from all interested National Committees.
- 3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical specifications, technical reports or guides and they are accepted by the National Committees in that sense.
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International Standard IEC 61188-5-1 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
91/292/FDIS	91/318/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 3.

Annexes A and B are for information only.

IEC 61188-5 consists of the following parts, under the general title *Printed boards and printed board assemblies – Design and use – Part 5: Attachment (land/joint) considerations*:

- IEC 61188-5-1, Generic requirements
- IEC 61188-5-2, Discrete components
- IEC 61188-5-3, Components with gull-wing leads, on two sides
- IEC 61188-5-4, Components with J leads, on two sides
- IEC 61188-5-5, Components with gull-wing leads, on four sides
- IEC 61188-5-6, Components with J leads, on four sides
- IEC 61188-5-7, Components with post (DIP) leads, on two sides

The committee has decided that the contents of this publication will remain unchanged until 2004. At this date, the publication will be

- reconfirmed;
- withdrawn;
- replaced by a revised edition, or
- amended.

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PRINTED BOARDS AND PRINTED BOARD ASSEMBLIES – DESIGN AND USE –

Part 5-1: Attachment (land/joint) considerations – Generic requirements

1 Scope and object

This part of IEC 61188 provides information on land pattern geometries used for the surface attachment of electronic components. The intent of the information presented herein is to provide the appropriate size, shape and tolerance of surface-mount land patterns to insure sufficient area for the appropriate solder fillet, and also to allow for inspection, testing, and rework of those solder joints.

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 60097, *Grid systems for printed circuits*

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

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

IEC 61191-1, *Printed board assemblies – Part 1: Generic specification – Requirements for soldered electrical and electronic assemblies using surface mount and related assembly technologies*

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

IEC 61192-1, *Soldered electronic assemblies – Part 1: Workmanship requirements – General*¹⁾

IEC 61192-2, *Soldered electronic assemblies – Part 2: Workmanship requirements – Surface mounted assemblies*¹⁾

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

IEC 62326 (all parts), *Printed boards*

¹⁾ To be published.

3 Terms and definitions

For the purposes of this part of IEC 61188, the terms and definitions given in English only in IEC 60194¹⁾ and the following apply.

3.1

assembly

number of parts, subassemblies or combinations thereof joined together

[IEC 60194]

3.2

assembly, double-sided

packaging and interconnecting structure with components mounted on both the primary and secondary sides

3.3

assembly, multilayer printed circuit (wiring)

multilayer printed circuit or printed wiring board on which separately manufactured components and parts have been added

3.4

assembly, packaging and interconnecting (P&IA)

generic term for an assembly that has electronic components mounted on either one or both sides of a packaging and interconnecting structure

3.5

assembly, printed board

assembly of several printed circuit assemblies or printed wiring assemblies, or both

3.6

assembly, printed circuit (wiring)

printed circuit or printed wiring board on which separately manufactured components and parts have been added

3.7

assembly, single-sided

packaging and interconnecting structure with components mounted only on the primary side

3.8

base material

insulating material upon which a conductive pattern may be formed (the base material may be rigid or flexible, or both. It may be a dielectric or insulated metal sheet)

[IEC 60194]

3.9

basic dimension

numerical value used to describe the theoretical exact location of a feature or hole (it is the basis from which permissible variations are established by tolerance on other dimensions in notes or by feature-control symbols)

[IEC 60194]

¹⁾ Certain definitions of IEC 60194 have been translated into French.